



## PROGRAMME OUTCOMES (POs)

### REGULATIONS – R2013 & R2017

#### **B.E. CIVIL ENGINEERING**

1. Graduates will demonstrate knowledge of mathematics, science and engineering.
2. Graduates will demonstrate an ability to identify, formulate and solve engineering problems.
3. Graduate will demonstrate an ability to design and conduct experiments, analyze and interpret data.
4. Graduates will demonstrate an ability to design a system, component or process as per needs and specifications.
5. Graduates will demonstrate an ability to visualize and work on laboratory and multidisciplinary tasks.
6. Graduate will demonstrate skills to use modern engineering tools, software and equipment to analyze problems.
7. Graduates will demonstrate knowledge of professional and ethical responsibilities.
8. Graduate will be able to communicate effectively in both verbal and written form.
9. Graduate will show the understanding of impact of engineering solutions on the society and also will be aware of contemporary issues.
10. Graduate will develop confidence for self-education and ability for life-long learning

#### **B.E. COMPUTER SCIENCE AND ENGINEERING, B.E. ELECTRONICS AND COMMUNICATION ENGINEERING, B.TECH INFORMATION TECHNOLOGY**

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.



6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

## **B.E. ELECTRICAL AND ELECTRONICS ENGINEERING**

1. Apply the Mathematical knowledge and the basics of Science and Engineering to solve the problems pertaining to Electronics and Instrumentation Engineering.
2. Identify and formulate Electrical and Electronics Engineering problems from research literature and be able to analyze the problem using first principles of Mathematics and Engineering Sciences.
3. Come out with solutions for the complex problems and to design system components or process that fulfill the particular needs taking into account public health and safety and the social, cultural and environmental issues.
4. Draw well-founded conclusions applying the knowledge acquired from research and research methods including design of experiments, analysis and interpretation of data and synthesis of information and to arrive at significant conclusion.
5. Form, select and apply relevant techniques, resources and Engineering and IT tools for Engineering activities like electronic prototyping, modeling and control of systems and also being conscious of the limitations.
6. Understand the role and responsibility of the Professional Electrical and Electronics Engineer and to assess societal, health, safety issues based on the reasoning received from the contextual knowledge.



7. Be aware of the impact of professional Engineering solutions in societal and environmental contexts and exhibit the knowledge and the need for Sustainable Development.
8. Apply the principles of Professional Ethics to adhere to the norms of the engineering practice and to discharge ethical responsibilities.
9. Function actively and efficiently as an individual or a member/leader of different teams and multidisciplinary projects.
10. Communicate efficiently the engineering facts with a wide range of engineering community and others, to understand and prepare reports and design documents; to make effective presentations and to frame and follow instructions.
11. Demonstrate the acquisition of the body of engineering knowledge and insight and Management Principles and to apply them as member / leader in teams and multidisciplinary environments.
12. Recognize the need for self and life-long learning, keeping pace with technological challenges in the broadest sense.

## **B.E. MECHANICAL ENGINEERING**

1. An ability to apply knowledge of mathematics and engineering sciences to develop mathematical models for industrial problems.
2. An ability to identify, formulate, and solve complex engineering problems. with high degree of competence.
3. An ability to design and conduct experiments, as well as to analyze and interpret data obtained through those experiments.
4. An ability to design mechanical systems, component, or a process to meet desired needs within the realistic constraints such as environmental, social, political and economic sustainability.
5. An ability to use modern tools, software and equipment to analyze multidisciplinary problems.
6. An ability to demonstrate on professional and ethical responsibilities.
7. An ability to communicate, write reports and express research findings in a scientific community.
8. An ability to adapt quickly to the global changes and contemporary practices.
9. An ability to engage in life-long learning.

## **MASTER OF BUSINESS ADMINISTRATION (GENERAL)**

1. Ability to apply the business acumen gained in practice.
2. Ability to understand and solve managerial issues.
3. Ability to communicate and negotiate effectively, to achieve organizational and individual goals.



4. Ability to upgrade their professional and managerial skills in their workplace.
5. Ability to explore and reflect about managerial challenges, develop informed managerial decisions in a dynamically unstable environment.
6. Ability to take up challenging assignments.
7. Ability to understand one's own ability to set achievable targets and complete them.
8. Ability to pursue lifelong learning.
9. To have a fulfilling business career.

## **M.E. INDUSTRIAL SAFETY ENGINEERING**

1. Apply knowledge of Mathematics, Science, Engineering fundamentals and an engineering Specialization for hazard identification, risk assessment, analysis the source of incidents and control of occupational Dieses & hazards.
2. Design, Establish, Implement maintain and continually improve an occupation health and safety management system to improve safety.
3. Conduct investigations on unwanted incidents using e.g. (Root cause analysis, what if analysis) and generate corrective and preventive action to prevent repetition and happening of such incidents.
4. Design complex man, machine, and material handling systems using human factors engineering tools so as to achieve comfort, worker satisfaction, efficiency, error free and safe work practice workplace environment.
5. Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings so as to provide practical solutions to safety problems.
6. Communicate effectively on occupational health and safety matters among the employees and with society at large.
7. Demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to occupation health and safety practices.
8. Understand and commit to comply with legal and contractual requirements, professional ethics and responsibilities and general norms of engineering practice.
9. Understand the impact of Health safety and environment solutions on productivity, quality and humanity protection at large.
10. Demonstrate the use of state of the art occupational health and safety practices in controlling risks of complex engineering activities and understand their limitations.



## **PROGRAM SPECIFIC OBJECTIVES (PSOs)**

### **B.E. CIVIL ENGINEERING**

1. To function as the design consultants in construction industry for designing the civil engineering structures
2. To gain knowledge on various aspects of civil engineering like material and human resource management and project scheduling.

### **B.E. COMPUTER SCIENCE AND ENGINEERING**

1. To analyze, design and develop computing solutions by applying foundational concepts of Computer Science and Engineering.
2. To apply software engineering principles and practices for developing quality software for scientific and business applications.
3. To adapt to emerging Information and Communication Technologies (ICT) to innovate ideas and solutions to existing/novel problems.

### **B.E. ELECTRONICS AND COMMUNICATION ENGINEERING**

1. To analyze, design and develop solutions by applying foundational concepts of electronics and communication engineering.
2. To apply design principles and best practices for developing quality products for scientific and business applications.
3. To adapt to emerging information and communication technologies (ICT) to innovate ideas and solutions to existing/novel problems.

### **B.E. ELECTRICAL AND ELECTRONICS ENGINEERING**

1. Capable to acquire knowledge on use of modern engineering tools and equipments to analyze problems necessary for electrical engineering practice
2. Providing engineers with contemporary knowledge about electrical engineering and skills needed to fulfill the needs of society.

### **B.TECH INFORMATION TECHNOLOGY**

1. To create, select, and apply appropriate techniques, resources, modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
2. To manage complex IT projects with consideration of the human, financial, ethical and environmental factors and an understanding of risk management processes, and operational and policy implications



## B.E. MECHANICAL ENGINEERING

1. An ability to identify, analyze and solve engineering problems relating to mechanical systems together with allied engineering streams.
2. An ability to build the nation, by imparting technological inputs and managerial skills to become Technocrats and Entrepreneurs, build the attitude of developing new concepts on emerging fields and pursuing advanced education.

### COURSE OUTCOMES (COs)

#### REGULATIONS – 2013

## DEPARTMENT OF CIVIL ENGINEERING

### SEMESTER I

#### SUB CODE / SUBJECT NAME: HS6151/ TECHNICAL ENGLISH - I

#### YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C101.1 (CO1)	Define the fundamentals of engineering after learning the rules of English Grammar.
C101.2 (CO2)	Observe and interpret the contextual knowledge by speaking, listening and reading the social issues such as public health, safety, legal and culturally related considerations.
C101.3 (CO3)	Apply the creative, appropriate techniques, resources to analyze complex engineering problems by interactive exercises such as interviews and dialogue-writing.
C101.4 (CO4)	Design the multidisciplinary settings to manage projects as an individual, as a member or leader after taking the exercises like role-play, group discussion and making presentations
C101.5 (CO5)	Model the life-long learning methods suitable for all the environments committed to professional ethics and responsibilities after inculcating the habit of reading and writing
C101.6 (CO6)	Analyze and identify the root for an effective managerial skills through different spoken discourse and excerpts

#### SUB CODE / SUBJECT NAME: MA6151/ ENGINEERING MATHS - I

#### YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C102.1 (CO1)	Define Eigen values and Eigen vectors and explain how to analyze the stability of a system using these concepts and many other real time application in engineering.
C102.2 (CO2)	Explain the physical interpretation of divergence, curl and gradient of a vector field and also how to apply these concepts in solving engineering problems.
C102.3 (CO3)	Define the convergence of a sequence and series and make the student knowledgeable in the area of infinite series and their convergence so that he/ she will be familiar with limitations of using infinite series approximations for solutions arising in mathematical modeling
C102.4 (CO4)	Introduce the concept of multivariable functions of real variables arise inevitably in engineering and physics due to any one physical quantity will generally depend on a number of other quantities and help to solve real time problems.



<b>C102.5 (CO5)</b>	Extend the concept of single integral to multiple integral and explain how to evaluate it. Also explain the idea of change of order of integration and explain how to find Area and volume of solids
<b>C102.6 (CO6)</b>	Understand various mathematical tools and apply it to solve the engineering problems most effectively

**SUB CODE / SUBJECT NAME: PH6151/ ENGINEERING PHYSICS - I**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C103.1 (CO1)</b>	To understand the possible crystal structures and to analyze various growth techniques in the view of increasing demand of crystals for various Engineering and Technological applications.
<b>C103.2 (CO2)</b>	To understand the basic concepts of elastic behavior of materials and evaluate the structural stability of beams. Remembering functional ideas of thermal physics and compare the thermal conductivity of different materials to meet the specific needs
<b>C103.3 (CO3)</b>	Describe and analyzing the quantum nature of radiation and matter to solve the real time societal and technological problems.
<b>C103.4 (CO4)</b>	The significance of frequency dependent sound waves is discussed and to solve the Medical and Engineering problems using ultrasonic's.
<b>C103.5 (CO5)</b>	To discuss the propagation of light in optical fibers, compare various types of fibers and its applications in Medical and Engineering fields
<b>C103.6 (CO6)</b>	To make the students understand the fundamentals of Physics to solve complex engineering problems for benefit of the society

**SUB CODE / SUBJECT NAME: CY6151/ ENGINEERING CHEMISTRY - I**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C104.1 (CO1)</b>	To apply and implement the knowledge of synthesis and uses of polymers in industries and environment
<b>C104.2 (CO2)</b>	To analyze and understand the concepts of thermodynamic laws in various industrial applications
<b>C104.3 (CO3)</b>	To understand and remember the concepts of photo physical, photochemical process and spectroscopy for getting knowledge in light emitting properties of compounds and identifying the functional groups of molecules
<b>C104.4 (CO4)</b>	Knowledge of alloys gives an idea about the manufacturing process in various industries
<b>C104.5 (CO5)</b>	To create the knowledge of nonmaterial's and their applications in fields like medicinal, electrical, electronic, chemical, etc
<b>C104.6 (CO6)</b>	The knowledge gained on polymer chemistry, Thermodynamics, Spectroscopy, phase rule and nano materials will provide a strong platform to understand the concept on various fields like mechanical, electrical, civil engineering for further learning



**SUB CODE / SUBJECT NAME: GE6151/ COMPUTER PROGRAMMING**  
**YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C105.1 (CO1)	Understand the organization of a digital computer.
C105.2 (CO2)	Be exposed to the number systems
C105.3 (CO3)	Ability to think logically and write pseudo code or draw flow charts for problems.
C105.4 (CO4)	Ability to use arrays, strings, functions, pointers, structures and unions in C.
C105.5 (CO5)	Design C Programs for problems
C105.6 (CO6)	Write and execute C programs for simple applications

**SUB CODE / SUBJECT NAME: GE6152/ ENGINEERING GRAPHICS**  
**YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C106.1 (CO1)	How to draw different engineering curves, draw different orthographic projections.
C106.2 (CO2)	Illustrate different views of points, lines and planes inclined to both HP and VP in the first quadrant.
C106.3 (CO3)	Develop the projections of simple solids inclined to any one plane
C106.4 (CO4)	Categorize Section and develop various solids
C106.5 (CO5)	Evaluate to Draw 3D projections of simple solids by Perspective by visual ray method and Isometric projections
C106.6 (CO6)	Build an engineering component using Paper drawing as well as in CAD

**SUB CODE / SUBJECT NAME: GE6161/ COMPUTER PRACTICES LABORATORY**  
**YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C107.1 (CO1)	Be familiar with the use of Office software.
C107.2 (CO2)	Be exposed to presentation and visualization tools.





<b>C107.3</b> <b>(CO3)</b>	Be exposed to problem solving techniques and flow charts.
<b>C107.4</b> <b>(CO4)</b>	Apply good programming design methods for program development.
<b>C107.5</b> <b>(CO5)</b>	Design and implement C programs for simple applications.
<b>C107.6</b> <b>(CO6)</b>	Develop recursive programs.

**SUB CODE / SUBJECT NAME: GE6162/ ENGINEERING PRACTICES LABORATORY**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C108.1</b> <b>(CO1)</b>	Hands on experience on welding, sheet metal and lathe works
<b>C108.2</b> <b>(CO2)</b>	Experience the plumbing and carpentry work
<b>C108.3</b> <b>(CO3)</b>	Demonstration on centrifugal pump and air conditioning working principles
<b>C108.4</b> <b>(CO4)</b>	Measurement of Electrical quantities, earthing procedures, wiring methods etc
<b>C108.5</b> <b>(CO5)</b>	Study of Electronic components and equipments – Resistor, colour coding measurement of AC signal parameter, Gates , Circuits etc
<b>C108.6</b> <b>(CO6)</b>	Provide exposure to the students with hands-on experience on various basic engineering practices in Civil, Mechanical, Electrical and Electronics Engineering.

**SUB CODE / SUBJECT NAME: GE6163/ PHYSICS AND CHEMISTRY LAB - I**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C109.1</b> <b>(CO1)</b>	To apply the physics principles of Thermal physics and Properties of Matter to evaluate properties of materials
<b>C109.2</b> <b>(CO2)</b>	To understand measurement technique and usage of new instrument in Optics for real time application in Engineering .
<b>C109.3</b> <b>(CO3)</b>	Apply the concept of Ultrasonic to determine the physical parameters
<b>C109.4</b> <b>(CO4)</b>	Able to analyze the quality of water for domestic and industrial purpose
<b>C109.5</b> <b>(CO5)</b>	Used to find out the emf for different metallic solutions from which electrode potential is determined
<b>C109.6</b> <b>(CO6)</b>	To acquire knowledge about the conductivity of acids and bases



## SEMESTER II

### SUB CODE / SUBJECT NAME: HS6251/ TECHNICAL ENGLISH-II YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C110.1 (CO1)	Define the impact of the professional engineering solution in societal and environmental contexts with the help of the basic grammar taught to communicate effectively and confidently
C110.2 (CO2)	Observe the usage of modern engineering and IT tools in designing and developing solutions after developing their reading skills with different types of reading strategies.
C110.3 (CO3)	Apply the creative, appropriate techniques, resources to analyze complex engineering problems by interactive exercises like sample interviews and dialogue – writing.
C110.4 (CO4)	Analyze the engineering and Project management principles in consequence of the listening and speaking skills acquired during the classroom activities.
C110.5 (CO5)	Model the time varying natural and engineering sciences after learning to write an imaginary reports, essays, process description, and visualizing materials
C110.6 (CO6)	Understand the responsibilities relevant to the professional engineering practice after reading the different genres of texts.

### SUB CODE / SUBJECT NAME: MA6251/ MATHEMATICS-II YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C111.1 (CO1)	Apply the knowledge of techniques in solving ordinary differential equations that model engineering problems.
C111.2 (CO2)	Define and understand the concepts of vector calculus, needed for problems in all engineering disciplines.
C111.3 (CO3)	Develop an understanding of the standard techniques of complex variable theory so as to enable the student to apply them with confidence, in application areas such as heat conduction, elasticity, fluid dynamics and flow the of electric current.
C111.4 (CO4)	Evaluate real integrals by applying concept of complex integration
C111.5 (CO5)	Understand and apply the knowledge of Laplace Transforms in solving system of linear differential equations.
C111.6 (CO6)	Introduces fundamental knowledge in mathematics that is applicable in the Engineering aspects.

### SUB CODE / SUBJECT NAME: PH6251/ ENGINEERING PHYSICS-II YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C112.1 (CO1)	To understand the basic principles of the electrical and thermal conductivity of metals and to analyze the electron behavior by classical and quantum theories.



<b>C112.2</b> <b>(CO2)</b>	To discuss the electron behavior in conduction and valence band in semiconducting materials, comparing the mobility and carrier concentration of N and P type semiconductors by theoretical method and applying Hall effect experimental method for biasing application.
<b>C112.3</b> <b>(CO3)</b>	To identify the different types of magnetic materials based on the atomic magnetic dipoles and utilize them for different technological applications. To explain the superconducting behaviors of materials and to solve real time medical and engineering applications.
<b>C112.4</b> <b>(CO4)</b>	To describe different polarization mechanism in dielectric materials and to meet the specific need in energy sector.
<b>C112.5</b> <b>(CO5)</b>	State and explain modern engineering materials such as metallic glasses, shape memory alloys, Nonmaterial's and NLO materials to design new engineering devices
<b>C112.6</b> <b>(CO6)</b>	To emphasize the role of conventional and modern engineering materials in Technological applications for the sustainable development of the society

**SUB CODE / SUBJECT NAME: CY6251/ENGINEERING CHEMISTRY-II**  
**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C113.1</b> <b>(CO1)</b>	To gain knowledge about water quality parameters to analyze and provide them with latest equipment and technologies by using external and internal treatments
<b>C113.2</b> <b>(CO2)</b>	To impart knowledge in principles of electrochemical reactions, redox reactions in corrosion of materials and methods for corrosion prevention and protection of materials
<b>C113.3</b> <b>(CO3)</b>	To understand the principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells
<b>C113.4</b> <b>(CO4)</b>	To get adequate knowledge in preparation, properties and applications of engineering materials
<b>C113.5</b> <b>(CO5)</b>	Analyze issues related to fuels and their synthesis and able to understand working of IC and diesel engines
<b>C113.6</b> <b>(CO6)</b>	The knowledge gained on engineering materials, fuels, energy sources and water treatment techniques will facilitate better understanding of engineering processes and applications for further learning

**SUB CODE / SUBJECT NAME: GE6252/Basic Electrical and Electronics Engineering**  
**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C114.1</b>	Apply the basic laws of electricity to DC and AC circuits
<b>C114.2</b>	Describe the construction,operation & application of dc machine,single phase induction motor and transformers.
<b>C114.3</b>	Acquire the knowledge about the characteristics and working principles of semiconductor devices- diode, transistor and rectifier
<b>C114.4</b>	Analyze the basics of digital devices like logic gates, counters, flip-flops analog to digital converts and digital to analog converters.



<b>C114.5</b>	Explain the fundamental knowledge on signals and basic block diagram of communication systems such as radio, radar, fax
<b>C114.6</b>	Recommend the electrical and electronics engineering concepts and applications essential for them to work in different industries and also motivate them to do higher studies

**SUB CODE / SUBJECT NAME: GE6253/Engineering Mechanics**  
**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C115.1</b>	Extend the knowledge in force analysis
<b>C115.2</b>	Apply the knowledge in Beam force analysis
<b>C115.3</b>	Determination of Centroid and Center of gravity
<b>C115.4</b>	Extend and Apply the knowlege in Dynamic analysis
<b>C115.5</b>	Evaluation of Friction Force in system
<b>C115.6</b>	Analysis the free body diagram of the system

**SUB CODE / SUBJECT NAME: GE6262/PHYSICS AND CHEMISTRY LAB-II**  
**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C116.1 (CO1)</b>	Apply the knowledge of semiconducting material to evaluate the band gap of the material useful for engineering solutions.
<b>C116.2 (CO2)</b>	Apply the concept of elasticity to analyze the properties related to multidisciplinary field
<b>C116.3 (CO3)</b>	To demonstrate an experiment using spectrometer to determine the refractive index of various color and dispersive power of the material of the given prism and to develop instrument handling skill.
<b>C116.4 (CO4)</b>	Able to analyze the quality of water for domestic and industrial purpose
<b>C116.5 (CO5)</b>	Used to find out the Emf for different metallic solutions from which electrode potential is determined
<b>C116.6 (CO6)</b>	To acquire knowledge about the conductivity of acids and bases



## SEMESTER III

### SUB CODE/SUBJECT NAME: MA6351-TRANSFORM AND PARTIAL DIFFERENTIAL EQUATIONS YEAR / SEM: II/III

Course Code	COURSE OUTCOMES
C201.1 (CO1)	Using Dirchlet's conditions, solving Fourier series problems..
C201.2 (CO2)	To know the basic properties of the Fourier transform, describe the Fourier integral theorem and convolution theorem.
C201.3 (CO3)	To describe real time engineering problems using PDEs
C201.4 (CO4)	To apply Fourier series methods to solve boundary value problems.
C201.5 (CO5)	To use the Z- transform as the tool to connect the time domain and frequency domain in signal processing.
C201.6 (CO6)	The course will also serve as a prerequisite for post graduate and specialized studies and research

### SUB CODE/SUBJECT NAME: –GE6351-ENVIRONMENTAL SCIENCE AND ENGINEERING

#### YEAR / SEM: II/III

Course Code	COURSE OUTCOMES
C202.1 (CO1)	Using Dirchlet's conditions, solving Fourier series problems..
C202.2 (CO2)	To know the basic properties of the Fourier transform, describe the Fourier integral theorem and convolution theorem.
C202.3 (CO3)	To describe real time engineering problems using PDEs
C202.4 (CO4)	To apply Fourier series methods to solve boundary value problems.
C202.5 (CO5)	To use the Z- transform as the tool to connect the time domain and frequency domain in signal processing.
C202.6 (CO6)	The course will also serve as a prerequisite for post graduate and specialized studies and research

### SUB CODE/SUBJECT NAME: CE6301-ENGINEERING GEOLOGY

#### YEAR / SEM: II/III

R 2013	C203	CE6301	ENGINEERING GEOLOGY	L	T	P	C
				3	0	0	3
C203.1	Able to understand the importance of geological knowledge such as earth action of various geological agencies						



C203.2	Able to choose the types of minerals and other related aspects.
C203.3	Able to identify geological structures and processes for rock mass quality
C203.4	Able to identify subsurface information and groundwater potential sites through geophysical investigations
C203.5	Able to utilize the knowledge in projects such as dams, tunnels, bridges, roads, airport and harbor

## SUB CODE/SUBJECT NAME: CE602 MECHANICS OF SOLIDS

YEAR / SEM: II/III

R 2013	C204	CE6302	MECHANICS OF SOLIDS	L	T	P	C
				3	1	0	4
C204.1	Able to learn fundamental concepts of stress, strain and deformation of solids with applications to bars, beams and thin cylinders.						
C204.2	Able to analyse determinate beams and trusses to determine shear forces, bending moments and axial forces.						
C204.3	Able to know the mechanism of load transfer in beams, the induced stress resultants and deformations						
C204.4	Able to understand the effect of torsion on shafts and springs.						
C204.5	Able to analyse a complex two dimensional state of stress and plane trusses						

## SUB CODE/SUBJECT NAME: CE6303 MECHANICS OF FLUIDS

YEAR / SEM: II/III

R 2013	C205	CE6303	MECHANICS OF FLUIDS	L	T	P	C
				3	0	0	3
C205.1	Able to understand the significance of basic principles of fluid statics and application of Hydrostatic law.						
C205.2	Able to get a basic knowledge of fluids in kinematic and dynamic equilibrium and also measurement of discharge in pipes.						
C205.3	Able to compute the friction loss in laminar and turbulent flows.						
C205.4	Able to understand the concept of hydrodynamic properties						
C205.5	Able to understand the fundamentals of dimensional analysis and application of buckingham theorem in fluid flow problem						



## SUB CODE/SUBJECT NAME: CE6304 SURVEYING

### I YEAR / SEM: II/III

R 2013	C206	CE6304	SURVEYING I	L	T	P	C
				3	0	0	3
C206.1	Able to understand the principles of various surveying methods and applications to Civil Engineering projects						
C206.2	Able to Calculate angles, distances and levels						
C206.3	Estimate measurement errors and apply corrections						
C206.4	Able to prepare LS & CS, contour maps and carryout surveying works related to land and civil engineering projects.						
C206.5	Able to measure the horizontal distances, difference in elevation						

## SUB CODE/SUBJECT NAME: CE6311 Survey Practical I

### YEAR / SEM: II/III

R 2013	C207	CE6311	Survey Practical I	L	T	P	C
				0	0	4	2
C207.1	Able to apply the principles of surveying in field.						
C207.2	Able to Identify data collection methods and prepare field notes						
C207.3	Able to handling basic survey instruments including leveling						
C207.4	Able to development of contour map of given area						
C207.5	Able to possess knowledge about theodolite						

## SUB CODE/SUBJECT NAME: CE6312 Computer Aided Building Drawing

### YEAR / SEM: II/III

R 2013	C208	CE6312	Computer Aided Building Drawing	L	T	P	C
				0	0	4	2
C208.1	Able to Understanding the basic commands, principles and features behind autocad.						
C208.2	Able to Utilize CAD software for scaled drawing.						
C208.3	Able to draft the plan, elevation and sectional views of buildings						
C208.4	Able to develop and control rules satisfying orientation						
C208.5	Able to understand the functional requirements as per National Building Code.						



## IV SEMESTER

**SUB CODE/SUBJECT NAME: CE6401 Construction Materials**

**YEAR / SEM: II/IV**

R 2013	C210	CE6401	Construction Materials	L	T	P	C
				3	0	0	3
C210.1	Able to compare the properties of most common and advanced building materials						
C210.2	Able to understand the typical and potential applications of these materials						
C210.3	Able to understand the relationship between material properties and structural form						
C210.4	Able to understand the importance of experimental verification of material properties						
C210.5	Able to Gain knowledge in modern materials to be used						

**SUB CODE/SUBJECT NAME: CE6402 Strength of Materials**

**YEAR / SEM: II/IV**

R 2013	C211	CE6402	Strength of Materials	L	T	P	C
				3	1	0	4
C211.1	Able to calculate slope and deflection of beams and trusses using energy theorems						
C211.2	Able to know the concept of analysing indeterminate beam						
C211.3	Able to assess the behaviour of columns, beams and failure of materials.						
C211.4	Able to Understand, combined stresses using the fundamental concepts of stress, Strain and elastic behavior of materials.						
C211.5	Able to determine the stresses due to unsymmetrical bending and various theories for failure of material.						

**SUB CODE/SUBJECT NAME: CE6403 Applied Hydraulic Engineering**

**YEAR / SEM: II/IV**

R 2013	C212	CE6403	Applied Hydraulic Engineering	L	T	P	C
				3	1	0	4
C212.1	Able to apply their knowledge of fluid mechanics in addressing problems in open channels.						
C212.2	Able to Derive the governing equations for open channel flow						
C212.3	Able to Understand the flow profiles in channel transitions and analyze hydraulic transients						





C212.4	Able to solve problems in uniform, gradually and rapidly varied flows in steady state conditions.
C212.5	Able to Evaluate the working proportions of hydraulic machines

**SUB CODE/SUBJECT NAME: CE6404 Surveying II**

**YEAR / SEM: II/IV**

R 2013	C213	CE6404	Surveying II	L	T	P	C
				3	0	0	3
C213.1	Able to Understand the geodetic measurements and Control Survey methodology						
C213.2	Able to Estimate measurement errors and apply corrections						
C213.3	Understand the advantages of electronic surveying over conventional surveying methods						
C213.4	Understand the working principle of GPS, its components, signal structure, and error sources						
C213.5	Able to understand the concept of sounding and Remote Sensing						

**SUB CODE/SUBJECT NAME: CE6405 SOIL MECHANICS**

**YEAR / SEM: II/IV**

R 2013	C214	CE6405	Soil Mechanics	L	T	P	C
				3	0	0	3
C214.1	Able to Characterize and classify soils and also determine Index properties						
C214.2	Able to understands the concepts of stress and permeability in soils						
C214.3	Able to Compute and analyze the consolidation settlements						
C214.4	Able to Identify shear strength parameters for field conditions						
C214.5	Able to understands the concepts of stability analysis of slope						

**SUB CODE/SUBJECT NAME: CE6411 STRENGTH OF MATERIALS LABORATORY**

**YEAR / SEM: II/IV**

2013	C215	CE6411	Strength of Materials Laboratory	L	T	P	C
				0	0	3	2
C215.1	Able to Understand the knowledge about properties of surfaces and solids.						
C215.2	Able to calculate the impact tests on steel bar						
C215.3	Able to perform flexural and torsion test to determine elastic constants						



C215.4	Able to Conduct compression tests on spring, wood and concrete
C215.5	Able to calculate the deflection of springs

## SUB CODE/SUBJECT NAME: CE6412 Hydraulic Engineering Laboratory

YEAR / SEM: II/IV

R 2013	C216	CE6412	Hydraulic Engineering Laboratory	L	T	P	C
				0	0	3	2
C216.1	Able to Calibrate flow measuring devices used in pipes, channels and tanks						
C216.2	Able to determine frictional losses in pipes						
C216.3	Able to have an idea about regulating the water supply system						
C216.4	Able to develop characteristics of pumps and turbines						
C216.5	Able to study about parameters in floating bodies						

## SUB CODE/SUBJECT NAME: CE6413 Survey Practical II

YEAR / SEM: II/IV

R 2013	C217	CE6413	Survey Practical II	L	T	P	C
				0	0	4	2
C217.1	Able to apply advanced surveying techniques in different fields.						
C217.2	Able to mark the control points in field						
C217.3	Able to locate the curve points in road and Railways						
C217.4	Able to find the latitude and longitude of the traverse stations.						
C217.5	Able to apply total station and EDM in distance measurement and traversing						

## IV SEMESTER

### SUB CODE/SUBJECT NAME: CE6501 Structural Analysis I

YEAR / SEM: III/V

R 2013	C301	CE6501	Structural Analysis I	L	T	P	C
				3	1	0	4
C301.1	Able to analysis of indeterminate structures						
C301.2	Able to analyse structures for moving loads with the concept of ILD						
C301.3	Able to develop a preliminary guide for the analysis and design of symmetrical arches						
C301.4	Able to conversant with classical methods of analysis.						
C301.5	Able to understand the concept of carryover factor & distribution factor.						



## SUB CODE/SUBJECT NAME: CE6502 Foundation Engineering

YEAR / SEM: III/V

R 2013	C302	CE6502	Foundation Engineering	L	T	P	C
				3	0	0	3
C302.1	Able To impart knowledge on common method of sub soil investigation						
C302.2	Able to understand the concept to design the shallow foundation						
C302.3	Able to select type of foundation required for the soil at a place						
C302.4	Able to get design concept of deep foundation						
C302.5	Able to get knowledge in earth pressure theory						

## SUB CODE/SUBJECT NAME: CE6503 Environmental Engineering I

YEAR / SEM: III/V

R 2013	C303	CE6503	Environmental Engineering I	L	T	P	C
				3	0	0	3
C303.1	Able to introduce the water supply system and population forecasting.						
C303.2	Able to understand the conversant with different intake structures and conveyance system						
C303.3	able to impart the knowledge on design of treatment process						
C303.4	able to understand various advanced water treatment process						
C303.5	able to impart knowledge on water distribution, network design.						

## SUB CODE/SUBJECT NAME: CE6504 -Highway Engineering

YEAR / SEM: III/V

R 2013	C304	CE6504	Highway Engineering	L	T	P	C
				3	0	0	3
C304.1	Able to acquire knowledge on highway planning as per IRC						
C304.2	Able to Understand concept of Geometric design of roads						
C304.3	Able to Understand concept of Design flexible and rigid pavements.						
C304.4	Able to Understand various Highway materials and their suitability under different conditions						
C304.5	Able to evaluate and maintain highways as per IRC standards						



## SUB CODE/SUBJECT NAME: **CE6505 Design of Reinforced Concrete Elements**

**YEAR / SEM: III/V**

R 2013	C305	CE6505	Design of Reinforced Concrete Elements	L	T	P	C
				3	0	0	3
C305.1	Able to understand the basics of concrete design						
C305.2	Able to emphasize the design of structural elements by limit state design method						
C305.3	Able to understand the concrete of shear, bond and torsion						
C305.4	Able to design the vertical compression member						
C305.5	Able to understand the phenomenon about footing design.						

## SUB CODE/SUBJECT NAME: **CE6506 Construction Techniques, Equipment and Practice**

**YEAR / SEM: III/V**

R 2013	C306	CE6506	Construction Techniques, Equipment and Practice	L	T	P	C
				3	0	0	3
C306.1	Able to have basic knowledge about properties of concrete						
C306.2	Able to know the various construction practices needed for different types of construction activities						
C306.3	Able to get knowledge about the various construction procedures for sub structure						
C306.4	Able to get knowledge about the various construction procedures for super structure						
C306.5	Identify the equipment used in construction						

## SUB CODE/SUBJECT NAME: **CE6511 Soil Mechanics Laboratory**

**YEAR / SEM: III/V**

R 2013	C308	CE6511	Soil Mechanics Laboratory	L	T	P	C
				0	0	4	2
C308.1	Able to find index properties of soils						
C308.2	Able to learn and acquire knowledge to classify soils.						
C308.3	Able to determine insitu test for soil density						
C308.4	Able to determine the moisture density relationship						
C308.5	Able to determine the permeability and shear strength of soil						



**SUB CODE/SUBJECT NAME: CE6512 Survey Camp**  
**YEAR / SEM: III/V**

R 2013	C309	CE6512	Survey Camp	L	T	P	C
				-	-	-	1
C309.1	Able to select the advanced surveying technique which is best suited for a work						
C309.2	Able to create the contour map of various field						
C309.3	Able to find the RL of inaccessible points						
C309.4	Able to understand the concept of astronomical surveying						
C309.5	Able to do the total station and EDM in distance measurement and traversing						

**SUB CODE/SUBJECT NAME: CE6601 Design of Reinforced Concrete & Brick Masonry Structures**  
**YEAR / SEM: III/VI**

R 2013	C310	CE6601	Design of Reinforced Concrete & Brick Masonry Structures	L	T	P	C
				3	0	0	3
C310.1	Able to impart the types of design retaining wall						
C310.2	Able to understand the pressure concepts in various types of water tanks						
C310.3	Able to enhance the design of staircase for various structures						
C310.4	Able to know the crack pattern I the slabs using yield line theory						
C310.5	Able to emphasize the construction of wall using brick masonry						

**SUB CODE/SUBJECT NAME: CE6602 Structural Analysis II**  
**YEAR / SEM: III/VI**

R 2013	C311	CE6602	Structural Analysis II	L	T	P	C
				3	1	0	4
C311.1	Able to understand the advance method of analysis						
C311.2	Ability to use matrix for solving analysis of structures						
C311.3	Able to get knowledge on basic elements used in finite element method						
C311.4	Able to estimate the collapse load and plastic moment for continuous beam						
C311.5	Able to estimate the force inn space truss and tension in suspension cables						



## SUB CODE/SUBJECT NAME: CE6603 Design of Steel Structures

YEAR / SEM: III/VI

R 2013	C312	CE6603	Design of Steel Structures	L	T	P	C
				3	1	0	4
C312.1	Able to get the knowledge about design of joints						
C312.2	Able to design the structural steel members subjected to tensile and compressive force						
C312.3	Able to understand the design concept of column and its functional requirements.						
C312.4	Able to design the beams under various loading and supporting conditions.						
C312.5	Able to know the design of structural systems such as roof trusses and gantry girder						

## SUB CODE/SUBJECT NAME: CE6604-Railways, Airports and Harbour Engineering

YEAR / SEM: III/VI

R 2013	C313	CE6604	Railways, Airports and Harbour Engineering	L	T	P	C
				3	0	0	3
C313.1	Able to Plan and Design various civil Engineering aspects of Railways						
C313.2	Able to have an idea about construction and maintenance systems in railway						
C313.3	Ability to create the layouts and components of airport						
C313.4	Able to evaluate the geometric design of airports.						
C313.5	Understand the various terms in harbor engineering and its classification.						

## SUB CODE/SUBJECT NAME: CE6605 Environmental Engineering II

YEAR / SEM: III/VI

R 2013	C314	CE6605	Environmental Engineering II	L	T	P	C
				3	0	0	3
C314.1	Able to impart knowledge on sewage generation and system						
C314.2	Able to understand conveyance of sewage						
C314.3	Able to impart knowledge on designing primary treatment of sewage						
C314.4	Able to impart knowledge on designing secondary treatment of sewage						
C314.5	Able to understand the disposal of sewage and sludge						

## SUB CODE/SUBJECT NAME: CE6611 Environmental Engineering laboratory

YEAR / SEM: III/VI

R 2013	C321	CE6611	Environmental Engineering laboratory	L	T	P	C
				0	0	3	2



C321.1	Able To understand the sampling and preservation methods
C321.2	Able to characterize wastewater and conduct treatability studies
C321.3	To understand the coagulation and precipitation process in wastewater treatment
C321.4	To impart the knowledge on extensive use of gas chromatography in characterization
C321.5	Able to detect the heavy metals.

## SUB CODE/SUBJECT NAME: CE6612 Concrete and Highway Engineering Laboratory

YEAR /SEM: III/VI

R 2013	C322	CE6612	Concrete and Highway Engineering Laboratory	L	T	P	C
				0	0	3	2
C322.1	To impart the knowledge of material testing for use in concrete						
C322.2	To understand the mix design for concrete						
C322.3	Able to determine the properties of fresh concrete						
C322.4	Able to determine the properties of hardened concrete						
C322.5	Able to know the techniques to characterize various pavement materials through relevant tests						

## VII SEMESTER

### SUB CODE/SUBJECT NAME: CE6701 Structural Dynamics and Earthquake Engineering

YEAR / SEM: IV/VII

R 2013	C401	CE6701	Structural Dynamics and Earthquake Engineering	L	T	P	C
				3	0	0	3
C401.1	Able to understand structural dynamics principles to e used in structure						
C401.2	Able to interpret the displacement in terms of mode shape						
C401.3	Able to get knowledge on basics of earthquake						
C401.4	Ability to design earthquake resistant structures						
C401.5	Able to understand the importance of ductility in structures						

### SUB CODE/SUBJECT NAME: CE6702 Prestressed Concrete Structures

YEAR / SEM: IV/VII

R 2013	C402	CE6702	Prestressed Concrete Structures	L	T	P	C
				3	0	0	3
C402.1	Able to understand the concept of prestressing in concrete structure						



C402.2	Able to get knowledge of analyzing a prestressed concrete section
C402.3	Able to estimate losses of prestressing and deflections
C402.4	Able to design pretension and post tension for flexure and shear members
C402.5	able to know the design concept of prestressing pipes, poles and water tank

## SUB CODE/SUBJECT NAME: CE6703 Water Resources and Irrigation Engineering

YEAR / SEM: IV/VII

R 2013	C403	CE6703	Water Resources and Irrigation Engineering	L	T	P	C
				3	0	0	3
C403.1	Able to have skills on planning and estimation of water requirement.						
C403.2	Able to differentiate the phases in Water Resources Management and National Water Policy.						
C403.3	able to get the knowledge about various modes of irrigation						
C403.4	able to understand the various functions of irrigation structures						
C403.5	Able to do economic analysis including Irrigation and Irrigation management practices.						

## SUB CODE/SUBJECT NAME: CE6704 Estimation and Quantity Surveying

YEAR / SEM: IV/VII

R 2013	C404	CE6704	Estimation and Quantity Surveying	L	T	P	C
				3	0	0	3
C404.1	Able to estimate the quantities of item of works involved in buildings						
C404.2	Able to estimate the water supply and sanitary works, road works and irrigation works						
C404.3	Able to prepare a bill of quantities, make specifications and prepare tender documents						
C404.4	Able to get the knowledge for valuation of properties						
C404.5	Able to prepare the reports for estimation of various items.						

## SUB CODE/SUBJECT NAME: CE6008 Groundwater Engineering(ELECTIVE –II)

YEAR / SEM: IV/VII

R 2013	C407	CE6008	Groundwater Engineering	L	T	P	C
				3	0	0	3
C407.1	Able to know the aquifer properties and its dynamics						
C407.2	Able to understand the principles of groundwater governing equations						
C407.3	Able to understand the techniques of development and management of groundwater						





C407.4	Able to understand concepts of groundwater quality.
C407.5	Able to understand the importance of artificial recharge

**SUB CODE/SUBJECT NAME: EN6501 Municipal Solid Waste Management(ELECTIVE-III)**

**YEAR / SEM: IV/VII**

R 2013	C413	EN6501	Municipal Solid Waste Management	L	T	P	C
				3	0	0	3
C413.1	Able to know the sources and characteristics of solid waste						
C413.2	Able to understand the merits of 3R's						
C413.3	Able to gain knowledge on collection, segregation and transfer of MSW						
C413.4	Able to understand the different processing methodology for MSW						
C413.5	Able to gain knowledge on effective disposal of MSW						

**SUB CODE/SUBJECT NAME: CE6711 Computer Aided Design and Drafting Laboratory**

**YEAR / SEM: IV/VII**

R 2013	C416	CE6711	Computer Aided Design and Drafting Laboratory	L	T	P	C
				0	0	4	2
C416.1	Able to understand the design and detailing of retaining wall						
C416.2	Able to know about the importance of detailing						
C416.3	Able to learn different types of concrete structures design						
C416.4	Able to learn the design and detailing of water tank structures						
C416.5	Able to learn the design and detailing of girder						

**SUB CODE/SUBJECT NAME: CE6712 Design Project**

**YEAR / SEM: IV/VII**

R 2013	C417	CE6712	Design Project	L	T	P	C
				0	0	4	2
C417.1	Will get experience in designing various design problems related to civil Engineering						
C417.2	Able to understand the meaning of team work						
C417.3	To impart and improve the design capability of the student						
C417.4	Analysis and design of structure to meet desired needs within realistic constraints						
C417.5	Able to improve the design of an RC structure						



## SEMESTER VIII

### SUB CODE/SUBJECT NAME: MG6851 – PRINCIPLES OF MANAGEMENT

#### YEAR / SEM: IV/VIII

Course Code	COURSE OUTCOMES
C418.1 (CO1)	To analyze the meaning of management, managers and to analyze the trends and challenges of management globally.
C418.2 (CO2)	To study about planning, its process MBO, various types of strategies policies decision making process
C418.3 (CO3)	To describe the organization structure, types of departmentation, delegation and decentralization and the staffing process.
C418.4 (CO4)	To analyze the motivation factors, leadership types and theories, to know the importance of communication, its methods and barriers and the organization culture.
C418.5 (CO5)	To explain the controlling types and process, the budgetary techniques and non-budgetary types. Identify the gap between actual and expected performance in organization.

### SUB CODE/SUBJECT NAME: CE6016-Prefabricated Structures (ELECTIVE–IV)

#### YEAR / SEM: IV/VIII

R 2013	C422	CE6016	Prefabricated Structures	L	T	P	C
				3	0	0	3
C422.1	Able to understand the principles and concept of prefabricated structure						
C422.2	Able to understand all components and its procedure of construction						
C422.3	Able to follow the techniques for all types of units						
C422.4	Able to understand connections for all joints in structural members						
C422.5	Able to relate the concept to abnormal loads relating progressive collapse						

### SUB CODE/SUBJECT NAME: CE6021 Repair and Rehabilitation of Structures

#### (ELECTIVE –V)

#### YEAR / SEM: IV/VIII

R 2013	C429	CE6021	Repair and Rehabilitation of Structures	L	T	P	C
				3	0	0	3
C429.1	To gain the knowledge on quality of concrete, durability aspects, causes of deterioration						
C429.2	To gain the knowledge on assessment of distressed structure						
C429.3	To gain the knowledge on repairing methodology of structure						
C429.4	To get to know about special concrete						
C429.5	To obtain more knowledge about retrofitting						



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**SUB CODE/SUBJECT NAME: CE6811 Project Work**

**YEAR / SEM: IV/VII**

R 2013	C431	CE6811	Project Work	L	T	P	C
				0	0	12	6
C431.1	Able to understand work methodology adopted in industry						
C431.2	Able to find solution for the difficulty during construction						
C431.3	Able to understand the meaning of teamwork						
C431.4	Able to give practical knowledge regarding projects						
C431.5	Able to give the idea to finish work on time						



## DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

### **SUB CODE / SUBJECT NAME: HS6151/ TECHNICAL ENGLISH - I** **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C101.1 (C01)	Define the fundamentals of engineering after learning the rules of English Grammar.
C101.2 (C02)	Observe and interpret the contextual knowledge by speaking, listening and reading the social issues such as public health, safety, legal and culturally related considerations.
C101.3 (C03)	Apply the creative, appropriate techniques, resources to analyze complex engineering problems by interactive exercises such as interviews and dialogue-writing.
C101.4 (C04)	Design the multidisciplinary settings to manage projects as an individual, as a member or leader after taking the exercises like role-play, group discussion and making presentations
C101.5 (C05)	Model the life-long learning methods suitable for all the environments committed to professional ethics and responsibilities after inculcating the habit of reading and writing
C101.6 (C06)	Analyze and identify the root for an effective managerial skills through different spoken discourse and excerpts

### **SUB CODE / SUBJECT NAME: MA6151/ ENGINEERING MATHS - I** **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C102.1 (C01)	Define Eigen values and Eigen vectors and explain how to analyze the stability of a system using these concepts and many other real time application in engineering.
C102.2 (C02)	Explain the physical interpretation of divergence, curl and gradient of a vector field and also how to apply these concepts in solving engineering problems.
C102.3 (C03)	Define the convergence of a sequence and series and make the student knowledgeable in the area of infinite series and their convergence so that he/ she will be familiar with limitations of using infinite series approximations for solutions arising in mathematical modeling
C102.4 (C04)	Introduce the concept of multivariable functions of real variables arise inevitably in engineering and physics due to any one physical quantity will generally depend on a number of other quantities and help to solve real time problems.
C102.5 (C05)	Extend the concept of single integral to multiple integral and explain how to evaluate it. Also explain the idea of change of order of integration and explain how to find Area and volume of solids
C102.6 (C06)	Understand various mathematical tools and apply it to solve the engineering problems most effectively

### **SUB CODE / SUBJECT NAME: PH6151/ ENGINEERING PHYSICS - I** **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C103.1 (C01)	To understand the possible crystal structures and to analyze various growth techniques in the view of increasing demand of crystals for various Engineering and Technological applications.



<b>C103.2 (C02)</b>	To understand the basic concepts of elastic behavior of materials and evaluate the structural stability of beams. Remembering functional ideas of thermal physics and compare the thermal conductivity of different materials to meet the specific needs
<b>C103.3 (C03)</b>	Describe and analyzing the quantum nature of radiation and matter to solve the real time societal and technological problems.
<b>C103.4 (C04)</b>	The significance of frequency dependent sound waves is discussed and to solve the Medical and Engineering problems using ultrasonic's.
<b>C103.5 (C05)</b>	To discuss the propagation of light in optical fibers, compare various types of fibers and its applications in Medical and Engineering fields
<b>C103.6 (C06)</b>	To make the students understand the fundamentals of Physics to solve complex engineering problems for benefit of the society

**SUB CODE / SUBJECT NAME: CY6151/ ENGINEERING CHEMISTRY - I  
YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C104.1 (C01)</b>	To apply and implement the knowledge of synthesis and uses of polymers in industries and environment
<b>C104.2 (C02)</b>	To analyze and understand the concepts of thermodynamic laws in various industrial applications
<b>C104.3 (C03)</b>	To understand and remember the concepts of photo physical, photochemical process and spectroscopy for getting knowledge in light emitting properties of compounds and identifying the functional groups of molecules
<b>C104.4 (C04)</b>	Knowledge of alloys gives an idea about the manufacturing process in various industries
<b>C104.5 (C05)</b>	To create the knowledge of nonmaterial's and their applications in fields like medicinal, electrical, electronic, chemical,etc
<b>C104.6 (C06)</b>	The knowledge gained on polymer chemistry, Thermodynamics, Spectroscopy, phase rule and nano materials will provide a strong platform to understand the concept on various fields like mechanical, electrical, civil engineering for further learning

**SUB CODE / SUBJECT NAME: GE6151/ COMPUTER PROGRAMMING  
YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C105.1 (C01)</b>	Understand the organization of a digital computer.
<b>C105.2 (C02)</b>	Be exposed to the number systems
<b>C105.3 (C03)</b>	Ability to think logically and write pseudo code or draw flow charts for problems.
<b>C105.4 (C04)</b>	Ability to use arrays, strings, functions, pointers, structures and unions in C.
<b>C105.5 (C05)</b>	Design C Programs for problems



<b>C105.6</b> <b>(C06)</b>	Write and execute C programs for simple applications
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**SUB CODE / SUBJECT NAME: GE6152/ ENGINEERING GRAPHICS**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C106.1</b> <b>(C01)</b>	How to draw different engineering curves, draw different orthographic projections.
<b>C106.2</b> <b>(C02)</b>	Illustrate different views of points, lines and planes inclined to both HP and VP in first quadrant.
<b>C106.3</b> <b>(C03)</b>	Develop the projections of simple solids inclined to any one plane
<b>C106.4</b> <b>(C04)</b>	Categorize Section and develop various solids
<b>C106.5</b> <b>(C05)</b>	Evaluate to Draw 3D projections of simple solids by Perspective by visual ray method and Isometric projections
<b>C106.6</b> <b>(C06)</b>	Build an engineering component using Paper drawing as well as in CAD

**SUB CODE / SUBJECT NAME: GE6161/ COMPUTER PRACTICES LABORATORY**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C107.1</b> <b>(C01)</b>	Be familiar with the use of Office software.
<b>C107.2</b> <b>(C02)</b>	Be exposed to presentation and visualization tools.
<b>C107.3</b> <b>(C03)</b>	Be exposed to problem solving techniques and flow charts.
<b>C107.4</b> <b>(C04)</b>	Apply good programming design methods for program development.
<b>C107.5</b> <b>(C05)</b>	Design and implement C programs for simple applications.
<b>C107.6</b> <b>(C06)</b>	Develop recursive programs.

**SUB CODE / SUBJECT NAME: GE6162/ ENGINEERING PRACTICES LABORATORY**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C108.1</b> <b>(C01)</b>	Hands on experience on welding, sheet metal and lathe works
<b>C108.2</b> <b>(C02)</b>	Experience the plumbing and carpentry work



<b>C108.3</b> <b>(C03)</b>	Demonstration on centrifugal pump and air conditioning working principles
<b>C108.4</b> <b>(C04)</b>	Measurement of Electrical quantities, earthing procedures, wiring methods etc
<b>C108.5</b> <b>(C05)</b>	Study of Electronic components and equipments – Resistor, colour coding measurement of AC signal parameter, Gates , Circuits etc
<b>C108.6</b> <b>(C06)</b>	Provide exposure to the students with hands on experience on various basic engineering practices in Civil, Mechanical, Electrical and Electronics Engineering.

**SUB CODE / SUBJECT NAME: GE6163/ PHYSICS AND CHEMISTRY LAB - I**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C109.1</b> <b>(C01)</b>	To apply the physics principles of Thermal physics and Properties of Matter to evaluate properties of materials
<b>C109.2</b> <b>(C02)</b>	To understand measurement technique and usage of new instrument in Optics for real time application in Engineering .
<b>C109.3</b> <b>(C03)</b>	Apply the concept of Ultrasonic to determine the physical parameters
<b>C109.4</b> <b>(C04)</b>	Able to analyze the quality of water for domestic and industrial purpose
<b>C109.5</b> <b>(C05)</b>	Used to find out the emf for different metallic solutions from which electrode potential is determined
<b>C109.6</b> <b>(C06)</b>	To acquire knowledge about the conductivity of acids and bases

**SEMESTER II**

**SUB CODE / SUBJECT NAME: HS6251/ TECHNICAL ENGLISH-II**  
**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C110.1</b> <b>(C01)</b>	Define the impact of the professional engineering solution in societal and environmental contexts with the help of the basic grammar taught to communicate effectively and confidently
<b>C110.2</b> <b>(C02)</b>	Observe the usage of modern engineering and IT tools in designing and developing solutions after developing their reading skills with different types of reading strategies.
<b>C110.3</b> <b>(C03)</b>	Apply the creative, appropriate techniques, resources to analyze complex engineering problems by interactive exercises like sample interviews and dialogue – writing.
<b>C110.4</b> <b>(C04)</b>	Analyze the engineering and Project management principles in consequence of the listening and speaking skills acquired during the classroom activities.
<b>C110.5</b> <b>(C05)</b>	Model the time varying natural and engineering sciences after learning to write an imaginary reports, essays, process description, and visualizing materials
<b>C110.6</b> <b>(C06)</b>	Understand the responsibilities relevant to the professional engineering practice after reading the different genres of texts.



**SUB CODE / SUBJECT NAME: MA6251/ MATHEMATICS-II**  
**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C111.1 (C01)	Apply the knowledge of techniques in solving ordinary differential equations that model engineering problems.
C111.2 (C02)	Define and understand the concepts of vector calculus, needed for problems in all engineering disciplines.
C111.3 (C03)	Develop an understanding of the standard techniques of complex variable theory so as to enable the student to apply them with confidence, in application areas such as heat conduction, elasticity, fluid dynamics and flow the of electric current.
C111.4 (C04)	Evaluate real integrals by applying concept of complex integration
C111.5 (C05)	Understand and apply the knowledge of Laplace Transforms in solving system of linear differential equations.
C111.6 (C06)	Introduces fundamental knowledge in mathematics that is applicable in the Engineering aspects.

**SUB CODE / SUBJECT NAME: PH6251/ ENGINEERING PHYSICS-II**  
**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C112.1 (C01)	To understand the basic principles of the electrical and thermal conductivity of metals and to analyze the electron behavior by classical and quantum theories.
C112.2 (C02)	To discuss the electron behavior in conduction and valence band in semiconducting materials, comparing the mobility and carrier concentration of N and P type semiconductors by theoretical method and applying Hall effect experimental method for biasing application.
C112.3 (C03)	To identify the different types of magnetic materials based on the atomic magnetic dipoles and utilize them for different technological applications. To explain the superconducting behaviors of materials and to solve real time medical and engineering applications.
C112.4 (C04)	To describe different polarization mechanism in dielectric materials and to meet the specific need in energy sector.
C112.5 (C05)	State and explain modern engineering materials such as metallic glasses, shape memory alloys, Nonmaterial's and NLO materials to design new engineering devices
C112.6 (C06)	To emphasize the role of conventional and modern engineering materials in Technological applications for the sustainable development of the society





**SUB CODE / SUBJECT NAME: CY6251/ENGINEERING CHEMISTRY-II**  
**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C113.1 (C01)	To gain knowledge about water quality parameters to analyze and provide them with latest equipment and technologies by using external and internal treatments
C113.2 (C02)	To impart knowledge in principles of electrochemical reactions, redox reactions in corrosion of materials and methods for corrosion prevention and protection of materials
C113.3 (C03)	To understand the principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells
C113.4 (C04)	To get adequate knowledge in preparation, properties and applications of engineering materials
C113.5 (C05)	Analyze issues related to fuels and their synthesis and able to understand working of IC and diesel engines
C113.6 (C06)	The knowledge gained on engineering materials, fuels, energy sources and water treatment techniques will facilitate better understanding of engineering processes and applications for further learning

**SUB CODE / SUBJECT NAME: CS6201/DIGITAL PRINCIPLES AND SYSTEM DESIGN**  
**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C114.1 (C01)	Define the fundamental concepts of digital logic circuits.
C114.2 (C02)	Understand and Correlate between Boolean Expression, simplification methods to optimize it for desired characteristics.
C114.3 (C03)	Apply the concept of digital logic circuits and Design various combinational building blocks and sequential logic to represent logic function in multiple forms
C114.4 (C04)	Analyze a memory cell and apply for organizing larger memory.
C114.5 (C05)	Understand and compare the concepts of Programmable logic Devices.
C114.6 (C06)	Develop a HDL Programs for combinational and Sequential Circuits

**SUB CODE / SUBJECT NAME: CS6202/PROGRAMMING AND DATA STRUCTURE-I**  
**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C115.1 (C01)	To Define the problem solutions using C-Programming concepts
C115.2 (C02)	To Apply the Control Structures in solving the problems



<b>C115.3</b> <b>(C03)</b>	To Apply the different linear data structures to problem solutions
<b>C115.4</b> <b>(C04)</b>	To Analyze the various linear data structure concepts
<b>C115.5</b> <b>(C05)</b>	To Create model for linear data structures using C Programming concepts
<b>C115.6</b> <b>(C06)</b>	To Demonstrate linear data structure concepts using C Programming concepts

**SUB CODE / SUBJECT NAME: GE6262/PHYSICS AND CHEMISTRY LAB-II YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C116.1</b> <b>(C01)</b>	Apply the knowledge of semiconducting material to evaluate the band gap of the material useful for engineering solutions.
<b>C116.2</b> <b>(C02)</b>	Apply the concept of elasticity to analyze the properties related to multidisciplinary field
<b>C116.3</b> <b>(C03)</b>	To demonstrate an experiment using spectrometer to determine the refractive index of various color and dispersive power of the material of the given prism and to develop instrument handling skill.
<b>C116.4</b> <b>(C04)</b>	Able to analyze the quality of water for domestic and industrial purpose
<b>C116.5</b> <b>(C05)</b>	Used to find out the Emf for different metallic solutions from which electrode potential is determined
<b>C116.6</b> <b>(C06)</b>	To acquire knowledge about the conductivity of acids and bases

**SUB CODE / SUBJECT NAME: CS6211/ DIGITAL LABORATORY YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C117.1</b> <b>(C01)</b>	Examine Boolean Theorems using basic gates.
<b>C117.2</b> <b>(C02)</b>	Apply the concept of digital logic circuits and implement combinational circuits using basic gates for arbitrary functions, code converters.
<b>C117.3</b> <b>(C03)</b>	Design and implementation of combinational circuits using MSI devices: 4 – bit binary adder / subtraction Parity generator / checker Magnitude Comparator Application using multiplexers
<b>C117.4</b> <b>(C04)</b>	Analyze and implementation of sequential circuits: Shift –registers Synchronous and asynchronous counters
<b>C117.5</b> <b>(C05)</b>	Simulate Verilog models for digital logic circuits.
<b>C117.6</b> <b>(C06)</b>	Design and implementation of a simple digital system



## SUB CODE / SUBJECT NAME: CS6212/ PROGRAMMING AND DATA STRUCTURE LAB - I YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C118.1 (C01)	Develop simple C programs using pointers and functions.
C118.2 (C02)	Develop C program for linear data structure operations and its applications.
C118.3 (C03)	Experiment with file manipulation concepts.
C118.4 (C04)	Develop programs using various sorting algorithms.
C118.5 (C05)	Develop programs using different searching methods.
C118.6 (C06)	Develop C program for stack and Queue.

### SEMESTER – III

## MA6351 - TRANSFORM AND PARTIAL DIFFERENTIAL EQUATIONS

COURSE CODE	COURSE OUTCOMES
C201.1 (CO1)	Evaluating the various model of homogeneous and nonhomogeneous partial differential equations which helps to solve engineering problems.
C201.2 (CO2)	Determine the Fourier coefficients in the Fourier series expansion of a given function and which play a vital role in analyzing various complex problems in engineering.
C201.3 (CO3)	Analyzing the one dimensional, two dimensional heat equation and one dimensional wave equation by using the concept of Fourier series, which describes the distribution in a given region over time
C201.4 (CO4)	Determine Fourier transform for a given function and use them to evaluate the definite integrals which helps in analyzing the differential equation and also applied in quantum mechanics
C201.5 (CO5)	Determine Z transforms and standard function and use them to solve the difference equation, which helps to investigate the discrete time signals.
C201.6 (CO6)	Understanding of the mathematical principles on transforms and partial differential equation would provide them the ability to formulate and solve the physical problems of engineering

## CS6301 - Programming and Data Structure II

COURSE CODE	COURSE OUTCOMES
C202.1 (CO1)	To Develop the problem solutions using Object Oriented Techniques
C202.2 (CO2)	To Apply the concepts of Object Oriented Techniques for problem solving



C202.3 (CO3)	To Analyze and use the control structures of C++ appropriately.
C202.4 (CO4)	To Design and critically analyse the various non-linear data structure concepts
C202.5 (CO5)	To Apply the different data structures to problem solutions and Create model for concepts
C202.6 (CO6)	To demonstrate the data structure concepts through OOPs concepts

## CS6302 - Database Management Systems

COURSE CODE	COURSE OUTCOMES
C203.1 (CO1)	Compare and contrast different data models
C203.2 (CO2)	Analyse various query optimization techniques and data types.
C203.3 (CO3)	Apply concurrency control & recovery mechanism for database problems
C203.4 (CO4)	Outline the file organization of records in files.
C203.5 (CO5)	Illustrate various database security techniques.
C203.6 (CO6)	Comprehence the various physical storage media in database.

## CS6303 - Computer Architecture

COURSE CODE	COURSE OUTCOMES
C204.1 (CO1)	Explain the computer organization components, instructions and addressing modes
C204.2 (CO2)	Demonstrate arithmetic operations
C204.3 (CO3)	Design and analyse pipelined control units
C204.4 (CO4)	Outline the concept of parallelism and multi-core processor
C204.5 (CO5)	Classify the memory technologies and I/O systems
C204.6 (CO6)	Compare and contrast the arithmetic operations used in various processors

## CS6304 - Analog and Digital Communication

COURSE CODE	COURSE OUTCOMES
C205.1 (CO1)	Understanding the basics of analog modulation technique



C205.2 (CO2)	Explain various digital communication schemes
C205.3 (CO3)	Design and analyze various pulse modulation techniques
C205.4 (CO4)	Discuss data communication circuits and modems
C205.5 (CO5)	Discuss the concept of spread spectrum and multiple access techniques
C205.6 (CO6)	Describe various error coding techniques

## GE6351 - Environmental Science and Engineering

COURSE CODE	COURSE OUTCOMES
C206.1 (CO1)	To interpret the relationship between living organisms and the environment and to identify the threats to global biodiversity
C206.2 (CO2)	To identify and prevent the problems related to the pollution of air, water, soil, marine, etc
C206.3 (CO3)	To understand the importance of natural resources and to conserve it for future generation
C206.4 (CO4)	To analyse the social issues of the environment to be a part of sustainable development
C206.5 (CO5)	To create awareness and sustainable population growth and know the contribution of information technology in environmental management
C206.6 (CO6)	To study the integrated themes and biodiversity, natural resources, pollution control, waste management for protecting environment from degradation

## CS6311 - Programming and Data Structure Laboratory II

COURSE CODE	COURSE OUTCOMES
C207.1 (CO1)	Select good programming design methods for program development.
C207.2 (CO2)	Develop C++ programs for object oriented concepts.
C207.3 (CO3)	Develop C++ programs for handling exceptions
C207.4 (CO4)	Develop C++ programs for practical problems using non-linear data structures.
C207.5 (CO5)	Develop recursive programs using trees and graphs.
C207.6 (CO6)	Develop C++ programs for shortest path algorithms.



