

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**  
**(AUTONOMOUS)**  
**Bachelor of Technology**  
**Department of Civil Engineering (R18)**

**I Year – I Semester**

**(18HS0848) PHYSICS**

**Course Outcomes:**

Studies will be familiar with

- Various basic terms related to Vectors & Scalars and Newton's laws of motion.
- Some of the basic concepts related to forces.
- Simple terms related to Mechanical Vibrations.
- Recognize importance of various mechanical properties of materials.
- Understand the importance of Nanotechnology.

**(18HS0830) MATHEMATICS – I**

**COURSE OUTCOMES (COs)**

The objective of this course is to familiarize the prospective engineers with techniques in calculus, multivariate analysis and linear algebra. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their discipline

**(18CS0501) PROGRAMMING FOR PROBLEM SOLVING**

**COURSE OUTCOMES (COs)**

- Able to design the flowchart and algorithm for real world problems
- Able to learn and understand new programming languages
- Able to construct modular and readable programs
- Able to write C programs for real world problems using simple and compound data types

**(18CE0101) ENGINEERING MECHANICS**

**COURSE OUTCOMES (COs)**

On completion of this course, the student will be able to

- Construct free body diagrams and develop appropriate equilibrium equations.
- Understand the concepts of friction and to apply in real life problems.
- Determine the centroid for composite sections.
- Determine the Moment of Inertia for composite sections.

**(18CS0503) PROGRAMMING FOR PROBLEM SOLVING LAB**

### **COURSE OUTCOMES (COs)**

At the end of the course, students will be able to

- Apply problem solving techniques of C to find solution.
- Use C language features effectively to implement solutions.
- Use C++ language features effectively to solve problems.
- Identify and develop apt searching and sorting technique for a given problem.
- Identity, design and develop the appropriate data structure for a given problem or application.

### **(18ME0301) WORKSHOP PRACTICE LAB**

### **COURSE OUTCOMES (COs)**

After completion of this course, a successful student will be able to:

1. Utilize workshop tools for engineering practice.
2. Employ skills for the production a component for real time applications.
3. Appreciate the hard work and intuitive knowledge of the manual workers

### **I YEAR – IISEMESTER**

### **(18HS0801) CHEMISTRY**

### **COURSE OUTCOMES (COs)**

1. Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
2. Able to design the flowchart and algorithm for real world problems
3. Able to learn and understand new programming languages
4. Able to construct modular and readable programs Rationalise bulk properties and processes using thermodynamic considerations.
5. Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques Rationalise periodic properties such as ionization potential, electronegativity, oxidation states and electronegativity.

### **(18HS0831) MATHEMATICS – II**

### **COURSE OUTCOMES (COs)**

The objective of this course is to familiarize the prospective engineers with techniques in calculus, multivariable calculus and complex analysis. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of Mathematics and applications that they would find useful in their disciplines.

### **(18EE0240) BASIC ELECTRICAL AND ELECTRONICS ENGINEERING**

### **COURSE OUTCOMES (COs)**

Upon completion of the course, students will:

1. Determine the equivalent impedance of given network by using network reduction techniques.
2. Determine the current through any element and voltage across any element

3. Apply the network theorems suitably.
4. Analyze the operating principles of motor and transformer.
5. Analyze the operating principles of major electronic devices, its characteristics and applications.
6. Design and analyze the DC bias circuitry of BJT and FET.

### **(18HS0810) ENGLISH**

#### **COURSE OUTCOMES (COs)**

Students will be able:

1. To understand the rules of English grammar and their usage in writing English.
2. To use LSRW skills through the prescribed text and develop their ability to communicate effectively.
3. To get the mastery of language to express ideas, views, feelings and experience.
4. To communicate well among themselves.
5. To inculcate values and ideal characteristic qualities in themselves.

### **(18ME0302) ENGINEERING GRAPHICS & DESIGN**

#### **COURSE OUTCOMES (COs)**

Students undergoing this course are able to

1. Frame ideas based on the conceptual modeling and design
2. Provide good understanding of the methods involved in preparing various views in Engineering drawings
3. Can prepare 2D and 3D diagrams of various objects

### **(18HS0811) ENGLISH LAB**

#### **COURSE OUTCOMES**

Students will be able:

1. To recognize sounds of English language with different classifications.
2. To know phonetic transcription and phonemic symbols of English language.
3. To understand international accent and utilize the same in their daily conversation.
4. To crease confidence for public speaking, for facing interviews, for making effective oral presentations, for having discussions, and for delivering impromptu speeches.

### **(18HS0816) INDIAN CONSTITUTION**

#### **COURSE OUTCOMES (COs)**

Students will be able to:

1. Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
2. Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
3. Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.
4. Discuss the passage of the Hindu Code Bill of 1956.

## **II YEAR I SEMESTER**

### **(18HS0803) BIOLOGY FOR ENGINEERS**

#### **COURSE OUTCOMES (COs)**

- Classify enzymes and distinguish between different mechanisms of enzyme action.
- Identify DNA as a genetic material in the molecular basis of information transfer.
- Analyse biological processes at the reduction istic level
- Apply thermodynamic principles to biological systems.
- Identify and classify microorganisms

### **(18HS0832) TRANSFORM & DISCRETE MATHEMATICS**

#### **COURSE OUTCOMES (COs)**

The objective of this course is to familiarize the prospective engineers with techniques in Transform Calculus and Discrete Mathematics. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their disciplines.

### **(18CE0102) INTRODUCTION TO CIVIL ENGINEERING**

#### **COURSE OUTCOMES (COs)**

- Introduction to what constitutes Civil Engineering
- Identifying the various areas available to pursue and specialize within the overall field of Civil Engineering
- Highlighting the depth of engagement possible within each of these areas
- Supervise the construction activities
- Able to understand the Building Bye laws
- Able to plan a residential & public building

### **(18CE0103) INTRODUCTION TO SOLID MECHANICS**

#### **COURSE OUTCOMES (COs)**

Students undergoing this course are able to:

- The students would be able to understand the behavior of materials under different stress and strain conditions.
- The students would be able to draw bending moment, shear force diagram, bending stress and shear stress distribution for beams under the different conditions of loading.
- The student would be able to apply knowledge to analyse concept of deflection, bending moment and shear force diagram in beams under various loading conditions
- Determine shear stress in the shaft subjected to torsional moments

### **(18CE0104) INTRODUCTION TO FLUID MECHANICS**

### **COURSE OUTCOMES (COs)**

On completion of the course, the students will be able to:

1. Determine the properties of fluid like pressure and their measurement.
2. Apply continuity equation and energy equation in solving problems on flow through conduits.
3. Compute the frictional loss in laminar and turbulent flows.

### **(18CE0105) SOLID MECHANICS LAB**

### **COURSE OUTCOMES (COs)**

After completion of the course the student will be able to:

1. Estimate Young's modulus, tensional rigidity of mild steel rods
2. Know the hardness of mild steel and HYSD specimens
3. Analyze the strength of wood, concrete, stone and bricks
4. Assess the quality of wood, concrete, stone and bricks

### **(18CE0106) FLUID MECHANICS LAB**

### **COURSE OUTCOMES (COs)**

Students undergoing this course are able to

1. Calibrate Venturimeter & Orifice meter
2. Calculate losses in flows
3. Estimate the efficiency of different pumps.
4. Study the performance of different turbines.

### **(18CE0107) COMPUTER AIDED BUILDING DRAWING**

### **COURSE OUTCOMES (COs)**

1. The students will be able to draft the plan, elevation and sectional views of the buildings, industrial structures, and framed buildings using computer software's.
2. Draw the symbols and plan of a residential building using Auto CAD Software.

### **(18HS0804) ENVIRONMENTAL SCIENCES**

### **COURSE OUTCOMES (COs)**

1. Based on this course, the Engineering Student will be able to understand/evaluate/develop technologies on the basis of Ecological principles and environmental regulations along with Legislation, Laws and Policies which in turn help in sustainable development.
2. Take preventive measures to reduce air, water, soil pollutions and contaminants in food.
3. Effectively carry out waste disposal at individual level.
4. Involve in preservation of natural resources.

## **II YEAR II SEMESTER**

### **(18ME0346) MECHANICAL ENGINEERING**

### **COURSE OUTCOMES (COs)**

1. After completion of the course the student will be able to understand the fundamentals of mechanical

engineering.

2. Acquire the concept of laws of thermodynamics, Energy conversion devices, R&AC.
3. Knows the principles of welding, manufacturing processes, Power transmission devices.
4. Knows about Engineering Materials.

### **(18CE0108) ENGINEERING GEOLOGY**

#### **COURSE OUTCOMES (COs)**

1. This course helps to know the identification of rocks, minerals, engineering geology problems and also basics of earth science.
2. Site characterization and how to collect, analyze, and report geologic data using standards in engineering practice

### **(18CE0109) SURVEYING & GEOMATICS**

#### **COURSE OUTCOMES (COs)**

The course will enable the students to:

1. Apply the knowledge, techniques, skills and applicable tools of the discipline to engineering and surveying activities
2. Translate the knowledge gained for the implementation of civil infra-structure facilities.
3. To be in a position to apply the basic principle of surveying and usage of surveying instruments in all civil engineering activities, including the construction of buildings, bridges, roads and high ways, pipe lines, dams, ports and harbours
4. To be an expert of demarcation of ownership and / or delimitation of land, property, etc., through surveying process
5. Surveying techniques to collect data for planning, designing and execution, able to employ green field
6. Use total station and able to assess the electromagnetic distances

### **(18CE0110) MATERIALS, TESTING & EVALUATION**

#### **COURSE OUTCOMES (COs)**

On completion of the course, the students will be able to:

1. Understand properties of various construction materials and their manufacturing process.
2. Access the quality of construction materials.
3. Supervise the construction activities.
4. Introduction to Engineering Materials covering

### **(18CE0111) MECHANICS OF SOLIDS**

#### **COURSE OUTCOMES (COs)**

The course will enable the students to:

1. Determine different stresses developed in thin and thick cylinders
2. Determine the behaviour of direct and bending stress in beams
3. Have knowledge in structural engineering
4. Understand the application of Castiglione's theorem.
5. Analyse continuous beams and portal frames by slope deflection method and moment distribution method.

### **(18CE0112) ENGINEERING GEOLOGY LAB**

### **COURSE OUTCOMES (COs)**

After completion of this lab the student:

1. Can conduct macroscopic tests on rock forming minerals to identify
2. Can conduct macroscopic tests on rocks to identify
3. Can be in position to interpret geological models
4. Can perform strike and dip problems

### **(18CE0113) SURVEYING LAB – I**

### **COURSE OUTCOMES (COs)**

After completion of the course the student will be able to:

1. Gain knowledge and expertise in operation of various survey instruments for computation of area of a land.
2. Successfully carry out survey work in all civil Engineering projects, including the construction of buildings, roads and highways, rail track laying with curves, pipe lines, dams, ports and harbor as well as delimitation of land and property, etc.

### **(18HS0817) ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE**

#### **COURSE CONTENTS**

1. Basic structure of Indian Knowledge System: Astadash Vidya- 4 ved
2. 4 Upaved (Ayurved, Dhanurved, Gandharva Ved & Sthapthya Adi.,)
3. 6 Vedanga (Shisha, Kalpa, Nirukha, VYkaran, Jyothish & Chand)
4. 4 Upanga (Dharma Shastra, Meemamsa, Purana & Tharka Shastra)
5. Modern Science and Indian Knowledge System
6. Yoga and Holistic Healthcare
7. Case studies
8. Philosophical Tradition (Sarvadarshan) Nyaya, Vyshepec, Sankhya, Yog, Meemamsa, Vedantha, Chavanka, Jain & Boudh
9. Indian Linguistic Tradition – (Phonology, morphology, syntax and semantics)
10. Indian Artistic Tradition - Chitrakala, Moorthikala, Vasthukala, Sthapthya, Sangeetha, Nruthya Yevam Sahithya
11. Case studies

### **III B.Tech – I Sem**

#### **(18CE0114) HYDRAULIC ENGINEERING**

### **COURSE OUTCOMES (COs)**

On completion of the course, the students will be able to

1. Discuss uniform and non-uniform open channel flows and Design economic channel section
2. Explain gradually varied flow and rapid varied flow
3. Analyze impact of jets on vanes and develop velocity triangle
4. Classify turbines and study the principal of various turbines
5. Study the principals of different pumps
6. Classify methods of dimensional analysis and Apply Buckingham Pi theorem

#### **(18CE0115) STRUCTURAL DESIGN**

### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Explain the Limit State of Collage and Serviceability and describe various design parameters
2. Design and Analysis of RCC singly, doubly and flanged beams
3. Design of RCC flexural members such as beams and slabs for various considerations
4. Design RCC columns and isolated footings
5. Describe and design various connections used in steel design
6. Design of steel compression, tension and flexural members

### **(18CE0116) GEOTECHNICAL ENGINEERING**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Describe volumetric ratios, weight/mass relationships, index properties of soils, establish interrelationships and classify soils
2. Discuss Soil permeability, effective stress principal and seepage through soils
3. Classify compaction and consolidation and predict consolidation settlements
4. Determine vertical stress due to various loads and comprehend shear strength of soil
5. Can use various methods to analyze stability of finite and infinite earth slopes
6. Describe various means to conduct soil exploration and can interpret soil exploration report

### **(18CE0117) HYDROLOGY & WATER RESOURCES ENGINEERING**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Explain importance of hydrology, hydrological cycle and estimate precipitation, runoff, evaporation, evapotranspiration and infiltration. Classify different type of geological formation of ground water and estimate yield
2. Classify various types of irrigation and describe principals of irrigation
3. Explain the principals of crop water requirements and determine the irrigation crop water requirements
4. Describe canal regulation works and design various elements in canal regulation works
5. Classify different types of cross drainage works and explain the concepts of reservoir planning
6. Classify various types of dams and estimate the stability of gravity of dam

### **(18CE0118) ESTIMATION, COSTING AND VALUATION**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Apply different methods of estimates for calculating the quantities of building works
2. Calculate the quantity of earthwork in roads and canals
3. Estimate the quantities of the reinforcement in the beams, slabs, columns with foundation and staircase
4. Work out the rate analysis of various items of building works
5. Explain specifications of various items of building works
6. Assess valuation of assets



### **(18CE0119) GEOTECHNICAL ENGINEERING LAB**

#### **COURSE OUTCOMES (COs)**

On successful the completion of this course, the student will be able to

1. Conduct tests on fine grained soils to determine Atterberg's limits
2. Conduct fields test to find out field density of cohesive and cohesion less soils
3. Perform sieve analysis and sedimentation analysis to classify the soil
4. Conduct field tests on soil to estimate soil permeability
5. Conduct compaction test and draw compaction curve to find out optimum moisture content and maximum dry density
6. Conduct shear tests to predict shear strength of the soil

### **(18CE0120) CONSTRUCTION MATERIALS LAB**

#### **COURSE OUTCOMES (COs)**

After the completion of this course, students will be able to

1. Outline the importance of testing of cement and conduct various tests on cement
2. Assess the different properties of aggregate
3. Summarize the concept of workability and testing of concrete
4. Determine the specific gravity and water absorption on fine aggregate.
5. Conduct tests on hardened concrete and describe its properties
6. Perform non-destructive test on concrete

### **(18CE0121) SURVEYING LAB-II**

#### **COURSE OUTCOMES (COs)**

Students undergoing this course are able to

1. Measure horizontal and vertical angles using transit theodolite and determine the tachometric constant
2. Determine horizontal distances between accessible and inaccessible point using the principals of trigonometry with the help of theodolite and tachometry
3. Find the heights of objects using the theodolite and tachometry
4. Set simple curves by different methods using theodolite
5. Carry out setting of works for building and pipe lines
6. Use total stations to carryout various surveying jobs

### **(18HS0842) APTITUDE PRACTICES**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Develop the subtle way of approaching in the candidate
2. Acquired the decision making with in no time
3. Implement logical thinking during professional tenure
4. Improve knowledge on problem solving
5. Understand problems on coding and decoding
6. Apply the knowledge on the concept of reasoning in real life

### **III B.Tech – II Sem**

### **(18CE0122) CONSTRUCTION PROJECT MANAGEMENT**

## **COURSE OUTCOMES(COs)**

At the end of the course, the student should be able to

1. Describe importance, types, phases, participants of construction projects and summarize functions of construction management
2. Develop bar chart, mile stone charts and can explain the basic principles of network techniques
3. AnalyzePERT& CPM networks to find various time estimates and identify critical activities and path
4. Optimize thecost and can update CPM network
5. Discuss significance of material management and quality management of construction projects
6. Recognizevarious issues related to construction safety and can describe fundamentals of construction contracts

## **(18CE0123) ENVIRONMENTAL ENGINEERING**

### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Forecast population, Estimate the water demand for a town or city during design period
2. Describe water quality criteria and standards, and their relation to public health
3. An ability to Design the various functional units in water treatment and distribution system
4. Estimate sewage generation and Design of sewer system
5. Recognize characteristics and composition of wastewater
6. Design of the unit operations and processes that are used in sewage treatment and sludge disposal

## **(18CE0124) TRANSPORTATION ENGINEERING**

### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Recognize significance of highway alignment and can carry out engineering surveys for highway location
2. Design various geometric elements of highway
3. Implement traffic studies, traffic regulations and can design intersection and traffic signals
4. Design flexible and rigid pavements as per IRC
5. Describe different components of permanent way in Railway Track
6. Design various components of Railway Track

## **(18CE0125) TRANSPORTATION ENGINEERING LAB**

### **COURSE OUTCOMES (COs)**

After completion of this course, the students will be able to

1. Conduct test on road aggregates to estimate their mechanical properties
2. Perform shape tests on aggregates and decide their suitability as road aggregates
3. Conduct tests on bitumen to find its properties and purity
4. Conduct tests on bitumen to identify its grade
5. Perform traffic volume studies
6. Perform vehicle speed studies

## **(18CE0126) ENVIRONMENTAL ENGINEERING LAB**

### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Describe and use the water and wastewater sampling procedures and sample preservations
2. Conduct the physical tests on drinking water and compare the result with standards
3. Perform the test on drinking water to estimate various chemical constituents
4. Conduct test on drinking water to access biological contamination
5. Perform the Total solids test to estimate the level of contamination of water
6. Decide the optimal coagulant dose required to treat water

### **(18HS0859) ENGLISH FOR CORPORATE COMMUNICATION SKILLS LAB**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Flair in Writing by using cohesion and coherence.
2. Prepare effective job application.
3. Present Effective Speaking Abilities.
4. Apply various communicative techniques in their professional lives.
5. Cope with the employability skills.
6. Use effective communicative approaches by preparing job application, report and other kinds of spoken and written correspondences.

### **(18CE0133) FOUNDATION ENGINEERING**

#### **COURSE OUTCOMES (COs)**

At the end of the course the student will able to

1. Describe different earth pressures and calculate active and passive earth pressures using Rankine's theory, Coulomb's theory and graphical techniques
2. Establish the stability of retaining walls
3. Discuss various theories on bearing capacity and field tests and apply them to estimate the bearing capacity of soils and conduct settlement analysis
4. Classify various types of pile foundation, analyze the load carrying capacity of pile and pile groups
5. Describe the concept of well foundation and explain the design and construction aspects of caisson foundation
6. Describe types and principals of machine foundations

### **(18CE0134) WATER TECHNOLOGY**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Underline the importance of water and Describe the mechanism of hydrological cycle
2. Describe various elements associate with public water supply
3. Describe water quality criteria and standards, and their relation to public health
4. Recognize the cause of water pollution and Influence of climatic changes on water resources
5. Summarize various water conservation techniques in practice
6. Explain need for watershed management and Implement various plans for watershed management

### **(18CE0135) MAINTENANCE & REHABILITATION OF STRUCTURES**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Describe the fundamentals of maintenance and repair strategies
2. Identify the probable reasons for the deterioration of various structural members
3. Explain the causes of corrosion and its prevention
4. Know the materials and techniques used for repair of structures
5. Assessing damage to structures and various repair techniques
6. Carry out inspection and evaluation of damaged structure

### **(18EE0234) INDUSTRIAL INSTRUMENTATION**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Identify and explain the types of errors occurring in measurement system
2. Differentiate among the types of data transmission and modulation techniques
3. Apply digital techniques to measure voltage, frequency and speed
4. Analyse the working principles of different Signal Analyzers and Digitalmeter
5. Understand the operation of several types of transducers
6. Choose suitable Transducers for the measurement of non-electrical quantities

### **(18ME0307) NON-CONVENTIONAL ENERGY RESOURCES**

#### **COURSE OUTCOMES (COs)**

On successful completion of the course, the student will be able to

1. State various sources of Energies, its availability and explain the importance of them by observing the global energy scenario.
2. Distinguish the types of solar energy tapping devices and describe the method of harnessing the solar energy.
3. Summarize the Wind energy systems and elucidate the impact of it in environmental aspects.
4. Describe the Biomass conversion process and list out various bioenergy applications.
5. Interpret the knowledge of renewable energies such as tidal energy, OTEC, Fuel cell, etc. for effective construction of Hybrid systems.
6. Identify numerous applications renewable energy resources and illustrate its harnessing technologies

### **(18EC0449) INTRODUCTION TO IOT**

#### **COURSE OUTCOMES**

On successful completion of this course, student will be able to

1. Understand the technology and standards relating to IoTs
2. Understand where the IoT concept fits within the broader ICT industry and possible future trends
3. Understand the key components that make up an IoT system
4. Differentiate between the levels of the IoT stack and be familiar with the key technologies and protocols employed at each layer of the stack
5. Configure Raspberry Pi, Understand Sensors, and Actuators & get started with python on Raspberry Pi
6. Apply the knowledge and skills acquired during the course to design, build and test a complete, working IoT system involving prototyping, programming and data analysis

### **(18CS0517) PYTHON PROGRAMMING**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Solve the problems using control structures, input and output statements
2. Summarize the features of lists, tuples, dictionaries, strings and files
3. Experience the usage of standard libraries, objects, and modules
4. Solve the problems using Object Oriented Programming Concepts
5. Build the software for real time applications using python
6. Install various Python packages

### **(18HS0814) INTELLECTUAL PROPERTY RIGHTS**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Become aware of intellectual property rights, concepts, treaties, agencies and international organizations involved in sanctioning IP rights
2. Identify different types of intellectual properties, ownership rights and the scope of the protection
3. Get an adequate knowledge on patents, trademarks, copy rights and to get property rights for their intellectual work
4. Able to identify, apply, and assess ownership rights, registration processes for IP rights
5. To discern the approaches for intellectual property management and intellectual property audits
6. Demonstrate knowledge and understanding on unfair competition and latest developments in IP rights at international level

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**  
**(AUTONOMOUS)**  
**Bachelor of Technology**  
**Department of Electrical & Electronics Engineering**

**B.Tech, I Year 1<sup>st</sup> semester**

**(18HS0830) MATHEMATICS-I**

**Course Outcomes:**

The objective of this course is to familiarize the prospective engineers with techniques in calculus, multivariate analysis and linear algebra. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their disciplines.

**(18HS0849) PHYSICS**

**Course outcomes:**

Studies will be familiar with

- ☐ Various basic terms related to waves and Oscillations.
- ☐ Some of the basic concepts related properties of Lasers.
- ☐ Able to explain Dual nature of matter.
- ☐ Recognize importance of free electrons theory and semiconductors.
- ☐ Understand the importance of Nanotechnology.

**(18CS0501) PROGRAMMING FOR PROBLEM SOLVING**

**Course Outcomes:**

- ☐ Able to design the flowchart and algorithm for real world problems.
- ☐ Able to learn and understand new programming languages.
- ☐ Able to construct modular and readable programs.
- ☐ Able to write C programs for real world problems using simple and compound data types.

**(18ME0348) THERMAL & FLUID ENGINEERING**

**Course Outcomes:**

- ☐ Understands the applied thermodynamic concepts, the construction and the working principles of various engineering devices such as steam generators, steam nozzles, steam turbine.
- ☐ Knows the different types of pipe flow and the conditions governing them. Equations related to different flows are derived and the student gets to understand the working of the different devices used for measurement of fluid flow under different conditions.

**(18ME0301) WORKSHOP PRACTICE LAB**

**Course Outcomes:**

- ☐ After completion of this course, a successful student will be able to: Utilize workshop tools for engineering practice.
- ☐ Employ skills for the production a component for real time applications. Appreciate the hard work and intuitive knowledge of the manual workers.

## **(18CS0503) PROGRAMMING FOR PROBLEM SOLVING LAB**

### **Course Outcomes:**

At the end of the course, students will be able to

- Apply problem solving techniques for C to find solution
- Use C language features effectively to implement solutions.
- Use C++ Language features effectively to implement solutions.
- Identify and develop apt searching and sorting technique for a given problem.
- Identify'Design & develop the appropriate data structure for a given problem or application

## **B.Tech, I Year 2<sup>nd</sup> semester**

### **(18HS0810) ENGLISH**

#### **Course Outcomes**

Students will be able:

- To understand the rules of English grammar and their usage in writing English.
- To use LSRW skills through the prescribed text and develop their ability to communicate effectively.
- To get the mastery of language to express ideas, views, feelings and experience.
- To communicate well among themselves.
- To inculcate values and ideal characteristic qualities in themselves.

### **(18HS0831) MATHEMATICS-II**

#### **Course Outcomes:**

The objective of this course is to familiarize the prospective engineers with techniques in calculus, multivariable calculus and complex analysis. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of Mathematics and applications that they would find useful in their disciplines.

### **(18HS0801) CHEMISTRY**

#### **Course Outcomes:**

- Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
- Able to design the flowchart and algorithm for real world problems
- Able to learn and understand new programming languages
- Able to construct modular and readable programs Rationalise bulk properties and processes using thermodynamic considerations.
- Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques
- Rationalise periodic properties such as ionization potential, electronegativity, oxidation states and electronegativity.

### **(18EE0201) ELECTRICAL CIRCUITS-I**

**Course Outcomes:**

- After completing the course, the student should be able to do the following:
- Determine the equivalent impedance of given network by using network reduction techniques.
- Determine the real power, reactive power, power factor etc., for the given network. Determine the current through any element and voltage across any element.
- Apply the network theorems suitably.

**(18ME0302) ENGINEERING GRAPHICS & DESIGN****Course Outcomes:**

- Students undergoing this course are able to
- Frame ideas based on the conceptual modeling and design
- Provide good understanding of the methods involved in preparing various views in Engineering drawings
- Can prepare 2D and 3D diagrams of various objects.

**(18HS0811) ENGLISH LAB****Course Outcomes:**

- Students will be able:
- To recognize sounds of English language with different classifications.
- To know phonetic transcription and phonemic symbols of English language
- To understand international accent and utilize the same in their daily conversation.
- To create confidence for public speaking, for facing interviews, for making effective oral presentations, for having discussions, and for delivering impromptu speeches.

**(18HS0802) CHEMISTRY LABORATORY****Laboratory Outcomes**

- The chemistry laboratory course will consist of experiments illustrating the principles of chemistry relevant to the study of science and engineering. The students will learn to:
- Estimate rate constants of reactions from concentration of reactants/products as a function of time.
- Measure molecular/system properties such as surface tension, viscosity, conductance of solutions, redox potentials, chloride content of water, etc.
- Synthesize a small drug molecule and analyse a salt sample.

**(18HS0816) INDIAN CONSTITUTION****COURSE OUTCOMES**

Students will be able to:

- ☐ Explain the key concepts of political economy
- ☐ Analyse the significant developments in the political ideologies
- ☐ Describe the salient features of the constitution of India interpret, integrate and critically
- ☐ Analyse the political economy of Indian international relations and gain knowledge in Judiciary



system

- ☐ Apply their knowledge and skills acquired to write civil service examinations

## **B.Tech, II Year 1<sup>st</sup> semester**

### **(18HS0803) BIOLOGY FOR ENGINEERS**

#### **Course Outcomes**

- Classify enzymes and distinguish between different mechanisms of enzyme action.
- Identify DNA as a genetic material in the molecular basis of information transfer.
- Analyse biological processes at the reductionistic level
- Apply thermodynamic principles to biological systems.
- Identify and classify microorganisms.

### **(18EE0202) ELECTRICAL CIRCUITS-II**

#### **Course Outcomes:**

At the end of this course, students will demonstrate the ability to

- ☐ Analyze the transient behavior of electrical networks for various excitations.
- ☐ Analyze the Electrical Circuits with the concept of Network topology.
- ☐ Analyze the three phase circuits with Star & Delta connected balanced and unbalanced loads.
- ☐ Obtain the various network parameters for the given two port networks.
- ☐ Represent the transfer function for the given network.

### **(18EC0443) ANALOG ELECTRONIC CIRCUITS**

#### **Course Outcomes:**

- ☐ Upon completion of this course, student will be able to: Understand Diode Circuits, BJT and FET amplifiers.
- ☐ Become familiar with the basic building blocks of linear integrated circuits.