## CS6312 - Database Management Systems Laboratory

COURSE CODE	COURSE OUTCOMES
C208.1 (CO1)	Infer database language commands to create simple database
C208.2 (CO2)	Analyze the database using queries to retrieve records
C208.3 (CO3)	Applying PL/SQL for processing database
C208.4 (CO4)	Analyze front end tools to design forms, reports and menus
C208.5 (CO5)	Develop solutions using database concepts for real time requirements
C208.6 (CO6)	Design mini project for different problems

## SEMESTER - IV

## MA6453 - Probability and Queuing Theory

COURSE CODE	COURSE OUTCOMES
C209.1 (CO1)	Define the concept of random variable and its properties. Construct probabilistic models for observed phenomena through distributions which play an important role in many engineering applications
C209.2 (CO2)	Identify random variables by designing joint distributions and correlate the random variables.
C209.3 (CO3)	Define the concept of random processes and its classification, in particular about Markov chains, which plays an important role in finding solution of many engineering problems.
C209.4 (CO4)	Identify the queuing model in the given system and find the performance measures to analyse the result in real time situation.
C209.5 (CO5)	Introduce non markovian queuing model which helps in analyzing various queuing networks. Applications emphasize communication networks and computer operations, but may include examples from transportation, manufacturing, and the service industry
C209.6 (CO6)	Helps to develop probabilistic models under several areas of science and engineering

## CS6551 - Computer Networks

COURSE CODE	COURSE OUTCOMES
C210.1 (CO1)	To Understand the components required to build different types of networks
C210.2 (CO2)	To Classify the required functionality at each layer for given application and Internet working
C210.3 (CO3)	To Analyze and demonstrate the solution of each functionality and routing techniques for each layer



<b>C210.4 (CO4)</b>	To Design the flow of information from one node to another node in the network
<b>C210.5 (CO5)</b>	To experiment the different application and Learn the flow control and congestion control algorithms
<b>C210.6 (CO6)</b>	To illustrate how application layer protocol works

## CS6401 - Operating Systems

COURSE CODE	COURSE OUTCOMES
<b>C211.1 (CO1)</b>	Understand the basic concepts of OS ,Operating System Structure and functions of operating systems.
<b>C211.2 (CO2)</b>	Apply the scheduling algorithms for scheduling and avoid deadlock
<b>C211.3 (CO3)</b>	Analysze Processes, Threads ,concurrency and deadlocks
<b>C211.4 (CO4)</b>	Evaluate various memory management schemes and understand I/O management and File systems
<b>C211.5 (CO5)</b>	Model the Linux system and perform administrative tasks on Linux Servers
<b>C211.6 (CO6)</b>	Explain I/O management and file systems

## CS6402 - Design and Analysis of Algorithms

COURSE CODE	COURSE OUTCOMES
<b>C212.1 (CO1)</b>	Analyze the time and space complexity of various algorithms
<b>C212.2 (CO2)</b>	Analyze different algorithm design techniques for problem solving
<b>C212.3 (CO3)</b>	Applying techniques for various computing problems
<b>C212.4 (CO4)</b>	knowledge about problem solving using iterative method
<b>C212.5 (CO5)</b>	Design limitations of algorithms in problem solving
<b>C212.6 (CO6)</b>	knowledge about algorithm analysis techniques

## EC6504 - Microprocessor and Microcontroller

COURSE CODE	COURSE OUTCOMES
<b>C213.1 (CO1)</b>	Understand architecture and operations of a microprocessor & Microcontroller system in depth
<b>C213.2</b>	Demonstrate programming proficiency using the various addressing modes and data



(CO2)	transfer instructions of the microprocessor
C213.3 (CO3)	Analyze, specify, design, write and test assembly language programs of moderate complexity
C213.4 (CO4)	Perform the detailed hardware design of a microprocessor & microcontroller system, and program the microprocessor using suitable techniques and software tools
C213.5 (CO5)	Design electrical circuitry to the Microprocessor & Microcontroller I/O ports in order to interface the processor to external devices
C213.6 (CO6)	Design and Implementation of electronic system using appropriate microprocessor/Microcontroller, programming, Interfacing and troubleshooting techniques

## CS6403 - Software Engineering

COURSE CODE	COURSE OUTCOMES
C214.1 (CO1)	Outline the fundamentals of software engineering concepts and software process standards
C214.2 (CO2)	Analyse requirements of software system and explore all requirements gathering approaches
C214.3 (CO3)	Creating an architectural design using design engineering process
C214.4 (CO4)	Apply software strategies and software testing tactics for testing real time projects effectively
C214.5 (CO5)	Compare and contrast the various project management and maintenance.
C214.6 (CO6)	Implement the software product according to software systematic approaches

## CS6411 - Networks Laboratory

COURSE CODE	COURSE OUTCOMES
C215.1 (CO1)	Demonstrate the socket program using TCP & UDP
C215.2 (CO2)	Develop simple applications using TCP & UDP
C215.3 (CO3)	Develop the code for Data link layer protocol simulation
C215.4 (CO4)	Examine the performances of Routing protocol
C215.5 (CO5)	Experiment with congestion control algorithm using network simulator
C215.6 (CO6)	Understand the concept of data and signal, data transmission and data conversion

## CS6412 - Microprocessor and Microcontroller Laboratory

COURSE CODE	COURSE OUTCOMES
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<b>C216.1 (CO1)</b>	Apply programming concept for various applications using microprocessors and microcontrollers
<b>C216.2 (CO2)</b>	An in-depth knowledge of applying the concepts on real- time applications
<b>C216.3 (CO3)</b>	Solid foundation on interfacing the external devices to the processor and controllers according to the user requirements to create novel products and solutions for the real time problems
<b>C216.4 (CO4)</b>	Understanding of industrial environment aware of excellence guidelines and lifelong learning needed for a successful professional career in embedded and real time system design
<b>C216.5 (CO5)</b>	Exposing the students to design work where there is no single correct solution, rather competing objectives; and to encourage cooperative team work and develop communication skills.
<b>C216.6 (CO6)</b>	Apply software tools for better programming.

## CS6413 - Operating Systems Laboratory

COURSE CODE	COURSE OUTCOMES
COURSE CODE	Experiment with Unix commands and shell programming
COURSE CODE	Build 'C' program for process and file system management using system calls
COURSE CODE	Choose the best CPU scheduling algorithm for a given problem instance
COURSE CODE	Identify the performance of various page replacement algorithms
COURSE CODE	Develop algorithm for deadlock avoidance, detection and file allocation strategies
COURSE CODE	Implement semaphores, memory management

## SEMESTER - V

### MA6566 - Discrete Mathematics

COURSE CODE	COURSE OUTCOMES
COURSE CODE	Apply the knowledge of the concepts needed to test the logic of a program.
COURSE CODE	Introduce the core ideas of combinatorial mathematics and apply these ideas to practical problems.
COURSE CODE	Explain basic concepts in Graph theory and Define how graphs serve as models for many standard problems
COURSE CODE	Create awareness of a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science and Analyze the concepts and properties of algebraic structures such as groups, rings and fields.



<b>COURSE CODE</b>	Define the basic ideas of posets and develop the concepts of lattices which has application in finite state machines.
<b>COURSE CODE</b>	Introduce the concepts of discrete objects and relationships that bind them and create an ability to deal with abstraction, combinatorics, algorithms and graphs.

## CS6501 - Internet Programming

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C302.1 (CO1)</b>	Explain the concepts of Control Statements, I/O Applet and Threading
<b>C302.2 (CO2)</b>	Develop a basic website using HTML and Cascading Style Sheets
<b>C302.3 (CO3)</b>	Compare and contrast the Java Script programming for client and server along with its event handling mechanisms
<b>C302.4 (CO4)</b>	Build a simple web page in PHP with XML data format
<b>C302.5 (CO5)</b>	Explain web services and SOAP
<b>C302.6 (CO6)</b>	Illustrate Client Presentation using AJAX

## CS6502 - Object Oriented Analysis and Design

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C303.1 (CO1)</b>	design and explain object oriented methodologies and relationships between objects and classes in UML
<b>C303.2 (CO2)</b>	Apply UML notations to develop various UML diagrams for the given scenario and will be able to evaluate the complexity in software design.
<b>C303.3 (CO3)</b>	Identify the objects and its responsibilities using traditional techniques and develop object-based models in real world projects
<b>C303.4 (CO4)</b>	Find the static and dynamic behaviour of objects about document creation for the given scenario able to analyze information systems in real-world settings.
<b>C303.5 (CO5)</b>	Apply the domain & specification model for the given scenario Synthesize and develop realtime application based on object oriented methodologies able to represent a real-world system using UML diagrams.
<b>C303.6 (CO6)</b>	Compare and Contrast Different Testing Techniques

## CS6503 - Theory of Computation

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C304.1 (CO1)</b>	Outline the concept of Finite Automata and Regular Expression
<b>C304.2 (CO2)</b>	Illustrate the design of Context Free Grammar for any language set



<b>C304.3</b> <b>(CO3)</b>	Demonstrate the push down automaton model for the given language
<b>C304.4</b> <b>(CO4)</b>	Make use of Turing machine concept to solve the simple problems
<b>C304.5</b> <b>(CO5)</b>	Explain decidability or undecidability of various problems
<b>C304.6</b> <b>(CO6)</b>	Design Various Computing models and know the decidability and undecidability of various problems

## CS6504 - Computer Graphics

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C305.1</b> <b>(CO1)</b>	Gain knowledge about graphics hardware devices and software used.
<b>C305.2</b> <b>(CO2)</b>	Design and Understand the two dimensional graphics and their transformations.
<b>C305.3</b> <b>(CO3)</b>	Understand the three dimensional graphics, object representation and their transformations.
<b>C305.4</b> <b>(CO4)</b>	Understand and familiar with illumination and color models.
<b>C305.5</b> <b>(CO5)</b>	Be familiar with understand clipping techniques.
<b>C305.6</b> <b>(CO6)</b>	Gain knowledge about the design and animation sequence

## CS6511 - Case Tools Laboratory

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C306.1</b> <b>(CO1)</b>	Design and implement projects using OO concepts.
<b>C306.2</b> <b>(CO2)</b>	Be exposed to the UML design diagrams.
<b>C306.3</b> <b>(CO3)</b>	Learn to map design to code.
<b>C306.4</b> <b>(CO4)</b>	Be familiar with the various testing techniques
<b>C306.5</b> <b>(CO5)</b>	Apply appropriate design patterns.
<b>C306.6</b> <b>(CO6)</b>	Compare and contrast various testing techniques

## CS6512 - Internet Programming Laboratory

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C307.1</b> <b>(CO1)</b>	Illustrate web pages using HTML/XML and style sheets



<b>C307.2</b> <b>(CO2)</b>	Analyze Java programs using socket for chat application and file transfer using HTTP,SMTP,FTP,POP3
<b>C307.3</b> <b>(CO3)</b>	Compare and contrast dynamic web pages using server side scripting servlets,JSP,JDBC
<b>C307.4</b> <b>(CO4)</b>	Develop a Client Server application and use the frameworks JSP Strut, Spring
<b>C307.5</b> <b>(CO5)</b>	Build the applications using AJAX
<b>C307.6</b> <b>(CO6)</b>	Develop Web Services

## CS6513 - Computer Graphics Laboratory

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C308.1</b> <b>(CO1)</b>	Understand and implement algorithms for graphical drawing primitives
<b>C308.2</b> <b>(CO2)</b>	Design 2D graphical transformation
<b>C308.3</b> <b>(CO3)</b>	Analyze and design clipping algorithms and viewing techniques
<b>C308.4</b> <b>(CO4)</b>	Design 3D graphical transformation
<b>C308.5</b> <b>(CO5)</b>	Use image editing tool for image manipulation and enhancement
<b>C308.6</b> <b>(CO6)</b>	Design graphical scenes using open graphics library suits

## SEMESTER - VI

### CS6601 - Distributed Systems

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C309.1</b> <b>(CO1)</b>	Understand foundations of Distributed Systems
<b>C309.2</b> <b>(CO2)</b>	Introduce the idea of peer to peer services and file system
<b>C309.3</b> <b>(CO3)</b>	Understand in detail the system level and support required for distributed system
<b>C309.4</b> <b>(CO4)</b>	Apply remote method invocation and objects
<b>C309.5</b> <b>(CO5)</b>	Understand the issues involved in studying process and resource management
<b>C309.6</b> <b>(CO6)</b>	Evaluate various applications using distributed techniques.

### IT6601 - Mobile Computing



COURSE CODE	COURSE OUTCOMES
COURSE CODE	Introduction to Mobile Computing, Applications, MAC Protocols and issues.
COURSE CODE	Description about Mobile Internet protocol and Transport Layer
COURSE CODE	Description about Mobile Telecommunication systems Using GSM, GPRS and UMTS
COURSE CODE	Introduction to Ad-Hoc concepts and Routing Protocols for MANET and VANET
COURSE CODE	Description about various mobile platform and applications.
COURSE CODE	Data synchronization in mobile computing systems

## CS6660- Compiler Design

COURSE CODE	COURSE OUTCOMES
C311.1 (CO1)	Gain knowledge about different phases of a Compiler
C311.2 (CO2)	Illustrate the translation of regular expression
C311.3 (CO3)	Use the different compiler construction tools to develop a simple compiler
C311.4 (CO4)	Construct the intermediate representation considering the type systems
C311.5 (CO5)	Construct the optimization techniques for the generated code
C311.6 (CO6)	Design and implement a prototype compiler.

## IT6502 - Digital Signal Processing

COURSE CODE	COURSE OUTCOMES
C312.1 (CO1)	Define basics of signals and systems, explain sampling theorem to convert analog to discrete signals and show how z transform and its properties are used as a mathematical tool in learning signals and systems
C312.2 (CO2)	Apply Discrete Fourier Transform and its properties to discrete time signals and systems
C312.3 (CO3)	Analyze digital IIR filters and model them using realization structures
C312.4 (CO4)	Prove that FIR digital filters are advantageous over IIR digital filters and model them using realization structures
C312.5 (CO5)	Discuss the behavior of digital filters on the effect of finite word length
C312.6	Design digital IIR and FIR filters and solve digital signal processing problems using



(CO6)	transforms
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## CS6659 - Artificial Intelligence

COURSE CODE	COURSE OUTCOMES
C313.1 (CO1)	Identify problems that are amenable to solution by AI methods.
C313.2 (CO2)	Recognize appropriate AI methods to solve a given problem.
C313.3 (CO3)	Discuss a given problem in the language/framework of different AI methods.
C313.4 (CO4)	Implement basic AI algorithms.
C313.5 (CO5)	Design and carry out an empirical evaluation of different algorithms on a problem formalization, and state the conclusions that the evaluation supports.
C313.6 (CO6)	Gain knowledge on architecture of expert systems and its shells.

## IT6702 - Data Warehousing and Data Mining(ELECTIVE -I)

COURSE CODE	COURSE OUTCOMES
C314.1 (CO1)	Identify the differences between relational database systems and data warehouses, the need for data warehousing to formulate the decision support system an engineering specialization for the prediction and modeling to complex engineering activities.
C314.2 (CO2)	Summarize the dominant data warehousing architectures and analyze their implementation details to develop multidimensional data models to analyze complex engineering problems.
C314.3 (CO3)	Understand the different functionalities of data mining system and analyze the various data preprocessing techniques to design data warehouses that meet the specified needs of the society with appropriate environmental considerations.
C314.4 (CO4)	Analyze the various clustering and classification algorithm functionalities and evaluate their merits and demerits to acquire research based knowledge for the synthesis of the information to provide valid conclusions.
C314.5 (CO5)	Explain the advanced data mining concepts and outline their scope of providing IT solutions for different domains which helps in the betterment of life.
C314.6 (CO6)	Develop optimization algorithms with Data mining

## CS6611 - Mobile Application Development Laboratory

COURSE CODE	COURSE OUTCOMES
C315.1 (CO1)	Build a native application using GUI components and Mobile application development framework
C315.2	Develop an application using basic graphical primitives and databases



(CO2)	
C315.3 (CO3)	Construct an application using multi threading and RSS feed
C315.4 (CO4)	Make use of location identification using GPS in an application
C315.5 (CO5)	Model new applications to hand held devices
C315.6 (CO6)	Design and Implement various mobile applications using emulators.

## CS6612 - Compiler Laboratory

COURSE CODE	COURSE OUTCOMES
C316.1 (CO1)	Apply different compiler writing tools to implement the different Phases
C316.2 (CO2)	Analyze the data flow and control flow
C316.3 (CO3)	Construct the intermediate representation and DAG
C316.4 (CO4)	Design the back end of a compiler for 8086 assembler
C316.5 (CO5)	Compare various code optimization techniques
C316.6 (CO6)	Implement The Code Generation Techniques

## GE6674 - Communication and Soft Skills - Laboratory

COURSE CODE	COURSE OUTCOMES
C317.1 (CO1)	Define appropriate techniques with suitable language and speech pattern
C317.2 (CO2)	Discuss the social issues in the group discussion
C317.3 (CO3)	Apply the acquired skills confidently in interviews
C317.4 (CO4)	Take part in debates and public speaking
C317.5 (CO5)	Prioritize the ideas relevantly and coherently in writing and speaking
C317.6 (CO6)	Develop the skills for writing technical reports and letters

## SEMESTER - VII

### CS6701 - Cryptography and Network Security

COURSE CODE	COURSE OUTCOMES
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<b>COURSE CODE</b>	Explain the basics of number theory and compare various encryption techniques
<b>COURSE CODE</b>	Summarize the functionality of public key cryptography.
<b>COURSE CODE</b>	Apply various message authentication functions and secure algorithms.
<b>COURSE CODE</b>	Demonstrate different types of security systems and applications.
<b>COURSE CODE</b>	Discuss different levels of security and services.
<b>COURSE CODE</b>	To create secure coding in the developed applications.

### CS6702 - Graph Theory and Applications

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C402.1 (CO1)</b>	Define and explain the fundamentals concepts of discrete mathematics and accurate mathematical definitions of objects in graph theory
<b>C402.2 (CO2)</b>	Explain the concept of tree which manipulate hierarchical data and Make information easy to search in data structures
<b>C402.3 (CO3)</b>	Analyze computer networks by using the concept of graph theory parameters like chromatic number, domination theory
<b>C402.4 (CO4)</b>	Creative investigation of questions in graph theory can be solved by using combination of theoretical knowledge and independent mathematical thinking
<b>C402.5 (CO5)</b>	Define difference equation and explain how to solve by using various techniques.
<b>C402.6 (CO6)</b>	Design a graph theory model for real time problems and analyse by using various graph theory parameters.

### CS6703 - Grid and Cloud Computing

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C403.1 (CO1)</b>	Understand and apply the concept of Grid and Cloud Architectures.
<b>C403.2 (CO2)</b>	Comprehence the data intensive grid service models and grid computing techniques
<b>C403.3 (CO3)</b>	Analyze the concept of virtualization in cloud.
<b>C403.4 (CO4)</b>	Evaluate the programming model for Hadoop and globus toolkit.
<b>C403.5 (CO5)</b>	Create the security models in the grid and cloud environment.
<b>C403.6 (CO6)</b>	Demonstrate the importance of protocols and standards in management for cloud services

### CS6704 - Resource Management Techniques

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C404.1 (CO1)</b>	Define and explain linear programming model which helps to solve decision problems like resource allocations problems and optimization problems which arise





	in engineering
<b>C404.2</b> (CO2)	Introduce the concept of transportation and assignment problems and apply it in finding the shortest route problems in computer networks
<b>C404.3</b> (CO3)	Apply the concept of integer programming technique to the implementation of graphical user interface
<b>C404.4</b> (CO4)	Solve real time optimization problem by using classical optimization theory
<b>C404.5</b> (CO5)	Analyze computer networks by using the concept of Critical path method and PERT
<b>C404.6</b> (CO6)	Solve optimization problems by using suitable technique like simplex method, transportation method and integer programming .

## CS6004 – Cyber Forensics (ELECTIVE -II)

COURSE CODE	COURSE OUTCOMES
<b>C405.1</b> (CO1)	Understand the security issues network layer and transport layer
<b>C405.2</b> (CO2)	Be exposed to security issues of the application layer
<b>C405.3</b> (CO3)	Analysis the computer forensics
<b>C405.4</b> (CO4)	Evaluating the forensics tools
<b>C405.5</b> (CO5)	creating the design to handle forensics tools
<b>C405.6</b> (CO6)	Illustrate the various forensics tools

## IT6006 – Data Analytics (ELECTIVE –III)

COURSE CODE	COURSE OUTCOMES
<b>C406.1</b> (CO1)	Understand the concepts of Big data
<b>C406.2</b> (CO2)	Apply the statistical methods to perform the data analysis
<b>C406.3</b> (CO3)	Define the data mining concepts in different streams
<b>C406.4</b> (CO4)	Apply the data mining concepts to solve the real world problems.
<b>C406.5</b> (CO5)	Understand the different frameworks in big data
<b>C406.6</b> (CO6)	Illustrate the various visualization techniques in data mining

## CS6711 - Security Laboratory

COURSE CODE	COURSE OUTCOMES
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C407.1 (CO1)	Be exposed to the different cipher techniques
C407.2 (CO2)	Learn to implement the algorithms DES, RSA,MD5,SHA-1
C407.3 (CO3)	Learn to use Digital signature standard using simulation tools
C407.4 (CO4)	Learn to setup honey pot using KF Sensor
C407.5 (CO5)	Study about the installation of rootkits
C407.6 (CO6)	Understand the WAP and WEP using stumbler

### CS6712 - Grid and Cloud Computing Laboratory

COURSE CODE	COURSE OUTCOMES
C408.1 (CO1)	Understanding and Make use of the Grid Toolkit.
C408.2 (CO2)	Comperhence the Design and Implementation of new Grid applications.
C408.3 (CO3)	Analysing the use of Cloud Toolkit.
C408.4 (CO4)	Evaluating the cloud applications on Cloud.
C408.5 (CO5)	Creating the applications according to the services.
C408.6 (CO6)	Identify and analyze security implications in cloud computing

### SEMESTER - VIII

### CS6801 - Multi – Core Architectures and Programming

COURSE CODE	COURSE OUTCOMES
C409.1 (CO1)	To design single core and multicore architectures with performance issues.
C409.2 (CO2)	To implement program in parallel processors and discuss the parallel program challenges
C409.3 (CO3)	To develop programs using OpenMP in shared memory programming
C409.4 (CO4)	To develop programs using MPI in distributed memory programming
C409.5 (CO5)	To implement parallel program development using OpenMP
C409.6 (CO6)	To compare and contrast programming for serial processors and programming for parallel processors

### CS6008 – Human Computer Interaction( ELCTIVE –III)

COURSE CODE	COURSE OUTCOMES
C410.1	Understanding the basics of HCI for individuals and person with disabilities



(CO1)	
C410.2 (CO2)	Apply various interaction framework models for interaction between user and system
C410.3 (CO3)	Design the technologies for HCI of individuals and disable persons
C410.4 (CO4)	Evaluate the HCI in software process and mobile HCI
C410.5 (CO5)	Implement various user interface for HCI
C410.6 (CO6)	Analyze and discuss HCI issues in groupware, ubiquitous computing, virtual reality, multimedia, and Word Wide Web-related environments.

## MG6088 – Software Project Management(ELECTIVE –IV)

COURSE CODE	COURSE OUTCOMES
C411.1 (CO1)	The student should be able to Plan the project in stepwise manner.
C411.2 (CO2)	Apply cost benefit evaluation techniques to find the cost of the project and to evaluate the risk of project.
C411.3 (CO3)	Know activity plan for a project and to estimate the overall duration of the project.
C411.4 (CO4)	Monitor the progress of projects and to assess the risk of slippage
C411.5 (CO5)	Identify the factors that influence people’s behavior in a project environment and selection of appropriate people for the project and to improve group working.
C411.6 (CO6)	Understand how to manage the people in software industries and projects.

## CS6811 – Project Work

COURSE CODE	COURSE OUTCOMES
C412.1 (CO1)	Acquire knowledge for the project
C412.2 (CO2)	Choose efficient tools for designing project modules.
C412.3 (CO3)	Analyze and categorize executable project modules
C412.4 (CO4)	Assemble all the modules through effective team work after efficient testing.
C412.5 (CO5)	Recognize the completed task and compile the project.
C412.6 (CO6)	Demonstrate the project.



## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

### **SUB CODE / SUBJECT NAME: HS6151/ TECHNICAL ENGLISH - I** **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C101.1 (CO1)	Define the fundamentals of engineering after learning the rules of English Grammar.
C101.2 (CO2)	Observe and interpret the contextual knowledge by speaking, listening and reading the social issues such as public health, safety, legal and culturally related considerations.
C101.3 (CO3)	Apply the creative, appropriate techniques, resources to analyze complex engineering problems by interactive exercises such as interviews and dialogue-writing.
C101.4 (CO4)	Design the multidisciplinary settings to manage projects as an individual, as a member or leader after taking the exercises like role-play, group discussion and making presentations
C101.5 (CO5)	Model the life-long learning methods suitable for all the environments committed to professional ethics and responsibilities after inculcating the habit of reading and writing
C101.6 (CO6)	Analyze and identify the root for an effective managerial skills through different spoken discourse and excerpts

### **SUB CODE / SUBJECT NAME: MA6151/ ENGINEERING MATHS - I** **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C102.1 (CO1)	Define Eigen values and Eigen vectors and explain how to analyze the stability of a system using these concepts and many other real time application in engineering.
C102.2 (CO2)	Explain the physical interpretation of divergence, curl and gradient of a vector field and also how to apply these concepts in solving engineering problems.
C102.3 (CO3)	Define the convergence of a sequence and series and make the student knowledgeable in the area of infinite series and their convergence so that he/ she will be familiar with limitations of using infinite series approximations for solutions arising in mathematical modeling
C102.4 (CO4)	Introduce the concept of multivariable functions of real variables arise inevitably in engineering and physics due to any one physical quantity will generally depend on a number of other quantities and help to solve real time problems.
C102.5 (CO5)	Extend the concept of single integral to multiple integral and explain how to evaluate it. Also explain the idea of change of order of integration and explain how to find Area and volume of solids
C102.6 (CO6)	Understand various mathematical tools and apply it to solve the engineering problems most effectively

### **SUB CODE / SUBJECT NAME: PH6151/ ENGINEERING PHYSICS - I** **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C103.1 (CO1)	To understand the possible crystal structures and to analyze various growth techniques in the view of increasing demand of crystals for various Engineering and Technological



	applications.
<b>C103.2 (CO2)</b>	To understand the basic concepts of elastic behavior of materials and evaluate the structural stability of beams. Remembering functional ideas of thermal physics and compare the thermal conductivity of different materials to meet the specific needs
<b>C103.3 (CO3)</b>	Describe and analyzing the quantum nature of radiation and matter to solve the real time societal and technological problems.
<b>C103.4 (CO4)</b>	The significance of frequency dependent sound waves is discussed and to solve the Medical and Engineering problems using ultrasonic's.
<b>C103.5 (CO5)</b>	To discuss the propagation of light in optical fibers, compare various types of fibers and its applications in Medical and Engineering fields
<b>C103.6 (CO6)</b>	To make the students understand the fundamentals of Physics to solve complex engineering problems for benefit of the society

**SUB CODE / SUBJECT NAME: CY6151/ ENGINEERING CHEMISTRY - I**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C104.1 (CO1)</b>	To apply and implement the knowledge of synthesis and uses of polymers in industries and environment
<b>C104.2 (CO2)</b>	To analyze and understand the concepts of thermodynamic laws in various industrial applications
<b>C104.3 (CO3)</b>	To understand and remember the concepts of photo physical, photochemical process and spectroscopy for getting knowledge in light emitting properties of compounds and identifying the functional groups of molecules
<b>C104.4 (CO4)</b>	Knowledge of alloys gives an idea about the manufacturing process in various industries
<b>C104.5 (CO5)</b>	To create the knowledge of nonmaterial's and their applications in fields like medicinal, electrical, electronic, chemical,etc
<b>C104.6 (CO6)</b>	The knowledge gained on polymer chemistry, Thermodynamics, Spectroscopy, phase rule and nano materials will provide a strong platform to understand the concept on various fields like mechanical, electrical, civil engineering for further learning

**SUB CODE / SUBJECT NAME: GE6151/ COMPUTER PROGRAMMING**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C105.1 (CO1)</b>	Understand the organization of a digital computer.
<b>C105.2 (CO2)</b>	Be exposed to the number systems
<b>C105.3 (CO3)</b>	Ability to think logically and write pseudo code or draw flow charts for problems.
<b>C105.4 (CO4)</b>	Ability to use arrays, strings, functions, pointers, structures and unions in C.
<b>C105.5 (CO5)</b>	Design C Programs for problems



<b>C105.6</b> <b>(CO6)</b>	Write and execute C programs for simple applications
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**SUB CODE / SUBJECT NAME: GE6152/ ENGINEERING GRAPHICS**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C106.1</b> <b>(CO1)</b>	How to draw different engineering curves, draw different orthographic projections.
<b>C106.2</b> <b>(CO2)</b>	Illustrate different views of points, lines and planes inclined to both HP and VP in first quadrant.
<b>C106.3</b> <b>(CO3)</b>	Develop the projections of simple solids inclined to any one plane
<b>C106.4</b> <b>(CO4)</b>	Categorize Section and develop various solids
<b>C106.5</b> <b>(CO5)</b>	Evaluate to Draw 3D projections of simple solids by Perspective by visual ray method and Isometric projections
<b>C106.6</b> <b>(CO6)</b>	Build an engineering component using Paper drawing as well as in CAD

**SUB CODE / SUBJECT NAME: GE6161/ COMPUTER PRACTICES LABORATORY**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C107.1</b> <b>(CO1)</b>	Be familiar with the use of Office software.
<b>C107.2</b> <b>(CO2)</b>	Be exposed to presentation and visualization tools.
<b>C107.3</b> <b>(CO3)</b>	Be exposed to problem solving techniques and flow charts.
<b>C107.4</b> <b>(CO4)</b>	Apply good programming design methods for program development.
<b>C107.5</b> <b>(CO5)</b>	Design and implement C programs for simple applications.
<b>C107.6</b> <b>(CO6)</b>	Develop recursive programs.

**SUB CODE / SUBJECT NAME: GE6162/ ENGINEERING PRACTICES LABORATORY**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C108.1</b> <b>(CO1)</b>	Hands on experience on welding, sheet metal and lathe works



<b>C108.2</b> <b>(CO2)</b>	Experience the plumbing and carpentry work
<b>C108.3</b> <b>(CO3)</b>	Demonstration on centrifugal pump and air conditioning working principles
<b>C108.4</b> <b>(CO4)</b>	Measurement of Electrical quantities, earthing procedures, wiring methods etc
<b>C108.5</b> <b>(CO5)</b>	Study of Electronic components and equipments – Resistor, colour coding measurement of AC signal parameter, Gates , Circuits etc
<b>C108.6</b> <b>(CO6)</b>	Provide exposure to the students with hands on experience on various basic engineering practices in Civil, Mechanical, Electrical and Electronics Engineering.

**SUB CODE / SUBJECT NAME: GE6163/ PHYSICS AND CHEMISTRY LAB - I**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C109.1</b> <b>(CO1)</b>	To apply the physics principles of Thermal physics and Properties of Matter to evaluate properties of materials
<b>C109.2</b> <b>(CO2)</b>	To understand measurement technique and usage of new instrument in Optics for real time application in Engineering .
<b>C109.3</b> <b>(CO3)</b>	Apply the concept of Ultrasonic to determine the physical parameters
<b>C109.4</b> <b>(CO4)</b>	Able to analyze the quality of water for domestic and industrial purpose
<b>C109.5</b> <b>(CO5)</b>	Used to find out the emf for different metallic solutions from which electrode potential is determined
<b>C109.6</b> <b>(CO6)</b>	To acquire knowledge about the conductivity of acids and bases

**SEMESTER II**

**SUB CODE / SUBJECT NAME: HS6251/ TECHNICAL ENGLISH-II**  
**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C110.1</b> <b>(CO1)</b>	Define the impact of the professional engineering solution in societal and environmental contexts with the help of the basic grammar taught to communicate effectively and confidently
<b>C110.2</b> <b>(CO2)</b>	Observe the usage of modern engineering and IT tools in designing and developing solutions after developing their reading skills with different types of reading strategies.
<b>C110.3</b> <b>(CO3)</b>	Apply the creative, appropriate techniques, resources to analyze complex engineering problems by interactive exercises like sample interviews and dialogue – writing.
<b>C110.4</b> <b>(CO4)</b>	Analyze the engineering and Project management principles in consequence of the listening and speaking skills acquired during the classroom activities.
<b>C110.5</b> <b>(CO5)</b>	Model the time varying natural and engineering sciences after learning to write an imaginary reports, essays, process description, and visualizing materials



<b>C110.6 (CO6)</b>	Understand the responsibilities relevant to the professional engineering practice after reading the different genres of texts.
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**SUB CODE / SUBJECT NAME: MA6251/ MATHEMATICS-II**  
**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
<b>C111.1 (CO1)</b>	Apply the knowledge of techniques in solving ordinary differential equations that model engineering problems.
<b>C111.2 (CO2)</b>	Define and understand the concepts of vector calculus, needed for problems in all engineering disciplines.
<b>C111.3 (CO3)</b>	Develop an understanding of the standard techniques of complex variable theory so as to enable the student to apply them with confidence, in application areas such as heat conduction, elasticity, fluid dynamics and flow the of electric current.
<b>C111.4 (CO4)</b>	Evaluate real integrals by applying concept of complex integration
<b>C111.5 (CO5)</b>	Understand and apply the knowledge of Laplace Transforms in solving system of linear differential equations.
<b>C111.6 (CO6)</b>	Introduces fundamental knowledge in mathematics that is applicable in the Engineering aspects.

**SUB CODE / SUBJECT NAME: PH6251/ ENGINEERING PHYSICS-II**  
**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
<b>C112.1 (CO1)</b>	To understand the basic principles of the electrical and thermal conductivity of metals and to analyze the electron behavior by classical and quantum theories.
<b>C112.2 (CO2)</b>	To discuss the electron behavior in conduction and valence band in semiconducting materials, comparing the mobility and carrier concentration of N and P type semiconductors by theoretical method and applying Hall effect experimental method for biasing application.
<b>C112.3 (CO3)</b>	To identify the different types of magnetic materials based on the atomic magnetic dipoles and utilize them for different technological applications. To explain the superconducting behaviors of materials and to solve real time medical and engineering applications.
<b>C112.4 (CO4)</b>	To describe different polarization mechanism in dielectric materials and to meet the specific need in energy sector.
<b>C112.5 (CO5)</b>	State and explain modern engineering materials such as metallic glasses, shape memory alloys, Nonmaterial's and NLO materials to design new engineering devices
<b>C112.6 (CO6)</b>	To emphasize the role of conventional and modern engineering materials in Technological applications for the sustainable development of the society

**SUB CODE / SUBJECT NAME: CY6251/ENGINEERING CHEMISTRY-II** **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
<b>C113.1 (CO1)</b>	To gain knowledge about water quality parameters to analyze and provide them with latest equipment and technologies by using external and internal treatments





<b>C113.2</b> <b>(CO2)</b>	To impart knowledge in principles of electrochemical reactions, redox reactions in corrosion of materials and methods for corrosion prevention and protection of materials
<b>C113.3</b> <b>(CO3)</b>	To understand the principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells
<b>C113.4</b> <b>(CO4)</b>	To get adequate knowledge in preparation, properties and applications of engineering materials
<b>C113.5</b> <b>(CO5)</b>	Analyze issues related to fuels and their synthesis and able to understand working of IC and diesel engines
<b>C113.6</b> <b>(CO6)</b>	The knowledge gained on engineering materials, fuels, energy sources and water treatment techniques will facilitate better understanding of engineering processes and applications for further learning

## **SUB CODE / SUBJECT NAME: EC6201 – ELECTRONIC DEVICES**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C114.1</b> <b>(CO1)</b>	Understand the basic idea about semiconductor physics. Study of diode characteristics
<b>C114.2</b> <b>(CO2)</b>	Understanding the basic operation of bipolar transistor and its various characteristics
<b>C114.3</b> <b>(CO3)</b>	Understanding the basic operation of Field effect transistor and its various characteristics
<b>C114.4</b> <b>(CO4)</b>	Design the special semiconductor devices and analysis various characteristics
<b>C114.5</b> <b>(CO5)</b>	Understanding the operation of semiconductor power devices
<b>C114.6</b> <b>(CO6)</b>	Explain the theory, construction, and operation of basic electronic devices.

## **SUB CODE / SUBJECT NAME: EE6201 – CIRCUIT THEORY**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C115.1</b> <b>(CO1)</b>	Define and understanding the basic circuit elements and mesh and nodal analysis
<b>C115.2</b> <b>(CO2)</b>	Understanding the concepts of network theorems
<b>C115.3</b> <b>(CO3)</b>	Analyze the phenomenon of resonance and coupled circuits.
<b>C115.4</b> <b>(CO4)</b>	Evaluate the transient response of AC and DC circuits.
<b>C115.5</b> <b>(CO5)</b>	Understanding and analyzing the three phase circuits.



<b>C115.6 (CO6)</b>	Understanding the applications of circuit theory
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**SUB CODE / SUBJECT NAME: GE6262/PHYSICS AND CHEMISTRY LAB-II**  
**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C116.1 (CO1)</b>	Apply the knowledge of semiconducting material to evaluate the band gap of the material useful for engineering solutions.
<b>C116.2 (CO2)</b>	Apply the concept of elasticity to analyze the properties related to multidisciplinary field
<b>C116.3 (CO3)</b>	To demonstrate an experiment using spectrometer to determine the refractive index of various color and dispersive power of the material of the given prism and to develop instrument handling skill.
<b>C116.4 (CO4)</b>	Able to analyze the quality of water for domestic and industrial purpose
<b>C116.5 (CO5)</b>	Used to find out the Emf for different metallic solutions from which electrode potential is determined
<b>C116.6 (CO6)</b>	To acquire knowledge about the conductivity of acids and bases

**SUB CODE / SUBJECT NAME: EC6211 – CIRCUITS AND DEVICES LAB**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C117.1 (CO1)</b>	Understand the basic idea about semiconductor physics. Study of diode characteristics
<b>C117.2 (CO2)</b>	Understanding the basic operation of bipolar transistor and its various characteristics
<b>C117.3 (CO3)</b>	Understanding the basic operation of Field effect transistor and its various characteristics
<b>C117.4 (CO4)</b>	Design the special semiconductor devices and analysis various characteristics
<b>C117.5 (CO5)</b>	Understanding the operation of semiconductor power devices
<b>C117.6 (CO6)</b>	Explain the theory, construction, and operation of basic electronic devices.



## SEMESTER III

### SUB CODE/SUBJECT NAME: MA6351-TRANSFORM AND PARTIAL DIFFERENTIAL EQUATIONS

YEAR / SEM: II/III

Course Code	COURSE OUTCOMES
C201.1 (CO1)	Using Dirchlet's conditions, solving Fourier series problems..
C201.2 (CO2)	To know the basic properties of the Fourier transform, describe the Fourier integral theorem and convolution theorem.
C201.3 (CO3)	To describe real time engineering problems using PDEs
C201.4 (CO4)	To apply Fourier series methods to solve boundary value problems.
C201.5 (CO5)	To use the Z- transform as the tool to connect the time domain and frequency domain in signal processing.
C201.6 (CO6)	The course will also serve as a prerequisite for post graduate and specialized studies and research

### SUB CODE/SUBJECT NAME: EE6352 - ELECTRICAL ENGINEERING AND INSTRUMENTATION

YEAR / SEM: II/III

Course Code	COURSE OUTCOMES
C202.1 (CO1)	To convey knowledge on Constructional details, principle of operation performance of D.C Machines
C202.2 (CO2)	To convey knowledge on Constructional details and working principle of transformers
C202.3 (CO3)	Impart knowledge in Constructional details, principle of operation and performance of induction machines
C202.4 (CO4)	Impart knowledge in Constructional details, principle of operation and performance of synchronous machines
C202.5 (CO5)	To understand about the basic measurement and instrumentation based devices.
C202.6 (CO6)	Impart knowledge in the relevance of digital instruments in measurements.

### SUB CODE/SUBJECT NAME: EC6301 - OBJECT ORIENTED PROGRAMMING AND DATA STUCTURE

YEAR / SEM: II/III

Course Code	COURSE OUTCOMES
C203.1 (CO1)	Learn the familiarity with algorithms
C203.2 (CO2)	Learn to analyze the performance of algorithms
C203.3 (CO3)	Learn to implement 2d array operations



<b>C203.4</b> (CO4)	Implementation of stack and queue using arrays
<b>C203.5</b> (CO5)	Familiar with programming in C++
<b>C203.6</b> (CO6)	Implementation of quick sort and binary tree

**SUB CODE/SUBJECT NAME: EC6302 – DIGITAL ELECTRONICS**  
**YEAR / SEM: II/III**

Course Code	COURSE OUTCOMES
<b>C204.1</b> (CO1)	Analyze different methods used for simplification of Boolean expressions.
<b>C204.2</b> (CO2)	Design and implement Combinational circuits.
<b>C204.3</b> (CO3)	Design and implement sequential circuit
<b>C204.4</b> (CO4)	Write simple HDL codes for the circuits
<b>C204.5</b> (CO5)	Design and implement synchronous and asynchronous sequential circuits.
<b>C204.6</b> (CO6)	Able to learn about memory devices

**SUB CODE/SUBJECT NAME: EC6303 – SIGNALS AND SYSTEMS**  
**YEAR / SEM: II/III**

Course Code	COURSE OUTCOMES
<b>C205.1</b> (CO1)	Able to describe signals mathematically and understand how to perform mathematical operations on signals.
<b>C205.2</b> (CO2)	Understand the intuitive meaning of frequency domain and the importance of analyzing and processing signals in the frequency domain
<b>C205.3</b> (CO3)	Understand the process of convolution between signals, & able to solve differential equation using Laplace transform techniques.
<b>C205.4</b> (CO4)	Able to compute the Fourier series or Fourier transform, Z-transform, and further be able to use the properties and application in analysis to ideal filtering, amplitude modulation and sampling.
<b>C205.5</b> (CO5)	Understand various signals and Linear Time Invariant systems properties and be able to identify whether a given system exhibits these properties and its implication for practical systems.
<b>C205.6</b> (CO6)	To characterize LTI systems in the Time domain and various Transform domains



**SUB CODE/SUBJECT NAME: EC6304 – ELECTRONIC CIRCUITS-I**  
**YEAR / SEM: II/III**

Course Code	COURSE OUTCOMES
C206.1 (CO1)	To discuss transistor bias stability and various type of biasing w.t.o BJT,FET, MOSFET and calculate the stability factor,design various types of BJT,FET
C206.2 (CO2)	To describe midband analysis of small signal amplifier-single stage multistage aa
C206.3 (CO3)	To plot the frequency response of amplifiers-BJT,FET and hence calculate $f\beta.f\alpha$
C206.4 (CO4)	To know various types of power amplifiers and hence find its efficiency.
C206.5 (CO5)	To represent the features of power supplies and rectifiers, voltage regulator, power control using SCR.
C206.6 (CO6)	Able to Able to understand AGC Using FET understand AGC Using FET

**SUB CODE/SUBJECT NAME: EC6311-ANALOG AND DIGITAL CIRCUITS LABORATORY**  
**YEAR / SEM: II/III**

Course Code	COURSE OUTCOMES
C207.1 (CO1)	To design differentiate cascade and cascade amplifier
C207.2 (CO2)	To analyze the limitation in bandwidth of single stage and multi stage amplifier
C207.3 (CO3)	To simulate amplifiers using spice
C207.4 (CO4)	Able to measure CMRR in differential amplifier
C207.5 (CO5)	Able to design code converters
C207.6 (CO6)	Able to design and implementation of counters

**SUB CODE/SUBJECT NAME: EC6312-OOPS AND DATA STUCTURES LABORATORY**  
**YEAR / SEM: II/III**

Course Code	COURSE OUTCOMES
C208.1 (CO1)	Implementation of two dimensional array operations.
C208.2 (CO2)	Implementation of stack and queue using array
C208.3 (CO3)	Demonstrate familiarity with major algorithms and data structures.



<b>C208.4</b> <b>(CO4)</b>	To apply good programming design methods for program development
<b>C208.5</b> <b>(CO5)</b>	To apply the different data structures for implementing solutions to practical problems
<b>C208.6</b> <b>(CO6)</b>	Implementation of quick sort and binary tree

## SEMESTER IV

### SUB CODE/SUBJECT NAME: MA6451-PROBABILITY AND RANDOM PROCESSES

#### YEAR / SEM: II/IV

Course Code	COURSE OUTCOMES
<b>C209.1</b> <b>(CO1)</b>	To find mean variance and MGF of various distribution
<b>C209.2</b> <b>(CO2)</b>	To find stationary , WSS,SSS process
<b>C209.3</b> <b>(CO3)</b>	To find relation between power spectral and spectrum
<b>C209.4</b> <b>(CO4)</b>	To find cross correlation , Auto correlation
<b>C209.5</b> <b>(CO5)</b>	To find correlation regression for two dimensional random variable
<b>C209.6</b> <b>(CO6)</b>	Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

### SUB CODE/SUBJECT NAME: EC6401-ELCTRONICS CIRCUITS-II

#### YEAR / SEM: II/IV

Course Code	COURSE OUTCOMES
<b>C210.1</b> <b>(CO1)</b>	Able to understand the advantages and method of analysis of feedback amplifiers
<b>C210.2</b> <b>(CO2)</b>	Able to understand analysis and design of LC and RC Oscillators
<b>C210.3</b> <b>(CO3)</b>	Able to understand various types of tuned amplifiers
<b>C210.4</b> <b>(CO4)</b>	To analysis integrator, Differentiator, Clippers , Clampers and multivibrators
<b>C210.5</b> <b>(CO5)</b>	To learn various types of blocking Oscillators and time base circuits
<b>C210.6</b> <b>(CO6)</b>	To learn current and voltage time base generator



## SUB CODE/SUBJECT NAME: EC6402- COMMUNICATION THEORY

YEAR / SEM: II/IV

Course Code	COURSE OUTCOMES
C211.1 (CO1)	Able to compute the bandwidth and transmission power by analyzing time and frequency domain spectra of signal required under various modulation schemes.sources, detectors.
C211.2 (CO2)	Able to apply suitable modulation schemes and coding for various applications.
C211.3 (CO3)	Able to analyze the performance of analog communication system in the presence of noise.
C211.4 (CO4)	Able to understand the basics of Random process
C211.5 (CO5)	Able to identify and describe different techniques for source coding.
C211.6 (CO6)	Able to identify and describe different techniques for channel coding.

## SUB CODE/SUBJECT NAME: EC6403- ELECTRO MAGNETIC FIELDS

YEAR / SEM: II/IV

Course Code	COURSE OUTCOMES
C212.1 (CO1)	Study of electric vector field and potential in different charged body.Energy stored in electric field
C212.2 (CO2)	To evaluate the static magnetic field due to different configurations using gauss law and colomb's law
C212.3 (CO3)	To Know about the behaviors of electric and magnetic field in materials and study of boundary condition
C212.4 (CO4)	How to generate time varying field and flow of power, Maxwell's equation in different medium
C212.5 (CO5)	Generation and Flow of electromagnetic wave in different medium, know of reflection and refraction in different medium
C212.6 (CO6)	To understand the concepts of radio waves

## SUB CODE/SUBJECT NAME: EC6404-LINEAR INTEGRATED CIRCUITS

YEAR / SEM: II/IV

Course Code	COURSE OUTCOMES
C213.1 (CO1)	. To design linear and nonlinear applications of op – amps.
C213.2 (CO2)	To design applications using analog multiplier and PLL.



<b>C213.3</b> <b>(CO3)</b>	To design ADC and DAC using op – amps.
<b>C213.4</b> <b>(CO4)</b>	To generate waveforms using op – amp circuits.
<b>C213.5</b> <b>(CO5)</b>	To Analyze special function ICs.
<b>C213.6</b> <b>(CO6)</b>	To design oscillators and regulators

## **SUB CODE/SUBJECT NAME: EC6405-CONTROL SYSTEM ENGINEERING**

**YEAR / SEM: II/IV**

<b>Course Code</b>	<b>COURSE OUTCOMES</b>
<b>C214.1</b> <b>(CO1)</b>	To perform Time domain and frequency domain analysis of control systems
<b>C214.2</b> <b>(CO2)</b>	To design compensation techniques that can be used to stabilize control systems
<b>C214.3</b> <b>(CO3)</b>	To implement element of control system and their modeling using various techniques
<b>C214.4</b> <b>(CO4)</b>	To implement state variable analysis method
<b>C214.5</b> <b>(CO5)</b>	To implement Bode plot ,Polar plot and Nyquist plot
<b>C214.6</b> <b>(CO6)</b>	To impart knowledge on closed loop systems

## **SUB CODE/SUBJECT NAME: EC6411 CIRCUIT AND SIMULATION INTEGRATED LABORATORY**

**YEAR / SEM: II/IV**

<b>Course Code</b>	<b>COURSE OUTCOMES</b>
<b>C215.1</b> <b>(CO1)</b>	Able to analyze various types of feedback amplifiers.
<b>C215.2</b> <b>(CO2)</b>	To design oscillators, tuned amplifiers, wave-shaping circuits and multivibrators.
<b>C215.3</b> <b>(CO3)</b>	To design and simulate feedback amplifiers, oscillators, tuned amplifiers, wave-shaping circuits using SPICE model shaping circuits and multivibrators using SPICE Tool.
<b>C215.4</b> <b>(CO4)</b>	Able to design and simulate multivibrators using SPICE model.
<b>C215.5</b> <b>(CO5)</b>	Able to differentiate feedback amplifiers and oscillators.
<b>C215.6</b> <b>(CO6)</b>	Able to simulate voltage and current time base Generator





## **SUB CODE/SUBJECT NAME: EC6412 LINEAR INTEGRATED CIRCUITS LABORATOR**

**YEAR / SEM: II/IV**

Course Code	COURSE OUTCOMES
C216.1 (CO1)	To design oscillators and amplifiers using operational amplifiers.
C216.2 (CO2)	To design filters using Opamp and perform experiment on frequency response.
C216.3 (CO3)	To analyse the working of PLL and use PLL as frequency multiplier.
C216.4 (CO4)	To design DC power supply using ICs.
C216.5 (CO5)	Analyse the performance of oscillators and multivibrators using SPICE
C216.6 (CO6)	Analyse the performance of CMOS circuits using SPICE

## **SUB CODE/SUBJECT NAME: EE6461 ELECTRICAL ENGINEERING AND CONTROL SYSTEM LABORATORY**

**YEAR / SEM: II/IV**

Course Code	COURSE OUTCOMES
C217.1 (CO1)	To design oscillators and amplifiers using operational amplifiers.
C217.2 (CO2)	To design filters using Opamp and perform experiment on frequency response.
C217.3 (CO3)	To analyse the working of PLL and use PLL as frequency multiplier.
C217.4 (CO4)	To design DC power supply using ICs.
C217.5 (CO5)	Analyse the performance of oscillators and multivibrators using SPICE
C217.6 (CO6)	Analyse the performance of CMOS circuits using SPICE

## **SEMESTER V**

### **SUB CODE/SUBJECT NAME: EC6501- DIGITAL COMMUNICATION**

**YEAR / SEM: III/V**

Course Code	COURSE OUTCOMES
C301.1 (CO1)	Able to understand signal space representation of signals and the process of sampling, quantization and coding that are fundamental to the digital transmission of analog signals
C301.2	To understand baseband encoding techniques and comparison of speech



(CO2)	encoding methods
C301.3 (CO3)	To analysis various types of error control codes
C301.4 (CO4)	Able to understand baseband reception techniques
C301.5 (CO5)	Able to understand various types of Digital modulation techniques.
C301.6 (CO6)	CDMA transmitter and receiver

## SUB CODE/SUBJECT NAME: EC6502 – PRINCIPLES OF DIGITAL SIGNAL PROCESSING

YEAR / SEM: III/V

Course Code	COURSE OUTCOMES
C302.1 (CO1)	Able to apply DFT for the analysis of digital signals & systems
C302.2 (CO2)	Able to design IIR and FIR filters
C302.3 (CO3)	Able to characterize finite Word length effect on filters
C302.4 (CO4)	Able to design the Multirate Filters
C302.5 (CO5)	Able to apply Adaptive Filters to equalization
C302.6 (CO6)	To apply adaptive filters to equalization

## SUB CODE/SUBJECT NAME: EC6503 – TRANSMISSION LINES AND WAVEGUIDES

YEAR / SEM: III/V

Course Code	COURSE OUTCOMES
C303.1 (CO1)	Discuss the propagation of signals through transmission lines.
C303.2 (CO2)	Able to analyze the signal propagation at radio frequencies
C303.3 (CO3)	Able to analyze impedance matching using smith chart.
C303.4 (CO4)	Able to understand the fundamental of filters
C303.5 (CO5)	Able to understand radio propagation in guided system and utilize cavity resonator
C303.6 (CO6)	Able to learn Maxwell's equation and its boundary conditions



## SUB CODE/SUBJECT NAME: GE6351-ENVIRONMENTAL SCIENCE AND ENGINEERING

YEAR / SEM: III/V

Course Code	COURSE OUTCOMES
C304.1 (CO1)	Finding and implementing scientific, technological, economic and political solutions to environmental problems. Study the dynamic processes and understand the features of the earth's interior and surface. Study the interrelationship between living organism and environment..
C304.2 (CO2)	What are the types of pollution, what is the role of a human being in maintaining a clean environment and useful environment for the future generations pollution control and waste management.
C304.3 (CO3)	What are precious resources in the environment, how to conserve these resources appreciate the importance of environment by assessing its impact on the human world; envision the surrounding environment, its functions and its value.
C304.4 (CO4)	The role of government and nongovernment organization in environment managements. Water conservation practices.
C304.5 (CO5)	What are the problems of population to environment and how to manage the Problems.
C304.6 (CO6)	Ecosystem balance

## SUB CODE/SUBJECT NAME: EC6504-MICROPROCESSOR AND MICROCONTROLLERS

YEAR / SEM: III/V

Course Code	COURSE OUTCOMES
C305.1 (CO1)	Able to understand addressing modes of 8086 microprocessor
C305.2 (CO2)	Able to understand multiprocessor configuration of 8086 microprocessor
C305.3 (CO3)	Able to design the peripheral interfacing of microprocessors.
C305.4 (CO4)	Able to design and implement programming and interfacing of 8051 Microcontroller.
C305.5 (CO5)	Able to understand ADC and DAC Interfacing of 8086 microprocessor
C305.6 (CO6)	Able to understand and implement the programming for small embedded systems



## SUB CODE/SUBJECT NAME: EC6511 –DIGITAL SIGNAL PROCESSING LAB

YEAR / SEM: III/V

Course Code	COURSE OUTCOMES
C306.1 (CO1)	Able to carry out simulation of DSP systems
C306.2 (CO2)	Able to demonstrate their abilities towards DSP processor based implementation of DSP systems
C306.3 (CO3)	Able to demonstrate the FFT
C306.4 (CO4)	Able to design analog filters on paper and implement the design by using MATLAB.
C306.5 (CO5)	Able to design digital filters on paper and implement the design by using MATLAB.
C306.6 (CO6)	Able to implement adaptive filters for various applications of DSP

## SUB CODE/SUBJECT NAME: EC6512 –COMMUNICATION SYSTEM LAB

YEAR / SEM: III/V

Course Code	COURSE OUTCOMES
C307.1 (CO1)	Able to design amplitude, Frequency modulation and Demodulation Respectively.
C307.2 (CO2)	Able to design and plot the signal representation of PAM/PWM/PPM
C307.3 (CO3)	Able to design and plot the delta and adaptive delta modulation
C307.4 (CO4)	Able to design and simulate various types of Digital modulation Using MATLAB
C307.5 (CO5)	Able to design Emphasis circuits and PLL circuits.
C307.6 (CO6)	Able to design multiplexing circuits

## SUB CODE/SUBJECT NAME: EC6513 –MICROPROCESSOR AND MICROCONTROLLER LAB

YEAR / SEM: III/V

Course Code	COURSE OUTCOMES
C308.1 (CO1)	To write program for arithmetic operations and execute Using 8086
C308.2	Able to write program for sorting and string manipulation operation



(CO2)	
<b>C308.3</b> (CO3)	Able to design and demonstrate Digital Clock and stop watch
<b>C308.4</b> (CO4)	Able to understand and demonstrate Serial and parallel communication between two microprocessors kits using 8251 and 8255 respectively.
<b>C308.5</b> (CO5)	Able to demonstrate interfacing and programming of stepper motor and DC motor speed control
<b>C308.6</b> (CO6)	Able to use software tools for better programming.

## SEMESTER VI

### SUB CODE/SUBJECT NAME: MG6851 – PRINCIPLES OF MANAGEMENT

YEAR / SEM: III/VI

Course Code	COURSE OUTCOMES
<b>C309.1</b> (CO1)	To analyze the meaning of management, managers and to analyze the trends and challenges of management globally.
<b>C309.2</b> (CO2)	To study about planning, its process MBO, various types of strategies policies decision making process
<b>C309.3</b> (CO3)	To describe the organization structure, types of departmentation, delegation and decentralization and the staffing process.
<b>C309.4</b> (CO4)	To analyze the motivation factors, leadership types and theories, to know the importance of communication, its methods and barriers and the organization culture.
<b>C309.5</b> (CO5)	To explain the controlling types and process, the budgetary techniques and non-budgetary types.
<b>C309.6</b> (CO6)	Identify the gap between actual and expected performance in organization.

### SUB CODE/SUBJECT NAME: CS6303-COMPUTER ARCHITECTURE

YEAR / SEM: III/VI

Course Code	COURSE OUTCOMES
<b>C310.1</b> (CO1)	To have a thorough understanding of the basic structure and operation of a digital computer.
<b>C310.2</b> (CO2)	To discuss in detail the operation of the arithmetic unit including the algorithms & implementation of fixed-point and floating-point addition, subtraction, multiplication & division



<b>C310.3 (CO3)</b>	To study in detail the different types of control and the concept of pipelining. memory
<b>C310.4 (CO4)</b>	To study the hierarchical memory system including cache memories and virtual Memories
<b>C310.5 (CO5)</b>	To study the different ways of communicating with I/O devices
<b>C310.6 (CO6)</b>	To study the different ways of communicating with standard I/O interfaces.

## SUB CODE/SUBJECT NAME: CS6551 – COMPUTER NETWORKS

**YEAR / SEM: III/VI**

Course Code	COURSE OUTCOMES
<b>C311.1 (CO1)</b>	Able to understand the concept and importance of data communications and the Internet in supporting business communications and daily activities
<b>C311.2 (CO2)</b>	Able to implement & configure the different internetworking devices like Routers
<b>C311.3 (CO3)</b>	Able to design, calculate, and apply subnet masks and addresses to fulfil networking requirements
<b>C311.4 (CO4)</b>	Able to understand the working principle of various application layer protocols such as HTTP, DNS, and SMTP
<b>C311.5 (CO5)</b>	Able to understand the concept of network security algorithms to impose privacy and authentication
<b>C311.6 (CO6)</b>	Able to understand the concept of full network system to communicate the data without error

## SUB CODE/SUBJECT NAME: EC6601-VLSI DESIGN

**YEAR / SEM: III/VI**

Course Code	COURSE OUTCOMES
<b>C312.1 (CO1)</b>	To learn the basics of CMOS circuits and CMOS process technology.
<b>C312.2 (CO2)</b>	To learn about application specific integrated circuits
<b>C312.3 (CO3)</b>	To learn the basics of circuit families and design of combinational circuits.
<b>C312.4 (CO4)</b>	To learn the design of sequential circuits.
<b>C312.5 (CO5)</b>	To learn the design of arithmetic building blocks
<b>C312.6 (CO6)</b>	To learn the concepts of modeling a digital system using Hardware Description Language.



## SUB CODE/SUBJECT NAME: EC6602 – ANTENNA AND WAVE PROPAGATION

YEAR / SEM: III/VI

Course Code	COURSE OUTCOMES
C313.1 (CO1)	Able to explain how an antenna radiates and capture radio wave energy from the concepts of radiation by dynamic currents and charges, and retarded potentials. Able to understand the characteristics of antennas and measurement of antenna parameters using Antenna design software
C313.2 (CO2)	Able to understand aperture antenna such as frequency independent
C313.3 (CO3)	Analyze the antenna arrays, aperture antennas and special antennas such as frequency independent and broad band
C313.4 (CO4)	Able to understand various special antennas, design and implementation of special antennas using Antenna design software
C313.5 (CO5)	Able to understand the mechanism of the atmospheric effects on radio wave propagation
C313.6 (CO6)	Able to design and implementation of patch antennas using ADS

## SUB CODE/SUBJECT NAME: EC6001 –MEDICAL ELECTRONICS(ELECTIVE –I)

YEAR / SEM: III/VI

Course Code	COURSE OUTCOMES
C314.1 (CO1)	Able to study the methods of recording various biopotentials
C314.2 (CO2)	Able to know how to measure biochemical and various physiological information
C314.3 (CO3)	Able to understand the working of units which will help to restore normal functioning of human body
C314.4 (CO4)	Able to understand the use of radiation for diagnosis and therapy.
C314.5 (CO5)	Able to understand the need and technique of electrical safety in Hospitals.
C314.6 (CO6)	Able to understand the applications of electronics in diagnostic and therapeutic area

## SUB CODE/SUBJECT NAME: EC6611 COMPUTER NETWORKS LAB

YEAR / SEM: III/VI

Course Code	COURSE OUTCOMES
C315.1	Able to understand parallel and serial communication using 8 bit parallel cable



(CO1)	and RS232 Cable respectively
C315.2 (CO2)	Able to analysis the performance of CSMA/CD Protocol through simulation
C315.3 (CO3)	Able to analysis the performance of token bus and token ring through simulation
C315.4 (CO4)	Able to understand the implementation of distance vector routing algorithm and link state routing algorithm
C315.5 (CO5)	Able to understand the implementation of encryption and decryption
C315.6 (CO6)	Able to understand the implementation of full network system to communicate the data without error

## SUB CODE/SUBJECT NAME: EC6612-VLSI Design LAB

YEAR / SEM: III/VI

Course Code	COURSE OUTCOMES
C316.1 (CO1)	Able to simulate combinational logic circuits.
C316.2 (CO2)	Able to simulate sequential logic circuits.
C316.3 (CO3)	Able to implement combinational and sequential logic circuits in FPGA kit.
C316.4 (CO4)	Able to synthesis, floor planning and routing of logic circuits.
C316.5 (CO5)	Able to draw the schematic of CMOS circuits and SPICE simulation.
C316.6 (CO6)	Able to draw the layout of CMOS circuits.

## SUB CODE/SUBJECT NAME: GE6674-COMMUNICATION SKILLS LAB

YEAR / SEM: III/VI

Course Code	COURSE OUTCOMES
C317.1 (CO1)	To equip students of Engineering & Technology with effective listening skills.
C317.2 (CO2)	Develop creative thinking skills, improve vocabulary & Language style.
C317.3 (CO3)	Aware of the Technical Tarragons an d various skills like Problem solving and Decision making.
C317.4 (CO4)	Develop soft skills, interpersonal skills and evolves self-confidence.
C317.5 (CO5)	Make presentations and participate in GD
C317.6 (CO6)	Make presentations and participate in international exams





## SEMESTER VII

### SUB CODE/SUBJECT NAME: EC6701- RF & MICROWAVE ENGINEERING

YEAR / SEM: IV/VII

Course Code	COURSE OUTCOMES
C401.1 (CO1)	Apply electromagnetic theory to calculations regarding waveguides and transmission lines.
C401.2 (CO2)	Able to describe, analyze and design simple microwave circuits and devices , matching circuits, couplers, antennas and amplifiers
C401.3 (CO3)	Able to describe and design RF Circuits
C401.4 (CO4)	Able to describe common devices such as microwave vacuum tubes, high-speed transistors and ferrite devices
C401.5 (CO5)	Able to describe common devices such as high-speed transistors and ferrite devices
C401.6 (CO6)	Able to handle microwave equipment and make measurements

### SUB CODE/SUBJECT NAME: EC6702– OPTICAL COMMUNICATION & NETWORKING

YEAR / SEM: IV/VII

Course Code	COURSE OUTCOMES
C402.1 (CO1)	To understand the basic operating principles of single mode, multimode fibers, light sources, detectors, amplifiers and passive optical devices.
C402.2 (CO2)	To interpret the optical losses characteristic in optical fiber such as dispersion, scattering, absorption, nonlinear effects, fiber alignment and splicing that affect the performance of transmission systems
C402.3 (CO3)	To understand, describe, analyze, and compare the most important devices: light sources, fibers and detectors from both physical and system point of view.
C402.4 (CO4)	To Learn the fiber optical receiver such as PIN APD diodes, noise performance in photo detector, receiver operation and configuration.
C402.5 (CO5)	To learn digital transmission system , optical communication Network & operation principles WDM
C402.6 (CO6)	To learn the fiber optical receivers, noise performance in photo detector, receiver operation and configuration.



## SUB CODE/SUBJECT NAME: EC6703 – EMBEDDED AND REAL TIME SYSTEMS

YEAR / SEM: IV/VII

Course Code	COURSE OUTCOMES
C403.1 (CO1)	Able to understand the basic design process of embedded systems and ARM processors
C403.2 (CO2)	Able to understand the analysis of embedded system programs and devices
C403.3 (CO3)	Able to understand the scheduling policies and operating system
C403.4 (CO4)	Able to understand network design and accelerators design
C403.5 (CO5)	Able to understand FOSS Tool
C403.6 (CO6)	Able to learn Keil software

## SUB CODE/SUBJECT NAME: EC6004-SATELLITE COMMUNICATION (ELECTIVE –II) YEAR / SEM: IV/VII

Course Code	COURSE OUTCOMES
C404.1 (CO1)	To analyze various satellite orbits
C404.2 (CO2)	To analyze space segment
C404.3 (CO3)	To analyze earth segment
C404.4 (CO4)	To understand various methods of satellite access
C404.5 (CO5)	To understand various applications of satellite
C404.6 (CO6)	Able to design link budget for satellite uplink and downlink model

## SUB CODE/SUBJECT NAME: EC6011-ELECTROMAGNETIC INTERFERENCE AND COMPATIBILITY (ELECTIVE-III) YEAR / SEM: IV/VII

Course Code	COURSE OUTCOMES
C405.1 (CO1)	Able to find the solution to EMI sources
C405.2 (CO2)	Able to understand the coupling mechanisms
C405.3 (CO3)	Able to solve the EMI problems in PCB Level ,subsystem and system level design



<b>C405.4</b> <b>(CO4)</b>	Able to learn about EMIC standards and Regulation
<b>C405.5</b> <b>(CO5)</b>	Able to understand and measure various test methods
<b>C405.6</b> <b>(CO6)</b>	Able to measure emission immunity level from different system

**SUB CODE/SUBJECT NAME: EC6014-COGNITIVE RADIO (ELECTIVE-IV)**  
**YEAR / SEM: IV/VII**

<b>Course Code</b>	<b>COURSE OUTCOMES</b>
<b>C406.1</b> <b>(CO1)</b>	Able to understand the evolution of software Defined Radio
<b>C406.2</b> <b>(CO2)</b>	Able to understand the basics and architecture of Software Defined Radio.
<b>C406.3</b> <b>(CO3)</b>	Able to understand the basics Cognitive networks .
<b>C406.4</b> <b>(CO4)</b>	Able to understand the building of Cognitive architecture on SDR architecture
<b>C406.5</b> <b>(CO5)</b>	Able to understand the concept of wireless networks and next generation networks .
<b>C406.6</b> <b>(CO6)</b>	Able to design the wireless networks based on cognitive radio

**SUB CODE/SUBJECT NAME: EC6711 EMBEDDED LAB**

**YEAR / SEM: IV/VII**

<b>Course Code</b>	<b>COURSE OUTCOMES</b>
<b>C407.1</b> <b>(CO1)</b>	Able to write programs in ARM for a specific Application
<b>C407.2</b> <b>(CO2)</b>	Able to understand Interface memory and Write programs related to memory operations
<b>C407.3</b> <b>(CO3)</b>	Able to understand Interface A/D and D/A convertors with ARM system
<b>C407.4</b> <b>(CO4)</b>	Able to Analyse the performance of interrupt
<b>C407.5</b> <b>(CO5)</b>	Able to write programmes for interfacing keyboard, display, motor and sensor.
<b>C407.6</b> <b>(CO6)</b>	Able to Formulate a mini project using embedded system

**SUB CODE/SUBJECT NAME: EC6712-OPTICAL & MICROWAVE LAB**

**YEAR / SEM: IV/VII**



Course Code	COURSE OUTCOMES
C408.1 (CO1)	Able to understand the basic operating principles of single mode, multimode fibers, light sources, detectors.
C408.2 (CO2)	Able to design a simple optical communication link
C408.3 (CO3)	Able to understand, describe, analyze, compare the microwave passive devices like waveguide tees, directional couplers.
C408.4 (CO4)	Able to compare the characteristics of microwave vacuum tube source and semiconductor source.
C408.5 (CO5)	Able to measure the microwave power and frequency.
C408.6 (CO6)	Able to understand, describe, analyze, compare the microwave passive devices like directional couplers, circulators and Isolators

## SEMESTER VIII

### SUB CODE/SUBJECT NAME: EC6801 – WIRELESS COMMUNICATION

#### YEAR / SEM: IV/VIII

Course Code	COURSE OUTCOMES
C409.1 (CO1)	Able to Characterize wireless channels .
C409.2 (CO2)	Able to design and implement various signaling schemes for fading channels .
C409.3 (CO3)	Able to design a cellular system .
C409.4 (CO4)	Able to Compare multipath mitigation techniques and analyze their performance .
C409.5 (CO5)	Able to design and implement systems with transmit/receive diversity .
C409.6 (CO6)	Able to design and implement MIMO systems and analyze their performance.

### SUB CODE/SUBJECT NAME: EC6802 – WIRELESS NETWORKS

#### YEAR / SEM: IV/VIII

Course Code	COURSE OUTCOMES
C410.1 (CO1)	To understand wireless MAC layer alternative techniques
C410.2 (CO2)	To understand the various generations of cellular networks and the operation of wireless networks



<b>C410.3 (CO3)</b>	To learn various protocols involved in wireless networks
<b>C410.4 (CO4)</b>	To learn various wireless LAN and WAN concepts
<b>C410.5 (CO5)</b>	To understand WMAN and PAN
<b>C410.6 (CO6)</b>	To understand the concepts of cognitive radio

**SUB CODE/SUBJECT NAME: CS6003– ADHOC AND SENSOR NETWORKS (ELECTIVE –V)  
YEAR / SEM: IV/VIII**

<b>Course Code</b>	<b>COURSE OUTCOMES</b>
<b>C411.1 (CO1)</b>	Able to explain the concepts, network architectures and applications of ad hoc and wireless sensor networks
<b>C411.2 (CO2)</b>	Able to Analyze the protocol design issues of ad hoc and sensor networks
<b>C411.3 (CO3)</b>	Able to Design routing protocols for ad hoc with respect to some protocol design issues
<b>C411.4 (CO4)</b>	Able to Design wireless sensor networks with respect to some protocol design issues
<b>C411.5 (CO5)</b>	Able to Evaluate the QoS related performance measurements of ad hoc and sensor networks
<b>C411.6 (CO6)</b>	Able to expose to the TCP issues in adhoc networks.

**SUB CODE/SUBJECT NAME: GE6757-TOTAL QUALITY MANAGEMENT (ELECTIVE -VI)  
YEAR / SEM: IV/VIII**

<b>Course Code</b>	<b>COURSE OUTCOMES</b>
<b>C412.1 (CO1)</b>	To analyze the meaning of total quality, its functions, the concept of quality and the contributions of quality guru's.
<b>C412.2 (CO2)</b>	To focus on customers, their satisfaction, complaints, continuous process improvement in detail.
<b>C412.3 (CO3)</b>	To describe the various traditional and new tools for management to analyze the quality, the six sigma concept, FMEA and benchmarking techniques.
<b>C412.4 (CO4)</b>	To explain the quality circles importance, TPM, Taguchi's quality loss function, the cost of quality.
<b>C412.5 (CO5)</b>	To describe the procedure of documentation for ISO standards for ISO 9000-2000, 14000. Quality auditing and case studies regarding implementation of TQM



<b>C412.6 (CO6)</b>	Able to gain basic knowledge in total quality management relevant to both manufacturing and service industry including IT sector
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## SUB CODE/SUBJECT NAME: EC6811 – PROJECT WORK

YEAR / SEM: IV/VIII

Course Code	COURSE OUTCOMES
<b>C413.1 (CO1)</b>	Able to understand the concepts and design process of various electronics circuits and communication engineering
<b>C413.2 (CO2)</b>	To develop and implement the innovative ideas.
<b>C413.3 (CO3)</b>	Able to identify and solving the real time problems
<b>C413.4 (CO4)</b>	Able to attain the leadership quality.
<b>C413.5 (CO5)</b>	Able to publish the Research Finding through conference and journals.
<b>C413.6 (CO6)</b>	Able to get the patent

## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

SUB CODE / SUBJECT NAME: HS6151/ TECHNICAL ENGLISH - I

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
<b>C101.1 (CO1)</b>	Define the fundamentals of engineering after learning the rules of English Grammar.
<b>C101.2 (CO2)</b>	Observe and interpret the contextual knowledge by speaking, listening and reading the social issues such as public health, safety, legal and culturally related considerations.
<b>C101.3 (CO3)</b>	Apply the creative, appropriate techniques, resources to analyze complex engineering problems by interactive exercises such as interviews and dialogue-writing.
<b>C101.4 (CO4)</b>	Design the multidisciplinary settings to manage projects as an individual, as a member or leader after taking the exercises like role-play, group discussion and making presentations
<b>C101.5 (CO5)</b>	Model the life-long learning methods suitable for all the environments committed to professional ethics and responsibilities after inculcating the habit of reading and writing
<b>C101.6 (CO6)</b>	Analyze and identify the root for an effective managerial skills through different spoken discourse and excerpts



**SUB CODE / SUBJECT NAME: MA6151/ ENGINEERING MATHS - I**  
**YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C102.1 (C01)	Define Eigen values and Eigen vectors and explain how to analyze the stability of a system using these concepts and many other real time application in engineering.
C102.2 (C02)	Explain the physical interpretation of divergence, curl and gradient of a vector field and also how to apply these concepts in solving engineering problems.
C102.3 (C03)	Define the convergence of a sequence and series and make the student knowledgeable in the area of infinite series and their convergence so that he/ she will be familiar with limitations of using infinite series approximations for solutions arising in mathematical modeling
C102.4 (C04)	Introduce the concept of multivariable functions of real variables arise inevitably in engineering and physics due to any one physical quantity will generally depend on a number of other quantities and help to solve real time problems.
C102.5 (C05)	Extend the concept of single integral to multiple integral and explain how to evaluate it. Also explain the idea of change of order of integration and explain how to find Area and volume of solids
C102.6 (C06)	Understand various mathematical tools and apply it to solve the engineering problems most effectively

**SUB CODE / SUBJECT NAME: PH6151/ ENGINEERING PHYSICS - I**

**YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C103.1 (C01)	To understand the possible crystal structures and to analyze various growth techniques in the view of increasing demand of crystals for various Engineering and Technological applications.
C103.2 (C02)	To understand the basic concepts of elastic behavior of materials and evaluate the structural stability of beams. Remembering functional ideas of thermal physics and compare the thermal conductivity of different materials to meet the specific needs
C103.3 (C03)	Describe and analyzing the quantum nature of radiation and matter to solve the real time societal and technological problems.
C103.4 (C04)	The significance of frequency dependent sound waves is discussed and to solve the Medical and Engineering problems using ultrasonic's.
C103.5 (C05)	To discuss the propagation of light in optical fibers, compare various types of fibers and its applications in Medical and Engineering fields
C103.6 (C06)	To make the students understand the fundamentals of Physics to solve complex engineering problems for benefit of the society

**SUB CODE / SUBJECT NAME: CY6151/ ENGINEERING CHEMISTRY - I**

**YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C104.1 (C01)	To apply and implement the knowledge of synthesis and uses of polymers in industries and environment



<b>C104.2 (C02)</b>	To analyze and understand the concepts of thermodynamic laws in various industrial applications
<b>C104.3 (C03)</b>	To understand and remember the concepts of photo physical, photochemical process and spectroscopy for getting knowledge in light emitting properties of compounds and identifying the functional groups of molecules
<b>C104.4 (C04)</b>	Knowledge of alloys gives an idea about the manufacturing process in various industries
<b>C104.5 (C05)</b>	To create the knowledge of nonmaterial's and their applications in fields like medicinal, electrical, electronic, chemical,etc
<b>C104.6 (C06)</b>	The knowledge gained on polymer chemistry, Thermodynamics, Spectroscopy, phase rule and nano materials will provide a strong platform to understand the concept on various fields like mechanical, electrical, civil engineering for further learning

**SUB CODE / SUBJECT NAME: GE6151/ COMPUTER PROGRAMMING**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C105.1 (C01)</b>	Understand the organization of a digital computer.
<b>C105.2 (C02)</b>	Be exposed to the number systems
<b>C105.3 (C03)</b>	Ability to think logically and write pseudo code or draw flow charts for problems.
<b>C105.4 (C04)</b>	Ability to use arrays, strings, functions, pointers, structures and unions in C.
<b>C105.5 (C05)</b>	Design C Programs for problems
<b>C105.6 (C06)</b>	Write and execute C programs for simple applications

**SUB CODE / SUBJECT NAME: GE6152/ ENGINEERING GRAPHICS**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C106.1 (C01)</b>	How to draw different engineering curves, draw different orthographic projections.
<b>C106.2 (C02)</b>	Illustrate different views of points, lines and planes inclined to both HP and VP in first quadrant.
<b>C106.3 (C03)</b>	Develop the projections of simple solids inclined to any one plane
<b>C106.4 (C04)</b>	Categorize Section and develop various solids
<b>C106.5 (C05)</b>	Evaluate to Draw 3D projections of simple solids by Perspective by visual ray method and Isometric projections





<b>C106.6 (C06)</b>	Build an engineering component using Paper drawing as well as in CAD
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**SUB CODE / SUBJECT NAME: GE6161/ COMPUTER PRACTICES LABORATORY**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C107.1 (C01)</b>	Be familiar with the use of Office software.
<b>C107.2 (C02)</b>	Be exposed to presentation and visualization tools.
<b>C107.3 (C03)</b>	Be exposed to problem solving techniques and flow charts.
<b>C107.4 (C04)</b>	Apply good programming design methods for program development.
<b>C107.5 (C05)</b>	Design and implement C programs for simple applications.
<b>C107.6 (C06)</b>	Develop recursive programs.

**SUB CODE / SUBJECT NAME: GE6162/ ENGINEERING PRACTICES LABORATORY**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C108.1 (C01)</b>	Hands on experience on welding, sheet metal and lathe works
<b>C108.2 (C02)</b>	Experience the plumbing and carpentry work
<b>C108.3 (C03)</b>	Demonstration on centrifugal pump and air conditioning working principles
<b>C108.4 (C04)</b>	Measurement of Electrical quantities, earthing procedures, wiring methods etc
<b>C108.5 (C05)</b>	Study of Electronic components and equipments – Resistor, colour coding measurement of AC signal parameter, Gates , Circuits etc
<b>C108.6 (C06)</b>	Provide exposure to the students with hands on experience on various basic engineering practices in Civil, Mechanical, Electrical and Electronics Engineering.

**SUB CODE / SUBJECT NAME: GE6163/ PHYSICS AND CHEMISTRY LAB - I**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C109.1 (C01)</b>	To apply the physics principles of Thermal physics and Properties of Matter to evaluate properties of materials



<b>C109.2 (C02)</b>	To understand measurement technique and usage of new instrument in Optics for real time application in Engineering .
<b>C109.3 (C03)</b>	Apply the concept of Ultrasonic to determine the physical parameters
<b>C109.4 (C04)</b>	Able to analyze the quality of water for domestic and industrial purpose
<b>C109.5 (C05)</b>	Used to find out the emf for different metallic solutions from which electrode potential is determined
<b>C109.6 (C06)</b>	To acquire knowledge about the conductivity of acids and bases

## SEMESTER -II

**SUB CODE / SUBJECT NAME: HS8251/ TECHNICAL ENGLISH**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C110.1 (C01)</b>	Define the fundamentals of engineering after learning the rules of English Grammar
<b>C110.2 (C02)</b>	Read technical text and write area-specific text effortlessly.
<b>C110.3 (C03)</b>	Listen and comprehend lectures and talks in their area of specialization successfully.
<b>C110.4 (C04)</b>	Speak appropriately and effectively in varied formal and informal contexts.
<b>C110.5 (C05)</b>	Write reports and winning job applications
<b>C110.6 (C06)</b>	Analyze and identify the root for an effective managerial skills through different spoken discourse and excerpts

**SUB CODE / SUBJECT NAME: MA8251/ ENGINEERING MATHEMATICS-II**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C111.1 (C01)</b>	Introduce the concepts of Eigen value and Eigenvectors which help to find the stability of the systems in engineering
<b>C111.2 (C02)</b>	Define and understand the concepts of vector calculus, needed for finding solutions in all engineering discipline problems.
<b>C111.3 (C03)</b>	Develop an understanding of the standard techniques of complex variable theory so as to enable the student to apply them with confidence, in application areas such as heat conduction, elasticity, fluid dynamics and flow of the electric current.



<b>C111.4</b> <b>(C04)</b>	Evaluate real integrals by applying concept of complex integration
<b>C111.5</b> <b>(C05)</b>	Understand and apply the knowledge of Laplace Transforms in solving system of linear differential equations.
<b>C111.6</b> <b>(C06)</b>	Introduces fundamental knowledge in mathematics, that is applicable in the Engineering aspects.

## **SUB CODE / SUBJECT NAME: PH8253/ PHYSICS FOR ELECTRONICS ENGINEERING**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C112.1</b> <b>(C01)</b>	Gain knowledge on classical and quantum electron theories and energy band structures
<b>C112.2</b> <b>(C02)</b>	Acquire knowledge on basics of semiconductor physics and it's applications in various devices
<b>C112.3</b> <b>(C03)</b>	Get knowledge on magnetic and dielectric properties of materials
<b>C112.4</b> <b>(C04)</b>	Have necessary understanding on the functioning of optical materials for opto electronics
<b>C112.5</b> <b>(C05)</b>	Understand the basics of quantum structures and their applications in spintronics and carbon electronics
<b>C112.6</b> <b>(C06)</b>	To Solve the complex engineering problems by understanding the essential Properties of materials

## **SUB CODE / SUBJECT NAME: BE8252/BASIC CIVIL & MECHANICAL ENGINEERING**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C113.1</b> <b>(C01)</b>	Label the basic knowledge on Civil and Mechanical Engineering.
<b>C113.2</b> <b>(C02)</b>	Explain the materials used for the construction of civilized structures.
<b>C113.3</b> <b>(C03)</b>	Make the use of understand the fundamentals of construction of structure.
<b>C113.4</b> <b>(C04)</b>	Classify the component of power plant units and detailed explanation to IC engines their working principles.
<b>C113.5</b> <b>(C05)</b>	Explain the importance of R & AC system.
<b>C113.6</b>	Plan for the overall applications of Basic Engineering sciences



(C06)	
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## SUB CODE / SUBJECT NAME: EE8251/CIRCUIT THEORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C114.1 (C01)	Define and understanding the basic circuit elements and mesh and nodal analysis
C114.2 (C02)	Understanding the concepts of network theorems
C114.3 (C03)	Analyze the phenomenon of resonance and coupled circuits.
C114.4 (C04)	Evaluate the transient response of AC and DC circuits.
C114.5 (C05)	Understanding and analyzing the three phase circuits.
C114.6 (C06)	Understanding the applications of circuit theory

## SUB CODE / SUBJECT NAME: GE8291/ENVIRONMENTAL SCIENCE & ENGINEERING

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C115.1 (C01)	To interpret the relationship between living organisms and the environment and to identify the threats to global biodiversity
C115.2 (C02)	To identify and prevent the problems related to the pollution of air, water, soil, marine, etc
C115.3 (C03)	To understand the importance of natural resources and to conserve it for future generation
C115.4 (C04)	To analyze the social issues of the environment to be a part of sustainable development
C115.5 (C05)	To create awareness and sustainable population growth and know the contribution of information technology in environmental management



<b>C115.6</b> <b>(C06)</b>	To study the integrated themes and biodiversity, natural resources, pollution control, waste management for protecting environment from degradation
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## **SUB CODE / SUBJECT NAME: GE8261/ENGINEERING PRACTICES LABORATORY**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C116.1</b> <b>(C01)</b>	How to make joints in carpentry
<b>C116.2</b> <b>(C02)</b>	Make use of joints in plumbing
<b>C116.3</b> <b>(C03)</b>	Show the operation of the lathe
<b>C116.4</b> <b>(C04)</b>	Mark the works in sheet metal
<b>C116.5</b> <b>(C05)</b>	Ability to understand joints in welding
<b>C116.6</b> <b>(C06)</b>	Formulate the brief idea of engineering application

## **SUB CODE / SUBJECT NAME: EE8261/ ELECTRIC CIRCUITS LABORATOR**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C117.1</b> <b>(C01)</b>	Experiment with Kirchhoff's voltage and current laws
<b>C117.2</b> <b>(C02)</b>	Analyze the network theorems (Thevenin, Norton, Superposition and maximum power transfer Theorem).
<b>C117.3</b> <b>(C03)</b>	Explain the function of CRO and measurement of sinusoidal voltage, frequency and power factor.
<b>C117.4</b> <b>(C04)</b>	Evaluate the time constant of series R-C electric circuits by experimentation..
<b>C117.5</b> <b>(C05)</b>	Design the RLC Circuits and analyze the frequency response.
<b>C117.6</b> <b>(C06)</b>	Determine the two port network parameters



## III SEMESTER

### COURSE CODE: C201 MA6351 - TRANSFORM AND PARTIAL DIFFERENTIAL EQUATIONS

#### YEAR / SEM: II/III

CO1.	Evaluating the various model of homogeneous and nonhomogeneous partial differential equations which helps to solve engineering problems.
CO2.	Determine the Fourier coefficients in the Fourier series expansion of a given function and which play a vital role in analysing various complex problems in engineering.
CO3.	Analyzing the one dimensional, two dimensional heat equation and one dimensional wave equation by using the concept of Fourier series, which describes the distribution in a given region over time
CO4	Determine Fourier transform for a given function and use them to evaluate the definite integrals which helps in analysing the differential equation and also applied in quantum mechanics
CO5	Determine Z transforms and standard function and use them to solve the difference equation, which helps to investigate the discrete time signals.
CO6	Understanding of the mathematical principles on transforms and partial differential equation would provide them the ability to formulate and solve the physical problems of engineering

### COURSE CODE: C202 EE6301 - Digital Logic Circuits

#### YEAR / SEM: II/III

CO1.	Study various number systems , simplify the logical expressions using Boolean functions
CO2.	Study implementation of combinational circuits
CO3.	Design various synchronous and asynchronous circuits.
CO4	Introduce asynchronous sequential circuits and PLCs
CO5	Introduce digital simulation for development of application oriented logic circuits.
CO6	To obtain knowledge about VHDL.

### COURSE CODE: C203 EE6302 ELECTROMAGNETIC THEORY

#### YEAR / SEM: II/III

CO1.	Remembering the basic mathematical concepts related to electromagnetic vector fields.
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<b>CO2.</b>	Understand and apply the concepts of electrostatics, electrical potential, energy density
<b>CO3</b>	Understand and apply the concepts of magnetostatics, magnetic flux density, scalar and vector potential and its applications.
<b>CO4</b>	Summarize and Examine the concepts of Faraday's law, induced emf & the relation between the fields under time varying situations.
<b>CO5</b>	Apply and Examine the principles of propagation of Electromagnetic waves and poynting vector.
<b>CO6.</b>	Summarize and Evaluate the applications of electromagnetic fields.

## **COURSE CODE: C204 GE6351 Environmental Science and Engineering**

### **YEAR / SEM: II/III**

<b>CO1.</b>	Finding and implementing scientific, technological, economic and political solutions to environmental problems.
<b>CO2.</b>	Study the interrelationship between living organism and environment
<b>CO3.</b>	Appreciate the importance of environment by assessing its impact on the human world; envision the surrounding environment, its functions and its value.
<b>CO4.</b>	Study the dynamic processes and understand the features of the earth's interior and surface.
<b>CO5.</b>	Study the integrated themes and biodiversity, natural resources, pollution control and waste management
<b>CO6.</b>	Understand the principles of ecology and environmental issues that apply to air ,land, and water issues on a global scale

## **COURSE CODE: C205 EC6202 - Electronic Devices and Circuits**

### **YEAR / SEM: II/III**

<b>CO1.</b>	Remember the basic principle and characteristics of PN junction devices.
<b>CO2.</b>	Explain the operation and applications of electronic devices.
<b>CO3.</b>	Analyze about the different types of amplifiers and configurations



<b>CO4.</b>	Develop the Multistage amplifiers and differential amplifier and it types.
<b>CO5.</b>	Explain the feedback amplifier, Power amplifier and oscillator
<b>CO6.</b>	Design the amplifiers and oscillators with the knowledge of electronic devices

## **COURSE CODE: C206      EE6303- Linear Integrated Circuits and Applications**

**YEAR / SEM: II/III**

<b>CO1</b>	Explain the procedure for the fabrication of IC
<b>CO2</b>	Understand the DC & AC characteristics of Operational amplifier
<b>CO3</b>	Analyze the applications of Operational amplifier
<b>CO4</b>	Describe the internal functional blocks of special ICs
<b>CO5</b>	Design the internal functional blocks of special ICs
<b>CO6</b>	Examine the technology change in linear integrated circuits

## **COURSE CODE: C207      EC6361 Electronics Laboratory**

**YEAR / SEM: II/III**

<b>CO1.</b>	Explain the characteristics of Semiconductor diode, Zener diode, NPN Transistor under common emitter , common collector and common base configurations
<b>CO2</b>	Explain the characteristics of JFET, UJT and generation of saw tooth waveforms
<b>CO3</b>	Design characteristics of photo diode & photo transistor, Study of light activated relay circuit.
<b>CO4</b>	Design and testing of RC phase shift, LC oscillators
<b>CO5</b>	Analyze the Single Phase half-wave and full wave rectifiers with inductive and capacitive filters
<b>CO6</b>	Design of Astable and Monostable multivibrators





## **COURSE CODE: C208 EE6311 Linear and Digital Integrated Circuits Laboratory**

**YEAR / SEM: II/III**

<b>CO1</b>	Recall the concept and characteristics of various operational amplifier circuits and Gates
<b>CO2</b>	Understand the operation & application of operational amplifier and digital circuits
<b>CO3</b>	Apply knowledge about the op-amp and digital circuit in various applications
<b>CO4</b>	Design the circuits using op-amps and digital technique for various applications like adder, subtractor, integrator, differentiator, counter and shift register
<b>CO5</b>	Implement the linear and digital circuits for various applications
<b>CO6</b>	Discuss the technology change in op-amp and Digital circuit

## **COURSE CODE: C209 MA6459 NUMERICAL METHODS**

**YEAR / SEM: II/IV**

<b>CO1</b>	Solve root finding problems using several methods and solving system of linear algebraic equations..
<b>CO2</b>	Estimate the best fit polynomial for the given tabulated data using the different methods and Determine an interpolating function for data
<b>CO3</b>	Estimate single integral and double integral using Numerical Integration
<b>CO4</b>	Solve Ordinary Differential Equation by different methods.
<b>CO5</b>	Apply various numerical methods in solving an initial value problem involving an ordinary differential equation and use the techniques, skills and modern engineering tools necessary for engineering practice.
<b>CO6</b>	Use to solve and give procedures for solving numerically different kinds of problems occurring in engineering and technology



## **COURSE CODE: C210 EE6401 ELECTRICAL MACHINES-I**

**YEAR / SEM: II/IV**

<b>CO1</b>	Remembering the basic concepts of magnetic circuit and properties of magnetic materials
<b>CO2</b>	Understanding the constructional details of transformers and analysing their characteristics.
<b>CO3</b>	Analysing the energy and mmf distribution of magnetic system by applying the concepts of electromechanical energy conversion and deriving the expressions for generated voltage and torque developed in dc machines.
<b>CO4</b>	Understanding the constructional details of DC generators and analysing their characteristics..
<b>CO5</b>	Understanding the constructional details of DC motors and analysing their characteristics.
<b>CO6</b>	Evaluating all parameters related to dc machines and transformers by applying the theoretical concepts.

## **COURSE CODE: C211 CS6456 OBJECT ORIENTED PROGRAMMING**

**YEAR / SEM: II/IV**

<b>CO1</b>	Illustrate the Object Oriented Concepts
<b>CO2</b>	Apply the Basic Object Oriented concepts in C++
<b>CO3</b>	Explain the advanced programming concepts in C++
<b>CO4</b>	Extend the Object Oriented Programming concepts in Java
<b>CO5</b>	Analyze the Exception handling and Multithreading concepts in Java
<b>CO6</b>	Create Applications using Object Oriented Concepts

## **COURSE CODE: C212 EE6402 TRANSMISSION AND DISTRIBUTION**

**YEAR / SEM: II/IV**

<b>CO1</b>	Understanding about the structure of power system, HVAC, HVDC and need for FACTS.
<b>CO2</b>	Understanding the operation of the different distribution schemes.
<b>CO3</b>	Developing expressions for the computation of transmission line parameters.



<b>CO4</b>	Constructing the equivalent circuits for the transmission lines based on distance and operating voltage for determining voltage regulation and efficiency. Also to improve the voltage profile of the transmission system.
<b>CO5</b>	Analysing the voltage distribution in insulator strings and cables and methods to improve the same.
<b>CO6</b>	Designing of transmission line for different weather conditions and to discover about the substation layouts, Methods of Grounding.

## **COURSE CODE: C213 EE6403–Discrete Time Systems and Signal Processing**

**YEAR / SEM: II/IV**

<b>CO1</b>	Define and classify signals and systems, express signals mathematically, explain Nyquist rate, aliasing and sampling techniques to convert analog to discrete time signals, explain spectral density and quantization and its error 4.Able to design the Multirate Filters 5.Able to apply Adaptive Filters to equalization
<b>CO2</b>	Apply z transforms and its properties to solve difference equations of discrete time systems, perform convolution, represent the magnitude and phase response of discrete time signals using Discrete Time Fourier Transform
<b>CO3</b>	Find the Discrete Fourier Transform of discrete time signals using direct DFT and FFT, analyze the magnitude and phase representation of the Discrete Fourier Transform of discrete time signals
<b>CO4</b>	Design digital IIR and FIR filters and model digital IIR and FIR filters using realization structures
<b>CO5</b>	Discuss about architecture, addressing formats, functional modes of digital signal processors, discuss about commercial digital signal processors
<b>CO6</b>	Solve digital signal processing problems using transforms and its properties

## **COURSE CODE: C214 EE6404 MEASUREMENTS AND INSTRUMENTATION**

**YEAR / SEM: II/IV**

<b>CO1</b>	Understand the Design and working of various types of Electrical and Electronics Instruments.
<b>CO2</b>	Analyse and Apply the fundamentals of of Electrical and Electronics Instruments.



<b>CO3</b>	Analyse and educate on the comparison between various measurement techniques.
<b>CO4</b>	Understand about the various storage and display devices.
<b>CO5</b>	Design and Assemble the various transducers and the data acquisition systems.
<b>CO6</b>	Define the working principle of all type of practical Instruments.

## **COURSE CODE: C215 CS6461 OBJECT ORIENTED PROGRAMMING LAB**

**YEAR/ SEM: II/IV**

<b>CO1</b>	Develop simple C++ Programs
<b>CO2</b>	Implement Object Oriented Concepts
<b>CO3</b>	Apply advanced object oriented objects
<b>CO4</b>	Developing File Handling Programs for Sequential and Random access
<b>CO5</b>	Develop Simple Java Applications
<b>CO6</b>	Demonstrate threading and Exception handling in java

## **COURSE CODE: C216 EE6411 ELECTRICAL MACHINES LAB-I**

**YEAR/ SEM: II/IV**

<b>CO1</b>	Estimating the efficiency of DC generators and analyzing their characteristics by experimental load analysis
<b>CO2</b>	Estimating the efficiency of DC motors and analyzing their characteristics by experimental load analysis
<b>CO3</b>	Estimating the efficiency of transformers and analyzing their characteristics by experimental load analysis
<b>CO4</b>	Estimating the losses, regulation and efficiency of dc machines and transformers by indirect loading through various tests.
<b>CO5</b>	Understanding the operation of various starters of dc motor and various connections for three phase transformer
<b>CO6</b>	Creating the ability to model D.C machines and transformers for electrical industries



## V SEMESTER

### **COURSE CODE: C301 EE6501 POWER SYSTEM ANALYSIS** **YEAR / SEM: III/V**

<b>CO1</b>	Understanding the need for power system planning and operational studies under steady state operating condition.
<b>CO2</b>	Analyzing the power system by per phase analysis, representation of different components and to construct Ybus and Z bus.
<b>CO3</b>	Applying numerical methods to solve the power flow problem.
<b>CO4</b>	Model and analyze the system under balanced fault conditions.
<b>CO5</b>	Model and analyze the system under unbalanced fault conditions.
<b>CO6</b>	Formulate swing equation and using numerical to find the solution, understanding the importance of stability analysis of power system.

### **COURSE CODE: C302 EE6502 - MICROPROCESSORS AND MICROCONTROLLERS**

#### **YEAR / SEM: III / V**

<b>CO1</b>	Understanding the basic concepts of microprocessor (8085) & microcontroller (8051)
<b>CO2</b>	Compare the addressing modes & instruction set of 8085 & 8051.
<b>CO3</b>	Identify the need & use of Interrupt structure of 8085 & 8051.
<b>CO4</b>	Develop skill in simple applications with programming in 8085 & 8051
<b>CO5</b>	Examine the commonly used peripheral / interfacing with 8085 & 8051
<b>CO6</b>	Create the knowledge about applications of 8085 & 8051

### **COURSE CODE: C303 ME6701 – POWER PLANT ENGINEERING**

#### **YEAR / SEM: III / V**

<b>CO1</b>	Explaining the concepts of coal based thermal power plants and its functions.
<b>CO2</b>	Understanding the operation of diesel, gas turbine and combined cycle power plants



<b>CO3</b>	Constructing various nuclear power plants and defining its functions
<b>CO4</b>	Elaborate the various renewable energy power plant and compare its functions
<b>CO5</b>	Remembering energy, economic and environmental issues of various power plants
<b>CO6</b>	Analyzing the issues of various power plants

**COURSE CODE: C304 EE6503 - POWER ELECTRONICS**  
**YEAR/ SEM: III / V**

<b>CO1.</b>	Remembering the different types of power semi-conductor devices and understanding their switching characteristics .
<b>CO2.</b>	Analyzing the operation, characteristics and performance parameters of controlled rectifiers.
<b>CO3.</b>	Understanding the operation, switching techniques and analyzing the different types of DC-DC switching regulators .
<b>CO4.</b>	Applying the different modulation techniques in the operation of pulse width modulated inverters.
<b>CO5.</b>	Understanding the operation of AC voltage controller and cycloconverters.
<b>CO6.</b>	Designing converters based on the different applications.

**COURSE CODE: C305 EE6504 - ELECTRICAL MACHINES - II**  
**YEAR/ SEM: III / V**

<b>CO1.</b>	Knowledge, Model and Analyze on Construction and performance of salient and non – salient type synchronous generators.
<b>CO2.</b>	Knowledge, Design and Analyze Principle of operation and performance of synchronous motor
<b>CO3.</b>	Summarize Model and Analyze on Construction, principle of operation and performance of induction machines.
<b>CO4.</b>	Apply, Model and Analyze on Starting and speed control of three-phase induction motors.
<b>CO5.</b>	Knowledge, Model and Analyze on Construction, principle of operation and performance of single phase induction motors and special machines.



<b>CO6.</b>	Apply, Model and Analyze on braking and applications of induction machines
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**COURSE CODE: C306 IC6501 - CONTROL SYSTEMS**  
**YEAR/ SEM: III / V**

<b>CO1.</b>	Understand and remember the use of transfer function models for analysis physical systems and introduce the control system components.
<b>CO2.</b>	Provide adequate knowledge in the time response of systems and steady state error analysis.
<b>CO3.</b>	Analyze the basic knowledge in obtaining the open loop and closed-loop frequency responses of systems.
<b>CO4.</b>	Evaluate the stability analysis and design of compensators.
<b>CO5.</b>	Create and introduce state variable representation of physical systems and study the effect of state feedback.
<b>CO6.</b>	Understand and discuss about the relative stability and nonlinear control system.

**COURSE CODE: C307 IC6501 – CONTROL AND INSTRUMENTATION LABORATORY**  
**YEAR/ SEM: III / V**

<b>CO1.</b>	Recall the concept of design of control system.
<b>CO2.</b>	Understand the concept of Instrumentation and Control design.
<b>CO3.</b>	Analyze the basics of Instrumentation and Control system design.
<b>CO4.</b>	Evaluate the values of control system and Instrumentation.
<b>CO5.</b>	Create the MATLAB simulation of control analysis
<b>CO6.</b>	Evaluate the values of process control systems.



**COURSE CODE: C308 GE6674 COMMUNICATION SKILLS – LABORATORY**  
**YEAR / SEM: III / V**

<b>CO1.</b>	Provide opportunities to learners to practice their communicative skills to make them become proficient users of English.
<b>CO2.</b>	Enable learners to fine-tune their linguistic skills (lsrw) with the help of technology to communicate globally.
<b>CO3.</b>	Enhance the performance of learners at placement interviews and group discussions and other recruitment procedures.
<b>CO4.</b>	English for national and international examinations and placements
<b>CO5.</b>	interview skills
<b>CO6.</b>	soft skills

**COURSE CODE: C309 EE6512 ELECTRICAL MACHINES LAB-II**  
**YEAR / SEM: III / V**

<b>CO1.</b>	Expose the students to the operation of synchronous machines and induction motors and give them experimental skill
<b>CO2.</b>	practical understanding about three phase alternator
<b>CO3.</b>	practical understanding about three phase induction motor
<b>CO4.</b>	Hands on experiment to understand the working principle of three phase synchronous motor
<b>CO5.</b>	Understanding the operation of single phase induction motor using various test.
<b>CO6.</b>	Expose the students to the operation of induction motors and give them experimental skill.





**COURSE CODE: C310 EC6651 COMMUNICATION ENGINEERING**  
**YEAR/ SEM: III / V**

<b>CO1.</b>	Introduce different methods of analog communication and their significance
<b>CO2.</b>	Introduce Digital Communication methods for high bit rate transmission
<b>CO3.</b>	Introduce the concepts of source and line coding techniques for enhancing rating of transmission of minimizing the errors in transmission.
<b>CO4.</b>	Introduce MAC used in communication systems for enhancing the number of users.
<b>CO5.</b>	Introduce various media for digital communication.
<b>CO6.</b>	SATELLITE, OPTICAL FIBER – POWERLINE, SCADA

**SEMESTER -VI**

**COURSE CODE: C311 EC6601 SOLID STATE DRIVES**  
**YEAR/ SEM: III / VI**

<b>CO1</b>	Understanding the steady state operation, transient dynamics and four quadrant operation of a motor load system.
<b>CO2</b>	Analyzing continuous and discontinuous mode operation of the rectifier and chopper fed separately excited dc motor.
<b>CO3</b>	Applying and comparing the stator and rotor speed control methods and closed loop speed control of Induction motor drives.
<b>CO4</b>	Understanding the operation of permanent magnet synchronous motor and self and separate speed control methods of Synchronous motor drives
<b>CO5</b>	Designing the current and speed controllers for a closed loop solid state DC motor drive.
<b>CO6</b>	Designing the DC and AC motor drive by applying different speed control methods.



**COURSE CODE: C312 EE6602 EMBEDDED SYSTEMS**  
**YEAR/ SEM: III / VI**

<b>CO1</b>	Introduce the Building Blocks of Embedded System
<b>CO2</b>	Educate in Various Embedded Development Strategies
<b>CO3</b>	Introduce Bus Communication in processors, Input/output interfacing.
<b>CO4</b>	Impart knowledge in Various processor scheduling algorithms.
<b>CO5</b>	introduce Basics of Real time operating system and example tutorials to discuss on one real- time operating system tool
<b>CO6</b>	To understand and analyze, linear and digital electronic circuits

**COURSE CODE: C313 EE6603 POWER SYSTEM OPERATION AND CONTROL**  
**YEAR/ SEM: III / VI**

<b>CO1</b>	Remembering the basic principles of power system.
<b>CO2</b>	Understanding of operational constraints (equipment and stability), control objectives and their implementation.
<b>CO3</b>	Applying the basic power system fundamentals to gain knowledge about the power system operation and control
<b>CO4</b>	Analyzing the operation and control of power system.
<b>CO5</b>	Evaluating the performance of operation and control of power system.
<b>CO6</b>	Understand and discuss about the function of SCADA.



**COURSE CODE: C314 EE6604 DESIGN OF ELECTRICAL MACHINES**  
**YEAR/ SEM: III / VI**

<b>CO1</b>	Students will be able to <b>choose</b> the electrical engineering & insulating materials and solve the thermal design problem by applying the standard specifications
<b>CO2</b>	Students will be able to <b>interpret</b> the design problems the area of D.C. machines and performance prediction by applying the standard design procedures
<b>CO3</b>	Students will be able to <b>select</b> the design problems in the area of Transformers and solve the design problem by applying the standard design procedures
<b>CO4</b>	Students will be able to <b>simplify</b> the design problems in the area of Induction machines and solve the design problem by applying the standard design procedures
<b>CO5</b>	Students will be able to <b>evaluate</b> the design problems in the area of synchronous machines and solve the design problem by applying the standard design procedures
<b>CO6</b>	Students will be able to <b>develop</b> appropriate transformer and stand by generators also the preparation of layout and estimation distribution system and installation of special equipments

**COURSE CODE: C315 EE6002 POWER SYSTEM TRANSIENT**  
**YEAR/ SEM: III / VI**

<b>CO1</b>	Remembering the basics of Transients in AC circuits and Understanding their types and effects on power systems
<b>CO2</b>	Understanding the generation of Switching transients and Applying the procedure to control them using circuits
<b>CO3</b>	Understanding the mechanism of lightning strokes and production of lightning surges
<b>CO4</b>	Understanding the concepts of Travelling waves on transmission lines and Analyze by computing transients
<b>CO5</b>	Analyze the the impact of voltage transients caused by faults, circuit breaker action, load rejection on integrated power system
<b>CO6</b>	Understanding the importance of study of transients in system planning.



## **COURSE CODE: C316 EE6611 POWER ELECTRONICS AND DRIVES LABORATORY** **YEAR / SEM: III / VI**

<b>CO1</b>	Experimenting with the characteristics of semiconductor devices.
<b>CO2</b>	Designing the R,RC and UJT firing circuit.
<b>CO3</b>	Designing the rectifier and comparing with simulation results.
<b>CO4</b>	Designing the buck boost chopper and comparing with simulation results.
<b>CO5</b>	Experimenting with single and three phase pulse width modulated inverters and AC voltage controller.
<b>CO6</b>	Ability to design any power electronic converter and comparing with simulation results.

## **COURSE CODE: C317 EE6612 MICROPROCESSOR AND MICROCONTROLLER** **LABORATORY YEAR / SEM: III / VI**

<b>CO1</b>	Recalling the terms and basic concepts for programming using Instruction set of microprocessors and microcontroller
<b>CO2</b>	Illustrate programming strategies and select proper mnemonics and run their program
<b>CO3</b>	Make use of different I/O interfacing with 8085 & 8051
<b>CO4</b>	Develop assembly language programs for various applications using 8051 microcontroller
<b>CO5</b>	Analyze the operations of 8085 & 8051 under different cases.
<b>CO6</b>	Ability to interact effectively on a social and interpersonal level with fellow students

## **COURSE CODE: C318 EE6613 PRESENTATION SKILLS AND TECHNICAL SEMINAR** **YEAR / SEM: III / VI**

<b>CO1</b>	Supporting the students to study advanced engineering developments
<b>CO2</b>	Analysing technical reports.
<b>CO3</b>	Plan to use various teaching aids such as over head projectors, power point presentation and



	demonstrative models.
<b>CO4</b>	Improving communication skills
<b>CO5</b>	Improving soft skills
<b>CO6</b>	Improving interpersonal skills

## VII SEMESTER

### **COURSE CODE: C401 EE6701 HIGH VOLTAGE ENGINEERING** **YEAR / SEM: IV / VII**

<b>CO1</b>	Identify the causes of overvoltages and its effect on power system
<b>CO2</b>	Explain the breakdown mechanism of solid ,liquid and gaseous dielectrics.
<b>CO3</b>	Discuss the generation of high voltages and high currents
<b>CO4</b>	Measure the high voltages and high currents using appropriate methods
<b>CO5</b>	Test the insulators, circuit breakers ,busing ,isolators and transformers
<b>CO6</b>	Outline the insulation coordination and explain the triggering of impulse generators

### **COURSE CODE: C402 EE6702 PROTECTION AND SWITCHGEAR** **YEAR / SEM: IV / VII**

<b>CO1</b>	Understanding the causes and effects of faults in power system.
<b>CO2</b>	Explain the operating principle and characteristics of Electromagnetic Relay.
<b>CO3</b>	Identify the various faults that can occur on alternator, transformer ,motor ,bus bar and transmission line and select the suitable protection schemes.
<b>CO4</b>	Illustrate the static relays using comparators and analyze the numerical relays.
<b>CO5</b>	Analyze the interruption of capacitive current and compare the various types of circuit breakers .
<b>CO6</b>	Analyze the zones of protection and also essential qualities of protection .



**COURSE CODE: C403 EE6703 SPECIAL ELECTRICAL MACHINES**  
**YEAR / SEM: IV / VII**

<b>CO1</b>	Illustrate the construction, Principle of operation and applications of synchronous reluctance motors
<b>CO2</b>	Impart knowledge on the Construction, principle of operation, control and performance of stepping motors
<b>CO3</b>	Explain the Construction, principle of operation, control and performance of switched reluctance motors.
<b>CO4</b>	Disseminate <b>the</b> knowledge on the Construction, principle of operation, control and performance of permanent magnet brushless D.C. motors
<b>CO5</b>	Examine the Construction, principle of operation and performance of permanent magnet synchronous motors
<b>CO6</b>	Ability to analyze different special electrical machines

**COURSE CODE: C404 MG6851 PRINCIPLES OF MANAGEMENT**  
**YEAR / SEM: IV / VII**

<b>CO1</b>	To explain the importance of the functions of management in any organization.
<b>CO2</b>	To describe the performance appraisal techniques of employees.
<b>CO3</b>	To give the outline of the different types of organizations
<b>CO4</b>	To analyze the various motivation and leadership theories in detail.
<b>CO5</b>	To describe he types of control , the various techniques of controlling prevailing in the organizations
<b>CO6</b>	To understand the reality to become an entrepreneur.

**COURSE CODE: C405 EE6004 FACTS (ELECTIVE-II)**  
**YEAR / SEM: IV / VII**

<b>CO1</b>	To understand the concept of flexible AC transmission and the associated problems.
<b>CO2</b>	To impart knowledge on the concepts of static devices for series and shunt control.
<b>CO3</b>	To study the operation of controllers for enhancing the transmission capability.
<b>CO4</b>	To enhance the transmission capability of transmission system by shunt and series



	compensation using static controllers.
<b>CO5</b>	To understand the applications of flexible AC transmission systems devices
<b>CO6</b>	To study the interaction of various FACTS devices.

## **COURSE CODE: C406 E6008 MICROCONTROLLER BASED SYSTEM DESIGN (ELECTIVE –III) YEAR / SEM: IV / VII**

<b>CO1</b>	Understanding the basic concepts and principle of microcontroller
<b>CO2</b>	To educate on the use of interrupts and timers
<b>CO3</b>	Examine the commonly used peripheral / interfacing with PIC microcontroller
<b>CO4</b>	Understanding the basic concepts and principle of ARM Processor
<b>CO5</b>	To analyze and apply computing platform and software for engineering problems. To develop ethical issues, environmental
<b>CO6</b>	impact and acquire management skills.

## **COURSE CODE: C407 EE6711 POWER SYSTEM SIMULATION LABORATORY YEAR / SEM: IV / VII**

<b>CO1</b>	Provide better understanding of power system analysis through digital simulation
<b>CO2</b>	Students will be able to investigate the state of a power system of any size and be in a position to analyze a practical system both under steady state and fault conditions.
<b>CO3</b>	To enable the students gain a fair knowledge on the programming and simulation of power systems.
<b>CO4</b>	Acquire skills of using computer packages matlab coding and simulink in power system studies.
<b>CO5</b>	Acquire skills of using mi power software for power system studies.
<b>CO6</b>	Analyze the power system data for load-flow and studies.



**COURSE CODE: C408 EE6712 COMPREHENSION**  
**YEAR / SEM: IV / VII**

<b>CO1</b>	Discussing various number systems , simplify the logical expressions using Boolean functions
<b>CO2</b>	Analysing implementation of combinational circuits
<b>CO3</b>	Designing various synchronous and asynchronous circuits.
<b>CO4</b>	Identify asynchronous sequential circuits
<b>CO5</b>	Developing an opportunity to implement the PLD based designs
<b>CO6</b>	Designing digital simulation for development of application oriented logic circuits.

**COURSE CODE: C409 EE6801 ELECTRIC ENERGY GENERATION, UTILIZATION AND CONSERVATION YEAR / SEM: IV / VIII**

<b>CO1</b>	Evaluate the traction effort of train & specific energy consumption, choosing and applying motors for train, list the systems of electrification, track equipment and collection gear
<b>CO2</b>	Classify the light source, design the illumination for indoor lighting & outdoor lighting, Relate the energy saving concept in lamps
<b>CO3</b>	Illustrate and compare the different methods of electric heating and welding and its advantages
<b>CO4</b>	Estimate average solar radiation and illustrate the basic principles and performance analysis of collectors in the conversion of solar radiation into heat.
<b>CO5</b>	Illustrate the basic principle, types and components of WECS, and to analyse and study the performance of wind
<b>CO6</b>	Interpret the concept of utilization of electrical energy and to conserve the electrical power

**COURSE CODE: C410 EE6009 POWER ELECTRONICS FOR RENEWABLE ENERGY SYSTEMS (ELECTIVE-IV) YEAR / SEM: IV / VIII**

<b>CO1</b>	Remembering the knowledge about the stand alone and grid connected renewable energy systems.
<b>CO2</b>	Designing of electrical machines for renewable energy applications.





<b>CO3</b>	Analysing and comprehend the various operating modes of wind electrical generators and solar energy systems.
<b>CO4</b>	Designing different power electronic converters for renewable energy systems.
<b>CO5</b>	Developing the maximum power point tracking algorithms for renewable energy systems.
<b>CO6</b>	Applying optimization techniques to extract maximum from the renewable energy

**COURSE CODE: C411GE8075 PROFESSIONAL ETHICS IN ENGINEERING (ELECTIVE-V)**  
**YEAR / SEM: IV / VIII**

<b>CO1</b>	Elaborate the basic concepts of ethics and human values & Students also gain the knowledge how to ethically behave in environment.
<b>CO2</b>	Make use of duties and rights towards the society in an engineering profession and to make proper decision in case of dilemmas.
<b>CO3</b>	Assess all necessary precautions while conducting experiments and each should take responsible for the experiments conducting in society.
<b>CO4</b>	Examine the importance of risk evacuation system in reality and takes the at most responsibility while handling the risky situations.
<b>CO5</b>	Plan them to lead a professional life as better expert witnesses and advisors.
<b>CO6</b>	Support the students with moral values in rights, duties, manufacturing ,design aspects and know the importance of risk and safety

**COURSE CODE: C412 EE6811 PROJECT WORK**  
**YEAR / SEM: IV / VIII**

<b>CO1</b>	Distinguish social, health, technical related issues and provide solution in engineering view.
<b>CO2</b>	Applying the knowledge to analyze root cause for typical problems and provide possible optimal solution.
<b>CO3</b>	Ability in identifying the engineering problems and utilize adequate survey to achieve successful solution.
<b>CO4</b>	Design the mathematical model and simulation model for the technical problems and adaptation with modern engineering tools.



<b>CO5</b>	Function as a member or team leader to co- ordinate among team members for conclude and summarize the solution.
<b>CO6</b>	Design and fabricate the model or product with optimum cost to the identified technical issues.

## DEPARTMENT OF INFORMATION TECHNOLOGY

**SUB CODE / SUBJECT NAME: HS6151/ TECHNICAL ENGLISH - I**

**YEAR / SEM: I/ I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C101.1 (C01)</b>	Define the fundamentals of engineering after learning the rules of English Grammar.
<b>C101.2 (C02)</b>	Observe and interpret the contextual knowledge by speaking, listening and reading the social issues such as public health, safety, legal and culturally related considerations.
<b>C101.3 (C03)</b>	Apply the creative, appropriate techniques, resources to analyze complex engineering problems by interactive exercises such as interviews and dialogue-writing.
<b>C101.4 (C04)</b>	Design the multidisciplinary settings to manage projects as an individual, as a member or leader after taking the exercises like role-play, group discussion and making presentations
<b>C101.5 (C05)</b>	Model the life-long learning methods suitable for all the environments committed to professional ethics and responsibilities after inculcating the habit of reading and writing
<b>C101.6 (C06)</b>	Analyze and identify the root for an effective managerial skills through different spoken discourse and excerpts

**SUB CODE / SUBJECT NAME: MA6151/ ENGINEERING MATHS - I**

**YEAR / SEM: I/ I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C102.1 (C01)</b>	Define Eigen values and Eigen vectors and explain how to analyze the stability of a system using these concepts and much other real time application in engineering.
<b>C102.2 (C02)</b>	Explain the physical interpretation of divergence, curl and gradient of a vector field and also how to apply these concepts in solving engineering problems.
<b>C102.3 (C03)</b>	Define the convergence of a sequence and series and make the student knowledgeable in the area of infinite series and their convergence so that he/ she will be familiar with limitations of using infinite series approximations for solutions arising in mathematical modeling
<b>C102.4 (C04)</b>	Introduce the concept of multivariable functions of real variables arise inevitably in engineering and physics due to any one physical quantity will generally depend on a number of other quantities and help to solve real time problems.
<b>C102.5 (C05)</b>	Extend the concept of single integral to multiple integral and explain how to evaluate it. Also explain the idea of change of order of integration and explain how to find Area and volume of solids
<b>C102.6 (C06)</b>	Understand various mathematical tools and apply it to solve the engineering problems most effectively



**SUB CODE / SUBJECT NAME: PH6151/ ENGINEERING PHYSICS - I**

**YEAR / SEM: I/ I**

COURSE CODE	COURSE OUTCOMES
C103.1 (C01)	To understand the possible crystal structures and to analyze various growth techniques in the view of increasing demand of crystals for various Engineering and Technological applications.
C103.2 (C02)	To understand the basic concepts of elastic behavior of materials and evaluate the structural stability of beams. Remembering functional ideas of thermal physics and compare the thermal conductivity of different materials to meet the specific needs
C103.3 (C03)	Describe and analyzing the quantum nature of radiation and matter to solve the real time societal and technological problems.
C103.4 (C04)	The significance of frequency dependent sound waves is discussed and to solve the Medical and Engineering problems using ultrasonic's.
C103.5 (C05)	To discuss the propagation of light in optical fibers, compare various types of fibers and its applications in Medical and Engineering fields
C103.6 (C06)	To make the students understand the fundamentals of Physics to solve complex engineering problems for benefit of the society

**SUB CODE / SUBJECT NAME: CY6151/ ENGINEERING CHEMISTRY - I**

**YEAR / SEM: I/ I**

COURSE CODE	COURSE OUTCOMES
C104.1 (C01)	To apply and implement the knowledge of synthesis and uses of polymers in industries and environment
C104.2 (C02)	To analyze and understand the concepts of thermodynamic laws in various industrial applications
C104.3 (C03)	To understand and remember the concepts of photo physical, photochemical process and spectroscopy for getting knowledge in light emitting properties of compounds and identifying the functional groups of molecules
C104.4 (C04)	Knowledge of alloys gives an idea about the manufacturing process in various industries
C104.5 (C05)	To create the knowledge of nonmaterial's and their applications in fields like medicinal, electrical, electronic, chemical,etc
C104.6 (C06)	The knowledge gained on polymer chemistry, Thermodynamics, Spectroscopy, phase rule and nano materials will provide a strong platform to understand the concept on various fields like mechanical, electrical, civil engineering for further learning

**SUB CODE / SUBJECT NAME: GE6151/ COMPUTER PROGRAMMING**

**YEAR / SEM: I/ I**

COURSE CODE	COURSE OUTCOMES
C105.1 (C01)	Understand the organization of a digital computer.
C105.2 (C02)	Be exposed to the number systems
C105.3 (C03)	Ability to think logically and write pseudo code or draw flow charts for problems.
C105.4 (C04)	Ability to use arrays, strings, functions, pointers, structures and unions in C.
C105.5 (C05)	Design C Programs for problems



<b>C105.6 (C06)</b>	Write and execute C programs for simple applications
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**SUB CODE / SUBJECT NAME: GE6152/ ENGINEERING GRAPHICS YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C106.1 (C01)</b>	How to draw different engineering curves, draw different orthographic projections.
<b>C106.2 (C02)</b>	Illustrate different views of points, lines and planes inclined to both HP and VP in first quadrant.
<b>C106.3 (C03)</b>	Develop the projections of simple solids inclined to any one plane
<b>C106.4 (C04)</b>	Categorize Section and develop various solids
<b>C106.5 (C05)</b>	Evaluate to Draw 3D projections of simple solids by Perspective by visual ray method and Isometric projections
<b>C106.6 (C06)</b>	Build an engineering component using Paper drawing as well as in CAD

**SUB CODE / SUBJECT NAME: GE6161/ COMPUTER PRACTICES LABORATORY YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C107.1 (C01)</b>	Be familiar with the use of Office software.
<b>C107.2 (C02)</b>	Be exposed to presentation and visualization tools.
<b>C107.3 (C03)</b>	Be exposed to problem solving techniques and flow charts.
<b>C107.4 (C04)</b>	Apply good programming design methods for program development.
<b>C107.5 (C05)</b>	Design and implement C programs for simple applications.
<b>C107.6 (C06)</b>	Develop recursive programs.

**SUB CODE / SUBJECT NAME: GE6162/ ENGINEERING PRACTICES LABORATORY YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C108.1 (C01)</b>	Hands on experience on welding, sheet metal and lathe works
<b>C108.2 (C02)</b>	Experience the plumbing and carpentry work
<b>C108.3 (C03)</b>	Demonstration on centrifugal pump and air conditioning working principles
<b>C108.4 (C04)</b>	Measurement of Electrical quantities, earthing procedures, wiring methods etc



<b>C108.5 (C05)</b>	Study of Electronic components and equipments – Resistor, colour coding measurement of AC signal parameter, Gates , Circuits etc
<b>C108.6 (C06)</b>	Provide exposure to the students with hands on experience on various basic engineering practices in Civil, Mechanical, Electrical and Electronics Engineering.

**SUB CODE / SUBJECT NAME: GE6163/ PHYSICS AND CHEMISTRY LAB - I YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C109.1 (C01)</b>	To apply the physics principles of Thermal physics and Properties of Matter to evaluate properties of materials
<b>C109.2 (C02)</b>	To understand measurement technique and usage of new instrument in Optics for real time application in Engineering .
<b>C109.3 (C03)</b>	Apply the concept of Ultrasonic to determine the physical parameters
<b>C109.4 (C04)</b>	Able to analyze the quality of water for domestic and industrial purpose
<b>C109.5 (C05)</b>	Used to find out the emf for different metallic solutions from which electrode potential is determined
<b>C109.6 (C06)</b>	To acquire knowledge about the conductivity of acids and bases

**SEMESTER II**

**SUB CODE / SUBJECT NAME: HS6251/ TECHNICAL ENGLISH-II YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C110.1 (C01)</b>	Define the impact of the professional engineering solution in societal and environmental contexts with the help of the basic grammar taught to communicate effectively and confidently
<b>C110.2 (C02)</b>	Observe the usage of modern engineering and IT tools in designing and developing solutions after developing their reading skills with different types of reading strategies.
<b>C110.3 (C03)</b>	Apply the creative, appropriate techniques, resources to analyze complex engineering problems by interactive exercises like sample interviews and dialogue – writing.
<b>C110.4 (C04)</b>	Analyze the engineering and Project management principles in consequence of the listening and speaking skills acquired during the classroom activities.
<b>C110.5 (C05)</b>	Model the time varying natural and engineering sciences after learning to write an imaginary reports, essays, process description, and visualizing materials
<b>C110.6 (C06)</b>	Understand the responsibilities relevant to the professional engineering practice after reading the different genres of texts.

**SUB CODE / SUBJECT NAME: MA6251/ MATHEMATICS-II YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C111.1 (C01)</b>	Apply the knowledge of techniques in solving ordinary differential equations that model engineering problems.



<b>C111.2 (C02)</b>	Define and understand the concepts of vector calculus, needed for problems in all engineering disciplines.
<b>C111.3 (C03)</b>	Develop an understanding of the standard techniques of complex variable theory so as to enable the student to apply them with confidence, in application areas such as heat conduction, elasticity, fluid dynamics and flow the of electric current.
<b>C111.4 (C04)</b>	Evaluate real integrals by applying concept of complex integration
<b>C111.5 (C05)</b>	Understand and apply the knowledge of Laplace Transforms in solving system of linear differential equations.
<b>C111.6 (C06)</b>	Introduces fundamental knowledge in mathematics that is applicable in the Engineering aspects.

**SUB CODE / SUBJECT NAME: PH6251/ ENGINEERING PHYSICS-II**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C112.1 (C01)</b>	To understand the basic principles of the electrical and thermal conductivity of metals and to analyze the electron behavior by classical and quantum theories.
<b>C112.2 (C02)</b>	To discuss the electron behavior in conduction and valence band in semiconducting materials, comparing the mobility and carrier concentration of N and P type semiconductors by theoretical method and applying Hall effect experimental method for biasing application.
<b>C112.3 (C03)</b>	To identify the different types of magnetic materials based on the atomic magnetic dipoles and utilize them for different technological applications. To explain the superconducting behaviors of materials and to solve real time medical and engineering applications.
<b>C112.4 (C04)</b>	To describe different polarization mechanisms in dielectric materials and to meet the specific need in energy sector.
<b>C112.5 (C05)</b>	State and explain modern engineering materials such as metallic glasses, shape memory alloys, Nonmaterial's and NLO materials to design new engineering devices
<b>C112.6 (C06)</b>	To emphasize the role of conventional and modern engineering materials in Technological applications for the sustainable development of the society

**SUB CODE / SUBJECT NAME: CY6251/ENGINEERING CHEMISTRY-II**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C113.1 (C01)</b>	To gain knowledge about water quality parameters to analyze and provide them with latest equipment and technologies by using external and internal treatments
<b>C113.2 (C02)</b>	To impart knowledge in principles of electrochemical reactions, redox reactions in corrosion of materials and methods for corrosion prevention and protection of materials
<b>C113.3 (C03)</b>	To understand the principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells
<b>C113.4 (C04)</b>	To get adequate knowledge in preparation, properties and applications of engineering materials
<b>C113.5 (C05)</b>	Analyze issues related to fuels and their synthesis and able to understand working of IC and diesel engines
<b>C113.6 (C06)</b>	The knowledge gained on engineering materials, fuels, energy sources and water treatment techniques will facilitate better understanding of engineering processes and applications for further learning



**SUB CODE / SUBJECT NAME: CS6201/DIGITAL PRINCIPLES AND SYSTEM DESIGN**

**YEAR /**

**SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C114.1 (CO1)	Define the fundamental concepts of digital logic circuits.
C114.2 (C02)	Understand and Correlate between Boolean Expression, simplification methods to optimize it for desired characteristics.
C114.3 (C03)	Apply the concept of digital logic circuits and Design various combinational building blocks and sequential logic to represent logic function in multiple forms
C114.4 (C04)	Analyze a memory cell and apply for organizing larger memory.
C114.5 (C05)	Understand and compare the concepts of Programmable logic Devices.
C114.6 (C06)	Develop a HDL Programs for combinational and Sequential Circuits

**SUB CODE / SUBJECT NAME: CS6202/PROGRAMMING AND DATA STRUCTURE-I**

**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C115.1 (CO1)	To Define the problem solutions using C-Programming concepts
C115.2 (C02)	To Apply the Control Structures in solving the problems
C115.3 (C03)	To Apply the different linear data structures to problem solutions
C115.4 (C04)	To Analyze the various linear data structure concepts
C115.5 (C05)	To Create model for linear data structures using C Programming concepts
C115.6 (C06)	To Demonstrate linear data structure concepts using C Programming concepts

**SUB CODE / SUBJECT NAME: GE6262/PHYSICS AND CHEMISTRY LAB-II YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C116.1 (CO1)	Apply the knowledge of semiconducting material to evaluate the band gap of the material useful for engineering solutions.
C116.2 (C02)	Apply the concept of elasticity to analyze the properties related to multidisciplinary field
C116.3 (C03)	To demonstrate an experiment using spectrometer to determine the refractive index of various color and dispersive power of the material of the given prism and to develop instrument handling skill.
C116.4	Able to analyze the quality of water for domestic and industrial purpose



(C04)	
C116.5 (C05)	Used to find out the Emf for different metallic solutions from which electrode potential is determined
C116.6 (C06)	To acquire knowledge about the conductivity of acids and bases

**SUB CODE / SUBJECT NAME: CS6211/ DIGITAL LABORATORY**

**YEAR/ SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C117.1 (C01)	Examine Boolean Theorems using basic gates.
C117.2 (C02)	Apply the concept of digital logic circuits and implement combinational circuits using basic gates for arbitrary functions, code converters.
C117.3 (C03)	Design and implementation of combinational circuits using MSI devices: 4 – bit binary adder / subtraction Parity generator / checker Magnitude Comparator Application using multiplexers
C117.4 (C04)	Analyze and implementation of sequential circuits: Shift –registers Synchronous and asynchronous counters
C117.5 (C05)	Simulate Verilog models for digital logic circuits.
C117.6 (C06)	Design and implementation of a simple digital system

**SUB CODE / SUBJECT NAME: CS6212/ PROGRAMMING AND DATA STRUCTURE LAB - I**

**YEAR/ SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C118.1 (C01)	Develop simple C programs using pointers and functions.
C118.2 (C02)	Develop C program for linear data structure operations and its applications.
C118.3 (C03)	Experiment with file manipulation concepts.
C118.4 (C04)	Develop programs using various sorting algorithms.
C118.5 (C05)	Develop programs using different searching methods.
C118.6 (C06)	Develop C program for stack and Queue.

**SEMESTER: III**

**SUB CODE / SUBJECT NAME: MA6351/ TRANSFORM AND PARTIAL DIFFERENTIAL EQUATIONS**

**YEAR/ SEM: II/III**

R2013	C201	TRANSFORM AND PARTIAL DIFFERENTIAL EQUATIONS	L	T	P	C
			3	1	0	4
C201.1 (C01)	To describe real time engineering problems using PDEs.					