### **(18EE0203) ELECTRO MAGNETIC FIELDS**

#### **Course Outcomes:**

After going through this course the student acquires:

- ☐ Knowledge on basic principles, concepts and fundamental laws of electromagnetic fields.
- ☐ The knowledge to understand 3, dimensional coordinate systems, electrostatics, magneto statics, time, varying fields and interaction between electricity and magnetism

### **(18EE0204) ELECTRICAL MACHINES-I**

#### **Course Outcomes:**

- After completing the course, the student should be able to do the following: Calculate the e.m.f. generated on open circuit and find terminal voltage on load.
- Diagnose the failure of DC generator to build up voltage.
- Compute the load shared by each generator when several generators operate in parallel.
- Draw the equivalent circuit of transformer
- Conduct O.C, S.C tests and predetermine the regulation and efficiency of transformer

### **(18EC0445) ANALOG ELECTRONIC CIRCUITS LAB**

#### **Course Outcomes:**

Upon completion of this course, student will be able to:

- ☐ Understand about various semiconductor devices and its characteristics.
- ☐ Find the Frequency response characteristics of BJT and FET amplifiers and to
- ☐ Determine bandwidth.

### **(18ME0349) THERMAL & FLUID ENGINEERING LAB**

#### **Course Outcomes:**

After completing the course, the student should be able to do the following:

- ☐ Correctly measure and successfully troubleshoot circuits by taking accurate data and interpret results
- ☐ .Apply suitable theorems for circuit analysis and verify the results theoretically.

**B.Tech, II Year 2<sup>nd</sup>  
semester**

### **(18EC0444) DIGITAL ELECTRONICS**

#### **Course Outcomes:**

At the end of the Course, the students will demonstrate the ability to

- ☐ Define different Number system and perform Number base conversions.
- ☐ Design and analyze Combinational Logic Circuits
- ☐ Design and analyze modular Combinational Circuits with MUX / DEMUX, Decoder /Encoder
- ☐ Design and analyze synchronous sequential logic circuits

### **(18HS0833) PROBABILITY & STATISTICS, NUMERICAL METHODS**

#### **Course Outcomes:**

The objective of this course is to familiarize the prospective engineers with techniques in Probability & Statistics and Numerical Methods. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their disciplines.

### **(18EE0206) POWER ELECTRONICS**

#### **Course Outcomes:**

- ☐ Design of power electronic converters in power control applications.
- ☐ Ability to express characteristics of SCR, BJT, MOSFET and IGBT.
- ☐ Ability design AC voltage controller and Cyclo Converter.
- ☐ Ability to design Chopper circuits.

### **(18EE0207) ELECTRICAL MACHINES-II**

#### **Course Outcomes:**

After completing the course, the student should be able to do the following:

- ☐ Compute the load shared by each transformer when several transformers operate in parallel.
- ☐ Draw the circle diagram of a three phase Induction motor and predetermine the performance characteristics.
- ☐ Determine the starting torque, maximum torque, slip at maximum torque using given data.

### **(18EC0403) SIGNALS & SYSTEMS**

#### **Course Outcomes:**

At the end of this course students will demonstrate the ability to

- ☐ Analyze different types of signals.
- ☐ Represent continuous and discrete systems in time and frequency domain using different transforms.
- ☐ Investigate the system stability.
- ☐ Sampling and reconstruction of a signal.

### **(18EE0208) ELECTRICAL CIRCUITS SIMULATION LAB**

#### **Course Outcomes:**

- ☐ Analyze networks by various techniques.
- ☐ Analyze circuit responses.

### **(18EE0209) ELECTRICAL MACHINES-I LAB**

#### **Course Outcomes:**

The student should be able to do the following:

- Conduct experiments to obtain the no, load and load characteristics of D.C.
- Generators. Conduct tests on D.C. motors for predetermination of efficiency.
- Conduct tests on D.C. motors for determination of efficiency.
- Control the speed of D.C. motor in a given range using appropriate method .
- Identify the reason as to why D.C. Generator is not building up voltage.

### **B.Tech., III Year 1<sup>st</sup> semester**

#### **(18HS0812) MANAGERIAL ECONOMICS AND FINANCIAL**

##### **ANALYSIS COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

- Understand the nature of managerial economics and the role of it in business firms
- Identify the determinants of demand and apply cost analysis under different market conditions
- Integrate the concepts of price and output decisions of business firms
- Appreciate the importance of market structures and implement appropriate price and output decisions
- Assess the financial statements of a firm and the financial performance of the firm through the financial statements
- Measure operating, investing and financial performance of a firm

#### **(18EC0414) DIGITAL SIGNAL**

##### **PROCESSING COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

- Apply DFT & FFT for the analysis of digital signals and systems and Compare its efficiency.
- Design IIR and FIR filters for the given specifications.
- Construct different forms of IIR and FIR filter realizations.
- Distinguish the effects of finite precision representation on digital filters.
- Evaluate the errors due to Truncation and Rounding in Quantization process.
- Realize DSP architecture and programming.

## **(18EE0210) POWER SYSTEMS-I**

### **COURSE OUTCOMES**

After completion of the course the student should be able to:

- Understand the principles of power generation. Investigate the line diagram and components in thermal power station, Hydro and Nuclear power stations
- understand the process involved in solar, wind, biogas, geothermal and ocean energy generation
- Investigate different tariff methods
- Compute the transmission line parameters and Estimate the performance of a given transmission line
- Understand the types of insulators, sag and corona
- Understand the construction, types and grading of underground cables

## **(18EE0211) CONTROL SYSTEMS**

### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

- Identify open and closed loop control system.
- Formulate mathematical model for physical systems and simplify representation of complex systems using reduction techniques.
- Use standard test signals to identify performance characteristics of first and second-order systems.
- Apply root locus technique for stability analysis.
- Analyze performance characteristics of system using Frequency response methods.
- Develop and analyze state space models.

## **(18EE0212) ELECTRICAL MEASUREMENTS**

### **COURSE OUTCOMES:**

After successful completion of the course, student will be

- Able to develop an understanding of construction and working of different measuring instruments
- Able to develop an understanding of construction and working of different AC and DC bridges and its applications
- Familiar with C.T and P.T and its applications
- Familiar with various measuring instruments used to detect electrical quantities such as power and energy.
- Able to measure magnetic measurements.
- Able to measure Phase, Frequency, Current and Voltage by using CRO.

### **(18EE0213) ELECTRICAL MACHINES-II LAB**

#### **COURSE OUTCOMES:**

After going through this laboratory course

- The student acquires sufficiently good practical knowledge about the operation, testing, and characteristics of Transformers
- The student acquires sufficiently good practical knowledge about the operation, testing, and characteristics of Induction motors
- The student acquires sufficiently good practical knowledge about the operation, testing, and characteristics of Alternators
- The student should also have acquired the knowledge about the fixation of the rating of transformers, induction motors and synchronous machines.
- The Student will be able to calculate the  $X_d$  and  $X_q$  of Salient Pole Synchronous Machine
- The Student will be able to calculate Regulation of Three-Phase Alternator by Z.P.F. and A.S.A Methods

### **(18EE0214) CONTROL SYSTEMS LAB**

#### **COURSE OUTCOMES (COs)**

At the end of the course the student should be able to

- Design the controllers/compensators to achieve desired specifications.
- Understand the effect of location of poles and zeros on transient and steady state behavior of systems.
- Assess the performance, in terms of time domain specifications, of first and second order systems.
- Understand the effect of P, PD, PI, PID controllers on second order systems.
- Use MATLAB/SIMULINK software for control system analysis and design.
- Use MATLAB/SIMULINK software for state space model.

### **(18EE0215) ELECTRICAL**

#### **MEASUREMENTS LAB COURSE OUTCOMES:**

On successful completion of this course, the student will be able to:

- Calibrate various electrical measuring/recording instruments.
- Accurately determine the values of inductance and capacitance using a.c bridges.
- Accurately determine the values of very low resistances.
- Measure reactive power in 3-phase circuit using single wattmeter.
- Determine ratio error and phase angle error of CT.
- Measure the power by using 3 Voltmeter Method and 3 Ammeter Method.

### **(18HS0842) APTITUDE PRACTICES**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to:

- Develop the subtle way of approaching in the candidate.
- Acquired the decision making with in no time.
- Implement logical thinking during professional tenure.
- Improve knowledge on problem solving.
- Understand problems on coding and decoding.
- Apply the knowledge on the concept of reasoning in real life.

### **B.Tech, III Year II<sup>nd</sup> semester**

#### **(18HS0813)**

#### **MANAGEMENT SCIENCECOURSE OUTCOMES**

##### **(COs)**

On successful completion of this course, the student will be able to

- Utilize appropriate theoretical frameworks to real life business and managerial problems
- Identify appropriate operational risks and develop appropriate responses to them
- Apply human resource principles to recruit, select and manage employees to achieve organizational goals
- Enact strategy, including contingent plans for the effective management of the organization
- Identify, plan, and implement the projects and evaluate the performance of the projects
- Analyze effective application of latest developments to diagnose and solve organizational problems

### **(18EC0420) MICROPROCESSORS AND**

#### **MICROCONTROLLERSCOURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

- Understand the evolution of computers, processors, and its applications
- Explain the various software and hardware parts of a microprocessors and computer
- Understand the architectures of 8085 microprocessor and 8051 microcontroller system
- Analyze the programming model of 8085 Microprocessor & 8051 microcontroller development environment.
- Implement the techniques of interfacing memories, various I/O devices, sensors and actuators with microprocessor and microcontrollers
- Design and develop various microprocessor/microcontroller-based systems for the real-life problems

### **(18EE0216) POWER SYSTEMS - II**

### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

- Form the Z Bus and Y Bus of a given power system network.
- Make fault calculations for various types of faults
- Conduct load flow studies on a given system.
- Compare different methods used for obtaining load flow solution
- Understand the Concepts of Steady State, Dynamic and Transient Stabilities.
- Understand the Equal area criterion and its application

### **(18EE0221) ELECTRICAL MACHINE DESIGNCOURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

- The students will be able to Understand the principle of electrical machine design. .
- The students will be able to design transformers.
- The students will be able to design DC Generator
- The students will be able to design DC Motor
- The students will be able to design synchronous machines.
- The students will be able to design three phase induction motors.
- (18EE0222) POWER SEMICONDUCTOR DRIVES

### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

- Control DC and AC drives.
- Analyze the operation of the converter, chopper fed dc drive.
- Analyze the operation of both Induction & Synchronous machine drives.
- Design the current and speed controllers for a closed loop solid-state dc motordrive
- Select the drives for any particular application

### **(18EE0223) MODERN CONTROL THEORYCOURSE OUTCOMES**

On successful completion of this course, the student will be able to

- Model a given dynamic system in state space and obtain the solution for theState equation.
- Test whether a given system is controllable and/or observable
- Design a state feedback controller for pole placement
- Design an observer for state estimation
- Apply Lyapunov criterion and determine stability of a given system
- Analyze non linear systems.



## **(18CE0127) ELEMENTS OF ROAD TRAFFIC SAFETY**

### **COURSE OUTCOMES**

On successful completion of this course, the student will be able to

- Identify the causes for road accidents and can implement measures to prevent road accidents
- Describe traffic regulations and implement parking methods
- Classify different traffic signal and can design traffic signal system
- List and illustrate various traffic signs
- List and discuss various road markings
- Discuss importance of street lighting and classify various street lighting system

## **(18ME0307) NON-CONVENTIONAL ENERGY**

### **RESOURCE COURSE OUTCOMES**

On successful completion of this course, the student will be able to

- State various sources of Energies, its availability and explain the importance of them by observing the global energy scenario.
- Distinguish the types of solar energy tapping devices and describe the method of harnessing the solar energy.
- Summarize the Wind energy systems and elucidate the impact of it in environmental aspects.
- Describe the Biomass conversion process and list out various bioenergy applications.
- Interpret the knowledge of renewable energies such as tidal energy, OTEC, Fuel cell, etc. for effective construction of Hybrid systems.
- Identify numerous applications renewable energy resources and illustrate its harnessing technologies.

## **(18EC0449) INTRODUCTION TO IOT**

### **COURSE OUTCOMES**

On successful completion of this course, the student will be able to

- Understand the technology and standards relating to IoTs.
- Understand where the IoT concept fits within the broader ICT industry and possible future trends.
- Understand the key components that make up an IoT system.
- Differentiate between the levels of the IoT stack and be familiar with the key technologies and protocols employed at each layer of the stack.
- Configure Raspberry Pi, Understand Sensors, Actuators & get started with python on Raspberry Pi.
- Apply the knowledge and skills acquired during the course to design, build and

test a complete, working IoT system involving prototyping, programming and data analysis.

### **(18CS0517) PYTHON**

#### **PROGRAMMING COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to:

- Solve the problems using control structures, input and output statements.
- Summarize the features of lists, tuples, dictionaries, strings and files
- Experience the usage of standard libraries, objects, and modules
- Solve the problems using Object Oriented Programming Concepts
- Build the software for real time applications using python
- Install various Python packages

### **(18HS0814) INTELLECTUAL PROPERTY RIGHTS**

#### **COURSE OUTCOMES**

On successful completion of this course, the student will be able to

- Become aware of intellectual property rights, concepts, treaties, agencies and international organizations involved in sanctioning IP rights
- Identify different types of intellectual properties, ownership rights and the scope of the protection
- Get an adequate knowledge on patents, trademarks, copy rights and to get property rights for their intellectual work
- Able to identify, apply, and assess ownership rights, registration processes for IP rights
- To discern the approaches for intellectual property management and intellectual property audits
- Demonstrate knowledge and understanding on unfair competition and latest developments

### **(18EE0217) POWER ELECTRONICS AND**

#### **DRIVES LAB COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

- Analyze various power electronic devices and their commutation circuits
- Understand voltage and current characteristics of various converters and inverters at different firing angles
- Analyze different types of converters and inverters with different types of loads
- Design current and speed controllers to control dc motor
- Design DC-DC converter and regulated power supply

### **(18EE0218) POWER SYSTEMS LAB COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to:

- Experimental determination (in machines lab) of sequence impedance and Sub transient reactances of synchronous machine.
- Conducting experiments to analyze LG, LL, LLG, LLLG faults.
- The equivalent circuit of three winding transformer by conducting a suitable experiment.
- Develop MATLAB program for formation of Y and Z buses.
- Develop MATLAB programs for gauss-seidel and fast decoupled load flow studies.
- Develop the SIMULINK model for single area load frequency control problem.

**(18HS0859) ENGLISH FOR CORPORATE COMMUNICATION  
SKILLS LAB**

**Course Outcomes**

- Flair in Writing by using cohesion and coherence.
- prepare effective job application.
- Presenting Effective Speaking Abilities.
- Apply various communicative techniques in their professional lives.
- cope with the employability skills.
- Use effective communicative approaches by preparing job application, report and other kinds of spoken and written correspondences.

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**  
**(AUTONOMOUS)**  
**Bachelor of Technology**  
**Department of Mechanical Engineering**

**I B. Tech. – I Semester (M.E)**

**(18HS0830) MATHEMATICS-I**

**Course Outcomes:**

The objective of this course is to familiarize the prospective engineers with techniques in calculus, multivariate analysis and linear algebra. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their disciplines.

**(18HS0850) PHYSICS**

**Course outcomes:**

**Studies will be familiar with**

1. Able to explain properties of electromagnetic waves.
2. Some of the basic concepts related Maxwell equations and properties of magnetic materials.
3. Various basic terms related to Waves, Optics and Acoustics.
4. Some of the basic concepts related properties of Laser.
5. Understand the importance of Nanotechnology.

**(18CE0101) ENGINEERING MECHANICS**

**Course Outcomes:**

On completion of this course, the student will be able to

1. Construct free body diagrams and develop appropriate equilibrium equations.
2. Understand the concepts of friction and to apply in real life problems.
3. Determine the centroid for composite sections.
4. Determine the Moment of Inertia for composite sections.

**(18CS0501) PROGRAMMING FOR PROBLEM SOLVING**

**Course Outcomes:**

1. Able to design the flowchart and algorithm for real world problems
2. Able to learn and understand new programming languages
3. Able to construct modular and readable programs
4. Able to write C programs for real world problems using simple and compound data types

### **(18CS0503) PROGRAMMING FOR PROBLEM SOLVING LAB**

#### **Course Outcomes:**

At the end of the course, students will be able to

1. Apply problem solving techniques of C to find solution.
2. Use C language features effectively to implement solutions.
3. Use C++ language features effectively to solve problems.
4. Identify and develop apt searching and sorting technique for a given problem.
5. Identity, design and develop the appropriate data structure for a given problem or application.

### **(18ME0301) WORKSHOP PRACTICE LAB**

#### **Course Outcomes:**

After completion of this course, a successful student will be able to :

1. Utilize workshop tools for engineering practice.
2. Employ skills for the production a component for real time applications.
3. Appreciate the hard work and intuitive knowledge of the manual workers.

### **(18HS0810) ENGLISH**

#### **Course Outcomes**

Students will be able:

1. To understand the rules of English grammar and their usage in writing English.
2. To use LSRW skills through the prescribed text and develop their ability to communicate effectively.
3. To get the mastery of language to express ideas, views, feelings and experience.
4. To communicate well among themselves.
5. To inculcate values and ideal characteristic qualities in themselves.

### **(18HS0831) MATHEMATICS II**

#### **Course Outcomes:**

The objective of this course is to familiarize the prospective engineers with techniques in calculus, multivariable calculus and complex analysis. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of Mathematics and applications that they would find useful in their disciplines.

### **(18HS0801) CHEMISTRY**

#### **Course Outcomes:**

1. Analyze microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
2. Able to design the flowchart and algorithm for real world problems
3. Able to learn and understand new programming languages

### **(18ME0302) ENGINEERING GRAPHICS & DESIGN**

#### **Course Outcomes:**

Students undergoing this course are able to

1. Frame ideas based on the conceptual modeling and design
2. Provide good understanding of the methods involved in preparing various views in Engineering drawings
3. Can prepare 2D and 3D diagrams of various objects

### **(18ME0303) MATERIALS ENGINEERING**

#### **Course Outcomes:**

Students undergoing this course are able to

1. Describe fundamental scientific (chemistry, physics) and engineering principles (material science) in materials processes and material systems.
2. Students will get knowledge on bonds of solids and knowing the crystallization of metals
3. Students should be able to understand the equilibrium diagrams and their usage in the production processes.

### **(18HS0811) ENGLISH LAB**

#### **Course Outcomes:**

Students will be able:

1. To recognize sounds of English language with different classifications.
2. To know phonetic transcription and phonemic symbols of English language.
3. To understand international accent and utilize the same in their daily conversation.
4. To crease confidence for public speaking, for facing interviews, for making effective oral presentations, for having discussions, and for delivering impromptu speeches.

### **(18HS0816) INDIAN CONSTITUTION**

#### **Course Outcomes:**

Students will be able to:

1. Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
2. Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
3. Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.
4. Discuss the passage of the Hindu Code Bill of 1956.

### **(18HS0835) PROBABILITY & STATISTICS**

#### **Course Outcomes:**

At the end of the course, students would be expected to:

1. Have acquired ability to participate effectively in group discussions
2. Have developed ability in writing in various contexts

### **(18HS0803) BIOLOGY FOR ENGINEERS**

#### **Course Outcomes**

1. Classify enzymes and distinguish between different mechanisms of enzyme action.
2. Identify DNA as a genetic material in the molecular basis of information transfer.
3. Analyze biological processes at the reductionistic level
4. Apply thermodynamic principles to biological systems.
5. Identify and classify microorganisms.

### **(18CE0151) STRENGTH OF MATERIALS**

#### **Course Outcomes:**

Students undergoing this course are able to:

1. The students would be able to understand the behaviour of materials under different stress and strain conditions.
2. The students would be able to draw bending moment, shear force diagram, bending stress and shear stress distribution for beams under the different conditions of loading.
3. The student would be able to apply knowledge to analyse concept of deflection, bending moment and shear force diagram in beams under various loading conditions.
4. Determine shear stress in the shaft subjected to torsional moments.

### **(18ME0304) KINEMATICS OF MACHINERY**

#### **Course Outcomes:**

Students undergoing this course are able to

1. Familiarity with common mechanisms used in machines and everyday life.
2. Identify different mechanisms, Inversions of kinematic chains
3. Ability to perform analysis of different types of links, position, velocity, acceleration analyses.

### **(18CE0152) FLUID MECHANICS & FLUID MACHINES**

#### **Course Outcomes:**

After completion of this course the student will be able to,

1. How to find frictional losses in a pipe when there is a flow between two places.
2. Know types of flow and its measurements and applications.
3. Identify the suitable pump required for different purposes.
4. Classify the turbines and design criteria based on water availability.

### **(18ME0305) MATERIAL TESTING LAB**

#### **Course Outcomes:**

After completion of this course, a successful student will be able to:

1. Prepare metallographic samples for microscopic examinations.
2. Analyze the microstructure and estimate the amount of porosity and grain size of the casted specimen.
3. Analyze the mechanical Properties of Various Engineering materials

### **(18ME306) MACHINE DRAWING LAB**

#### **Course Outcomes:**

1. Students can understand the working principles of an assembly or subassembly so that he/she will be able to produce the final product by procuring the units from various sources/suppliers and still produce any useful product serving effectively.
2. The drawings can be easily prepared and understood by the people in a manufacturing industry.

### **(18CE0153) FLUID MECHANICS & FLUID MACHINES LAB**

#### **Course Outcomes:**

Students undergoing this course are able to

1. Calibrate Venturimeter& Orifice meter
2. Calculate losses in flows
3. Estimate the efficiency of different pumps.
4. Study the performance of different turbines.

### **(18HS0804) ENVIRONMENTAL SCIENCES**

#### **Course Outcomes:**

1. Based on this course, the Engineering Student will be able to understand/evaluate/develop technologies on the basis of Ecological principles and environmental regulations along with Legislation, Laws and Policies which in turn help in sustainable development.
2. Take preventive measures to reduce air, water, soil pollutions and contaminants in food.
3. Effectively carry out waste disposal at individual level.
4. Involve in preservation of natural resources.

### **(18ME0307) NON- CONVENTIONAL ENERGY RESOURCES**

#### **COURSE OUTCOMES**

On successful completion of the course, the student will be able to

1. State various sources of Energies, its availability and explain the importance of them by observing the global energy scenario.
2. Distinguish the types of solar energy tapping devices and describe the method of harnessing the solar energy.
3. Summarize the Wind energy systems and elucidate the impact of it in environmental aspects.
4. Describe the Biomass conversion process and list out various bioenergy applications.



5. Interpret the knowledge of renewable energies such as tidal energy, OTEC, Fuel cell, etc. for effective construction of Hybrid systems.
6. Identify numerous applications renewable energy resources and illustrate its harnessing technologies

### **(18EE0240) BASIC ELECTRICAL AND ELECTRONICS ENGINEERING**

#### **Course Outcomes:**

Upon completion of the course, students will:

1. Determine the equivalent impedance of given network by using network reduction techniques.
2. Determine the current through any element and voltage across any element
3. Apply the network theorems suitably.
4. Analyze the operating principles of motor and transformer.
5. Analyze the operating principles of major electronic devices, its characteristics and applications.
6. Design and analyze the DC bias circuitry of BJT and FET.

### **(18ME0308) MANUFACTURING PROCESSES**

#### **Course Outcomes:**

Students undergoing this course are able to

1. Demonstrate knowledge of engineering principles (metallurgy, mechanics, and/or material science) in manufacturing processes.
2. Use appropriate machine tool equipment, standardized methods and apparatus or manufacturing processes.
3. Use finite element software to simulate physical behaviors of mechanical structures or systems.
4. Apply FEA principles for component and assembly design

### **(18ME0309) THERMODYNAMICS**

#### **Course Outcomes:**

Students undergoing this course are able to

1. Apply the laws of thermodynamics to analyze thermal systems.
2. Can understand the energy transformation from one system to other system.
3. Can understand the working principles of I.C. Engines.

### **(18ME0310) THEORY OF MACHINES**

#### **Course Outcomes:**

Students undergoing this course are able to

1. Understand and apply the basic principles of dynamics.
2. Relate the motion of parts in a machine using the principles of kinematics

### **(18ME0311) MANUFACTURING PROCESSES LAB**

#### **Course Outcomes:**

Students undergoing this course are able to

1. Demonstrate knowledge of engineering principles (metallurgy, mechanics, and/or material science) in manufacturing processes.
2. Use appropriate machine tool equipment, standardized methods and apparatus for manufacturing processes.

### **(18EE0241) BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LAB**

#### **Course Outcomes:**

1. Students will understand all the fundamental concepts involving electrical engineering.
2. Students will understand all the fundamental concepts involving electronics engineering.

### **(18HS0860) SUPPLY CHAIN MANAGEMENT**

#### **COURSE OUTCOMES**

On successful completion of this course the student will be able to

1. Appreciate the evolution and identify the role of supply chain management in the economy.
2. Identify and evaluate the drivers of supply chain management.
3. Analyze the importance of make or buy decisions and identify appropriate suppliers.
4. Appraise the importance of supply chain networks.
5. Assess the risk associated with supply chain practices and take better decisions.
6. Familiarize with and apply various computer based supply chain optimization tools.

### **(18ME0312) CAD/CAM**

#### **COURSE OUTCOMES**

On successful completion of this course the student will be able to

1. Apply geometric transformation techniques in CAD.
2. Formulate the mathematical models to represent curves and surfaces.
3. Design engineering components using solid modeling techniques.
4. Understands about NC and CNC systems, Group Technology and FMS
5. Create programs for CNC to manufacture industrial components.
6. Summarize the different types of techniques used in MRP-I & MRP-II.

### **(18ME0313) DESIGN OF MACHINE ELEMENTS-I**

#### **COURSE OUTCOMES**

On successful completion of this course the student will be able to

1. Apply design procedures using theories of failure for different elements.
2. Design simple components under cyclic loading using Goodman's and Soderberg's criterions.
3. Intend Bolted joints with pre stress and joints under eccentric loading.

4. Design and analyze riveted joints with different configuration, boiler shell joint and eccentric loading of riveted joints and bolted joints.
5. Implement the concepts to design cotter joint, knuckle joint and shafts.
6. Explain the design procedure of various key, rigid and flexible shaft couplings.

#### **(18ME0314) MACHINE TOOLS**

##### **COURSE OUTCOMES**

On successful completion of this course the student will be able to

1. Describe elements of metal machining.
2. Draw Merchant's cycle diagrams.
3. Explain the working principle of lathe and different operations performed on it.
4. Understands about the drilling, boring, shaping and milling machines.
5. Express the basic principles of jigs & fixtures, grinding machines.
6. Illustrate numerous surface finishing operations.

#### **(18ME0315) THERMAL ENGINEERING**

##### **COURSE OUTCOMES**

On successful completion of this course the student will be able to

1. Interpret the knowledge of I C engines in Engine performance calculations
2. Compute various performance parameters of an I C engine.
3. Summarize the working of Air compressors and its classification.
4. Analyze Vapour power cycles and can find methods to improve cycle performance.
5. Recognize the importance of Steam nozzles and Condensers in steam power plants.
6. Describe the phenomenon of Governing in Steam turbines, Classification & its Governing and can compute efficiency of steam turbine.

#### **(18ME0316) COMPUTER AIDED MODELING LAB**

##### **COURSE OUTCOMES**

Students undergoing this course can

1. Describe the interface of Solid edge software.
2. Explain various commands used to sketch a part.
3. Understand the use of different commands in Assembly interface.
4. Draw various part drawings using solid edge software.
5. Summarize various assembly commands used to assemble the component.
6. Produce a component by assembling various part drawings of the component.

#### **(18ME0317) MACHINE TOOLS LAB**

##### **COURSE OUTCOMES**

On successful completion of this course the student will be able to

1. Describe various taper turning methods.

2. Demonstrate different machine tools used in machine shop.
3. Illustrate knurling, threading and shaping operations on a job.
4. Evaluate various fundamental parameters of tool and surface roughness by using different instruments.
5. Understands about machine tool structures and machining economics.
6. Explain the use of keyway in milling and slotting operations.

### **(18ME0318) THERMAL ENGINEERING LAB**

#### **COURSE OUTCOMES**

Students undergoing this course can

1. Describe the Maintenance of Air filter, Spark plug and carburetor of a two wheeler.
2. Understands about suspension systems, Chain Overhauling and dismantling brakes of a two wheeler.
3. Explains about tire changing, injector testing, Wheel alignment & Balancing, Disc Braking of a four wheeler.
4. Construct valve timing & Port timing diagram of an engine.
5. Estimate the performance of 4 -Stroke Diesel Engine & VCR Petrol Engine.
6. Execute Heat Balance test on a 4 -Stroke Diesel Engine.

### **(18HS0842) APTITUDE PRACTICES**

#### **COURSE OUTCOMES**

On successful completion of this course, the student will be able to

1. Develop the subtle way of approaching in the candidate.
2. Acquired the decision making with in no time.
3. Implement logical thinking during professional tenure.
4. Improve knowledge on problem solving.
5. Understand problems on coding and decoding.
6. Apply the knowledge on the concept of reasoning in real life.

### **(18ME0319) DESIGN OF MACHINE ELEMENTS-II**

#### **COURSE OUTCOMES**

On successful completion of this course the student will be able to

1. Summarize the knowledge to design crane hooks, C-clamps and various belt, rope and chain drives.
2. Design and analyze journal bearings, ball bearings and roller bearings and Explain the advantages of rolling contact bearings against sliding contact bearings.
3. Apply the concepts to know various forces acting on I C engine parts and failure criteria to be adopted for various parts.
4. Create helical springs for two wheel vehicle and laminated springs for trucks.
5. Explain Gears and its classification.