<b>C201.2 (CO2)</b>	Using Dirchlet's conditions, solving Fourier series problems.
<b>C201.3 (CO3)</b>	To apply Fourier series methods to solve boundary value problems.
<b>C201.4 (CO4)</b>	To know the basic properties of the Fourier transform, describe the Fourier integral theorem and convolution theorem.
<b>C201.5 (CO5)</b>	To use the Z- transform as the tool to connect the time domain and frequency domain in signal processing.
<b>C201.6 (CO6)</b>	The course will also serve as a prerequisite for post graduate and specialized studies and research

**SUB CODE / SUBJECT NAME: CS6301/ PROGRAMMING AND DATA STRUCTURES-II**  
**YEAR / SEM: II/III**

R2013	C202	CS 6301-Programming and Data Structures-II	L	T	P	C
			3	0	0	3
<b>C202.1</b>	Be familiar with the Basic C++ concepts, abstraction and encapsulation.					
<b>C202.2</b>	Learn about oops concepts constructor, polymorphism and Inheritance.					
<b>C202.3</b>	Understanding C++ Programming advanced features Exception handling, Generic Programming and File handling					
<b>C202.4</b>	Interpret Advanced Nonlinear Tree Data Structure					
<b>C202.5</b>	Be exposed to graph algorithms					
<b>C202.6</b>	Learn to apply Tree and Graph Data Structures					

**SUB CODE / SUBJECT NAME: CS6302 / DATABASE MANAGEMENT SYSTEMS**  
**YEAR / SEM: II/III**

R2013	C203	DATABASE MANAGEMENT SYSTEMS	L	T	P	C
			3	0	0	3
<b>C203.1</b>	Define the fundamental elements of database management systems.					
<b>C203.2</b>	Analyse the basic concepts of relational data model and entity-relationship model					
<b>C203.3</b>	Outline relational database design, relational algebra and database language SQL					
<b>C203.4</b>	Explain the concepts of query processing, transaction management and file storage					
<b>C203.5</b>	Analyze functional dependencies for designing a robust database					
<b>C203.6</b>	Implement transactions, concurrency control, and be able to do Database recovery and Query optimization					



**ECT NAME: CS6303 / COMPUTER ARCHITECTURE**  
**YEAR / SEM: II/III**

R2013	C204	COMPUTER ARCHITECTURE	L	T	P	C
			3	0	0	3
C204.1	Understand the functions and operations of digital computer					
C204.2	Design arithmetic and logic unit					
C204.3	Devise and analyze pipelined control units					
C204.4	Evaluate performance of memory systems					
C204.5	Comprehend parallel processing architectures and memory hierarchies					
C204.6	Appreciate different ways of communicating with I/O devices and interfaces					

**SUB CODE / SUBJECT NAME: CS6304/ANALOG AND DIGITAL COMMUNICATION**  
**YEAR / SEM: II/III**

R2013	C205	ANALOG AND DIGITAL COMMUNICATION	L	T	P	C
			3	0	0	3
C205.1(CO1)	Understanding the basics of analog communication technique.					
C205.2(CO2)	Understanding various digital modulation schemes.					
C205.3(CO3)	Design and analyze various data communication systems.					
C205.4(CO4)	Design and analyze various error coding and source coding techniques.					
C205.5(CO5)	Discuss the concept of multi user radio communication system and access techniques.					
C205.6(CO6)	Analyze various pulse coding techniques.					

**SUB CODE / SUBJECT NAME: GE6351/ENVIRONMENTAL SCIENCE AND ENGINEERING**  
**YEAR / SEM: II/III**

R2013	C206	ENVIRONMENTAL SCIENCE AND ENGINEERING	L	T	P	C
			3	0	0	3
C206.1(CO1)	To interpret the relationship between living organisms and the environment and to identify the threats to global biodiversity.					
C206.2(CO2)	To identify and prevent the problems related to the pollution of air, water, soil, marine, etc					
C206.3(CO3)	To understand the importance of natural resources and to conserve it for future generations.					
C206.4(CO4)	To analyse the social issues of the environment to be a part of sustainable development.					



<b>C206.5(CO5)</b>	To create awareness and sustainable population growth and know the contribution of information technology in environmental management.
<b>C206.6(CO6)</b>	To study the integrated themes and biodiversity, natural resources, pollution control, waste management for protecting environment from degradation

**SUB CODE / SUBJECT NAME: IT6311/ PROGRAMMING AND DATA STRUCTURES LAB-II**  
**YEAR / SEM: II/III**

R2013	C207	PROGRAMMING AND DATA STRUCTURES LAB-II	L	T	P	C
			3	0	0	3
<b>C207.1(CO1)</b>	Apply Object Oriented Concepts to develop simple C++ Programs.					
<b>C207.2(CO2)</b>	Design and implement C++ programs for manipulating stacks, queues, linked lists, trees, and graphs.					
<b>C207.3(CO3)</b>	Developing File Handling Programs for Sequential and Random access.					
<b>C207.4(CO4)</b>	Apply the different data structures for implementing solutions to practical problems.					
<b>C207.5(CO5)</b>	Develop recursive programs using trees and graphs.					
<b>C207.6(CO6)</b>	Implement the programs to interpret searching and sorting .					

**SUB CODE / SUBJECT NAME: IT6312/ DATABASE MANAGEMENT SYSTEMS LAB**  
**YEAR / SEM: II/III**

<b>C208.1(CO1)</b>	Design and implement a database schema for a given problem-domain
<b>C208.2(CO2)</b>	Create the tables by properly specifying the primary keys and the foreign keys.
<b>C208.3(CO3)</b>	Formulate Query for a given Database using PL / SQL.
<b>C208.4(CO4)</b>	Understand the concepts of cursors and triggers
<b>C208.5(CO5)</b>	Illustrate the concept of generating suitable reports.
<b>C208.6(CO6)</b>	Develop the projects using Microsoft visual basic and SQL

**SUB CODE / SUBJECT NAME: IT6313/DIGITAL COMMUNICATION LABORATORY**  
**YEAR / SEM: II/III**

<b>C209.1(CO1)</b>	Analyze sampling and reconstruction of the signal.
<b>C209.2(CO2)</b>	Understanding the basic concepts of analog modulation methods.
<b>C209.3(CO3)</b>	Discuss pulse code and delta modulation schemes.
<b>C209.4(CO4)</b>	Describe the digital modulation and multiplexing methods.
<b>C209.5(CO5)</b>	Understanding the digital modulation and coding schemes through simulation.
<b>C209.6(CO6)</b>	Discuss spread spectrum technique and communication link through simulation.



## IV SEMESTER

### SUB CODE / SUBJECT NAME: MA6453 PROBABILITY AND QUEUEING THEORY YEAR / SEM: II/IV

<b>C210.1 (CO1)</b>	Define the concept of random variable and its properties. Construct probabilistic models for observed phenomena through distributions which play an important role in many engineering applications.
<b>C210.2 (CO2)</b>	Identify random variables by designing joint distributions and correlate the random variables.
<b>C210.3 (CO3)</b>	Define the concept of random processes and its classification, in particular about Markov chains, which play an important role in finding solutions to many engineering problems.
<b>C210.4 (CO4)</b>	Identify the queuing model in the given system and find the performance measures to analyse the result in real time situation.
<b>C210.5 (CO5)</b>	Introduce non markovian queuing model which helps in analysing various queueing networks. Applications emphasize communication networks and computer operations, but may include examples from transportation, manufacturing, and the service industry.
<b>C210.6 (CO6)</b>	Helps to develop probabilistic models under several areas of science and engineering.

### SUB CODE / SUBJECT NAME: EC 6504-Microprocessor & Microcontroller YEAR / SEM: II/IV

<b>C211.1(CO 1)</b>	Understand architecture and operations of a microprocessor & Microcontroller system in depth.
<b>C211.2(CO 2)</b>	Demonstrate programming proficiency using the various addressing modes and data transfer instructions of the microprocessor.
<b>C211.3(CO 3)</b>	Analyze, specify, design, write and test assembly language programs of moderate complexity.
<b>C211.4(CO 4)</b>	Perform the detailed hardware design of a microprocessor & microcontroller system, and program the microprocessor using suitable techniques and software tools
<b>C211.5(CO 5)</b>	Design electrical circuitry to the Microprocessor & Microcontroller I/O ports in order to interface the processor to external devices
<b>C211.6(CO 6)</b>	Design and Implementation of electronic system using appropriate microprocessor/Microcontroller, programming, Interfacing and troubleshooting techniques

### SUB CODE / SUBJECT NAME: CS6402 DESIGN AND ANALYSIS OF ALGORITHMS YEAR / SEM: II/IV

<b>C212.1(CO1)</b>	Interpret the fundamental needs of algorithms in problem solving.
<b>C212.2(CO2)</b>	Classify the different algorithm design techniques for problem solving.



<b>C212.3(CO3)</b>	Develop algorithms for various computing problems.
<b>C212.4(CO4)</b>	Analyze the time and space complexity of various algorithms.
<b>C212.5(CO5)</b>	Identify the limitations of algorithms in problem solving.
<b>C212.6(CO6)</b>	Synthesize efficient algorithm in common engineering design situations.

**SUB CODE / SUBJECT NAME: CS6401 OPERATING SYSTEMS**  
**YEAR / SEM: II/IV**

<b>C213.1(CO1)</b>	Understand the basics of operating systems like system calls, system programs ,system structure ,process and its operations, threads
<b>C213.2(CO2)</b>	Outline various threading models, process synchronization deadlocks implements the various CPU scheduling algorithms and deadlocks.
<b>C213.3(CO3)</b>	Compare and contrast various memory management techniques like segmentation, paging and concept of thrashing.
<b>C213.4(CO4)</b>	Use disk management, disk scheduling algorithms and file system for better utilization of external memory.
<b>C213.5(CO5)</b>	Understanding Linux –memory management, File and I/O system and utilize local network services.
<b>C213.6(CO6)</b>	Designing and Implementing the various concepts of Linux server and its functionalities

**SUB CODE / SUBJECT NAME: CS6403 SOFTWARE ENGINEERING**  
**YEAR / SEM: II/IV**

<b>C214.1(CO1)</b>	Explain the software engineering process and project management.
<b>C214.2(CO2)</b>	Demonstrate software requirements and analysis.
<b>C214.3(CO3)</b>	Outline the software design process and user interface.
<b>C214.4(CO4)</b>	Compare and contrast various software testing.
<b>C214.5(CO5)</b>	Discuss about software integration and project management.
<b>C214.6(CO6)</b>	Demonstrate an ability to use the techniques and tools necessary for engineering practice



**SUB CODE / SUBJECT NAME: IT6411/Microprocessor and Microcontroller Lab**  
**YEAR / SEM: II/ IV**

<b>C215.1 (CO1)</b>	Apply programming concept for various applications using microprocessors and microcontrollers.
<b>C215.2 (CO2)</b>	An in-depth knowledge of applying the concepts on real- time applications.
<b>C215.3 (CO3)</b>	Solid foundation on interfacing the external devices to the processor and controllers according to the user requirements to create novel products and solutions for the real time problems.
<b>C215.4 (CO4)</b>	Understanding of industrial environment aware of excellence guidelines and lifelong learning needed for a successful professional career in embedded and real time system design.
<b>C215.5 (CO5)</b>	Exposing the students to design work where there is no single correct solution, rather competing objectives; and to encourage cooperative team work and develop communication skills.
<b>C215.6 (CO6)</b>	Apply software tools for better programming.

**SUB CODE / SUBJECT NAME: IT6412 OPERATING SYSTEMS LAB**  
**YEAR / SEM: II/ IV**

<b>C216.1(CO1)</b>	Experiment with Unix commands and shell programming.
<b>C216.2(CO2)</b>	Choose the best CPU scheduling algorithm for a given problem instance.
<b>C216.3(CO3)</b>	Build 'C' program for file allocation technique and file Organization techniques.
<b>C216.4(CO4)</b>	Implement the Producer – Consumer problem using semaphores, shared memory &IPC.
<b>C216.5(CO5)</b>	Develop algorithm for deadlock avoidance and detection.
<b>C216.6(CO6)</b>	Identify the performance of various paging, page replacement algorithms, threading and synchronization.

**SUB CODE / SUBJECT NAME: IT6413 Software Engineering Lab**  
**YEAR / SEM: II/ IV**

<b>C217.1(CO1)</b>	Identify the requirements according to the objective.
<b>C217.2(CO2)</b>	Use open source case tools to design a software system.



<b>C217.3(CO3)</b>	Design the individual module of the given project.
<b>C217.4(CO4)</b>	Make the design using modeling diagram.
<b>C217.5(CO5)</b>	Demonstrate software development from design.
<b>C217.6(CO6)</b>	Demonstrate an ability to use the techniques and tools necessary for engineering practice.

## V SEMESTER

### SUB CODE / SUBJECT NAME: CS6551 COMPUTER NETWORKS YEAR / SEM: III/ V

<b>C301.1(CO1)</b>	Understand the network components and OSI Layer functionalities,
<b>C301.2(CO2)</b>	Classify the Media Access Control and Internetworking Protocols,
<b>C301.3(CO3)</b>	Demonstrate various types of routing techniques,
<b>C301.4(CO4)</b>	Describe the different functionalities of transport layer,
<b>C301.5(CO5)</b>	Explain application layer protocols,
<b>C301.6(CO6)</b>	Acquire the knowledge about different Networking devices,

### SUB CODE / SUBJECT NAME: IT6501 GRAPHICS AND MULTIMEDIA YEAR / SEM: III/ V

<b>C302.1(CO1)</b>	Effectively and creatively solve 2D graphic design problems
<b>C302.2(CO2)</b>	Effectively and creatively solve 3D graphic design problems
<b>C302.3(CO3)</b>	Form effective and compelling interactive experiences for a wide range of audiences.
<b>C302.4(CO4)</b>	Use various software programs used in the creation and implementation of multi-media (interactive, motion/animation, presentation, etc.).
<b>C302.5(CO5)</b>	Discuss issues related to emerging electronic technologies and graphic design
<b>C302.6(CO6)</b>	Effectively and creatively solve a wide range of graphic design problems

### SUB CODE / SUBJECT NAME: CS 6502 OBJECT ORIENTED ANALYSIS AND DESIGN YEAR / SEM: III/ V

<b>C303.1(CO1)</b>	Comprehend object oriented methodologies and relationships between objects and classes in UML
<b>C303.2(CO2)</b>	Apply UML notations to develop various UML diagrams for the given scenario
<b>C303.3(CO3)</b>	Illustrate and Identify the objects and its responsibilities using traditional techniques



<b>C303.4(CO4)</b>	Find the static and dynamic behavior of objects about document creation for the given scenario
<b>C303.5(CO5)</b>	Compare and contrast various testing techniques.
<b>C303.6(CO6)</b>	Synthesize and develop real time applications based on object oriented methodologies using UML diagrams.

**SUB CODE / SUBJECT NAME: IT6502 -Digital signal Processing**  
**YEAR / SEM: III/ V**

<b>C304.1(CO)</b>	Define basics of signals and systems, explain sampling theorem to convert analog to discrete signals and show how z transform and its properties are used as a mathematical tool in learning signals and systems. Able to design the Multirate Filters. Able to apply Adaptive Filters to equalization
<b>C304.2(CO)</b>	Apply Discrete Fourier Transform and its properties to discrete time signals and systems.
<b>C304.3(CO)</b>	Analyze digital IIR filters and model them using realization structures.
<b>C304.4(CO)</b>	Prove that FIR digital filters are advantageous over IIR digital filters and model them using realization structures.
<b>C304.5(CO)</b>	Discuss the behavior of digital filters on the effect of finite word length.
<b>C304.6(CO)</b>	Design digital IIR and FIR filters and solve digital signal processing problems using transforms.

**SUB CODE / SUBJECT NAME: IT6503 WEB PROGRAMMING**  
**YEAR / SEM: III/ V**

<b>C305.1(CO1)</b>	To describe the World Wide Web and its emphasis on the current communication trend.
<b>C305.2(CO2)</b>	To evaluate the static web contents and dynamic web contents of world wide web.
<b>C305.3(CO3)</b>	Develop simple Java applications with JDBC connectivity.
<b>C305.4(CO4)</b>	Able to write Simple java programs using Classes, Inheritance, Exception handling and applets.
<b>C305.5(CO5)</b>	Demonstrate the advanced J2EE concepts using Servlets, Java RMI and EJB.
<b>C305.6(CO6)</b>	To develop the web applications for different end users by using set of development tools like XHTML, CSS, JavaScript, XML, PHP.





**SUB CODE / SUBJECT NAME: EC6801 Wireless Communication**

**YEAR / SEM: III/ V**

<b>C306.1(CO1)</b>	Understand the basic concepts of wireless communication system.
<b>C306.2(CO2)</b>	Investigate the characteristics of various wireless channels.
<b>C306.3(CO3)</b>	Realize the basic cellular and multiple access concepts.
<b>C306.4(CO4)</b>	Compare various digital modulation techniques and its performance.
<b>C306.5(CO5)</b>	Examine various diversity concepts and MIMO systems.
<b>C306.6(CO6)</b>	Analyze different techniques to mitigate the issues in wireless fading channels.

**SUB CODE / SUBJECT NAME: IT6511 NETWORK LAB**

**YEAR / SEM: III/ V**

<b>C307.1(CO1)</b>	Implement the various protocols.
<b>C307.2(CO2)</b>	Analyze various routing algorithms
<b>C307.3(CO3)</b>	Implementation of RPC and Sub netting
<b>C307.4(CO4)</b>	Analyze the performance of the protocols in different layers
<b>C307.5(CO5)</b>	Demonstrate routing techniques using simulation tools
<b>C307.6(CO6)</b>	Illustrate the Applications of TCP and UDP

**SUB CODE / SUBJECT NAME: IT6512 WEB PROGRAMMING LAB**

**YEAR / SEM: III/ V**

<b>C308.1(CO1)</b>	Define Web and Implement the concept of web page development to design real world applications.
<b>C308.2(CO2)</b>	Compare the development of the web application performance using different set of web development tools like HTML, XHTML, CSS, JAVASCRIPT and XML.
<b>C308.3(CO3)</b>	Apply the usage of web development tools to serve the purpose of different end users of Internet.
<b>C308.4(CO4)</b>	Interpret an existing static web application to make it a robust one and Integrate dynamic features of web development.
<b>C308.5(CO5)</b>	Utilize network integrated development environment (IDE) and various platforms to monitor develop and use web applications.
<b>C308.6(CO6)</b>	Design and Implement database and web services applications.

**SUB CODE / SUBJECT NAME: IT6513 Case Tools Lab**

**YEAR / SEM: III/ V**



<b>C309.1(CO1)</b>	Identify the requirements of project according to the objective
<b>C309.2(CO2)</b>	Construct USE CASE model to identify the classes and functionality of the system
<b>C309.3(CO3)</b>	Design the individual module of the given project
<b>C309.4(CO4)</b>	Make design with modeling diagrams
<b>C309.5(CO5)</b>	Add interface to System Designs.
<b>C309.6(CO6)</b>	Demonstrate Software Development from design

## VI SEMESTER

### SUB CODE / SUBJECT NAME: CS6601 /DISTRIBUTED SYSTEMS YEAR / SEM: III/ VI

<b>C310.1(CO1)</b>	Comprehend the application and challenges of distributed system
<b>C310.2(CO2)</b>	Outline the communication in distributed systems and model communication between two processes using RMI
<b>C310.3(CO3)</b>	Explain and analyze various peer to peer services and distributed file system
<b>C310.4(CO4)</b>	Exhibit concurrency control and properties of transaction in Distributed systems
<b>C310.5(CO5)</b>	Realize the issues involved in process and resource management
<b>C310.6(CO6)</b>	Evaluate various applications using distributed techniques.

### SUB CODE / SUBJECT NAME: IT6601/ MOBILE COMPUTING YEAR / SEM: III/ VI

<b>C311.1(CO1)</b>	Understand the importance of mobile computing and their MAC allocation schemes .
<b>C311.2(CO2)</b>	Comprehend transport and mobile Internet protocol architecture and their routing schemes.
<b>C311.3(CO3)</b>	Learn Architecture and services provided by various mobile telecommunication systems.
<b>C311.4(CO4)</b>	Analyze the different services of telecommunication system
<b>C311.5(CO5)</b>	Understand mobile Ad-hoc networks and evaluate the performance of various routing protocols.
<b>C311.6(CO6)</b>	Aware of various mobile operating system and real time applications.

### SUB CODE / SUBJECT NAME: CS6659 ARTIFICIAL INTELLIGENCE YEAR / SEM: III/ VI

<b>C312.1(CO1)</b>	Identify problems that are amenable to solution by AI methods.
<b>C312.2(CO2)</b>	Identify appropriate AI methods to solve a given problem.
<b>C312.3(CO3)</b>	Formalize a given problem in the language/framework of different AI methods.
<b>C312.4(CO4)</b>	Implement basic AI algorithms.



<b>C312.5(CO5)</b>	Design and carry out an empirical evaluation of different algorithms.
<b>C312.6(CO6)</b>	On problem formalization, and state the conclusions that the evaluation supports.

**SUB CODE / SUBJECT NAME: CS6660 COMPILER DESIGN**  
**YEAR / SEM: III/ VI**

<b>C313.1(CO1)</b>	Describe the theory and practice of compilation and implement a lexical analyzer from a specification of a language's lexical rules.
<b>C313.2(CO2)</b>	Illustrate the translation of regular expression into parse tree using syntax analyzer.
<b>C313.3(CO3)</b>	Use Flex or similar tools to create a lexical analyzer and YACC/ Bison tools to create a parser.
<b>C313.4(CO4)</b>	Construct the intermediate representation considering the type systems.
<b>C313.5(CO5)</b>	Apply the optimization techniques for the generated code.
<b>C313.6(CO6)</b>	Use the different compiler construction tools to develop a simple compiler.

**SUB CODE / SUBJECT NAME: IT6602 SOFTWARE ARCHITECTURE**  
**YEAR / SEM: III/ VI**

<b>C314.1(CO1)</b>	Explain influence of software architecture on business and technical activities.
<b>C314.2(CO2)</b>	Identify key architectural structures.
<b>C314.3(CO3)</b>	Use styles and views to specify architecture.
<b>C314.4(CO4)</b>	Examine the architectural styles.
<b>C314.5(CO5)</b>	Design document for a given architecture.
<b>C314.6(CO6)</b>	Be familiar with architectures for emerging technologies.

**SUB CODE / SUBJECT NAME: GE6757 Total Quality Management**  
**YEAR / SEM: III/ VI**

<b>C315.1(CO1)</b>	Students will be able to gain basic knowledge in total quality management relevant to both manufacturing and service industry including IT sector.
<b>C315.2(CO2)</b>	To make students to aware of TQM concepts like customer Focus, Employee Focus and their involvement, continuous process improvement and Supplier Management.
<b>C315.3(CO3)</b>	Students will be able to implement the basic principles of TQM in manufacturing and service based organization.
<b>C315.4(CO4)</b>	To provide exposure to students on the basic and new seven management tools, Quality



	concepts like Six sigma, Failure mode effect analysis.
<b>C315.5(CO5)</b>	The student would be able to apply the tools and techniques of quality management to manufacturing and services processes
<b>C315.6(CO6)</b>	To explore industrial applications of Quality function deployment, taguchi quality concepts and TPM.

**SUB CODE / SUBJECT NAME: IT6611 Mobile Application Development Laboratory**  
**YEAR / SEM: III/ VI**

<b>C316.1(CO1)</b>	Know the components and structure of mobile application development frameworks for Android and windows OS based mobiles.
<b>C316.2(CO2)</b>	Understand how to work with various mobile application development frameworks.
<b>C316.3(CO3)</b>	Learn the basic and important design concepts and issues of development of Mobile Application.
<b>C316.4(CO4)</b>	Understand the capabilities and limitations of mobile devices.
<b>C316.5(CO5)</b>	Understand the capabilities and limitations of database.
<b>C316.6(CO6)</b>	To Implement the mobile application for android devices.

**SUB CODE / SUBJECT NAME: IT6612 COMPILER DESIGN LAB**  
**YEAR / SEM: III/ VI**

<b>C317.1(CO1)</b>	Understanding the basic concepts of compiler writing tools.
<b>C317.2(CO2)</b>	Implement the different Phases of compiler.
<b>C317.3(CO3)</b>	Model with control flow and data flow analysis.
<b>C317.4(CO4)</b>	List simple optimization techniques.
<b>C317.5(CO5)</b>	Apply the optimization techniques for the generated code.
<b>C317.6(CO6)</b>	Construct the different compiler construction tools to develop a simple compiler.

**SUB CODE / SUBJECT NAME: GE6674 COMMUNICATION AND SOFT SKILLS LAB**  
**YEAR / SEM: III/ VI**

<b>C318.1(CO1)</b>	Define appropriate techniques with suitable language and speech pattern.
<b>C318.2(CO2)</b>	Discuss the social issues in the group discussion.
<b>C318.3(CO3)</b>	Apply the acquired skills confidently in interviews.
<b>C318.4(CO4)</b>	Take part in debates and public speaking .
<b>C318.5(CO5)</b>	Prioritize the ideas relevantly and coherently in writing and speaking.



<b>C318.6(CO6)</b>	Develop the skills for writing technical reports and letters.
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## VII SEMESTER

### SUB CODE / SUBJECT NAME: IT6701 INFORMATION MANAGEMENT YEAR / SEM: IV/ VII

C401.1(CO1)	Understand core relational database topics including logical and physical design and modeling and Design, Create and maintain data warehouses.
C401.2(CO2)	Analyze security issues and various methods to solve the issues for effective information management.
C401.3(CO3)	Infer depth knowledge in Master Data Management (MDM).
C401.4(CO4)	Analyzing different components of information architecture.
C401.5(CO5)	Design and implement a complex information system that meets regulatory requirements.
C401.6(CO6)	Demonstrate recent advances in NOSQL, Big Data and related tools.

### SUB CODE / SUBJECT NAME: CS 6701 CRYPTOGRAPHY AND NETWORK SECURITY YEAR / SEM: IV/ VII

C402.1	Explain the basics of number theory and compare various encryption techniques
C402.2	Summarize the functionality of public key cryptography
C402.3	Apply various message authentication functions and secure algorithms
C402.4	Demonstrate different types of security systems and applications.
C402.5	Discuss different levels of security and services.
C402.6	To create secure coding in the developed applications

### SUB CODE / SUBJECT NAME: IT6702 DATA WAREHOUSING AND DATA MINING YEAR / SEM: IV/ VII

C403.1	Understanding the concepts of data warehouse, its representation using various schemas and how to build data warehouse and map it to multiprocessor Architecture.
C403.2	Familiarizing with the tools and techniques used for business analysis like tools for Querying and Reporting, Online Analytical processing. and tools supporting
C403.3	Acquainting the concepts of data mining, steps involved in Knowledge



	discovery from databases , classification of data mining process and their functionalilty.
<b>C403.5</b>	Understanding the concepts of Association Rule mining and classification, algorithms used for rule mining and classification with the data.
<b>C403.6</b>	Acquainting the concepts of clustering, different methods of clustering and algorithms for different clustering categories and application of Data mining in different fields.

**SUB CODE / SUBJECT NAME: CS6703 GRID AND CLOUD COMPUTING**  
**YEAR / SEM: IV/ VII**

<b>C404.1</b>	Able to identify distributed computing
<b>C404.2</b>	Apply grid computing techniques to solve large scale scientific problems
<b>C404.3</b>	Apply the concept of virtualization
<b>C404.4</b>	Use the grid and cloud tool kits
<b>C404.5</b>	Apply the security models in the grid and the cloud environment
<b>C404.6</b>	Apply the knowledge of grid and cloud

**SUB CODE / SUBJECT NAME: IT 6004 SOFTWARE TESTING**  
**YEAR / SEM: IV/ VII**

<b>C405.1</b>	Understand the need for software testing
<b>C405.2</b>	Expertise in the various testing strategies followed and the use of various testing tools
<b>C405.3</b>	Design test cases based on test criteria
<b>C405.4</b>	Illustrate the methods of Test Planning and skills needed by tester
<b>C405.5</b>	Design and automate high quality tests during unit and integration testing
<b>C405.6</b>	Exhibit Proficiency to apply software testing techniques in commercial environments

**SUB CODE / SUBJECT NAME: IT6711 DATA WAREHOUSING AND DATA MINING LAB**  
**YEAR / SEM: IV/ VII**

<b>C406.1</b>	Creation of data warehouse using Postgresql.
<b>C406.2</b>	Implementing Association rule mining algorithms using WEKA tool.
<b>C406.3</b>	Implementing Classification algorithms using WEKA tool.
<b>C406.4</b>	Implementing Clustering algorithms using WEKA tool.



<b>C406.5</b>	Implementing Text mining and Web mining using R tool.
<b>C406.6</b>	Learnt Open source tools like Postgresql, WEKA and R tool.

**SUB CODE / SUBJECT NAME: IT6712 SECURITY LAB**  
**YEAR / SEM: IV/ VII**

C407.1	Apply the cryptographic algorithms for data communication
C407.2	Compare the performance of various security algorithms
C407.3	Apply the Digital signature for secure data transmission
C407.4	Utilize the different open source tools for network security and analysis
C407.5	Demonstrate intrusion detection system using network security tool.
C407.6	To create secure coding in the developed applications.

**SUB CODE / SUBJECT NAME: IT6713 GRID AND CLOUD COMPUTING LABORATORY**  
**YEAR / SEM: IV/ VII**

<b>C408.1</b>	Use the grid and cloud tool kits.
<b>C408.2</b>	Design and implement applications on the Grid
<b>C408.3</b>	Design and Implement applications on the Cloud
<b>C408.4</b>	Implement virtualization
<b>C408.5</b>	Deploy hadoop one node cluster
<b>C408.6</b>	Implement Hadoop API

## VIII SEMESTER

**SUB CODE / SUBJECT NAME: IT6801 Service oriented Architecture**  
**YEAR / SEM: IV/ VIII**

<b>C409.1(CO1)</b>	Learn XML fundamentals.
<b>C409.2(CO2)</b>	Build applications based on XML.
<b>C409.3(CO3)</b>	Understand the key principles behind SOA
<b>C409.4(CO4)</b>	Develop web services using technology elements.
<b>C409.5(CO5)</b>	Build SOA-based applications for intra-enterprise and inter-enterprise applications



<b>C409.6(CO6)</b>	Learn the various web service standards
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**SUB CODE / SUBJECT NAME: GE6075 PROFESSIONAL ETHICS IN ENGINEERING**  
**YEAR/ SEM: IV/ VIII**

<b>C410.1(CO1)</b>	Understand the core values that shape the ethical behavior of an engineer and Exposed awareness on professional ethics and human values.
<b>C410.2(CO2)</b>	Understand the basic perception of profession, professional ethics, various moral issues & uses of ethical theories
<b>C410.3(CO3)</b>	Understand various social issues, industrial standards, code of ethics and role of professional ethics in engineering field
<b>C410.4(CO4)</b>	Aware of responsibilities of an engineer for safety and risk benefit analysis, professional rights and responsibilities of an engineer.
<b>C410.5(CO5)</b>	Acquire knowledge about various roles of engineers in variety of global issues and able to apply ethical principles to resolve situations that arise in their professional lives
<b>C410.6(CO6)</b>	Demonstrate appropriate and professional ethical behavior.

**SUB CODE / SUBJECT NAME: BM6005 BIO INFORMATICS**  
**YEAR/ SEM: IV/ VIII**

<b>C411.1(CO1)</b>	Learning about the need for Bioinformatics Technologies
<b>C411.2(CO2)</b>	Exposed to the applications of Data warehousing and Data Mining in Bio-informatics.
<b>C411.3(CO3)</b>	Familiarizing with the modeling techniques for bio-informatics.
<b>C411.4(CO4)</b>	Understand the fundamentals of Pattern matching and Visualization
<b>C411.5(CO5)</b>	Learning micro array analysis and its application to genomic expression study
<b>C411.6(CO6)</b>	Develop models, apply matching techniques to bio-informatics data.

**SUB CODE / SUBJECT NAME: MG6088 SOFTWARE PROJECT MANAGEMENT**  
**YEAR/ SEM: IV/ VIII**

<b>C412.1(CO1)</b>	Able to evaluate the project and can perform project planning
<b>C412.2(CO2)</b>	Able to estimate the budget for the project.
<b>C412.3(CO3)</b>	Ability to implement activity planning models and analyzing software risks by Risk management strategies.
<b>C412.4(CO4)</b>	Ability to manage and control projects.
<b>C412.5(CO5)</b>	Ability to manage people in an organization.





<b>C412.6(CO6)</b>	Outline the need for Software Project Management and different techniques for software cost estimation.
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**SUB CODE / SUBJECT NAME: IT6811 PROJECT WORK**  
**YEAR/ SEM: IV/ VIII**

<b>C413.1</b>	Identify the problem by applying acquired knowledge
<b>C413.2</b>	Analyze and categorize executable project modules after considering risks.
<b>C413.3</b>	Choose efficient tools for designing project modules.
<b>C413.4</b>	Combine all the modules through effective team work after efficient testing
<b>C413.5</b>	Elaborate the completed task and compile the project report.

**DEPARTMENT OF MECHANICAL ENGINEERING**

**SEMESTER – I**

<b>C101</b>	<b>HS6151</b>	<b>Technical English - I</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>
C101.1	Define the fundamentals of engineering after learning the rules of English Grammar.					
C101.2	Observe and interpret the contextual knowledge by speaking, listening and reading the social issues like public health, safety, legal and culturally related considerations.					
C101.3	Apply the creative, appropriate techniques, resources to analyze complex engineering problems by interactive exercises like sample interviews and dialogue – writing.					
C101.4	Design the multidisciplinary settings to manage projects as an individual, as a member or leader after taking the exercises like role-play, group discussion making presentations.					
C101.5	Model the life-long learning methods suitable for all the environments committed to professional ethics and responsibilities after inculcating the habit of reading and writing effectively. responsibilities after inculcating the habit of reading and writing effectively.					
C101.6	Aalyze and identify the root for an effective managerial skills through different spoken discourses/excerpts					

<b>C102</b>	<b>MA6151</b>	<b>Mathematics – I</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>
C102.1	Define eigen values and eigen vectors and explain how to analyse the stability of a sytem using these concepts and many other real time application in engineering.					
C102.2	Explain the physical interpretation of divergence, curl and gradient of a vector field and also how to apply these concepts in solving engineering problems.					
C102.3	Define the convergence of a sequence and series and make the student knowledgeable in the area of infinite series and their convergence so that he/ she will be familiar with limitations of using infinite series approximations for solutions arising in mathematical modeling					



C102.4	Introduce the concept of multivariable functions of real variables arise inevitably in engineering and physics due to any one physical quantity will generally depend on a number of other quantities and help[ to solve real time problems.
C102.5	Extend the concept of single integral to multiple integral and explain how to evaluate it. Also explain the idea of change of order of integration and explain how to find Area and volume of solids
C102.6	Understand various mathematical tools and apply it to solve the engineering problems most effectively

C103	PH6151	Engineering Physics – I	3	0	0	3
C103.1	To understand the possible crystal structures and to analyze various growth techniques in the view of increasing demand of crystals for various Engineering and Technological applications.					
C103.2	To understand the basic concepts of elastic behaviour of materials and evaluate the structural stability of beams.Remembering functional ideas of thermal physics and compare the thermal conductivity of different materials to meet the specific needs					
C103.3	Describe and analyzing the quantum nature of radiation and matter to solve the real time societal and technological problems.					
C103.4	The significance of frequency dependent sound waves is discussed and to solve the Medical and Engineering problems using ultrasonics.					
C103.5	To discuss the propagation of light in optical fibres, compare various types of fibers and its applications in Medical and Engineering fields					
C103.6	To make the students undertand the fundamentals of Physics to solve complex engineering problems for benefit of the society					

C104	CY6151	Engineering Chemistry – I	3	0	0	3
C104.1	To apply and implement the knowledge of synthesis and uses of polymers in industries and environment					
C104.2	To analyse and understand the concepts of thermodynamic laws in various industrial applications					
C104.3	To understand and remember the concepts of photophysical, photochemical process and spectroscopy for getting knowledge in light emitting properties of compounds and identifying the functional groups of molecules					
C104.4	Knowledge of alloys gives an idea about the manufacturing precess in various industries					
C104.5	To create the knowledge of nanomaterials and their applications in fields like medicinal, electrical, electronic, chemical,etc					
C104.6	The knowledge gained on polymer chemistry, Thermodynamics, Spectroscopy, phase rule and nano materials will provide a strong platform to understand the concept on various fields like mechanical, electrical, civil engineering for further learning					



C105	GE6151	Computer Programming	3	0	0	3
C105.1	Explain the components of computer and logical operations.					
C105.2	Convert the number system and their representation.					
C105.3	Discuss hardware and software devices					
C105.4	Summarize network fundamentals.					
C105.5	Plan the logic using flowchart and develop algorithm to write a C Program.					

C106	GE6152	Engineering Graphics	2	0	3	4
C106.1	Sketch the conic sections, special curves, and draw orthographic views from pictorial views and models.					
C106.2	Apply the principles of orthographic projections of points in all quadrants, lines and planes in first quadrant.					
C106.3	Sketch the projections of simple solids like prisms, pyramids, cylinder and cone and obtain the traces of plane figures.					
C106.4	Practice the sectional views of solids like cube, prisms, pyramids, cylinders & cones and extend its lateral surfaces.					
C106.5	Sketch the perspective projection of simple solids, truncated prisms, pyramids, cone and cylinders					
C106.6	Sketch the isometric projection of simple machine parts.					

C107	GE6161	Computer Practices Laboratory	0	0	3	2
C107.1	Understand the organization of a digital computer.					
C107.2	Be exposed to the number systems					
C107.3	Ability to think logically and write pseudo code or draw flow charts for problems.					
C107.4	Ability to use arrays, strings, functions, pointers, structures and unions in C.					
C107.5	Design C Programs for problems					
C107.6	Write and execute C programs for simple applications					



C108	GE6162	Engineering Practices Laboratory	0	0	3	2
C108.1	Apply the knowledge of pipeline connections to household fittings and industrial buildings.					
C108.2	Prepare the different joints in roofs, doors, windows and furniture.					
C108.3	Perform step turning operation in a lathe.					
C108.4	Perform the various welding processes and know about its applications.					
C108.5	Produce a funnel using sheet metal.					

C109	GE6163	Physics and Chemistry Laboratory - I	0	0	2	1
C109.1	To apply the physics principles of Thermal physics and Properties of Matter to evaluate properties of materials					
C109.2	To understand measurement technique and usage of new instrument in Optics for real time application in Engineering .					
C109.3	Apply the concept of Ultrasonic to determine the physical parameters					
C109.4	Able to analyse the quality of water for domestic and industrial purpose					
C109.5	Used to find out the emf for different metallic solutions from which electrode potential is determined					
C109.6	To acquire knowledge about the conductivity of acids and bases					

## SEMESTER – II

C110	HS6251	Technical English – II	3	1	0	4
C110.1	Define the impact of the professional engineering solution in societal and environmental contexts with the help of the basic grammar taught to communicate effectively and confidently					
C110.2	Observe the usage of modern engineering and IT tools in designing and developing solutions after developing their reading skills with different types of reading strategies.					
C110.3	Apply the creative, appropriate techniques, resources to analyze complex engineering problems by interactive exercises like sample interviews and dialogue – writing.					



C110.4	Analyze the engineering and Project management principles in consequence of the listening and speaking skills acquired during the classroom activities.
C110.5	Model the time varying natural and engineering sciences after learning to write an imaginary reports, essays, process description, and visualising materials
C110.6	Understand the responsibilities relevant to the professional engineering practice after reading the different genres of texts.

C111	MA6251	Mathematics – II	3	1	0	4
C111.1	Apply the knowledge of techniques in solving ordinary differential equations that model engineering problems.					
C111.2	Define and understand the concepts of vector calculus, needed for problems in all engineering disciplines.					
C111.3	Develop an understanding of the standard techniques of complex variable theory so as to enable the student to apply them with confidence, in application areas such as heat conduction, elasticity, fluid dynamics and flow the of electric current.					
C111.4	Evaluate real integrals by applying concept of complex integration					
C111.5	Understand and apply the knowledge of Laplace Transforms in solving system of linear diffrential equations .					
C111.6	Introduces fundamental knowledge in mathematics, that is applicable in the Engineering aspects.					

C112	PH6251	Engineering Physics – II	3	0	0	3
C112.1	To understand the basic principles of the electrical and thermal conductivity of metals and to analyze the electron behaviour by classical and quantum theories.theor					
C112.2	To discuss the electron behaviour in conduction and valence band in semiconducting materials, comparing the mobility and carrier concentration of N and P type semiconductors by theoretical method and applying Hall effect experimental method for biasing application.					
C112.3	To identify the different types of magnetic materials based on the atomic magnetic dipoles and utilize them for different technological applications. To explain the superconducting behaviours of materials and to solve real time medical and engineering applications.					
C112.4	To describe different polarization mechanism in dielectric materials and to meet the specific need in energy sector.					
C112.5	State and explain modern engineering materials such as metallic glasses, shape memory alloys, Nanomaterials and NLO materials to design new engineering devices					
C112.6	To emphasize the role of conventional and modern engineering materials in Technological applications for the sustainable development of the society					



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C113	CY6251	Engineering Chemistry – II	3	0	0	3
C113.1	To gain knowledge about water quality parameters to analyse and provide them with latest equipment and technologies by using external and internal treatments					
C113.2	To impart knowledge in principles of electrochemical reactions, redox reactions in corrosion of materials and methods for corrosion prevention and protection of materials					
C113.3	To understand the principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells					
C113.4	To get adequate knowledge in preparation, properties and applications of engineering materials					
C113.5	Analyze issues related to fuels and their synthesis and able to understand working of IC and diesel engines					
C113.6	The knowledge gained on engg materials, fuels, energy sources and water treatment techniques will facilitate better understanding of engg processes and applications for further learning					

C114	GE6252	Basic Electrical and Electronics Engineering	4	0	0	4
C114.1	Apply the basic laws of electricity to DC and AC circuits					
C114.2	Describe the construction, operation & application of dc machine, single phase induction motor and transformers.					
C114.3	Acquire the knowledge about the characteristics and working principles of semiconductor devices- diode, transistor and rectifier					
C114.4	Analyze the basics of digital devices like logic gates, counters, flip-flops analog to digital converts and digital to analog converters.					
C114.5	Explain the fundamental knowledge on signals and basic block diagram of communication systems such as radio, radar, fax					
C114.6	Recommend the electrical and electronics engineering concepts and applications essential for them to work in different industries and also motivate them to do higher studies					

C115	GE6253	Engineering Mechanics	3	1	0	4
C115.1	Extend the knowledge in force analysis					
C115.2	Apply the knowledge in Beam force analysis					
C115.3	Determination of Centroid and Center of gravity					



C115.4	Extend and Apply the knowlege in Dynamic analysis
C115.5	Evaluation of Friction Force in system
C115.6	Analysis the free body diagram of the system

C116	GE6261	Computer Aided Drafting and Modeling Laboratory	0	1	2	2
C116.1	Study of capabilities of software for Drafting and Modeling					
C116.2	Apply the drafting knowledge in curves and orthographic projection					
C116.3	Understand the modelling of solid models					
C116.4	Extend the knowlege in plan of residential buildings					
C116.5	Draw the sectional view of standard models					
C116.6	Adequite knowlege in converting 2D in to 3D					

C117	GE6262	Physics and Chemistry Laboratory - II	0	0	2	1
C117.1	To perform experiment to understand the knowledge of properties of matter					
C117.2	To perform the experiment to understand the knowledge of semiconductors					
C117.3	To understand the knowledge of Optics and Spectroscopy					
C117.4	Able to analyse the quality of water foe domestic and industrial purpose					
C117.5	Used to find out the emf for diferent metallic solutions from which electrode potential is determined					
C117.6	To acquire knowledge about the conductivity of acids and bases					



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## SEMESTER – III

C201	MA6351	Transforms and Partial Differential Equations		3	1	0	4
C201.1	Evaluating the various model of homogeneous and non homogeneous partial differential equations which helps to solve engineering problems.						
C201.2	Determine the Fourier coefficients in the Fourier series expansion of a given function and which play a vital role in analysing various complex problems in engineering.						
C201.3	Analyzing the one dimensional, two dimensional heat equation and one dimensional wave equation by using the concept of Fourier series, which describes the distribution in a given region over time						
C201.4	Determine Fourier transform for a given function and use them to evaluate the definite integrals which helps in analysing the differential equation and also applied in quantum mechanics						
C201.5	Determine Z transforms and standard function and use them to solve the difference equation, which helps to investigate the discrete time signals.						
C201.6	Understanding of the mathematical principles on transforms and partial differential equation would provide them the ability to formulate and solve the physical problems of engineering						

C202	ME6302	Manufacturing Technology - I		3	0	0	3
C202.1	Explain different metal casting processes, associated defects, merits and demerits						
C202.2	Compare different metal joining processes.						
C202.3	Summarize various hot working and cold working methods of metals.						
C202.4	Explain various sheet metal making processes						
C202.5	To Learn about Special Forming Processes						
C202.6	Distinguish various methods of manufacturing plastic components						





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C203	ME6301	Engineering Thermodynamics					3	0	0	3
C203.1	Solve first law thermodynamics based types of problems.									
C203.2	Solve second law thermodynamics based types of problems.									
C203.3	Compare the various types of steam power cycles.									
C203.4	Study the thermodynamic relations									
C203.5	Analyze the various psychrometry processes.									
C203.6	Extend the ideas in implementation of mini/major project									

C204	CE6306	Strength of Materials	3	1	0	4
C204.1	Solve to apply mathematical knowledge to calculate the deformation behavior of simple structures.					
C204.2	Solve the problems related to mechanical elements					
C204.3	Compare the various types of loads					
C204.4	Study the deformation behavior of simple structures.					
C204.5	Analyze the various analyse the deformation behavior for different types of loads.					
C204.6	Extend the ideas in implementation of mini/major project related to Strength of Materials.					



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C205	CE6451	Fluid Mechanics and Machinery	3	0	0	3
C205.1	To understand the Fluid properties and Fluid characteristics					
C205.2	Discuss various losses in fluid flow					
C205.3	To solve fluid problems using Dimensional analysis method					
C205.4	Discuss the working and performance of different types pumps					
C205.5	Discuss the working and performance of different types turbines					
C205.6	Analyse fluid systems and solve real time problems					

C206	EE6351	Electrical Drives and Controls	3	0	0	3
C206.1	Study the fundamental of electrical drives and to select the power rating of drive motors with regard to thermal overloading					
C206.2	Compare the different types of electrical machines, their mechanical characteristics and braking methods					
C206.3	Explore the different methods of starting D.C motors and induction motors					
C206.4	Analyse the conventional and solid state speed control of dc drives and its applications					
C206.5	Outline the conventional and solid state speed control of ac drive and its applications					
C206.6	Recommend the speed control of the electrical drives and applications essential for them to work in different industries					

C207	ME6311	Manufacturing Technology Laboratory - I	0	0	3	2
C207.1	Explain different metal casting processes, associated defects, merits and demerits					
C207.2	Compare different metal joining processes.					



C207. 3	Summarize various hot working and cold working methods of metals.
C207. 4	Explain various sheet metal making processes
C207. 5	To Learn about Special Forming Processes
C207. 6	Distinguish various methods of manufacturing plastic components

C208	CE6461	Fluid Mechanics and Machinery Laboratory	0	0	3	2
C208.1	Calculate the coefficient of discharge for Orifice meter and Venturimeter.					
C208.2	Calibrate the Rotameter and Estimate the friction factor for flow through pipes.					
C208.3	Predict performance characteristics of centrifugal pump and submergible pump.					
C208.4	Predict performance characteristics of reciprocating pump and gear pump.					
C208.5	Predict performance characteristics of turbines.					
C208.6	comprehend the knowledge and apply in industrial practice					

C209	EE6365	Electrical Engineering Laboratory	0	0	3	2
C209. 1	Describe the performance of load test on dc shunt and series motor, speed control of DC shunt motor and to tabulate the O.C.C and load characteristics of DC shunt and DC series generator					
C209. 2	Explain the load test, OC and SC test on a single phase transformer					
C209. 3	Examine the regulation of an alternator by EMF and MMF methods					
C209. 4	Determine the V curves and inverted V curves of synchronous Motor					
C209. 5	Predict the load test of 3 phase squirrel cage induction motor and speed control of 3 phase slip ring induction motor					
C209. 6	Select ac and dc starters for different electrical machines and Justify the speed characteristics					



## SEMESTER – IV

C210	MA6452	Statistics and Numerical Methods	3	1	0	4
C210.1	Identify small, large samples and apply testing of hypothesis.					
C210.2	Apply ANOVA test to design of experiments.					
C210.3	Determine the solution of algebraic and transcendental system of linear equations.					
C210.4	To interpolate the values of unknown functions using Newton's Formula					
C210.5	Estimate the numerical values of the derivatives and integrals of unknown function difference equations					
C210.6	Use to solve and give procedures for solving numerically different kinds of problems occurring in engineering and technology					

C211	ME6401	Kinematics of Machinery	3	0	0	3
C211.1	To understand the basic components and layout of linkages in the assembly of a system / machine.					
C211.2	To analyze the mechanisms with respect to the displacement, velocity, and acceleration at any point in a link of a mechanism.					
C211.3	To create mechanisms and Cam mechanisms for specified output motions.					
C211.4	To evaluate the basic motion concepts of toothed gearing and kinematics of gear trains.					
C211.5	To remember the effects of friction in motion transmission components.					
C211.6	To apply the motion types for mechanism design for particular application with displacement , velocity & acceleration study.					

C212	ME6402	Manufacturing Technology– II	3	0	0	3
C212.1	To understand the concept of Chip Formation, and the components of Cutting forces, and to know the types of tool materials.					
C212.2	To know about various types of Turning machines and the operations done by them.					



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C212.3	Differentiate various milling operations done between Shaping, milling, Gear milling, gear hobbing, gear shaping
C212.4	Applications of broaching and grinding machines in machining operations
C212.5	Fundamentals of CNC's, G codes and Mcodes and Programming used for Machining
C212.6	To Know how to write CNC programs for various Operations in CNC Lathe and CNC Milling machines.

C213	ME6403	Engineering Materials and Metallurgy	3	0	0	3
C213.1	Illustrate phase diagram for multicomponent systems and explain the various microstructures of steel and cast iron.					
C213.2	Describe various types of heat treatment process and sketch isothermal transformation.					
C213.3	Compare the composition and properties of various ferrous and non-ferrous alloys.					
C213.4	Discuss properties and applications of polymers and composite materials.					
C213.5	Explain various mechanical testing methods of ferrous and non-ferrous materials.					
C213.6	Create a new composite material composition for all engineering applications					

C214	GE6351	Environmental Science and Engineering	3	0	0	3
C214.1	Understand the values, threats and conservation of biodiversity and classify various Ecosystems.					
C214.2	Define pollution and classify its types, analyze the causes and suggest control measures for pollution.					
C214.3	Develop the knowledge on various natural resources and the impacts of their destruction.					
C214.4	Explain various issues related to land, water and energy, and the environmental acts to overcome the impact.					
C214.5	Relate population and environment and the role of modern technologies in environment and human health					
C214.6	Understand the nature and the threats to them and methods to conserve the nature from extinction.					



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C215	ME6404	Thermal Engineering	3	0	0	3
C215.1	To analyse and solve problems on Gas power cycles					
C215.2	Discuss functions and working of different IC engine components					
C215.3	Expalin the types and working of Steam Nozzles, turbines and solve associated problems					
C215.4	Illustrate & Evaluate the performance of different types of compressors					
C215.5	Evaluate the performance of different types of Refrigeration & Air conditioning systems					
C215.6	Improvise the performance of existing Thermal systems					

C216	ME6411	Manufacturing Technology Laboratory–II	0	0	3	2
C216.1	Ability to use different machine tools for manufacturing gears.					
C216.2	Ability to use different machine tools for finishing operations.					
C216.3	Ability to manufacture single point cutting tools using tool and cutter grinding machine.					
C216.4	Demonstrate and study the working of CNC machine.					
C216.5	To know how to measure cutting forces in milling and turning process.					
C216.6	Develop a CNC part program for the given workpiece.					

C217	CE6315	Strength of Materials Laboratory	0	0	3	2
C217.1	Abilityto test the tensile strength and compressive strength of the given material					
C217.2	Ability to test the hardness of the given material					
C217.3	Ability to test the impact strenth of the given specimen					



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C217.4	Ability to test the shear strength of the given material
C217.5	Ability to test the deflection of the beam
C217.6	To conduct the various heat treatment process for given specimen

C218	ME6412	Thermal Engineering Laboratory - I	0	0	3	2
C218.1	Draw and analyse valve timing and port diagrams of IC engine					
C218.2	Perform and analyse experiments on 4 stroke Diesel Engine.with different loading					
C218.3	Perform and analyse Heat balance test on 4 stroke Diesel Engine.					
C218.4	Perform and analyse Morse test on Multicylinder petrol Engine.					
C218.5	Experiment & Evaluate the Viscosity, Flash & fire point of a given fluid					
C218.6	Perform and analyse experiments on Boiler and steam turbine					

## SEMESTER – V

C301	ME6501	Computer Aided Design	3	0	0	3
C301.1	Knowing fundamentals of computer graphics					
C301.2	Explain about geometric modeling					
C301.3	Analyse about visual realism					
C301.4	Illustrate about assembly of parts					
C301.5	Compare about cad standards					
C301.6	Able to use computer and cad software's for modeling of mechanical components					



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C302	ME6502	Heat and Mass Transfer	3	0	0	3
C302.1	Classify the mechanisms of heat transfer under steady and transient conditions.					
C302.2	Choose the concepts of heat transfer through extended surfaces.					
C302.3	Evaluate the thermal analysis and sizing of heat exchangers.					
C302.4	Analyse the basic concepts of mass transfer.					
C302.5	Adapt different heat and mass transfer principles of different applications.					
C302.6	Judge problems based on both heat and mass transfer.					

C303	ME6505	Dynamics of Machines	3	0	0	3
C303.1	Apply the knowledge of the force-motion relationship in components subjected to external forces and to analyze the force-motion characteristics of standard mechanisms.					
C303.2	Apply the knowledge of the undesirable effects of unbalances resulting from prescribed motions in mechanism.					
C303.3	Apply the knowledge and Visualize the effect of free Vibrations					
C303.4	Apply the knowledge and Visualize the effect of forced Vibrations					
C303.5	Apply the knowledge of the principles in mechanisms used for governing of machines and gyroscopes.					
C303.6	Apply the knowledge of the principles to successfully design vibration free equipments having rotating components used in Engine and machines.					

C304	ME6503	Design of Machine Elements	3	0	0	3
C304.1	Explain steady and variable stresses and apply the theories of failure in design of machine elements					
C304.2	Design a shaft subject to combined static and variable loads.					
C304.3	Analyze the temporary and permanent joints and design joints based on applications.					





C304.4	Design flywheels, fasteners, helical spring, compression and tension springs for the specific applications
C304.5	Select appropriate rolling contact bearing, gasket and seal from the standard catalog based on loads
C304.6	Able to Design Machine componets

C305	ME6504	Metrology and Measurements	3	0	0	3
C305.1	Describe the concepts of measurements to apply in various metrological instruments					
C305.2	Outline the principles of linear and angular measurement tools used for industrial applications					
C305.3	Explain the procedure for conducting computer aided inspection					
C305.4	Demonstrate the techniques of form measurement used for industrial components					
C305.5	Discuss various measuring techniques of mechanical properties in industrial applications					
C305.6	Improvising the standards of existing equipments					

306	GE6075	Professional Ethics in Engineering	3	0	0	3
C306.1	Distinguish between Moral and Ethics.					
C306.2	Summarize the moral theories and ethical inquiries.					
C306.3	Evaluate the result of the engineering projects by applying ethical theories.					
C306.4	Discuss about professional rights, employ rights and intellectual property rights, safety and risk involved in engineering projects.					
C306.5	Judge the role of engineer in environmental issues, computer applications, weapons development, multinational corporations and Corporate Social Responsibility.					
C306.6	Create the ethical codes for engineers for self developing					



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C307	ME6512	Thermal Engineering Laboratory- II	0	0	3	2
C307.1	Conduct a test to find thermal conductivity of various engineering materials.					
C307.2	Measure heat transfer rate in free and forced convection environment.					
C307.3	Measure emissivity of grey surface.					
C307.4	Measure the effectiveness of parallel and counter flow heat exchanger.					
C307.5	Measure COP of refrigeration and air conditioning system and performance of air compressor and fluidized bed cooling tower.					
C307.6	To develop the model thermal equipment					

C308	ME6511	Dynamics Laboratory	0	0	3	2
C308.1	Apply and Realize the principles learnt in kinematics of linkages and its inversions, gears and gear trains.					
C308.2	Apply and Realize the principles learnt dynamics of the undesirable effects of unbalances resulting from prescribed motions in mechanism.					
C308.3	Apply and Realize and Visualize the effect of free Vibrations.					
C308.4	Apply and Realize and Visualize the effect of forced Vibrations					
C308.5	Apply and Realize the principles in mechanisms used for governing of machines and gyroscopes.					
C308.6	Apply and Realize the principles to successfully design vibration free equipments having rotating components used in Engine and machines.					

C309	ME6513	Metrology and Measurements Laboratory	0	0	3	2
C309.1	Ability to measure the gear tooth dimensions using gear tooth vernier					
C309.2	Ability to measure the angle using sine bar					
C309.3	Ability to measure the straightness and flatness using autocollimator					



C309.4	Calibrate the vernier, micrometer and slip gauges and setting up the comparator for the inspection.
C309.5	Ability to measure the temperature using thermocouple
C309.6	Ability to measure the force, displacement, torque and vibration

## SEMESTER – VI

C310	MG6851	Principles of Management	3	0	0	3
C310.1	Understand the evolution of management thought and basics principles of management					
C310.2	Apply the planning concepts and tools					
C310.3	Different organizational structures and HR concept and techniques					
C310.4	Analyse the motivation and leadership theories and understand the communication					
C310.5	Understand the controlling process					
C310.6	Apply the management concepts and tools					

C311	ME6604	Gas Dynamics and Jet Propulsion	3	0	0	3
C311.1	Apply steady flow energy equation and Analyze the variable cross sectional area component					
C311.2	Study the heat transfer and friction with component					
C311.3	Generation of normal and oblique shocks in the outside structure					
C311.4	Application of aircraft profile and propulsion					
C311.5	Space propulsion with different altitude					
C311.6	the students can able to successfully apply gas dynamics principles in the Jet and Space Propulsion					



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C312	ME6601	Design of Transmission Systems	3	0	0	3
C312.1	Have thorough knowledge about the various flexible transmission systems, its practical applications and selection of suitable drive system for the real problems.					
C312.2	Apply the knowledge of spur gear and parallel axis gear terminologies, calculating its forces and design for strength in manufacturing industry					
C312.3	Apply the knowledge of bevel gear, worm and cross helical gear terminologies, calculating its forces and design for strength in manufacturing industries.					
C312.4	Apply the knowledge of different types of gears, its use in design of gear boxes in manufacturing industries.					
C312.5	Apply the knowledge of design of cams, clutches and brakes used in land transport and industrial applications					
C312.6	Upon completion of this course, the students can able to successfully design and synthesize transmission components used in Engine and machines.					

C313	ME6602	Automobile Engineering	3	0	0	3
C313.1	Understand the types of vehicle layout, engine types, and chassis systems.					
C313.2	Outline the functions and components of fuel injection systems.					
C313.3	Describe working of gear boxes, joints, and drives.					
C313.4	Explain the requirements of axles, final drive, differential, steering systems and suspension systems.					
C313.5	Outline the features of alternative fuels and energy sources					
C313.6	Explain about energy resources biodiesel, gaseous fuels, hybrid vehicles					

C314	ME6603	Finite Element Analysis	3	0	0	3
C314.1	Understand the concept of finite element method for solving machine design problems.					
C314.2	Solve engineering problems by mathematical differential equations.					



C314.3	Formulate and solve manually problems in 1-D structural systems involving bars, trusses, beams and frames.
C314.4	Develop 2-D FE formulations involving triangular, quadrilateral elements and higher order elements.
C314.5	Apply the knowledge of FEM for stress analysis, model analysis, heat transfer analysis and flow analysis.
C314.6	Correlate and compare the outputs to the FEA Softwares

C315	ME6004	Unconventional Machining Processes	3	0	0	3
C315.1	Explain the need for unconventional machining processes and its classification					
C315.2	Compare various mechanical energy based unconventional machining processes					
C315.3	Summarize various electrical energy based unconventional machining processes.					
C315.4	Distinguish various chemical and electro chemical based unconventional machining processes					
C315.5	Summarize various thermal energy based unconventional machining processes.					
C315.6	Distinguish various recent trends based unconventional machining processes					

C316	ME6611	C.A.D. / C.A.M. Laboratory	0	0	3	2
C316.1	Develop 2D and 3D models using modeling softwares.					
C316.2	Understand the CNC control in modern manufacturing system.					
C316.3	Write the Manual Part Programming					
C316.4	Develop the Computer Aided part programming					
C316.5	Apply the knowledge of assembly in mechanical components					



C316.6	Construction of orthographic projection of models
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C317	ME6612	Design and Fabrication Project	0	0	4	2
C317.1	To design and demonstrate working of a machine element					
C317.2	Ability to fabricate any components using different manufacturing tools.					
C317.3	Use of design principles and develop conceptual and engineering design of any components.					
C317.4	opportunity to the student to get hands on training in the fabrication of one or more components of a complete working model					
C317.5	To improve presentation skills at the end of the project					
C317.6	To inculcate the habit of working in teams					

C318	GE6674	Communication and Soft Skills- Laboratory Based	0	0	4	2
C318.1	Define appropriate techniques with suitable language and speech pattern					
C318.2	Discuss the social issues in the group discussion					
C318.3	Apply the acquired skills confidently in interviews					
C318.4	Take part in debates and public speaking					
C318.5	Prioritize the ideas relevantly and coherently in writing and speaking					
C318.6	Develop the skills for writing technical reports and letters					



## SEMESTER – VII

C401	ME6701	Power Plant Engineering	3	0	0	3
C401.1	Differentiate the various types of thermodynamic cycles, draw block diagram and describe the operation of thermal power plant with auxiliary equipments					
C401.2	Demonstrate the working of different types of gas turbines with block diagram, analyze the methods to improve the thermal efficiency and explain the operation of diesel power plant with layout.					
C401.3	Describe the layout of subsystem of various nuclear power plants and express safety measures for nuclear power plants					
C401.4	Explain the operation of non-conventional power generations such as solar energy, collectors, wind power plants, Tidal, geo thermal resources, fuel cell and thermo electric power generation.					
C401.5	Define maximum load, Demand factor and investigation done during the site selection. Evaluate capital and operating cost of power plants. identify the pollution control technologies for waste disposal option in coal and nuclear power plants					
C401.6	understand different types of powerplant, and its functions with their flow lines and issues related to them. Analyse and solve energy and economic related issues in power sectors.					

C402	ME6702	Mechatronics	3	0	0	3
C402.1	Ability to understand the emerging area of Mechatronics					
C402.2	Study and Demonstrate the 8085 MICROPROCESSOR AND 8051 MICROCONTROLLER					
C402.3	Analyse the PROGRAMMABLE PERIPHERAL INTERFACE					
C402.4	Understand the basic structure of PROGRAMMABLE LOGIC CONTROLLER					
C402.5	Ability to design the ACTUATORS in the MECHATRONIC SYSTEM					
C402.6	To design mechatronics system with the help of Microprocessor, PLC and other electrical and Electronics Circuits.					

C403	ME6703	Computer Manufacturing Systems	Integrated	3	0	0	3
C403.1	Solve CAD/CAM based problems.						
C403.2	Solve Production planning and control and Computerised process planning of problems.						



C403.3	Compare the various types computer integrated manufacturing systems
C403.4	Study the various types computer integrated manufacturing systems.
C403.5	Analyze the various computer integrated manufacturing systems processes.
C403.6	Extend the ideas in implementation of mini/major project related to CIMS.

C404	GE6757	Total Management	Quality	3	0	0	3
C404.1	Develop an understand on quality management principles and process						
C404.2	Adopt TQM methodologies for contiuous improvement of quality						
C404.3	To apply the tools and techniques of management						
C404.4	Identify area for improvement						
C404.5	Apply benchmarking and TQM tools						
C404.6	Evaluate performance excellence of an organization and Quality systems						

C405	ME6005	Process Planning and Cost Estimation	3	0	0	3
C405.1	Able to interpret the drawing and do the material selection and process planning for various products.					
C405.2	Able to define and analyse the process parameters, and selection of Jigs and Fixures					
C405.3	Understand the basic concepts and able to do the cost estimation.					
C405.4	Understand and able to do the cost estimation for the products produced by Casting, Welding, Forging and machining.					
C405.5	Can do the estimation and computing of machining time for the products produced by Casting, Welding, Forging and machining.					





C405.6	Recognise and ability to use the concepts of process planning and cost estimation for various products.					
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C406	ME6010	Robotics	3	0	0	3
C406.1	Understand basic principles of Robots and its working mechanisms.					
C406.2	Compare the various types of robot drive systems and end effectors.					
C406.3	Study the various types of Sensors and Machine Vision.					
C406.4	Analyze the various Robot kinematics for different configurations.					
C406.5	Create offline robot program using programming softwares					
C406.6	Develop and implementation of robot for industrial applications.					

C407	ME6711	Simulation and Analysis Laboratory	0	0	3	2
C407.1	Understand the concept of 3D modelling					
C407.2	Applying concepts of FEA to solve structural problems					
C407.3	Analyze the Failure module and apply Factor of safety.					
C407.4	Utilize the modern tools for simulation of materials and structures.					
C407.5	Evaluate strength of model and materials .					
C407.6	Build an engineering component using simulation tools by applying FEA concepts					

C408	ME6712	Mechatronics Laboratory	0	0	3	2
C408.1	Simulate the actuators using Pneumatically and Electrically					
C408.2	Enhance the knowledge on Digital Image processing					



C408.3	Develop PLC programs for control of Stepper Motor, traffic lights and DC motor
C408.4	Simulate and analyse PLC controlled actuators.
C408.5	Develop pneumatic and hydraulic circuits using Pneumosim and Hydrosim software
C408.6	Study the various types of transducers for Engineering applications

C409	ME6713	Comprehension	0	0	2	1
C409.1	Understand any given problem related to mechanical engineering field.					
C409.2	Develop any solution related to mechanical engineering field.					
C409.3	Comprehend any given problem related to mechanical engineering field.					
C409.4	Learn basics of each Mechanical engineering topics					
C409.5	Apply suitable analyse methods related to any complex problems					
C409.6	Create any component related to mechanical engineering field					

## SEMESTER – VIII

C410	MG6863	Engineering Economics	3	0	0	3
C410.1	Learn basics of Engineering Economics and optimum costing.					
C410.2	Understand Value Engineering and Time Value of Money.					
C410.3	Differentiate Cash Dominated and Revenue Dominated Cash flow.					
C410.4	Apply suitable cash flow methods for different Situations.					



C410.5	Apply Depreciation methods for Individual/Industrial/Public Alternatives.
C410.6	Create the overall methodology of Engineering Economics

C411	IE6605	Production Planning and Control	3	0	0	3
C411.1	Able to prepare Process Plan and Production Plan based on the types of Production Systems and can do the Break Even Analysis					
C411.2	Can able to conduct work study in any industrial organisation.					
C411.3	Able to do Value analysis and capacity Planning.					
C411.4	Recognise and able to prepare the production schedule for manufacturing of various products.					
C411.5	Able to do the inventory analysis and select the appropriate inventory techniques.					

C411.6	Can able to do manufacturing requirement Planning (MRP II) and Enterprise Resource Planning (ERP).					
C412	ME6016	Advanced I.C. Engines	3	0	0	3
C412.1	Label different air-fuel ratio requirements in SI Engine, design of carburetor					
C412.2	Illustrate different Stages of combustion direct and indirect injection systems					
C412.3	Apply the NOX , HC/CO mechanism and Indian Driving Cycles and emission norms					
C412.4	Distinguish emission characteristics of SI and CI Engines using these alternate fuels.					
C412.5	Compose the Homogeneous Charge Compression Ignition Engine, Heat release analysis in Engines, Alternate Fuels					
C412.6	Design an IC Engine, Modern trends in automobile industry					

C413	ME6811	Project Work	0	0	12	6
C413.1	Able to identify the Problem					



C413.2	Can able to take up comprehensive literature survey
C413.3	Able to define the Problem statement and identify the Research Gap
C413.4	Able to frame the research methodology
C413.5	Able to develop the conceptual models and to do the analysis
C413.6	To take up any challenging problems and find the solutions

## REGULATIONS – 2017

### COURSE OUTCOMES

#### DEPARTMENT OF CIVIL ENGINEERING

#### **SEMESTER I**

#### **SUB CODE / SUBJECT NAME: HS8151/ TECHNICAL ENGLISH - I**

#### **YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C101.1 (C01)</b>	Define the fundamentals of engineering after learning the rules of English Grammar.
<b>C101.2 (C02)</b>	Read articles of the general kind in magazines and newspapers.
<b>C101.3 (C03)</b>	Participate effectively in informal conversations; introduce themselves and their friends and express opinions in English.
<b>C101.4 (C04)</b>	Comprehend conversations and short talks delivered in English.
<b>C101.5 (C05)</b>	Write short essays of the general kind and personal letters and e-mails in English.
<b>C101.6 (C06)</b>	Analyze and identify the root for effective managerial skills through different spoken discourse and excerpts.

#### **SUB CODE / SUBJECT NAME: MA8151/ ENGINEERING MATHEMATICS - I**

#### **YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
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<b>C102.1 (C01)</b>	Use both the limit definition and rules of differentiation to differentiate functions.
<b>C102.2 (C02)</b>	Apply differentiation to solve maxima and minima problems.
<b>C102.3 (C03)</b>	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.
<b>C102.4 (C04)</b>	Apply various techniques in solving differential equations.
<b>C102.5 (C05)</b>	To study differential equations, help to solve real time problems.
<b>C102.6 (C06)</b>	Introduce the concepts of Differentiation and Integration that will create an ability to deal with Differential Equations and Multiple integrals.

**SUB CODE / SUBJECT NAME: PH8151/ ENGINEERING PHYSICS**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C103.1 (C01)</b>	To understand the possible crystal structures and to analyze various growth techniques in the view of increasing demand of crystals for various Engineering and Technological applications.
<b>C103.2 (C02)</b>	To understand the basic concepts of elastic behavior of materials and evaluate the structural stability of beams. Remembering functional ideas of thermal physics and compare the thermal conductivity of different materials to meet the specific needs
<b>C103.3 (C03)</b>	Describe and analyzing the quantum nature of radiation and matter to solve the real time societal and technological problems.
<b>C103.4 (C04)</b>	The significance of frequency dependent sound waves is discussed and to solve the Medical and Engineering problems using ultrasonic's.
<b>C103.5 (C05)</b>	To discuss the propagation of light in optical fibers, compare various types of fibers and its applications in Medical and Engineering fields
<b>C103.6 (C06)</b>	To make the students understand the fundamentals of Physics to solve complex engineering problems for benefit of the society

**SUB CODE / SUBJECT NAME: CY8151/ ENGINEERING CHEMISTRY**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C104.1 (C01)</b>	Analyze boiler troubles with latest technologies and equipment's using external and internal treatment methods.
<b>C104.2 (C02)</b>	It provides basic knowledge in the field of absorption and catalysis.



<b>C104.3 (C03)</b>	Knowledge of alloys gives an idea about the manufacturing process in various industries.
<b>C104.4 (C04)</b>	Analyze issues related to fuels and their synthesis and able to understand working of IC and diesel engines.
<b>C104.5 (C05)</b>	To understand the principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells.
<b>C104.6 (C06)</b>	The knowledge gained on engineering materials, fuels, energy sources and water treatment techniques will facilitate better understanding of engineering processes and applications for further learning.

**SUB CODE / SUBJECT NAME: GE8151/ PROBLEM SOLVING AND PYTHON PROGRAMMING**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C105.1 (C01)</b>	Develop algorithmic solutions to simple computational problems.
<b>C105.2 (C02)</b>	Demonstrate programs using simple Python statements and expressions.
<b>C105.3 (C03)</b>	Explain control flow and functions concept in Python for solving problems.
<b>C105.4 (C04)</b>	Use Python data structures – lists, tuples & dictionaries for representing compound data.
<b>C105.5 (C05)</b>	Explain files, exception, modules and packages in Python for solving problems.
<b>C105.6 (C06)</b>	Develop Python programs to illustrate concise and efficient algorithms.

**SUB CODE / SUBJECT NAME: GE8152/ ENGINEERING GRAPHICS**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C106.1 (C01)</b>	How to draw different engineering curves, draw different orthographic projections.
<b>C106.2 (C02)</b>	Illustrate different views of points, lines and planes inclined to both HP and VP in first quadrant.
<b>C106.3 (C03)</b>	Develop the projections of simple solids inclined to any one plane
<b>C106.4 (C04)</b>	Categorize Section and develop various solids



<b>C106.5 (C05)</b>	Evaluate to Draw 3D projections of simple solids by Perspective by visual ray method and Isometric projections
<b>C106.6 (C06)</b>	Build an engineering component using Paper drawing as well as in CAD

**SUB CODE / SUBJECT NAME: GE8161/ PROBLEM SOLVING AND PYTHON PROGRAMMING  
LAB YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C107.1 (C01)</b>	Develop solutions to simple computational problems using Python programs.
<b>C107.2 (C02)</b>	Solve problems using conditionals and loops in Python.
<b>C107.3 (C03)</b>	Develop Python programs by defining functions and calling them.
<b>C107.4 (C04)</b>	Use Python lists, tuples and dictionaries for representing compound data.
<b>C107.5 (C05)</b>	Develop Python programs using files.
<b>C107.6 (C06)</b>	Developing python programming using predefined functions.

**SUB CODE / SUBJECT NAME: BS8161/ PHYSICS AND CHEMISTRY LAB  
YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C108.1 (C01)</b>	To apply the physics principles of Thermal physics and Properties of Matter to evaluate properties of materials
<b>C108.2 (C02)</b>	To understand measurement technique and usage of new instrument in Optics for real time application in Engineering.
<b>C108.3 (C03)</b>	Apply the knowledge of semiconducting material, to evaluate the band gap of material useful for engineering solutions.
<b>C108.4 (C04)</b>	Able to analyze the quality of water for domestic and industrial purpose.
<b>C108.5 (C05)</b>	Used to find out the emf for different metallic solutions from which electrode potential is determined.
<b>C108.6 (C06)</b>	To acquire knowledge about the conductivity of acids and bases.



## SEMESTER II

**SUB CODE / SUBJECT NAME: HS8251/ TECHNICAL ENGLISH**

**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C110.1 (C01)	Define the fundamentals of engineering after learning the rules of English Grammar.
C110.2 (C02)	Read technical text and write area-specific text effortlessly.
C110.3 (C03)	Listen and comprehend lectures and talks in their area of specialization successfully.
C110.4 (C04)	Speak appropriately and effectively in varied formal and informal contexts.
C110.5 (C05)	Write reports and winning job applications
C110.6 (C06)	Analyze and identify the root for effective managerial skills through different spoken discourse and excerpts

**SUB CODE / SUBJECT NAME: MA8251/ENGINEERING MATHEMATICS-II**

**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C111.1 (C01)	Introduce the concepts of Eigen value and Eigenvectors which help to find the stability of the systems in engineering
C111.2 (C02)	Define and understand the concepts of vector calculus, needed for finding solutions in all engineering discipline problems.
C111.3 (C03)	Develop an understanding of the standard techniques of complex variable theory so as to enable the student to apply them with confidence, in application areas such as heat conduction, elasticity, fluid dynamics and flow of the electric current.
C111.4 (C04)	Evaluate real integrals by applying concept of complex integration
C111.5 (C05)	Understand and apply the knowledge of Laplace Transforms in solving system of linear differential equations.
C111.6 (C06)	Introduces fundamental knowledge in mathematics, that is applicable in the Engineering aspects.





**SUB CODE / SUBJECT NAME: PH8201 PHYSICS FOR CIVIL ENGINEERING**  
**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C111.1	Gain knowledge on the thermal performance of buildings
C111.2	Gain knowledge on the acoustic properties of buildings
C111.3	Gain knowledge on various lighting designs for buildings,
C111.4	Gain knowledge on the properties and performance of engineering materials
C111.5	Gain understand the hazards of buildings

**SUB CODE / SUBJECT NAME: BE8251 BASIC ELECTRICAL AND ELECTRONICS ENGINEERING**  
**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C112.1	To learn basic theorems used in Electrical circuits and the different components and function of electrical machines
C112.2	Ability to identify the electrical components and explain the characteristics of electrical machines.
C112.3	Ability to identify electronics components and understand the characteristics
C112.4	To learn fundamentals of semiconductor and applications
C112.5	To learn principles of digital electronics

**SUB CODE / SUBJECT NAME: GE8291 ENVIRONMENTAL SCIENCE AND ENGINEERING**  
**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
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<b>C113.1</b>	Environmental Pollution or problems cannot be solved by mere laws.
<b>C113.2</b>	Public participation is an important aspect which serves the environmental Protection. One will obtain knowledge on the following after completing the course.
<b>C113.3</b>	Public awareness of environmental is at infant stage.
<b>C113.4</b>	Ignorance and incomplete knowledge has lead to misconceptions
<b>C113.5</b>	Development and improvement in std. of living has lead to serious environmental disasters

**SUB CODE / SUBJECT NAME: GE8292 ENGINEERING MECHANICS  
YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C114.1</b>	Able to illustrate the vectorial and scalar representation of forces and moments
<b>C114.2</b>	Able to analyse the rigid body in equilibrium
<b>C114.3</b>	Able to evaluate the properties of surfaces and solids
<b>C114.4</b>	Able to calculate dynamic forces exerted in rigid body
<b>C114.5</b>	Able to determine the friction and the effects by the laws of friction

**SUB CODE / SUBJECT NAME: GE8261/ENGINEERING PRACTICES LABORATORY  
YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C115.1 (CO1)</b>	How to make joints in carpentry
<b>C115.2 (C02)</b>	Make use of joints in plumbing
<b>C115.3 (C03)</b>	Show the operation of the lathe
<b>C115.4 (C04)</b>	Mark the works in sheet metal
<b>C115.5 (C05)</b>	Ability to understand joints in welding
<b>C115.6 (C06)</b>	Formulate the brief idea of engineering application



**SUB CODE / SUBJECT NAME: CE8211 COMPUTER AIDED BUILDING DRAWING**  
**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C116.1</b>	Develop drafting skills in drawing plan, section and elevation of residential buildings using AutoCAD software
<b>C116.2</b>	Develop drafting skills in drawing plan, section and elevation of public buildings using AutoCAD software
<b>C116.3</b>	Develop drafting skills in drawing section and elevation of Doors and windows using AutoCAD software
<b>C116.4</b>	Develop drafting skills in drawing plan, section and elevation of industrial buildings using AutoCAD software
<b>C116.5</b>	Develop Building Information Modeling

**SEMESTER III**

**SUB CODE / SUBJECT NAME: MA8353 Transforms and Partial Differential Equations**  
**YEAR / SEM: II/III**

<b>R 2017</b>	<b>COURSE CODE</b>	<b>MA8353 Transforms and Partial Differential Equations</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
	<b>C201</b>	<b>CATEGORY</b> BS	4	0	0	4
<b>C201.1</b>	To introduce the basic concepts of PDE for solving standard partial differential equations.					
<b>C201.2</b>	To introduce Fourier series analysis which is central to many applications in engineering apart from its use in solving boundary value problems					
<b>C201.3</b>	To acquaint the student with Fourier series techniques in solving heat flow problems used in various situations.					
<b>C201.4</b>	To acquaint the student with Fourier transform techniques used in wide variety of situations.					
<b>C201.5</b>	To introduce the effective mathematical tools for the solutions of partial differential equations that model several physical processes and to develop Z transform techniques for discrete time systems.					

**SUB CODE / SUBJECT NAME: CE8301 Strength of Materials I**

**YEAR / SEM: II/III**

<b>R 2017</b>	<b>COURSE CODE</b>	<b>CE8301 Strength of Materials I</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>



	<b>C202</b>	<b>CATEGORY</b>	Professional Core	3	0	0	3
<b>C202.1</b>	Understand the concepts of stress and strain, principal stresses and principal planes.						
<b>C202.2</b>	Determine Shear force and bending moment in beams and understand concept of theory of simple bending.						
<b>C202.3</b>	Calculate the deflection of beams by different methods and selection of method for determining slope or deflection.						
<b>C202.4</b>	Apply basic equation of torsion in design of circular shafts and helical springs, .						
<b>C202.5</b>	Analyze the pin jointed plane and space trusses						

**SUB CODE / SUBJECT NAME: CE8302 FLUID MECHANICS**  
**YEAR / SEM: II/III**

<b>R 2017</b>	<b>COURSE CODE</b>	<b>CE8302 FLUID MECHANICS</b>		<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
	<b>C203</b>	<b>CATEGORY</b>	Professional Core	3	0	0	3
<b>C203.1</b>	Get a basic knowledge of fluids in static, kinematic and dynamic equilibrium.						
<b>C203.2</b>	Understand and solve the problems related to equation of motion.						
<b>C203.3</b>	Gain knowledge about dimensional and model analysis.						
<b>C203.4</b>	Learn types of flow and losses of flow in pipes.						
<b>C203.5</b>	Understand and solve the boundary layer problems.						

**SUB CODE / SUBJECT NAME: CE8351 SURVEYING YEAR / SEM: II/III**

<b>R 2017</b>	<b>COURSE CODE</b>	<b>CE8351 SURVEYING</b>		<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
	<b>C204</b>	<b>CATEGORY</b>	Professional Core	3	0	0	3
<b>C204.1</b>	The use of various surveying instruments and mapping						
<b>C204.2</b>	Measuring Horizontal angle and vertical angle using different instruments						
<b>C204.3</b>	Methods of Leveling and setting Levels with different instruments						
<b>C204.4</b>	Concepts of astronomical surveying and methods to determine time, longitude, latitude and azimuth						
<b>C204.5</b>	Concept and principle of modern surveying.						



**SUB CODE / SUBJECT NAME: CE8391 CONSTRUCTION MATERIALS**  
**YEAR / SEM: II/III**

R 2017	COURSE CODE	CE8391 CONSTRUCTION MATERIALS		L	T	P	C
	C205	CATEGORY	Professional Core	3	0	0	3
C205.1	Compare the properties of most common and advanced building materials.						
C205.2	Understand the typical and potential applications of lime, cement and aggregates						
C205.3	Know the production of concrete and also the method of placing and making of concrete elements.						
C205.4	Understand the applications of timbers and other materials						
C205.5	Understand the importance of modern material for construction.						

**SUB CODE / SUBJECT NAME: CE8392 ENGINEERING GEOLOGY**  
**YEAR / SEM: II/III**

R 2017	COURSE CODE	CE8392 ENGINEERING GEOLOGY		L	T	P	C
	C206	CATEGORY	Professional Core	3	0	0	3
C206.1	Will be able to understand the importance of geological knowledge such as earth, earthquake, volcanism and the action of various geological agencies.						
C206.2	Will get basics knowledge on properties of minerals.						
C206.3	Gain knowledge about types of rocks, their distribution and uses.						
C206.4	Will understand the methods of study on geological structure.						
C206.5	Will understand the application of geological investigation in projects such as dams, tunnels, bridges, roads, airport and harbor						



## SUB CODE / SUBJECT NAME: CE8311 CONSTRUCTION MATERIALS LABORATORY YEAR / SEM: II/III

R 2017	COURSE CODE	CE8311 CONSTRUCTION MATERIALS LABORATORY		L	T	P	C
	C207	CATEGORY	Professional Core	3	0	0	3
C207.1	Conduct Quality Control tests on Fine Aggregates						
C207.2	Conduct Quality Control tests on Coarse Aggregates						
C207.3	Conduct Quality Control tests on fresh concrete						
C207.4	Determine the strength properties of hardened concrete						
C207.5	Perform Quality Control tests on Bricks, blocks and tiles						

## SUB CODE / SUBJECT NAME: CE8361 SURVEYING LABORATORY YEAR / SEM: II/III

R 2017	COURSE CODE	CE8361 SURVEYING LABORATORY		L	T	P	C
	C208	CATEGORY	Professional Core	0	0	4	2
C208.1	Gain practical knowledge on handling basic survey instruments						
C208.2	Gain practical knowledge on handling Theodolite, Tacheometry						
C208.3	Gain practical knowledge on handling Total Station and GPS						
C208.4	Gain adequate knowledge to carryout Triangulation and Astronomical surveying						
C208.5	Gain adequate knowledge on general field marking for various engineering projects and Location of site						

### SEMESTER IV

## SUB CODE / SUBJECT NAME: CE8401 CONSTRUCTION TECHNIQUES AND PRACTICES YEAR / SEM: II/IV

R 2017	COURSE CODE	CE8401 CONSTRUCTION TECHNIQUES AND PRACTICES		L	T	P	C
	C211	CATEGORY	Professional Core	3	0	0	3
C211.1	Know the different construction techniques and structural systems						



<b>C211.2</b>	Understand various techniques and practices on masonry construction, flooring, and roofing.
<b>C211.3</b>	Plan the requirements for substructure construction.
<b>C211.4</b>	Know the methods and techniques involved in the construction of various types of super structures
<b>C211.5</b>	Select, maintain and operate hand and power tools and equipment used in the building construction sites.

**SUB CODE / SUBJECT NAME: CE8402 STRENGTH OF MATERIALS II**  
**YEAR / SEM: II/IV**

R 2017	COURSE CODE	CE8402 STRENGTH OF MATERIALS II	L	T	P	C
	C212	CATEGORY	Professional Core	3	0	0
<b>C212.1</b>	Determine the strain energy and compute the deflection of determinate beams, frames and trusses using energy principles.					
<b>C212.2</b>	Analyze propped cantilever, fixed beams and continuous beams using theorem of three moment equation for external loadings and support settlements.					
<b>C212.3</b>	Find the load carrying capacity of columns and stresses induced in columns and cylinders					
<b>C212.4</b>	Determine principal stresses and planes for an element in three dimensional state of stress and study various theories of failure					
<b>C212.5</b>	Determine the stresses due to Unsymmetrical bending of beams, locate the shear center, and find the stresses in curved beams.					

**SUB CODE / SUBJECT NAME: CE 8403 Applied Hydraulic Engineering** YEAR / SEM: II/IV

R 2017	COURSE CODE	CE 8403 Applied Hydraulic Engineering	L	T	P	C
	C213	CATEGORY	Professional Core	3	0	0
<b>C213.1</b>	Apply their knowledge of fluid mechanics in addressing problems in open channels.					
<b>C213.2</b>	Able to identify a effective section for flow in different cross sections.					
<b>C213.3</b>	To solve problems in uniform, gradually and rapidly varied flows in steady state conditions.					
<b>C213.4</b>	Understand the principles, working and application of turbines.					
<b>C213.5</b>	Understand the principles, working and application of pumps.					

**SUB CODE / SUBJECT NAME: CE8491 SOIL MECHANICS**

**YEAR/ SEM: II/IV**

R 2017	COURSE	CE8491 SOIL MECHANICS	L	T	P	C
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	CODE					
	<b>C215</b>	<b>CATEGORY</b>	<b>Professional Core</b>	<b>3</b>	<b>0</b>	<b>0 3</b>
<b>C215.1</b>	Classify the soil and assess the engineering properties, based on index properties.					
<b>C215.2</b>	Understand the stress concepts in soils					
<b>C215.3</b>	Understand and identify the settlement in soils.					
<b>C215.4</b>	Determine the shear strength of soil					
<b>C215.5</b>	Analyze both finite and infinite slopes.					

**SUB CODE / SUBJECT NAME: CE8404 CONCRETE TECHNOLOGY**  
**YEAR / SEM: II/IV**

<b>R 2017</b>	<b>COURSE CODE</b>	CE8404 CONCRETE TECHNOLOGY	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
	<b>C214</b>	<b>CATEGORY</b>	Professional Core	<b>3</b>	<b>0</b>	<b>0</b>
<b>C214.1</b>	The various requirements of cement, aggregates and water for making concrete					
<b>C214.2</b>	The effect of admixtures on properties of concrete					
<b>C214.3</b>	The concept and procedure of mix design as per IS method					
<b>C214.4</b>	The properties of concrete at fresh and hardened state					
<b>C214.5</b>	The importance and application of special concretes.					

**SUB CODE / SUBJECT NAME: CE8481 Strength of Materials Laboratory**  
**YEAR / SEM: II/IV**

<b>R 2017</b>	<b>COURSE CODE</b>	CE8481 Strength of Materials Laboratory	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
	<b>C216</b>	<b>CATEGORY</b>	Professional Core	<b>0</b>	<b>0</b>	<b>4</b>
<b>C216.1</b>	Acquire required knowledge in the area of testing steel rod					
<b>C216.2</b>	Acquire required knowledge in the area of testing wood					
<b>C216.3</b>	Acquire required knowledge in the area of testing metal					
<b>C216.4</b>	Acquire required knowledge in the area of testing components of structural elements					
<b>C216.5</b>	Learn deflection and compression test					





**SUB CODE / SUBJECT NAME: CE8461 Hydraulic Engineering Laboratory**  
**YEAR / SEM: II/IV**

R 2017	COURSE CODE	CE8461 Hydraulic Engineering Laboratory		L	T	P	C
	C217	CATEGORY	Professional Core	0	0	4	2
C217.1	The students will be able to study the Characteristics of pumps						
C217.2	The students will be able to study the Characteristics of turbine						
C217.3	The students will be able to measure flow in pipes and determine frictional losses.						
C217.4	The students will be able to develop characteristics of pumps and turbines						
C217.5	The students will be able to verify the principles studied in theory by performing the experiments in lab.						

**SEMESTER V**

**SUB CODE / SUBJECT NAME: CE8501 DESIGN OF REINFORCED CEMENT CONCRETE ELEMENTS**  
**YEAR / SEM: III/V**

R 2017	COURSE CODE	CE8501 DESIGN OF REINFORCED CEMENT CONCRETE ELEMENTS		L	T	P	C
		CATEGORY	Professional Core	3	2	0	4
C301.1	Understand the various design methodologies for the design of RC elements.						
C301.2.	Know the analysis and design of flanged beams by limit state method and sign of beams for shear, bond and torsion.						
C301.3	Design the various types of slabs and staircase by limit state method.						
C301.4	Design columns for axial, uniaxial and biaxial eccentric loadings.						
C301.5	Design of footing by limit state method.						

**SUB CODE / SUBJECT NAME: CE8502 STRUCTURAL ANALYSIS I YEAR / SEM: III/V**

R 2017	COURSE CODE	CE8502 STRUCTURAL ANALYSIS I		L	T	P	C
	C302	CATEGORY	Professional Core	3	0	0	3
C302.1	Analyze continuous beams, pin-jointed indeterminate plane frames and rigid plane frames by strain energy method						
C302.2	Analyse the continuous beams and rigid frames by slope deflection method.						
C302.3	Understand the concept of moment distribution and analysis of continuous beams and						



	rigid frames with and without sway.
<b>C302.4</b>	Analyse the indeterminate pin jointed plane frames continuous beams and rigid frames using matrix flexibility method.
<b>C302.5</b>	Understand the concept of matrix stiffness method and analysis of continuous beams, pin jointed trusses and rigid plane frames.

**SUB CODE / SUBJECT NAME: EN8491 WATER SUPPLY ENGINEERING**  
**YEAR / SEM: III/V**

R 2017	COURSE CODE	EN8491 WATER SUPPLY ENGINEERING		L	T	P	C
	C303	CATEGORY	Professional Core	3	0	0	3
<b>C303.1</b>	An insight into the structure of drinking water supply systems, including water transport, treatment and distribution						
<b>C303.2</b>	The knowledge in various unit operations and processes in water treatment						
<b>C303.3</b>	An ability to design the various functional units in water treatment						
<b>C303.4</b>	An understanding of water quality criteria and standards, and their relation to public health						
<b>C303.5</b>	The ability to design and evaluate water supply project alternatives on basis of chosen						

**SUB CODE / SUBJECT NAME: CE8591 FOUNDATION ENGINEERING**  
**YEAR / SEM: III/V**

R 2017	COURSE CODE	CE8591 FOUNDATION ENGINEERING		L	T	P	C
	C304	CATEGORY	Professional Core	3	0	0	3
<b>C304.1</b>	Understand the site investigation, methods and sampling.						
<b>C304.2</b>	Get knowledge on bearing capacity and testing methods.						
<b>C304.3</b>	Design shallow footings.						
<b>C304.4</b>	Determine the load carrying capacity, settlement of pile foundation.						
<b>C304.5</b>	Determine the earth pressure on retaining walls and analysis for stability.						



**SUB CODE / SUBJECT NAME: CE8511 SOIL MECHANICS LABORATORY**  
**YEAR / SEM: III/V**

R 2017	COURSE CODE	CE8511 SOIL MECHANICS LABORATORY		L	T	P	C
	C320	CATEGORY	Professional Core	0	0	4	2
C320.1	Classifying soil based on index properties of soils (coarse and fine).						
C320.2	Classifying soil based on consistency limit of fine grained soils						
C320.3	Interpreting the shear strength of all types of soils by conducting lab tests						
C320.4	Interpreting the shear strength of all types of soils by conducting lab tests						
C320.5	Understanding the engineering properties of soils by conducting field tests						

**SUB CODE / SUBJECT NAME: CE8512 WATER AND WASTE WATER ANALYSIS LABORATORY**  
**YEAR / SEM: III/V**

R 2017	COURSE CODE	CE8512 WATER AND WASTE WATER ANALYSIS LABORATORY		L	T	P	C
		CATEGORY	Professional Core	3	0	0	3
C321.1	Quantify the pollutant concentration in water and wastewater						
C321.2	Suggest the type of treatment required and amount of dosage required for the treatment						
C321.3	Examine the conditions for the growth of micro-organisms						
C321.4	Suggest the type of treatment required to reduce e-coli in water						
C321.5	Compare the analysis of treated water among different treatments						

**SUB CODE / SUBJECT NAME: CE8513 SURVEY CAMP**  
**YEAR / SEM: III/V**

R 2017	COURSE CODE	CE8513 SURVEY CAMP		L	T	P	C
	C322	CATEGORY	Professional Core	0	0	0	2
C322.1	To use all surveying equipment, prepare LS & CS						
C322.2	To prepare contour maps by triangulation method						
C322.3	To prepare maps and grids by Trilateration method						
C322.4	To prepare contour maps by Rectangulation method						



<b>C322.5</b>	To carryout surveying works related to land and civil engineering projects
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**SUB CODE / SUBJECT NAME: GI8013 ADVANCED SURVEYING (PE1)**  
**YEAR / SEM: III/V**

R 2017	COURSE CODE	GI8013 ADVANCED SURVEYING		L	T	P	C
	C306	CATEGORY	Professional Elective	3	0	0	3
<b>C306.1</b>	Know the astronomical surveying						
<b>C306.2</b>	Do the photogrammetric surveying and interpretation						
<b>C306.3</b>	Solve the field problems with Total station						
<b>C306.4</b>	Know the GPS surveying and the data processing						
<b>C306.5</b>	Understand the route surveys and tunnel alignments						

**SUB CODE / SUBJECT NAME: ORO551 RENEWABLE ENERGY SOURCES(OE1)**  
**YEAR / SEM: III/V**

R 2017	COURSE CODE	ORO551 RENEWABLE ENERGY SOURCES		L	T	P	C
	C316	CATEGORY	Professional Core	3	0	0	3
<b>C316.1</b>	Understanding the physics of solar radiation.						
<b>C316.2</b>	Ability to classify the solar energy collectors and methodologies of storing solar energy.						
<b>C316.3</b>	Knowledge in applying solar energy in a useful way.						
<b>C316.4</b>	Knowledge in wind energy and biomass with its economic aspects.						
<b>C316.5</b>	Knowledge in capturing and applying other forms of energy sources like wind, biogas and geothermal energies.						

**SEMESTER VI**

**SUB CODE / SUBJECT NAME: CE8601 DESIGN OF STEEL STRUCTURAL ELEMENTS**  
**YEAR / SEM: III/VI**

COURSE CODE	COURSE OUTCOMES
<b>C323.1 (CO1)</b>	Understand the concepts of various design philosophies
<b>C323.2 (CO2)</b>	Design common bolted and welded connections for steel structures



<b>C323.3</b> <b>(C03)</b>	Design tension members and understand the effect of shear lag.
<b>C323.4</b> <b>(C04)</b>	Understand the design concept of axially loaded columns and column base connections.
<b>C323.5</b> <b>(C05)</b>	Understand specific problems related to the design of laterally restrained and unrestrained steel beams.

**SUB CODE / SUBJECT NAME: CE8602 STRUCTURAL ANALYSIS II**

**YEAR / SEM: III/VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C324.1</b> <b>(C01)</b>	Draw influence lines for statically determinate structures and calculate critical stress resultants.
<b>C324.2</b> <b>(C02)</b>	Understand Muller Breslau principle and draw the influence lines for statically indeterminate beams.
<b>C324.3</b> <b>(C03)</b>	Analyse of three hinged, two hinged and fixed arches.
<b>C324.4</b> <b>(C04)</b>	Analyse the suspension bridges with stiffening girders
<b>C324.5</b> <b>(C05)</b>	Understand the concept of Plastic analysis and the method of analyzing beams and rigid frames.

**SUB CODE / SUBJECT NAME: CE8603 IRRIGATION ENGINEERING**

**YEAR / SEM: III/VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C325.1</b> <b>(C01)</b>	Have knowledge and skills on crop water requirements.
<b>C325.2</b> <b>(C02)</b>	Understand the methods and management of irrigation.
<b>C325.3</b> <b>(C03)</b>	Gain knowledge on types of Impounding structures
<b>C325.4</b> <b>(C04)</b>	Understand methods of irrigation including canal irrigation.
<b>C325.5</b> <b>(C05)</b>	Get knowledge on water management on optimization of water use.

**SUB CODE / SUBJECT NAME: CE8604 HIGHWAY ENGINEERING**

**YEAR / SEM: III/VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C326.1</b> <b>(C01)</b>	Get knowledge on planning and aligning of highway.
<b>C326.2</b> <b>(C02)</b>	Geometric design of highways



<b>C326.3 (C03)</b>	Design flexible and rigid pavements.
<b>C326.4 (C04)</b>	Gain knowledge on Highway construction materials, properties, testing methods
<b>C326.5 (C05)</b>	Understand the concept of pavement management system, evaluation of distress and maintenance of pavements.

**SUB CODE / SUBJECT NAME: EN8592 WASTEWATER ENGINEERING YEAR / SEM: III/VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C327.1 (C01)</b>	An ability to estimate sewage generation and design sewer system including sewage pumping stations
<b>C327.2 (C02)</b>	The required understanding on the characteristics and composition of sewage, self-purification of streams
<b>C327.3 (C03)</b>	An ability to perform basic design of the unit operations and processes that are used in sewage treatment
<b>C327.4 (C04)</b>	Understand the standard methods for disposal of sewage.
<b>C327.5 (C05)</b>	Gain knowledge on sludge treatment and disposal.

**SUB CODE / SUBJECT NAME: CE8005 AIR POLLUTION AND CONTROL ENGINEERING (PE II) YEAR / SEM: III/VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C332.1 (C01)</b>	An understanding of the nature and characteristics of air pollutants, noise pollution and basic concepts of air quality management
<b>C332.2 (C02)</b>	Ability to identify, formulate and solve air and noise pollution problems
<b>C332.3 (C03)</b>	Ability to design stacks and particulate air pollution control devices to meet applicable standards.
<b>C332.4 (C04)</b>	Ability to select control equipments.
<b>C332.5 (C05)</b>	Ability to ensure quality, control and preventive measures.



## SUB CODE / SUBJECT NAME: CE8611 HIGHWAY ENGINEERING LABORATORY

YEAR / SEM: III/VI

COURSE CODE	COURSE OUTCOMES
C334.1 (C01)	To conduct Quality Control tests on Aggregates
C334.2 (C02)	To determine the strength properties of Aggregates
C334.3 (C03)	To determine the strength properties of bitumen
C334.4 (C04)	To perform Quality Control tests on bitumen
C334.5 (C05)	To characterize the bituminous mixes

## SUB CODE / SUBJECT NAME: CE8612 IRRIGATION AND ENVIRONMENTAL ENGINEERING

DRAWING

YEAR / SEM: III/VI

COURSE CODE	COURSE OUTCOMES
C335.1 (C01)	Design and draw tank surplus weir and tank sluice with tower head, earth dam and its profile
C335.2 (C02)	Design and draw -Aqueducts – Syphon aqueduct (Type III) – Canal drop (Notch Type)
C335.3 (C03)	Design and draw - Direct Sluice - Canal regulator
C335.4 (C04)	Design and draw flash mixer, flocculator, clarifier – Rapid sand filter – Service reservoirs – Pumping station – House service connection for water supply and drainage.
C335.5 (C05)	Design and draw screen chamber - Grit channel - Primary clarifier - Activated sludge process – Aeration tank – Trickling filter – Sludge digester – Sludge drying beds – Septic tanks and disposal arrangements.

## SEMESTER VII

## SUB CODE / SUBJECT NAME: CE8701 ESTIMATION, COSTING AND VALUATION ENGINEERING

YEAR / SEM: IV/VII

COURSE CODE	COURSE OUTCOMES
C401.1 (C01)	Estimate the quantities for buildings,
C401.2 (C02)	Rate Analysis for all Building works, canals, and Roads and Cost Estimate.
C401.3	Understand types of specifications, principles for report preparation, tender notices types.



(C03)	
C401.4 (C04)	Gain knowledge on types of contracts
C401.5 (C05)	Evaluate valuation for building and land.

**SUB CODE / SUBJECT NAME: CE8702 RAILWAYS, AIRPORTS, DOCKS AND HARBOUR ENGINEERING**  
**YEAR / SEM: IV/VII**

COURSE CODE	COURSE OUTCOMES
C402.1 (CO1)	Understand the methods of route alignment and design elements in Railway Planning and Constructions.
C402.2 (C02)	Understand the Construction techniques and Maintenance of Track laying and Railway stations.
C402.3 (C03)	Gain an insight on the planning and site selection of Airport Planning and design.
C402.4 (C04)	Analyze and design the elements for orientation of runways and passenger facility systems.
C402.5 (C05)	Understand the various features in Harbours and Ports, their construction, coastal protection works and coastal Regulations to be adopted.

**SUB CODE / SUBJECT NAME: CE8703 STRUCTURAL DESIGN AND DRAWING**  
**YEAR / SEM: IV/VII**

COURSE CODE	COURSE OUTCOMES
C403.1 (CO1)	Design and draw reinforced concrete Cantilever and Counterfort Retaining Walls
C403.2 (C02)	Design and draw flat slab as per code provisions
C403.3 (C03)	Design and draw reinforced concrete and steel bridges
C403.4 (C04)	Design and draw reinforced concrete and steel water tanks
C403.5 (C05)	Design and detail the various steel trusses and gantry girders





**SUB CODE / SUBJECT NAME: EN8591 MUNICIPAL SOLID WASTE MANAGEMENT (PE III)**  
**YEAR / SEM: IV/VII**

COURSE CODE	COURSE OUTCOMES
C411.1 (C01)	Understanding of the nature and characteristics of municipal solid wastes and the regulatory requirements regarding municipal solid waste management.
C411.2 (C02)	Reduction, reuse and recycling of waste.
C411.3 (C03)	ability to plan and design systems for storage, collection, transport, processing and disposal of municipal solid waste.
C411.4 (C04)	knowledge on the issues on solid waste management from an integrated and holistic perspective, as well as in the local and international context.
C411.5 (C05)	Design and operation of sanitary landfill.

**SUB CODE / SUBJECT NAME: OME754 - INDUSTRIAL SAFETY (OE II) YEAR / SEM: IV/VII**

COURSE CODE	COURSE OUTCOMES
C418.1 (C01)	Able to identify various types of industrial hazards.
C418.2 (C02)	Familiar to prevent chemical, environmental mechanical, fire hazard through analysis.
C418.3 (C03)	Apply proper safety techniques in engineering and management.
C418.4 (C04)	Design appropriate personal protective equipments to overcome disasters.
C418.5 (C05)	Develop analytical skill to understand safety system

**SUB CODE / SUBJECT NAME: CE8711 CREATIVE AND INNOVATIVE PROJECT (ACTIVITY BASED - SUBJECT RELATED) YEAR / SEM: IV/VII**

COURSE CODE	COURSE OUTCOMES
C424.1 (C01)	Able to design any of the Civil Engineering structure
C424.2 (C02)	Able to interpret data, and synthesis the information to provide valid conclusions
C424.3 (C03)	Apply appropriate techniques, modern Engineering tools to engineering activities



<b>C424.4</b> <b>(C04)</b>	Able to communicate effectively, manage the team or partner
<b>C424.5</b> <b>(C05)</b>	Apply ethical principles and commit to professional ethics and responsibilities

**SUB CODE / SUBJECT NAME: CE8712 INDUSTRIAL TRAINING (4 Weeks during VI Semester – summer)** **YEAR / SEM: IV/VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C425.1</b> <b>(CO1)</b>	To intricacies of implementation textbook knowledge into practice in the chosen fields of engineering.
<b>C425.2</b> <b>(C02)</b>	To understand the concepts of developments and implementation of new techniques by conducting research.
<b>C425.3</b> <b>(C03)</b>	To understand the importance of sustainability and cost-effectiveness in design and developments of engineering solution.
<b>C425.4</b> <b>(C04)</b>	To be a multi-skilled engineer with good technical knowledge, management, leadership and entrepreneurship skills through continuous professional development and life-long learning
<b>C425.5</b> <b>(C05)</b>	To create an awareness of the social, cultural, global and environmental responsibility as an engineer.

**SEMESTER VIII**

**SUB CODE / SUBJECT NAME: CE8016 GROUNDWATER ENGINEERING (PE IV)**  
**YEAR / SEM: IV/VIII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C429.1</b> <b>(CO1)</b>	Understand aquifer properties and its dynamics
<b>C429.2</b> <b>(C02)</b>	Get an exposure towards well design and practical problems
<b>C429.3</b> <b>(C03)</b>	Develop a model for groundwater management.
<b>C429.4</b> <b>(C04)</b>	Students will be able to understand the importance of artificial recharge and groundwater quality concepts
<b>C429.5</b> <b>(C05)</b>	Gain knowledge on conservation of groundwater.

**SUB CODE / SUBJECT NAME: CE8020 MAINTENANCE, REPAIR AND REHABILITATION OF STRUCTURES (PE V)** **YEAR / SEM: IV/VIII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C435.1</b> <b>(CO1)</b>	The importance of maintenance and assessment method of distressed structures.



<b>C435.2</b> <b>(C02)</b>	The strength and durability properties, their effects due to climate and temperature.
<b>C435.3</b> <b>(C03)</b>	Recent development in concrete
<b>C435.4</b> <b>(C04)</b>	The techniques for repair and protection methods
<b>C435.5</b> <b>(C05)</b>	Repair, rehabilitation and retrofitting of structures and demolition methods.

**SUB CODE / SUBJECT NAME: CE8811 PROJECT WORK**

**YEAR / SEM: IV/VIII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C440.1</b> <b>(C01)</b>	Able to take up any challenging practical problems in Civil Engineering
<b>C440.2</b> <b>(C02)</b>	Able to solve the problem from its identification and through literature reviews
<b>C440.3</b> <b>(C03)</b>	Apply appropriate techniques, modern Engineering tools to solve the problems
<b>C440.4</b> <b>(C04)</b>	Able to solve the problem in context with societal and environmental need
<b>C440.5</b> <b>(C05)</b>	Able to prepare project reports, presentations and to face interviews

## DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

**SUB CODE / SUBJECT NAME: HS8151/ COMMUNICATIVE ENGLISH**

**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C101.1</b> <b>(C01)</b>	Define the fundamentals of engineering after learning the rules of English Grammar.
<b>C101.2</b> <b>(C02)</b>	Read articles of the general kind in magazines and newspapers.
<b>C101.3</b> <b>(C03)</b>	Participate effectively in informal conversations; introduce themselves and their friends and express opinions in English.
<b>C101.4</b> <b>(C04)</b>	Comprehend conversations and short talks delivered in English.
<b>C101.5</b> <b>(C05)</b>	Write short essays of the general kind and personal letters and e-mails in English.



## SUB CODE / SUBJECT NAME: MA8151/ ENGINEERING MATHEMATICS - I

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C102.1 (CO1)	Use both the limit definition and rules of differentiation to differentiate functions.
C102.2 (CO2)	Apply differentiation to solve maxima and minima problems.
C102.3 (CO3)	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.
C102.4 (CO4)	Apply various techniques in solving differential equations.
C102.5 (CO5)	To study how differential equation, help to solve real time problems.

## SUB CODE / SUBJECT NAME: PH8151/ ENGINEERING PHYSICS

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C103.1 (CO1)	To understand the basic concepts of elastic behavior of materials and evaluate the structural stability of beams.
C103.2 (CO2)	To understand the behavior of different oscillatory wave motion and the concept of LASER action, also discuss about the propagation of light in optical fibers, comparing various types of fibers and its applications in Medical and Engineering fields.
C103.3 (CO3)	Remembering functional ideas of thermal physics and compare the thermal conductivity of different materials to meet the specific needs.
C103.4 (CO4)	Describe and analyzing the quantum nature of radiation and matter to solve the real time societal and technological problems.
C103.5 (CO5)	To understand the possible crystal structures and to analyze various growth techniques in the view of increasing demand of crystals for various Engineering and Technological applications.



**SUB CODE / SUBJECT NAME: CY8151/ ENGINEERING CHEMISTRY**

**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C104.1 (CO1)</b>	Analyze boiler troubles with latest technologies and equipment's using external and internal treatment methods.
<b>C104.2 (CO2)</b>	It provides basic knowledge in the field of absorption and catalysis.
<b>C104.3 (CO3)</b>	Knowledge of alloys gives an idea about the manufacturing process in various industries.
<b>C104.4 (CO4)</b>	Analyze issues related to fuels and their synthesis and able to understand working of IC and diesel engines.
<b>C104.5 (CO5)</b>	To understand the principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells.

**SUB CODE / SUBJECT NAME: GE8151/ PROBLEM SOLVING AND PYTHON PROGRAMMING**

**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C105.1 (CO1)</b>	Develop algorithmic solutions to simple computational problems.
<b>C105.2 (CO2)</b>	Demonstrate programs using simple Python statements and expressions.
<b>C105.3 (CO3)</b>	Explain control flow and functions concept in Python for solving problems.
<b>C105.4 (CO4)</b>	Use Python data structures – lists, tuples & dictionaries for representing compound data.
<b>C105.5 (CO5)</b>	Explain files, exception, modules and packages in Python for solving problems.



## SUB CODE / SUBJECT NAME: GE8152/ ENGINEERING GRAPHICS

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C106.1 (CO1)	How to draw different engineering curves, draw different orthographic projections.
C106.2 (CO2)	Illustrate different views of points, lines and planes inclined to both HP and VP in first quadrant.
C106.3 (CO3)	Develop the projections of simple solids inclined to any one plane
C106.4 (CO4)	Categorize Section and develop various solids
C106.5 (CO5)	Evaluate to Draw 3D projections of simple solids by Perspective by visual ray method and Isometric projections

## SUB CODE / SUBJECT NAME: GE8161/ PROBLEM SOLVING AND PYTHON PROGRAMMING

LAB YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C107.1 (CO1)	Develop solutions to simple computational problems using Python programs.
C107.2 (CO2)	Solve problems using conditionals and loops in Python.
C107.3 (CO3)	Develop Python programs by defining functions and calling them.
C107.4 (CO4)	Use Python lists, tuples and dictionaries for representing compound data.
C107.5 (CO5)	Develop Python programs using files.

## SUB CODE / SUBJECT NAME: BS8161/ PHYSICS AND CHEMISTRY LAB YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C108.1 (CO1)	To apply the physics principles of Thermal physics and Properties of Matter to evaluate properties of materials



<b>C108.2 (CO2)</b>	To understand measurement technique and usage of new instrument in Optics for real time application in Engineering
<b>C108.3 (CO3)</b>	Apply the knowledge of semiconducting material, to evaluate the band gap of material useful for engineering solutions.
<b>C108.4 (CO4)</b>	Able to analyze the conductivity of acids and bases and also analyze the quality of water for domestic and industrial purpose
<b>C108.5 (CO5)</b>	Used to find out the emf for different metallic solutions from which electrode potential is determined

## SEMESTER II

### SUB CODE / SUBJECT NAME: HS8251/ TECHNICAL ENGLISH

#### YEAR / SEM: I/II

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C109.1 (CO1)</b>	Define the fundamentals of engineering after learning the rules of English Grammar.
<b>C109.2 (CO2)</b>	Read technical text and write area-specific text effortlessly.
<b>C109.3 (CO3)</b>	Listen and comprehend lectures and talks in their area of specialization successfully.
<b>C109.4 (CO4)</b>	Speak appropriately and effectively in varied formal and informal contexts.
<b>C109.5 (CO5)</b>	Write reports and winning job applications

### SUB CODE / SUBJECT NAME: MA8251/ ENGINEERING MATHEMATICS-II

#### YEAR / SEM: I/II

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C110.1 (CO1)</b>	Introduce the concepts of Eigenvalue and Eigenvectors which help to find the stability of the systems in engineering
<b>C110.2 (CO2)</b>	Define and understand the concepts of vector calculus, needed for finding solutions in all engineering discipline problems.
<b>C110.3 (CO3)</b>	Develop an understanding of the standard techniques of complex variable theory so as to enable the student to apply them with confidence, in application areas such as heat



	conduction, elasticity, fluid dynamics and flow of the electric current.
<b>C110.4 (CO4)</b>	Evaluate real integrals by applying concept of complex integration
<b>C110.5 (CO5)</b>	Understand and apply the knowledge of Laplace Transforms in solving system of linear differential equations.

## **SUB CODE / SUBJECT NAME: PH8252/ PHYSICS FOR INFORMATION SCIENCE**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C111.1 (CO1)</b>	To gain the knowledge on classical and quantum electron theories and energy band structures
<b>C111.2 (CO2)</b>	To understand the essential principles of physics of semiconductor device and electron transport properties for new application
<b>C111.3 (CO3)</b>	To acquire knowledge on magnetic properties of materials and their applications in data storage.
<b>C111.4 (CO4)</b>	To understand the functioning of optical materials for optoelectronics
<b>C111.5 (CO5)</b>	To understand the basics of quantum structures and their applications in carbon electronics

## **SUB CODE / SUBJECT NAME: BE8255/BASIC ELECTRICAL, ELECTRONICS& MEASUREMENT ENGINEERING**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C112.1 (CO1)</b>	Discuss the essentials of electric circuits and analysis
<b>C112.2 (CO2)</b>	Discuss the basic operation of electric machines and transformers
<b>C112.3 (CO3)</b>	Introduction of renewable sources and common domestic loads
<b>C112.4 (CO4)</b>	To understand the fundamentals of electronic circuit constructions





**C112.5  
(CO5)**

Introduction to measurement methods

**SUB CODE / SUBJECT NAME: GE8291/ENVIRONMENTAL SCIENCE & ENGINEERING**

**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C113.1 (CO1)	To interpret the relationship between living organisms and the environment and to identify the threats to global biodiversity
C113.2 (CO2)	To identify and prevent the problems related to the pollution of air, water, soil, marine, etc
C113.3 (CO3)	To understand the importance of natural resources and to conserve it for future generation
C113.4 (CO4)	To analyze the social issues of the environment to be a part of sustainable development
C113.5 (CO5)	To create awareness and sustainable population growth and know the contribution of information technology in environmental management

**SUB CODE / SUBJECT NAME: CS8251/PROGRAMMING IN C**

**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C114.1 (CO1)	Develop simple applications in C using basic constructs
C114.2 (CO2)	Design and implement applications using arrays and strings
C114.3 (CO3)	Develop and implement applications in C using functions and pointers.
C114.4 (CO4)	Develop applications in C using structures.
C114.5 (CO5)	Design applications using sequential and random access file processing



## SUB CODE / SUBJECT NAME: GE8261/ENGINEERING PRACTICES LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C115.1 (CO1)	Hands on experience on welding, sheet metal and lathe work
C115.2 (CO2)	Experience the plumbing and carpentry work
C115.3 (CO3)	Demonstration on centrifugal pump and air conditioning working principles
C115.4 (CO4)	Measurement of Electrical quantities, earthing procedures, wiring methods etc
C115.5 (CO5)	Study of Electronic components and equipments – Resistor, colour coding measurement of AC signal parameter, Gates , Circuits etc

## SUB CODE / SUBJECT NAME: CS8261/C PROGRAMMING LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C116.1 (CO1)	Apply and practice logical formulations to solve some simple problems leading to specific applications.
C116.2 (CO2)	Develop C programs for simple applications making use of basic constructs, arrays and strings.
C116.3 (CO3)	Demonstrate C programming development environment, compiling, debugging, linking and executing a program using the development environment.
C116.4 (CO4)	Develop C programs involving functions, recursion, pointers, and structures.
C116.5 (CO5)	Design applications using sequential and random access file processing



## SEMESTER III

**SUB CODE / SUBJECT NAME: MA8351- DISCRETE MATHEMATICS YEAR / SEM: II /III**

COURSE CODE	COURSE OUTCOMES
C201.1 (CO1)	Have knowledge of the concepts needed to test the logic of a program.
C201.2 (CO2)	Have an understanding in identifying structures on many levels.
C201.3 (CO3)	Be aware of a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science.
C201.4 (CO4)	Be aware of the counting principles.
C201.5 (CO5)	Be exposed to concepts and properties of algebraic structures such as groups, rings and fields

**SUB CODE / SUBJECT NAME: CS8351 - DIGITAL PRINCIPLES AND SYSTEM DESIGN**

**YEAR / SEM: II /III**

COURSE CODE	COURSE OUTCOMES
C202.1 (CO1)	Simplify Boolean functions using KMap.
C202.2 (CO2)	Design and Analyze Combinational and Sequential Circuits
C202.3 (CO3)	Implement designs using Programmable Logic Devices. Write HDL codes for combinational and sequential circuits.
C202.4 (CO4)	Analyze a memory cell and apply for organizing larger memory.
C202.5 (CO5)	Understand and compare the concepts of programmable logic devices. Develop HDL programs for combinational and sequential circuits



## SUB CODE / SUBJECT NAME: CS8391 - DATA STRUCTURES

YEAR / SEM: II /III

COURSE CODE	COURSE OUTCOMES
C203.1 (CO1)	Implement abstract data types for linear data structures.
C203.2 (CO2)	Apply the different linear and non-linear data structures to problem solutions.
C203.3 (CO3)	Understand basic data structures such as stacks and queues
C203.4 (CO4)	Critically analyze the various sorting algorithms.
C203.5 (CO5)	Describe the hash function and concepts of collision and its resolution methods

## SUB CODE / SUBJECT NAME: CS8392 - OBJECT ORIENTED PROGRAMMING

YEAR / SEM: II /III

COURSE CODE	COURSE OUTCOMES
C204.1 (CO1)	Develop Java programs using OOP principles
C204.2 (CO2)	Develop Java programs with the concepts inheritance and interfaces
C204.3 (CO3)	Build Java applications using exceptions and I/O streams
C204.4 (CO4)	Develop Java applications with threads and generics classes
C204.5 (CO5)	Develop interactive Java programs using swings



## SUB CODE / SUBJECT NAME: EC8395 - COMMUNICATION ENGINEERING

YEAR / SEM: II /III

COURSE CODE	COURSE OUTCOMES
C205.1 (CO1)	Ability to comprehend and appreciate the significance and role of this course in the present contemporary world
C205.2 (CO2)	Apply analog and digital communication techniques.
C205.3 (CO3)	Use data and pulse communication techniques.
C205.4 (CO4)	Analyze Source and Error control coding.
C205.5 (CO5)	Understanding various multiple access and spread spectrum techniques

## SUB CODE / SUBJECT NAME: CS8381 - DATA STRUCTURES LABORATORY

YEAR / SEM: II /III

COURSE CODE	COURSE OUTCOMES
C206.1 (CO1)	Write functions to implement linear and non-linear data structure operations
C206.2 (CO2)	Suggest appropriate linear / non-linear data structure operations for solving a given problem
C206.3 (CO3)	Appropriately use the linear / non-linear data structure operations for a given problem
C206.4 (CO4)	Apply appropriate hash functions that result in a collision free scenario for data storage and retrieval
C206.5 (CO5)	Develop programming skills which require to solve given problem.



## SUB CODE / SUBJECT NAME: CS8383 - OBJECT ORIENTED PROGRAMMING LABORATORY

YEAR / SEM: II / III

COURSE CODE	COURSE OUTCOMES
C207.1 (CO1)	Develop and implement Java programs for simple applications that make use of classes, packages and interfaces.
C207.2 (CO2)	Develop and implement Java programs with array list and Strings
C207.3 (CO3)	Develop and implement Java programs with exception handling and multithreading
C207.4 (CO4)	Design applications using file processing and generic programming.
C207.5 (CO5)	Develop applications using event handling with AWT and SWING.

## SUB CODE / SUBJECT NAME: CS8382 - DIGITAL SYSTEMS LABORATORY

YEAR / SEM: II / III

COURSE CODE	COURSE OUTCOMES
C208.1 (CO1)	Implement simplified combinational circuits using basic logic gates
C208.2 (CO2)	Implement combinational circuits using MSI devices
C208.3 (CO3)	Implement sequential circuits like registers and counters
C208.4 (CO4)	Simulate combinational and sequential circuits using HDL
C208.5 (CO5)	Implement all the circuits and in counters



## SUB CODE / SUBJECT NAME: HS8381 - INTERPERSONAL SKILLS/LISTENING & SPEAKING

YEAR / SEM: II /III

COURSE CODE	COURSE OUTCOMES
C209.1 (CO1)	Listen and respond appropriately.
C209.2 (CO2)	Participate in group discussions
C209.3 (CO3)	Make effective presentations
C209.4 (CO4)	Participate confidently and appropriately in conversations both formal and informal
C209.5 (CO5)	Improve general and academic listening skills

## SEMESTER IV

## SUB CODE / SUBJECT NAME: MA8402 - PROBABILITY AND QUEUING THEORY

YEAR / SEM: II /IV

COURSE CODE	COURSE OUTCOMES
C210.1 (CO1)	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon
C210.2 (CO2)	Understand the basic concepts of one and two dimensional random variables and apply in engineering applications.
C210.3 (CO3)	Apply the concept of random processes in engineering disciplines.
C210.4 (CO4)	Acquire skills in analyzing queueing models
C210.5 (CO5)	Understand and characterize phenomenon which evolve with respect to time in a probabilistic manner



## SUB CODE / SUBJECT NAME: CS8491 - COMPUTER ARCHITECTURE

YEAR / SEM: II /IV

COURSE CODE	COURSE OUTCOMES
C211.1 (CO1)	Understand the basics structure of computers, operations and instructions.
C211.2 (CO2)	Design arithmetic and logic unit.
C211.3 (CO3)	Understand pipelined execution and design control unit.
C211.4 (CO4)	Understand parallel processing architectures.
C211.5 (CO5)	Understand the various memory systems and I/O communication

## SUB CODE / SUBJECT NAME: CS8492 - DATABASE MANAGEMENT SYSTEMS

YEAR / SEM: II /IV

COURSE CODE	COURSE OUTCOMES
C212.1 (CO1)	Classify the modern and futuristic database applications based on size and complexity
C212.2 (CO2)	Map ER model to Relational model to perform database design effectively.
C212.3 (CO3)	Write queries using normalization criteria and optimize queries
C212.4 (CO4)	Compare and contrast various indexing strategies in different database systems
C212.5 (CO5)	Appraise how advanced databases differ from traditional databases.





## SUB CODE / SUBJECT NAME: CS8451 - DESIGN AND ANALYSIS OF ALGORITHMS

YEAR / SEM: II /IV

COURSE CODE	COURSE OUTCOMES
C213.1 (CO1)	Analyze the time and space complexity of algorithms
C213.2 (CO2)	Critically analyze the different algorithm design techniques for a given problem
C213.3 (CO3)	Design algorithms for various computing problems.
C213.4 (CO4)	Design limitations of algorithms in problem solving
C213.5 (CO5)	Modify existing algorithms to improve efficiency.

## SUB CODE / SUBJECT NAME: CS8493 - OPERATING SYSTEMS

YEAR / SEM: II /IV

COURSE CODE	COURSE OUTCOMES
C214.1 (CO1)	Analyze various scheduling algorithms.
C214.2 (CO2)	Understand deadlock, prevention and avoidance algorithms.
C214.3 (CO3)	Compare and contrast various memory management schemes.
C214.4 (CO4)	Understand the functionality of file systems.
C214.5 (CO5)	Perform administrative tasks on Linux Servers. Compare iOS and Android Operating Systems.



## SUB CODE / SUBJECT NAME: CS8494 - SOFTWARE ENGINEERING

YEAR / SEM: II /IV

COURSE CODE	COURSE OUTCOMES
C215.1 (CO1)	Identify the key activities in managing a software project.
C215.2 (CO2)	Compare different process models
C215.3 (CO1)	Concepts of requirements engineering and Analysis Modeling.
C215.4 (CO1)	Apply systematic procedure for software design and deployment.
C215.5 (CO1)	Compare and contrast the various testing and maintenance, Manage project schedule, estimate project cost and effort required.

## SUB CODE / SUBJECT NAME: CS8481 - DATABASE MANAGEMENT SYSTEMS LABORATORY

YEAR / SEM: II /IV

COURSE CODE	COURSE OUTCOMES
C216.1 (CO1)	Use typical data definitions and manipulation commands.
C216.2 (CO1)	Design applications to test Nested and Join Queries
C216.3 (CO1)	Implement simple applications that use Views
C216.4 (CO1)	Implement applications that require a Front-end Tool
C216.5 (CO1)	Critically analyze the use of Tables, Views, Functions and Procedures



## SUB CODE / SUBJECT NAME: CS8461- OPERATING SYSTEMS LABORATORY

YEAR / SEM: II /IV

COURSE CODE	COURSE OUTCOMES
C217.1 (CO1)	Compare the performance of various CPU Scheduling Algorithms
C217.2 (CO1)	Implement Deadlock avoidance and Detection Algorithms
C217.3 (CO1)	Implement Semaphores, Create processes and implement IPC
C217.4 (CO1)	Analyze the performance of the various Page Replacement Algorithms
C217.5 (CO1)	Implement File Organization and File Allocation Strategies

## SUB CODE / SUBJECT NAME: HS8461 - ADVANCED READING AND WRITING

YEAR / SEM: II /IV

COURSE CODE	COURSE OUTCOMES
C218.1 (CO1)	Write different types of essays.
C218.2 (CO1)	Write winning job applications.
C218.3 (CO1)	Read and evaluate texts critically
C218.4 (CO1)	Display critical thinking in various professional contexts.



<b>C218.5 (CO1)</b>	Extend Reading and writing Competence and language accuracy for the range of employment purpose
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## SEMESTER V

### SUB CODE / SUBJECT NAME: MA8551- ALGEBRA AND NUMBER THEORY

#### YEAR / SEM: III /V

COURSE CODE	COURSE OUTCOMES
<b>C301.1 (CO1)</b>	Apply the basic notions of groups, rings, fields which will then be used to solve related problems.
<b>C301.2 (CO1)</b>	Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.
<b>C301.3 (CO1)</b>	Demonstrate accurate and efficient use of advanced algebraic techniques.
<b>C301.4 (CO1)</b>	Demonstrate their mastery by solving non - trivial problems related to the concepts, and by proving simple theorems about the, statements proven by the text.
<b>C301.5 (CO1)</b>	Apply integrated approach to number theory and abstract algebra, and provide a firm basis for further reading and study in the subject.

### SUB CODE / SUBJECT NAME: CS8591- COMPUTER NETWORKS

#### YEAR / SEM: III /V

COURSE CODE	COURSE OUTCOMES
<b>C302.1 (CO1)</b>	Understand the basic layers and its functions in computer networks.
<b>C302.2 (CO1)</b>	Evaluate the performance of a network. Understand the basics of how data flows from one node to another.
<b>C302.3 (CO1)</b>	Analyze and design routing algorithms.
<b>C302.4 (CO1)</b>	Design protocols for various functions in the network.



<b>C302.5</b> <b>(CO1)</b>	Understand the working of various application layer protocols.
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## **SUB CODE / SUBJECT NAME: EC8691 - MICROPROCESSORS AND MICROCONTROLLERS**

**YEAR / SEM: III /V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C303.1</b> <b>(CO1)</b>	Acquire the basic knowledge in 8086
<b>C303.2</b> <b>(CO1)</b>	Write the assembly language programs using 8086
<b>C303.3</b> <b>(CO1)</b>	Understand the basic knowledge in 8051 microcontroller
<b>C303.4</b> <b>(CO1)</b>	understand the interfacing and importance of interfacing
<b>C303.5</b> <b>(CO1)</b>	Develop the microcontroller based application

## **SUB CODE / SUBJECT NAME: CS8501 - THEORY OF COMPUTATION**

**YEAR / SEM: III /V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C304.1</b> <b>(CO1)</b>	Construct automata, regular expression for any pattern.
<b>C304.2</b> <b>(CO1)</b>	Write Context free grammar for any construct.
<b>C304.3</b> <b>(CO1)</b>	Design Turing machines for any language.
<b>C304.4</b> <b>(CO1)</b>	Propose computation solutions using Turing machines.