6. Design spur and helical gears for different input conditions.

### **(18ME0320) HEAT & MASS TRANSFER**

#### **COURSE OUTCOMES**

On successful completion of this course the student will be able to

1. Explain the fundamental principles associated with heat transfer.
2. Evaluate multi-dimensional and transient thermal conduction problems.
3. Analyze forced convection, internal flows and free convection problems.
4. Understands about Boiling and Condensation.
5. Design heat exchangers for various applications.
6. Illustrate the principles of radiation and mass transfer.

### **(18ME0321) METROLOGY & MEASUREMENTS**

#### **COURSE OUTCOMES**

On successful completion of this course the student will be able to

1. Explain the basic standards of measurements and also application of Slip gauges.
2. Describe the concept of different types of dimensional tolerances and fits.
3. Evaluate engineering parts with various precision instruments.
4. Check the surface roughness of parts.
5. List out various measuring techniques for Pressure, Strain and Temperature.
6. Estimate the Instruments accuracy and Perform calibration of measuring instruments.

### **(18ME0330) INDUSTRIAL ENGINEERING & MANAGEMENT**

#### **COURSE OUTCOMES**

On successful completion of this course the student will be able to

1. Interpret the roles and responsibilities of Management-Administration and Organization.
2. Explain about organizational structures with its merits and demerits
3. Assess the type of plant layout for increasing productivity
4. Describe the importance of work and time study at work place
5. Recognize the importance of inventory and ERP systems.
6. Describe the human resource department effectiveness and ability to lead an organization.

### **(18ME0331) PRODUCTION & OPERATIONS MANAGEMENT**

#### **COURSE OUTCOMES**

On successful Completion of this course the student will be able to

1. Explain the Functions of production planning & control operation and productivity measurement.
2. Develop new products and its design issues.
3. Describe the Importance of forecasting, uses, principles and its methods.
4. Analyze and evaluate various facility alternatives and their capacity decision.

5. List out Aggregate planning strategies and Inventory management and control.
6. Summarize Scheduling policies, lot sizing techniques and implementation of suitable quality control measures in operation environments.

### **(18ME0332) TOTAL QUALITY MANAGEMENT**

#### **COURSE OUTCOMES**

On successful completion of this course the student will be able to

1. Understand the importance of the quality, costs of quality, and Basics concepts of quality.
2. Describe the TQM principles, employee involvement, and team spirit and PDCA cycle.
3. Explain the management tools like Six Sigma, Bench Marking.
4. Recognize various stages of FMEA and its classification.
5. Summarize TQM tools like control charts, QFD, Taguchi loss function and TPM.
6. Apply the tools and techniques of quality management to manufacturing and services processes.

### **(18CE0127) ELEMENTS OF ROAD TRAFFIC SAFETY**

#### **COURSE OUTCOMES**

On successful completion of this course, the student will be able to

1. Identify the causes for road accidents and can implement measures to prevent road accidents.
2. Describe traffic regulations and implement parking methods.
3. Classify different traffic signal and can design traffic signal system.
4. List out and illustrate various traffic signs.
5. List out and discuss various road markings.
6. Discuss importance of street lighting and classify various street lighting system.

### **(18EE0234) INDUSTRIAL INSTRUMENTATION**

#### **COURSE OUTCOMES**

On successful completion of this course, the student will be able to

1. Identify and explain the types of errors occurring in measurement systems.
2. Differentiate among the types of data transmission and modulation techniques.
3. Apply digital techniques to measure voltage, frequency and speed.
4. Analyze the working principles of different Signal Analyzers and Digital meters.
5. Understand the operation of several types of transducers.
6. Choose suitable Transducers for the measurement of non-electrical quantities.

### **(18EC0449) INTRODUCTION TO IOT**

#### **COURSE OUTCOMES**

On successful completion of this course, student will be able to

1. Understand the technology and standards relating to IoTs.

2. Understand where the IoT concept fits within the broader ICT industry and possible future trends.
3. Understand the key components that make up an IoT system.
4. Differentiate between the levels of the IoT stack and be familiar with the key technologies and protocols employed at each layer of the stack.
5. Configure Raspberry Pi, Understand Sensors, Actuators & get started with python on Raspberry Pi.
6. Apply the knowledge and skills acquired during the course to design, build and test a complete, working IoT system involving prototyping, programming and data analysis.

### **(18CS0517) PYTHON PROGRAMMING**

#### **COURSE OUTCOMES**

On successful completion of this course, the student will be able to

1. Solve the problems using control structures, input and output statements.
2. Summarize the features of lists, tuples, dictionaries, strings and files.
3. Experience the usage of standard libraries, objects, and modules.
4. Solve the problems using Object Oriented Programming Concepts.
5. Build the software for real time applications using python.
6. Install various Python packages.

### **(18HS0814) INTELLECTUAL PROPERTY RIGHTS**

#### **COURSE OUTCOMES**

On successful completion of this course the student will be able to

1. Become aware of intellectual property rights, concepts, treaties, agencies and international organizations involved in sanctioning IP rights.
2. Identify different types of intellectual properties, ownership rights and the scope of the protection.
3. Get an adequate knowledge on patents, trademarks, copy rights and to get property rights for their intellectual work.
4. Identify, apply, and assess ownership rights, registration processes for IP rights.
5. Discern the approaches for intellectual property management and intellectual property audits.
6. Demonstrate knowledge and understanding on unfair competition and latest developments in IP rights at international level.

### **(18ME0322) HEAT TRANSFER LAB**

#### **COURSE OUTCOMES**

On successful completion of this course the student will be able to

1. Evaluate thermal conductivity of a given metal Rod and overall heat transfer coefficient for a composite slab.
2. Check the increased rate of heat transfer with extended surface (Pin Fin).

3. Compare differences in rate of heat transfer between Forced & Natural Convection and also explain the transient heat conduction process.
4. Compute rate of heat transfer in Parallel and counter flow heat exchanger.
5. Understands emissivity effect of black body & gray body and Stefan Boltzmann Constant.
6. Carryout experiment on Heat transfer in Drop wise and Film wise Condensation.

### **(18ME0323) METROLOGY AND MEASUREMENTS LAB**

#### **COURSE OUTCOMES**

On successful completion of this course the student will be able to

1. Understand about Calibration of Linear measuring and Angular measuring instruments.
2. Measure Straightness, Flatness and Taper angle.
3. Estimate Gear tooth dimensions and thread parameters.
4. Compute the various parameters like pressure, displacement, speed, temperature etc., by using various instruments like pressure gauge, LVDT, stroboscope, thermocouple etc.,
5. Check parameters like length, height, angle, displacement, flatness etc., by using various instruments like Vernier calipers, micrometer, dial indicator, etc.
6. Find surface roughness using appropriate instruments and analyze the data.

### **(18HS0859) ENGLISH FOR CORPORATE COMMUNICATION SKILLS LAB**

#### **COURSE OUTCOMES**

On successful completion of this course the student will be able to

1. Flair in Writing by using cohesion and coherence.
2. Prepare effective job application.
3. Presenting Effective Speaking Abilities.
4. Apply various communicative techniques in their professional lives.
5. Cope with the employability skills.
6. Use effective communicative approaches by preparing job application, report and other kinds of spoken and written correspondences.



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**  
**(AUTONOMOUS)**  
**Bachelor of Technology**  
**Department of Electronics and Communication Engineering**

**I B. Tech. – I Semester (E.C.E)**

**(18HS0830) MATHEMATICS-I**

**Course Outcomes:**

On successful completion of this course, the student will be able to

- Familiarize the prospective engineers with techniques in calculus, multivariate analysis and linear algebra.
- Equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their disciplines.

**(18HS0801) CHEMISTRY**

**Course Outcomes:**

On successful completion of this course, the student will be able to

- Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
- Able to design the flowchart and algorithm for real world problems
- Able to learn and understand new programming languages
- Able to construct modular and readable programs Rationalise bulk properties and processes using thermodynamic considerations.
- Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques Rationalise periodic properties such as ionization potential, electronegativity, oxidation states and electronegativity

**(18ME0302) ENGINEERING GRAPHICS & DESIGN**

**Course Outcomes:**

On successful completion of this course, the student will be able to

- Frame ideas based on the conceptual modeling and design
- Provide good understanding of the methods involved in preparing various views in Engineering drawings
- Can prepare 2D and 3D diagrams of various objects.

### **(18HS0810) ENGLISH**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- To understand the rules of English grammar and their usage in writing English.
- To use LSRW skills through the prescribed text and develop their ability to communicate effectively.
- To get the mastery of language to express ideas, views, feelings and experience.
- To communicate well among themselves.
- To inculcate values and ideal characteristic qualities in themselves.

### **(18HS0811) ENGLISH LAB**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- To recognize sounds of English language with different classifications.
- To know phonetic transcription and phonemic symbols of English language.
- To understand international accent and utilize the same in their daily conversation.
- To create confidence for public speaking, for facing interviews, for making effective oral presentations, for having discussions, and for delivering impromptu speeches.

### **(18ME0301) WORKSHOP PRACTICE LAB**

#### **Course outcomes:**

On successful completion of this course, the student will be able to

- Utilize workshop tools for engineering practice.
- Employ skills for the production of a component for real time applications.
  - Appreciate the hard work and intuitive knowledge of the manual workers

### **I B. Tech. – II Sem. (E.C.E)**

### **(18HS0831) MATHEMATICS-II**

#### **Course Outcomes:**

- On successful completion of this course, the student will be able to
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- The objective of this course is to familiarize the prospective engineers with techniques in calculus, multivariable calculus and complex analysis. It aims to equip the students with standard concepts and tools at an intermediate to advanced

level that will serve them well towards tackling more advanced level of Mathematics and applications that they would find useful in their disciplines.

### **(18HS0851) SEMICONDUCTOR PHYSICS**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Would understand the basic concepts of free electron theory and energy bands in solids.
- Able to deliver importance of semiconductors.
- Would understand working principles and applications of optoelectronic devices.
- Able to explain concepts related to Lasers and Optical fibers..
- Understand the importance of Nanotechnology.

### **(18EE0239) BASIC ELECTRICAL ENGINEERING**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Determine the equivalent impedance of given network by using network reduction techniques.
- Determine the current through any element and voltage across any element Apply the network theorems suitably.
- Analyze the operating principles of electrical machines and transformer.

### **(18CS0501) PROGRAMMING FOR PROBLEM SOLVING**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Able to design the flowchart and algorithm for real world problems
- Able to learn and understand new programming languages
- Able to construct modular and readable programs
- Able to write C programs for real world problems using simple and compound data types

### **(18CE0101) ENGINEERING MECHANICS**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Construct free body diagrams and develop appropriate equilibrium equations.
- Understand the concepts of friction and to apply in real life problems.

- Determine the centroid for composite sections.
- Determine the Moment of Inertia for composite sections.

### **(18HS052) PHYSICS LAB**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- To explore the application of Interference and Diffraction by doing concerned experiments.
- Elucidate the concepts of Physics through involvement in the experiment by applying theoretical knowledge.
- To understand the concept of energy gap, B-H curve and resonance phenomena in LCR circuits.
- Develop an ability to apply the knowledge of physics experiments in the later studies

### **(18CS0503) PROGRAMMING FOR PROBLEM SOLVING LAB**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Apply problem solving techniques of C to find solution.
- Use C language features effectively to implement solutions.
- Use C++ language features effectively to solve problems.
- Identify and develop apt searching and sorting technique for a given problem.
- Identity, design and develop the appropriate data structure for a given problem or application.

### **(18HS0817) ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Impart basic principles of thought process, reasoning and inference. Sustainability is at the core of Indian Traditional knowledge Systems connecting society and nature.
- Holistic life style of yogic science and wisdom capsules in Sanskrit literature are also important in modern society with rapid technological advancements and societal disruptions.
- The course focuses on introduction to Indian Knowledge Systems, Indian perspective of modern scientific world-view, and basic principles of Yoga and holistic health care system.

## **II B. Tech -ISem.(E.C.E)**

### **(18HS0834) MATHEMATICS-III**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

familiarize the prospective engineers with techniques in Numerical Methods, Transform Calculus & Partial Differential Equations. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their disciplines

### **(18EC0401) ELECTRONIC DEVICES**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Demonstrate the knowledge in Electronic Devices, their Characteristics and Applications.
- Analyze the Diode circuits, Transistor & FET biasing circuits of BJT and FET.
- Design of Diode circuits and Transistor Amplifier circuits using BJT and FET.

### **(18EC0402) DIGITAL SYSTEM DESIGN**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Define different Number system and perform Number base conversions.
- Design and analyze Combinational Logic Circuits.
- Design and analyze modular Combinational Circuits with MUX / DEMUX, Decoder / Encoder.
- Design and analyze synchronous sequential logic circuits.
- Use HDL & EDA tools for digital logic design and simulation.

### **(18EC0403) SIGNALS & SYSTEMS**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Analyze different types of signals.
- Represent continuous and discrete systems in time and frequency domain using different transforms.
- Investigate the system stability.
- Sampling and reconstruction of a signal

### **(18EE0242) NETWORK THEORY**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Understand basics electrical circuits with nodal and mesh analysis.
- Determine the transient response of R-L, R-C, R-L-C circuits for dc and ac excitations.
- Apply Fourier transforms to electrical circuits excited by non-sinusoidal sources.
- Design different types of filters.

### **(18EC0404) ELECTRONIC DEVICES LAB**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

1. Know various semiconductor devices and their use in Real time applications.
2. Find the Frequency response characteristics of BJT and FET amplifiers and determine Bandwidth.

### **(18EC0405) DIGITAL SYSTEM DESIGN LAB**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Design and analyze Combinational Logic Circuits
- Design and analyze modular Combinational Circuits with MUX / DEMUX, Decoder/ Encoder
- Design and analyze synchronous sequential logic circuits
- Use HDL & EDA tools for digital logic design and simulation

### **(18EC0407) ANALOG CIRCUITS**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Analyze and design BJT single stage and multi stage amplifiers, feedback amplifiers, oscillators, power amplifiers and tuned amplifiers.
- Understand the basic building blocks of linear integrated circuits.

### **(18EC0408) ANALOG COMMUNICATIONS**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Acquire knowledge on the basic concepts of Analog Communication Systems.
- Analyze the analog modulated and demodulated systems.
- Verify the effect of noise on the performance of communication systems.
- Know the fundamental concepts of information and capacity.

### **(18EC0409) PROBABILITY THEORY AND STOCHASTIC PROCESSES**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- A student will be able to determine the temporal and spectral characteristics of random signal response of a given linear system.

### **(18HS0812) MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

Thorough understanding of Managerial Economics and Analysis of Financial statements facilitates the technocrats –cum- entrepreneurs to take up decisions effectively and efficiently in the challenging Business Environment.

### **(18HS0803) BIOLOGY FOR ENGINEERS**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Classify enzymes and distinguish between different mechanisms of enzyme action.
- Identify DNA as a genetic material in the molecular basis of information transfer.
- Analyse biological processes at the reductionistic level
- Apply thermodynamic principles to biological systems.
- Identify and classify microorganisms.

### **(18EC0410) ANALOG CIRCUITS LAB**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Construct and simulate various single stage, multi stage amplifiers, feedback amplifiers, oscillators, power amplifiers and tuned amplifiers.
- Design various electronic circuits using opAmp.

### **(18EC0411) ANALOG COMMUNICATIONS LAB**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Technically visualize spectra of different analog modulation schemes
- Analyze practical behavior of different elements available in analog

- communication system such as filters, amplifiers etc.
- Measure characteristics of radio receiver measurements.

### **(18HS0804) ENVIRONMENTAL SCIENCES**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Based on this course, the Engineering Student will be able to understand/evaluate/develop technologies on the basis of Ecological principles and environmental regulations along with Legislation, Laws and Policies which in turn help in sustainable development.
- Take preventive measures to reduce air, water, soil pollutions and contaminants in food.
- Effectively carry out waste disposal at individual level.
- Involve in preservation of natural resources

### **III B.Tech. – I Sem.**

### **(18EE0211) CONTROL SYSTEMS**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Identify open and closed loop control system.
- Formulate mathematical model for physical systems and simplify representation of complex systems using reduction techniques.
- Use standard test signals to identify performance characteristics of first and second-order systems.
- Apply root locus technique for stability analysis.
- Analyze performance characteristics of system using Frequency response methods.
- Develop and analyze state space models.

### **(18EC0412) ELECTROMAGNETIC THEORY AND TRANSMISSION LINES**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Analyse the relation between electric and magnetic fields using vector analysis.
- Evaluate the Maxwell's Equation in Static Electric and Magnetic Field.
- Apply Maxwell's equations in Electromagnetic fields.
- Characterize Maxwell's equation in both static and Time varying fields.
- Understand the propagation of electromagnetic waves in different media.
- Understand the concepts of Transmission lines and Their Applications

### **(18EC0413) ELECTRONIC MEASUREMENTS AND INSTRUMENTATION**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to



- Recognize the evolution and history of units and standards in Measurements.
- Identify the various parameters that are measurable in electronic instrumentation.
- Employ appropriate instruments to measure given sets of parameters.
- Practice the construction of testing and measuring set up for electronic systems.
- Apply the complete knowledge of various electronics instruments/transducers to measure the physical quantities in the field of science, engineering and technology.
- Relate the usage of various instrumentation standards

### **(18EC0414) DIGITAL SIGNAL PROCESSING**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Apply DFT & FFT for the analysis of digital signals and systems and Compare its efficiency.
- Design IIR and FIR filters for the given specifications.
- Construct different forms of IIR and FIR filter realizations.
- Distinguish the effects of finite precision representation on digital filters.
- Evaluate the errors due to Truncation and Rounding in Quantization process.
- Realize DSP architecture and programming.

### **(18EC0415) DIGITAL COMMUNICATIONS**

#### **Course Outcomes:**

On Successful Completion of this Course the Student will be able to

- Understand the Elements of Digital Communication System & Fundamental concepts of sampling Theorem along with different Modulation Techniques.
- Describe and determine the performance of line codes and methods to mitigate inter symbol interference.
- Learn the generation and detection of pass band system.
- Understand the generation, detection signal space diagram, spectrum, bandwidth efficiency, and probability of error analysis of different band pass modulation techniques.
- Describe and determine the performance of different error control coding schemes for the reliable transmission of digital representation of signals and information over the channel.
- Apply the knowledge of digital electronics and describe the error control codes like Linear block codes, convolutional codes

### **(18EC0416) ELECTRONIC MEASUREMENTS LAB**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Assess values of R,L,C , Voltage, Current, Power, Energy.

- Determine unknown values in balancing Bridges.
- Evaluate frequency, phase in Oscilloscope.
- Explain the use of Digital voltmeters.
- Determine strain, displacement, Velocity, temperature and Pressure.
- Estimate water level using capacitive transducer.

### **(18EC0417) DIGITAL SIGNAL PROCESSING LAB**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Analyze basic signal processing operations.
- Perform linear and circular convolution and implement in DSP Processor.
- Compute Auto and Cross Correlation.
- Design the FIR and IIR Filters.
- Analyze the Multirate Signal Processing.
- Implement different elementary Discrete-Time sequences.

### **(18EC0418) DIGITAL COMMUNICATIONS LAB**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

Demonstrate a good background in analyzing the block diagram of communication system

- Able to understand basic theories of Digital communication system in practical.
- The skill to analyze and implement analogue to digital converters like PCM, DM.
- Measures the Amplitude and Frequency of various Base band modulation techniques and observes the output waveforms.
- Measures the Amplitude and Frequency of various Pass band modulation techniques and observes the output waveforms.
- Able to understand channel coding like Linear Block Codes and Convolutional Codes.

### **(18HS0859) ENGLISH FOR CORPORATE COMMUNICATION SKILLS LAB**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Flair in Writing by using cohesion and coherence.
- To prepare effective job application.
- Presenting Effective Speaking Abilities.
- To apply various communicative techniques in their professional lives.
- To cope with the employability skills.
- Use effective communicative approaches by preparing job application, report and other kinds of spoken and written correspondences.

### **III B.Tech.– II Sem.**

#### **(18EC0451) DATA COMMUNICATION AND NETWORKING**

##### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Understand the basics of data communication, networking, internet and their importance.
- Analyze the services and features of various protocol layers in data networks.
- Differentiate wired and wireless computer networks
- Analyze TCP/IP and their protocols.
- Recognize the different internet devices and their functions
- Identify the basic security threats of a network

#### **(18EC0419) ANTENNAS AND WAVE PROPAGATION**

##### **Course Outcomes:**

On successful completion of the course, students will be able to:

- Understand the basic principles of all types of antennas calculate the far field region.
- Analyze different types of antennas their parametric integral expressions for a given current source for various frequency ranges.
- Calculate electromagnetic fields for a given vector potential can understand practical antennas.
- Implement pattern multiplication principle for some practical array antennas such as dipole, Yagi - uda, and horn antenna.
- Apply the radiation patterns of antennas through measurement setups.
- Learn various modes of wave propagation and their parameters

#### **(18EC0420) MICROPROCESSORS AND MICROCONTROLLERS**

##### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Understand the evolution of computers, processors, and its applications
- Explain the various software and hardware parts of a microprocessors and computer
- Understand the architectures of 8085 microprocessor and 8051 microcontroller system
- Analyze the programming model of 8085 Microprocessor & 8051 microcontroller development environment.
- Implement the techniques of interfacing memories, various I/O devices, sensors and actuators with microprocessor and microcontrollers
- Design and develop various microprocessor/microcontroller-based systems for the real-life problems

## **(18EC0428) MICROWAVE THEORY AND TECHNIQUES**

### **Course Outcomes:**

On successful completion of this course, the student will be able to

1. Design and simulate waveguide components for various applications
2. Compare between the conventional waveguides & microwave tubes
3. Able to analyze micro-wave circuits incorporating hollow, dielectric and planar waveguides, transmission lines, filters and other passive components, active devices
4. Utilize knowledge about the measurements to be done at microwaves
5. Able to illustrate the various parameters and explain about the characteristics of the various waveguide components
6. Able to define the basic concepts of microwave tubes & Scattering Matrix

## **(18EC0429) INFORMATION THEORY AND CODING**

### **Course Outcomes:**

After the completion of the course, student will be able to

- Explain the concept of information.
- Analyse the concept of entropy and error control coding .
- Determine channel capacity.
- Apply coding techniques to define channel capacities and properties using Shannon's Theorems.
- Construct efficient codes for data on imperfect communication channels.
- Analyse error correction and detection in receiver section.

## **(18EC0430) SCIENTIFIC COMPUTING**

### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Illustrate the significance of computing methods, their strengths and application areas.
- Solve the scientific computing of system of linear equations and Eigen values and singular values in real life situations.
- Apply the scientific computing of system of Non - linear equations and Interpolation for engineering problems.
- Demonstrate the knowledge of scientific methods for solving Numerical Integration and
- Differentiation for engineering problems.
- Solve the ordinary differential equations with initial conditions by using scientific
- techniques with engineering applications.
- Evaluate the partial differential equations by using scientific techniques with engineering applications.

### **(18CE0127) ELEMENTS OF ROAD TRAFFIC SAFETY**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Identify the causes for road accidents and can implement measures to prevent road accidents
- Describe traffic regulations and implement parking methods
- Classify different traffic signal and can design traffic signal system
- List and illustrate various traffic signs
- List and discuss various road markings
- Discuss importance of street lighting and classify various street lighting system

### **(18EE0234) INDUSTRIAL INSTRUMENTATION**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Identify and explain the types of errors occurring in measurement systems.
- Differentiate among the types of data transmission and modulation techniques.
- Apply digital techniques to measure voltage, frequency and speed.
- Analyse the working principles of different Signal Analyzers and Digital meters.
- Understand the operation of several types of transducers.
- Choose suitable Transducers for the measurement of non-electrical quantities.

### **(18ME0307) NON-CONVENTIONAL ENERGY RESOURCES**

#### **Course Outcomes:**

At the end of this course, the student will be able to

- State various sources of Energies, its availability and explain the importance of them by observing the global energy scenario.
- Distinguish the types of solar energy tapping devices and describe the method of harnessing the solar energy.
- Summarize the Wind energy systems and elucidate the impact of it in environmental aspects.
- Describe the Biomass conversion process and list out various bioenergy applications.
- Interpret the knowledge of renewable energies such as tidal energy, OTEC, Fuel cell, etc. for effective construction of Hybrid systems.
- Identify numerous applications renewable energy resources and illustrate its harnessing technologies.

### **(18CS0517) PYTHON PROGRAMMING**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Solve the problems using control structures, input and output statements.
- Summarize the features of lists, tuples, dictionaries, strings and files
- Experience the usage of standard libraries, objects, and modules
- Solve the problems using Object Oriented Programming Concepts
- Build the software for real time applications using python
- Install various Python packages

### **(18HS0814) INTELLECTUAL PROPERTY RIGHTS**

#### **Course Outcomes:**

On successful completion of the course, students will be able to:

- Become aware of intellectual property rights, concepts, treaties, agencies and international organizations involved in sanctioning IP rights
- Identify different types of intellectual properties, ownership rights and the scope of the protection
- Get an adequate knowledge on patents, trademarks, copy rights and to get property rights for their intellectual work
- Able to identify, apply, and assess ownership rights, registration processes for IP rights
- To discern the approaches for intellectual property management and intellectual property audits
- Demonstrate knowledge and understanding on unfair competition and latest developments in IP rights at international level

### **(18EC0421) ANTENNAS AND WAVE PROPAGATION LAB (Virtual Lab)**

#### **Course Outcomes:**

On successful completion of the course, students will be able to:

- Understand parametric equations for the calculation in the far field region.
- Analyze Antenna model for various VHF, UHF.
- Learn pattern multiplication principle for array antennas.
- Understand the relation between various antennas and their parameters .
- Calculate Microwave Antennas parameters.
- Applications of the various practical antenna.

### **(18EC0422) MICROCONTROLLER AND APPLICATIONS LAB**

#### **Course Outcomes:**

On successful completion of this course, students will be able to

- Familiar with keil programming environment

- Demonstrate arithmetic, logical and string operations using assembly language programming.
- Develop embedded C language programs for various applications using 8051 microcontroller.
- Explore the provided example code and online resources for extending knowledge about the capabilities of the 8051 microcontrollers
- Test, debug, and deploy the 8051 microcontroller-based systems
- Design and develop own microprocessor/microcontroller-based solutions for the real-world problems

### **(18HS0842) APTITUDE PRACTICES**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Develop the subtle way of approaching in the candidate.
- Acquired the decision making with in no time.
- Implement logical thinking during professional tenure.
- Improve knowledge on problem solving.
- Understand problems on coding and decoding.
- Apply the knowledge on the concept of reasoning in real life.

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**Bachelor of Technology**

**Department of Computer Science and Engineering**

**I B. Tech. – I Semester (CSE)**

**(18HS0830) MATHEMATICS-I**

**Course Outcomes:**

- To introduce the idea of applying differential and integral calculus to notions of curvature and to improper integrals. Apart from some applications it gives a basic introduction on Beta and Gamma functions.
- To introduce the fallouts of Rolle's Theorem that is fundamental to application of analysis to Engineering problems.
- To develop the tool of power series and Fourier series for learning advanced Engineering Mathematics.
- To familiarize the student with functions of several variables that is essential in most branches of engineering.
- To develop the essential tool of matrices and linear algebra in a comprehensive manner.

**(18HS0801) CHEMISTRY**

**Course Outcomes:**

- Analyze microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
- Able to design the flowchart and algorithm for real world problems
- Able to learn and understand new programming languages
- Able to construct modular and readable programs Rationalise bulk properties and processes using thermodynamic considerations.
- Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques Rationalise periodic properties such as ionization potential, electronegativity, oxidation states and electronegativity.

**(18ME0302) ENGINEERING GRAPHICS & DESIGN**

**Course Outcomes:**

Students undergoing this course are able to

- Frame ideas based on the conceptual modeling and design
- Provide good understanding of the methods involved in preparing various views in Engineering drawings.
- Can prepare 2D and 3D diagrams of various objects



### **(18HS0810) ENGLISH**

#### **Course Outcomes:**

Students will be able:

- To understand the rules of English grammar and their usage in writing English.
- To use LSRW skills through the prescribed text and develop their ability to communicate effectively.
- To get the mastery of language to express ideas, views, feelings and experience.
- To communicate well among themselves.
- To inculcate values and ideal characteristic qualities in themselves.

### **(18HS0802) CHEMISTRY LAB**

#### **Course Outcomes:**

The chemistry laboratory course will consist of experiments illustrating the principles of chemistry relevant to the study of science and engineering. The students will learn to:

- Estimate rate constants of reactions from concentration of reactants/products as a function of time.
- Measure molecular/system properties such as surface tension, viscosity, conductance of solutions, redox potentials, chloride content of water, etc.
- Synthesize a small drug molecule and analyse a salt sample.

### **(16HS607) ENGLISH LANGUAGE COMMUNICATION SKILLS LAB**

#### **Course outcomes:**

- To become active participants in the learning process and acquire proficiency in spoken English.
- To speak with clarity and confidence thereby enhances employability skills.
- To prepare effective job application

### **(18HS0802) CHEMISTRY LAB**

#### **Course Outcomes:**

On completion of this course, students will have the knowledge in.

- Handling different types of instruments for analysis of materials using small quantities of materials involved for quick and accurate results.
- Carrying out different types of titrations for estimation of concerned in materials using comparatively more quantities of materials involved for good results.

### **(18HS0811) ENGLISH LAB**

#### **Course Outcomes:**

Students will be able:

1. To recognize sounds of English language with different classifications.
2. To know phonetic transcription and phonemic symbols of English language.