<b>C304.5</b> <b>(CO1)</b>	Derive whether a problem is decidable or not.
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**SUB CODE / SUBJECT NAME: CS8592 - OBJECT ORIENTED ANALYSIS AND DESIGN**

**YEAR / SEM: III /V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C305.1</b> <b>(CO1)</b>	Express software design with UML diagrams
<b>C305.2</b> <b>(CO2)</b>	Design software applications using OO concepts.
<b>C305.3</b> <b>(CO3)</b>	Identify various scenarios based on software requirements
<b>C305.4</b> <b>(CO4)</b>	Transform UML based software design into pattern based design using design patterns
<b>C305.5</b> <b>(CO5)</b>	Understand the various testing methodologies for OO software

**SUB CODE / SUBJECT NAME: EC8681 - MICROPROCESSORS AND MICROCONTROLLERS LABORATORY**

**YEAR / SEM: III /V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C306.1</b> <b>(CO1)</b>	Write ALP Programmes for fixed and Floating Point and Arithmetic operations
<b>C306.2</b> <b>(CO2)</b>	Interface different I/Os with processor
<b>C306.3</b> <b>(CO3)</b>	Generate waveforms using Microprocessors



<b>C306.4</b> <b>(CO4)</b>	Execute Programs in 8051
<b>C306.5</b> <b>(CO5)</b>	Explain the difference between simulator and Emulator

**SUB CODE / SUBJECT NAME: CS8582 - OBJECT ORIENTED ANALYSIS AND DESIGN LABORATORY**  
**YEAR / SEM: III / V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C307.1</b> <b>(CO1)</b>	To capture the requirements specification for an intended software system
<b>C307.2</b> <b>(CO2)</b>	To draw the UML diagrams for the given specification
<b>C307.3</b> <b>(CO3)</b>	To map the design properly to code
<b>C307.4</b> <b>(CO4)</b>	To test the software system thoroughly for all scenarios
<b>C307.5</b> <b>(CO5)</b>	To improve the design by applying appropriate design patterns.

**SUB CODE / SUBJECT NAME: CS8581 - NETWORKS LABORATORY**

**YEAR / SEM: III / V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C308.1</b> <b>(CO1)</b>	Implement various protocols using TCP and UDP.
<b>C308.2</b> <b>(CO2)</b>	Compare the performance of different transport layer protocols.
<b>C308.3</b> <b>(CO3)</b>	Use simulation tools to analyze the performance of various network protocols.



<b>C308.4</b> <b>(CO4)</b>	Analyze various routing algorithms.
<b>C308.5</b> <b>(CO5)</b>	Implement error correction codes

## SEMESTER VI

**SUB CODE / SUBJECT NAME: CS8651 - INTERNET PROGRAMMING**

**YEAR / SEM: III /VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C309.1</b> <b>(CO1)</b>	Construct a basic website using HTML and Cascading Style Sheets.
<b>C309.2</b> <b>(CO2)</b>	Build dynamic web page with validation using Javascript objects and by applying different event handling mechanisms.
<b>C309.3</b> <b>(CO3)</b>	Develop server side programs using Servlets and JSP.
<b>C309.4</b> <b>(CO4)</b>	Construct simple web pages in PHP and to represent data in XML format.
<b>C309.5</b> <b>(CO5)</b>	Use AJAX and web services to develop interactive web applications

**SUB CODE / SUBJECT NAME: CS8691 - ARTIFICIAL INTELLIGENCE**

**YEAR / SEM: III /VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C310.1</b> <b>(CO1)</b>	Use appropriate search algorithms for any AI problem
<b>C310.2</b> <b>(CO2)</b>	Represent a problem using first order and predicate logic
<b>C310.3</b> <b>(CO3)</b>	Provide the apt agent strategy to solve a given problem





<b>C310.4</b> <b>(CO4)</b>	Design software agents to solve a problem
<b>C310.5</b> <b>(CO5)</b>	Design applications for NLP that use Artificial Intelligence.

## **SUB CODE / SUBJECT NAME: CS8601 - MOBILE COMPUTING**

**YEAR / SEM: III / VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C311.1</b> <b>(CO1)</b>	Explain the basics of mobile telecommunication systems
<b>C311.2</b> <b>(CO2)</b>	Illustrate the generations of telecommunication systems in wireless networks
<b>C311.3</b> <b>(CO3)</b>	Determine the functionality of MAC, network layer and Identify a routing protocol for a given Ad hoc network
<b>C311.4</b> <b>(CO4)</b>	Explain the functionality of Transport and Application layers
<b>C311.5</b> <b>(CO5)</b>	Develop a mobile application using android/blackberry/ios/Windows SDK

## **SUB CODE / SUBJECT NAME: CS8602 - COMPILER DESIGN**

**YEAR / SEM: III / VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C312.1</b> <b>(CO1)</b>	Understand the different phases of the compiler.
<b>C312.2</b> <b>(CO2)</b>	Design a lexical analyzer for a sample language.
<b>C312.3</b> <b>(CO3)</b>	Apply different parsing algorithms to develop the parsers for a given grammar.



<b>C312.4 (C04)</b>	Understand syntax-directed translation and run-time environment.
<b>C312.5 (C05)</b>	Learn to implement code optimization techniques and a simple code generator.

## **SUB CODE / SUBJECT NAME: CS8603 - DISTRIBUTED SYSTEMS**

**YEAR / SEM: III / VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C313.1 (C01)</b>	Elucidate the foundations and issues of distributed systems
<b>C313.2 (C02)</b>	Understand the various synchronization issues and global state for distributed systems.
<b>C313.3 (C03)</b>	Understand the Mutual Exclusion and Deadlock detection algorithms in distributed systems
<b>C313.4 (C04)</b>	Describe the agreement protocols and fault tolerance mechanisms in distributed systems.
<b>C313.5 (C05)</b>	Describe the features of peer-to-peer and distributed shared memory systems

## **SUB CODE / SUBJECT NAME: CS8075 - DATA WAREHOUSING AND DATA MINING (Professional Elective I)**

**YEAR / SEM: III / VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C314.1 (C01)</b>	Design a Data warehouse system and perform business analysis with OLAP tools.
<b>C314.2 (C02)</b>	Apply suitable pre-processing and visualization techniques for data analysis
<b>C314.3</b>	Apply frequent pattern and association rule mining techniques for data analysis



(C03)	
C314.4 (C04)	Apply appropriate classification and clustering techniques for data analysis
C314.5 (C05)	Develop skill in selecting the appropriate data mining algorithm for solving practical problems.

## SUB CODE / SUBJECT NAME: CS8661 - INTERNET PROGRAMMING LABORATORY

YEAR / SEM: III /VI

COURSE CODE	COURSE OUTCOMES
C315.1 (C01)	Construct Web pages using HTML/XML and style sheets.
C315.2 (C02)	Build dynamic web pages with validation using Java Script objects and by applying different event handling mechanisms.
C315.3 (C03)	Develop dynamic web pages using server side scripting
C315.4 (C04)	Use PHP programming to develop web applications.
C315.5 (C05)	Construct web applications using AJAX and web services.

## SUB CODE / SUBJECT NAME: CS8662 - MOBILE APPLICATION DEVELOPMENT LABORATORY

YEAR / SEM: III /VI

COURSE CODE	COURSE OUTCOMES
C316.1 (C01)	Develop mobile applications using GUI and Layouts.
C316.2 (C02)	Develop mobile applications using Event Listener.



<b>C316.3</b> <b>(CO3)</b>	Develop mobile applications using Databases
<b>C316.4</b> <b>(CO4)</b>	Develop mobile applications using RSS Feed, Internal/External Storage, SMS, Multi- threading and GPS.
<b>C317.5</b> <b>(CO5)</b>	Analyze and discover own mobile app for simple needs.

## **SUB CODE / SUBJECT NAME: CS8611 - MINI PROJECT**

**YEAR/ SEM: III/VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C318.1</b> <b>(CO1)</b>	Comprehend and identify an industrial or real life problem with a solution.
<b>C318.2</b> <b>(CO2)</b>	Execute a proper methodology in problem solving.
<b>C318.3</b> <b>(CO3)</b>	Review the literature and design a setup of equipment and complete the analysis.
<b>C318.4</b> <b>(CO4)</b>	Write a project report based on the findings.
<b>C318.5</b> <b>(CO5)</b>	Demonstrate an ability to present and defend their work to a panel of experts.

## **SUB CODE / SUBJECT NAME: HS8581- PROFESSIONAL COMMUNICATION**

**YEAR/ SEM: III/VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C319.1</b> <b>(CO1)</b>	Cultivate intercultural communication skills, to guide students in making appropriate and responsible decisions, to develop leadership traits and soft skills and to create a desire to fulfill individual goals and team goals.
<b>C319.2</b> <b>(CO2)</b>	Help the learners acquire listening and speaking skills through lab based activities, and enable them to introduce themselves and make effective presentations.
<b>C319.3</b> <b>(CO3)</b>	Guide learners to evaluate their thinking skills, acquire listening and speaking skills and enable them to involve in group participation.



<b>C319.4 (CO4)</b>	Teach various formats of interview, answering techniques, body language and paralinguistic skills.
<b>C319.5 (CO5)</b>	Clarify and prioritize learners' objectives and goals, to contribute and work as a team by creating more leadership opportunities.

## SEMESTER VII

**SUB CODE / SUBJECT NAME: MG8591- PRINCIPLES OF MANAGEMENT**  
**YEAR/ SEM: IV /VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C401.1 (CO1)</b>	Upon completion of the course, students will be able to have clear understanding of managerial functions like planning, organizing, staffing, leading & controlling and have same basic knowledge on international aspect of management
<b>C401.2 (CO2)</b>	To understand the planning process in the organization
<b>C401.3 (CO3)</b>	To understand the concept of organization
<b>C401.4 (CO4)</b>	Demonstrate the ability to directing ,leadership and communicate effectively
<b>C401.5 (CO5)</b>	To analysis isolate issues and formulate best control methods

**SUB CODE / SUBJECT NAME: CS8792 - CRYPTOGRAPHY AND NETWORK SECURITY**

**YEAR/ SEM: IV /VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C402.1 (CO1)</b>	Understand the fundamentals of networks security, security architecture, threats and vulnerabilities
<b>C402.2 (CO2)</b>	Apply the different cryptographic operations of symmetric cryptographic algorithms



<b>C402.3</b> <b>(CO3)</b>	Apply the different cryptographic operations of public key cryptography
<b>C402.4</b> <b>(CO4)</b>	Apply the various Authentication schemes to simulate different applications.
<b>C402.5</b> <b>(CO5)</b>	Understand various Security practices and System security standards

**SUB CODE / SUBJECT NAME: CS8791 - CLOUD COMPUTING**

**YEAR / SEM: IV / VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C403.1</b> <b>(CO1)</b>	Articulate the main concepts, key technologies, strengths and limitations of cloud computing.
<b>C403.2</b> <b>(CO2)</b>	Learn the key and enabling technologies that help in the development of cloud.
<b>C403.3</b> <b>(CO3)</b>	Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models.
<b>C403.4</b> <b>(CO4)</b>	Explain the core issues of cloud computing such as resource management and security.
<b>C403.5</b> <b>(CO5)</b>	Be able to install and use current cloud technologies.

**SUB CODE / SUBJECT NAME: OCE751 - ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (Open Elective II)**  
**YEAR / SEM: IV / VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C404.1</b> <b>(CO1)</b>	Carry out scoping and screening of developmental projects for environmental and social assessments.
<b>C404.2</b> <b>(CO2)</b>	Explain different methodologies for environmental impact prediction and assessment.



<b>C404.3</b> <b>(CO3)</b>	Plan environmental impact assessments and environmental management plans.
<b>C404.4</b> <b>(CO4)</b>	Evaluate environmental impact assessment reports.
<b>C404.5</b> <b>(CO5)</b>	To plan baseline monitoring for projects and mitigation measures of the same.

**SUB CODE / SUBJECT NAME: OCY751 - WASTEWATER TREATMENT (Open Elective II)**

**YEAR/ SEM: IV / VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C405.1</b> <b>(CO1)</b>	Will have knowledge about adsorption and oxidation process.
<b>C405.2</b> <b>(CO2)</b>	Will gain idea about various methods available for water treatment
<b>C405.3</b> <b>(CO3)</b>	Will appreciate the necessity of water and acquire knowledge of preliminary treatment.
<b>C405.4</b> <b>(CO4)</b>	Will gain idea about waste water and its characteristics.
<b>C405.5</b> <b>(CO5)</b>	Will acquire knowledge about the necessity of waste water treatment.

**SUB CODE / SUBJECT NAME: IT8075 - SOFTWARE PROJECT MANAGEMENT (Professional Elective II)**

**YEAR/ SEM: IV /VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C406.1</b> <b>(CO1)</b>	Understand Project Management principles while developing software.



<b>C406.2</b> <b>(CO2)</b>	Gain extensive knowledge about the basic project management concepts, framework and the process models.
<b>C406.3</b> <b>(CO3)</b>	Obtain adequate knowledge about software process models and software effort estimation techniques
<b>C406.4</b> <b>(CO4)</b>	Estimate the risks involved in various project activities.
<b>C406.5</b> <b>(CO5)</b>	Define the checkpoints, project reporting structure, project progress and tracking mechanisms using project management principles.

**SUB CODE / SUBJECT NAME: GE8077 - TOTAL QUALITY MANAGEMENT (Professional Elective II) YEAR / SEM: IV /VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C407.1</b> <b>(CO1)</b>	The student would be able to apply the tools and techniques of quality management to manufacturing and services processes.
<b>C407.2</b> <b>(CO2)</b>	Evaluate the principles of quality management and to explain how these principles can be applied within quality management systems.
<b>C407.3</b> <b>(CO3)</b>	Identify the key aspects of the quality improvement cycle and to select and use appropriate tools and techniques for controlling, improving and measuring quality.
<b>C407.4</b> <b>(CO4)</b>	Critically appraise the organisational, communication and teamwork requirements for effective quality management .
<b>C407.5</b> <b>(CO5)</b>	Critically analyse the strategic issues in quality management, including current issues and developments, and to devise and evaluate quality implementation plans.

**SUB CODE / SUBJECT NAME: CS8079 - HUMAN COMPUTER INTERACTION (PE - III) YEAR / SEM: IV /VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C408.1</b> <b>(CO1)</b>	Design effective dialog for HCI
<b>C408.2</b>	Design effective HCI for individuals and persons with disabilities.





(CO2)	
C408.3 (CO3)	Assess the importance of user feedback.
C408.4 (CO4)	Explain the HCI implications for designing multimedia/ ecommerce/ e-learning Websites.
C408.5 (CO5)	Develop meaningful user interfaces.

**SUB CODE / SUBJECT NAME: CS8711 - CLOUD COMPUTING LABORATORY**

**YEAR / SEM: IV /VII**

COURSE CODE	COURSE OUTCOMES
C409.1 (CO1)	Configure various virtualization tools such as Virtual Box, VMware workstation.
C409.2 (CO2)	Design and deploy a web application in a PaaS environment.
C409.3 (CO3)	Learn how to simulate a cloud environment to implement new schedulers.
C409.4 (CO4)	Install and use a generic cloud environment that can be used as a private cloud.
C409.5 (CO5)	Manipulate large data sets in a parallel environment.

**SUB CODE / SUBJECT NAME: IT8761 - SECURITY LABORATORY**

**YEAR / SEM: IV /VII**

COURSE CODE	COURSE OUTCOMES
C410.1 (CO1)	Develop code for classical Encryption Techniques to solve the problems.



<b>C410.2 (CO2)</b>	Build cryptosystems by applying symmetric and public key encryption algorithms.
<b>C410.3 (CO3)</b>	Construct code for authentication algorithms.
<b>C410.4 (CO4)</b>	Develop a signature scheme using Digital signature standard.
<b>C410.5 (CO5)</b>	Demonstrate the network security system using open source tools

## SEMESTER VIII

**SUB CODE / SUBJECT NAME: CS8074 - CYBER FORENSICS (Professional Elective IV)**

**YEAR / SEM: IV /VIII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C411.1 (CO1)</b>	Understand the basics of computer forensics
<b>C411.2 (CO2)</b>	Apply a number of different computer forensic tools to a given scenario
<b>C411.3 (CO3)</b>	Analyze and validate forensics data
<b>C411.4 (CO4)</b>	Identify the vulnerabilities in a given network infrastructure
<b>C411.5 (CO5)</b>	Implement real-world hacking techniques to test system security

**SUB CODE / SUBJECT NAME: GE8076 - PROFESSIONAL ETHICS IN ENGINEERING (Professional Elective IV) YEAR / SEM: IV /VIII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
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<b>C412.1 (CO1)</b>	Able to apply ethics in society, discuss the ethical issues related to engineering and realize the responsibilities and rights in the society.
<b>C412.2 (CO2)</b>	Understand the core values that shape the ethical behavior of an engineer and Exposed awareness on professional ethics and human values
<b>C412.3 (CO3)</b>	Understand the basic perception of profession, professional ethics, various moral issues & uses of ethical theories
<b>C412.4 (CO4)</b>	Understand various social issues, industrial standards, code of ethics and role of professional ethics in engineering field.
<b>C412.5 (CO5)</b>	Aware of responsibilities of an engineer for safety and risk benefit analysis, professional rights and responsibilities of an engineer and apply ethical principles to resolve situations that arise in their professional lives.

**SUB CODE / SUBJECT NAME: CS8080 - INFORMATION RETRIEVAL TECHNIQUES  
(Professional Elective V) YEAR / SEM: IV / VIII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C413.1 (CO1)</b>	Use an open source search engine framework and explore its capabilities
<b>C413.2 (CO2)</b>	Apply appropriate methods of classification or clustering.
<b>C413.3 (CO3)</b>	Design and implement innovative features in a search engine.
<b>C413.4 (CO4)</b>	Design and implement a recommender system.
<b>C413.5 (CO5)</b>	Acquired the necessary experience to design, and implement real applications using Information Retrieval systems.

**SUB CODE / SUBJECT NAME: CS8078 - GREEN COMPUTING (Professional Elective V)**

**YEAR / SEM: IV / VIII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
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<b>C414.1 (CO1)</b>	Acquire knowledge to adopt green computing practices to minimize negative impacts on the environment.
<b>C414.2 (CO2)</b>	Enhance the skill in energy saving practices in their use of hardware.
<b>C414.3 (CO3)</b>	Evaluate technology tools that can reduce paper waste and carbon footprint by the stakeholders.
<b>C414.4 (CO4)</b>	Understand the ways to minimize equipment disposal requirements .
<b>C301.5 (CO5)</b>	To have a basic understanding of a variety of technologies applied in building a green system and to identify the various key sustainability and green IT trends

## **SUB CODE / SUBJECT NAME: CS8811 - PROJECT WORK**

### **YEAR / SEM: IV /VIII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C415.1 (CO1)</b>	Comprehend and identify an industrial or real life problem with solution.
<b>C415.2 (CO2)</b>	Execute a proper methodology in problem solving.
<b>C415.3 (CO3)</b>	Review the literature and design a setup of equipment and complete the analysis.
<b>C415.4 (CO4)</b>	Write a project report based on the findings.
<b>C415.5 (CO5)</b>	Demonstrate an ability to present and defend their work to a panel of experts.



## DEPARTMENT OF ELECTONICS AND COMMUNICATION ENGINEERING

### SEMESTER - I

**SUB CODE / SUBJECT NAME: HS8151/ COMMUNICATIVE ENGLISH**

**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C101.1 (CO1)</b>	Define the fundamentals of engineering after learning the rules of English Grammar
<b>C101.2 (CO2)</b>	Read articles of the general kind in magazines and newspapers
<b>C101.3 (CO3)</b>	Participate effectively in informal conversations; introduce themselves and their friends and express opinions in English.
<b>C101.4 (CO4)</b>	Comprehend conversations and short talks delivered in English
<b>C101.5 (CO5)</b>	Write short essays of the general kind and personal letters and e-mails in English.

**SUB CODE / SUBJECT NAME: MA8151/ ENGINEERING MATHS - I**

**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C102.1 (CO1)</b>	Use both the limit definition and rules of differentiation to differentiate functions.
<b>C102.2 (CO2)</b>	Apply differentiation to solve maxima and minima problems.
<b>C102.3 (CO3)</b>	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.
<b>C102.4 (CO4)</b>	Apply various techniques in solving differential equations.
<b>C102.5 (CO5)</b>	To study how differential equation help to solve real time problems

**SUB CODE / SUBJECT NAME: PH8151/ ENGINEERING PHYSICS**

**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C103.1 (CO1)</b>	To understand the basic concepts of elastic behavior of materials and evaluate the structural stability of beams.



<b>C103.2</b> <b>(CO2)</b>	To understand the behavior of different oscillatory wave motion and the concept of LASER action, also discuss about the propagation of light in optical fibers, comparing various types of fibers and its applications in Medical and Engineering fields.
<b>C103.3</b> <b>(CO3)</b>	Remembering functional ideas of thermal physics and compare the thermal conductivity of different materials to meet the specific needs
<b>C103.4</b> <b>(CO4)</b>	Describe and analyzing the quantum nature of radiation and matter to solve the real time societal and technological problems.
<b>C103.5</b> <b>(CO5)</b>	To understand the possible crystal structures and to analyze various growth techniques in the view of increasing demand of crystals for various Engineering and Technological applications.

**SUB CODE / SUBJECT NAME: CY8151/ ENGINEERING CHEMISTRY**

**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C104.1</b> <b>(CO1)</b>	Analyze boiler troubles with latest technologies and equipment's using external and internal treatment methods.
<b>C104.2</b> <b>(CO2)</b>	It provides basic knowledge in the field of absorption and catalysis.
<b>C104.3</b> <b>(CO3)</b>	Knowledge of alloys gives an idea about the manufacturing process in various industries
<b>C104.4</b> <b>(CO4)</b>	Analyze issues related to fuels and their synthesis and able to understand working of IC and diesel engines
<b>C104.5</b> <b>(CO5)</b>	To understand the principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells

**SUB CODE / SUBJECT NAME: GE8151/ PROBLEM SOLVING AND PYTHON PROGRAMMING**

**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C105.1</b> <b>(CO1)</b>	Develop algorithmic solutions to simple computational problems.
<b>C105.2</b> <b>(CO2)</b>	Demonstrate programs using simple Python statements and expressions
<b>C105.3</b> <b>(CO3)</b>	Explain control flow and functions concept in Python for solving problems
<b>C105.4</b> <b>(CO4)</b>	Use Python data structures – lists, tuples & dictionaries for representing compound data.



<b>C105.5 (CO5)</b>	Explain files, exception, modules and packages in Python for solving problems.
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**SUB CODE / SUBJECT NAME: GE8152/ ENGINEERING GRAPHICS**

**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C106.1 (CO1)</b>	How to draw different engineering curves, draw different orthographic projections.
<b>C106.2 (CO2)</b>	Illustrate different views of points, lines and planes inclined to both HP and VP in first quadrant.
<b>C106.3 (CO3)</b>	Develop the projections of simple solids inclined to any one plane
<b>C106.4 (CO4)</b>	Categorize Section and develop various solids
<b>C106.5 (CO5)</b>	Evaluate to Draw 3D projections of simple solids by Perspective by visual ray method and Isometric projections

**SUB CODE / SUBJECT NAME: GE8161/ PROBLEM SOLVING AND PYTHON PROGRAMMING LAB**

**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C107.1 (CO1)</b>	Develop solutions to simple computational problems using Python programs.
<b>C107.2 (CO2)</b>	Solve problems using conditionals and loops in Python.
<b>C107.3 (CO3)</b>	Develop Python programs by defining functions and calling them.
<b>C107.4 (CO4)</b>	Use Python lists, tuples and dictionaries for representing compound data.
<b>C107.5 (CO5)</b>	Develop Python programs using files.

**SUB CODE / SUBJECT NAME: BS8161/ PHYSICS AND CHEMISTRY LAB**

**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>



<b>C108.1</b> <b>(CO1)</b>	To apply the physics principles of Thermal physics and Properties of Matter to evaluate properties of materials
<b>C108.2</b> <b>(CO2)</b>	To understand measurement technique and usage of new instrument in Optics for real time application in Engineering
<b>C108.3</b> <b>(CO3)</b>	Apply the knowledge of semiconducting material, to evaluate the band gap of material useful for engineering solutions.
<b>C108.4</b> <b>(CO4)</b>	Able to analyze the conductivity of acids and bases and also analyze the quality of water for domestic and industrial purpose
<b>C108.5</b> <b>(CO5)</b>	Used to find out the emf for different metallic solutions from which electrode potential is determined

## II SEMESTER

**SUB CODE / SUBJECT NAME: HS8251/ TECHNICAL ENGLISH**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C110.1</b> <b>(CO1)</b>	Define the fundamentals of engineering after learning the rules of English Grammar
<b>C110.2</b> <b>(CO2)</b>	Read technical text and write area-specific text effortlessly.
<b>C110.3</b> <b>(CO3)</b>	Listen and comprehend lectures and talks in their area of specialization successfully.
<b>C110.4</b> <b>(CO4)</b>	Speak appropriately and effectively in varied formal and informal contexts.
<b>C110.5</b> <b>(CO5)</b>	Write reports and winning job applications

**SUB CODE / SUBJECT NAME: MA8251/ENGINEERING MATHEMATICS-II**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C111.1</b> <b>(CO1)</b>	Introduce the concepts of Eigen value and Eigenvectors which help to find the stability of the systems in engineering
<b>C111.2</b> <b>(CO2)</b>	Define and understand the concepts of vector calculus, needed for finding solutions in all engineering discipline problems.
<b>C111.3</b> <b>(CO3)</b>	Develop an understanding of the standard techniques of complex variable theory so as to enable the student to apply them with confidence, in application areas such as heat





	conduction, elasticity, fluid dynamics and flow of the electric current.
<b>C111.4</b> <b>(CO4)</b>	Evaluate real integrals by applying concept of complex integration
<b>C111.5</b> <b>(CO5)</b>	Understand and apply the knowledge of Laplace Transforms in solving system of linear differential equations.

## SUB CODE / SUBJECT NAME: PH8253/ PHYSICS FOR ELECTRONICS ENGINEERING

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
<b>C112.1</b> <b>(CO1)</b>	Gain knowledge on classical and quantum electron theories and energy band structures
<b>C112.2</b> <b>(CO2)</b>	Acquire knowledge on basics of semiconductor physics and it's applications in various devices
<b>C112.3</b> <b>(CO3)</b>	Get knowledge on magnetic and dielectric properties of materials
<b>C112.4</b> <b>(CO4)</b>	Have necessary understanding on the functioning of optical materials for opto electronics
<b>C112.5</b> <b>(CO5)</b>	Understand the basics of quantum structures and their applications in spintronics and carbon electronics

## SUB CODE / SUBJECT NAME: BE8254/BASIC ELECTRIC INSTRUMENTATIONENGINEERING

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
<b>C113.1</b> <b>(CO1)</b>	Understand the concept of three phase power circuits and measurement
<b>C113.2</b> <b>(CO2)</b>	Discuss the basic operation of DC machines
<b>C113.3</b> <b>(CO3)</b>	Discuss the basic operation of AC machines
<b>C113.4</b> <b>(CO4)</b>	Discuss the basic operation of transformers
<b>C113.5</b> <b>(CO5)</b>	Introduction to measurement methods



## SUB CODE / SUBJECT NAME: EC8251/CIRCUIT ANALYSIS

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C114.1 (CO1)	Define and understanding the basic circuit elements and mesh and nodal analysis
C114.2 (CO2)	Understanding the concepts of network theorems
C114.3 (CO3)	Analyze the phenomenon of resonance and coupled circuits.
C114.4 (CO4)	Evaluate the transient response of AC and DC circuits.
C114.5 (CO5)	Understanding and analyzing the three phase circuits.

## SUB CODE / SUBJECT NAME: EC8252/ELECTRONIC DEVICES

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C115.1 (CO1)	Understand and analyze the Diffusion and drift current, Current equation of PN junction Diode.
C115.2 (CO2)	Analyze Hybrid – $\pi$ –h parameter of BJT.
C115.3 (CO3)	Evaluate the JFETs and MOSFETs Drain and Transfer characteristics.
C115.4 (CO4)	Design various special semiconductor diodes.
C115.5 (CO5)	Design the Power MOSFET- DMOS-VMOS



## SUB CODE / SUBJECT NAME: EC8261/CIRCUITS & DEVICES LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C116.1 (CO1)	Understand the diode and transistor characteristics.
C116.2 (CO2)	Verify the rectifier circuits using diodes and implement them using hardware.
C116.3 (CO3)	Analyze the construction, operation and characteristics of JFET which can be used in the design of amplifiers.
C116.4 (CO4)	Analyze various circuit theorems
C116.5 (CO5)	Analyze the concepts of SCR and observe its characteristics.

## SUB CODE / SUBJECT NAME: GE8261/ ENGINEERING PRACTICES LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C117.1 (CO1)	Hands on experience on welding, sheet metal and lathe works
C117.2 (CO2)	Experience the plumbing and carpentry work
C117.3 (CO3)	Demonstration on centrifugal pump and air conditioning working principles
C117.4 (CO4)	Measurement of Electrical quantities, earthing procedures, wiring methods etc
C117.5 (CO5)	Study of Electronic components and equipments – Resistor, colour coding measurement of AC signal parameter, Gates , Circuits etc

## III SEMESTER

## SUB CODE / SUBJECT NAME: MA8352-LINEAR ALGEBRA AND PARTIAL DIFFERENTIAL EQUATIONS

YEAR / SEM: II/III

COURSE CODE	COURSE OUTCOMES
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<b>C201.1 (CO1)</b>	Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.
<b>C201.2 (CO2)</b>	Demonstrate accurate and efficient use of advanced algebra techniques.
<b>C201.3 (CO3)</b>	Demonstrate their mastery by solving non-trivial problems related to the concepts and by Proving simple theorems about the statements proven by the text.
<b>C201.4 (CO4)</b>	Able to solve various types of partial differential equations.
<b>C201.5 (CO5)</b>	Able to solve engineering problems using Fourier series.

**SUB CODE / SUBJECT NAME: EC8393 -FUNDAMENTALS OF DATA STRUCTURES**  
**YEAR / SEM: II/III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C202.1 (CO1)</b>	Develop simple C programs using controls statements and arrays.
<b>C202.2 (CO2)</b>	Implement functions, string functions and recursive functions in C
<b>C202.3 (CO3)</b>	Construct a C program to implement the concept of structure and pointer
<b>C202.4 (CO4)</b>	Illustrate the Linear Data Structures using C and Non Linear Data Structures using C
<b>C202.5 (CO5)</b>	Develop an application using data structures in C

**SUB CODE / SUBJECT NAME: EC8351-ELECTRONIC CIRCUITS-I**      **YEAR / SEM:II/III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C203.1 (CO1)</b>	Acquire knowledge of working principles, characteristics and applications of BJT,FET .
<b>C203.2 (CO2)</b>	Analyze the performance of small signal BJT amplifiers-single stage and multistage amplifiers.
<b>C203.3 (CO3)</b>	Analyze the performance of small signal FET and MOSFET amplifiers-single stage
<b>C203.4 (CO4)</b>	Frequency response characteristics of BJT, FET and MOSFET amplifier.



<b>C203.5</b> <b>(CO5)</b>	Apply the knowledge gained in the design of Electronic circuits and SMPS.
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## SUB CODE / SUBJECT NAME: EC8352-SIGNALS AND SYSTEMS

YEAR / SEM: II/III

COURSE CODE	COURSE OUTCOMES
<b>C204.1</b> <b>(CO1)</b>	Define Basic Continuous time and discrete time Signals-classification, continuous time and discrete time systems- classification
<b>C204.2</b> <b>(CO2)</b>	Apply Fourier series, Fourier and Laplace transforms to continuous time signals and interpret the results
<b>C204.3</b> <b>(CO3)</b>	Analyze Continuous Time -Linear Time Invariant systems using Continuous Fourier transform and Laplace transform, model the system using realization structures and find the convolution of continuous time signals
<b>C204.4</b> <b>(CO4)</b>	Determine Discrete Time Fourier transform and Z-transform and interpret the results and explain sampling theorem in conversion of continuous time signals to discrete time signals
<b>C204.5</b> <b>(CO5)</b>	Discuss Discrete Time- Linear Time Invariant systems using Discrete Time Fourier Transform and z transform ,model the system using realization structures and find the convolution of discrete time signals

## SUB CODE / SUBJECT NAME: EC8392-DIGITAL ELECTRONICS

YEAR / SEM: II/III

COURSE CODE	COURSE OUTCOMES
<b>C205.1</b> <b>(CO1)</b>	Define the fundamental concepts of digital logic circuits and correlate between Boolean Expression, simplification methods to optimize it for desired characteristics.
<b>C205.2</b> <b>(CO2)</b>	Apply the concept of digital logic circuits and design various combinational building blocks in multiple forms
<b>C205.3</b> <b>(CO3)</b>	Apply the concept of digital logic circuits and design various synchronous sequential circuits.
<b>C205.4</b> <b>(CO4)</b>	Apply the concept of digital logic circuits and design various Asynchronous sequential circuits.
<b>C205.5</b> <b>(CO5)</b>	Analyze memory cells, understand semiconductor memories and Programmable logic devices.



## SUB CODE / SUBJECT NAME: EC8391-CONTROL SYSTEMS ENGINEERING

YEAR / SEM: II/III

COURSE CODE	COURSE OUTCOMES
C206.1 (CO1)	Identify the various control system components and their representations
C206.2 (CO2)	Analysis the various frequency response plots and its system
C206.3 (CO3)	Analysis the various frequency response plots and its system
C206.4 (CO4)	Apply the concepts of various system stability criterions.
C206.5 (CO5)	Design various transfer functions of digital control system using state variable models.

## SUB CODE / SUBJECT NAME: EC8381 -FUNDAMENTALS OF DATA STRUCTURES IN C LABORATORY

YEAR / SEM: II/III

COURSE CODE	COURSE OUTCOMES
C207.1 (CO1)	Develop simple C programs using controls statements and arrays.
C207.2 (CO2)	Implement functions, string functions and recursive functions in C
C207.3 (CO3)	Construct a C program to implement the concept of structure and pointer
C207.4 (CO4)	Illustrate the Linear Data Structures using C and Non Linear Data Structures using C
C207.5 (CO5)	Develop an application using data structures in C

## SUB CODE / SUBJECT NAME: EC8361-ANALOG AND DIGITAL CIRCUITS LABORATORY

YEAR / SEM: II/III

COURSE CODE	COURSE OUTCOMES
C208.1 (CO1)	Able to Study the Frequency response of CE, CB ,CC & CS Amplifier



<b>C208.2</b> <b>(CO2)</b>	Able to Study the Transfer characteristics of differential amplifier
<b>C208.3</b> <b>(CO3)</b>	Able to Perform experiment to obtain the bandwidth of single stage and multistage amplifiers
<b>C208.4</b> <b>(CO4)</b>	Able to Perform SPICE simulation of Electronic Circuits
<b>C208.5</b> <b>(CO5)</b>	Able to Design and implement the Combinational and sequential logic circuits

**SUB CODE / SUBJECT NAME: HS8381 - INTERPERSONAL SKILLS/LISTENING & SPEAKING**  
**YEAR / SEM: II/III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C209.1</b> <b>(CO1)</b>	Listen and respond appropriately
<b>C209.2</b> <b>(CO2)</b>	Participate in Group Discussions
<b>C209.3</b> <b>(CO3)</b>	Make effective Presentations
<b>C209.4</b> <b>(CO4)</b>	Participate confidently and appropriately in conversations both formal and informal
<b>C209.5</b> <b>(CO5)</b>	Improve general and academic listening skills

**IV SEMESTER**

**SUB CODE / SUBJECT NAME: MA8451- PROBABILITY AND RANDOM PROCESSES**  
**YEAR / SEM: II/IV**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C210.1</b> <b>(CO1)</b>	Define the concept of Probability & random variable and its properties. Construct probabilistic models for observed phenomena through distributions which play an important role in many engineering applications
<b>C210.2</b> <b>(CO2)</b>	Identify random variables by designing joint distributions and correlate the random variables.
<b>C210.3</b> <b>(CO3)</b>	Define the concept of random processes and its classification, in particular about Markov chains, which play an important role in finding solution of many engineering problems.
<b>C210.4</b> <b>(CO4)</b>	Explain auto correlation and its properties which is used to extract radar signals to improve sensitivity
<b>C210.5</b> <b>(CO5)</b>	Introduce the concept of Linear time-invariant theory and apply in NMR spectroscopy, seismology, circuits, signal processing, control theory, and other technical area and also investigates the response of a linear and time-invariant system to an arbitrary input signal.



## SUB CODE / SUBJECT NAME: EC8452- ELECTRONIC CIRCUITS II

YEAR / SEM: II/IV

COURSE CODE	COURSE OUTCOMES
C211.1 (CO1)	To Design and analyze feedback amplifiers.
C211.2 (CO2)	To design BJT amplifier and oscillator circuits.
C211.3 (CO3)	To Analyze transistorized amplifier and oscillator circuits.
C211.4 (CO4)	To analyze different types of amplifier, oscillator and multi vibrator circuits.
C211.5 (CO5)	To design LC and RC oscillators, tuned amplifiers, wave shaping circuits, multi vibrators, power amplifier and DC convertors.

## SUB CODE / SUBJECT NAME: EC8491 -COMMUNICATION THEORY

YEAR / SEM: II/IV

COURSE CODE	COURSE OUTCOMES
C212.1 (CO1)	Understand the concepts of various amplitude modulation and their spectral characteristics for designing AM communication system.
C212.2 (CO2)	Design angle modulated communication system.
C212.3 (CO3)	Understand the properties of random process and apply the concepts of random process to design a communication system
C212.4 (CO4)	Analyzing the noise performance of AM and FM system .
C212.5 (CO5)	Understand the concept of Sampling and Quantization

## SUB CODE / SUBJECT NAME: EC8451– ELECTROMAGNETIC FIELDS

YEAR / SEM: II/IV

COURSE CODE	COURSE OUTCOMES
C213.1 (CO1)	Study of various vector fields and understanding the fundamental of electromagnetic laws and concepts.
C213.2 (CO2)	Solve simple problems requiring estimation of electric field quantities based on these concepts and laws.
C213.3 (CO3)	Solve simple problems requiring estimation of magnetic field quantities based on these concepts and laws.





<b>C213.4</b> (CO4)	Study of Maxwell's equations in different forms and explain their physical meaning.
<b>C213.5</b> (CO5)	Explain electromagnetic wave propagation in different medium, Study of reflection and refraction in different medium.

## **SUB CODE / SUBJECT NAME: EC8453 -LINEAR INTEGRATED CIRCUITS**

**YEAR / SEM: II/IV**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C214.1</b> (CO1)	Understand the basic building blocks of linear integrated circuits
<b>C214.2</b> (CO2)	Analysis the linear and non-linear applications of operational amplifiers
<b>C214.3</b> (CO3)	Understand the theory and applications of Analog multipliers and PLL
<b>C214.4</b> (CO4)	Understand the operating principle of ADC and DAC
<b>C214.5</b> (CO5)	Understand the concepts of waveform generation and special function ICs

## **SUB CODE / SUBJECT NAME: GE8291- ENVIRONMENTAL SCIENCE AND ENGINEERING**

**YEAR / SEM: II/IV**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C215.1</b> (CO1)	Interpret the relationship between living organisms and the environment and to identify the threats to global Bio-diversity
<b>C215.2</b> (CO2)	Identify and prevent the problems related to the pollution of air, water, soil ,marine etc
<b>C215.3</b> (CO3)	Understand the importance of natural resources and conserve it for future generation.
<b>C215.4</b> (CO4)	Analyze the social issues of the environment to be a part of sustainable development.
<b>C215.5</b> (CO5)	Create awareness and sustainable population growth and know the contribution of information technology un environmental management.



**SUB CODE / SUBJECT NAME: EC8461 -CIRCUITS DESIGN AND SIMULATION**  
**LABORATORY YEAR / SEM: II/IV**

COURSE CODE	COURSE OUTCOMES
C216.1 (CO1)	To gain hands on experience in designing electronic circuits like feedback amplifiers.
C216.2 (CO2)	To differentiate the operation of various multivibrators & Oscillators
C216.3 (CO3)	To learn fundamental principles and design amplifier circuits.
C216.4 (CO4)	To differentiate & analyze wave shaping circuits.
C216.5 (CO5)	. To learn simulation software and design various circuits like feedback amplifiers and oscillators

**SUB CODE / SUBJECT NAME: EC8462- LINEAR INTEGRATED CIRCUITS LABORATORY**  
**YEAR / SEM: II/IV**

COURSE CODE	COURSE OUTCOMES
C217.1 (CO1)	To design oscillators and amplifiers using operational amplifiers.
C217.2 (CO2)	To design filters using Op amp and perform experiment on frequency response.
C217.3 (CO3)	To analyse the working of PLL and use PLL as frequency multiplier.
C217.4 (CO4)	To design DC power supply using ICs.
C217.5 (CO5)	Analyse the performance of oscillator, multivibrators and CMOS using SPICE

**V SEMESTER**

**SUB CODE / SUBJECT NAME: EC8501- DIGITAL COMMUNICATION**  
**YEAR / SEM: III/V**

COURSE CODE	COURSE OUTCOMES
C301.1 (CO1)	Understand the basics of information theory and source coding techniques to meet the primary objective of digital communication system.
C301.2	Analyze the performance of DCS using different baseband formatting techniques and



(CO2)	line coding techniques
C301.3 (CO3)	Design a Digital communication system without Inter Symbol Interference
C301.4 (CO4)	Analyze the performance of DCS using different modulation techniques.
C301.5 (CO5)	Implement various error detection schemes to improve the QOS

## SUB CODE / SUBJECT NAME: EC8553- DISCRETE-TIME SIGNAL PROCESSING

YEAR / SEM: III/V

COURSE CODE	COURSE OUTCOMES
C302.1 (CO1)	Define basics of signals and systems, explain sampling theorem, and compare Discrete Fourier Transform and Fast Fourier Transform.
C302.2 (CO2)	Apply z transform and Fourier transform to digital IIR filters and model them using realization structures.
C302.3 (CO3)	Analyze FIR digital filters using z transform and Fourier transform and model them using realization structures.
C302.4 (CO4)	Prove that the behavior of digital filters changes due to effects of finite word length.
C302.5 (CO5)	Discuss about the architecture of Digital signal processor with its programming and develop application examples.

## SUB CODE / SUBJECT NAME: EC8552- COMPUTER ARCHITECTURE AND ORGANIZATION

YEAR / SEM: III/V

COURSE CODE	COURSE OUTCOMES
C303.1 (CO1)	Understand the basics structure of computers, operations and instructions.
C303.2 (CO2)	Design arithmetic and logic unit.
C303.3 (CO3)	Understand pipelined execution and design control unit.
C303.4 (CO4)	Understand the various memory systems and I/O communication.



<b>C303.5</b> <b>(CO5)</b>	Understand parallel processing architectures.
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## **SUB CODE / SUBJECT NAME: EC8551- COMMUNICATION NETWORKS**

**YEAR / SEM: III/V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C304.1</b> <b>(CO1)</b>	Able to understand the concept and components required to build different types of networks of data communications.
<b>C304.2</b> <b>(CO2)</b>	Able to understand various data link and network layer protocols.
<b>C304.3</b> <b>(CO3)</b>	Able to design, calculate, and apply subnet masks and addresses to fulfill networking requirements and routing algorithms
<b>C304.4</b> <b>(CO4)</b>	Able to understand the working principle of transport layer protocols and congestion control algorithms.
<b>C304.5</b> <b>(CO5)</b>	Able to understand various application layer protocols and also the concept of network security algorithms to impose privacy and authentication

## **SUB CODE / SUBJECT NAME: EC8073- MEDICAL ELECTRONICS (PE)**

**YEAR / SEM: III/V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C305.1</b> <b>(CO1)</b>	To know the human body electro- physiological parameters and recording of bio-potential
<b>C305.2</b> <b>(CO2)</b>	To Comprehend the non-electrical physiological parameters and their measurement – body temperature, blood pressure, pulse, blood cell count, blood flow meter etc.
<b>C305.3</b> <b>(CO3)</b>	To Interpret the various assist devices used in the hospitals viz. pacemakers, defibrillators, dialyzers and ventilators
<b>C305.4</b> <b>(CO4)</b>	To Comprehend physical medicine methods eg. ultrasonic, shortwave, microwave surgical diathermies , and bio-telemetry principles and methods
<b>C305.5</b> <b>(CO5)</b>	To know about recent trends in medical instrumentation



## SUB CODE / SUBJECT NAME:-OIT552 CLOUD COMPUTING (OE)

YEAR/ SEM: III/V

COURSE CODE	COURSE OUTCOMES
C306.1 (CO1)	Articulate the main concepts, key technologies, strengths and limitations of cloud computing.
C306.2 (CO2)	Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models.
C306.3 (CO3)	Explain the core issues of cloud computing such as resource management and security.
C306.4 (CO4)	Be able to install and use current cloud technologies.
C306.5 (CO5)	Evaluate and choose the appropriate technologies, algorithms and approaches for implementation and use of clouds.

## SUB CODE / SUBJECT NAME: EC8562 -DIGITAL SIGNAL PROCESSING LABORATORY

YEAR/ SEM: III/V

COURSE CODE	COURSE OUTCOMES
C307.1 (CO1)	Show the difference between basic signals and noise, find the convolution and correlation of different signals and illustrate the spectral content of signals using FFT.
C307.2 (CO2)	Build all the frequency selective IIR filters using z transform and Fourier transform.
C307.3 (CO3)	Test for the suitability of windows in the design of FIR filters using z transform and Fourier transform.
C307.4 (CO4)	Compare up sampling and down sampling process.
C307.5 (CO5)	Discuss the architecture and addressing modes of TMS 320C5416 processor and design IIR and FIR filters using TMS 320C5416 processor

## SUB CODE / SUBJECT NAME: EC8561- COMMUNICATION SYSTEMS LABORATORY

YEAR/ SEM: III/V

COURSE CODE	COURSE OUTCOMES
C308.1 (CO1)	Able to design amplitude, Frequency modulation and Demodulation Respectively.
C308.2 (CO2)	Able to design and plot the signal representation of PAM/PWM/PPM
C308.3 (CO3)	Able to design and plot the delta and adaptive delta modulation



<b>C308.4</b> <b>(CO4)</b>	Able to design and simulate various types of Digital modulation Using MATLAB
<b>C308.5</b> <b>(CO5)</b>	Able to design multiplexing circuits

## **SUB CODE / SUBJECT NAME: EC8563- COMMUNICATION NETWORKS LABORATORY**

**YEAR / SEM: III/V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C309.1</b> <b>(CO1)</b>	Able to implement various flow control and error control protocols
<b>C309.2</b> <b>(CO2)</b>	Able to analyze the performance of CSMA/CD and CSMA/CA Protocol through simulation
<b>C309.3</b> <b>(CO3)</b>	Able to analyze the performance of token bus and token ring through NS-2 simulation
<b>C309.4</b> <b>(CO4)</b>	Able to understand the implementation of distance vector routing and link state routing algorithm
<b>C309.5</b> <b>(CO5)</b>	Able to understand the implementation of encryption and IP address configuration

## **VI SEMESTER**

## **SUB CODE / SUBJECT NAME: EC8691- MICRO PROCESSORS AND MICRO CONTROLLERS**

**YEAR / SEM: III/VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C310.1</b> <b>(CO1)</b>	Understand the concept of assembly language programming and working of 8086 microprocessor
<b>C310.2</b> <b>(CO2)</b>	To understand the concept of multiprogramming and the recent technological developments in microprocessor architecture.
<b>C310.3</b> <b>(CO3)</b>	Develop Microprocessor based applications by Interfacing the microprocessor with the use of Timer/counters, keyboard/display interfaces, digital and analogue interfaces
<b>C310.4</b> <b>(CO4)</b>	Understand the architecture, working and programming of Microcontrollers
<b>C310.5</b> <b>(CO5)</b>	Develop Microcontroller based applications using Timers, sensors etc.



## SUB CODE / SUBJECT NAME: EC8095- VLSI DESIGN

YEAR / SEM: III/VI

COURSE CODE	COURSE OUTCOMES
C311.1 (CO1)	Understand the concepts of digital building blocks using MOS transistor.
C311.2 (CO2)	Able to design combinational MOS circuits and power strategies.
C311.3 (CO3)	Able to design and construct Sequential Circuits and Timing systems.
C311.4 (CO4)	To design arithmetic building blocks and memory subsystems.
C311.5 (CO5)	To Apply and implement FPGA design flow and testing.

## SUB CODE / SUBJECT NAME: EC8652- WIRELESS COMMUNICATION

YEAR / SEM: III/VI

COURSE CODE	COURSE OUTCOMES
C312.1 (CO1)	Understand the basic concepts of wireless communication system and Analyze different techniques to mitigate the issues in wireless fading channels
C312.2 (CO2)	Investigate the characteristics of various wireless channels
C312.3 (CO3)	Realize the basic cellular and multiple access concept
C312.4 (CO4)	Compare various digital modulation techniques and its performance
C312.5 (CO5)	Examine various diversity concepts and MIMO systems.

## SUB CODE / SUBJECT NAME: MG8591- PRINCIPLES OF MANAGEMENT YEAR / SEM: III/VI

COURSE CODE	COURSE OUTCOMES
C313.1 (CO1)	Students will have a clear understanding of different management thoughts and its application in the real world organization.
C313.2 (CO2)	Students will be able to have clarity in managerial functions like planning, organizing, staffing, leading and controlling.
C313.3 (CO3)	Students are able to understand the theories, strategies and current trends in management development and communication.
C313.4 (CO4)	Students have the knowledge on International aspects of management.



## SUB CODE / SUBJECT NAME: EC8651- TRANSMISSION LINES AND RF SYSTEMS

YEAR / SEM: III/VI

COURSE CODE	COURSE OUTCOMES
C314.1 (CO1)	Explain the characteristics of transmission lines and its losses
C314.2 (CO2)	Write about the standing wave ratio and input impedance in high frequency transmission lines
C314.3 (CO3)	Analyze impedance matching by stubs using Smith Charts
C314.4 (CO4)	Analyze the characteristics of TE and TM waves
C314.5 (CO5)	Design a RF transceiver system for wireless communication

## SUB CODE / SUBJECT NAME: EC8004- WIRELESS NETWORKS (PE)

YEAR / SEM: III/VI

COURSE CODE	COURSE OUTCOMES
C315.1 (CO1)	Understand the architecture of Wireless LAN and HiperLAN
C315.2 (CO2)	Design and implement wireless network environment for any application using latest wireless protocols and standards
C315.3 (CO3)	Ability to select the suitable network depending on the availability and requirement
C315.4 (CO4)	Conversant with the latest 3G/4G networks and its architecture
C315.5 (CO5)	Implement different types of applications for smart phones and mobile devices with latest network strategies

## SUB CODE / SUBJECT NAME: EC8075-INTELLECTUAL PROPERTY RIGHTS

YEAR / SEM: III/VI

COURSE CODE	COURSE OUTCOMES
C316.1 (CO1)	Understand the basic need for Intellectual Property, Patents and copyrights
C316.2 (CO2)	Understand the practical aspects of Registration of Intellectual Property Rights
C316.3 (CO3)	Understand the Agreements and Legislations of IPR





<b>C316.4</b> <b>(CO4)</b>	Apply IP laws and Cyber laws to protect the digital products
<b>C316.5</b> <b>(CO5)</b>	Ability to manage Intellectual property portfolio to enhance the value of firm

## SUB CODE / SUBJECT NAME: EC8681- MICRO PROCESSORS AND MICRO CONTROLLERS

**LAB** **YEAR / SEM: III/VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C317.1</b> <b>(CO1)</b>	To write program for arithmetic operations and execute Using 8086
<b>C317.2</b> <b>(CO2)</b>	Able to write program for sorting and string manipulation operation
<b>C317.3</b> <b>(CO3)</b>	Able to design and demonstrate Digital Clock and stop watch
<b>C317.4</b> <b>(CO4)</b>	Able to understand and demonstrate Serial and parallel communication between two microprocessors kits using 8251 and 8255 respectively.
<b>C317.5</b> <b>(CO5)</b>	Able to demonstrate interfacing and programming of stepper motor and DC motor speed control

## SUB CODE / SUBJECT NAME: EC8661- VLSI DESIGN LAB

**YEAR / SEM: III/VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C318.1</b> <b>(CO1)</b>	Able to write HDL code for basic as well as advanced digital integrated circuit
<b>C318.2</b> <b>(CO2)</b>	To Import the logic modules into FPGA Boards
<b>C318.3</b> <b>(CO3)</b>	Able to synthesize Place and Route the digital IPs
<b>C318.4</b> <b>(CO4)</b>	To design, Simulate and Extract the layouts of Digital IC Blocks using EDA tools
<b>C318.5</b> <b>(CO5)</b>	To design, Simulate and Extract the layouts of Analog IC Blocks using EDA tools



## VII SEMESTER

### SUB CODE / SUBJECT NAME: EC8701- ANTENNAS AN MICRO WAVE ENGINEERING

#### YEAR / SEM: IV/VII

COURSE CODE	COURSE OUTCOMES
C401.1 (CO1)	Apply the basic principles and evaluate antenna parameters and link power budgets.
C401.2 (CO2)	Design and assess the performance of various antennas.
C401.3 (CO3)	Design and analyze uniformly spaced antenna arrays.
C401.4 (CO4)	Summarize the working principles of active and passive components used in Microwave communication system.
C401.5 (CO5)	Design a microwave system given the application specifications.

### SUB CODE / SUBJECT NAME: EC8751- OPTICAL COMMUNICATION

#### YEAR / SEM: IV/VII

COURSE CODE	COURSE OUTCOMES
C402.1 (CO1)	To discuss the various optical fiber modes & configurations.
C402.2 (CO2)	To discuss transmission characteristics of optical fibers.
C402.3 (CO3)	To learn about the various optical sources, detectors and transmission techniques.
C402.4 (CO4)	To explore various idea about fiber optic receivers, optical fiber measurements and various coupling techniques
C402.5 (CO5)	To enrich the knowledge about optical communication systems and networks

### SUB CODE / SUBJECT NAME: EC8791- EMBEDDED AND REAL TIME SYSTEMS

#### YEAR / SEM: IV/VII

COURSE CODE	COURSE OUTCOMES
C403.1 (CO1)	Outline the concepts of embedded systems.



<b>C403.2</b> (CO2)	Describe the architecture and programming of ARM processor
<b>C403.3</b> (CO3)	Use the system design techniques to develop software for embedded systems
<b>C403.4</b> (CO4)	Explain the basic concepts of real time Operating system design.
<b>C403.5</b> (CO5)	Model real-time applications using embedded-system concepts

## **SUB CODE / SUBJECT NAME: EC8702- ADHOC AND WIRELESS SENSOR NETWORKS**

**YEAR / SEM: IV/VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C404.1</b> (CO1)	Learn Ad hoc network and Sensor Network fundamentals
<b>C404.2</b> (CO2)	Understand the different routing protocols
<b>C404.3</b> (CO3)	Have an in-depth knowledge on sensor network architecture and design issues
<b>C404.4</b> (CO4)	know the transport layer and security issues possible in Ad hoc and Sensor networks
<b>C404.5</b> (CO5)	Enrich the knowledge about more programming platforms and tools

## **SUB CODE / SUBJECT NAME: CS8082- MACHINE LEARNING TECHNIQUES (PE)**

**YEAR / SEM: IV/VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C405.1</b> (CO1)	To understand the need for machine learning for various problem solving
<b>C405.2</b> (CO2)	To study the various supervised, semi-supervised and unsupervised learning algorithms in machine learning
<b>C405.3</b> (CO3)	To learn the new approaches in machine learning
<b>C405.4</b> (CO4)	To learn about Instant Based Learning
<b>C405.5</b> (CO5)	To design appropriate machine learning algorithms for problem solving



**SUB CODE / SUBJECT NAME: OCE751-ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (OE) YEAR / SEM: IV/VII**

COURSE CODE	COURSE OUTCOMES
C406.1 (CO1)	Carry out scoping and screening of developmental projects for environmental and social assessments
C406.2 (CO2)	Explain different methodologies for environmental impact prediction and assessment
C406.3 (CO3)	Plan environmental impact assessments and environmental management plans
C406.4 (CO4)	Asses socioeconomic investigation of the environment in a project
C406.5 (CO5)	Knowledge to prepare environmental impact assessment reports

**SUB CODE / SUBJECT NAME: OME754 - INDUSTRIAL SAFETY (OE) YEAR / SEM: IV/VII**

COURSE CODE	COURSE OUTCOMES
C407.1 (CO1)	Able to identify various types of industrial hazards.
C407.2 (CO2)	Familiar to prevent chemical, environmental mechanical, fire hazard through analysis.
C407.3 (CO3)	Apply proper safety techniques in engineering and management.
C407.4 (CO4)	Design appropriate personal protective equipments to overcome disasters.
C407.5 (CO5)	Develop analytical skill to understand safety system

**SUB CODE / SUBJECT NAME: EC8711 - EMBEDDED LAB YEAR / SEM: IV/VII**

COURSE CODE	COURSE OUTCOMES
C408.1 (CO1)	Write programs in ARM for a specific Application
C408.2 (CO2)	Interface memory and Write programs related to memory operations.
C408.3 (CO3)	Interface A/D and D/A convertors with ARM system



<b>C408.4</b> (CO4)	Analyze the performance of interrupt.
<b>C408.5</b> (CO5)	Formulate a mini project using embedded system.

**SUB CODE / SUBJECT NAME: EC8761 ADVANCED COMMUNICATION LAB**  
**YEAR/ SEM: IV/VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C409.1</b> (CO1)	Understand the basic operating principles of single mode, multimode fibers, light sources, detectors.
<b>C409.2</b> (CO2)	Design a simple optical communication link.
<b>C409.3</b> (CO3)	Analyze the microwave passive devices like directional couplers circulators and Isolators..
<b>C409.4</b> (CO4)	Analyze the characteristics of microwave vacuum tube source and semiconductor source.
<b>C409.5</b> (CO5)	Analyze the characteristics Wireless Communication channels.

**VIII SEMESTER**

**SUB CODE / SUBJECT NAME: EC8093-DIGITAL IMAGE PROCESSING**  
**YEAR/ SEM: IV/VIII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C410.1</b> (CO1)	To understand the basics and fundamentals of digital image processing such as digitization, sampling, quantization, and 2D-transforms.
<b>C410.2</b> (CO2)	To operate on images using the techniques of smoothing, sharpening and enhancement.
<b>C410.3</b> (CO3)	To understand the restoration concepts and filtering techniques.
<b>C410.4</b> (CO4)	To learn the basics of image segmentation and features extraction concepts.
<b>C410.5</b> (CO5)	To learn the basics of image compression and recognition methods for color models.



**SUB CODE / SUBJECT NAME: GE8076-PROFESSIONAL ETHICS IN ENGINEERING**  
**YEAR / SEM: IV/VIII**

COURSE CODE	COURSE OUTCOMES
C411.1 (CO1)	Understand the basic perception of Human values and the need for yoga and meditation for professional excellence and stress management.
C411.2 (CO2)	Understand the basic perception of profession, professional ethics, various moral & social issues, industrial standards, code of ethics and role of professional ethics in engineering field.
C411.3 (CO3)	Understand the code of ethics and an outlook of Law as well as understand engineers as responsible experimenters.
C411.4 (CO4)	Will be aware of professional rights and responsibilities of an engineer, responsibilities of an engineer for safety and risk benefit analysis.
C411.5 (CO5)	Will acquire knowledge about various roles of engineers in variety of global issues and able to apply ethical principles to resolve situations that arise in their professional lives.

**SUB CODE / SUBJECT NAME: EC8094-SATELLITE COMMUNICATION**  
**YEAR / SEM: IV/VIII**

COURSE CODE	COURSE OUTCOMES
C412.1 (CO1)	Understand the basic concepts of satellite orbits and launching procedures Discuss various launching procedures of satellite and its applications.
C412.2 (CO2)	Understand Satellite subsystems and earth segment
C412.3 (CO3)	Analyze link budget calculation and its system performance
C412.4 (CO4)	Analyze the various methods of Satellite access
C412.5 (CO5)	Understand various satellite network and its applications.

**SUB CODE / SUBJECT NAME: GE8073-FUNDAMENTALS OF NANO SCIENCE**  
**YEAR / SEM: IV/VIII**

COURSE CODE	COURSE OUTCOMES
C413.1 (CO1)	Will familiarize about the science of nanomaterials and their properties



<b>C413.2</b> <b>(CO2)</b>	Various technique of preparing of nano material and study the behaviour
<b>C413.3</b> <b>(CO3)</b>	Will develop knowledge in characteristic nanomaterial
<b>C413.4</b> <b>(CO4)</b>	Study of different type of nano materials and their properties
<b>C413.5</b> <b>(CO5)</b>	Study the application of nano material in various field .

**SUB CODE / SUBJECT NAME: GE8073-PROJECT WORK**

**YEAR / SEM: IV/VIII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C414.1</b> <b>(CO1)</b>	Able to understand the concepts and design process of various electronics circuits and communication engineering
<b>C414.2</b> <b>(CO2)</b>	To develop and implement the innovative ideas.
<b>C414.3</b> <b>(CO3)</b>	Able to identify and solving the real time problems
<b>C414.4</b> <b>(CO4)</b>	Able to attain the leadership quality.
<b>C414.5</b> <b>(CO5)</b>	Able to publish the Research Finding through conference and journals and able to get the patent

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

**SEMESTER –III**

**SUB CODE / SUBJECT NAME: MA8353/ TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATION YEAR / SEM: II/III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C201.1</b> <b>(CO1)</b>	Evaluating the various model of homogeneous and non-homogeneous partial differential equations which helps to solve engineering problems.
<b>C201.2</b> <b>(CO2)</b>	Determine the Fourier coefficients in the Fourier series expansion of a given function and which play a vital role in analysing various complex problems in engineering.
<b>C201.3</b> <b>(CO3)</b>	Analyzing the one dimensional, two dimensional heat equation and one dimensional wave equation by using the concept of Fourier series, which describes the distribution in a given region over time
<b>C201.4</b>	Determine Fourier transform for a given function and use them to evaluate the definite



<b>(C04)</b>	integrals which helps in analysing the differential equation and also applied in quantum mechanics
<b>C201.5 (C05)</b>	Determine Z transforms and standard function and use them to solve the difference equation, which helps to investigate the discrete time signals.

## SUB CODE / SUBJECT NAME: EE8351/ DIGITAL LOGIC CIRCUITS

YEAR / SEM: II/III

COURSE CODE	COURSE OUTCOMES
<b>C202.1 (C01)</b>	Ability to design combinational and sequential Circuits.
<b>C202.2 (C02)</b>	Ability to study various number systems and simplify the logical expressions using Boolean functions
<b>C202.3 (C03)</b>	Ability to design various synchronous and asynchronous circuits.
<b>C202.4 (C04)</b>	Ability to introduce asynchronous sequential circuits and PLDs
<b>C202.5 (C05)</b>	Ability to introduce digital simulation for development of application oriented logic Circuits

## SUB CODE / SUBJECT NAME: EE8391/ ELECTROMAGNETIC THEORY

YEAR / SEM: II/III

COURSE CODE	COURSE OUTCOMES
<b>C203.1 (C01)</b>	Ability to understand the basic mathematical concepts related to electromagnetic vector fields.
<b>C203.2 (C02)</b>	Ability to understand the basic concepts about electrostatic fields, electrical potential, energy density and their applications.
<b>C203.3 (C03)</b>	Ability to acquire the knowledge in magneto static fields, magnetic flux density, vector potential and its applications
<b>C203.4 (C04)</b>	Ability to understand the different methods of EMF generation and Maxwell's equations
<b>C203.5 (C05)</b>	Ability to understand the basic concepts electromagnetic waves and characterizing parameters





## SUB CODE / SUBJECT NAME: EE8301/ ELECTRICAL MACHINES I

YEAR / SEM: II/III

COURSE CODE	COURSE OUTCOMES
C204.1 (C01)	Remembering the basic concepts of magnetic circuit and properties of magnetic materials
C204.2 (C02)	Understanding the constructional details of transformers and analysing their characteristics.
C204.3 (C03)	Analysing the energy and mmf distribution of magnetic system by applying the concepts of electromechanical energy conversion and deriving the expressions for generated voltage and torque developed in dc machines.
C204.4 (C04)	Understanding the constructional details of DC generators and analysing their characteristics.
C204.5 (C05)	Understanding the constructional details of DC motors and analysing their characteristics.

## SUB CODE / SUBJECT NAME: EC8353/ ELECTRON DEVICES AND CIRCUITS

YEAR / SEM: II/III

COURSE CODE	COURSE OUTCOMES
C205.1 (C01)	Understand the structure of basic electronic devices.
C205.2 (C02)	Be exposed to active and passive circuit elements.
C205.3 (C03)	Familiarize the operation and applications of Transistor like BJT and FET.
C205.4 (C04)	Explore the characteristics of amplifier gain and frequency response.
C205.5 (C05)	Learn the required functionality of positive and negative feedback systems.



## SUB CODE / SUBJECT NAME: ME8792/ POWER PLANT ENGINEERING

YEAR / SEM: II/III

COURSE CODE	COURSE OUTCOMES
C206.1 (CO1)	Explain the layout, construction and working of the components inside a thermal power plant.
C206.2 (C02)	Explain the layout, construction and working of the components inside a Diesel, Gas and Combined cycle power plants.
C206.3 (C03)	Explain the layout, construction and working of the components inside nuclear power plants.
C206.4 (C04)	Explain the layout, construction and working of the components inside Renewable energy power plants.
C206.5 (C05)	Explain the applications of power plants while extend their knowledge to power plant economics and environmental hazards and estimate the costs of electrical energy production.

## SUB CODE / SUBJECT NAME: EC8311/ ELECTRONICS LABORATORY

YEAR/ SEM: II/III

COURSE CODE	COURSE OUTCOMES
C207.1 (CO1)	Understand the characteristics of Semiconductor diode, Zener diode, NPN Transistor under common emitter, common collector and common base configurations
C207.2 (C02)	Ability to acquire knowledge on the characteristics of JFET, UJT and generation of saw tooth waveforms
C207.3 (C03)	Design the characteristics of photo diode & photo transistor, Study of light activated relay circuit.
C207.4 (C04)	Design and testing of RC phase shift, LC oscillators
C207.5 (C05)	Analyze the Single Phase half-wave and full wave rectifiers with inductive and capacitive Filters



**SUB CODE / SUBJECT NAME: EE8311/ ELECTRICAL MACHINES I LAB**

**YEAR / SEM: II/III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C208.1 (C01)</b>	Estimating the efficiency of DC generators and analyzing their characteristics by experimental load analysis
<b>C208.2 (C02)</b>	Estimating the efficiency of DC motors and analyzing their characteristics by experimental load analysis
<b>C208.3 (C03)</b>	Estimating the efficiency of transformers and analyzing their characteristics by experimental load analysis
<b>C208.4 (C04)</b>	Estimating the losses, regulation and efficiency of dc machines and transformers by indirect loading through various tests.
<b>C208.5 (C05)</b>	Understanding the operation of various starters of dc motor and various connections for three phase transformer

**SUB CODE / SUBJECT NAME: MA8491/ NUMERICAL METHODS**

**YEAR / SEM: II/IV**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C209.1 (C01)</b>	Solve root finding problems using several methods and solving system of linear algebraic equations.
<b>C209.2 (C02)</b>	Estimate the best fit polynomial for the given tabulated data using the different methods and Determine an interpolating function for data
<b>C209.3 (C03)</b>	Estimate single integral and double integral using Numerical Integration
<b>C209.4 (C04)</b>	Solve Ordinary Differential Equation by different methods.
<b>C209.5 (C05)</b>	Apply various numerical methods in solving an initial value problem involving an ordinary differential equation and use the techniques, skills and modern engineering tools necessary for engineering practice.



**SUB CODE / SUBJECT NAME: EE8401/ELECTRICAL MACHINES II**

**YEAR / SEM: II/IV**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C210.1 (C01)</b>	Ability to understand the construction and working principle of synchronous generator, mmf curves and armature windings
<b>C210.2 (C02)</b>	Ability to acquire knowledge on synchronous motor.
<b>C210.3 (C03)</b>	Ability to understand the construction and working principle of three phase induction motor
<b>C210.4 (C04)</b>	Ability to understand the construction and working principle of special machines
<b>C210.5 (C05)</b>	Ability to predetermine the performance characteristics of synchronous machine

**SUB CODE / SUBJECT NAME: EE8402/ TRANSMISSION AND DISTRIBUTION**

**YEAR / SEM: II/IV**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C211.1 (C01)</b>	Understanding about the structure of power system, HVAC, HVDC and need for FACTS.
<b>C211.2 (C02)</b>	Understanding the operation of the different distribution schemes.
<b>C211.3 (C03)</b>	Developing expressions for the computation of transmission line parameters.
<b>C211.4 (C04)</b>	Constructing the equivalent circuits for the transmission lines based on distance and operating voltage for determining voltage regulation and efficiency. Also to improve the voltage profile of the transmission system.
<b>C211.5 (C05)</b>	Analysing the voltage distribution in insulator strings and cables and methods to improve the same.



**SUB CODE / SUBJECT NAME: EE8403/MEASUREMENTS AND INSTRUMENTATION**  
**YEAR/ SEM: II/IV**

COURSE CODE	COURSE OUTCOMES
C212.1 (C01)	Understand the Design and working of various types of Electrical and Electronics Instruments.
C212.2 (C02)	Analyze and Apply the fundamentals of Electrical and Electronics Instruments.
C212.3 (C03)	Analyze and educate on the comparison between various measurements techniques.
C212.4 (C04)	Understand about the various storage and display devices
C212.5 (C05)	Design and Assemble the various transducers and the data acquisition systems.

**SUB CODE / SUBJECT NAME: EE8451/LINEAR INTEGRATED CIRCUITS AND APPLICATIONS**  
**YEAR / SEM: II/IV**

COURSE CODE	COURSE OUTCOMES
C213.1 (C01)	Explain the procedure for the fabrication of IC
C213.2 (C02)	Understand the DC & AC characteristics of Operational amplifier
C213.3 (C03)	Analyze the applications of Operational amplifier
C213.4 (C04)	Describe the internal functional blocks of special ICs
C213.5 (C05)	Design the internal functional blocks of special ICs

**SUB CODE / SUBJECT NAME: IC8451/CONTROL SYSTEMS**

**YEAR / SEM: II/IV**

COURSE CODE	COURSE OUTCOMES
C214.1 (C01)	Identify the various control system components and their representations.
C214.2	Analyze the various time domain parameters



(C02)	
C214.3 (C03)	Analysis the various frequency response plots and its system.
C214.4 (C04)	Apply the concepts of various system stability criterions.
C214.5 (C05)	Design various transfer functions of digital control system using state variable models.

**SUB CODE / SUBJECT NAME: EE8411/ELECTRICAL MACHINES II LAB YEAR / SEM: II/IV**

COURSE CODE	COURSE OUTCOMES
C215.1 (C01)	Ability to understand and analyze EMF & MMF method
C215.2 (C02)	Ability to analyze the characteristics of $v$ and inverted $v$ curves
C215.3 (C03)	Ability to understand the importance of synchronous machines
C215.4 (C04)	Ability to understand the importance of Induction machines
C215.5 (C05)	Ability to acquire knowledge in separation of losses

**SUB CODE / SUBJECT NAME: EE8461/ LINEAR AND DIGITAL INTEGRATED CIRCUITS LAB YEAR / SEM: II/IV**

COURSE CODE	COURSE OUTCOMES
C216.1 (C01)	Understand the operation & application of operational amplifier and digital circuits
C216.2 (C02)	Apply knowledge about the op-amp and digital circuit in various applications



<b>C216.3</b> <b>(C03)</b>	Design the circuits using op-amps and digital technique for various applications like adder, subtractor, integrator, differentiator, counter and shift register
<b>C216.4</b> <b>(C04)</b>	Implement the linear and digital circuits for various applications
<b>C216.5</b> <b>(C05)</b>	Discuss the technology change in op-amp and Digital circuit

## **SUB CODE / SUBJECT NAME: EE8412/ TECHNICAL SEMINAR**

**YEAR / SEM: II/IV**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C217.1</b> <b>(C01)</b>	Ability to review Prepare technological developments
<b>C217.2</b> <b>(C02)</b>	Ability to Present technological developments
<b>C217.3</b> <b>(C03)</b>	Ability to discuss and present in a discussion
<b>C217.4</b> <b>(C04)</b>	Ability to present technical papers
<b>C217.5</b> <b>(C05)</b>	Ability to face Placement Interviews

## **SUB CODE / SUBJECT NAME: EE8501/ POWER SYSTEM ANALYSIS**

**YEAR / SEM: III/V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C301.1</b> <b>(C01)</b>	Understanding the need for power system planning and operational studies under steady state operating condition.
<b>C301.2</b> <b>(C02)</b>	Analyzing the power system by per phase analysis, representation of different components and to construct Ybus and Z bus.
<b>C301.3</b> <b>(C03)</b>	Applying numerical methods to solve the power flow problem.



<b>C301.4</b> <b>(C04)</b>	Model and analyze the system under balanced and unbalanced fault conditions.
<b>C301.5</b> <b>(C05)</b>	Formulate swing equation and using numerical to find the solution, understanding the importance of stability analysis of power system.

**SUB CODE / SUBJECT NAME: EE8551/ MICROPROCESSORS AND MICROCONTROLLERS**  
**YEAR / SEM: III/V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C302.1</b> <b>(C01)</b>	Able to acquire the basic knowledge in 8085
<b>C302.2</b> <b>(C02)</b>	Able to write the assembly language program using 8085
<b>C302.3</b> <b>(C03)</b>	Able to understand the basic knowledge in 8051 microcontroller
<b>C302.4</b> <b>(C04)</b>	Able to understand the interfacing and importance of interfacing
<b>C302.5</b> <b>(C05)</b>	Able to develop the applications of microprocessor and microcontroller

**SUB CODE / SUBJECT NAME: EE8552/ POWER ELECTRONICS** **YEAR / SEM: III/V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C303.1</b> <b>(C01)</b>	Remembering the different types of power semiconductor devices and understanding their switching characteristics
<b>C303.2</b> <b>(C02)</b>	Analyzing the operation, characteristics and performance parameters of controlled rectifiers.
<b>C303.3</b> <b>(C03)</b>	Understanding the operation, switching techniques and analyzing the different types of DC-DC switching regulators .
<b>C303.4</b> <b>(C04)</b>	Applying the different modulation techniques in the operation of pulse width modulated inverters.
<b>C303.5</b> <b>(C05)</b>	Understanding the operation of AC voltage controller and cycloconverters





**SUB CODE / SUBJECT NAME: EE8591/ DIGITAL SIGNAL PROCESSING      YEAR / SEM: III/V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C304.1 (C01)</b>	Define and classify signals and systems, express signals mathematically, explain Nyquist rate, aliasing and sampling techniques to convert analog to discrete time signals, explain spectral density and quantization and its error.
<b>C304.2 (C02)</b>	Apply z transforms and its properties to solve difference equations of discrete time systems, perform convolution, represent the magnitude and phase response of discrete time signals using Discrete Time Fourier Transform.
<b>C304.3 (C03)</b>	Find the Discrete Fourier Transform of discrete time signals using direct DFT and FFT, analyze the magnitude and phase representation of the Discrete Fourier Transform of discrete time signals.
<b>C304.4 (C04)</b>	Design digital IIR and FIR filters and model digital IIR and FIR filters using realization structures.
<b>C304.5 (C05)</b>	Discuss about architecture, addressing formats, functional modes of digital signal processors, discuss about commercial digital signal processors

**SUB CODE / SUBJECT NAME: CS8392/ OBJECT ORIENTED PROGRAMMING**

**YEAR / SEM: III/V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C305.1 (C01)</b>	Apply the Basic Object Oriented concepts in C++
<b>C305.2 (C02)</b>	Explain the advanced programming concepts in C++
<b>C305.3 (C03)</b>	Extend the Object Oriented Programming concepts in Java
<b>C305.4 (C04)</b>	Analyze the Exception handling and Multithreading concepts in Java
<b>C305.5 (C05)</b>	Create Applications using Object Oriented Concepts



## SUB CODE / SUBJECT NAME: OAN551/ SENSORS AND TRANSDUCERS(OE)

YEAR/SEM: III/V

COU RSE CODE	COURSE OUTCOMES
C306.1 (C01)	To understand the concepts of measurement technology
C306.2 (C02)	To learn the various sensors used to measure various physical parameters.
C306.3 (C03)	To learn the basic principles of various transducers.
C306.4 (C04)	To learn the fundamentals of signal conditioning, data acquisition and communication systems used in mechatronics system development.
C306.5 (C05)	To Implement the DAQ systems with different sensors for real time applications

## SUB CODE / SUBJECT NAME: HS8581/ PROFESSIONAL COMMUNICATION

YEAR / SEM: III/V

COURSE CODE	COURSE OUTCOMES
C308.1 (C01)	Ability to review Prepare technological developments
C308.2 (C02)	Ability to Present technological developments
C308.3 (C03)	Ability to discuss and present in a discussion
C308.4 (C04)	Ability to present technical papers
C308.5 (C05)	Ability to face Placement Interviews



## SUB CODE / SUBJECT NAME: CS8383/ OBJECT ORIENTED PROGRAMMING LAB

YEAR / SEM: III/V

COURSE CODE	COURSE OUTCOMES
C309.1 (C01)	Develop simple C++ Programs
C309.2 (C02)	Implement Object Oriented Concepts
C309.3 (C03)	Apply advanced object oriented objects
C309.4 (C04)	Developing File Handling Programs for Sequential and Random access
C309.5 (C05)	Develop Simple Java Applications

## SUB CODE / SUBJECT NAME: EE8601/ SOLID STATE DRIVES

YEAR / SEM: III/VI

COURSE CODE	COURSE OUTCOMES
C310.1 (C01)	Understanding the steady state operation, transient dynamics and four quadrant operation of a motor load system.
C310.2 (C02)	Analyzing continuous and discontinuous mode operation of the rectifier and chopper fed separately excited dc motor.
C310.3 (C03)	Applying and comparing the stator and rotor speed control methods and closed loop speed control of Induction motor drives.
C310.4 (C04)	Understanding the operation of permanent magnet synchronous motor and self and separate speed control methods of Synchronous motor drives
C310.5 (C05)	Designing the current and speed controllers for a closed loop solid state DC motor drive.



## SUB CODE / SUBJECT NAME: EE8602/ PROTECTION AND SWITCHGEAR

YEAR / SEM: III/VI

COURSE CODE	COURSE OUTCOMES
C311.1 (C01)	Understanding the causes and effects of faults in power system.
C311.2 (C02)	Explain the operating principle and characteristics of Electromagnetic Relay.
C311.3 (C03)	Identify the various faults that can occur on alternator, transformer, motor, bus bar and transmission line and select the suitable protection schemes.
C311.4 (C04)	Illustrate the static relays using comparators and analyze the numerical relays.
C311.5 (C05)	Analyze the interruption of capacitive current and compare the various types of circuit breaker.

## SUB CODE / SUBJECT NAME: EE8691/ EMBEDDED SYSTEMS

YEAR / SEM: III/VI

COURSE CODE	COURSE OUTCOMES
C312.1 (C01)	Introduce the Building Blocks of Embedded System
C312.2 (C02)	Educate in Various Embedded Development Strategies
C312.3 (C03)	Introduce Bus Communication in processors, Input/output interfacing.
C312.4 (C04)	Impart knowledge in Various processor scheduling algorithms.
C312.5 (C05)	introduce Basics of Real time operating system and example tutorials to discuss on one real- time operating system tool

## SUB CODE / SUBJECT NAME: EE8002/ DESIGN OF ELECTRICAL APPARATUS(PE1)

YEAR / SEM: III/VI

COURSE CODE	COURSE OUTCOMES
C313.1 (C01)	Students will be able to <b>choose</b> the electrical engineering & insulating materials and solve the thermal design problem by applying the standard specifications



<b>C313.2 (C02)</b>	Students will be able to <b>interpret</b> the design problems the area of D.C. machines and performance prediction by applying the standard design procedures
<b>C313.3 (C03)</b>	Students will be able to <b>select</b> the design problems in the area of Transformers and solve the design problem by applying the standard design procedures
<b>C313.4 (C04)</b>	Students will be able to <b>simplify</b> the design problems in the area of Induction machines and solve the design problem by applying the standard design procedures
<b>C313.5 (C05)</b>	Students will be able to <b>evaluate</b> the design problems in the area of synchronous machines and solve the design problem by applying the standard design procedures

**SUB CODE / SUBJECT NAME: EE8006/ POWER QUALITY(PE2)**

**YEAR / SEM: III/VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C314.1 (C01)</b>	To study the production of voltage sags
<b>C314.2 (C02)</b>	To study the production of over voltages
<b>C314.3 (C03)</b>	To study the production of Harmonics
<b>C314.4 (C04)</b>	To study the methods of control of CO1,CO2,CO3
<b>C314.5 (C05)</b>	To study the concept of power quality monitoring

**SUB CODE / SUBJECT NAME: EE8661/ POWER ELECTRONICS AND DRIVES LAB**

**YEAR / SEM: III/VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C315.1 (C01)</b>	Experimenting with the characteristics of semiconductor devices.
<b>C315.2 (C02)</b>	Designing the R,RC and UJT firing circuit.
<b>C315.3 (C03)</b>	Designing the rectifier and comparing with simulation results.
<b>C315.4 (C04)</b>	Designing the buck boost chopper and comparing with simulation results
<b>C315.5 (C05)</b>	Experimenting with single and three phase pulse width modulated inverters and AC voltage controller.



**SUB CODE / SUBJECT NAME: EE8681/ MICROPROCESSOR AND MICROCONTROLLER LAB**  
**YEAR / SEM: III/VI**

COURSE CODE	COURSE OUTCOMES
C316.1 (C01)	Recalling the terms and basic concepts for programming using Instruction set of microprocessors and microcontroller
C316.2 (C02)	Illustrate programming strategies and select proper mnemonics and run their program
C316.3 (C03)	Make use of different I/O interfacing with 8085 & 8051
C316.4 (C04)	Develop assembly language programs for various applications using 8051 microcontroller
C316.5 (C05)	Analyze the operations of 8085 & 8051 under different cases.

**SUB CODE / SUBJECT NAME: EE8611/ MINI PROJECT**

**YEAR / SEM: III/VI**

COURSE CODE	COURSE OUTCOMES
C317.1 (C01)	Ability to review Prepare technological developments
C317.2 (C02)	Ability to Present technological developments
C317.3 (C03)	Ability to discuss and present in a discussion
C317.4 (C04)	Ability to present technical papers
C317.5 (C05)	Ability to face Placement Interviews

**SUB CODE / SUBJECT NAME: EE8701/ HIGH VOLTAGE ENGINEERING**

**YEAR / SEM: IV/VII**

C OURSE CODE	COURSE OUTCOMES
C401.1 (C01)	Ability to understand the various types of over voltages in power system



<b>C401.2 (C02)</b>	Ability to understand Nature of Breakdown mechanism in solid, liquid and gaseous dielectrics
<b>C401.3 (C03)</b>	Ability to understand the Generation of of over voltages and high currents in laboratories
<b>C401.4 (C04)</b>	Ability to Measure over voltages and over currents
<b>C401.5 (C05)</b>	Ability to Test power apparatus and insulation coordination.

**SUB CODE / SUBJECT NAME: EE8702/ POWER SYSTEM OPERATION AND CONTROL**

**YEAR / SEM: IV/VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C402.1 (C01)</b>	Ability to understand the day-to-day operation of electric power system
<b>C402.2 (C02)</b>	Ability to analyze the control actions to be implemented on the system to meet the minute-to-minute variation of system demand
<b>C402.3 (C03)</b>	Ability to understand the significance of power system operation
<b>C402.4 (C04)</b>	Ability to acquire knowledge on real power-frequency interaction.
<b>C402.5 (C05)</b>	Ability to understand the reactive power-voltage interaction and to design SCADA and its application for real time operation.

**SUB CODE / SUBJECT NAME: EE8703/ RENEWABLE ENERGY SYSTEMS YEAR / SEM: IV/VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C403.1 (C01)</b>	Create awareness about renewable Energy Sources and technologies
<b>C403.2 (C02)</b>	Get adequate inputs on a variety of issues in harnessing renewable Energy.
<b>C403.3</b>	Recognize the current and possible future role of renewable energy sources.



(C03)	
C403.4 (C04)	Explain the various renewable energy resources and technologies and their Applications
C403.5 (C05)	Understand basics about biomass energy and solar energy

**SUB CODE / SUBJECT NAME: OCS752/ INTRODUCTION TO C PROGRAMMING (OE)**

**YEAR / SEM: IV/VII**

COURSE CODE	COURSE OUTCOMES
C404.1 (C01)	To understand the structure and formats of C Language.
C404.2 (C02)	To be learned in depth of Arrays in C.
C404.3 (C03)	To construct C programs using Strings.
C404.4 (C04)	To be developed C applications using functions.
C404.5 (C05)	To be created C programs using structures.

**SUB CODE / SUBJECT NAME: EE8010/ POWER SYSTEM TRANSIENTS (PEIII)**

**YEAR / SEM: IV/VII**

COURSE CODE	COURSE OUTCOMES
C405.1 (C01)	Understand and analyze switching and lightning transients
C405.2 (C02)	Acquire knowledge on generation of switching transients and their control
C405.3 (C03)	Understand the importance of propagation, reflection and refraction of travelling waves
C405.4 (C04)	Ability to find the voltage transients caused by faults





<b>C405.5</b> <b>(C05)</b>	Understand the concept of circuit breaker action, load rejection on integrated power system
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**SUB CODE / SUBJECT NAME: GE8071/ DISASTER MANAGEMENT (PE IV)**

**YEAR / SEM: IV/VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C406.1</b> <b>(C01)</b>	Differentiate the types of disasters, causes and their impact on environment and society.
<b>C406.2</b> <b>(C02)</b>	Assess vulnerability and various methods of risk reduction measures as well as mitigation
<b>C406.3</b> <b>(C03)</b>	Understand the Relationship between Disaster and Development
<b>C406.4</b> <b>(C04)</b>	Draw the hazard and vulnerability profile of India, Scenarios in the Indian context
<b>C406.5</b> <b>(C05)</b>	Disaster damage assessment and management

**SUB CODE / SUBJECT NAME: EE8074/ HUMAN RIGHTS (PE IV)**

**YEAR / SEM: IV/VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C407.1</b> <b>(C01)</b>	To create awareness about basic concepts of Human Rights
<b>C407.2</b> <b>(C02)</b>	To understand Universal Declaration of Human Rights
<b>C407.3</b> <b>(C03)</b>	To understand UN Laws and Agencies to Monitor
<b>C407.4</b> <b>(C04)</b>	To inculcate Human Rights in India regarding Constitutional Provisions and Guarantees
<b>C407.5</b> <b>(C05)</b>	To understand Human Rights of Disadvantaged People and the Role of, Government, NGOs, Judiciary and Media



## SUB CODE / SUBJECT NAME: EE8711/ POWER SYSTEM SIMULATION LAB

YEAR / SEM: IV/VII

COURSE CODE	COURSE OUTCOMES
C408.1 (C01)	Provide better understanding of power system analysis through digital simulation
C408.2 (C02)	Students will be able to investigate the state of a power system of any size and be in a position to analyze a practical system both under steady state and fault conditions.
C408.3 (C03)	To enable the students gain a fair knowledge on the programming and simulation of power systems.
C408.4 (C04)	Acquire skills of using computer packages matlab coding and simulink in power system studies.
C408.5 (C05)	Acquire skills of using mi power software for load flow studies.

## SUB CODE / SUBJECT NAME: EE8712/ RENEWABLE ENERGY SYSTEMS LAB

YEAR / SEM: IV/VII

COURSE CODE	COURSE OUTCOMES
C409.1 (C01)	Ability to train the students in Renewable Energy Sources and technologies.
C409.2 (C02)	Ability to provide adequate inputs on a variety of issues in harnessing Renewable Energy.
C409.3 (C03)	Ability to simulate the various Renewable energy sources.
C409.4 (C04)	Ability to recognize current and possible future role of Renewable energy sources.
C409.5 (C05)	Ability to understand basics of Intelligent Controllers.



**SUB CODE / SUBJECT NAME: EE8015/ ELECTRIC ENERGY GENERATION UTILIZATION AND CONSERVATION (PE V)** **YEAR / SEM: IV/VII**

COURSE CODE	COURSE OUTCOMES
C410.1 (C01)	Evaluate the traction effort of train & specific energy consumption, choosing and applying motors for train, list the systems of electrification, track equipment and collection gear
C410.2 (C02)	Classify the light source, design the illumination for indoor lighting & outdoor lighting, Relate the energy saving concept in lamps
C410.3 (C03)	Illustrate and compare the different methods of electric heating and welding and its advantages
C410.4 (C04)	Estimate average solar radiation and illustrate the basic principles and performance analysis of collectors in the conversion of solar radiation into heat.
C410.5 (C05)	Illustrate the basic principle, types and components of WECS, and to analyse and study the performance of wind

**SUB CODE / SUBJECT NAME: EE8018/MICROCONTROLLER BASED SYSTEM DESIGN (PE VI)** **YEAR / SEM: IV/VII**

COURSE CODE	COURSE OUTCOMES
C411.1 (C01)	Understanding the basic concepts and principle of microcontroller
C411.2 (C02)	To educate on the use of interrupts and timers
C411.3 (C03)	Examine the commonly used peripheral / interfacing with PIC microcontroller
C411.4 (C04)	Understanding the basic concepts and principle of ARM Processor
C411.5 (C05)	To analyze and apply computing platform and software for engineering problems. To develop ethical issues and environmental issues



## SUB CODE / SUBJECT NAME: EE8811/ PROJECT WORK

YEAR / SEM: IV/VII

COURSE CODE	COURSE OUTCOMES
C412.1 (CO1)	Distinguish social, health, technical related issues and provide solution in engineering view.
C412.2 (CO2)	Applying the knowledge to analyze root cause for typical problems and provide possible optimal solution.
C412.3 (CO3)	Ability in identifying the engineering problems and utilize adequate survey to achieve successful solution.
C412.4 (CO4)	Design the mathematical model and simulation model for the technical problems and adaptation with modern engineering tools.
C412.5 (CO5)	Function as a member or team leader to co- ordinate among team members for conclude and summarize the solution.

## DEPARTMENT OF INFORMATION TECHNOLOGY ENGINEERING

## SUB CODE / SUBJECT NAME: HS8151/ COMMUNICATIVE ENGLISH

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C101.1 (CO1)	Define the fundamentals of engineering after learning the rules of English Grammar.
C101.2 (CO2)	Read articles of the general kind in magazines and newspapers.
C101.3 (CO3)	Participate effectively in informal conversations; introduce themselves and their friends and express opinions in English.
C101.4 (CO4)	Comprehend conversations and short talks delivered in English.
C101.5 (CO5)	Write short essays of the general kind and personal letters and e-mails in English.

## SUB CODE / SUBJECT NAME: MA8151/ ENGINEERING MATHEMATICS - I

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C102.1	Use both the limit definition and rules of differentiation to differentiate functions.



(CO1)	
C102.2 (CO2)	Apply differentiation to solve maxima and minima problems.
C102.3 (CO3)	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.
C102.4 (CO4)	Apply various techniques in solving differential equations.
C102.5 (CO5)	To study how differential equation, help to solve real time problems.

## **SUB CODE / SUBJECT NAME: PH8151/ ENGINEERING PHYSICS**

**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
C103.1 (CO1)	To understand the basic concepts of elastic behavior of materials and evaluate the structural stability of beams.
C103.2 (CO2)	To understand the behavior of different oscillatory wave motion and the concept of LASER action, also discuss about the propagation of light in optical fibers, comparing various types of fibers and its applications in Medical and Engineering fields.
C103.3 (CO3)	Remembering functional ideas of thermal physics and compare the thermal conductivity of different materials to meet the specific needs.
C103.4 (CO4)	Describe and analyzing the quantum nature of radiation and matter to solve the real time societal and technological problems.
C103.5 (CO5)	To understand the possible crystal structures and to analyze various growth techniques in the view of increasing demand of crystals for various Engineering and Technological applications.



## SUB CODE / SUBJECT NAME: **CY8151/ ENGINEERING CHEMISTRY**

**YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C104.1 (CO1)	Analyze boiler troubles with latest technologies and equipment's using external and internal treatment methods.
C104.2 (CO2)	It provides basic knowledge in the field of absorption and catalysis.
C104.3 (CO3)	Knowledge of alloys gives an idea about the manufacturing process in various industries.
C104.4 (CO4)	Analyze issues related to fuels and their synthesis and able to understand working of IC and diesel engines.
C104.5 (CO5)	To understand the principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells.

## SUB CODE / SUBJECT NAME: **GE8151/ PROBLEM SOLVING AND PYTHON PROGRAMMING**

**YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C105.1 (CO1)	Develop algorithmic solutions to simple computational problems.
C105.2 (CO2)	Demonstrate programs using simple Python statements and expressions.
C105.3 (CO3)	Explain control flow and functions concept in Python for solving problems.
C105.4 (CO4)	Use Python data structures – lists, tuples & dictionaries for representing compound data.
C105.5 (CO5)	Explain files, exception, modules and packages in Python for solving problems.



## SUB CODE / SUBJECT NAME: GE8152/ ENGINEERING GRAPHICS

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C106.1 (CO1)	How to draw different engineering curves, draw different orthographic projections.
C106.2 (CO2)	Illustrate different views of points, lines and planes inclined to both HP and VP in first quadrant.
C106.3 (CO3)	Develop the projections of simple solids inclined to any one plane
C106.4 (CO4)	Categorize Section and develop various solids
C106.5 (CO5)	Evaluate to Draw 3D projections of simple solids by Perspective by visual ray method and Isometric projections

## SUB CODE / SUBJECT NAME: GE8161/ PROBLEM SOLVING AND PYTHON PROGRAMMING

LAB

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C107.1 (CO1)	Develop solutions to simple computational problems using Python programs.
C107.2 (CO2)	Solve problems using conditionals and loops in Python.
C107.3 (CO3)	Develop Python programs by defining functions and calling them.
C107.4 (CO4)	Use Python lists, tuples and dictionaries for representing compound data.
C107.5	Develop Python programs using files.



<b>(CO5)</b>	
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**SUB CODE / SUBJECT NAME: BS8161/ PHYSICS AND CHEMISTRY LAB**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C108.1 (CO1)</b>	To apply the physics principles of Thermal physics and Properties of Matter to evaluate properties of materials
<b>C108.2 (CO2)</b>	To understand measurement technique and usage of new instrument in Optics for real time application in Engineering
<b>C108.3 (CO3)</b>	Apply the knowledge of semiconducting material, to evaluate the band gap of material useful for engineering solutions.
<b>C108.4 (CO4)</b>	Able to analyze the conductivity of acids and bases and also analyze the quality of water for domestic and industrial purpose
<b>C108.5 (CO5)</b>	Used to find out the emf for different metallic solutions from which electrode potential is determined

**SEMESTER II**

**SUB CODE / SUBJECT NAME: HS8251/ TECHNICAL ENGLISH**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C110.1 (CO1)</b>	Define the fundamentals of engineering after learning the rules of English Grammar.
<b>C110.2 (CO2)</b>	Read technical text and write area-specific text effortlessly.
<b>C110.3 (CO3)</b>	Listen and comprehend lectures and talks in their area of specialization successfully.
<b>C110.4 (CO4)</b>	Speak appropriately and effectively in varied formal and informal contexts.





**C110.5**  
**(CO5)**

Write reports and winning job applications

**SUB CODE / SUBJECT NAME: MA8251/ ENGINEERING MATHEMATICS-II**  
**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C111.1 (CO1)	Introduce the concepts of Eigenvalue and Eigenvectors which help to find the stability of the systems in engineering
C111.2 (CO2)	Define and understand the concepts of vector calculus, needed for finding solutions in all engineering discipline problems.
C111.3 (CO3)	Develop an understanding of the standard techniques of complex variable theory so as to enable the student to apply them with confidence, in application areas such as heat conduction, elasticity, fluid dynamics and flow of the electric current.
C111.4 (CO4)	Evaluate real integrals by applying concept of complex integration
C111.5 (CO5)	Understand and apply the knowledge of Laplace Transforms in solving system of linear differential equations.

**SUB CODE / SUBJECT NAME: PH8252/ PHYSICS FOR INFORMATION SCIENCE**  
**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C112.1 (CO1)	To gain the knowledge on classical and quantum electron theories and energy band structures
C112.2 (CO2)	To understand the essential principles of physics of semiconductor device and electron transport properties for new application
C112.3 (CO3)	To acquire knowledge on magnetic properties of materials and their applications in data storage.



<b>C112.4 (CO4)</b>	To understand the functioning of optical materials for optoelectronics
<b>C112.5 (CO5)</b>	To understand the basics of quantum structures and their applications in carbon electronics

**SUBJECT NAME: BE8255/BASIC ELECTRICAL, ELECTRONICS & MEASUREMENT ENGINEERING**  
**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C113.1 (CO1)</b>	Discuss the essentials of electric circuits and analysis
<b>C113.2 (CO2)</b>	Discuss the basic operation of electric machines and transformers
<b>C113.3 (CO3)</b>	Introduction of renewable sources and common domestic loads
<b>C113.4 (CO4)</b>	To understand the fundamentals of electronic circuit constructions
<b>C113.5 (CO5)</b>	Introduction to measurement methods

**SUB CODE / SUBJECT NAME: IT8201/INFORMATION TECHNOLOGY ESSENTIALS**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C114.1 (CO1)</b>	Design and deploy web-sites
<b>C114.2 (CO2)</b>	Design and deploy simple web-applications
<b>C114.3 (CO3)</b>	Create simple database applications



<b>C114.4</b> <b>(CO4)</b>	Develop information system
<b>C114.5</b> <b>(CO5)</b>	Describe the basics of networking and mobile communications and Implement the technologies behind computer networks and mobile communication

**SUB CODE / SUBJECT NAME: CS8251/PROGRAMMING IN C**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C115.1</b> <b>(CO1)</b>	Develop simple applications in C using basic constructs
<b>C115.2</b> <b>(CO2)</b>	Design and implement applications using arrays and strings
<b>C115.3</b> <b>(CO3)</b>	Develop and implement applications in C using functions and pointers.
<b>C115.4</b> <b>(CO4)</b>	Develop applications in C using structures.
<b>C115.5</b> <b>(CO5)</b>	Design applications using sequential and random access file processing

**SUB CODE / SUBJECT NAME: GE8261/ENGINEERING PRACTICES LABORATOR**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C116.1</b> <b>(CO1)</b>	Hands on experience on welding, sheet metal and lathe work
<b>C116.2</b> <b>(CO2)</b>	Experience the plumbing and carpentry work
<b>C116.3</b> <b>(CO3)</b>	Demonstration on centrifugal pump and air conditioning working principles



<b>C116.4</b> <b>(CO4)</b>	Measurement of Electrical quantities, earthing procedures, wiring methods etc
<b>C116.5</b> <b>(CO5)</b>	Study of Electronic components and equipments – Resistor, colour coding measurement of AC signal parameter, Gates , Circuits etc

## SUB CODE / SUBJECT NAME: CS8261/C PROGRAMMING LABORATORY YEAR/ SEM: I/II

COURSE CODE	COURSE OUTCOMES
<b>C117.1</b> <b>(CO1)</b>	Apply and practice logical formulations to solve some simple problems leading to specific applications.
<b>C117.2</b> <b>(CO2)</b>	Develop C programs for simple applications making use of basic constructs, arrays and strings.
<b>C117.3</b> <b>(CO3)</b>	Demonstrate C programming development environment, compiling, debugging, linking and executing a program using the development environment.
<b>C117.4</b> <b>(CO4)</b>	Develop C programs involving functions, recursion, pointers, and structures.
<b>C117.5</b> <b>(CO5)</b>	Design applications using sequential and random access file processing

## SUB CODE / SUBJECT NAME: IT8211/INFORMATION TECHNOLOGY ESSENTIALS LAB

### YEAR/ SEM: I/II

COURSE CODE	COURSE OUTCOMES
<b>C118.1</b> <b>(CO1)</b>	Design interactive websites using basic HTML tags, different styles, links and with all
<b>C118.2</b> <b>(CO2)</b>	Basic control elements.
<b>C118.3</b> <b>(CO3)</b>	Create client side and server side programs using scripts using PHP.



<b>C118.4 (CO4)</b>	Design dynamic web sites and handle multimedia components
<b>C118.5 (CO5)</b>	Create applications with PHP connected to database and Create Personal Information System

### SEMESTER III

**SUB CODE / SUBJECT NAME: MA8351- DISCRETE MATHEMATICS      YEAR / SEM:II /III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C201.1 (CO1)</b>	Have knowledge of the concepts needed to test the logic of a program.
<b>C201.2 (CO2)</b>	Have an understanding in identifying structures on many levels.
<b>C201.3 (CO3)</b>	Be aware of a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science.
<b>C201.4 (CO4)</b>	Be aware of the counting principles.
<b>C201.5 (CO5)</b>	Be exposed to concepts and properties of algebraic structures such as groups, rings and fields

**SUB CODE / SUBJECT NAME: CS8351 - DIGITAL PRINCIPLES AND SYSTEM DESIGN**

**YEAR / SEM: II /III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C202.1 (CO1)</b>	Simplify Boolean functions using KMap.
<b>C202.2 (CO2)</b>	Design and Analyze Combinational and Sequential Circuits
<b>C202.3 (CO3)</b>	Implement designs using Programmable Logic Devices. Write HDL codes for combinational and sequential circuits.



<b>C202.4 (CO4)</b>	Analyze a memory cell and apply for organizing larger memory.
<b>C202.5 (CO5)</b>	Understand and compare the concepts of programmable logic devices. Develop HDL programs for combinational and sequential circuits

**SUB CODE / SUBJECT NAME: CS8391 - DATA STRUCTURES**

**YEAR / SEM: II /III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C203.1 (CO1)</b>	Implement abstract data types for linear data structures.
<b>C203.2 (CO2)</b>	Apply the different linear and non-linear data structures to problem solutions.
<b>C203.3 (CO3)</b>	Understand basic data structures such as stacks and queues
<b>C203.4 (CO4)</b>	Critically analyze the various sorting algorithms.
<b>C203.5 (CO5)</b>	Describe the hash function and concepts of collision and its resolution methods

**SUB CODE / SUBJECT NAME: CS8392 - OBJECT ORIENTED PROGRAMMING**

**YEAR / SEM: II /III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C204.1 (CO1)</b>	Develop Java programs using OOP principles
<b>C204.2 (CO2)</b>	Develop Java programs with the concepts inheritance and interfaces
<b>C204.3 (CO3)</b>	Build Java applications using exceptions and I/O streams
<b>C204.4</b>	Develop Java applications with threads and generics classes



(CO4)	
C204.5 (CO5)	Develop interactive Java programs using swings

## SUB CODE / SUBJECT NAME: EC8394/ANALOG AND DIGITAL COMMUNICATION

YEAR / SEM: II /III

COURSE CODE	COURSE OUTCOMES
C205.1 (CO1)	Understanding the basics of analog modulation technique
C205.2 (CO2)	Analyze various data and pulse modulation techniques
C205.3 (CO3)	Explain various digital communication schemes
C205.4 (CO4)	Describe various error coding techniques
C205.5 (CO5)	Discuss the concept of multi user radio communication

## SUB CODE / SUBJECT NAME: CS8381 - DATA STRUCTURES LABORATORY

YEAR / SEM: II /III

COURSE CODE	COURSE OUTCOMES
C206.1 (CO1)	Write functions to implement linear and non-linear data structure operations
C206.2 (CO2)	Suggest appropriate linear / non-linear data structure operations for solving a given problem
C206.3 (CO3)	Appropriately use the linear / non-linear data structure operations for a given problem



<b>C206.4</b> <b>(CO4)</b>	Apply appropriate hash functions that result in a collision free scenario for data storage and retrieval
<b>C206.5</b> <b>(CO5)</b>	Develop programming skills which require to solve given problem.

## **SUB CODE / SUBJECT NAME: CS8383 - OBJECT ORIENTED PROGRAMMING LABORATORY**

**YEAR / SEM: II / III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C207.1</b> <b>(CO1)</b>	Develop and implement Java programs for simple applications that make use of classes, packages and interfaces.
<b>C207.2</b> <b>(CO2)</b>	Develop and implement Java programs with array list and Strings
<b>C207.3</b> <b>(CO3)</b>	Develop and implement Java programs with exception handling and multithreading
<b>C207.4</b> <b>(CO4)</b>	Design applications using file processing and generic programming.
<b>C207.5</b> <b>(CO5)</b>	Develop applications using event handling with AWT and SWING.

## **SUB CODE / SUBJECT NAME: CS8382 - DIGITAL SYSTEMS LABORATORY**

**YEAR / SEM: II / III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C208.1</b> <b>(CO1)</b>	Implement simplified combinational circuits using basic logic gates
<b>C208.2</b> <b>(CO2)</b>	Implement combinational circuits using MSI devices





<b>C208.3</b> <b>(CO3)</b>	Implement sequential circuits like registers and counters
<b>C208.4</b> <b>(CO4)</b>	Simulate combinational and sequential circuits using HDL
<b>C208.5</b> <b>(CO5)</b>	Implement all the circuits and in counters

**SUB CODE / SUBJECT NAME: HS8381 - INTERPERSONAL SKILLS/LISTENING & SPEAKING**

**YEAR / SEM: II /III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C209.1</b> <b>(CO1)</b>	Listen and respond appropriately.
<b>C209.2</b> <b>(CO2)</b>	Participate in group discussions
<b>C209.3</b> <b>(CO3)</b>	Make effective presentations
<b>C209.4</b> <b>(CO4)</b>	Participate confidently and appropriately in conversations both formal and informal
<b>C209.5</b> <b>(CO5)</b>	Improve general and academic listening skills



## SEMESTER IV

**SUB CODE / SUBJECT NAME: MA8391 - PROBABILITY AND STATISTICS**

**YEAR / SEM: II /IV**

COURSE CODE	COURSE OUTCOMES
C210.1 (CO1)	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon
C210.2 (CO2)	Understand the basic concepts of one and two dimensional random variables and apply in real life applications
C210.3 (CO3)	Understand the concept of testing of hypothesis for small and large samples in real life problems.
C210.4 (CO4)	Understand the basic concepts of classifications of design of experiments in the field of agriculture and statistical quality control.
C210.5 (CO5)	Understand the notion of sampling distributions and statistical techniques used in engineering and real life problems

**SUB CODE / SUBJECT NAME: CS8491 - COMPUTER ARCHITECTURE**

**YEAR / SEM: II /IV**

COURSE CODE	COURSE OUTCOMES
C211.1 (CO1)	Understand the basics structure of computers, operations and instructions.
C211.2 (CO2)	Design arithmetic and logic unit.
C211.3 (CO3)	Understand pipelined execution and design control unit.
C211.4 (CO4)	Understand parallel processing architectures.



<b>C211.5 (CO5)</b>	Understand the various memory systems and I/O communication
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## **SUB CODE / SUBJECT NAME: CS8492 - DATABASE MANAGEMENT SYSTEMS**

**YEAR / SEM: II /IV**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C212.1 (CO1)</b>	Classify the modern and futuristic database applications based on size and complexity
<b>C212.2 (CO2)</b>	Map ER model to Relational model to perform database design effectively.
<b>C212.3 (CO3)</b>	Write queries using normalization criteria and optimize queries
<b>C212.4 (CO4)</b>	Compare and contrast various indexing strategies in different database systems
<b>C212.5 (CO5)</b>	Appraise how advanced databases differ from traditional databases.

## **SUB CODE / SUBJECT NAME: CS8451 - DESIGN AND ANALYSIS OF ALGORITHMS**

**YEAR / SEM: II /IV**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C213.1 (CO1)</b>	Analyze the time and space complexity of algorithms
<b>C213.2 (CO2)</b>	Critically analyze the different algorithm design techniques for a given problem
<b>C213.3 (CO3)</b>	Design algorithms for various computing problems.
<b>C213.4 (CO4)</b>	Design limitations of algorithms in problem solving
<b>C213.5</b>	Modify existing algorithms to improve efficiency.



(CO5)

## SUB CODE / SUBJECT NAME: CS8493 - OPERATING SYSTEMS

YEAR / SEM: II /IV

COURSE CODE	COURSE OUTCOMES
C214.1 (CO1)	Analyze various scheduling algorithms.
C214.2 (CO2)	Understand deadlock, prevention and avoidance algorithms.
C214.3 (CO3)	Compare and contrast various memory management schemes.
C214.4 (CO4)	Understand the functionality of file systems.
C214.5 (CO5)	Perform administrative tasks on Linux Servers. Compare iOS and Android Operating Systems.

## SUB CODE / SUBJECT NAME: GE8291 – ENVIRONMENTAL SCIENCE AND ENGINEERING

YEAR / SEM: II /IV

COURSE CODE	COURSE OUTCOMES
C215.1 (CO1)	To interpret the relationship between living organisms and the environment and to identify the threats to global biodiversity
C215.2 (CO2)	To identify and prevent the problems related to the pollution of air, water, soil, marine, etc
C215.3 (CO3)	To understand the importance of natural resources and to conserve it for future generation
C215.4 (CO4)	To analyze the social issues of the environment to be a part of sustainable development



**C215.5  
(CO5)**

To create awareness and sustainable population growth and know the contribution of information technology in environmental management

## **SUB CODE / SUBJECT NAME: CS8481 - DATABASE MANAGEMENT SYSTEMS LABORATORY**

**YEAR / SEM: II /IV**

COURSE CODE	COURSE OUTCOMES
<b>C216.1 (CO1)</b>	Use typical data definitions and manipulation commands.
<b>C216.2 (CO2)</b>	Design applications to test Nested and Join Queries
<b>C216.3 (CO3)</b>	Implement simple applications that use Views
<b>C216.4 (CO4)</b>	Implement applications that require a Front-end Tool
<b>C216.5 (CO5)</b>	Critically analyze the use of Tables, Views, Functions and Procedures

## **SUB CODE / SUBJECT NAME: CS8461- OPERATING SYSTEMS LABORATORY**

**YEAR / SEM: II /IV**

COURSE CODE	COURSE OUTCOMES
<b>C217.1 (CO1)</b>	Compare the performance of various CPU Scheduling Algorithms
<b>C217.2 (CO2)</b>	Implement Deadlock avoidance and Detection Algorithms
<b>C217.3 (CO3)</b>	Implement Semaphores, Create processes and implement IPC
<b>C217.4 (CO4)</b>	Analyze the performance of the various Page Replacement Algorithms



<b>C217.5 (CO5)</b>	Implement File Organization and File Allocation Strategies
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**SUB CODE / SUBJECT NAME: HS8461 - ADVANCED READING AND WRITING**

**YEAR / SEM: II /IV**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C218.1 (CO1)</b>	Write different types of essays.
<b>C218.2 (CO2)</b>	Write winning job applications.
<b>C218.3 (CO3)</b>	Read and evaluate texts critically
<b>C218.4 (CO4)</b>	Display critical thinking in various professional contexts.
<b>C218.5 (CO5)</b>	Extend Reading and writing Competence and language accuracy for the range of employment purpose

## **SEMESTER V**

**SUB CODE / SUBJECT NAME: MA8551- ALGEBRA AND NUMBER THEORY**

**YEAR / SEM: III /V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C301.1 (CO1)</b>	Apply the basic notions of groups, rings, fields which will then be used to solve related problems.
<b>C301.2 (CO2)</b>	Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.
<b>C301.3 (CO3)</b>	Demonstrate accurate and efficient use of advanced algebraic techniques.



<b>C301.4 (CO4)</b>	Demonstrate their mastery by solving non - trivial problems related to the concepts, and by proving simple theorems about the, statements proven by the text.
<b>C301.5 (CO5)</b>	Apply integrated approach to number theory and abstract algebra, and provide a firm basis for further reading and study in the subject.

**SUB CODE / SUBJECT NAME: CS8591- COMPUTER NETWORKS**

**YEAR / SEM: III / V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C302.1 (CO1)</b>	Understand the basic layers and its functions in computer networks.
<b>C302.2 (CO2)</b>	Evaluate the performance of a network. Understand the basics of how data flows from one node to another.
<b>C302.3 (CO3)</b>	Analyze and design routing algorithms.
<b>C302.4 (CO4)</b>	Design protocols for various functions in the network.
<b>C302.5 (CO5)</b>	Understand the working of various application layer protocols.

**SUB CODE / SUBJECT NAME: EC8691 - MICROPROCESSORS AND MICROCONTROLLERS**

**YEAR / SEM: III / V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C303.1 (CO1)</b>	Acquire the basic knowledge in 8086
<b>C303.2 (CO2)</b>	Write the assembly language programs using 8086
<b>C303.3 (CO3)</b>	Understand the basic knowledge in 8051 microcontroller
<b>C303.4 (CO4)</b>	understand the interfacing and importance of interfacing



<b>C303.5 (CO5)</b>	Develop the microcontroller based application
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## **SUB CODE / SUBJECT NAME: IT8501/WEB TECHNOLOGY**

**YEAR / SEM: III /V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C304.1 (CO1)</b>	Learn the basic concepts for web page creation
<b>C304.2 (CO2)</b>	Understand the concepts of dynamic web page creation and its validation.
<b>C304.3 (CO3)</b>	Create a database and connect the database with an application
<b>C304.4 (CO4)</b>	Analyze and validate web data in web page and web services
<b>C304.5 (CO5)</b>	Create Web applications and web services using client side and server side programming

## **SUB CODE / SUBJECT NAME: CS8494 - SOFTWARE ENGINEERING**

**YEAR / SEM: III /V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C305.1 (CO1)</b>	Identify the key activities in managing a software project.
<b>C305.2 (CO2)</b>	Compare different process models
<b>C305.3 (CO3)</b>	Concepts of requirements engineering and Analysis Modeling.





<b>C305.4</b> <b>(CO4)</b>	Apply systematic procedure for software design and deployment.
<b>C305.5</b> <b>(CO5)</b>	Compare and contrast the various testing and maintenance, Manage project schedule, estimate project cost and effort required.

**SUB CODE / SUBJECT NAME: EC8681 - MICROPROCESSORS AND MICROCONTROLLERS LABORATORY**  
**YEAR / SEM: III / V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C306.1</b> <b>(CO1)</b>	Write ALP Programmes for fixed and Floating Point and Arithmetic operations
<b>C306.2</b> <b>(CO2)</b>	Interface different I/Os with processor
<b>C306.3</b> <b>(CO3)</b>	Generate waveforms using Microprocessors
<b>C306.4</b> <b>(CO4)</b>	Execute Programs in 8051
<b>C306.5</b> <b>(CO5)</b>	Explain the difference between simulator and Emulator

**SUB CODE / SUBJECT NAME: AIR POLLUTION AND CONTROL ENGINEERING (Professional Elective I)**  
**YEAR / SEM: III / V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C307.1</b> <b>(CO1)</b>	Able to understand nature and characteristics of noise & air pollution.
<b>C307.2</b> <b>(CO2)</b>	Able to understand concepts of air quality Management.



<b>C307.3</b> <b>(CO3)</b>	Able to import knowledge to solve air & noise pollution problems.
<b>C307.4</b> <b>(CO4)</b>	Able to select control equipments for pollution problems.
<b>C307.5</b> <b>(CO5)</b>	Ability to ensure quality, control and preventive measures.

**SUB CODE / SUBJECT NAME: PRODUCT DESIGN AND DEVELOPMENT(Professional Elective I)**

**YEAR / SEM: III / V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C308.1</b> <b>(CO1)</b>	Design some products for the given set of applications
<b>C308.2</b> <b>(CO2)</b>	Also the knowledge gained through developing prototypes will help the student to make a prototype of a problem and hence product design and development can be achieved.
<b>C308.3</b> <b>(CO3)</b>	Design the products with aesthetics and ergonomics
<b>C308.4</b> <b>(CO4)</b>	Design the automated manufacturing systems including machine layout
<b>C308.5</b> <b>(CO5)</b>	Understand the concepts of cost reduction in comparison with competitors products.

**SUB CODE / SUBJECT NAME: IT8511 – WEB TECHNOLOGY LABORATORY**

**YEAR / SEM: III / V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C309.1</b> <b>(CO1)</b>	Design simple web pages using markup languages like HTML and XHTML.
<b>C309.2</b> <b>(CO2)</b>	Create dynamic web pages using DHTML and java script that is easy to navigate and use.



<b>C309.3</b> <b>(CO3)</b>	Program server side web pages that have to process request from client side web pages.
<b>C309.4</b> <b>(CO4)</b>	Represent web data using XML and develop web pages using JSP.
<b>C309.5</b> <b>(CO5)</b>	Understand various web services and how these web services interact.

## **SUB CODE / SUBJECT NAME: CS8581 - NETWORKS LABORATORY**

**YEAR / SEM: III /V**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C310.1</b> <b>(CO1)</b>	Implement various protocols using TCP and UDP.
<b>C310.2</b> <b>(CO2)</b>	Compare the performance of different transport layer protocols.
<b>C310.3</b> <b>(CO3)</b>	Use simulation tools to analyze the performance of various network protocols.
<b>C310.4</b> <b>(CO4)</b>	Analyze various routing algorithms.
<b>C310.5</b> <b>(CO5)</b>	Implement error correction codes

## **SEMESTER VI**

## **SUB CODE / SUBJECT NAME: IT8601- COMPUTATIONAL INTELLIGENCE**

**YEAR / SEM: III /VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C311.1</b> <b>(CO1)</b>	Provide a strong foundation on fundamental concepts in Computational Intelligence.
<b>C311.2</b> <b>(CO2)</b>	Understand Problem-solving through various searching techniques.



<b>C311.3</b> <b>(C03)</b>	Understand uncertainty via fuzzy logic, temporal logic and neural networks
<b>C311.4</b> <b>(C04)</b>	Apply Computational Intelligence techniques primarily for machine learning.
<b>C311.5</b> <b>(C05)</b>	Apply Computational Intelligence techniques for information retrieval and NLP.

**SUB CODE / SUBJECT NAME: CS8592 - OBJECT ORIENTED ANALYSIS AND DESIGN**

**YEAR / SEM: III /VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C312.1</b> <b>(C01)</b>	Express software design with UML diagrams
<b>C312.2</b> <b>(C02)</b>	Design software applications using OO concepts.
<b>C312.3</b> <b>(C03)</b>	Identify various scenarios based on software requirements
<b>C312.4</b> <b>(C04)</b>	Transform UML based software design into pattern based design using design patterns
<b>C312.5</b> <b>(C05)</b>	Understand the various testing methodologies for OO software

**SUB CODE / SUBJECT NAME: IT8602 - MOBILE COMMUNICATION**

**YEAR / SEM: III /VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C313.1</b> <b>(C01)</b>	Explain the basics of mobile telecommunication system



<b>C313.2</b> <b>(CO2)</b>	Illustrate the generations of telecommunication systems in wireless network
<b>C313.3</b> <b>(CO3)</b>	Understand the architecture of Wireless LAN technologies
<b>C313.4</b> <b>(CO4)</b>	Determine the functionality of network layer and Identify a routing protocol for a given Ad hoc networks
<b>C313.5</b> <b>(CO5)</b>	Comprehend the functionalities of Mobile transport and application layer protocols

## **SUB CODE / SUBJECT NAME: CS8091-BIG DATA ANALYTICS**

**YEAR / SEM: III /VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C314.1</b> <b>(CO1)</b>	To understand and analyze big data tools and techniques
<b>C314.2</b> <b>(CO2)</b>	To analyze and apply classification and clustering algorithm
<b>C314.3</b> <b>(CO3)</b>	Apply different mining algorithms and evaluate recommendation systems for large volumes of data
<b>C314.4</b> <b>(CO4)</b>	To understand analytics on data stream
<b>C314.5</b> <b>(CO5)</b>	Learn and create No SQL database and management

## **SUB CODE / SUBJECT NAME: CS8092-COMPUTER GRAPHICS AND MULTIMEDIA**

**YEAR / SEM: III /VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C315.1</b> <b>(CO1)</b>	To appreciate illumination and color models and familiar with understand clipping techniques



<b>C315.2 (CO1)</b>	Effectively and creatively solve 2D graphic design problems
<b>C315.3 (CO1)</b>	Effectively and creatively solve 3D graphic design problems
<b>C315.4 (CO1)</b>	Use various software programs used in the creation and implementation of multi-media
<b>C315.5 (CO1)</b>	Discuss issues related to emerging electronic technologies and graphic design, Effectively and creatively solve a wide range of graphic design problems. To become familiar with Blender Graphics

**SUB CODE / SUBJECT NAME: OCY751 - WASTEWATER TREATMENT (Open Elective II)**

**YEAR / SEM: III / VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C316.1 (CO1)</b>	Will have knowledge about adsorption and oxidation process.
<b>C316.2 (CO2)</b>	Will gain idea about various methods available for water treatment
<b>C316.3 (CO3)</b>	Will appreciate the necessity of water and acquire knowledge of preliminary treatment.
<b>C316.4 (CO4)</b>	Will gain idea about waste water and its characteristics.
<b>C316.5 (CO5)</b>	Will acquire knowledge about the necessity of waste water treatment.

**SUB CODE / SUBJECT NAME: CS8582 - OBJECT ORIENTED ANALYSIS AND DESIGN LABORATORY**  
**YEAR / SEM: III / VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C317.1 (CO1)</b>	To capture the requirements specification for an intended software system



<b>C317.2</b> <b>(CO2)</b>	To draw the UML diagrams for the given specification
<b>C317.3</b> <b>(CO3)</b>	To map the design properly to code
<b>C317.4</b> <b>(CO4)</b>	To test the software system thoroughly for all scenarios
<b>C317.5</b> <b>(CO5)</b>	To improve the design by applying appropriate design patterns.

**SUB CODE / SUBJECT NAME: CS8662 - MOBILE APPLICATION DEVELOPMENT LABORATORY**  
**YEAR / SEM: III / VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C318.1</b> <b>(CO1)</b>	Develop mobile applications using GUI and Layouts.
<b>C318.2</b> <b>(CO2)</b>	Develop mobile applications using Event Listener.
<b>C318.3</b> <b>(CO3)</b>	Develop mobile applications using Databases
<b>C318.4</b> <b>(CO4)</b>	Develop mobile applications using RSS Feed, Internal/External Storage, SMS, Multi- threading and GPS.
<b>C318.5</b> <b>(CO5)</b>	Analyze and discover own mobile app for simple needs.

**SUB CODE / SUBJECT NAME: IT8611 - MINI PROJECT**  
**YEAR / SEM: III / VI**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C319.1</b> <b>(CO1)</b>	Comprehend and identify an industrial or real life problem with a solution.
<b>C319.2</b> <b>(CO2)</b>	Execute a proper methodology in problem solving.



<b>C319.3 (CO3)</b>	Review the literature and design a setup of equipment and complete the analysis.
<b>C319.4 (CO4)</b>	Write a project report based on the findings.
<b>C319.5 (CO5)</b>	Demonstrate an ability to present and defend their work to a panel of experts.

## SEMESTER VII

### SUB CODE / SUBJECT NAME: MG8591- PRINCIPLES OF MANAGEMENT

#### YEAR / SEM: IV /VII

COURSE CODE	COURSE OUTCOMES
<b>C401.1 (CO1)</b>	Upon completion of the course, students will be able to have clear understanding of managerial functions like planning, organizing, staffing, leading & controlling and have same basic knowledge on international aspect of management
<b>C401.2 (CO2)</b>	To understand the planning process in the organization
<b>C401.3 (CO3)</b>	To understand the concept of organization
<b>C401.4 (CO4)</b>	Demonstrate the ability to directing ,leadership and communicate effectively
<b>C401.5 (CO5)</b>	To analysis isolate issues and formulate best control methods

### SUB CODE / SUBJECT NAME: CS8792 - CRYPTOGRAPHY AND NETWORK SECURITY

#### YEAR / SEM: IV /VII

COURSE CODE	COURSE OUTCOMES
<b>C402.1 (CO1)</b>	Understand the fundamentals of networks security, security architecture, threats and vulnerabilities





<b>C402.2</b> <b>(CO2)</b>	Apply the different cryptographic operations of symmetric cryptographic algorithms
<b>C402.3</b> <b>(CO3)</b>	Apply the different cryptographic operations of public key cryptography
<b>C402.4</b> <b>(CO4)</b>	Apply the various Authentication schemes to simulate different applications.
<b>C402.5</b> <b>(CO5)</b>	Understand various Security practices and System security standards

**SUB CODE / SUBJECT NAME: CS8791 - CLOUD COMPUTING**

**YEAR / SEM: IV / VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C403.1</b> <b>(CO1)</b>	Articulate the main concepts, key technologies, strengths and limitations of cloud computing.
<b>C403.2</b> <b>(CO2)</b>	Learn the key and enabling technologies that help in the development of cloud.
<b>C403.3</b> <b>(CO3)</b>	Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models.
<b>C403.4</b> <b>(CO4)</b>	Explain the core issues of cloud computing such as resource management and security.
<b>C403.5</b> <b>(CO5)</b>	Be able to install and use current cloud technologies.

**SUB CODE / SUBJECT NAME: OCE751 - ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (Open Elective II)** **YEAR / SEM: IV / VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
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<b>C404.1 (CO1)</b>	Carry out scoping and screening of developmental projects for environmental and social assessments.
<b>C404.2 (CO2)</b>	Explain different methodologies for environmental impact prediction and assessment.
<b>C404.3 (CO3)</b>	Plan environmental impact assessments and environmental management plans.
<b>C404.4 (CO4)</b>	Evaluate environmental impact assessment reports.
<b>C404.5 (CO5)</b>	To plan baseline monitoring for projects and mitigation measures of the same.

**SUB CODE / SUBJECT NAME: IT8075 - SOFTWARE PROJECT MANAGEMENT (Professional Elective II)** **YEAR/ SEM: IV /VII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C405.1 (CO1)</b>	Understand Project Management principles while developing software.
<b>C405.2 (CO2)</b>	Gain extensive knowledge about the basic project management concepts, framework and the process models.
<b>C405.3 (CO3)</b>	Obtain adequate knowledge about software process models and software effort estimation techniques
<b>C405.4 (CO4)</b>	Estimate the risks involved in various project activities.
<b>C405.5 (CO5)</b>	Define the checkpoints, project reporting structure, project progress and tracking mechanisms using project management principles.



## SUB CODE / SUBJECT NAME: SERVICE ORIENTED ARCHITECTURE (Professional Elective II)

YEAR / SEM: IV /VII

COURSE CODE	COURSE OUTCOMES
C406.1 (CO1)	The student would be able to apply the tools and techniques of quality management to manufacturing and services processes.
C406.2 (CO2)	Evaluate the principles of quality management and to explain how these principles can be applied within quality management systems.
C406.3 (CO3)	Identify the key aspects of the quality improvement cycle and to select and use appropriate tools and techniques for controlling, improving and measuring quality.
C406.4 (CO4)	Critically appraise the organizational, communication and teamwork requirements for effective quality management.
C406.5 (CO5)	Critically analyse the strategic issues in quality management, including current issues and developments, and to devise and evaluate quality implementation plans.

## SUB CODE / SUBJECT NAME: CS8079 - HUMAN COMPUTER INTERACTION (PE - III)

YEAR / SEM: IV /VII

COURSE CODE	COURSE OUTCOMES
C407.1 (CO1)	Design effective dialog for HCI
C407.2 (CO2)	Design effective HCI for individuals and persons with disabilities.
C407.3 (CO3)	Assess the importance of user feedback.
C407.4 (CO4)	Explain the HCI implications for designing multimedia/ ecommerce/ e-learning Websites.
C407.5 (CO5)	Develop meaningful user interfaces.



## SUB CODE / SUBJECT NAME: IT8711 –FOSS & CLOUD COMPUTING LABORATORY

YEAR / SEM: IV /VII

COURSE CODE	COURSE OUTCOMES
C408.1 (CO1)	Configure various virtualization tools such as Virtual Box, VMware workstation.
C408.2 (CO2)	Design and deploy a web application in a PaaS environment.
C408.3 (CO3)	Learn how to simulate a cloud environment to implement new schedulers.
C408.4 (CO4)	Install and use a generic cloud environment that can be used as a private cloud.
C408.5 (CO5)	Manipulate large data sets in a parallel environment.

## SUB CODE / SUBJECT NAME: IT8761 - SECURITY LABORATORY

YEAR / SEM: IV /VII

COURSE CODE	COURSE OUTCOMES
C409.1 (CO1)	Develop code for classical Encryption Techniques to solve the problems.
C409.2 (CO2)	Build cryptosystems by applying symmetric and public key encryption algorithms.
C409.3 (CO3)	Construct code for authentication algorithms.
C409.4 (CO4)	Develop a signature scheme using Digital signature standard.
C409.5 (CO5)	Demonstrate the network security system using open source tools



## SEMESTER VIII

**SUB CODE / SUBJECT NAME: CS8074 - CYBER FORENSICS (Professional Elective IV)**

**YEAR / SEM: IV /VIII**

COURSE CODE	COURSE OUTCOMES
C410.1 (CO1)	Understand the basics of computer forensics
C410.2 (CO2)	Apply a number of different computer forensic tools to a given scenario
C410.3 (CO3)	Analyze and validate forensics data
C410.4 (CO4)	Identify the vulnerabilities in a given network infrastructure
C410.5 (CO5)	Implement real-world hacking techniques to test system security

**SUB CODE / SUBJECT NAME: GE8076 - PROFESSIONAL ETHICS IN ENGINEERING (Professional Elective IV)**

**YEAR / SEM: IV /VIII**

COURSE CODE	COURSE OUTCOMES
C411.1 (CO1)	Able to apply ethics in society, discuss the ethical issues related to engineering and realize the responsibilities and rights in the society.
C411.2 (CO2)	Understand the core values that shape the ethical behavior of an engineer and Exposed awareness on professional ethics and human values
C411.3 (CO3)	Understand the basic perception of profession, professional ethics, various moral issues & uses of ethical theories
C411.4 (CO4)	Understand various social issues, industrial standards, code of ethics and role of professional ethics in engineering field.