3. To understand international accent and utilize the same in their daily conversation.
4. To crease confidence for public speaking, for facing interviews, for making effective oral presentations, for having discussions, and for delivering impromptu speeches.

### **(18ME0301) WORKSHOP PRACTICES LAB**

#### **Engineering Workshop**

##### **Course Outcomes:**

After completion of this course, a successful student will be able to:

- Utilize workshop tools for engineering practice.
- Employ skills for the production a component for real time applications.
- Appreciate the hard work and intuitive knowledge of the manual workers.

#### **IT Workshop**

##### **Course Outcomes:**

After Completion of this Course the Student would be able to

- Identify the basic computer peripherals.
- Gain sufficient knowledge on assembling and disassembling a PC.
- Learn the installation procedure of Windows and Linux OS.
- Acquire knowledge on basic networking infrastructure.
- Learn productivity tools like Word, Excel and Power point.
- Acquire knowledge on basics of internet and worldwide web.

### **I B. Tech – II Sem.(CSE)**

#### **(18HS0831) MATHEMATICS-II**

##### **Course Outcomes:**

- The objective of this course is to familiarize the prospective engineers with techniques in calculus, multivariable calculus and complex analysis.
- It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of Mathematics and applications that they would find useful in their disciplines.

#### **(18HS0851) SEMI-CONDUCTOR PHYSICS**

##### **Course outcomes:**

- Would understand the basic concepts of free electron theory and energy bands in solids.
- Able to deliver importance of semiconductors.
- Would understand working principles and applications of optoelectronic devices.
- Able to explain concepts related toLasers and Optical fibers. .
- Understand the importance of Nanotechnology.

### **(18CS0501) PROGRAMMING FOR PROBLEM SOLVING**

#### **Course Outcomes:**

- Able to design the flowchart and algorithm for real world problems
- Able to learn and understand new programming languages
- Able to construct modular and readable programs
- Able to write C programs for real world problems using simple and compound data types

### **(18CS0502) DIGITAL LOGIC DESIGN**

#### **Course Outcomes:**

At the end of this course, students will demonstrate the ability to

- Understand working of logic families and logic gates.
- Design and implement Combinational and Sequential logic circuits.
- Understand the process of Analog to Digital conversion and Digital to Analog conversion.
- Be able to use PLDs to implement the given logical problem.

### **(18EE0239) BASIC ELECTRICAL ENGINEERING**

#### **Course Outcomes:**

Upon completion of the course, students will:

- Determine the equivalent impedance of given network by using network reduction techniques.
- Determine the current through any element and voltage across any element
- Apply the network theorems suitably.
- Analyze the operating principles of electrical machines and transformer.

### **(18CS0503) PROGRAMMING FOR PROBLEM SOLVING LAB**

#### **Course Outcomes:**

At the end of the course, students will be able to

- Apply problem solving techniques of C to find solution.
- Use C language features effectively to implement solutions.
- Use C++ language features effectively to solve problems.
- Identify and develop apt searching and sorting technique for a given problem.
- Identity, design and develop the appropriate data structure for a given problem or application.

### **(18HS0852) PHYSICS LAB**

#### **Course Outcomes:**

- To explore the application of Interference and Diffraction by doing concerned experiments.

- Elucidate the concepts of Physics through involvement in the experiment by applying theoretical knowledge.
- To understand the concept of energy gap, B-H curve and resonance phenomena in LCR circuits.
- Develop an ability to apply the knowledge of physics experiments in the later studies.

### **(18HS0817) ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE**

#### **Course Outcome:**

- Ability to understand, connect up and explain basics of Indian traditional Knowledge in modern scientific perspective.

### **II B. Tech – I Sem.(CSE)**

#### **(18HS0835) PROBABILITY & STATISTICS**

#### **Course Outcomes:**

At the end of the course, students would be expected to:

- Have acquired ability to participate effectively in group discussions
- Have developed ability in writing in various contexts
- Have acquired a proper level of competence for employability

#### **(18EC0443) ANALOG ELECTRONICS CIRCUITS**

#### **Course Outcomes:**

Upon completion of this course, student will be able to:

- Understand Diode Circuits, BJT and FET amplifiers.
- Become familiar with the basic building blocks of linear integrated circuits.

#### **(18CS0504) DATA STRUCTURES & ALGORITHMS**

#### **Course Outcome:**

At the end of the course, students will be able to:

- Design algorithms to implement various data structures.
- Understand and program stacks and list data structures.
- Write programs to implement different types of queues.
- Understand and make use of hash tables in applications like dictionary, spell checker etc.,
- Understand why height balanced trees are advantageous over other data structures.

#### **(18CS0505) COMPUTER ORGANIZATION & ARCHITECTURE**

#### **Course outcomes:**

- Draw the functional block diagram of a single bus architecture of a computer and describe the function of the instruction execution cycle, RTL interpretation of instructions, addressing modes, instruction set.

- Write assembly language program for specified microprocessor for computing 16 bit multiplication, division and I/O device interface (ADC, Control circuit, serial port communication).
- Write a flowchart for Concurrent access to memory and cache coherency in Parallel Processors and describe the process.
- Given a CPU organization and instruction, design a memory module and analyze its operation by interfacing with the CPU.
- Given a CPU organization, assess its performance, and apply design techniques to enhance performance using pipelining, parallelism and RISC methodology

### **(18CS0506) DATABASE MANAGEMENT SYSTEMS**

#### **Course Outcomes:**

- For a given query write relational algebra expressions for that query and optimize the developed expressions
- For a given specification of the requirement design the databases using E\_R method and normalization.
- For a given transaction-processing system, determine the transaction atomicity, consistency, isolation, and durability.
- Implement the isolation property, including locking, time stamping based on concurrency control and Serializability of scheduling.

### **(18CS0508) DATABASE MANAGEMENT SYSTEMS LAB**

#### **Course Outcome:**

Apply ER concepts to design databases.

- Design simple database using a tool and implement it using SQL.
- Access normalization relations of relational model using normal forms
- Apply all constraints to develop a business application using cursors, triggers and stored

### **(18EE0241) BASIC ELECTRICAL & ELECTRONICS ENGINEERING LAB**

#### **Course Outcomes:**

- Students will understand all the fundamental concepts involving electrical engineering.
- Students will understand all the fundamental concepts involving electronics engineering.

### **(18HS0816) INDIAN CONSTITUTION**

#### **Course Outcomes:**

Students will be able to:

- Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
- Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.

- Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.
- Discuss the passage of the Hindu Code Bill of 1956.

## **II B. Tech – II Sem.(CSE)**

### **(18HS0836) DISCRETE MATHEMATICS**

#### **Course Outcomes:**

At the end of the course, students would be expected to:

- Have acquired ability to participate effectively in group discussions
- Have developed ability in writing in various contexts
- Have acquired a proper level of competence for employability

### **(18CS0509) FORMAL LANGUAGES AND AUTOMATA THEORY**

#### **Course Outcomes:**

At the end of the course, students will be able to

- Construct finite Automats for various problems.
- Design automata, regular expressions and context-free grammar accepting and generating a certain language, design of new grammar and languages
- Define Push Down Automata performing simple tasks and equivalence of PDA and CFGs.
- Find solutions to the problems using Turing machines.
- Distinguish between computability , Decidability and un decidability problems

### **(18CS0510) OPERATING SYSTEMS**

#### **Course Outcomes:**

- Able to use operating systems effectively.
- Create processes and threads.
- Develop algorithms for process scheduling for a given specification of CPU utilization, Throughput, Turnaround Time, Waiting Time, Response Time.
- For a given specification of memory organization develop the techniques for optimally allocating memory to processes by increasing memory utilization and for improving the access time.
- Design and implement file management system.

### **(18HS0803) BIOLOGY FOR ENGINEERS**

#### **Course Outcomes**

- Classify enzymes and distinguish between different mechanisms of enzyme action.
- Identify DNA as a genetic material in the molecular basis of information transfer.

- Analyse biological processes at the reductionistic level
- Apply thermodynamic principles to biological systems.
- Identify and classify microorganisms.

### **(18CS0511) OBJECT ORIENTED PROGRAMMING**

#### **Course Outcomes:**

After taking the course, students will be able to:

- Specify simple abstract data types and design implementations, using abstraction functions to document them.
- Recognize features of object-oriented design such as encapsulation, polymorphism, inheritance, and composition of systems based on object identity.
- Name and apply some common object-oriented design patterns and give examples of their use.
- Design applications with an event-driven graphical user interface.
- Develop applications to connect with database

### **(18HS0804) ENVIRONMENTAL SCIENCES**

#### **Course Outcomes:**

- Based on this course, the Engineering Student will be able to understand/evaluate/develop technologies on the basis of Ecological principles and environmental regulations along with Legislation, Laws and Policies which in turn help in sustainable development.
- Take preventive measures to reduce air, water, soil pollutions and contaminants in food.
- Effectively carry out waste disposal at individual level.
- Involve in preservation of natural resources.

### **III B. Tech – I Sem.(CSE)**

#### **(18HS0812) MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS**

#### **Course Outcomes:**

On successful completion of the course students will be able to

- Understand the nature of managerial economics and the role of it in business firms
- Identify the determinants of demand and apply cost analysis under different market conditions
- Integrate the concepts of price and output decisions of business firms
- Appreciate the importance of market structures and implement appropriate price and output decisions
- To assess the financial statements of a firm and the financial performance of the firm through the financial statements
- To measure operating, investing and financial performance of a firm

### **(18CS0514) COMPILER DESIGN**

#### **Course Outcomes:**

On successful completion of the course students will be able to

- Specify and analyze the lexical, syntactic and semantic structures of advanced language features
- Separate the lexical, syntactic and semantic analysis into meaningful phases for a compiler to undertake language translation
- Write a scanner, parser, and semantic analyzer without the aid of automatic generators
- Turn fully processed source code for a novel language into machine code for a novel computer
- Implement techniques for intermediate code and machine code optimization
- Design the structures and support required for compiling advanced language features.

### **(18CS0515) COMPUTER NETWORKS**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Explain the terminology and concepts of OSI and TCP/IP Reference models and identify different physical media used for datatransmission
- Illustrate and implement the services of Data linklayer
- Describethetheprinciplesofnetworklayerandcategorize routingalgorithmsusedfor data transmission
- Identify the essential services of transport layer
- Interpret the functioning of various protocols of Applicationlayer
- Understand the principles ofnetworking

### **(18CS0516) DESIGN AND ANALYSIS OF ALGORITHMS**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Determine the time complexity of an algorithm by solving the corresponding Recurrence equation
- Apply the Divide and Conquer strategy to solve searching, sorting and matrix multiplication problems.
- Analyze the efficiency of Greedy and Dynamic Programming design techniques to solve the optimization problems.
- Apply Backtracking technique for solving constraint satisfaction problems.
- Analyze the LC and FIFO branch and bound solutions for optimization problems, and compare the time complexities with Dynamic Programming techniques.
- Define and Classify deterministic and Non-deterministic algorithms; P, NP, NP –hard and NP-complete classes of problems.



### **(18CS0517) PYTHON PROGRAMMING**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Solve the problems using control structures, input and output statements.
- Summarize the features of lists, tuples, dictionaries, strings and files
- Experience the usage of standard libraries, objects, and modules
- Solve the problems using Object Oriented Programming Concepts
- Build the software for real time applications using python
- Install various Python packages

### **(18CS0518) ANALYSIS OF ALGORITHMS LAB**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Able to understand the techniques of proof by contradiction, mathematical induction and recurrence relation, and apply them to prove the correctness and to analyze the running time of algorithms.
- Design new algorithms, prove them correct, and analyze their asymptotic and absolute runtime and memory demands.
- Analyse an algorithm to solve the problem (create) and prove that the algorithm solves the problem correctly (validate).
- Understand the mathematical criterion for deciding whether an algorithm is efficient, and know many practically important problems that do not admit any efficient algorithms.
- Understand basic techniques for designing algorithms, including the techniques of recursion, divide-and-conquer, and greedy.
- Analyse NP-Completeness , NP-complete problems and synthesize efficient algorithms in common engineering design situations.

### **(18CS0519) PYTHON PROGRAMMING LAB**

#### **Course Outcomes:**

On successful completion of the course students will be able to

- Write, Test and Debug Python Programs
- Implement Conditionals and Loops for Python Programs
- Use functions and represent Compound data using Lists, Tuples and Dictionaries
- Read and write data from & to files in Python and develop Application using Pygame
- Build software for real needs.
- Ability to work on a real life Project, implementing R Analytics to create Business insights.

### **(18CS0520) OBJECT ORIENTED ANALYSIS AND DESIGN LAB**

#### **Course Outcomes:**

On successful completion of the course students will be able to

- Construct various UML models (including use case diagrams, class diagrams, interaction diagrams, state chart diagrams, activity diagrams, and implementation diagrams) using the appropriate notation
- Describe the importance of systems analysis and design in solving complex problems
- Explain how the object-oriented approach differs from the traditional approach to systems analysis and design
- Understand the role and function of each UML model in developing object oriented software
- Exhibit software development process
- Recognize the difference between various object relationships: inheritance, association, whole-part, and dependency relationships

### **(18HS0842) APTITUDE PRACTICES**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Develop the subtle way of approaching in the candidate.
- Acquired the decision making with in no time.
- Implement logical thinking during professional tenure.
- Improve knowledge on problem solving.
- Understand problems on coding and decoding.
- Apply the knowledge on the concept of reasoning in real life.

### **III B. Tech – II Sem. (CSE)**

#### **(18CS0521) DATA WAREHOUSING AND DATA MINING**

#### **Course Outcomes:**

On successful completion of this course, student will be able to

- Understand the basic concepts of data warehouse and data mining
- Apply pre-processing techniques for data cleansing
- Analyze and evaluate performance of algorithms for Association Rules
- Analyze Classification and Clustering algorithms
- Developing practical work of Data Mining techniques and design hypotheses based on the analysis to conceptualize a Data Mining Solution to practical problem
- Utilizing Data mining algorithms to build analytical applications.

## **(18CS0522) SOFTWARE ENGINEERING**

### **Course Outcomes:**

On successful completion of this course, student will be able to

- Define and develop a software project from requirement gathering to implementation
- Ability to code and test the software
- Ability to plan, estimate and maintain software systems
- Understand the basic testing procedures
- Able to generate test cases and test suites.
- Test the applications manually by applying different testing methods and automation tools.

## **(18CS0523) WEB TECHNOLOGIES**

### **Course Outcomes:**

On successful completion of this course, student will be able to

- Create dynamic and interactive web sites using HTML
- Gain knowledge of client side scripting using java sript and DHTML
- Design and develop CSS
- Demonstrate understanding of what is XML and how to parse and use XML data
- Able to do server side programming with Java Servelets, JSP and PHP
- Design client presentation using AJAX

## **(18CS0531) ADVANCED OPERATING SYSTEMS**

### **Course Outcomes:**

On successful completion of this course, student will be able to

- Recognize the Process Scheduling Deadlocks
- Describe Centralized and Distributed Deadlock Detection Algorithms
- Analyze the fundamental skills required to Two-Phase Commit Protocol
- Explain Mobile Operating Systems
- Demonstrate the Linux System and Design Principles
- Assess with Inter process Communication. iOS and Android

## **(18CS0532) LINUX PROGRAMMING**

### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Understand the basic set of commands and editors in Linux operating system.
- Implement and execute various shell scripts.
- Work with filters, pipes and user communication, Vi-Editor commands.
- Execute various commands related to regular expressions
- Implement korn shell programming

- Execute commands related to C shell.

### **(18CS0533) QUANTUM COMPUTING**

#### **Course Outcomes:**

On successful completion of this course, student will be able to

- The basic principles of quantum computing.
- The fundamental differences between conventional computing and quantum computing.
- Several basic quantum computing algorithms
- The classes of problems that can be expected to be solved well by quantum computers
- The implications of quantum computing on fields such as computer security and machine Learning

### **(18CE0127) ELEMENTS OF ROAD TRAFFIC SAFETY**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Identify the causes for road accidents and can implement measures to prevent road accidents
- Describe traffic regulations and implement parking methods
- Classify different traffic signal and can design traffic signal system
- List and illustrate various traffic signs
- List and discuss various road markings
- Discuss importance of street lighting and classify various street lighting system

### **(18EE0234) INDUSTRIAL INSTRUMENTATION**

#### **Course Outcomes:**

On successful completion of this course, student will be able to

- Identify and explain the types of errors occurring in measurement systems.
- Differentiate among the types of data transmission and modulation techniques.
- Apply digital techniques to measure voltage, frequency and speed.
- Analyse the working principles of different Signal Analyzers and Digitalmeters.
- Understand the operation of several types of transducers.
- Choose suitable Transducers for the measurement of non-electrical quantities.

### **(18ME0307) NON-CONVENTIONAL ENERGY RESOURCES**

#### **Course Outcomes:**

At the end of this course, the student will be able to

- State various sources of Energies, its availability and explain the importance of them by observing the global energy scenario.

- Distinguish the types of solar energy tapping devices and describe the method of harnessing the solar energy.
- Summarize the Wind energy systems and elucidate the impact of it in environmental aspects.
- Describe the Biomass conversion process and list out various bioenergy applications.
- Interpret the knowledge of renewable energies such as tidal energy, OTEC, Fuel cell, etc. for effective construction of Hybrid systems.
- Identify numerous applications renewable energy resources and illustrate its harnessing technologies.

### **(18EC0449) INTRODUCTION TO IOT**

#### **Course Outcomes:**

On successful completion of this course, student will be able to

- Understand the technology and standards relating to IoTs.
- Understand where the IoT concept fits within the broader ICT industry and possible future trends.
- Understand the key components that make up an IoT system.
- Differentiate between the levels of the IoT stack and be familiar with the key technologies and protocols employed at each layer of the stack.
- Configure Raspberry Pi, Understand Sensors, Actuators & get started with python on Raspberry Pi.
- Apply the knowledge and skills acquired during the course to design, build and test a complete, working IoT system involving prototyping, programming and data analysis.

### **(18HS0814) INTELLECTUAL PROPERTY RIGHTS**

#### **Course Outcomes:**

On successful completion of this course, student will be able to

- Become aware of intellectual property rights, concepts, treaties, agencies and international organizations involved in sanctioning IP rights
- Identify different types of intellectual properties, ownership rights and the scope of the protection
- Get an adequate knowledge on patents, trademarks, copy rights and to get property rights for their intellectual work
- Able to identify, apply, and assess ownership rights, registration processes for IP rights
- To discern the approaches for intellectual property management and intellectual property audits
- Demonstrate knowledge and understanding on unfair competition and latest developments in IP rights at international level

### **(18CS0524) DATA MINING LAB**

#### **Course Outcomes:**

On successful completion of this course, student will be able to

- Explore WEKA tool
- Perform data preprocessing tasks
- Demonstrate association rule mining on datasets
- Implement classification techniques on datasets
- Implement clustering and regression techniques on datasets
- Design and implement data mining algorithms

### **(18CS0525) WEB TECHNOLOGIES LAB**

#### **Course Outcomes:**

On successful completion of this course, student will be able to

- Create dynamic and interactive web sites using HTML
- Design client side scripting using java script and DHTML.
- Develop servlet program using java servlets
- Develop simple online application using servlets
- Implement JDBC concepts
- Develop client program using AJAX

### **(18HS0859) ENGLISH FOR CORPORATE COMMUNICATION SKILLS LAB**

#### **Course Outcomes:**

On successful completion of this course, the student will be able to

- Flair in Writing by using cohesion and coherence.
- Prepare effective job application.
- Presents Effective Speaking Abilities.
- Apply various communicative techniques in their professional lives.
- Cope with the employability skills.
- Use effective communicative approaches by preparing job application, report and other kinds of spoken and written correspondences.

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY**  
**(AUTONOMOUS)**  
**Bachelor of Technology**  
**DEPARTMENT OF CSIT**

**I B. Tech – I Sem.**

**(18HS0830) MATHEMATICS-I**

**COURSE OUTCOMES:**

The objective of this course is to familiarize the prospective engineers with techniques in calculus, multivariate analysis and linear algebra. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their disciplines.

**(18HS0801) CHEMISTRY**

**COURSE OUTCOMES:**

- Analyze microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
- Able to design the flowchart and algorithm for real world problems
- Able to learn and understand new programming languages
- Able to construct modular and readable programs Rationalize bulk properties and processes using thermodynamic considerations.
- Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques Rationalize periodic properties such as ionization potential, electronegativity, oxidation states and electronegativity.

**(18ME0302) ENGINEERING GRAPHICS & DESIGN**

**COURSE OUTCOMES:**

Students undergoing this course are able to

- Frame ideas based on the conceptual modeling and design
- Provide good understanding of the methods involved in preparing various views in Engineering drawings.
- Can prepare 2D and 3D diagrams of various objects

**(18HS0810) ENGLISH**

**COURSE OUTCOMES:**

Students will be able:

- To understand the rules of English grammar and their usage in writing English.
- To use LSRW skills through the prescribed text and develop their ability to communicate effectively.
- To get the mastery of language to express ideas, views, feelings and experience.

- To communicate well among themselves.
- To inculcate values and ideal characteristic qualities in themselves.

### **(18HS0802) CHEMISTRY LABORATORY**

#### **COURSE OUTCOMES:**

The chemistry laboratory course will consist of experiments illustrating the principles of chemistry relevant to the study of science and engineering. The students will learn to:

- Estimate rate constants of reactions from concentration of reactants/products as a function of time.
- Measure molecular/system properties such as surface tension, viscosity, conductance of solutions, redox potentials, chloride content of water, etc.
- Synthesize a small drug molecule and analyse a salt sample.

### **(18HS0811) ENGLISH LAB**

#### **COURSE OUTCOMES:**

Students will be able:

- To recognize sounds of English language with different classifications.
- To know phonetic transcription and phonemic symbols of English language.
- To understand international accent and utilize the same in their daily conversation.
- To crease confidence for public speaking, for facing interviews, for making effective oral presentations, for having discussions, and for delivering impromptu speeches.

### **(18ME0301) WORKSHOP PRACTICES LAB**

#### **COURSE OUTCOMES:**

After completion of this course, a successful student will be able to:

- Utilize workshop tools for engineering practice.
- Employ skills for the production a component for real time applications.
- Appreciate the hard work and intuitive knowledge of the manual workers.

#### **PART-B – IT Workshop**

##### **Course Outcomes:**

After Completion of this Course the Student would be able to

- Identify the basic computer peripherals.
- Gain sufficient knowledge on assembling and disassembling a PC.
- Learn the installation procedure of Windows and Linux OS.
- Acquire knowledge on basic networking infrastructure.
- Learn productivity tools like Word, Excel and Power point.
- Acquire knowledge on basics of internet and worldwide web.



## **I B. Tech – II Sem.**

### **(18HS0831) MATHEMATICS-II**

#### **COURSE OUTCOMES:**

The objective of this course is to familiarize the prospective engineers with techniques in calculus, multivariable calculus and complex analysis. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of Mathematics and applications that they would find useful in their disciplines.

### **(18HS0851) SEMI-CONDUCTOR PHYSICS**

#### **COURSE OUTCOMES:**

- Would understand the basic concepts of free electron theory and energy bands in solids.
- Able to deliver importance of semiconductors.
- Would understand working principles and applications of optoelectronic devices.
- Able to explain concepts related to Lasers and Optical fibers. .
- Understand the importance of Nanotechnology.

### **(18CS0501) PROGRAMMING FOR PROBLEM SOLVING**

#### **COURSE OUTCOMES:**

- Able to design the flowchart and algorithm for real world problems
- Able to learn and understand new programming languages
- Able to construct modular and readable programs
- Able to write C programs for real world problems using simple and compound data types

### **(18CS0502) DIGITAL LOGIC DESIGN**

**COURSE OUTCOMES:** At the end of this course, students will demonstrate the ability to

- Understand working of logic families and logic gates.
- Design and implement Combinational and Sequential logic circuits.
- Understand the process of Analog to Digital conversion and Digital to Analog conversion.
- Be able to use PLDs to implement the given logical problem.

### **(18EE0239) BASIC ELECTRICAL ENGINEERING**

#### **COURSE OUTCOMES:**

Upon completion of the course, students will:

- Determine the equivalent impedance of given network by using network reduction techniques.
- Determine the current through any element and voltage across any element
- Apply the network theorems suitably.
- Analyze the operating principles of electrical machines and transformer.

### **(18CS0503) PROGRAMMING FOR PROBLEM SOLVING LAB**

#### **COURSE OUTCOMES:**

At the end of the course, students will be able to

- Apply problem solving techniques of C to find solution.
- Use C language features effectively to implement solutions.
- Use C++ language features effectively to solve problems.
- Identify and develop apt searching and sorting technique for a given problem.
- Identity, design and develop the appropriate data structure for a given problem or application.

### **(18HS0852) PHYSICS LAB**

#### **COURSE OUTCOMES:**

- To explore the application of Interference and Diffraction by doing concerned experiments.
- Elucidate the concepts of Physics through involvement in the experiment by applying theoretical knowledge.
- To understand the concept of energy gap, B-H curve and resonance phenomena in LCR circuits.
- Develop an ability to apply the knowledge of physics experiments in the later studies.

### **(18HS0817) ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE**

#### **COURSE OUTCOME:**

- Ability to understand, connect up and explain basics of Indian traditional Knowledge in modern scientific perspective.

## **II B. Tech – I Sem.**

### **(18HS0835) PROBABILITY & STATISTICS**

#### **COURSE OUTCOMES:**

At the end of the course, students would be expected to:

- Have acquired ability to participate effectively in group discussions
- Have developed ability in writing in various contexts
- Have acquired a proper level of competence for employability

### **(18EC0443) ANALOG ELECTRONICS CIRCUITS**

#### **COURSE OUTCOMES:**

Upon completion of this course, student will be able to:

- Understand Diode Circuits, BJT and FET amplifiers.
- Become familiar with the basic building blocks of linear integrated circuits.

### **(18CS0504) DATA STRUCTURES & ALGORITHMS**

#### **COURSE OUTCOME:**

At the end of the course, students will be able to:

- Design algorithms to implement various data structures.

Understand and program stacks and list data structures.

- Write programs to implement different types of queues.
- Understand and make use of hash tables in applications like dictionary, spell checker etc.,
- Understand why height balanced trees are advantageous over other data structures.

### **(18CS0505) COMPUTER ORGANIZATION & ARCHITECTURE**

#### **COURSE OUTCOMES:**

- Draw the functional block diagram of a single bus architecture of a computer and describe the function of the instruction execution cycle, RTL interpretation of instructions, addressing modes, instruction set.
- Write assembly language program for specified microprocessor for computing 16 bit multiplication, division and I/O device interface (ADC, Control circuit, serial port communication).
- Write a flowchart for Concurrent access to memory and cache coherency in Parallel Processors and describe the process.
- Given a CPU organization and instruction, design a memory module and analyze its operation by interfacing with the CPU.
- Given a CPU organization, assess its performance, and apply design techniques to enhance performance using pipelining, parallelism and RISC methodology

### **(18CS0506) DATABASE MANAGEMENT SYSTEMS**

#### **COURSE OUTCOMES:**

- For a given query write relational algebra expressions for that query and optimize the developed expressions
- For a given specification of the requirement design the databases using E\_R method and normalization.
- For a given transaction-processing system, determine the transaction atomicity, consistency, isolation, and durability.
- Implement the isolation property, including locking, time stamping based on concurrency control and Serializability of scheduling.

### **(18CS0508) DATABASE MANAGEMENT SYSTEMS LAB**

#### **COURSE OUTCOME:**

Apply ER concepts to design databases.

- ♣ Design simple database using a tool and implement it using SQL.
- ♣ Access normalization relations of relational model using normal forms
- ♣ Apply all constraints to develop a business application using cursors, triggers and stored

**(18EE0241) BASIC ELECTRICAL & ELECTRONICS ENGINEERING LAB**  
**COURSE OUTCOMES:**

- Students will understand all the fundamental concepts involving electrical engineering.
- Students will understand all the fundamental concepts involving electronics engineering

**(18HS0816) INDIAN CONSTITUTION**  
**COURSE OUTCOMES:**

Students will be able to:

- Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
- Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
- Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.
- Discuss the passage of the Hindu Code Bill of 1956.

**II B. Tech – II Sem.**

**(18HS0836) DISCRETE MATHEMATICS**  
**COURSE OUTCOMES:**

At the end of the course, students would be expected to:

- Have acquired ability to participate effectively in group discussions
- Have developed ability in writing in various contexts
- Have acquired a proper level of competence for employability

**(18CS0509) FORMAL LANGUAGES AND AUTOMATA THEORY**  
**COURSE OUTCOMES:**

At the end of the course, students will be able to

- Construct finite Automats for various problems.
- Design automata, regular expressions and context-free grammar accepting and generating a certain language, design of new grammar and languages
- Define Push Down Automata performing simple tasks and equivalence of PDA and CFGs.
- Find solutions to the problems using Turing machines.
- Distinguish between computability , Decidability and un decidability problems

**(18CI0601) FUNDAMENTALS OF OPERATING SYSTEMS**  
**COURSE OUTCOME:**

- Able to use operating systems effectively.

- Write System and application programs to exploit operating system functionality. • Add functionality to the existing operating systems
- Design new operating systems

### **(18HS0803) BIOLOGY FOR ENGINEERS**

#### **COURSE OUTCOMES:**

- Classify enzymes and distinguish between different mechanisms of enzyme action.
- Identify DNA as a genetic material in the molecular basis of information transfer.
- Analyze biological processes at the reductionistic level
- Apply thermodynamic principles to biological systems.
- Identify and classify microorganisms.