<b>C411.5 (CO5)</b>	Aware of responsibilities of an engineer for safety and risk benefit analysis, professional rights and responsibilities of an engineer and apply ethical principles to resolve situations that arise in their professional lives.
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**SUB CODE / SUBJECT NAME: WEB DESIGN AND DEVELOPMENT (Professional Elective V)  
YEAR / SEM: IV / VIII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C412.1 (CO1)</b>	Design Website using HTML CSS and JS
<b>C412.2 (CO2)</b>	Design Responsive Sites
<b>C412.3 (CO3)</b>	Manage Web Apps
<b>C412.4 (CO4)</b>	Maintain Web Apps
<b>C412.5 (CO5)</b>	Support Web Apps

**SUB CODE / SUBJECT NAME: E-COMMERCE (Professional Elective V) YEAR / SEM: IV / VIII**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C413.1 (CO1)</b>	Design Website using HTML CSS and JS
<b>C413.2 (CO2)</b>	Design Responsive Sites
<b>C413.3 (CO3)</b>	Manage Web Apps
<b>C413.4 (CO4)</b>	Maintain Web Apps



<b>C413.5 (CO5)</b>	Support Web Apps
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## SUB CODE / SUBJECT NAME: IT8811 - PROJECT WORK

YEAR / SEM: IV /VIII

COURSE CODE	COURSE OUTCOMES
<b>C414.1 (CO1)</b>	Comprehend and identify an industrial or real life problem with solution.
<b>C414.2 (CO2)</b>	Execute a proper methodology in problem solving.
<b>C414.3 (CO3)</b>	Review the literature and design a setup of equipment and complete the analysis.
<b>C414.4 (CO4)</b>	Write a project report based on the findings.
<b>C414.5 (CO5)</b>	Demonstrate an ability to present and defend their work to a panel of experts.

## DEPARTMENT OF MECHNICAL ENGINEERING

## SUB CODE / SUBJECT NAME: HS8151/ COMMUNICATIVE ENGLISH

YEAR / SEM: I/I

COURS E CODE	COURSE OUTCOMES
<b>C101.1 (CO1)</b>	Define the fundamentals of engineering after learning the rules of English Grammar.
<b>C101.2 (CO2)</b>	Read articles of the general kind in magazines and newspapers.
<b>C101.3 (CO3)</b>	Participate effectively in informal conversations; introduce themselves and their friends and express opinions in English.
<b>C101.4 (CO4)</b>	Comprehend conversations and short talks delivered in English.



<b>C101.5</b> <b>(CO5)</b>	Write short essays of the general kind and personal letters and e-mails in English.
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**SUB CODE / SUBJECT NAME: MA8151/ ENGINEERING MATHEMATICS - I      YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
<b>C102.1</b> <b>(CO1)</b>	Use both the limit definition and rules of differentiation to differentiate functions.
<b>C102.2</b> <b>(CO2)</b>	Apply differentiation to solve maxima and minima problems.
<b>C102.3</b> <b>(CO3)</b>	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.
<b>C102.4</b> <b>(CO4)</b>	Apply various techniques in solving differential equations.
<b>C102.5</b> <b>(CO5)</b>	To study how differential equation, help to solve real time problems.

**SUB CODE / SUBJECT NAME: PH8151/ ENGINEERING PHYSICS      YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
<b>C103.1</b> <b>(CO1)</b>	To understand the basic concepts of elastic behavior of materials and evaluate the structural stability of beams.
<b>C103.2</b> <b>(CO2)</b>	To understand the behavior of different oscillatory wave motion and the concept of LASER action, also discuss about the propagation of light in optical fibers, comparing various types of fibers and its applications in Medical and Engineering fields.
<b>C103.3</b> <b>(CO3)</b>	Remembering functional ideas of thermal physics and compare the thermal conductivity of different materials to meet the specific needs.
<b>C103.4</b> <b>(CO4)</b>	Describe and analyzing the quantum nature of radiation and matter to solve the real time societal and technological problems.
<b>C103.5</b> <b>(CO5)</b>	To understand the possible crystal structures and to analyze various growth techniques in the view of increasing demand of crystals for various Engineering and Technological





applications.

**SUB CODE / SUBJECT NAME: CY8151/ ENGINEERING CHEMISTRY**

**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C104.1 (CO1)</b>	Analyze boiler troubles with latest technologies and equipment's using external and internal treatment methods.
<b>C104.2 (CO2)</b>	It provides basic knowledge in the field of absorption and catalysis.
<b>C104.3 (CO3)</b>	Knowledge of alloys gives an idea about the manufacturing process in various industries.
<b>C104.4 (CO4)</b>	Analyze issues related to fuels and their synthesis and able to understand working of IC and diesel engines.
<b>C104.5 (CO5)</b>	To understand the principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells.

**SUB CODE / SUBJECT NAME: GE8151/ PROBLEM SOLVING AND PYTHON PROGRAMMING**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C105.1 (CO1)</b>	Develop algorithmic solutions to simple computational problems.
<b>C105.2 (CO2)</b>	Demonstrate programs using simple Python statements and expressions.
<b>C105.3 (CO3)</b>	Explain control flow and functions concept in Python for solving problems.
<b>C105.4 (CO4)</b>	Use Python data structures – lists, tuples & dictionaries for representing compound data.
<b>C105.5 (CO5)</b>	Explain files, exception, modules and packages in Python for solving problems.



## SUB CODE / SUBJECT NAME: GE8152/ ENGINEERING GRAPHICS

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C106.1 (CO1)	How to draw different engineering curves, draw different orthographic projections.
C106.2 (CO2)	Illustrate different views of points, lines and planes inclined to both HP and VP in first quadrant.
C106.3 (CO3)	Develop the projections of simple solids inclined to any one plane
C106.4 (CO4)	Categorize Section and develop various solids
C106.5 (CO5)	Evaluate to Draw 3D projections of simple solids by Perspective by visual ray method and Isometric projections

## SUB CODE / SUBJECT NAME: GE8161/ PROBLEM SOLVING AND PYTHON PROGRAMMING LAB

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C107.1 (CO1)	Develop solutions to simple computational problems using Python programs.
C107.2 (CO2)	Solve problems using conditionals and loops in Python.
C107.3 (CO3)	Develop Python programs by defining functions and calling them.
C107.4 (CO4)	Use Python lists, tuples and dictionaries for representing compound data.
C107.5 (CO5)	Develop Python programs using files.



**SUB CODE / SUBJECT NAME: BS8161/ PHYSICS AND CHEMISTRY LAB**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C108.1 (CO1)</b>	To apply the physics principles of Thermal physics and Properties of Matter to evaluate properties of materials
<b>C108.2 (CO2)</b>	To understand measurement technique and usage of new instrument in Optics for real time application in Engineering
<b>C108.3 (CO3)</b>	Apply the knowledge of semiconducting material, to evaluate the band gap of material useful for engineering solutions.
<b>C108.4 (CO4)</b>	Able to analyze the conductivity of acids and bases and also analyze the quality of water for domestic and industrial purpose
<b>C108.5 (CO5)</b>	Used to find out the emf for different metallic solutions from which electrode potential is determined

**SUB CODE / SUBJECT NAME: HS8251/ TECHNICAL ENGLISH** **YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C110.1 (CO1)</b>	Define the fundamentals of engineering after learning the rules of English Grammar
<b>C110.2 (CO2)</b>	Read technical text and write area-specific text effortlessly.
<b>C110.3 (CO3)</b>	Listen and comprehend lectures and talks in their area of specialization successfully.
<b>C110.4 (CO4)</b>	Speak appropriately and effectively in varied formal and informal contexts.
<b>C110.5 (CO5)</b>	Write reports and winning job applications

**SUB CODE / SUBJECT NAME: MA8251/ENGINEERING MATHEMATICS-II**  
**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
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<b>C111.1 (CO1)</b>	Introduce the concepts of Eigen value and Eigenvectors which help to find the stability of the systems in engineering
<b>C111.2 (CO2)</b>	Define and understand the concepts of vector calculus, needed for finding solutions in all engineering discipline problems.
<b>C111.3 (CO3)</b>	Develop an understanding of the standard techniques of complex variable theory so as to enable the student to apply them with confidence, in application areas such as heat conduction, elasticity, fluid dynamics and flow of the electric current.
<b>C111.4 (CO4)</b>	Evaluate real integrals by applying concept of complex integration
<b>C111.5 (CO5)</b>	Understand and apply the knowledge of Laplace Transforms in solving system of linear differential equations.

**SUB CODE / SUBJECT NAME: PH8251/ MATERIALS SCIENCE;**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C112.1 (CO1)</b>	To analyze the various composition of alloy with respect to temperature to determine the relation between microstructure and properties of material
<b>C112.2 (CO2)</b>	To understand Iron carbon phase diagram and to strengthen the mechanical properties by alloying and by subjecting to thermal treatment
<b>C112.3 (CO3)</b>	To demonstrate various technique involved to test the mechanical properties
<b>C112.4 (CO4)</b>	Understanding the concept of magnetic , dielectric and superconducting properties of materials
<b>C112.5 (CO5)</b>	To understand the properties of new engineering material and its applications.

**SUB CODE / SUBJECT NAME: BE8253/BASIC ELECTRICAL, ELECTRONICS & INSTRUMENTATION ENGINEERING**

**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C113.1 (CO1)</b>	Discuss the essentials of electric DC circuits
<b>C113.2(CO2)</b>	Discuss the essentials of electric AC circuits
<b>C113.3 (CO3)</b>	Discuss the basic operation of electric machines and transformers
<b>C113.4</b>	To understand the fundamentals of electronic circuit constructions



<b>(CO4)</b>	
<b>C113.5</b> <b>(CO5)</b>	Introduction to measurement methods

**SUB CODE / SUBJECT NAME: GE291/ENVIRONMENTAL SCIENCE & ENGINEERING**  
**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C114.1</b> <b>(CO1)</b>	To interpret the relationship between living organisms and the environment and to identify the threats to global biodiversity
<b>C114.2</b> <b>(CO2)</b>	To identify and prevent the problems related to the pollution of air, water, soil, marine, etc
<b>C114.3</b> <b>(CO3)</b>	To understand the importance of natural resources and to conserve it for future generation
<b>C114.4</b> <b>(CO4)</b>	To analyze the social issues of the environment to be a part of sustainable development
<b>C114.5</b> <b>(CO5)</b>	To create awareness and sustainable population growth and know the contribution of information technology in environmental management

**SUB CODE / SUBJECT NAME: GE8292/ENGINEERING MECHANICS** **YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C115.1</b> <b>(CO1)</b>	Analysis the forces acting on the Object under static conditions.
<b>C115.2</b> <b>(CO2)</b>	Explain the rigid bodies under equilibrium condition.
<b>C115.3</b> <b>(CO3)</b>	Identify the surfaces and solids with respect to center of gravity and centroid.
<b>C115.4</b> <b>(CO4)</b>	Examine the forces acting on the object under the dynamic conditions.
<b>C115.5</b> <b>(CO5)</b>	Deduct the rigid bodies under friction force.



**SUB CODE / SUBJECT NAME: GE8261/ENGINEERING PRACTICES LABORATORY**  
**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C116.1 (CO1)</b>	Hands on experience on welding, sheet metal and lathe work
<b>C116.2 (CO2)</b>	Experience the plumbing and carpentry work
<b>C116.3 (CO3)</b>	Demonstration on centrifugal pump and air conditioning working principles
<b>C116.4 (CO4)</b>	Measurement of Electrical quantities, earthing procedures, wiring methods etc
<b>C116.5 (CO5)</b>	Study of Electronic components and equipments – Resistor, colour coding measurement of AC signal parameter, Gates , Circuits etc

**SUB CODE / SUBJECT NAME: BE8261/ BASIC ELECTRICAL, ELECTRONICS & INSTRUMENTATION ENGINEERING LABORATORY**  
**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C117.1 (CO1)</b>	Able to determine the characteristics of different DC machines
<b>C117.2 (CO2)</b>	Able to determine the characteristics of different AC machines
<b>C117.3 (CO3)</b>	Able to use operational amplifiers
<b>C117.4 (CO4)</b>	Able to design simple circuits involving diodes and transistors
<b>C117.5 (CO5)</b>	Able to analysis the different theorems and circuits



**SUB CODE / SUBJECT NAME: MA8353/TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS**  
**YEAR / SEM: II/III**

COURSE CODE	COURSE OUTCOMES
C201.1	Evaluating the various model of homogeneous and non-homogeneous partial differential equations which helps to solve engineering problems.
C201.2	Determine the Fourier coefficients in the Fourier series expansion of a given function and which play a vital role in analysing various complex problems in engineering.
C201.3	Analyzing the one dimensional, two dimensional heat equation and one dimensional wave equation by using the concept of Fourier series, which describes the distribution in a given region over time
C201.4	Determine Fourier transform for a given function and use them to evaluate the definite integrals which helps in analysing the differential equation and also applied in quantum mechanics
C201.5	Determine Z transforms and standard function and use them to solve the difference equation, which helps to investigate the discrete time signals.
C201.6	Understanding of the mathematical principles on transforms and partial differential equation would provide them the ability to formulate and solve the physical problems of engineering

**SUB CODE / SUBJECT NAME: ME8351/ MANUFACTURING TECHNOLOGY – I**  
**YEAR/ SEM: II/III**

COURSE CODE	COURSE OUTCOMES
C202.1	Explain different metal casting processes, associated defects, merits and demerits
C202.2	Compare different metal joining processes.
C202.3	Summarize various hot working and cold working methods of metals.
C202.4	Explain various sheet metal making processes
C202.5	To Learn about Special Forming Processes
C202.6	Distinguish various methods of manufacturing plastic components



**SUB CODE / SUBJECT NAME: ME8391/ENGINEERING THERMODYNAMICS**  
**YEAR / SEM: II/III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
C203.1	Solve first law thermodynamics based types of problems.
C203.2	Solve second law thermodynamics based types of problems.
C203.3	Compare the various types of steam power cycles.
C203.4	Study the thermodynamic relations
C203.5	Analyze the various psychrometry processes.
C203.6	Extend the ideas in implementation of mini/major project

**SUB CODE / SUBJECT NAME: CE8394/ FLUID MECHANICS AND MACHINERY**  
**YEAR / SEM: II/III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
C204.1	To understand the Fluid properties and Fluid characteristics
C204.2	Discuss various losses in fluid flow
C204.3	To solve fluid problems using Dimensional analysis method
C204.4	Discuss the working and performance of different types pumps
C204.5	Discuss the working and performance of different types turbines
C204.6	Analyse fluid systems and solve real time problems

**SUB CODE / SUBJECT NAME: EE8353 / ELECTRICAL DRIVES AND CONTROLS**  
**YEAR / SEM: II/III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
C205.1	Study the fundamental of electrical drives and to select the power rating of drive motors with regard to thermal overloading
C205.2	Compare the different types of electrical machines, their mechanical characteristics and braking methods
C205.3	Explore the different methods of starting D.C motors and induction motors
C205.4	Analyse the conventional and solid state speed control of dc drives and its applications
C205.5	Outline the conventional and solid state speed control of ac drive and its applications
C205.6	Recommend the speed control of the electrical drives and applications essential for them to work in different industries





**SUB CODE / SUBJECT NAME: ME8361/MANUFACTURING TECHNOLOGY LABORATORY – I**  
**YEAR / SEM: II/III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
C206.1	Explain different metal casting processes, associated defects, merits and demerits
C206.2	Compare different metal joining processes.
C206.3	Summarize various hot working and cold working methods of metals.
C206.4	Explain various sheet metal making processes
C206.5	To Learn about Special Forming Processes
C206.6	Distinguish various methods of manufacturing plastic components

**SUB CODE / SUBJECT NAME: ME8381/COMPUTER AIDED MACHINE DRAWING**  
**YEAR / SEM: II/III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
C207.1	Study of capabilities of software for Drafting and Modeling
C207.2	Apply the drafting knowledge in curves and orthographic projection
C207.3	Understand the modelling of solid models
C207.4	Extend the knowledge in plan of residential buildings
C207.5	Draw the sectional view of standard models
C207.6	Adequate knowledge in converting 2D in to 3D

**SUB CODE / SUBJECT NAME: EE8361/ELECTRICAL ENGINEERING LABORATORY**  
**YEAR / SEM: II/III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
C208.1	Describe the performance of load test on dc shunt and series motor, speed control of DC shunt motor and to tabulate the O.C.C and load characteristics of DC shunt and DC series generator
C208.2	Explain the load test, OC and SC test on a single phase transformer
C208.3	Examine the regulation of an alternator by EMF and MMF methods
C208.4	Determine the V curves and inverted V curves of synchronous Motor



C208.5	Predict the load test of 3 phase squirrel cage induction motor and speed control of 3 phase slip ring induction motor
C208.6	Select ac and dc starters for different electrical machines and Justify the speed characteristics

**SUB CODE / SUBJECT NAME: HS8381/ INTERPERSONAL SKILLS / LISTENING & SPEAKING  
YEAR/ SEM: II/III**

COURSE CODE	COURSE OUTCOMES
C209.1	Define appropriate techniques with suitable language and speech pattern
C209.2	Discuss the social issues in the group discussion
C209.3	Apply the acquired skills confidently in interviews
C209.4	Take part in debates and public speaking
C209.5	Prioritize the ideas relevantly and coherently in writing and speaking
C209.6	Develop the skills for writing technical reports and letters

**IV SEMESTER**

**SUB CODE / SUBJECT NAME MA8452/ STATISTICS AND NUMERICAL METHODS  
YEAR/ SEM: II/III**

COURSE CODE	COURSE OUTCOMES
C210.1	Apply the concept of testing of hypothesis for small and large samples in real life problems.
C210.2	Apply the basic concepts of classifications of design of experiments in the field of agriculture.
C210.3	Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.
C210.4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.
C210.5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications



## ME8492

### KINEMATICS OF MACHINERY

COURSE CODE	COURSE OUTCOMES
C211.1	Discuss the basics of mechanism
C211.2	Calculate velocity and acceleration in simple mechanisms
C211.3	Develop CAM profiles
C211.4	Solve problems on gears and gear trains
C211.5	Examine friction in machine elements

## ME8451

### MANUFACTURING TECHNOLOGY – II

COURSE CODE	COURSE OUTCOMES
C212.1	Explain the mechanism of material removal processes.
C212.2	Describe the constructional and operational features of centre lathe and other special purpose lathes.
C212.3	Describe the constructional and operational features of shaper, planner, milling, drilling, sawing and broaching machines.
C212.4	Explain the types of grinding and other super finishing processes apart from gear manufacturing processes.
C212.5	Summarize numerical control of machine tools and write a part program.

## ME8491

### ENGINEERING METALLURGY

COURSE CODE	COURSE OUTCOMES
C213.1	Explain alloys and phase diagram, Iron-Iron carbon diagram and steel classification.
C213.2	Explain isothermal transformation, continuous cooling diagrams and different heat treatment processes.
C213.3	Clarify the effect of alloying elements on ferrous and non-ferrous metals
C213.4	Summarize the properties and applications of non metallic materials.
C213.5	Explain the testing of mechanical properties. .



## CE8395

## STRENGTH OF MATERIALS FOR MECHANICAL ENGINEERS

COURSE CODE	COURSE OUTCOMES
C214.1	Understand the concepts of stress and strain in simple and compound bars, the importance of principal stresses and principal planes.
C214.2	Understand the load transferring mechanism in beams and stress distribution due to shearing force and bending moment.
C214.3	Apply basic equation of simple torsion in designing of shafts and helical spring
C214.4	Calculate the slope and deflection in beams using different methods.
C214.5	Analyze and design thin and thick shells for the applied internal and external pressures.

## ME8493

## THERMAL ENGINEERING- I

COURSE CODE	COURSE OUTCOMES
C215.1	Apply thermodynamic concepts to different air standard cycles and solve problems.
C215.2	Solve problems in single stage and multistage air compressors
C215.3	Explain the functioning and features of IC engines, components and auxiliaries.
C215.4	Calculate performance parameters of IC Engines.
C215.5	Explain the flow in Gas turbines and solve problems.

## ME8462

## MANUFACTURING TECHNOLOGY LABORATORY – II

COURSE CODE	COURSE OUTCOMES
C216.1	use different machine tools to manufacturing gears
C216.2	Ability to use different machine tools to manufacturing gears.
C216.3	Ability to use different machine tools for finishing operations
C216.4	Ability to manufacture tools using cutter grinder
C216.5	Develop CNC part programming



## CE8381 STRENGTH OF MATERIALS AND FLUID MECHANICS AND MACHINERY LABORATORY

COURSE CODE	COURSE OUTCOMES
C217.1	Perform Tension test on Solid materials.
C217.2	Perform Torsion, Hardness test on Solid materials.
C217.3	Perform Compression test on Solid materials.
C217.4	Perform Deformation test on Solid materials.
C217.5	Use the measurement equipment's for flow measurement.

## HS8461 ADVANCED READING AND WRITING

COURSE CODE	COURSE OUTCOMES
C218.1	Write different types of essays.
C218.2	Write winning job applications.
C218.3	Read and evaluate texts critically.
C218.4	Display critical thinking in various professional contexts.
C218.5	Prioritize the ideas relevantly and coherently in writing and speaking
C218.6	Develop the skills for writing technical reports and letters

## V SEMESTER

ME8595

Thermal Engineering- II

COURSE CODE	COURSE OUTCOMES
C301.1	Solve problems in Steam Nozzle
C301.2	Explain the functioning and features of different types of Boilers and auxiliaries and calculate performance parameters.
C301.3	Explain the flow in steam turbines, draw velocity diagrams for steam turbines and solve problems.
C301.4	Summarize the concept of Cogeneration, Working features of Heat pumps and Heat exchangers
C301.5	Solve problems using refrigerant table / charts and psychrometric charts



ME8593

## Design of Machine Elements

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
C302.1	Explain the influence of steady and variable stresses in machine component design.
C302.2	Apply the concepts of design to shafts, keys and couplings.
C302.3	Apply the concepts of design to temporary and permanent joints.
C302.4	Apply the concepts of design to energy absorbing members, connecting rod and crank shaft.
C302.5	Apply the concepts of design to bearings.
C302.6	Distinguish various methods of manufacturing plastic components

ME8501

## Metrology and Measurements

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
C303.1	Describe the concepts of measurements to apply in various metrological instruments
C303.2	Outline the principles of linear and angular measurement tools used for industrial applications
C303.3	Explain the procedure for conducting computer aided inspection
C303.4	Demonstrate the techniques of form measurement used for industrial components
C303.5	Discuss various measuring techniques of mechanical properties in industrial applications
C303.6	Extend the ideas in implementation of mini/major project

ME8594

## Dynamics of Machines

<b>Course Code</b>	<b>COURSE OUTCOMES</b>
C304.1	Calculate static and dynamic forces of mechanisms.
C304.2	Calculate the balancing masses and their locations of reciprocating and rotating masses.
C304.3	Compute the frequency of free vibration.
C304.4	Compute the frequency of forced vibration and damping coefficient.
C304.5	Calculate the speed and lift of the governor and estimate the gyroscopic effect on automobiles, ships and airplanes.
C304.6	Analyse fluid systems and solve real time problems



ME8511

Kinematics and Dynamics Laboratory

Course Code	<b>COURSE OUTCOMES</b>
C305.1	Explain gear parameters, kinematics of mechanisms
C305.2	Explain gyroscopic effect and working of lab equipments.
C305.3	Determine mass moment of inertia of mechanical element
C305.4	Determine governor effort and range sensitivity
C305.5	Determine natural frequency and damping coefficient
C305.6	Determine torsional frequency, critical speeds of shafts, balancing mass of rotating and reciprocating masses, and transmissibility ratio.

ME8511

Kinematics and Dynamics Laboratory

Course Code	<b>COURSE OUTCOMES</b>
C305.1	Explain gear parameters, kinematics of mechanisms
C305.2	Explain gyroscopic effect and working of lab equipment.
C305.3	Determine mass moment of inertia of mechanical element
C305.4	Determine governor effort and range sensitivity
C305.5	Determine natural frequency and damping coefficient
C305.6	Determine torsional frequency, critical speeds of shafts, balancing mass of rotating and Reciprocating masses, and transmissibility ratio.



ME8512 Thermal Engineering Laboratory

Course Code	COURSE OUTCOMES
C306.1	conduct tests on heat conduction apparatus and evaluate thermal conductivity of materials.
C306.2	conduct tests on natural and forced convective heat transfer apparatus and evaluate heat transfer coefficient.
C306.3	conduct tests on radiative heat transfer apparatus and evaluate Stefan Boltzmann constant and emissivity.
C306.4	conduct tests to evaluate the performance of parallel/counter flow heat exchanger apparatus and reciprocating air compressor.
C306.5	Conduct tests to evaluate the performance of refrigeration and air conditioning test rigs.

ME8513 Metrology and Measurements Lab

Course Code	COURSE OUTCOMES
C307.1	Measure the gear tooth dimensions, angle using sine bar
C307.2	Measure straightness and flatness, thread parameters, temperature using thermocouple
C307.3	Measure the force, displacement, torque and vibration.
C307.4	Calibrate the vernier
C307.5	Calibrate the micrometer

**III YEAR (EVEN SEMESTER)**

C312: ME8601 - Design of Transmission Systems, Year of study 2019 - 2020

C312.1	Apply the concepts of design to belts, chains and rope drives.
C312.2	Apply the concepts of design to spur, helical gears.
C312.3	Apply the concepts of design to worm and bevel gears





C312.4	Apply the concepts of design to gear boxes.
C312.5	Apply the concepts of design to cams, brakes and clutches.

C313: ME8691 - Computer Aided Design and Manufacturing, Year of study 2019 - 2020

C313.1	Explain the 2D and 3D transformations, clipping algorithm, Manufacturing models and Metrics
C313.2	Explain the fundamentals of parametric curves, surfaces and Solids
C313.3	Summarize the different types of Standard systems used in CAD
C313.4	Apply NC & CNC programming concepts to develop part program for Lathe & Milling Machines
C313.5	Summarize the different types of techniques used in Cellular Manufacturing and FMS

C314: ME8693 - Heat and Mass Transfer, Year of study 2019 - 2020

C314.1	The students will be able to develop the knowledge about steady and unsteady state heat conduction in one dimensional heat transfer.
C314.2	The students will be able to understand the mechanism of natural and forced convection for different fluid flow.
C314.3	The students will be able to learn the various regimes of phase change heat transfer and design parameters of heat exchanger.
C314.4	The students will be able to acquire the concept radiation heat transfer mode for different surfaces.
C314.5	The students will be able to understand the mechanism of diffusion and convective mass transfer in stagnant and flow condition.



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## C315: ME8692 - Finite Element Analysis, Year of study 2019 - 2020

C315.1	Summarize the basics of finite element formulation.
C315.2	Apply finite element formulations to solve one dimensional Problems.
C315.3	Apply finite element formulations to solve two dimensional scalar Problems
C315.4	Apply finite element method to solve two dimensional Vector problems.
C315.5	Apply finite element method to solve problems on iso parametric element and dynamic Problems.



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## C316: ME8694 - Hydraulics and Pneumatics, Year of study 2019 - 2020

C316.1	Explain the Fluid power and operation of different types of pumps.
C316.2	Summarize the features and functions of Hydraulic motors, actuators and Flow control valves
C316.3	Explain the different types of Hydraulic circuits and systems
C316.4	Explain the working of different pneumatic circuits and systems
C316.5	Summarize the various trouble shooting methods and applications of hydraulic

## C317: ME8091 Automobile Engineering, Year of study 2019 - 2020

C317.1	Recognize the various parts of the automobile and their functions and materials.
C317.2	Discuss the engine auxiliary systems and engine emission control.
C317.3	Distinguish the working of different types of transmission systems.
C317.4	Explain the Steering, Brakes and Suspension Systems.
C317.5	Predict possible alternate sources of energy for IC Engines.



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## C318: PR8592 Welding Technology, Year of study 2019 - 2020

C318.1	Understand the construction and working principles of gas and arc welding process.
C318.2	Understand the construction and working principles of resistance welding process.
C318.3	Understand the construction and working principles of various solid state welding process.
C318.4	Understand the construction and working principles of various special welding processes.
C318.5	Understand the concepts on weld joint design, weldability and testing of weldments.

## C319: GE8075 Intellectual Property Rights, Year of study 2019 - 2020

C319.1	The student will be able to describe the concepts of various intellectual property rights
C319.2	The student will be able to elaborate the practical aspects of registration in India and abroad
C319.3	The student will be able to explain the implications of agreements and legislations
C319.4	The student will be able to illustrate the methods used for digital content protection
C319.5	The student will be able to discuss the legal aspects governing IPR infringement



**C320: ME8681 CAD CAM Lab, Year of study 2019 - 2020**

C320.1	Design different parts of mechanical equipment's.
C320.2	Apply skills in various designing and manufacturing industries
C320.3	Create 2D and 3D models using modeling software's.
C320.4	Make appropriate selection of CAD functionality to use as tools in the design process.
C320.5	Communicate effectively the geometry and intent of design features.

**C321: ME8682 Design and Fabrication Project, Year of study 2019 - 2020**

C321.1	Design the machine element or the mechanical product.
C321.2	Develop a 3D model of the designed product.
C321.3	Fabricate the machine element or the mechanical product.
C321.4	Demonstrate the working model of the machine element or the mechanical product.
C321.5	Prepare the necessary documents and reports for the final fabricated product



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## C322: HS8581 Professional Communication, Year of study 2019 - 2020

C 322.1	Cultivate intercultural communication skills, to guide students in making appropriate and responsible decisions, to develop leadership traits and soft skills and to create a desire to fulfill individual goals and team goals.
C 322.2	Help the learners acquire listening and speaking skills through lab based activities, and enable them to introduce themselves and make effective presentations.
C 322.3	Guide learners to evaluate their thinking skills, acquire listening and speaking skills and enable them to involve in group participation.
C 322.4	Teach various formats of interview, answering techniques, body language and paralinguistic skills.
C 322.5	Clarify and prioritize learners' objectives and goals, to contribute and work as a team by creating more leadership opportunities.

### IV Year (Odd Semester)

## C401: ME8792 Power Plant Engineering, Year of study 2020 - 2021

C401.1	Explain the layout, construction and working of the components inside a thermal power plant.
C401.2	Explain the layout, construction and working of the components inside a Diesel, Gas and Combined cycle power plants.
C401.3	Explain the layout, construction and working of the components inside nuclear power plants.
C401.4	Explain the layout, construction and working of the components inside Renewable energy power plants.
C401.5	Explain the applications of power plants while extend their knowledge to power plant economics and environmental hazards and estimate the costs of electrical energy production.



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## C402: ME8793 Process Planning and Cost Estimation, Year of study 2020 - 2021

C402.1	Select the process, equipment and tools for various industrial products.
C402.2	Prepare process planning activity chart.
C402.3	Explain the concept of cost estimation.
C403.4	Compute the job order cost for different type of shop floor.
C405.5	Calculate the machining time for various machining operations.

## C403: ME8791 Mechatronics, Year of study 2020 - 2021

C402.1	Discuss the interdisciplinary applications of Electronics, Electrical, Mechanical and Computer Systems for the Control of Mechanical, Electronic Systems and sensor technology.
C402.2	Discuss the architecture of Microprocessor and Microcontroller, Pin Diagram, Addressing Modes of Microprocessor and Microcontroller.
C402.3	Discuss Programmable Peripheral Interface, Architecture of 8255 PPI, and various device interfacing.
C403.4	Explain the architecture, programming and application of programmable logic controllers to problems and challenges in the areas of Mechatronic engineering.
C405.5	Discuss various Actuators and Mechatronics system using the knowledge and skills acquired through the course and also from the given case studies.



C404: OML751 Electronic Materials, Year of study 2020 - 2021

C404.1	Explain the classifications of materials based on bonding.
C404.2	Describe various applications of conducting materials.
C404.3	Analyze the characteristics of semiconducting and magnetic materials.
C404.4	Apply the concepts of dielectric and insulating materials in various applications.
C404.5	Explain the uses of nano and opto electronic materials.

C405: OCE751 Environmental and Social Impact Assessment, Year of study 2020 - 2021

C405.1	Understand the necessity to study the impacts of development on environment.
C405.2	Carry out scoping and screening of developmental projects for environmental and social assessments and explain different methodologies for environmental impact prediction and assessment
C405.3	Plan environmental impact assessments, environmental management plans and evaluate environmental impact assessment reports.
C405.4	Carry out economic valuation of environmental impacts.
C405.5	Conduct case studies on different types of projects pertaining EIA.

C406: OEN751 Green Building Design, Year of study 2020 - 2021

C406.1	Understand the Environmental Implications of buildings.
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C406.2	Enumerate the Embodied Energy of building materials and alternate sustainable concepts.
C406.3	Illustrate the concepts of thermal comfort in buildings and heat transfer characteristics of building materials and technologies.
C406.4	Identify the concepts of utility of Solar Energy in buildings.
C406.5	Explain about the Green Composites and Water Utilization in buildings.

C407: OMT751 MEMS and NEMS, Year of study 2020 - 2021

C407.1	Find solution to Micro/Nano electromechanical systems including their applications and advantages.
C407.2	Recognize the materials in micro fabrication and describe the fabrication processes including surface micromachining, bulk micromachining and LIGA.
C407.3	Analyze the key performance aspects of electromechanical transducers including sensors.
C407.4	Explain the Various electromechanical actuators.
C407.5	Describe the techniques of quantum mechanics and Nano systems.



**C408: ME8071 Refrigeration and Air Conditioning, Year of study 2020 - 2021**

C408.1	Explain the basic concepts of Refrigeration.
C408.2	Explain the Vapor compression Refrigeration systems and to solve problems.
C408.3	Discuss the various types of Refrigeration systems.
C408.4	Calculate the Psychrometric properties and its use in psychrometric processes.
C408.5	Explain the concepts of Air conditioning and to solve problems.

**C409: ME8072 Renewable Sources of Energy, Year of study 2020 - 2021**

C409.1	Discuss the importance and Economics of renewable Energy.
C409.2	Describe the method of power generation from Solar Energy.
C409.3	Explain the method of power generation from Wind Energy.
C409.4	Elaborate the method of power generation from Bio Energy.
C409.5	Discuss the Tidal energy, Wave Energy, OTEC, Hydro energy, Geothermal Energy, Fuel Cells and Hybrid Systems.



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## C410: ME8073 Unconventional Machining Processes, Year of study 2020 - 2021

C410.1	Explain the need of unconventional machining processes and its classifications
C410.2	Compare various thermal energy and electrical energy based unconventional machining processes.
C410.3	Summarize various chemical and electro-chemical energy based unconventional machining processes.
C410.4	Explain various Nano abrasives based unconventional machining processes.
C410.5	Distinguish various recent trends based unconventional machining processes.

## C411: MF8071 Additive Manufacturing, Year of study 2019 - 2020

C411.1	Learn about a working principle and construction of Additive Manufacturing technologies, their potential to support design and manufacturing.
C411.2	Design and Analyze engineering components using CAD techniques and reverse engineering.
C411.3	Explain about working principle, process and application of photo polymerization And Powder Bed Fusion Processes.
C411.4	Exploit working principle, process and application of Photopolymerization And Powder Bed Fusion Processes.
C411.5	Relate customized manufacturing process using Photopolymerization And Powder Bed Fusion Processes.



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## C412: ME8009 Robotics, Year of study 2020 - 2021

C412.1	Explain the concepts of industrial robots, classification, specifications and coordinate systems. Also summarize the need and application of robots in different sectors.
C412.2	Illustrate the different types of robot drive systems as well as robot end effectors.
C412.3	Apply the different sensors and image processing techniques in robotics to improve the ability of robots.
C412.4	Develop robotic programs for different tasks and familiarize with the kinematics motions of robot.
C412.5	Examine the implementation of robots in various industrial sectors and interpolate the economic analysis of robots.

C413.1	Explain the fundamental concepts of NDT.
C413.2	Discuss the different methods of NDE
C413.3	Explain the concept of Thermography and Eddy current testing.
C413.4	Explain the concept of Ultrasonic Testing and Acoustic Emission.
C413.5	Explain the concept of Radiography.



C414: GE8071 Disaster Management, Year of study 2020 - 2021

C414.1	Differentiate the types of disasters, causes and their impact on environment and society
C414.2	Assess vulnerability and provide DRR.
C414.3	Adopt various methods of risk reduction measures as well as mitigation.
C414.4	Assess the damage caused by Disaster
C414.5	Draw the hazard and vulnerability profile of India, Scenarios in the Indian context, Disaster damage assessment and management.

C415: ME8711 Simulation and Analysis Laboratory, Year of study 2020 - 2021

C415.1	Simulate the working principle of air conditioning system, hydraulic and pneumatic cylinder and cam follower mechanisms using MATLAB.
C415.2	Analyze the stresses and strains induced in plates, brackets and beams and heat transfer problems.
C415.3	Calculate the natural frequency and mode shape analysis of 2D components and beams.
C415.4	Demonstrate the engineering design problem that involves interaction between heat, stress and to generate the model using a proper element type, and then solve the problem.
C415.5	Display the results such as Von Mises stress, displacement, temperature, pressure, and velocity etc. obtained from analysis.



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C416: ME8781 Mechatronics Laboratory, Year of study 2020 - 2021

C416.1	Summaries how mechatronics integrates knowledge from different disciplines in order to realize engineering and consumer products that are useful in everyday life.
C416.2	Demonstrate the functioning of control systems with the help of PLC and Microcontrollers.
C416.3	Demonstrate the functions of 8085 microprocessor and their interface.
C416.4	Demonstrate the functioning of mechatronics system with various pneumatic, hydraulic and electrical systems.
C416.5	Select suitable actuators and sensors and integrate them for suitable applications.

## DEPARTMENT OF MANAGEMENT STUDY

**SUB CODE/SUBJECT NAME BA 5101: Economic Analysis for Business**      **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C101.1 (C01)	To understand the basic concepts of Economics
C101.2 (C02)	To explore the consumer and supplier behavior
C101.3 (C03)	To acquire knowledge about the product market and factor market
C101.4 (C04)	To understand the performance of the macro economics
C101.5 (C05)	To explore the aggregate supply and role of money
C101.6 (C06)	To understand the micro macro economic environment of business.



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**SUB CODE / SUBJECT NAME: BA 5102 Principles of Management**

**YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C102.1 (C01)	To understand the management of an organization
C102.2 (C02)	To explore the planning activities of an organization
C102.3 (C03)	To understand organizational structures and functioning
C102.4 (C04)	To explore the various issues of people management
C102.5 (C05)	To understand the process of budget and controlling
C102.6 (C06)	To expose the students to the basic concepts of management in order to aid in understanding how an organization functions

**SUB CODE / SUBJECT NAME: BA 5103 Accounting for Management**

**YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C103.1 (C01)	To acquire a reasonable knowledge in accounts
C103.2 (C02)	To explore the planning activities and the maintenance of accounts
C103.3 (C03)	To understand and analyze the various framing of financial statements
C103.4 (C04)	To explore the various pros and cons in the area of costs associated with production
C103.5 (C05)	To understand the accounts in an computerized environment
C103.6 (C06)	To expose the students to the basic concepts of accounts and to possess a managerial outlook at accounts



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**SUB CODE / SUBJECT NAME: BA5104 Legal aspects of Business YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C104.1 (C01)	To understand the commercial act and sale of good act
C104.2 (C02)	To explore the company law
C104.3 (C03)	To understand the industrial laws
C104.4 (C04)	To explore income tax and sales tax laws
C104.5 (C05)	To understand the consumer protection and cyber laws
C104.6 (C06)	Legal insight will be established in the business practices according to the situation of changing environment.

**SUB CODE / SUBJECT NAME: BA 5105 Organizational Behaviour YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C105.1 (C01)	To develop need, nature and framework of Organisational behaviour
C105.2 (C02)	To understand human behavior and work behaviour
C105.3 (C03)	To understand group behavior and interpersonal relationship
C105.4 (C04)	To determine the importance of leadership and power
C105.5 (C05)	To determine the dynamics of organizational behaviour
C105.6 (C06)	A better understanding of human behaviour, framework for managing individual and group performance in organization





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**SUB CODE / SUBJECT NAME: BA5106 Statistics for Management**

**YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C106.1 (C01)	To understand the basics concepts of statistics
C106.2 (C02)	To explore the sampling techniques and estimation
C106.3 (C03)	To understand the parametric tests
C106.4 (C04)	To explore the non-parametric tests
C106.5 (C05)	To understand correlation and time series analysis
C106.6 (C06)	To facilitate objective solutions in business decision making under subjective conditions

**SUB CODE / SUBJECT NAME: BA5107 Total Quality Management**

**YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C107.1 (C01)	To understand the customer perception of quality
C107.2 (C02)	To explore the principles of quality management
C107.3 (C03)	To understand the statistical process control
C107.4 (C04)	To explore the tools and techniques of Quality management
C107.5 (C05)	To understand quality system management and implementation
C107.6 (C06)	To apply quality philosophies and tools to facilitate continuous improvement and ensure customer delight



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**SUB CODE / SUBJECT NAME: BA5111 Spoken and Written Communication**  
**YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C108.1 (C01)	To understand the modes of personal communication
C108.2 (C02)	To explore the ways of social communication
C108.3 (C03)	To understand the work place communication
C108.4 (C04)	To explore the research writing
C108.5 (C05)	To understand creative writing
C108.6 (C06)	To identify their areas of strengths and weaknesses in writing.

## SEMESTER II

**SUB CODE / SUBJECT NAME: BA5201 Applied Operations Research**      **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C110.1 (C01)	To understand linear programming techniques
C110.2 (C02)	To explore the extension of linear programming techniques
C110.3 (C03)	To understand the integer programming
C110.4 (C04)	To explore the decision theory
C110.5 (C05)	To understand the queuing theory
C110.6 (C06)	To facilitate quantitative solutions in business decision making under conditions of certainty, risk and uncertainty.



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**SUB CODE / SUBJECT NAME: BA5202 Business Research Methods**

**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C111.1 (C01)	To understand the basics of business research methods
C111.2 (C02)	To explore the research design and measurement
C111.3 (C03)	To understand the data collection methods
C111.4 (C04)	To explore the data preparation and analysis
C111.5 (C05)	To understand the report design and writing
C111.6 (C06)	To become acquainted with the scientific methodology in business domain.

**SUB CODE / SUBJECT NAME: BA5203 Financial management**

**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C112.1 (C01)	To understand the basics of financial methods
C112.2 (C02)	To understand the operational nuances of a finance manager
C112.3 (C03)	To comprehend the technique of making decisions related to finance function
C112.4 (C04)	To explore the working capital determinants
C112.5 (C05)	To understand the various long term sources of finance
C112.6 (C06)	To possess the technique of managing finance in an organization.



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## **SUB CODE / SUBJECT NAME: BA5204 Human Resources Management YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C113.1 (C01)</b>	To understand the perspective of human resources management
<b>C113.2 (C02)</b>	To explore the best fit of employees
<b>C113.3 (C03)</b>	To understand the training and executive development
<b>C113.4 (C04)</b>	To explore the sustaining employee interest
<b>C113.5 (C05)</b>	To understand the performance evaluation and control process
<b>C113.6 (C06)</b>	To gain knowledge and skills needed for success as a human resources professional

## **SUB CODE / SUBJECT NAME: BA5205 Information Management YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C114.1 (C01)</b>	To understand the importance of information in business
<b>C114.2 (C02)</b>	To understand system analysis and design
<b>C114.3 (C03)</b>	To understand the database management system
<b>C114.4 (C04)</b>	To explore the security control and reporting
<b>C114.5 (C05)</b>	To understand the new IT initiatives
<b>C114.6 (C06)</b>	To Gains knowledge on effective applications of information systems in business



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**SUB CODE / SUBJECT NAME: BA5206 Operations Management**

**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C115.1 (C01)	To understand the basics of operations management
C115.2 (C02)	To understand forecasting, capacity and facility management
C115.3 (C03)	To understand the design product and work systems
C115.4 (C04)	To explore the materials management
C115.5 (C05)	To understand the scheduling and project management
C115.6 (C06)	To understanding of the strategic and operational decisions in managing manufacturing and service organizations

**SUB CODE / SUBJECT NAME: BA 5207 Marketing Management**

**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C116.1 (C01)	To develop on understanding of ideas & nuance of modern marketing
C116.2 (C02)	To describe the process to formulate & manage the B2B marketing strategies including all key components
C116.3 (C03)	To analyze the techniques to conduct marketing analysis including marketing segmentation & targeting
C116.4 (C04)	To compare & contrast different perception that characteristic the study of consumer behavior
C116.5 (C05)	To determine the role of IMC in the overall marketing program
C116.6 (C06)	To determine the analytic skills in solving marketing related problems



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## III SEMESTER

**SUB CODE / SUBJECT NAME: BA5301 International Business Management**

**YEAR / SEM: II/III**

COURSE CODE	COURSE OUTCOMES
C117.1 (C01)	To understand the international business basics
C117.2 (C02)	To understand the international trade and investment
C117.3 (C03)	To understand the international strategic management
C117.4 (C04)	To understand the global business
C117.5 (C05)	To understand the conflict management
C117.6 (C06)	To expose the students to the basic concepts of international business management

**SUB CODE / SUBJECT NAME: BA5302 Strategic Management**

**YEAR / SEM: II/II**

COURSE CODE	COURSE OUTCOMES
C118.1 (C01)	To understand the basics of strategic and process
C118.2 (C02)	To understand the competitive advantage
C118.3 (C03)	To understand the different strategies
C118.4 (C04)	To understand the strategy implementation
C118.5 (C05)	To understand the other strategic issues
C118.6 (C06)	To obtain knowledge and understanding of management concepts principles and skills from a people



**PROFESSIONAL ELECTIVES STREAM**

**STREAM/SPECIALISATION: MARKETING MANAGEMENT**

**SUB CODE / SUBJECT NAME: BA 5004 Integrated Marketing Communication**

**YEAR / SEM: II/III**

COURSE CODE	COURSE OUTCOMES
<b>C119.1 (C01)</b>	To understand the scope and objectives of Marketing
<b>C119.2 (C02)</b>	To explore the range and reach of various media
<b>C119.3 (C03)</b>	To understand the scope and objectives of sales promotion
<b>C119.4 (C04)</b>	To understand the importance of PR and its tools
<b>C119.5 (C05)</b>	To explore the scope of publicity through social media
<b>C119.6 (C06)</b>	To access the importance of advertising and sales promotion campaigns planning and objective setting in relation to consumer decision making processes.

**SUB CODE / SUBJECT NAME: BA 5005 Retail Management**      **YEAR / SEM: II/III**

COURSE CODE	COURSE OUTCOMES
<b>C120.1 (C01)</b>	To understand about the importance of retail industry in India
<b>C120.2 (C02)</b>	To differentiate the different types of retail formats
<b>C120.3 (C03)</b>	To develop the decision making capability in Retail Management
<b>C120.4 (C04)</b>	To understand the retail internal management system
<b>C120.5 (C05)</b>	To analyse the decision making process of the customer
<b>C120.6 (C06)</b>	To manage the retail chains and understand the retail customer's behavior



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## **SUB CODE / SUBJECT NAME: BA 5006 Services Management YEAR / SEM: II/III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C121.1 (C01)</b>	To understand the service economy
<b>C121.2 (C02)</b>	To understand the service marketing opportunities
<b>C121.3 (C03)</b>	To understand the service design and development
<b>C121.4 (C04)</b>	To explore the materials marketing
<b>C121.5 (C05)</b>	To understand the service strategies
<b>C121.6 (C06)</b>	To be able to apply the concepts of services marketing in promoting services

## **STREAM/SPECIALISATION: FINANCIAL MANAGEMENT**

## **SUB CODE / SUBJECT NAME: BA5008 Banking and Financial services YEAR / SEM: II/III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C122.1 (C01)</b>	To understand the concept of Indian banking system
<b>C122.2 (C02)</b>	To analyze the sources how they Raise their incomes and how they deploy it and its risks
<b>C122.3 (C03)</b>	To understand the aspects of credit monitoring and the risk management
<b>C122.4 (C04)</b>	To explore the risks and the threats related to e- banking
<b>C122.5 (C05)</b>	To understand the other fund based financial services rendered by the banks
<b>C122.6 (C06)</b>	To analyze the types of loans by the bank with risk profiles and to evaluate the performance of the banks





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## **SUB CODE / SUBJECT NAME: BA5011 Merchant Banking and Financial Services**

**YEAR / SEM: II/III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C123.1 (C01)</b>	To understand the concept of merchant banking
<b>C123.2 (C02)</b>	To understand the issue management
<b>C123.3 (C03)</b>	To understand the other fee based services
<b>C123.4 (C04)</b>	To explore the fund based financial services
<b>C123.5 (C05)</b>	To understand the other fund based financial services
<b>C123.6 (C06)</b>	To acquire Good knowledge on merchant banking activities

## **SUB CODE / SUBJECT NAME: BA5012 Security Analysis and Portfolio management**

**YEAR / SEM: II/III**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C124.1 (C01)</b>	To understand the nuances of stock market operations
<b>C124.2 (C02)</b>	To estimate the segments and the participants in the financial market
<b>C124.3 (C03)</b>	To analyze the techniques involved in deciding upon purchase or sale of securities
<b>C124.4 (C04)</b>	To explore the various market indicators and its benefits
<b>C124.5 (C05)</b>	To understand the portfolio selection and the mutual funds
<b>C124.6 (C06)</b>	Aims at becoming a good and skilled investment analyst.



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## STREAM/SPECIALISATION: HUMAN RESOURCE MANAGEMENT

**SUB CODE / SUBJECT NAME: BA5016 Labour Legislations**

**YEAR / SEM: II/III**

COURSE CODE	COURSE OUTCOMES
C125.1 (C01)	To understand factory act
C125.2 (C02)	To understand the payment of wages act
C125.3 (C03)	To understand the industrial dispute act
C125.4 (C04)	To understand workmen compensation act
C125.5 (C05)	To understand the child labour prevention act
C125.6 (C06)	To appreciate the application of labour laws

**SUB CODE / SUBJECT NAME: BA5018 Organisational theory, design and development**

**YEAR / SEM: II/III**

COURSE CODE	COURSE OUTCOMES
C126.1 (C01)	To understand the organization and its environment
C126.2 (C02)	To understand the organizational design
C126.3 (C03)	To understand the organizational culture
C126.4 (C04)	To explore organization changes
C126.5 (C05)	To understand the organization evolution and sustenance
C126.6 (C06)	To be able to analyze organizations more accurately and deeply by applying organization theory.



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**SUB CODE / SUBJECT NAME: BA5019 Strategic Human resources management**

**YEAR / SEM: II/III**

COURSE CODE	COURSE OUTCOMES
C127.1 (C01)	To understand basics of human resources development
C127.2 (C02)	To understand the E-hrm
C127.3 (C03)	To understand the cross culture hrm
C127.4 (C04)	To explore career competency development
C127.5 (C05)	To understand the employee coaching and counseling
C127.6 (C06)	To have a better understanding of the tools and techniques used by organizations to meet current challenges.

**STREAM/SPECIALISATION: OPERATIONS MANAGEMENT**

**SUB CODE / SUBJECT NAME: BA 5025 Logistics Management      YEAR / SEM: II/III**

COURSE CODE	COURSE OUTCOMES
C128.1 (C01)	To understand the need and the importance of logistics in the product flow
C128.2 (C02)	To analyze the design of distribution channels and the various outsourcing methods
C128.3 (C03)	To understand the various transportation management and the packing process
C128.4 (C04)	To explore the performance management measurement and the costs related to it.
C128.5 (C05)	To understand the various technological developments made in the logistics field
C128.6 (C06)	To enable an efficient method of moving the products with optimization of time and the costs.



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**SUB CODE / SUBJECT NAME: BA 5028 Project Management      YEAR / SEM: II/III**

COURSE CODE	COURSE OUTCOMES
C129.1 (C01)	To learn the concepts of managing projects
C129.2 (C02)	To design the layout of planning and the budgeting for the work process
C129.3 (C03)	To understand the different scheduling and resource allocations for framing the path to market place.
C129.4 (C04)	To explore the different service facilities given for recording the reports, data collection and the project evaluation
C129.5 (C05)	To analyze the project organization and the conflict management
C129.6 (C06)	To apply project management principles in business situations to optimize resources utilization and time optimization

**SUB CODE / SUBJECT NAME: BA5030 Supply chain management**

**YEAR / SEM: II/III**

COURSE CODE	COURSE OUTCOMES
C130.1 (C01)	To understand business logistics and supply chain
C130.2 (C02)	To understand the managing flows
C130.3 (C03)	To understand the inventory and warehousing
C130.4 (C04)	To understand transporting and packing
C130.5 (C05)	To understand the organization and control
C130.6 (C06)	To gains knowledge on effective management of the logistics and supply chain



**M.E INDUSTRIAL SAFETY ENGINEERING**

**SUB CODE / SUBJECT NAME: MA5164 PROBABILITY AND STATISTICAL METHOD**  
**YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C101.1 (C01)	Basic probability axioms and rules and the moments of discrete and continuous random variables.
C101.2 (C02)	Least squares, correlation, regression, consistency, efficiency and unbiasedness of estimators, method of maximum likelihood estimation and Central Limit Theorem.
C101.3 (C03)	Use statistical tests in testing hypotheses on data.
C101.4 (C04)	List the guidelines for designing experiments and recognize the key historical figures in Design of Experiments.
C101.5 (C05)	Differentiate between various time series models and application of these models appropriately to engineering problems & The students should have the ability to use the appropriate and relevant, fundamental and applied mathematical and statistical knowledge, methodologies and modern computational tools.

**SUB CODE / SUBJECT NAME: IS5101 PRINCIPLES OF SAFETY MANAGEMENT**  
**YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C102.1 (C01)	To understand the functions and activities of safety engineering department.
C102.2 (C02)	To carry out a safety audit and prepare a report for the audit.



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<b>C102.3 (C03)</b>	To prepare an accident investigation report.
<b>C102.4 (C04)</b>	To estimate the accident cost using supervisors report and data.
<b>C102.5 (C05)</b>	To identify various agencies, support institutions and government organizations involved in safety training and promotion

**SUB CODE / SUBJECT NAME: IS5102 ENVIRONMENTAL SAFETY**

**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C103.1 (C01)</b>	Illustrate and familiarize the basic concepts scope of environmental safety.
<b>C103.2 (C02)</b>	Understand the standards of professional conduct that are published by professional safety organizations and/or certification bodies.
<b>C103.3 (C03)</b>	Explain the ways in which environmental health problems have arisen due to air and water pollution.
<b>C103.4 (C04)</b>	Illustrate the role of hazardous waste management and use of critical thinking to identify and assess environmental health risks.
<b>C103.5 (C05)</b>	Discuss concepts of measurement of emissions and design emission measurement devices.

**SUB CODE / SUBJECT NAME: IS5103 OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C104.1 (C01)</b>	To understand the various physiological functions of our body and the test methods for periodical monitoring of health.



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<b>C104.2</b> <b>(C02)</b>	To understand the functions and activities of Occupational health services.
<b>C104.3</b> <b>(C03)</b>	To identify various types of hazards arising out of physical, chemical in process.
<b>C104.4</b> <b>(C04)</b>	To identify notifiable occupational diseases arising out of Occupation and suggest methods for the prevention of such diseases.
<b>C104.5</b> <b>(C05)</b>	To identify various types of hazards arising out of biological agents in a process.

**SUB CODE / SUBJECT NAME: IS5104 INDUSTRIAL SAFETY, HEALTH AND ENVIRONMENT ACTS YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C105.1</b> <b>(C01)</b>	To list out important legislations related to health, Safety and Environment.
<b>C105.2</b> <b>(C02)</b>	To list out requirements mentioned in factories act for the prevention of accidents.
<b>C105.3</b> <b>(C03)</b>	To understand the health and welfare provisions given in factories act.
<b>C105.4</b> <b>(C04)</b>	To understand the statutory requirements for an Industry on registration, license and its renewal.
<b>C105.5</b> <b>(C05)</b>	To prepare onsite and offsite emergency plan.

**SUB CODE / SUBJECT NAME: IS5001 PLANT LAYOUT AND MATERIALS HANDLING YEAR / SEM: I/I**

<b>Course Code</b>	<b>Course Outcomes</b>
<b>C106.1</b>	The students will be able to 1. Identify equipment requirements for a specific process and for various locations and working conditions.



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<b>C106.2</b>	Design an efficient material handling system.
<b>C106.3</b>	Understand the difficulties during the design and implementation of the plant layout.
<b>C106.4</b>	Design Manual Material Handling And Lifting Tackles
<b>C106.5</b>	Understand the Mechanical Material Handling

**SUB CODE / SUBJECT NAME: IS5111 TECHNICAL SEMINAR - I**  
**YEAR / SEM: I/I**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C107.1 (C01)</b>	The students will be able to 1. Select the method, analysis and optimize the given problem for the given field applications
<b>C107.2 (C02)</b>	The students will be able to develop journal paper reading skills.
<b>C107.3 (C03)</b>	The students will be able to improve communication and presentation skill of students
<b>C107.4 (C04)</b>	The students will be able to develop journal paper writing skills.
<b>C107.5 (C05)</b>	The students will be able to develop the project presentation skills.

**SUB CODE / SUBJECT NAME: IS5201 FIRE ENGINEERING AND EXPLOSION CONTROL**  
**YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C108.1</b>	To make familiar about basic concepts of fire and explosion science.





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(C01)	
C108.2 (C02)	To know the different source of ignition and their prevention techniques.
C108.3 (C03)	To understand the operation of various types of firefighting equipments.
C108.4 (C04)	To understand the causes and prevention of explosion.
C108.5 (C05)	To equip the students to effectively employ explosion protection techniques and their significances to suit the industrial requirement.

**SUB CODE / SUBJECT NAME: IS5202 COMPUTER AIDED HAZARD ANALYSIS**  
**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C109.1 (C01)	This course would make familiarizing of basic concepts in risk and hazard
C109.2 (C02)	Course would be helpful to understand the various instruments to bring safety in Industries
C109.3 (C03)	Students would be trained to find solution for risk assessment studies through the use of software
C109.4 (C04)	Students would be able to make use of a risk assessment technique to quantify the risk
C109.5 (C05)	Course would equip the students effectively to employ hazard analysis techniques in Industry and helpful to prevent the accidents in Industry



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## SUB CODE / SUBJECT NAME: IS5203 ELECTRICAL SAFETY YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C110.1 (C01)	This course would make familiar of basic concepts in electrical circuit and hazards involved in it.
C110.2 (C02)	Course would be helpful to understand the electrical hazards in Industries.
C110.3 (C03)	Students would be able to understand the operation of various protection systems from electrical hazards
C110.4 (C04)	Recognize different hazardous zones in Industries
C110.5 (C05)	Course would be helpful to understand the electrical hazards in house applications

## SUB CODE / SUBJECT NAME: IS5204 SAFETY IN CHEMICAL INDUSTRIES YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C111.1 (C01)	This course would make familiar of safe design of equipment which are the essential to chemical industry and leads to design of entire process industries.
C111.2 (C02)	Course would be helpful to understand the design of pressure systems.
C111.3 (C03)	Students would understand the problems and find innovative solutions while industries facing Problems in commissioning and maintenance stages.
C111.4 (C04)	Students can prepare the emergency planning for chemical industry problems
C111.5 (C05)	Students would be able to create safe storage systems.



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**SUB CODE / SUBJECT NAME: IS5004 TRANSPORT SAFETY**

**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C112.1 (CO1)	The students will be able to Recognize various safety activities undertaken in transporting of hazardous goods
C112.2 (C02)	Understand the various symbols which are specific to the road safety
C112.3 (C03)	Apply for the safe transportation of hazardous goods,
C112.4 (C04)	Understand the Creating TREM card and safe loading and unloading procedure.
C112.5 (C05)	Understand the methods to reduce the accidents occurred in the roads.

**SUB CODE / SUBJECT NAME: IS5005 FIREWORKS SAFETY**

**YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C113.1 (CO1)	To gain knowledge of the chemical reactions of Fireworks chemicals
C113.2 (C02)	To know safe manufacture of Fireworks items
C113.3 (C03)	To improve process safety in fireworks industries
C113.4 (C04)	To analyse safety measures applicable against static electricity
C113.5 (C05)	To suggest safe practices for handling of fireworks in factories, transport and at user end



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## **SUB CODE / SUBJECT NAME: IS5211 INDUSTRIAL SAFETY LABORATORY** **YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C114.1 (CO1)</b>	This course would make students to know and run the various equipments to bring out the safety environment in the industry.
<b>C114.2 (C02)</b>	Course would be helpful for the students to measure the particulate matter and assess the impact of air pollution.
<b>C114.3 (C03)</b>	Students would be trained to conduct experiments to find out various environmental parameters.
<b>C114.4 (C04)</b>	Students would be able to use personal protective equipment in-dependently.
<b>C114.5 (C05)</b>	Students can recognise the various problems with the use of software and hence to predict the real situations on major accidents.

## **SUB CODE / SUBJECT NAME: IS 5212- TECHNICAL SEMINAR-II**      **YEAR / SEM: I/II**

<b>COURSE CODE</b>	<b>COURSE OUTCOMES</b>
<b>C115.1 (CO1)</b>	Students will develop skills to read, write, comprehend and present research papers.
<b>C115.2(C02)</b>	Students shall give presentations on recent areas of research in industrial safety engineering in two cycles.
<b>C115.3 (C03)</b>	Depth of understanding, coverage, quality of presentation material (PPT/OHP) and communication skill of the student will be taken as measures for evaluation.
<b>C115.4 (C04)</b>	The students will be able to develop journal paper writing skills.
<b>C115.5 (C05)</b>	The students will be able to develop the project presentation skills.



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## **SUB CODE / SUBJECT NAME: IS5301 RELIABILITY ENGINEERING YEAR / SEM: II/III**

Course Code	Course Outcomes
C201.1	Students can able to understand Reliability Concept.
C201.2	Students can able to understand Failure Data Analysis types.
C201.3	Students can able to understand Reliability Prediction Models problems.
C201.4	Students can able to understand Reliability Management.
C201.5	Students can able to understand Risk Assessment procedures.

## **SUB CODE / SUBJECT NAME: IS5010 SAFETY IN ENGINEERING INDUSTRY YEAR / SEM: II/III**

Course Code	Course Outcomes
C202.1	Students can have the knowledge in safety rules, standards and codes in various mechanical engineering processes
C202.2	They can design machine guarding systems for various machines such as lathe, drilling, boring, milling etc.,
C202.3	They can implement the safety concepts in welding, gas cutting, storage and handling of gas cylinders, metal forming processes etc.,
C202.4	Students will have knowledge in testing and inspection as per rules in boilers, heat treatment operations etc.,
C202.5	They can take preventive measures in health and welfare of workers' aspects in engineering industry.



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**SUB CODE / SUBJECT NAME: IS5011 QUALITY ENGINEERING IN PRODUCTION SYSTEMS**  
**YEAR / SEM: II/III**

Course Code	Course Outcomes
C203.1	Students can understand the loss function derivation and quality engineering in product design and development processes.
C203.2	Students can develop their knowledge in online quality control systems and process and control parameters.
C203.3	The students will be able to improve the production and process diagnosis and production process.
C203.4	The students will be able to gain knowledge in ISO quality management systems.
C203.5	The students will be able to list the roles and responsibilities of leaders.

**SUB CODE / SUBJECT NAME: PROJECT WORK PHASE I**                      **YEAR/ SEM: II/III**

Course Code	Course Outcomes
C204.1	Able to understand the concepts and design process of various safety engineering problems and solutions
C204.2	To develop and implement the innovative ideas.
C204.3	Able to identify and solving the real time problems
C204.4	Able to attain the leadership quality.
C204.5	Able to publish the Research Finding through conference and journals and able to get the patent



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## SUB CODE / SUBJECT NAME: IS5311 INDUSTRIAL SAFETY ASSESSMENT – INTERNSHIP YEAR / SEM: II/III

COURSE CODE	COURSE OUTCOMES
C205.1	The students will be able to Select and analysis the effective industry safety methods for the given field applications.

## SUB CODE / SUBJECT NAME: IS5411 Project Work Phase II

YEAR / SEM: II/IV

COURSE CODE	COURSE OUTCOMES
C301.1	Able to understand the concepts and design process of various safety engineering problems and solutions
C301.2	To develop and implement the innovative ideas.
C301.3	Able to identify and solving the real time problems
C301.4	Able to attain the leadership quality.
C301.5	Able to publish the Research Finding through conference and journals and able to get the patent

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