### **(18CS0511) OBJECT ORIENTED PROGRAMMING**

#### **COURSE OUTCOMES:**

After taking the course, students will be able to:

- Specify simple abstract data types and design implementations, using abstraction functions to document them.
- Recognize features of object-oriented design such as encapsulation, polymorphism, inheritance, and composition of systems based on object identity.
- Name and apply some common object-oriented design patterns and give examples of their use.
- Design applications with an event-driven graphical user interface.
- Develop applications to connect with database.

### **(18CI0602) FUNDAMENTALS OF OPERATING SYSTEMS LAB**

#### **COURSE OUTCOMES:**

- Ensure the development of applied skills in operating systems related areas.
- Able to write software routines modules or implementing various concepts of operating system

### **(18HS0804) ENVIRONMENTAL SCIENCES**

#### **COURSE OUTCOMES:**

- Based on this course, the Engineering Student will be able to understand/evaluate/develop technologies on the basis of Ecological principles and environmental regulations along with Legislation, Laws and Policies which in turn help in sustainable development.
- Take preventive measures to reduce air, water, soil pollutions and contaminants in food.
- Effectively carry out waste disposal at individual level.
- Involve in preservation of natural resources.

### **III B. Tech – I Sem.**

#### **(18HS0812) MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS**

##### **COURSE OUTCOMES (COs)**

On successful completion of the course students will be able to

1. Understand the nature of managerial economics and the role of it in business firms
2. Identify the determinants of demand and apply cost analysis under different market conditions
3. Integrate the concepts of price and output decisions of business firms
4. Appreciate the importance of market structures and implement appropriate price and output decisions
5. To assess the financial statements of a firm and the financial performance of the firm through the financial statements
6. To measure operating, investing and financial performance of a firm

#### **(18CS0515) COMPUTER NETWORKS**

##### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Explain the terminology and concepts of OSI and TCP/IP Reference models and identify different physical media used for data transmission
2. Illustrate and implement the services of Data link layer
3. Describe the principles of network layer and categorize routing algorithms used for data transmission
4. Identify the essential services of transport layer
5. Interpret the functioning of various protocols of Application layer
6. Understand the principles of networking

#### **(18CS0516) DESIGN AND ANALYSIS OF ALGORITHMS**

##### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Determine the time complexity of an algorithm by solving the corresponding Recurrence equation
2. Apply the Divide and Conquer strategy to solve searching, sorting and matrix multiplication problems.
3. Analyze the efficiency of Greedy and Dynamic Programming design techniques to solve the optimization problems.
4. Apply Backtracking technique for solving constraint satisfaction problems.
5. Analyze the LC and FIFO branch and bound solutions for optimization problems, and compare the time complexities with Dynamic Programming techniques.
6. Define and Classify deterministic and Non-deterministic algorithms; P, NP, NP –hard and NP-complete classes of problems.

### **(18CS0517) PYTHON PROGRAMMING**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Solve the problems using control structures, input and output statements.
2. Summarize the features of lists, tuples, dictionaries, strings and files
3. Experience the usage of standard libraries, objects, and modules
4. Solve the problems using Object Oriented Programming Concepts
5. Build the software for real time applications using python
6. Install various Python packages

### **(18CI0603) SOFTWARE ENGINEERING & TESTING**

#### **COURSE OUTCOMES**

On successful completion of this course, the student will be able to:

1. Design the software process models
2. Analyze software metrics.
3. Develop software project plan.
4. Design the software and estimate the software reliability.
5. Apply software testing methods.
6. Maintain the software.

### **(18CS0518) ANALYSIS OF ALGORITHMS LAB**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Able to understand the techniques of proof by contradiction, mathematical induction and recurrence relation, and apply them to prove the correctness and to analyze the running time of algorithms.
2. Design new algorithms, prove them correct, and analyze their asymptotic and absolute runtime and memory demands.
3. Analyse an algorithm to solve the problem (create) and prove that the algorithm solves the problem correctly (validate) .
4. Understand the mathematical criterion for deciding whether an algorithm is efficient, and know many practically important problems that do not admit any efficient algorithms.
5. Understand basic techniques for designing algorithms, including the techniques of recursion, divide-and-conquer, and greedy.
6. Analyse NP-Completeness , NP-complete problems and synthesize efficient algorithms in common engineering design situations.

### **(18CS0519) PYTHON PROGRAMMING LAB**

#### **COURSE OUTCOMES (CO's)**

On successful completion of the course students will be able to

1. Write, Test and Debug Python Programs

2. Implement Conditionals and Loops for Python Programs
3. Use functions and represent Compound data using Lists, Tuples and Dictionaries
4. Read and write data from & to files in Python and develop Application using Pygame
5. Build software for real needs.
6. Ability to work on a real life Project, implementing R Analytics to create Business insights.

### **(18CI0604) SOFTWARE ENGINEERING & TESTING LAB**

#### **COURSE OUTCOMES**

On successful completion of the course students will be able to:

1. Write problem statement of suggested system.
2. Do requirement analysis.
3. Perform view analysis.
4. Draw the structural view diagram.
5. Apply behavioral view diagram for the suggested system.
6. Implement component diagram and deployment diagram.

### **(18HS0842) APTITUDE PRACTICES**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Develop the subtle way of approaching in the candidate.
2. Acquired the decision making with in no time.
3. Implement logical thinking during professional tenure.
4. Improve knowledge on problem solving.
5. Understand problems on coding and decoding.
6. Apply the knowledge on the concept of reasoning in real life.

### **III B.Tech. – II Sem.**

#### **(18CS0514) COMPILER DESIGN**

#### **COURSE OUTCOMES (COs)**

On successful completion of the course students will be able to:

1. Specify and analyze the lexical, syntactic and semantic structures of advanced language features
2. Separate the lexical, syntactic and semantic analysis into meaningful phases for a compiler to undertake language translation
3. Write a scanner, parser, and semantic analyzer without the aid of automatic Generators
4. Turn fully processed source code for a novel language into machine code for a novel computer
5. Implement techniques for intermediate code and machine code optimization
6. Design the structures and support required for compiling advanced language features.



## **(18CS0521) DATA WAREHOUSING AND DATA MINING**

### **COURSE OUTCOMES (COs)**

On successful completion of this course, student will be able to

1. Understand the basic concepts of data warehouse and data mining
2. Apply pre-processing techniques for data cleansing
3. Analyze and evaluate performance of algorithms for Association Rules
4. Analyze Classification and Clustering algorithms
5. Developing practical work of Data Mining techniques and design hypotheses based on the analysis to conceptualize a Data Mining Solution to practical problem
6. Utilizing Data mining algorithms to build analytical applications.

## **(18CS0523) WEB TECHNOLOGIES**

### **COURSE OUTCOMES (COs)**

On successful completion of this course, student will be able to

1. Create dynamic and interactive web sites using HTML
2. Gain knowledge of client side scripting using java script and DHTML
3. Design and develop CSS
4. Demonstrate understanding of what is XML and how to parse and use XML data
5. Able to do server side programming with Java Servlets, JSP and PHP
6. Design client presentation using AJAX

## **(18CS0531) ADVANCED OPERATING SYSTEMS**

### **COURSE OUTCOMES (COs)**

On successful completion of this course, student will be able to

1. Recognize the Process Scheduling Deadlocks
2. Describe Centralized and Distributed Deadlock Detection Algorithms
3. Analyze the fundamental skills required to Two-Phase Commit Protocol
4. Explain Mobile Operating Systems
5. Demonstrate the Linux System and Design Principles
6. Assess with Inter process Communication. iOS and Android

## **(18CS0532) LINUX PROGRAMMING**

### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Understand the basic set of commands and editors in Linux operating system.
2. Implement and execute various shell scripts.
3. Work with filters, pipes and user communication, Vi-Editor commands.
4. Execute various commands related to regular expressions
5. Implement korn shell programming
6. Execute commands related to C shell.

### **(18CI0610) INTERNETWORKING WITH TCP/IP**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, student will be able to

1. Students able to configure TCP/IP protocol suite
2. Students able to analyze the IPV4 Protocol
3. Ability to analyze the ARP Protocol and ICMP.
4. Able to design the Routing protocols
5. Ability to configure the Transport layer Protocols
6. Able to configure the Windows in TCP,IPV6 Protocol and ICMPv6 Protocol

### **(18CE0127) ELEMENTS OF ROAD TRAFFIC SAFETY**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Identify the causes for road accidents and can implement measures to prevent road accidents
2. Describe traffic regulations and implement parking methods
3. Classify different traffic signal and can design traffic signal system
4. List and illustrate various traffic signs
5. List and discuss various road markings
6. Discuss importance of street lighting and classify various street lighting system

### **(18EE0234) INDUSTRIAL INSTRUMENTATION**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, student will be able to

1. Identify and explain the types of errors occurring in measurement systems.
2. Differentiate among the types of data transmission and modulation techniques.
3. Apply digital techniques to measure voltage, frequency and speed.
4. Analyze the working principles of different Signal Analyzers and Digital meters.
5. Understand the operation of several types of transducers.
6. Choose suitable Transducers for the measurement of non-electrical quantities.

### **(18ME0307) NON-CONVENTIONAL ENERGY RESOURCES**

#### **COURSE OUTCOMES(COs)**

At the end of this course, the student will be able to

1. State various sources of Energies, its availability and explain the importance of them by observing the global energy scenario.
2. Distinguish the types of solar energy tapping devices and describe the method of harnessing the solar energy.
3. Summarize the Wind energy systems and elucidate the impact of it in environmental aspects.
4. Describe the Biomass conversion process and list out various bioenergy applications.

5. Interpret the knowledge of renewable energies such as tidal energy, OTEC, Fuel cell, etc. for effective construction of Hybrid systems.
6. Identify numerous applications renewable energy resources and illustrate its harnessing technologies.

### **(18EC0449) INTRODUCTION TO IOT**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, student will be able to

1. Understand the technology and standards relating to IoTs.
2. Understand where the IoT concept fits within the broader ICT industry and possible future trends.
3. Understand the key components that make up an IoT system.
4. Differentiate between the levels of the IoT stack and be familiar with the key technologies and protocols employed at each layer of the stack.
5. Configure Raspberry Pi, Understand Sensors, Actuators & get started with python on Raspberry Pi.
6. Apply the knowledge and skills acquired during the course to design, build and test a complete, working IoT system involving prototyping, programming and data analysis.

### **(18HS0814) INTELLECTUAL PROPERTY RIGHTS**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, student will be able to

1. Become aware of intellectual property rights, concepts, treaties, agencies and international organizations involved in sanctioning IP rights
2. Identify different types of intellectual properties, ownership rights and the scope of the protection
3. Get an adequate knowledge on patents, trademarks, copy rights and to get property rights for their intellectual work
4. Able to identify, apply, and assess ownership rights, registration processes for IP rights
5. To discern the approaches for intellectual property management and intellectual property audits
6. Demonstrate knowledge and understanding on unfair competition and latest developments in IP rights at international level

### **(18CS0524) DATA MINING LAB**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, student will be able to

1. Explore WEKA tool
2. Perform data preprocessing tasks
3. Demonstrate association rule mining on datasets
4. Implement classification techniques on datasets
5. Implement clustering and regression techniques on datasets
6. Design and implement data mining algorithms

### **(18CS0525) WEB TECHNOLOGIES LAB**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, student will be able to

1. Create dynamic and interactive web sites using HTML
2. Design client side scripting using java script and DHTML.
3. Develop servlet program using java servlets
4. Develop simple online application using servlets
5. Implement JDBC concepts
6. Develop client program using AJAX

### **(18HS0859) ENGLISH FOR CORPORATE COMMUNICATION SKILLS LAB**

#### **COURSE OUTCOMES (COs)**

On successful completion of this course, the student will be able to

1. Flair in Writing by using cohesion and coherence.
2. Prepare effective job application.
3. Present Effective Speaking Abilities.
4. Apply various communicative techniques in their professional lives.
5. Cope with the employability skills.
6. Use effective communicative approaches by preparing job application, report and
7. Use other kinds of spoken and written correspondences.

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY: PUTTUR  
(AUTONOMOUS)**

**Bachelor of Technology**

**AGRICULTURE ENGINEERING**

**I B. TECH – II SEM.(AG)**

**(18HS0848) PHYSICS**

**Course outcomes:**

Studies will be familiar with

- Various basic terms related to Vectors & Scalars and Newton's laws of motion.
- Some of the basic concepts related to forces.
- Simple terms related to Mechanical Vibrations.
- Recognize importance of various mechanical properties of materials.
- Understand the importance of Nanotechnology.

**(18HS0830) MATHEMATICS – I**

**Course Outcomes:**

The objective of this course is to familiarize the prospective engineers with techniques in calculus, multivariate analysis and linear algebra. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their disciplines.

**(18CS0501) PROGRAMMING FOR PROBLEM SOLVING**

**Course Outcomes:**

- Able to design the flowchart and algorithm for real world problems
- Able to learn and understand new programming languages
- Able to construct modular and readable programs
- Able to write C programs for real world problems using simple and compound data types

**(18CE0101) ENGINEERING MECHANICS**

**Course Outcomes:**

On completion of this course, the student will be able to

- Construct free body diagrams and develop appropriate equilibrium equations.
- Understand the concepts of friction and to apply in real life problems.
- Determine the centroid for composite sections.
- Determine the Moment of Inertia for composite sections.

**(18HS0852) PHYSICS LAB**

**Course Description:**

Physics practical course is meant for making the students to gain practical knowledge to correlate with the theoretical studies. It covers experiments on principle of Mechanics and Optics, measurement of magnetic field and studying resonance using LCR circuit.

**(18CS0503) PROGRAMMING FOR PROBLEM SOLVING LAB****Course Outcomes:**

At the end of the course, students will be able to

- Apply problem solving techniques of C to find solution.
- Use C language features effectively to implement solutions.
- Use C++ language features effectively to solve problems.
- Identify and develop apt searching and sorting technique for a given problem.
- Identify, design and develop the appropriate data structure for a given problem or application.

**(18ME0301) WORKSHOP PRACTICE LAB****Course Outcomes:**

After completion of this course, a successful student will be able to:

- Utilize workshop tools for engineering practice.
- Employ skills for the production of a component for real time applications.
- Appreciate the hard work and intuitive knowledge of the manual workers.

**(18HS0801) CHEMISTRY****Course Outcomes:**

- Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
- Able to design the flowchart and algorithm for real world problems
- Able to learn and understand new programming languages
- Able to construct modular and readable programs Rationalise bulk properties and processes using thermodynamic considerations.
- Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques Rationalise periodic properties such as ionization potential, electronegativity, oxidation states and electronegativity.

**(18HS0831) MATHEMATICS – II**

**Course Outcomes:**

The objective of this course is to familiarize the prospective engineers with techniques in calculus, multivariable calculus and complex analysis. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of Mathematics and applications that they would find useful in their disciplines.

**(18EE0240) BASIC ELECTRICAL AND ELECTRONICS ENGINEERING****Course Outcomes:**

Upon completion of the course, students will:

- Determine the equivalent impedance of given network by using network reduction techniques.
- Determine the current through any element and voltage across any element.
- Apply the network theorems suitably.
- Analyze the operating principles of motor and transformer.
- Analyze the operating principles of major electronic devices, its characteristics and applications.
- Design and analyze the DC bias circuitry of BJT and FET.

**(18HS0810) ENGLISH**

**Course Outcomes:** Students will be able:

- To understand the rules of English grammar and their usage in writing English.
- To use LSRW skills through the prescribed text and develop their ability to communicate effectively.
- To get the mastery of language to express ideas, views, feelings and experience.
- To communicate well among themselves.
- To inculcate values and ideal characteristic qualities in themselves.

**(18ME0302) ENGINEERING GRAPHICS & DESIGN****Course Outcomes:**

Students undergoing this course are able to

- Frame ideas based on the conceptual modeling and design
- Provide good understanding of the methods involved in preparing various views in Engineering drawings
- Can prepare 2D and 3D diagrams of various objects

**(18HS0802) CHEMISTRY LAB**

## **Laboratory Outcomes**

The chemistry laboratory course will consist of experiments illustrating the principles of chemistry relevant to the study of science and engineering. The students will learn to:

- Estimate rate constants of reactions from concentration of reactants/products as a function of time.
- Measure molecular/system properties such as surface tension, viscosity, conductance of solutions, redox potentials, chloride content of water, etc.
- Synthesize a small drug molecule and analyse a salt sample.

## **(18HS0811) ENGLISH LAB**

### **Course Outcomes:**

Students will be able:

- To recognize sounds of English language with different classifications.
- To know phonetic transcription and phonemic symbols of English language.
- To understand international accent and utilize the same in their daily conversation.
- To create confidence for public speaking, for facing interviews, for making effective oral presentations, for having discussions, and for delivering impromptu speeches.

## **(18HS0816) INDIAN CONSTITUTION**

### **Course Outcomes:**

Students will be able to:

- Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
- Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
- Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.
- Discuss the passage of the Hindu Code Bill of 1956.

## **II B. Tech - II Sem.(AG)**

## **(18HS0803) BIOLOGY FOR ENGINEERS**

### **Course Outcomes**

- Classify enzymes and distinguish between different mechanisms of enzyme action.
- Identify DNA as a genetic material in the molecular basis of information transfer.
- Analyse biological processes at the reductionistic level



- Apply thermodynamic principles to biological systems.
- Identify and classify microorganisms.

### **(18HS0832) TRANSFORM & DISCRETE MATHEMATICS**

#### **Course Outcomes:**

The objective of this course is to familiarize the prospective engineers with techniques in Transform Calculus and Discrete Mathematics. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their disciplines.

### **(18AG0701) PRINCIPLES OF AGRICULTURAL ENGINEERING**

#### **Course Outcomes:**

At the end of the course, students would be expected to:

- The knowledge gained on soil water conservation, irrigation engineering and farm structures and agricultural processing to provide a strong platform to understand the concepts on these subjects for further learning.

### **(18CE0151) STRENGTH OF MATERIALS**

#### **Course Outcomes:**

Students undergoing this course are able to:

- The students would be able to understand the behavior of materials under different stress and strain conditions.
- The students would be able to draw bending moment, shear force diagram, bending stress and shear stress distribution for beams under the different conditions of loading.
- The student would be able to apply knowledge to analyse concept of deflection, bending moment and shear force diagram in beams under various loading conditions.
- Determine shear stress in the shaft subjected to torsional moments.

### **(18CE0104) INTRODUCTION TO FLUID MECHANICS**

#### **Course Outcomes:**

- On completion of the course, the students will be able to:
- Determine the properties of fluid like pressure and their measurement.
- Apply continuity equation and energy equation in solving problems on flow through conduits.
- Compute the frictional loss in laminar and turbulent flows.

### **(18CE0105) SOLID MECHANICS LAB**

**Course Outcomes:**

After completion of the course the student will be able to:

- estimate Young's modulus, tensional rigidity of mild steel rods
- know the hardness of mild steel and HYS specimens
- analyze the strength of wood, concrete, stone and bricks
- assess the quality of wood, concrete, stone and bricks

**(18CE0106) FLUID MECHANICS LAB****Course Outcomes:**

Students undergoing this course are able to

- Calibrate Venturimeter & Orificemeter
- Calculate losses in flows
- Estimate the efficiency of different pumps.
- Study the performance of different turbines.

**(18CE0107) COMPUTER AIDED BUILDING DRAWING****Course Outcomes:**

- The students will be able to draft the plan, elevation and sectional views of the buildings, industrial structures, and framed buildings using computer software's.
- Draw the symbols and plan of a residential building using Auto CAD Software.

**(18HS0804) ENVIRONMENTAL SCIENCE****Course Outcomes:**

- Based on this course, the Engineering Student will be able to understand/evaluate/develop technologies on the basis of Ecological principles and environmental regulations along with Legislation, Laws and Policies which in turn help in sustainable development.
- Take preventive measures to reduce air, water, soil pollution and contaminants in food.
- Effectively carry out waste disposal at individual level.
- Involve in preservation of natural resources.

**(18AG0702) PRINCIPLES OF SOIL SCIENCE****Course Outcomes:**

At the end of the course, students would be expected to:

- Get Fundamental knowledge of soil physical parameters.

- Know the procedures involved in soil survey, soil classification.
- Learn soil fertility and nutrients.
- Understand Concepts of Ion exchange in soils.

### **(18AG703) HYDROLOGY, GROUND WATER & WELL ENGINEERING**

#### **Course Outcomes:**

At the end of the course, students must be in a position to

- To understand the interaction among various processes in the hydrologic cycle
- To understand the basic aquifer parameters and estimate groundwater resources for different hydro-geological boundary conditions
- To understand of the physical and mathematical concepts of groundwater hydrology. Some real-world example problems are also being incorporated to give an idea about the complexities and challenges encountered during the modeling and management of groundwater processes.

### **(18CE0109) SURVEYING & GEO MATICS**

#### **Course Outcomes:**

The course will enable the students to:

- Apply the knowledge, techniques, skills, and applicable tools of the discipline to engineering and surveying activities
- Translate the knowledge gained for the implementation of civil infrastructure facilities.
- To be in a position to apply the basic principle of surveying and usage of surveying instruments in all civil engineering activities, including the construction of buildings, bridges, roads and high ways, pipe lines, dams, ports and harbors
- To be an expert of demarcation of ownership and/or delimitation of land, property, etc., through surveying process
- Surveying techniques to collect data for planning, designing and execution, able to employ greenfield
  - Use total station and able to assess the electromagnetic distances

### **(18ME0346) MECHANICAL ENGINEERING**

#### **Course Outcomes:**

After completion of the course the student will be able to Understand the

- fundamentals of mechanical engineering.
- Acquire the concept of laws of thermodynamics, Energy conversion devices, R&AC.
- Knows the principles of welding, Manufacturing processes, Power transmission devices.
- Knows about Engineering Materials.

### **(18ME0350) THERMODYNAMICS & HEAT ENGINES**

#### **Course Outcomes:**

- Students are advised to be acquainted with the terms related to steam, steam tables and Mollier chart.
- To apply the thermodynamic concepts into various thermal applications like IC engines,

### **(18AG704) PRINCIPLES OF SOIL SCIENCE LAB**

#### **Course Outcomes:**

After completion of the course the student will be able to:

- Determine the different types of chemicals and minerals in soils
- Know the fertilizers and classifications and their reactions in soils.
- Determine the water quality parameters

### **(18CE0113) SURVEYING LAB – I**

#### **Course Outcomes:**

After completion of the course the student will be able to:

- Gain knowledge and expertise in operation of various survey instruments for computation of area of land.
- Successfully carry out survey work in all civil Engineering projects, including the construction of buildings, roads and highways, rail track laying with curves, pipelines, dams, ports and harbor as well as delimitation of land and property, etc.

### **(18HS0817) ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE**

**Course Outcome:** Ability to understand, connect up and explain basics of Indian traditional Knowledge in modern scientific perspective.

### **(18ME0310) THEORY OF MACHINES**

**(Common to MECH & AGE)**

#### **Course Outcomes**

Students undergoing this course can

1. Explain the Effect of gyroscopic couple, its reactions and also design flywheel for machinery.
2. Find the uses of clutch and modify its application.
3. Design Brakes according to applications and need.
4. Design a gyroscope in an optimized size with maximum effort.
5. Interpret how to balance an engine to reduce vibration and noise.
6. Identify the cause of vibration and calculate its magnitude to reduce it.

### **III B. TECH - II SEM. (AG)**

### **(18CE0154) SOIL MECHANICS**

#### **Course Outcomes**

On successful completion of this course, the student will be able to

1. **Describe** volumetric ratios, weight/mass relationships, index properties of soils, **establish** interrelationships and **classify** soils.
2. **State** Darcy's Law, **define** permeability, effective and **determine** the effective stress for different soil profiles
3. **Derive** equation for vertical stress for different load based Boussinesq's equation, calculate the vertical stress using Newmark's charts and Boussinesq's equation
4. **Explain** the phenomenon of compaction, factor affecting compaction, laboratory test to determine the compaction and field methods of compaction
5. **Derive** Terzaghi's equation for one dimensional consolidation and **estimate** consolidation settlements for various soils under various drainage conditions
6. **Learn** Mohr-Coulomb's theory of shear strength of soil and **conduct** various shear strength tests under different drainage conditions

### **(18ME0335) REFRIGERATION & AIR CONDITIONING** **(Common to MECH & AGE)**

#### **Course Outcomes**

Upon completion of the course the student will

1. Summarize the basic concepts of refrigeration and air conditioning systems
2. Explain Various refrigeration cycles, their analysis and applications. Different refrigerants properties, applications and their environmental issues.
3. Describe air conditioning processes on psychometric charts
4. Evaluate heating and cooling load requirements for various applications.
5. Apply scientific and engineering principles to analyze and design engineering systems that relate to refrigeration and air conditioning

### **(18AG0705) AGRICULTURAL PROCESS ENGINEERING**

#### **Course Outcomes**

Students will be familiar with

1. Be proficient in the scope of the process engineering and the use of processing machinery
2. Understand the physical properties, rheological properties and frictional properties of agricultural materials
3. Summarising the thermal properties, electrical properties and the terms related to the machine design aspects
4. Some of the basic concepts related to cleaning and size reduction equipments
5. To acquaint the students with the milling of rice, parboiling technologies and milling of pulses and oilseeds
6. Understand the filtration equipments

### **(18AG0706) FARM MACHINERY & EQUIPMENT-I**

**Course Outcomes**

Studies will be familiar with

1. What is the importance of the Farm Mechanization in agriculture?
2. Classify the types of tillage and tillage tools.
3. Determine the various forces acting on tillage tools
4. Distinguish the various methods involved in sowing, inter cultivation and plant protection operation.
5. Categorize the various types of sowing, inter cultivation and plant protection equipment.
6. Utilize the transplanting concepts in agriculture field.

**(18CE0155) SOIL MECHANICS LAB****COURSE OUTCOMES (COs)**

On successful the completion of this course, the student will be able to

1. Conduct tests on fine grained soils to determine Atterberg's limits
2. Conduct fields test to find out field density of cohesive and cohesion less soils
3. Perform sieve analysis and sedimentation analysis to classify the soil
4. Conduct field tests on soil to estimate soil permeability
5. Conduct compaction test and draw compaction curve to find out optimum moisture content and maximum dry density
6. Conduct shear tests to predict shear strength of the soil

**(18AG0707) AGRICULTURAL PROCESS ENGINEERING LAB****Course Outcomes**

1. Be proficient in the scope of the process engineering and the use of processing machinery
2. Understand the types of mixers
3. Summarizing the psychrometric properties
4. Some of the basic concepts related to size reduction equipments
5. To acquaint the students with the problems on distillation
6. Understand the cleaning equipments

**(18AG0708) FARM MACHINERY & EQUIPMENT-I LAB****Course Outcomes:**

Studies will be familiar with

1. List out the various types of sowing, inter cultivation and plant protection equipment.
2. Classify the types of sprayer and duster.
3. Determine the performance of MB plough, disc plough, disc harrow and cultivator
4. Compare the different types of seed drills.
5. Categorize the various types of sowing, inter cultivation and plant protection equipment.
6. Measure the nozzle discharge and field capacity of sprayer and duster.

### **(18HS0842) APTITUDE PRACTICES**

#### **Course Outcomes**

On successful completion of this course, the student will be able to:

1. Develop the subtle way of approaching in the candidate.
2. Acquired the decision making with in no time.
3. Implement logical thinking during professional tenure.
4. Improve knowledge on problem solving.
5. Understand problems on coding and decoding.
6. Apply the knowledge on the concept of reasoning in real life.

### **(18ME0320) HEAT & MASS TRANSFER**

**(Common to MECH & AGE)**

#### **Course Outcomes**

Students undergoing this course are able to

1. Explain the fundamental principles associated with heat transfer
2. Evaluate multi-dimensional and transient thermal conduction problems
3. Analyze forced convection, internal flows and free convection problems
4. Design heat exchangers for various applications
5. Explain the principles of radiation and mass transfer.

### **(18AG0709) IRRIGATION & DRAINAGE ENGINEERING**

#### **Course Outcomes**

Studies will be familiar with

- Basic terms related to the development of irrigation in India and AP and classification of different irrigation works
- Basic terms related to soil and water conservation
- Various terms related to soil loss estimation models
- Understand the different types of micro irrigation and its design
- Understand the maintenance of micro irrigation system
- Understand the different types of land drainage and its importance

### **(18AG0710) FARM MACHINERY AND EQUIPMENT-II**

#### **Course outcomes:**

Studies will be familiar with

1. Classify the crop harvesting machineries.
2. Explain about different types of mower.
3. Distinguish between reaper and combine harvester.
4. Demonstrate the performance of harvesting machineries and thresher.
5. Create an idea towards development of fruit harvesting machineries based on the problem faced during harvesting of fruits.

6. Carry out the testing of farm machines by using farm machines testing procedure

### **(18AG0718) AGRICULTURAL ENGINEERING STRUCTURES (PEC-I)**

#### **Course Outcomes**

Studies will be familiar with

1. To acquaint the students with various aspects of agricultural structures such as farm stead and dairy barn
2. To acquaint the students with various aspects of farm roads and storage structures
3. Design and construction of farm fences and farm roads
4. Summarizing the grain storage structures, types of silos and the loads acting on it
5. Classifying the poultry houses, planning and requirements
6. Rural living and development, sewage system and design

### **(18AG0719) DAIRY AND FOOD ENGINEERING (PEC-I)**

#### **Course Outcomes**

1. Enable the students to understand the methods of food preservation and the dairy development
2. Developed the understanding of physic – chemical properties of milk
3. Summarizing the methods of pasteurization and its importance
4. To acquaint the students with various dairy engineering operations such as homogenization, pasteurization, thermal processing, evaporation, freezing and drying of milk
5. Understanding the design and layout of a dairy plant
6. Control spoilage of food through process operations such as evaporation, freezing, membrane processing etc.

### **(18AG0720) SOLID WASTE & BY-PRODUCT UTILIZATION (PEC-I)**

#### **Course Outcomes:**

Studies will be familiar with

- Decide more efficient waste management methodologies / technologies
- Be proficient in execute the effective utilization and conversion of solid waste material into useful fuels
- Distinguish the different biomass conversion technologies used for converting biomass into biofuel
- Design of gasifier technology more effectively
- Illustrate about working principle and constructional details of different types of biogas plant.
- Develop an ability to recognize the different types of briquetting making machines

### **(18CE0127) ELEMENTS OF ROAD TRAFFIC SAFETY (OE-I)**



### **Course Outcomes**

On successful completion of this course, the student will be able to

- Identify the causes for road accidents and can implement measures to prevent road accidents
- Describe traffic regulations and implement parking methods
- Classify different traffic signal and can design traffic signal system
- List and illustrate various traffic signs
- List and discuss various road markings
- Discuss importance of street lighting and classify various street lighting system

### **(18EE0234) INDUSTRIAL INSTRUMENTATION (OE-I)**

#### **Course Outcomes**

On successful completion of this course, the student will be able to

1. Identify and explain the types of errors occurring in measurement systems.
2. Differentiate among the types of data transmission and modulation techniques.
3. Apply digital techniques to measure voltage, frequency and speed.
4. Analyse the working principles of different Signal Analyzers and Digital meters.
5. Understand the operation of several types of transducers.
6. Choose suitable Transducers for the measurement of non-electrical quantities.

### **(18ME0307) NON-CONVENTIONAL ENERGY RESOURCES (OE-I)**

#### **Course Outcomes**

At the end of this course, the student will be able to

1. State various sources of Energies, its availability and explain the importance of them by observing the global energy scenario.
2. Distinguish the types of solar energy tapping devices and describe the method of harnessing the solar energy.
3. Summarize the Wind energy systems and elucidate the impact of it in environmental aspects.
4. Describe the Biomass conversion process and list out various bioenergy applications.
5. Interpret the knowledge of renewable energies such as tidal energy, OTEC, Fuel cell, etc. for effective construction of Hybrid systems.
6. Identify numerous applications renewable energy resources and illustrate its harnessing technologies

### **(18EC0449) INTRODUCTION TO IoT (OE-I)**

#### **Course Outcomes**

On successful completion of this course, student will be able to

1. Understand the technology and standards relating to IoTs.
2. Understand where the IoT concept fits within the broader ICT industry and possible future trends.

3. Understand the key components that make up an IoT system.
4. Differentiate between the levels of the IoT stack and be familiar with the key technologies and protocols employed at each layer of the stack.
5. Configure Raspberry Pi, Understand Sensors, Actuators & get started with python on RaspberryPi.
6. Apply the knowledge and skills acquired during the course to design, build and test a complete, working IoT system involving prototyping, programming and data analysis.

### **(18CS0517) PYTHON PROGRAMMING (OE-I)**

#### **Course Outcomes**

On Successful Completion of this course, the student will be able to

1. Solve the problems using control structures, input and output statements.
2. Summarize the features of lists, tuples, dictionaries, strings and files
3. Experience the usage of standard libraries, objects, and modules
4. Solve the problems using Object Oriented Programming Concepts
5. Build the software for real time applications using python
6. Install various Python packages

### **(18HS0814) INTELLECTUAL PROPERTY RIGHTS (OE-I)**

#### **Course Outcomes**

1. Become aware of intellectual property rights, concepts, treaties, agencies and international organizations involved in sanctioning IP rights
2. Identify different types of intellectual properties, ownership rights and the scope of the protection
3. Get an adequate knowledge on patents, trademarks, copy rights and to get property rights for their intellectual work
4. Able to identify, apply, and assess ownership rights, registration processes for IP rights
5. To discern the approaches for intellectual property management and intellectual property audits
6. Demonstrate knowledge and understanding on unfair competition and latest developments in IP rights at international level

### **(18AG0711) IRRIGATION & DRAINAGE ENGINEERING LAB**

#### **Course Outcomes**

Students will be familiar with

1. Basic terms related to the development of irrigation in India and AP and classification of different irrigation works
2. Basic terms related to soil and water conservation
3. Various terms related to soil loss estimation models
4. Understand the different types of micro irrigation and its design

5. Understand the maintenance of micro irrigation system  
Understand the different types of land drainage and its importance

### **(18AG0712) FARM MACHINERY & EQUIPMENT-II LAB**

#### **Course outcomes:**

Studies will be familiar with

1. Classify the crop harvesting machineries.
2. Explain about different types of mower.
3. Distinguish between reaper and combine harvester.
4. Demonstrate the performance of harvesting machineries and thresher.
5. Create an idea towards development of fruit harvesting machineries based on the problem faced during harvesting of fruits.
6. Carry out the operation, repair, maintenance and safety precautions of chaff cutters, post hole digger and self-propelled sugar cane harvester

### **(18HS0859) ENGLISH FOR CORPORATE COMMUNICATION SKILLS LAB** **(Common to CE, EEE, ME, CSE, CSIT & AGE)**

#### **Course Outcomes**

1. Flair in Writing and felicity in written expression
2. To enhance job prospects
3. Improving Effective Speaking Abilities
4. To prepare effective Interview techniques
5. To apply various communicative techniques in their inter and intra-personal communications.

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**Master of Business Administration**

**I MBA – I Semester**

**(18MB9001) ORGANIZATIONAL BEHAVIOUR**

**Course Outcomes:**

After the completion of course Students will be able to:

- Able to describe the basic principles, levels, skills of management and management theories and apply the concepts in real world.
- Analyze the various managerial functions to be performed and decision making in different contexts.
- Recognize, differentiate and assess for an individual, the concept of perception, values, attitudes and personality.
- Comprehend the various theories of motivation, leadership, and explore group dynamics for the benefit of the organizations.
- Apply leadership skills in different organizational contexts and lead the people.

**(18MB9002) FINANCIAL ACCOUNTING& ANALYSIS**

**Course Outcomes:**

After the completion of course Students will be able to:

- Develop and understand the nature and purpose of financial statements in relationship to decision making.
- Determine the useful life and value of the depreciable assets.
- Recognize the relationship between the financing, investing and dividend decisions of the firm during the given point of time.
- Explain how cost volume profit analysis is to be applied by managers to answer various operating decisions, such as what level sales required to break even, how many units of Products are to be sold in order to earn a target level of profit.
- Gain an insight to a broad range of cost accounting concepts and their terminology
- 

**(18MB9003) BUSINESS LAW & REGULATIONS**

**Course Outcomes:**

After the completion of course Students will be able to:

- Gain an insight into various laws in the country to regulate business aspects
- Identify the legal principles in making contractual agreements.
- Recognize the importance of business law in economic, political and on social context.
- Analyze the legal issues involved in the formation and winding up of a company.
- Explain to compute Income Tax and various forms of Taxes.

**(18MB9004) BUSINESS STATISTICS AND ANALYTICS FOR DECISION MAKING**

**Course Outcomes:**

After the completion of course Students will be able to:

- Implement managerial applications of statistical methods in business problems
- Measure a central value of an observation and variation of an observation with its central value
- Gain better numerical understanding and its key applications to make valid findings and conclusions of data that has collected through different sources.
- Relate all possible kinds of relationships of dependent variables with independent variables
- Formulate hypothesis and test the same with tools of hypothesis testing to draw a proper conclusions about population.

- 

**(18MB9005) MANAGERIAL ECONOMICS****Course Outcomes:**

After the completion of course Students will be able to:

- Assess the importance of micro economics in business management
- Assess the roles of managers as economists in firms
- Analyze the internal and external decisions to be made by managers
- Analyze the demand and supply conditions and assess the position of a company
- Design competitive strategies, including costing, pricing, product differentiation, according to the natures of products and the structures of the markets.

**(18MB9006) ENTREPRENEURSHIP IN PRACTICE.****Course Outcomes:**

After the completion of course Students will be able to:

- Discern distinct entrepreneurial traits and identify the successful elements of successful entrepreneurial ventures
- Consider the legal and financial conditions for starting a venture and to assess the opportunities and constraints for new ventures
- Design strategies for the successful implementation of ideas
- Comprehend the evaluation of business opportunity from the prospective of an investor
- Identify the most suitable sources of finance for start-ups
- Write and execute their own business plan

**(18MB9007) BUSINESS COMMUNICATION LAB****Course Outcomes:**

After the completion of course Students will be able to:

- Apply business communication strategies and principles to prepare effective communication for domestic and international business situations.
- Utilize the skill of writing business letters, memos, general warning, and caution and danger letters in an organization.
- Analyze the verbal and nonverbal communications and lead the people effectively.

- Deliver an effective oral business presentation. Communicate via electronic mail, Internet, and other technologies.
- Select appropriate organizational formats and channels used in developing and presenting business messages.

### **(18MC9150) FUNDAMENTALS OF COMPUTER AND INFORMATION SYSTEM LAB**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Demonstrate ability to create documents and Excel sheets for information storage
- Develop the documentation of using MS-Word.
- Sort the data and apply the mathematical calculation using MS-Excel.
- Develop the business presentation using MS-PowerPoint
- Gain an understanding of techniques of Google search engine.

### **I MBA – II Semester**

#### **(18MB9008) HUMAN RESOURCE MANAGEMENT**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding of the concept of human resource management and its relevance in organizations.
- Explain the current theory and practice of recruitment and selection. This includes but is not limited to the supply of human resource and the advantages and disadvantages of external and internal recruiting.
- Assess the relevant recruitment and selection, and performance appraisal methods to be used in different contexts.
- Develop, implement, and evaluate compensation, employee orientation, training, and development programs.
- Demonstrate the significance of contemporary issues such as diversity management, talent management and so on to both employers and employees

#### **(18MB9009) FINANCIAL MANAGEMENT**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Demonstrate the applicability of the concept of Financial Management; understand its objectives and role of a Financial Manager.
- Analyze and evaluate the investment decisions.
- Manage the working capital requirements of a firm
- Apply the Leverage and EBIT EPS Analysis associated with financial data of the firm

- Demonstrate an understanding of the Cost of capital.

### **(18MB9010) MARKETING MANAGEMENT**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Demonstrate strong conceptual knowledge in the functional area of marketing management.
- Develop an understanding of various facets of Marketing management
- Demonstrate the ability to take decisions and plan, develop, execute and control marketing strategies
- Ensure various marketing programs for the attainment of organizational marketing goals.
- Demonstrate analytical skills in identification and resolution of problems pertaining to marketing management.

### **(18MB9011) BUSINESS RESEARCH METHODS**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop understanding on various kinds of business research concepts.
- Gain knowledge on Research process and hypothesis development with different research design.
- Demonstrate adequate knowledge on sampling procedure and data collection methods.
- Apply knowledge of measurement & scaling techniques as well as the quantitative data analysis for research problems.
- Assess the importance of Research Report writing in systematic way.

### **(18MB9012) OPERATIONS MANAGEMENT**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Identify the elements of operations management and various transformation processes to enhance productivity and competitiveness.
- Analyze and evaluate various facility alternatives and their capacity decisions.
- Develop a balanced line of production & scheduling and sequencing techniques in operation environments
- Develop aggregate capacity plans and MPS in operation environments.
- Plan and implement suitable materials handling principles and practices in the operations.

### **(18MB9013) MANAGEMENT INFORMATION SYSTEMS**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Explain the importance of information system in decision making.
- Determine information system requirements for all management levels by describing the differences between various types of information systems.

- Apply probability theory in decision making situations.
- Apply an ERP system to manage a company.
- Implement and evaluate all aspects management information systems

### **(18HS0805) COMMUNICATIVE ENGLISH LAB**

#### **Course Outcomes:**

- Remember and understand the different aspects of the English language proficiency with emphasis on LSRW skills.
- Apply communication skills through various language learning activities.
- Analyse the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking comprehension.
- Evaluate and exhibit acceptable etiquette essential in social and professional Settings.
- Create awareness on mother tongue influence and neutralize it in order to improve fluency in spoken English.

### **(18HS0815) HUMAN VALUES AND PROFESSIONAL ETHICS FOR MANAGER (AUDIT COURSE)**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about the moral issues in a society to live in harmony in the society
- Maintain professional, personal ethics and avoid discriminatory practices.
- Handle ethical dilemmas in various functional disciplines and live in balance with environment
- Realize the significance of mutual trust and abiding by the code of conduct in the organizations and as well in the society.
- Gain an insight into ethics, responsibilities, code of conduct in organizations.

### **II MBA – I Semester**

#### **(18MB9015) BUSINESS ETHICS AND CORPORATE GOVERNANCE**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Apply various ethical principles in business and corporate social responsibility practices
- Recognize how personal ethics can influence behavior and apply in decision making
- Explain the ethical challenges facing the various functional departments
- Identify the organizational and cultural variables that impact ethical judgment
- Analyze various ethical codes in corporate governance
- Identify organizational policies and systems that employ ethical conduct



### **(18MB9016) INDIAN ECONOMY & POLICY**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Analyze the characteristics of Indian economy and sectorial contribution towards economy in the historic period and also in the current scenario.
- Familiarize with the various components of business environment and able to assess the dynamics of the environment.
- Recognize the industrial policies that have made significant contribution to the growth of the Indian economy
- Appreciate and assess the impact government policies towards the business.
- Analyze the policies towards international trade, role of export-import bank, and the components balance of payments that cause disequilibrium.

### **(18MB9017) SPIRITUAL MANAGEMENT**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about the values and the importance of value education in a society.
- Gain an understanding towards spirituality, and discern to the challenges of value adoption.
- Appreciate the major religions and the sources of values and understand the divine concept.
- Handle the principles of integrity, character development and live in balance with environment
- Realize the significance of meditation and emotional maturity for the code of conduct in the organizations and as well in the society
- Develop environmental awareness and maintain and assess personal progress to create harmony in professional as well as personal life

### **(18MB9018) BASICS OF BUSINESS PROCESS OUTSOURCING**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about the basics of business process outsourcing and the challenges of Off shoring.
- Analyze the opportunities, issues and problems, components that control the business process outsourcing industry.
- Demonstrate the ability to handle the aspects of health care BPOs and financial services BPOs.
- Realize the significance of outsourcing and assessing the new trends in the BPO organizations
- Develop appropriate technologies and management patterns to create careers in BPOs.
- Realize the new opportunities in various other sectors that can offer BPOs.

## **(18MB9019) AGRI-BUSINESS MANAGEMENT**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Understand the fundamentals of management with reference to agribusiness
- Acquaint with agricultural contribution towards Indian economy
- Realize the significance of environment affecting agribusiness and recognize the various sources of finance towards agri business
- Apply the managerial functions and its applications with reference to agribusiness
- Learn the concepts and process of Agricultural Marketing and Cooperation
- Get knowledge about the recent developments in Agribusiness Management

## **(18MB9020) EXPORT AND IMPORT MANAGEMENT**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about the theories of international trade, balance of trade and adjustment mechanisms.
- Get an insight into various instruments that control the international trade and avoid discriminatory practices
- Realize the significance of export marketing, contracts and the role of promotion councils
- Handle the payment methods, risks and various financing strategies in export and import process
- Recognize the different agencies involved in EXIM process and their role in the international trade
- Observe and explore the international environmental factors, international institutions that control the trade.

## **(18MB9021) INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about investment management and trading securities
- Examine and value the major investment vehicles and strategies to allocate funds
- Make decisions of allocation and selection of assets based on trade-off between risk and return, risk mitigating tools and investment avenues.
- Define the objectives in constructing and managing a portfolio and learn to create an investment policy statement.
- Develop knowledge of modern portfolio theory and effect of diversification on investment portfolios
- Gain knowledge to measure and evaluate portfolio performance and to manage the risk.

## **(18MB9022) SALES AND DISTRIBUTION MANAGEMENT**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Gain an understanding about the roles and responsibilities of the Sales Managers
- Manage and enhance the sales force productivity and performance.
- Get an insight towards distribution channels, their organization structures and to make value addition to channels.
- Plan and implement an effective sales strategy for their organizations.
- Design and implement distribution channel strategy.
- Manage the Channels efficiency and effectiveness across countries

## **(18MB9023) PERFORMANCE MANAGEMENT SYSTEMS**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Gain an insight towards performance management and performance appraisal.
- Compare and contrast various organizational performance management programs and best practices and define attributes of effective performance management systems.
- Assess how increased employee involvement can contribute to effective performance and coach employees to identify career paths and resources available to support individual development.
- Practically experience a number of tools which are critical to the new performance management systems.
- Realize the value of and drawbacks of modern performance management systems such as 360, MBO conducted in the organizations.
- Develop an understanding towards the issues involved in effective performance management

## **(18MB9024) ENTERPRISE RESOURCE PLANNING**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Make basic use of Enterprise software, and its role in integrating business functions
- Analyze the strategic options for ERP identification and adoption.
- Develop and design the modules used in ERP systems
- Create reengineered business processes for successful ERP implementation.
- Customize the existing modules of ERP systems.
- Examine the places where formal development approaches of ERP systems can be fruitful and where they may not be so helpful.

## **(18MB9025) RISK MANAGEMENT AND INSURANCE**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about the Principles, essential features and objectives of risk management.
- Gain knowledge of the range of financial and financial related risks facing organizations.
- Examine the role of public policy including social insurance in personal financial planning and risk management.
- Determine approach to risk management through risk identification, risk measurement and risk management (or mitigation)
- Identify, understand operational risk and how to manage it.
- Assess significance of insurance policies and calculation of insurance premiums for living and non – living objects.

## **(18MB9026) ADVERTISING AND SALES PROMOTION MANAGEMENT**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about various types of advertising and its forms.
- Realize the significance of advertising agency and the client agency relationship through selection of media
- Handle advertising budget and measure the effectiveness of advertising.
- Comprehend the values and ethics in advertising and apply in practice
- Identify various suitable sales promotion tools and techniques for various groups
- Organize and measure the effectiveness of sales promotion campaigns

## **(18MB9027) KNOWLEDGE MANAGEMENT**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Explain the key theories and models that inform knowledge management
- Critically apply theory to organisations in order to identify and justify effective knowledge management strategies and activities
- Access and evaluate essentials relating to knowledge management
- Communicate clearly and implement effectively varying formats and technologies
- Design problem solutions based upon research findings and critical assessment of current theory and practice
- Develop an insight towards the future of knowledge management from industry perspective

## **(18MB9028) DATA WAREHOUSING AND MINING**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Gain an understanding towards Data Warehouse fundamentals, Data Mining Principles
- Design data warehouse with dimensional modeling and apply OLAP operations.
- Identify appropriate data mining algorithms to solve real world problems
- Compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining
- Describe complex data types with respect to spatial and web mining.
- Apply and select suitable methods for data analysis.

## **(18MB9029) FINANCIAL MARKETS AND SERVICES**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Demonstrate an awareness of the current structure and regulation of the Indian financial services sector.
- Apply concepts relevant to financial markets and financial institutions, such as the flow of funds, levels of interest rates and interest rate differentials
- Identify the functions of financial markets and institutions and examine their impact on the level of interest rates and interest differentials.
- Describe the instruments, participants and operation of the money market and role of intermediaries in the primary market
- Explore the integration of international financial markets and analyze the implications for financial managers.
- Evaluate and create strategies to promote financial products and services

## **(18MB9030) CUSTOMER RELATIONSHIP MANAGEMENT**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Demonstrate how knowledge of consumer behaviour can be applied to marketing.
- Identify and explain factors which influence consumer behaviour.
- Relate internal dynamics such as personality, perception, learning motivation and attitude to the choices consumers make.
- Realize the principal factors that influence consumers as individuals and decision makers with an application to the buying decision process.
- Develop marketing strategies that are consumer based and create and enhance customer
- Discern the concept of Consumerism and legislative responses to consumerism, and marketer responses to consumer issues

### **(18MB9031) TRAINING AND DEVELOPMENT**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Explain the role of training and development in human resources management.
- Describe the psychology of the learning process on which training is based.
- Analyze the training needs of an organization.
- Assess, design, access and implement various methods, techniques and sources of training.
- Evaluate the value of the training once completed from the individual employee and the organization's viewpoint.
- Develop an appropriate training strategy for today's organization

### **(18MB9032) SUPPLY CHAIN MANAGEMENT**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Appreciate the evolution and identify the role of supply chain management in the economy
- Identify and evaluate the drivers of supply chain management
- Analyze the importance of make or buy decisions and identify appropriate suppliers
- Appraise the importance of supply chain networks
- Assess the risk associated with supply chain practices and take better decisions
- Familiarize with and apply various computer based supply chain optimization tools

### **(18MB9033) COST AND MANAGEMENT ACCOUNTING**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about the role of cost accounting in the business management of manufacturing and non- manufacturing companies.
- Apply accounting methods of cost calculation and interpret cost accounting statements.
- Analyze and evaluate information for cost ascertainment, planning, control and decision making
- To know the various stock valuation methods adopted by various business organisations.
- Gain an understanding between the relationship between cost accounting, financial accounting and management accounting role in decision making.
- Prepare a budget and use budgets for performance evaluation after flexing the budget.

### **(18MB9034) PRODUCT AND BRAND MANAGEMENT**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Gain an insight into the fundamental concepts of product and brand development
- Use the brand positioning framework to develop a brand, keep it relevant, expand a brand internationally, and reposition a brand
- Use tools and metrics to measure branding and interpret brand performance
- Recognize the importance of using branding strategies in an organization.
- Develop an understanding about the differences in branding to various sectors
- Assess and apply branding strategies to various products across different sectors.

### **(18MB9035) HUMAN RESOURCE METRICS AND ANALYTICS**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about how to plan for human resources and implement techniques of man power forecasting and inventorying
- Analyze the role of recruitment and selection in relation to the organization's business
- Competency to recruit, select and appraise the performance of the employees
- Handle employee issues such as employee separation and evaluate new trends in managing the staff in organizations
- Appraise succession plans and critical staffing objectives and evaluate the complexities of downsizing issues and the role of HR planning in the process of downsizing
- Develop appropriate technologies and management patterns to improve business

### **(18MB9036) E – BUSINESS**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about the E- Markets and E- business infrastructure and trends
- Identify various procurement methods, their benefits and risks and assess different options for integration of organizations' information systems with e-procurement suppliers.
- Analyze different types of portal technologies and deployment methodologies commonly used in the industry for security and reliability of E- business.
- Analyze the effectiveness of network computing and cloud computing policies in a multi-location organization.
- Analyze real business cases regarding their e-business strategies and transformation processes and choices.
- Integrate theoretical frameworks with business strategies.

### **(18MB9037) INDUSTRY ANALYSIS AND REPORT PRESENTATION**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Gain an understanding of the dynamics of a specific industry.
- Compare various issues particular to an industry.

- Develop cross-functional perspective of the functioning of a business enterprise and an industry.
- Develop awareness about the future prospective problems based on secondary source of data.
- Learn and examine the trends of growth or decline in industry.
- Analyze the issues of an industry and an enterprise with respect to set basic parameters

### **(18MB9038) BUSINESS SIMULATION LAB**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about the EXCEL lessons
- Get familiarize with basic to intermediate skills for using Excel in the classroom vis-à-vis Business Applications
- Hands on experience on MS Excel Utilities
- Create solutions for Data Management and Reporting
- Gain an understanding about the SPSS and experts in handling data files and carry out basic statistical analysis
- Test basic hypothesis using t tests, Chi Square tests and ANOVA.

## **II MBA – II Semester**

### **(18MB9039) GREEN BUSINESS MANAGEMENT**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Demonstrate an understanding of comprehensive systemic analysis across both physical and behavioural dimensions involving society, the environment, and the economy.
- Analyze the role of environmental sustainability in the promotion of comprehensive justice and equity.
- Gain an insight towards the basic sustainability concepts of evolutionary processes, inter-generational debt, socio-political adaptation, climate change, ecosystem services, and environmental justice
- Articulate a comprehensive world view that integrates diverse approaches to sustainability.
- Realize the significance of environmental reporting and green product management
- Identify how globalized processes impact socio ecological systems. Develop appropriate technologies and management patterns to create harmony with the environment

### **(18MB9040) COMPUTER APPLICATION FOR BUSINESS**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about the E- Markets and E- business infrastructure and trends
- Identify various procurement methods, their benefits and risks and assess different options for integration of organizations' information systems with e-procurement suppliers.



- Analyze different types of portal technologies and deployment methodologies commonly used in the industry for security and reliability of E- business.
- Analyze the effectiveness of network computing and cloud computing policies in a multi-location organization.
- Analyze real business cases regarding their e-business strategies and transformation processes and choices.
- Integrate theoretical frameworks with business strategies.

## **(18MB9041) WORLD TRADE ORGANIZATION & INTELLECTUAL PROPERTY RIGHTS**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Identify different types of Intellectual Properties (IPs), the right of ownership, scope of protection as well as the ways to create and to extract value from IP
- Recognize the crucial role of IP in organizations of different industrial sectors for the purposes of product and technology development
- Identify activities and constitute IP infringements and the remedies available to the IP owner
- Describe the precautions steps to be taken to prevent infringement of proprietary rights in products and technology development.
- Be familiar with the processes of Intellectual Property Management (IPM) and various approaches for IPM and conducting IP and IPM auditing and explain how IP can be managed as a strategic resource and suggest IPM strategy.
- Be able to anticipate and subject to critical analysis arguments relating to the development and reform of intellectual property right institutions and their likely impact on creativity and innovation.

## **(18MB9042) CROSS CULTURAL MANAGEMENT**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Appreciate the critical role of culture in international business and the importance of managing cultural differences
- Analyze the interacting spheres of culture including organizational culture, professional culture, national culture, and industry culture.
- Discern the influence of culture on different functions of management including communication, negotiation, marketing, leadership, motivation, human resource management and teams.
- Display an understanding of cultural difference in interactions with different nationalities and an awareness of and sensitivity to cross-cultural issues.
- Understand and explain issues of cultural awareness when conducting international business
- Build mind-set and skill-set of a competent leader who appreciates and leverages diversity in talents and organizations s/he works with

## **(18MB9043) INNOVATION TECHNOLOGY MANAGEMENT**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Account for the importance of technological development and innovation for economic growth and increased competitiveness on a firm level
- Critically discuss a firm's need to have a strategic and integrated approach to be able to successfully manage innovation and technical development,
- Analyse complex innovation processes in firms both internally and externally.
- Explore and better manage the effects of new technology on people and work systems
- Demonstrate that the effective management of technological innovation requires the integration of people, processes and technology
- Recognize opportunities for the commercialization of innovation

## **(18MB9044) SUSTAINING ORGANIZATIONAL CULTURE & TEAMWORK**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about the concepts in the field of management and develop skills to apply the concepts for business problems
- Describe strategies used by managers to create and maintain a consistent organizational culture
- Recognize the role of management in communicating and teaching organizational culture to employees and subordinates across borders
- Understanding and manipulating organisational/corporate culture to engender greater organisational flexibility and productivity
- Demonstrate an understanding of how to uphold international negotiations
- Demonstrate self-awareness, sensitivity, and openness to diverse people and cultures

## **(18MB9045) FINANCIAL DERIVATIVES**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about the various financial derivative securities (Futures, Forwards and Options).
- Describe standard derivative contracts, their properties and functionality.
- Analyze the role and relationship between forward and futures prices.
- Apply scientific methods for valuation of options and other derivatives, in continuous and discrete time.
- Interpret and apply risk measures that are commonly used in risk management.
- Describe how swaps can reduce market risks and use a simulation to assess a risk hedging strategy based on interest rate swaps

## **(18MB9046) SERVICES MARKETING**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding understand the characteristics of services, understand consumer behavior in services, align service design and standards, delivering service, managing services promises
- To segment markets for services and create value in the market for new services
- Implement pricing and promotion strategies for services
- Focus on the role of marketing communication and set communication strategies for service marketing
- Plan and execute the delivery of services based on the requirement.
- Develop appropriate strategies for marketing of the services

## **(18MB9047) ORGANIZATIONAL CHANGE AND DEVELOPMENT**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding and appreciation of the various concepts of organizational development
- Learn how to apply some of the key concepts and tools organizational development and change leadership and management.
- Discuss and analyze diagnostic tools used to assess organizational effectiveness.
- Identify major types of organizational development interventions.
- Demonstrate how to evaluate organizational development interventions
- Apply human resource intervention techniques in different management scenarios.

## **(18MB9048) DATA COMMUNICATION AND NETWORK ANALYSIS**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Explain the concept of Data communication and networks, layered architecture and their applications
- Evaluate data communication link considering elementary concepts of data link layer protocols for error detection and correction.
- Analyse and Set up protocol designing issues for Communication networks.
- Apply various network layer techniques for designing subnets and supernets and analyse packet flow on basis of routing protocols.
- Estimate the congestion control mechanism to improve quality of service of networking application
- Understand and design application layer protocols and internet applications such as network security

## **(18MB9049) INTERNATIONAL FINANCIAL MANAGEMENT**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Analyse, apply and evaluate information within the global financial environment of foreign exchange to solve problems and make informed decisions.
- Review the problems of dealing in foreign currency and the advantages and disadvantages of overseas funding
- Demonstrate the use of foreign exchange derivatives and other methods to manage foreign exchange exposure and risk
- Describe the issues pertaining to cross-border investment decisions and financing MNCs
- Analyse the complexities associated with management of cost of funds in the capital Structure in MNCs
- Analyse, evaluate and synthesize both quantitative and qualitative financial information to influence problem solving and decision making

## **(18MB9050) INTERNATIONAL MARKETING**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about the major issues related to international marketing
- To assess an organization's ability to enter and analyse various strategies to enter and compete in international markets
- Identify and analyse opportunities within international marketing environments
- Handle new product development and branding in international markets
- Realize the factors that affect the distribution channels and structures in international markets and take appropriate decisions
- Develop an understanding towards the procedures and documentation in the export and import process in the country and apply in practice

## **(18MB9051) INTERNATIONAL HRM**

### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about importance of Human resource at international level and also identify the differences between domestic and international human resource management
- To understand and assess the various cultural and human variables that influence in the workplace.
- Understand the nature, sources and different methods for recruiting people at international level and apply them along with compensation of human resources based on their skills.
- Perform the functional roles of HRM in International context especially in recruitment and selection, performance management, training, learning and development and repatriation.
- Apply different appraisal methods and trainings that are available for International staffing.

- Assess about the industrial relations in other nations and also to manage people in different locations.

### **(18MB9052) CORPORATE INFORMATION MANAGEMENT**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Define an information system from both a technical and business perspective and distinguish between computer literacy and information systems literacy
- Identify the major management challenges to building and using information systems in organizations
- Identify managerial risks related to information system organization processing and utilizing
- Explain how enterprise systems and industrial networks create new efficiencies for businesses
- Apply outsourcing of business activities and manage the risk and relationship with outsourcing agencies
- Highlight the role of projects in modern day business organizations and sensitize the complexities of project management.

### **(18MB9053) SEMINAR ON CONTEMPORARY ISSUES OF MANAGEMENT**

#### **Course Outcomes:**

After the completion of course Students will be able to:

- Develop an understanding about the issues in the business enterprises across various industrial sectors
- Practice and maintain communication, logical and analytical skills learnt in the MBA program
- Construct new ability to practice new problem solving skills and use these skills in personal life.
- Demonstrate necessary skills to handle day-to-day managerial responsibilities, such as making speeches, giving effective presentations and maintaining one's poise in private and public
- Develop proactive thinking to perform effectively in the dynamic socio economic business systems
- Learn the etiquette essentials to perform in various communication roles as business managers

### **(18MB9054) COMPREHENSIVE VIVVA-VOCE**

#### **Course Outcomes:**

- Plan, and engage in, an independent and sustained critical investigation and evaluation of a chosen research topic relevant to environment and society
- Systematically identify relevant theory and concepts, relate these to appropriate methodologies and evidence, apply appropriate techniques and draw appropriate conclusions
- Engage in systematic discovery and critical review of appropriate and relevant information sources

- Appropriately apply qualitative and/or quantitative evaluation processes to original data
- Understand and apply ethical standards of conduct in the collection and evaluation of data and other resources
- Communicate research concepts and contexts clearly and effectively both in writing and orally

### **(18MB9055) PROJECT WORK**

#### **Course Outcomes:**

- Plan, and engage in, an independent and sustained critical investigation and evaluation of a chosen research topic relevant to environment and society
- Systematically identify relevant theory and concepts, relate these to appropriate methodologies and evidence, apply appropriate techniques and draw appropriate conclusions
- Engage in systematic discovery and critical review of appropriate and relevant information sources
- Appropriately apply qualitative and/or quantitative evaluation processes to original data
- Understand and apply ethical standards of conduct in the collection and evaluation of data and other resources
- Communicate research concepts and contexts clearly and effectively both in writing and orally

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**Master of Computer Application**

**MCA I Year-I Semester**

**(18MC9101) COMPUTER PROGRAMMING AND PROBLEM SOLVING**

**Course Outcomes:**

Upon completion of the subject, students will be able to

- Student can effectively apply problem solving techniques in designing the solutions for a wide range of problems.
- Write, compile and debug programs in C language.
- Design programs involving decision structures, loops and functions.
- Explain the difference between call by value and call by reference
- Understand the dynamics of memory by the use of pointers.

**(18HS0810) ENGLISH**

**Course Outcomes:**

Students will be able:

- To understand the rules of English grammar and their usage in writing English.
- To use LSRW skills through the prescribed text and develop their ability to communicate effectively.
- To get the mastery of language to express ideas, views, feelings and experience.
- To communicate well among themselves.
- To inculcate values and ideal characteristic qualities in themselves.

**(18HS0835) PROBABILITY & STATISTICS**

**Course Outcomes:**

At the end of the course, students would be expected to:

- Have acquired ability to participate effectively in group discussions
- Have developed ability in writing in various contexts
- Have acquired a proper level of competence for employability

**(18HS0836) DISCRETE MATHEMATICS**

**Course Outcomes:**

At the end of the course, students would be expected to:

- Have acquired ability to participate effectively in group discussions
- Have developed ability in writing in various contexts

- Have acquired a proper level of competence for employability

### **(18MB9056) ACCOUNTING & FINANCIAL MANAGEMENT**

#### **Course Outcomes:**

- This course is designed to introduce students to the principles, concepts, and applications of financial accounting and management.

### **(18MC9102) P.C. SOFTWARE LAB**

#### **Course Outcomes:**

- Able to disassemble and assemble the PC back to working condition.
- Able to know installation of software's.
- Able to understand mapping between virtual and physical memory.
- Able to know Software troubleshooting and Hardware Troubleshooting.
- Able to work on MS Office tools.

### **(18MC9103) C PROGRAMMING LAB**

#### **Course Outcomes:**

Upon completion of the subject, students will be able to

- Write, compile and debug programs in C language.
- Apply Problem solving techniques to find solutions to problems.
- Ale to use C language features effectively and implement solutions using C language.
- Able to improve logical skills.
- Design programs involving decision structures, loops and functions.
- Explain the difference between call by value and call by reference
- Understand the dynamics of memory by the use of pointers.
- Design programs involving files.

### **(18HS0811) ENGLISH LAB**

#### **Course Outcomes:**

- Students will be able:
- To recognize sounds of English language with different classifications.
- To know phonetic transcription and phonemic symbols of English language.
- To understand international accent and utilize the same in their daily conversation.
- To crease confidence for public speaking, for facing interviews, for making effective oral presentations, for having discussions, and for delivering



impromptu speeches.

## **MCA I Year -II- Semester**

### **(18MC9104) OPERATING SYSTEMS**

#### **Course Outcomes:**

- Able to understand the operating system components and its services
- Implement the algorithms in process management and solving the issues of IPC
- Able to demonstrate the mapping between the physical memory and virtual memory
- Able to understand file handling concepts in OS perspective
- Able to understand the operating system components and services with the recent OS

### **(18MC9105) COMPUTER ORGANIZATION**

#### **Course Outcomes:**

- Able to design digital circuits by simplifying the Boolean functions
- Able to understand the organization and working principle of computer hardware components
- Able to understand mapping between virtual and physical memory
- Acquire knowledge about multiprocessor organization and parallel processing
- Able to trace the execution sequence of an instruction through the processor

### **(18MC9106) OBJECT ORIENTED PROGRAMMING THROUGH C++**

#### **Course Outcomes:**

Students who have completed this course able to:

- Understand fundamentals of programming such as variables, conditional and iterative execution, methods, etc.
- Understand fundamentals of object-oriented programming in C++, including defining classes, invoking methods, using class libraries, etc.
- Have the ability to write a computer program to solve specified problems.
- Able to do the C++ Inheritance & Exception Handling concepts.

### **(18MC9107) DATA STRUCTURES**

**Course Outcomes:**

- Learn how to use data structure concepts for realistic problems.
- Ability to identify appropriate data structure for solving computing problems in C language.
- Ability to solve problems independently and think critically.

**(18MC9108) DATABASE MANAGEMENT SYSTEMS****Course Outcomes:**

- Understand the basic concepts of the database and data models.
- Design a database using ER diagrams and map ER into Relations and normalize the relations.
- Acquire the knowledge of query evaluation to monitor the performance of the DBMS.
- Develop a simple database applications using normalization.
- Acquire the knowledge about different special purpose databases and to critique how they differ from traditional database systems.

**(18MC9109) PROGRAMMING IN C++ LAB****Course Outcomes:**

After completion of this course, the students would be able to

- Understand programming language concepts, particularly C++ and object-oriented concepts.
- Write, debug, and document well-structured C++ applications
- Effectively create and use objects from predefined class libraries
- Understand the behavior of primitive data types, object references, and arrays
- Apply decision and iteration control structures to implement algorithms
- Write simple recursive algorithms
- Implement interfaces, inheritance, and polymorphism as programming techniques.

**(18MC9110) DATA STRUCTURES THROUGH C LAB****Course Outcomes:**

- Learn how to use data structure concepts for realistic problems.
- Ability to identify appropriate data structure for solving computing problems in C language.
- Ability to solve problems independently and think critically.
- Able to search and sort the elements in graphs and trees.
- Ability to solve linked list, queues and hash tables.

## **(18MC9111) DATABASE MANAGEMENT SYSTEMS LAB**

### **Course Outcomes:**

- Able to master the basic concepts and understand the applications of database systems.
- Able to construct an Entity-Relationship (E-R) model from specifications and to transform to relational model.
- Able to construct unary/binary/set/aggregate queries in Relational Algebra.
- Understand and apply database normalization principles.
- Able to construct SQL queries to perform CRUD operations on database. (Create, Retrieve, Update, Delete)
- Understand principles of database transaction management, database recovery, security.
- Be aware of non-relational databases and applications.

## **(18HS0843) APTITUDE PRACTICE - I**

### **Course Outcomes:**

At the end of the course, students would be expected to:

- Have developed the subtle way of approaching in the candidate.
- Have acquired the decision making with in no time.
- Have acquired logical thinking during professional tenure.
- Have obtained quick decision making skills.

## **MCA II Year -I- Semester**

### **(18MC9112) COMPUTER NETWORKS**

#### **Course Outcomes:**

- Able to trace the flow of information from one node to another node in the network
- Able to Identify the components required to build different types of networks
- Able to understand the functionalities needed for data communication into layers
- Able to choose the required functionality at each layer for given application
- Able to understand the working principles of various application protocols
- Acquire knowledge about security issues and services available

### **(18MC9113) JAVA PROGRAMMING**

**Course Outcomes:**

Students who have completed this course able to:

- Understand fundamentals of programming such as variables, conditional and iterative execution, methods, etc.
- Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.
- Have the ability to write a computer program to solve specified problems.
- Able to do the java collection framework programs.
- Work with GUI, Event handling mechanism.

**(18MC9114) SOFTWARE ENGINEERING****Course Outcomes:**

- Get an insight into the processes of software development
- Able to understand the problem domain for developing SRS and various models of software engineering
- Able to Model software projects into high level design using DFD diagrams
- Able to Measure the product and process performance using various metrics
- Able to Evaluate the system with various testing techniques and strategies

**(18MC9115) LINUX PROGRAMMING****Course Outcomes:**

- Work confidently in Linux environment.
- Work with shell script to automate different tasks as Linux administration

**(18MC9116) DATA WAREHOUSING AND DATA MINING****Course Outcomes:**

Upon Completion of the course, the students will be able to

- Store voluminous data for online processing
- Preprocess the data for mining applications
- Apply the association rules for mining the data
- Design and deploy appropriate classification techniques
- Cluster the high dimensional data for better organization of the data
- Discover the knowledge imbibed in the high dimensional system
- Evolve Multidimensional Intelligent model from typical system
- Evaluate various mining techniques on complex data objects

**(18MC9117) JAVA PROGRAMMING LAB****Course Outcomes:**

After completion of this course, the students would be able to

- Understand programming language concepts, particularly Java and object-oriented concepts.
- Write, debug, and document well-structured Java applications
- Implement Java classes from specifications
- Effectively create and use objects from predefined class libraries
- Understand the behavior of primitive data types, object references, and arrays
- Apply decision and iteration control structures to implement algorithms
- Write simple recursive algorithms
- Implement interfaces, inheritance, and polymorphism as programming techniques.
- Implement Java collection framework as programming techniques.

### **(18MC9118) LINUX PROGRAMMING LAB**

#### **Course Outcomes:**

- Able to use appropriate Linux commands contextually
- Able to write Shell scripts to automate the jobs and processes.
- Able to use system calls related to file, processes and IPC.

### **(18MC9119) DATA WAREHOUSING AND DATA MINING LAB**

#### **Course Outcomes:**

After undergoing the course students will be able to

- Synthesize the data mining fundamental concepts and techniques from multiple perspectives.
- Develop skills and apply data mining tools for solving practical problems
- Advance relevant programming skills.
- Gain experience and develop research skills by reading the data mining literature.

### **(18HS0820) COMPREHENSIVE SOFT SKILLS**

#### **Course Outcomes:**

- To know the importance of Soft Skills.
- To apply Soft Skills in the different environment.
- To enrich the different levels of Soft Skills to develop their personality.

**MCA II Year -II- Semester**

### **(18MC9120) BIG DATA ANALYTICS**

**Course Outcomes:**

The students will be able to:

- Work with big data platform
- Analyze the big data analytic techniques for useful business applications.
- Design efficient algorithms for mining the data from large volumes.
- Analyze the HADOOP and Map Reduce technologies associated with big data analytics
- Explore on Big Data applications Using Pig and Hive
- Understand the fundamentals of various bigdata analysis techniques

**(18MC9121) WEB TECHNOLOGIES****Course Outcomes:**

Student is able to:

- Do the server side programming, maintain sessions.
- Establish the DB connections and access the data.
- Design pages using PHP and AJAX.

**(18MC9122) DESIGN AND ANALYSIS OF ALGORITHMS****Course Outcomes:**

- Analyze the complexity of the algorithms
- Use techniques divide and conquer, greedy, dynamic programming, backtracking, branch and bound to solve the problems.
- Identify and analyze criteria and specifications appropriate to new problems, and choose the appropriate algorithmic design technique for their solution.
- Able to prove that a certain problem is NP-Complete.

**(18MC9123) SOFTWARE TESTING****(DEPARTMENT ELECTIVE – I)****Course Outcomes:**

- Test the software by applying testing techniques to deliver a product free from bugs
- Evaluate the web applications using bug tracking tools.
- Investigate the scenario and the able to select the proper testing technique
- Explore the test automation concepts and tools
- Deliver quality product to the clients by way of applying standards such as TQM, Six Sigma
- Evaluate the estimation of cost, schedule based on standard metrics

**(18MC9124) NEURAL NETWORKS & FUZZY LOGIC**  
**(DEPARTMENT ELECTIVE-I)**

**Course Outcomes:**

- To Expose the students to the concepts of feed forward neural networks
- To provide adequate knowledge about feedback networks.
- To teach about the concept of fuzziness involved in various systems. To provide adequate knowledge about fuzzy set theory.
- To provide comprehensive knowledge of fuzzy logic control and adaptive fuzzy logic and to design the fuzzy control using genetic algorithm.
- To provide adequate knowledge of application of fuzzy logic control to real time systems.

**(18MC9125) DISTRIBUTED SYSTEMS**  
**(DEPARTMENT ELECTIVE – I)**

**Course Outcomes:**

- After completion of this course, the student is:
- Able to explain what a distributed system is, why you would design a system as a distributed system, and what the desired properties of such systems are;
- Able to list the principles underlying the functioning of distributed systems, describe the problems and challenges associated with these principles, and evaluate the effectiveness and shortcomings of their solutions;
- Able to recognize how the principles are applied in contemporary distributed systems, explain how they affect the software design, and be able to identify features and design decisions that may cause problems;
- Able to design a distributed system that fulfills requirements with regards to key distributed systems properties (such as scalability, transparency, etc.), be able to recognize when this is not possible, and explain why

**(18MC9126) SERVICE ORIENTED ARCHITECTURE**  
**(DEPARTMENT ELECTIVE – I)**

**Course Outcomes:**

- Known about the basic principles of service oriented architecture , its components and techniques
- Understand the architecture of web services
- Able to design and develop web services using protocol
- Understand technology underlying the service design
- Acquire the fundamental knowledge of cloud computing

**(18MC9127) HUMAN COMPUTER INTERACTION  
(DEPARTMENT ELECTIVE – II)**

**Course Outcomes:**

- Find innovative ways of interacting with computers
- Help the disabled by designing non-traditional ways of interacting
- Use cognitive psychology in the design of devices for interaction

**(18MC9128) SOCIAL NETWORKS AND SEMANTIC WEB  
(DEPARTMENT ELECTIVE – II)**

**Course Outcomes:**

- Understand semantic web basics, architecture and technologies
- Able to represent data from a chosen problem in XML with appropriate semantic tags obtained or derived from the ontology
- Able to understand the semantic relationships among these data elements using Resource Description Framework (RDF)
- Able to design and implement a web services application that “discovers” the data and/or other web services via the semantic web
- Able to discover the capabilities and limitations of semantic web technology for social networks

**(18MC9129) COMPUTER GRAPHICS  
(DEPARTMENT ELECTIVE – II)**

**Course Outcomes:**

- Gain proficiency in 3D computer graphics API programming
- Enhance the perspective of modern computer system with modeling, analysis and interpretation of 2D and 3D visual information

**(18MC9130) INTERNET OF THINGS  
(DEPARTMENT ELECTIVE – II)**

**Course Outcomes:**

- Ability to combine sensors, servos, robotics, Arduino chips, and more with various or the Internet, to create interactive, cutting-edge devices.
- Better idea of the overview of necessary steps to take the idea of IOT concept through production

**(18MC9131) BIG DATA ANALYTICS LAB**

**Course Outcomes:**

- The students will be able to:
- Work with big data platform



- Analyze the big data analytic techniques for useful business applications.
- Design efficient algorithms for mining the data from large volumes.
- Analyze the HADOOP and Map Reduce technologies associated with big data analytics
- Explore on Big Data applications Using Pig and Hive
- Understand the fundamentals of various bigdata analysis techniques

### **(18MC9132) WEB TECHNOLOGIES LAB**

#### **Course Outcomes:**

Student is able to:

- Design and execute applications in java beam
- Do the server side programming, maintain sessions.
- Establish the DB connections and access the data.
- Ability to work on MVC architecture
- Design pages using PHP and AJAX.

### **(18HS0844) APTITUDE PRACTICE - II**

#### **Course Outcomes:**

At the end of the course, students would be expected to:

- Have developed the subtle way of approaching in the candidate.
- Have acquired the decision making with in no time.
- Have acquired logical thinking during professional tenure.
- Have obtained quick decision making skills.

### **MCA III Year -I- Semester**

#### **(18MC9134) .NET TECHNOLOGIES**

#### **Course Outcomes:**

- Aware of .net framework components.
- Creating simple data binding applications in VB or C# using ADO.Net connectivity.
- Performing Database operations for windows form.
- Able to create a web applications.
- Creating user interactive web pages.

#### **(18MC9135) CLOUD COMPUTING**

#### **Course Outcomes:**

- Compare the strengths and limitations of cloud computing
- Identify the architecture, infrastructure and delivery models of cloud

computing

- Apply suitable virtualization concept.
- Choose the appropriate cloud player, Programming Models and approach.
- Address the core issues of cloud computing such as security, privacy and Interoperability
- Design Cloud Services and Set a private cloud

### **(18MC9136) OBJECT ORIENTED ANALYSIS AND DESIGN Using UML**

#### **Course Outcomes:**

- Understand the basic concepts to identify state & behavior of real world objects
- Able to learn the various object oriented methodologies and choose the appropriate one for solving the problem with the help of various case studies
- Understand the concept of analysis, design & testing to develop a document for the project
- Able to implement analysis, design & testing phases in developing a software project

### **(18MC9137) CYBER SECURITY (DEPARTMENT ELECTIVE – III)**

#### **Course Outcomes:**

After learning the course the students should be able to:

- Understand cyber-attack, types of cybercrimes, cyber laws and also how to protect them self and ultimately society from such attacks

### **(18MC9138) SOFTWARE PROJECT MANAGEMENT (DEPARTMENT ELECTIVE – III)**

#### **Course Outcomes:**

- Understand the activities during the project scheduling of any software application.
- Learn the risk management activities and the resource allocation for the projects.
- Can apply the software estimation and recent quality standards for evaluation of the software projects.
- Acquire knowledge and skills needed for the construction of highly reliable software project.
- Able to create reliable, replicable cost estimation that links to the

requirements of project planning and managing

**(18MC9139) ARTIFICIAL INTELLIGENCE  
(DEPARTMENT ELECTIVE – III)**

**Course Outcomes:**

At the end of this course:

- Student should have a knowledge and understanding of the basic concepts of AI including Search.
- Student can solve the Game Playing problems.
- Student can be able to use planning and learning techniques
- Student should be able to use this knowledge and understanding of appropriate principles and guidelines to synthesise solutions to tasks in AI and to critically evaluate alternatives.
- Student can have ability to use the expert system

**(18MC9140) INFORMATION RETRIEVAL SYSTEMS  
(DEPARTMENT ELECTIVE – III)**

**Course Outcomes:**

- Use different information retrieval techniques in various application areas
- Apply IR principles to locate relevant information large collections of data
- Analyse performance of retrieval systems when dealing with unmanaged data sources
- Implement retrieval systems for web search tasks.

**(18MC9141) M-COMMERCE  
(DEPARTMENT ELECTIVE – IV)**

**Course Outcomes:**

- Able to apply E – commerce principles in market place.
- Able to apply M – commerce principles to various business domains
- Understand the theory and applications of M-commerce in business domain
- Get an exposure to current technological advancements in M-commerce

**(18MC9142) IMAGE PROCESSING  
(DEPARTMENT ELECTIVE – IV)**

**Course Outcomes:**

- Able to enhance images using enhancement techniques.
- Able to restore images using restoration techniques and methods used in digital image processing

Able to compress images using compression techniques used in digital image **processing**

**(18MC9143) DESIGN PATTERNS**  
**(DEPARTMENT ELECTIVE – IV)**

**Course Outcomes:**

- Students demonstrate a thorough understanding of patterns and their underlying principles
- Students know what design pattern to apply to a specific problem
- Students demonstrate what tradeoffs need to be made when implementing a design pattern
- Students will be able to use design patterns when developing software

**(18MC9144) COGNITIVE COMPUTING**  
**(DEPARTMENT ELECTIVE – IV)**

**Course Outcomes:**

- Understand the broad perspective of Cognitive Computing
- Understand the concept of Analytics in Cognitive computing
- Using the IBMs Watson
- Designing the applications in Cognitive computing

**(18MC9145) .NET TECHNOLOGIES LAB**

**Course Outcomes:**

- Create Simple application using web controls
- Work with States of ASP.NET Pages
- Query textbox and Displaying records & Display records by using database Datalist link control & Databinding using dropdownlist control Inserting record into a database & Deleting record into a database
- Databinding using datalist control & Datalist control templates Databinding using datagrid & Ddatagrid control template Ddatagrid hyperlink & Ddatagrid button column Datalist event & Ddatagrid paging Creating own table format using datagrid

**(18MC9146) CLOUD COMPUTING LAB**

**Course Outcomes:**

- The student should be able to Design and Implement applications on the Cloud.
- Use the cloud tool kits.

### **(18MC9147) UML LAB**

#### **Course Outcomes:**

- Understand the basic concepts to identify state & behavior of real world objects
- Able to learn the various object oriented methodologies and choose the appropriate one for solving the problem with the help of various case studies
- Understand the concept of analysis, design & testing to develop a document for the project
- Able to implement analysis, design & testing phases in developing a software project

### **(18HS0821) ADVANCED ENGLISH LANGUAGE AND COMMUNICATION SKILLS LAB**

#### **Course Outcomes:**

- Flair in Writing and felicity in written expression
- To enhance job prospects
- Improving Effective Speaking Abilities
- To prepare effective Interview techniques

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)  
DEPARTMENT OF CIVIL ENGINEERING**

**M.Tech (Structural Engineering)**

**I M. TECH - I SEM. (SE)**

**(18CE1001) ADVANCED STRUCTURAL ANALYSIS**

**Course Outcomes:**

After completion of this course, the student shall understand

- Analysis of continuous beam by stiffness & flexibility matrix methods
- Analysis of Rigid Jointed frames by Stiffness & flexibility matrix methods
- Analysis of Pin Jointed Structures by Stiffness & Flexibility matrix methods
- Formation global & element stiffness matrix, direct stiffness method
- Equation solution Techniques

**(18CE1002) ADVANCED SOLID MECHANICS**

**Course Outcomes:**

After completion of this course, the student shall understand

- Two-dimensional analysis of stress and strain
- Three-dimensional analysis of stress and strain

**(18CE1008) THEORY OF THIN PLATES AND SHELLS**

**Course Outcomes:**

After completion of this course, the student shall be able to

- Analyze the plates using Navier's and Levy's method
- Analyze the circular, rectangular and square plates by finite difference method
- Design the curved shells and roofs
- Design the various folded plate structures

**(18CE1009) THEORY AND APPLICATIONS OF CEMENT COMPOSITES****Course Outcomes:**

At the end of the course, students will be able to

- Formulate constitutive behaviour of composite materials – Ferrocement, SIFCON and Fibre Reinforced Concrete
- Mechanical properties of cement composites
- Admixtures and special uses of cements.
- X-ray diffraction and SEM analysis of materials

**(18CE1010) THEORY OF STRUCTURAL STABILITY****Course Outcomes:**

The student shall be able to,

- Analyze elastic and inelastic buckling of bars
- Understand the various numerical methods for treatment of stability problems and buckling of rectangular cross-sectional beams and plates

**(18HS0837) ANALYTICAL AND NUMERICAL METHODS  
FOR STRUCTURAL ENGINEERING****Course Outcomes:**

At the end of the course, students would be expected to:

- Have acquired ability to participate effectively in group discussions
- Have developed ability in writing in various contexts
- Have acquired a proper level of competence for employability
- Have acquired computational skills to solve real world problems in engineering

**(18CE1011) STRUCTURAL HEALTH MONITORING****Course Outcomes:**

At the end of the course, students will be able to

- Acquire the fundamental knowledge on structural health monitoring and analyse smart materials
- Understand the Structural Health Monitoring Applications in civil engineering structures and techniques for health monitoring.

- Assess the different Non-Destructive Testing Methods.
- Assess the health of structure using Durability tests.
- Suggest repairs and rehabilitation measures of the structure

### **(18CE1012) STRUCTURAL OPTIMIZATION**

#### **Course Outcomes:**

At the end of the course, students will be able to

- Acquire the fundamental knowledge on Optimization Techniques
- Understanding the principle of Calculus for optimization
- Understanding Linear Programming Techniques
- Apply Linear Programming techniques to Plastic design of Frames.
- Understanding Dynamic Programming Technique to apply for Design of Beams and Frames

### **(18CE1003) STRUCTURAL DESIGN LAB**

#### **Course Outcomes:**

At the end of the course, students will be able to

- Design and Detail all the Structural Components of Frame Buildings.
- Design and Detail complete Multi-Storey Frame Buildings.

### **(18CE1004) ADVANCED CONCRETE LAB**

#### **Course Outcomes:**

At the end of the course, students will be able to

- Design high grade concrete and study the parameters affecting its performance.
- Conduct Non-Destructive Tests on existing concrete structures.
- Apply engineering principles to understand behaviour of structural/ elements

### **(18HS0823) RESEARCH METHODOLOGY AND IPR**

#### **Course Outcomes:**

- Understood the Meaning of research problem, Characteristics of a good research problem, Errors in selecting a research problem, Scope and objectives of research problem.
- Got the knowledge of How to get new ideas.
- Acquired the knowledge of various government and NGO or agencies for Research Funding.

### **(18CE1029) DISASTER MANAGEMENT**



**Course Outcomes:**

On completion of the course the students will have knowledge on

- Types of disasters and their effects on environment
- Causes of disasters
- Disaster management through engineering applications

**(18HS0825) SANSKRIT FOR TECHNICAL KNOWLEDGE****Course Outcomes:**

Students will be able to

- Understanding basic Sanskrit language
- Ancient Sanskrit literature about science & technology can be understood
- Being a logical language will help to develop logic in students

**(18HS0826) VALUE EDUCATION****Course outcomes:**

Students will be able to

- Knowledge of self-development.
- Learn the importance of Human values.
- Developing the overall personality.

**I M. TECH - II SEM. (SE)****(18CE1005) FEM IN STRUCTURAL ENGINEERING****Course Outcomes:**

After completion of this course, the student shall understand

- The history of FEM, methods of functional approximation
- Principles of Elasticity, isoperimetric formulation
- Finite element analysis of plates

**(18CE1006) STRUCTURAL DYNAMICS****Course Outcomes:**

After completion of this course, the student shall understand the concepts OD

- Structural dynamics-single and multi-degree of freedom systems
- Free and Forced vibrations
- Practical Vibration analysis

**(18CE1013) ADVANCED STEEL DESIGN****Course Outcomes:**

After completion of this course, the student shall be able to

- Design light Gauge steel compression and Flexural members

- Analyze and design Transmission towers
- Analyze and design continuous beams and portal frames using plastic theory
- Design steel Tension members and laterally restrained beams using limit state method

### **(18CE1014) DESIGN OF FORMWORK**

#### **Course Outcomes:**

- At the end of the course, students will be able to
- Select proper formwork, accessories and material.
- Design the form work for Beams, Slabs, columns, Walls and Foundations.
- Design the form work for Special Structures.

### **(18CE1015) DESIGN OF HIGH RISE STRUCTURES**

#### **Course Outcomes:**

At the end of the course, students,

- understanding on the behavior of tall buildings subjected to lateral building.
- should have knowledge about the rudimentary principles of designing tall buildings as per the existing codes.

### **(18CE1016) DESIGN OF MASONRY STRUCTURES**

#### **Course Outcomes:**

The student shall be able to,

- Understand the masonry design approaches.
- Determine Reinforced Masonry Members.
- Determine strength of stability
- Determine masonry walls in composite action

### **(18CE1017) DESIGN OF ADVANCED CONCRETE STRUCTURES**

#### **Course Outcomes:**

- Analyze the special structures by understanding their behavior.
- Design and prepare detail structural drawings for execution citing relevant IS codes

### **(18CE1018) ADVANCED DESIGN OF FOUNDATIONS**

#### **Course Outcomes:**

At the end of this course, all students should be able to:

- Student will demonstrate the ability to identify a suitable foundation system for a structure
- Student will be capable of analyzing and designing foundations for structures such as tall towers, bridges.

### **(18CE1019) SOIL STRUCTURE INTERACTION**

#### **Course Outcomes:**

At the end of this course students will have the capacity to

- Idealize soil response in order to analyze and design foundation elements subjected to different loadings.

### **(18CE1020) DESIGN OF INDUSTRIAL STRUCTURE**

#### **Course Outcomes:**

- On completion of this course student will be able to plan industrial structures for functional requirements.
- They will be able to design various structures such as Cooling Towers, Chimneys, and Transmission Towers with required foundations.

### **(18CE1007) MODEL TESTING LAB**

#### **Course Outcomes:**

At the end of the course, students will be able to

- Understand the response of structures.
- Prepare the models.
- Conduct model testing for static loading
- Conduct model testing for free and forced vibrations

### **(18HS0838) NUMERICAL ANALYSIS LAB**

**Course Outcomes:** At the end of the course, students will be able to

- Find Roots of non-linear equations by Bisection method and Newton's method.
- Do curve fitting by least square approximations
- Solve the system of Linear Equations using Gauss - Elimination/ Gauss - Seidal Iteration/ Gauss - Jorden Method
- To Find Numerical Solution of Ordinary Differential Equations by Euler's Method, Runge-Kutta Method.

### **(18HS0819) PERSONALITY DEVELOPMENT THROUGH LIFE ENLIGHTENMENT SKILLS**

#### **Course Outcomes**

Students will be able to:

- Study of Shrimad-Bhagwad-Geeta will help the student in developing his personality and achieve the highest goal in life.
- The person who has studied Geeta will lead the nation and mankind to peace and prosperity.

- Study of Neetishatakam will help in developing versatile personality of students.

### **(18HS0827) PEDAGOGY STUDIES**

#### **Course Outcomes:**

Students will be able to understand

- What pedagogical practices are being used by teachers in formal and informal classrooms in developing countries?
- What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of learners?
- How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy?

### **(18HS0828) STRESS MANAGEMENT BY YOGA**

#### **Course Outcomes:**

Students will be able to

- Develop healthy mind in a healthy body thus improving social health also improve efficiency.

#### **II M. TECH - I SEM. (SE)**

### **(18CE1021) DESIGN OF PRESTRESSED CONCRETE STRUCTURES**

#### **Course Outcomes:**

After completion of this course, the student shall understand

- Concept of pre-stressed concrete
- Losses of Prestress
- Deflections of prestressed concrete elements
- Circular prestressing, Analysis and design of statically indeterminate beams.

### **(18CE1022) ANALYSIS OF LAMINATED COMPOSITE PLATES**

#### **Course outcomes:**

At the end of the course, students will be able to

- Analyse the rectangular composite plates using the analytical methods.
- Analyse the composite plates using advanced finite element method.
- Develop the computer programs for the analysis of composite plates.

### **(18CE1023) FRACTURE MECHANICS OF CONCRETE STRUCTURES**

#### **Course outcomes:**

At the end of the course, students will be able to

- The learner will be able to understand the Basics Concepts of Fracture Mechanics

& its Mechanism

- Identify and classify cracking of concrete structures based on fracture mechanics.
- Understanding Stresses at Crack Tip and different Criteria involved
- The Learner Will be able to Understand Nonlinear Fracture Mechanics & Failures Surfaces
- The learner will be able to understand the concepts of CTOD and CMD.

### **(18CE1024) DESIGN OF PLATES AND SHELLS**

#### **Course Outcomes:**

At the end of the course, students will be able to

- Analyze and design prismatic folded plate systems
- Analyze and design shells using approximate solutions
- To analyze different types of plates (rectangular and circular) under different boundary connections by various classical methods and approximate methods

### **(18HS0824) BUSINESS ANALYTICS**

#### **Course Outcomes:**

At the end of the course, students will be able to

- Design, device, and query relational databases for operative data.
- Design, implement, populate and query data warehouses for informational data.
- To integrate very large data sets to make business decisions.
- Evaluate the use of data from acquisition through cleansing, warehousing, analytics, and visualization to the ultimate business decision.
- Evaluate the key concepts of business analytics.
- Determine when to implement relational versus document-oriented database structures.
- Outline the relationship of the business analytics process within the organization's decision-making process.
- Examine and apply appropriate business analytic techniques and methods.
- Execute real-time analytical methods on streaming datasets to react quickly to customer needs.
- To critically analyze the predictive analysis methods.

### **(18ME3121) INDUSTRIAL SAFETY**

#### **Course Outcomes:**

Students undergoing this course are able to

- Understand the points of factories act 1948 for health and safety.
- Understand the cost & its relation with replacement economy.
- Understand the concepts of sequence of fault finding activities
- Understand the Program and schedule of preventive maintenance of mechanical and electrical equipment.

### **(18ME3122) ADVANCES IN OPERATIONS RESEARCH**

#### **Course Outcomes:**

Students undergoing this course are able to

- Understand the Inventory Control Models
- Understand the Graphical solution revised simplex method
- Understand the concepts of Kuhn-Tucker conditions min cost flow.
- Understand the Probabilistic inventory control models and Dynamic Programming

### **(18CE1028) COST MANAGEMENT OF ENGINEERING PROJECTS**

#### **Course Outcomes:**

- Student can access the present value and future value for money
- Student can apply the principals of Benefit & Cost Analysis and Break-Even comparison
- Student can calculate the depreciation cost for construction equipment and can estimate the cost for construction equipment
- Can prepare profit and loss, balance sheets etc

### **(18ME3123) COMPOSITE MATERIALS**

#### **Course Outcomes:**

Students undergoing this course are able to

- Understand the need of composite materials.
- Understand the Properties and applications of whiskers, particle reinforcements. Mechanical Behavior of composites.
- Understand the concepts of Manufacturing of Ceramic Matrix Composite and Metal Matrix Composite.
- Understand the various manufacturing method of composites.

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**Control Systems (M.Tech)**

**Department of Electrical and Electronics Engineering (EEE)**

**M.Tech I Year-I Sem.(CS)**

**(18CE1029) DISASTER MANAGEMENT(AUDIT COURSE-I)**

**Course Outcomes:**

On completion of the course the students will have knowledge on

1. Types of disasters and their effects on environment
2. Causes of disasters
3. Disaster management through engineering applications

**(18HS0826) VALUE EDUCATION  
(AUDIT COURSE-I)**

**Course outcomes**

Students will be able to:

1. Knowledge of self-development.
2. Learn the importance of Human values.

3. Developing the overall personality.

**M.Tech, I Year 2<sup>nd</sup> Semester (CS)**

**(18EE2010) OPTIMAL CONTROL THEORY**

**Course Outcomes**

Students will be able to

1. Combine the mathematical methods used in optimal control to derive the solution to variations of the problems studied in the course
2. Use the standard algorithms for numerical solution of optimal control problems and use Matlab to solve fairly simple but realistic problems
3. Integrate the tools learnt during the course and apply them to more complex problems

**(18EE2011) INDUSTRIAL AUTOMATION**

**Course Outcomes**

Students will be able to

1. To identify potential areas for automation and justify need for automation
2. To select suitable major control components required to automate a process or an activity
3. To translate and simulate a real time activity using modern tools and discuss the benefits of automation.
4. To identify suitable automation hardware for the given application.  
To recommend appropriate modeling and simulation tool for the given manufacturing application

**(18EE2012) ADVANCED CONTROL SYSTEMS**

**Course Outcomes**

Students will be able to

1. Apply the concepts of linear algebra and their applications to control system
2. Analyze the system dynamics and Lyapunov stability theory
3. Design linear quadratic controller

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**Power Electronics (M.Tech)**

**Department of Electrical and Electronics Engineering (EEE)**

**M.Tech, I Year 1<sup>st</sup> Semester (PE)**



### **(18EE2101)ELECTRICDRIVESYSTEMS**

#### **CourseOutcomes:**

Studentswill beableto:

- ☐ Modelandsimulateelectricdrivesystems
- ☐ Designmodulationstrategiesofpowerelectronicsconverters,fordrivesapplication
- ☐ Designappropriatecurrent/voltageregulatorsforelectricdrives
- ☐ SelectandimplementthedrivesforIndustrialProcess
- ☐ ImplementvariousvariablespeeddrivesinElectricalEnergyConversionSystem

### **(18EE2102) MODELING AND ANALYSIS OF ELECTRICAL MACHINES**

#### **CourseOutcomes:**

Studentswillbeableto:

- Knowledgeaboutthedynamicbehaviorrotatingmachines.
- Abletounderstandequivalentcircuitofsynchronoumachines.
- Tounderstandvariouspracticalissuesofdifferent machines.

### **(18EE2103)ADVANCEDPOWERELECTRONICCIRCUITS**

#### **CourseOutcomes:**

Studentswill beable to:

- ☐ Knowledge about analysis and design of Load Commutated CSI and PWM CSILearn analysis and design ofseriesInverters.
- ☐ Acquire knowledge about analysis and design of Switched ModeRectifiers,APFC,
- ☐ DC-DCconverters&Resonantconverters

### **(18EE2104)OPTIMALANDADAPTIVECONTROL**

#### **CourseOutcomes:**

Studentswill beable to:

- Knowledgeinthemathematicalareaofcalculusofvariationsoastoapplythesameforsolvingoptimal controlproblems.
- Problemformulation,performancemeasureandmathematicaltreatmentofoptimalControl problems.
- Acquireknowledgeonsolvingoptimalcontroldesignproblemsbytakinginto considerationthephysical constraints on practical controlsystems.
- ToobtainoptimalsolutionstocontrollerdesignproblemstakingintoconsiderationtheLimitation on controlenergyin thereal practical world.

### **(18EE2105)POWERQUALITY**

#### **CourseOutcomes:**

Students will be able to:

- ☐ Acquire knowledge about the harmonics, harmonic introducing devices and effect of harmonics on system equipment and loads
- ☐ develop analytical modeling skills needed for modeling and analysis of harmonics in networks and components
- ☐ Introduce the student to active power factor correction based on static VAR compensators and its control techniques
- ☐ Introduce the student to series and shunt active power filtering techniques for harmonics

#### **(18EE2106) DYNAMICS OF ELECTRICAL MACHINES**

##### **Course Outcomes**

Students will be able to:

- ☐ Derive Kron's Primitive machine as a unified electrical machine model
- ☐ Derive the mathematical model and control a 3-phase Induction motor
- ☐ Knowledge of transformations for the dynamic analysis of machines
- ☐ Knowledge of determination of stability of the machines under small signal and transient conditions
- ☐ Study about synchronous machine

#### **(18EE2107) STATIC VAR CONTROLLER AND HARMONIC FILTERING**

##### **Course Outcomes**

Students will be able to:

- ☐ Acquire knowledge about the fundamental principles of Passive and Active Reactive Power Compensation
- ☐ Schemes at Transmission and Distribution level in Power Systems.
- ☐ To introduce the student to various single phase and three-phase Static VAR Compensation schemes and their controls
- ☐ To develop analytical modeling skills needed for modeling and analysis of such Static VAR

#### **(18EE2108) PWM CONVERTERS AND APPLICATION**

##### **Course Outcomes:**

Students will be able to:

- ☐ Knowledge concepts and basic operation of PWM converters, including basic circuit operation and design
- ☐ Learn the steady-state and dynamic analysis of PWM converters along with the applications like solid state drives and power quality
- ☐ Able to recognize and use the following concepts and ideas: Steady-State and

transient modelling and analysis of power converters with various PWM techniques.

**(18EE2109) POWER SEMICONDUCTOR DEVICES AND MODELING**

**Course Outcomes**

Students will be able to:

- Acquire the background required for engineers to meet the role of energy managers and to acquire the skills and techniques required to implement energy management.
- Identify and quantify the energy intensive business activities in an organization.
- Knowledge about standard methodologies for measuring energy in the workplace and energy audit instruments.
- Knowledge about energy efficient motors, load matching and selection of motors.
- Acquire knowledge about reactive power management, capacitor sizing and degree of compensation

**(18HS0823) RESEARCH METHODOLOGY AND INTELLECTUAL PROPERTY RIGHTS**

**Course outcomes:**

At the end of this course, students will be able to:

- ☐ Understand research problem formulation. Analyze research related information. Follow research ethics
- ☐ Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
- ☐ Understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasize the need of information about Intellectual Property Right to be promoted among students in general & engineering in particular.
- ☐ Understand that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about economic growth and social benefits.

**(18HS0818) ENGLISH FOR RESEARCH PAPER WRITING  
(AUDIT COURSE-I)**

**Course outcomes**

Students will be able to:

- Understand that how to improve your writing skills and level of readability.
- Learn about what to write in each section.
- Understand the skills needed when writing a Title.
- Ensure the good quality of paper at very first-time submission

**(18CE1029) DISASTER MANAGEMENT  
(AUDIT COURSE-I)**

**Course Outcomes:**

On completion of the course the students will have knowledge on

- Types of disasters and their effects on environment
- Causes of disasters
- Disaster management through engineering applications

**(18HS0825) SANSKRIT FOR TECHNICAL KNOWLEDGE  
(AUDIT COURSE-I)**

**Course Output**

Students will be able to

1. Understanding basic Sanskrit language
2. Ancient Sanskrit literature about science & technology can be understood
3. Being a logical language will help to develop logic in students

**(18HS0826) VALUE EDUCATION  
(AUDIT COURSE-I)**

**Course outcomes**

- Students will be able to:
- 1. Knowledge of self-development.
- 2. Learn the importance of Human values.
- 3. Developing the overall personality.

**M.Tech, I Year 2<sup>nd</sup> Semester (PE)**

**(18EE2112) POWER ELECTRONIC CONVERTERS**

**Course Outcomes:**

Students will be able to:

- To understand the various power semiconductor devices
- To know the various conversion techniques of power semiconductor devices and its applications

**(18EE2113) DIGITAL CONTROL OF POWER ELECTRONICS  
AND DRIVE SYSTEMS**

**Course Outcomes:**

Students will be able to:

- To provide knowledge on modelling and simulation of power electronic circuits and systems.
- The candidate will be able to simulate power electronics systems and analyse the system response.

### **(18EE2114)SWITCHEDMODEANDRESONANTCONVERTERS**

#### **CourseOutcomes:**

- Acquire knowledge about the principles of operation of non-isolated and isolated hard-switchedDC-DCconverters
- Acquire knowledge on various loss components in a switched mode converter and choice ofswitchingfrequencywithaview towards design of such converters

### **(18EE2115)INDUSTRIALLOADMODELLINGANDCONTROL**

#### **CourseOutcomes:**

Studentswill beable to:

- ☐ Knowledgeaboutloadcontroltechniquesinindustriesanditsapplication.
- ☐ Differenttypesofindustrialprocessesandoptimizetheprocessusingtoolslike LINDOandLINGO.
- ☐ Applyload managementto reducedemand of electricityduringpeak time.
- ☐ Applydifferent energysavingopportunities in industries

### **(18EE2116)ADVANCEDDIGITALSIGNALPROCESSING**

#### **CourseOutcomes:**

Studentswill beable to:

- Knowledgeaboutthetimedomainandfrequencydomainrepresentationsaswell analysisofdiscretetimesignals and systems
- StudythedesigntechniquesforIIRandFIR filtersandtheirrealizationstructures.
- Acquire knowledge about the finite word length effects in implementation of digitalfilters.
- Knowledgeaboutthevariouslinearsignalmodelsandestimationofpowerspectr umofStationaryrandom

### **(18EE2117)ADVANCEDMICRO-CONTROLLERBASEDSYSTEMS**

#### **CourseOutcomes**

Studentswill beable to:

- To learn how to program a processor in assembly language and develop an advancedprocessorbased system.
- Tolearnconfiguringandusingdifferentperipheralsinadigitalsystem.
- Tocompileanddebuga Program.
- Togenerateanexecutablefileanduseit.

### **(18EE2118)DISTRIBUTEDGENERATION**

#### **Courseoutcomes**

Studentswill beable to:

- Tounderstandtheplanningandoperationalissues relatedtoDistributed Generation.
- AcquireKnowledgeaboutDistributedGenerationLearnMicro-Grids

### **(18EE2119)SMARTGRIDS**

**Course Outcomes:**

Students will be able to:

- Appreciate the difference between smart grid & conventional grid.
- Apply smart metering concepts to industrial and commercial installations.
- Formulate solutions in the areas of smart substations, distributed generation and wide area measurements.
- Come up with smart grid solutions using modern communication technologies

**(18HS0827) PEDAGOGY STUDIES  
(AUDIT COURSE-II)**

**Course Outcomes:**

Students will be able to understand:

- What pedagogical practices are being used by teachers in formal and informal classrooms in developing countries?
- What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of learners?
- How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy?

**(18HS0828) STRESS MANAGEMENT BY YOGA  
(AUDIT COURSE-II)**

**Course Outcomes:**

Students will be able to:

- Develop healthy mind in a healthy body thus improving social health also
- Improve efficiency.

**(18HS0819) PERSONALITY DEVELOPMENT THROUGH LIFE ENLIGHTENMENTS  
KILLS  
(AUDIT COURSE-II)**

**Course Outcomes**

Students will be able to:

- Study of Shrimad-Bhagwad-Geeta will help the student in developing his personality and achieve the highest goal in life.
- The person who has studied Geeta will lead the nation and mankind to peace and prosperity.
- Study of Neetishatakam will help in developing versatile personality of students.

**M.Tech, II Year 1<sup>st</sup> Semester (PE)**

## **(18EE2123)SCADA SYSTEM AND APPLICATIONS**

### **Course Outcomes**

Students will be able to:

- Describe the basic tasks of Supervisory Control Systems (SCADA) as well as their typical applications.
- Acquire knowledge about SCADA architecture, various advantages and disadvantages of each system.
- Knowledge about single unified standard architecture IEC 61850.
- To learn about SCADA system components: remote terminal units, PLCs, intelligent electronic devices, HMI systems, SCADA server.
- Learn and understand about SCADA applications in transmission and distribution sector, industries etc.

## **(18EE2124)FACTS AND CUSTOM POWER DEVICES**

### **Course Outcomes:**

Students will be able to:

- Acquire knowledge about the fundamental principles of Passive and Active Reactive Power Compensation Schemes at Transmission and Distribution level in Power Systems.
- Learn various Static VAR Compensation Schemes like Thyristor/GTO Controlled.
- Reactive Power Systems, PWM Inverter based Reactive Power Systems and their controls.
- To develop analytical modeling skills needed for modeling and analysis of such Static VAR Systems

## **(18EE2125)HVDC TRANSMISSION SYSTEMS**

### **Course Outcomes:**

Students will be able to:

- ☐ To expose the students to the state of the art HVDC technology.
- ☐ Knowledge of modelling and analysis of HVDC system for inter-area power flow regulation.
- ☐ Study of Neetishatakam will help in developing

## **(18HS0824)BUSINESS ANALYTICS**

### **Course Outcomes:**

Students will be able to:

- Design, device, and query relational databases for operative data.
- Design, implement, populate and query data warehouses for informational data.
- To integrate very large datasets to make business decisions.
- Evaluate the use of data from acquisition through cleansing, warehousing, analytics, and visualization to the ultimate business decision.

- Evaluate the key concepts of business analytics.
- Determine when to implement relational versus document oriented database structures.

### **(18ME3121) INDUSTRIAL SAFETY**

#### **Course Outcomes:**

Students undergoing this course are able to

- Understand the points of factories act 1948 for health and safety.
- Understand the cost & its relation with replacement economy.
- Understand the concepts of sequence of fault finding activities
- Understand the Program and schedule of preventive maintenance of mechanical and electrical equipment.

### **(18ME3122) ADVANCES IN OPERATIONS RESEARCH**

#### **Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the Inventory Control Models
- ☐ Understand the Graphical solution revised simplex method
- ☐ Understand the concepts of Kuhn-Tucker conditions min cost flow.
- ☐ Understand the Probabilistic inventory control models and Dynamic Programming

### **(18CE1028) COST MANAGEMENT OF ENGINEERING PROJECTS**

#### **Course Outcomes:**

- Student can access the present value and future value for money
- Student can apply the principles of Benefit & Cost Analysis and
- Break-Even comparison
- Student can calculate the depreciation cost for construction equipment and can estimate the cost for construction equipment
- Can prepare profit and loss, balance sheet etc

### **(18ME3123) COMPOSITE MATERIALS**

#### **Course Outcomes:**

Students undergoing this course are able to

- Understand the need of composite materials.
- Understand the Properties and applications of whiskers, particulate reinforcements. Mechanical Behavior of composites.
- Understand the concepts of Manufacturing of Ceramic Matrix Composite and Metal Matrix Composite.
- Understand the various manufacturing methods of composites.

### **(18EE2128) WASTE TO ENERGY**

#### **Course Outcomes:**

Students will be able to:

- To study fundamentals of industrial waste conversion devices
- To understand Manufacture of pyrolytic oils and gases, yields and applications



- To understand the Equilibrium and kinetic consideration in gasifier operation
- To understand the Thermochemical conversion

**M.Tech (Thermal Engineering)**

**Department of Mechanical Engineering**

**M. Tech. – I Semester (T.E)**

**(18ME3101) Thermodynamics and Combustion**

**Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the concepts of transient flow analysis and real gas mixture. ☐
- ☐ Understand the concepts of chemical equilibrium. ☐
- ☐ Understand the concepts of Nerst heat theorem. ☐
- ☐ Understand the fuel cells and magneto hydro dynamic generators. ☐

**(18ME3102) Advanced Fluid Dynamics**

**Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the governing equations in fluid dynamics. ☐
- ☐ Understand the concepts of potential and internal flows ☐
- ☐ Understand the concepts of laminar boundary layers ☐
- ☐ Understand the role of experiments on fluids and universal velocity distributions. ☐

**(18ME3112) Nuclear Engineering**

**Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the power from fission and conversion and breeding. ☐
- ☐ Understand the concepts of criticality of thermal reactors. ☐
- ☐ Understand the concepts of solutions for simple cases of reactivity additions ☐
- ☐ Understand the Reactor safety philosophy and radiation protection standards ☐

**(18ME3113) Energy Conservation and Management**

**Course Outcomes:**

Students undergoing this course are able

- ☐ Understand the Initiating, Organizing and Managing, Energy Management Programs ☐
- ☐ Understand the concepts critical assessment of energy usage and Importance of energy management ☐
- ☐ Understand the concepts of Energy auditing. ☐
- ☐ Understand the relevant international standards and laws. ☐

### **(18ME3114) Air Conditioning System Design**

#### **Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the Parameters influencing the Effective Temperature. ☐
- ☐ Understand the concepts summer, winter and year round air – conditioning systems. ☐
- ☐ Understand the concepts of Humidification and dehumidification equipment. ☐
- ☐ Understand the Design conditions and load calculation ☐

### **(18ME3115) Jet Propulsion and Rocketry**

#### **Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the improvement and applications of Jet Propulsion
- ☐ Understand the concepts practical air cooled blades Combustion Systems ☐
- ☐ Understand the concepts of thermodynamic flow analysis of Jet Propulsion ☐
- ☐ Understand the environmental considerations and applications. ☐

### **(18ME3103) Thermal Engineering Lab**

#### **Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the COP estimation of vapour compression refrigeration ☐
- ☐ Understand the concepts Performance test on variable compression ratio of diesel engines ☐
- ☐ Understand the concepts of Solar Flat Plate Collector performance ☐
- ☐ Understand the Calibration of temperature measurement. ☐

### **(18ME3104) Computer Aided Analysis Lab**

#### **Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the Analysis of a truss member under loading
- ☐ Understand the concepts Analysis of Tapered plate under transverse load
- ☐ Understand the concepts of the flow of incompressible gas through an S-bend for laminar flow
- ☐ Understand the air flow over a simple geometry (aero foil) in a wind

### **(18HS0823) Research Methodology and IPR**

#### **Course Outcomes:**

☐ Understood the Meaning of research problem, Characteristics of a good research problem, Errors in selecting a research problem, Scope and objectives of research problem.

- ☐ Got the knowledge of How to get new ideas.
- ☐ Acquired the knowledge of various government and NGO or agencies for Research Funding.

### **(18HS0818) English for Research Paper Writing**

### **(18CE1029) Disaster Management**

#### **Course Outcomes:**

On completion of the course the students will have knowledge on

- ☐ ☐ Types of disasters and their effects on environment
- ☐ ☐ Causes of disasters
- ☐ ☐ Disaster management through engineering applications

### **(18HS0825) Sanskrit for Technical Knowledge**

#### **Course Output**

Students will be able to

- ☐ ☐ Understanding basic Sanskrit language
- ☐ ☐ Ancient Sanskrit literature about science & technology can be understood
- ☐ ☐ Being a logical language will help to develop logic in students

### **(18HS0826) Value Education**

#### **Course outcomes**

- ☐ ☐ Students will be able to:
- ☐ ☐ Knowledge of selfdevelopment.
- ☐ ☐ Learn the importance of Human values.

### **(18ME3105) Advanced Heat Transfer**

#### **Course Outcomes:**

Students undergoing this course are able to

- ☐ ☐ Understand the basic phenomena of heat transfer ☐
- ☐ ☐ Understand the concepts of laminar and turbulent flows ☐
- ☐ ☐ Understand the concepts of Integral analysis on laminar free convective heat transfer ☐
- ☐ ☐ Understand the Radiant heat exchange in grey, non-grey bodies ☐

### **(18ME3106) Steam Engineering**

#### **Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the combustion in boilers and flame temperature.
- ☐ Understand the heat savings and application criteria
- ☐ Understand the performance evaluation of accessories

- ☐ Understand the control and monitoring devices of boiler

**(18ME3116) Refrigeration and Cryogenics**

**Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the working principle of refrigerator
- ☐ Understand the design, selection of evaporators, condensers, control systems
- ☐ Understand the different types of refrigeration systems.
- ☐ Understand the concept of cryogenic system.

**(18ME3117) Design of Heat Exchangers**

**Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the design feature of heat exchangers
- ☐ Understand the concepts of LMTD and fouling factors of heat exchanger.
- ☐ Understand the concepts of design of Shell and Tube heat exchangers
- ☐ Understand the thickness calculations of heat exchanger

**(18ME3118) Computational Fluid Dynamics**

**Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the experimental and hyperbolic equations.
- ☐ Understand the geometry modeling and Grid Generation
- ☐ Understand the methodology of computational fluid dynamics

**(18ME3119) Modelling of I.C Engines**

**Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the approaches of modeling, model building and integration methods
- ☐ Understand the concept fuel spray behavior
- ☐ Understand the Mathematical models of SI Engines

**(18ME3107) Computational Fluid Dynamics Lab**

**Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the experimental and hyperbolic equations.
- ☐ Understand the geometry modeling and Grid Generation
- ☐ Understand the methodology of computational fluid dynamics

**(18ME3108) Thermal Engineering Virtual Lab**

**Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the experimental and Bubble Generation, Growth and Departure from a Submerged Orifice.
- ☐ Understand the Virtual Lab on Steam Condensation in Micro channels
- ☐ Understand the methodology of Torque Crank Angle Curve of a SI Engine

**(18HS0829) Constitution of India****(18HS0827) Pedagogy Studies****Course Outcomes**

Students will be able to understand:

- ☐ What pedagogical practices are being used by teachers in formal and informal classrooms in developing countries?
- ☐ What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of learners?
- ☐ How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy

**(18HS0828) Stress Management by Yoga****Course Outcomes:**

Students will be able to:

- ☐ Develop healthy mind in a healthy body thus improving social health also
- ☐ Improve efficiency.

**(18HS0819) Personality Development through Life Enlightenment Skills****Course Outcomes**

Students will be able to:

- ☐ Study of Shrimad-Bhagwad-Geeta will help the student in developing his personality and achieve the highest goal in life.
- ☐ The person who has studied Geeta will lead the nation and mankind to peace and prosperity.
- ☐ Study of Neetishatakam will help in developing versatile personality of students.

**(18ME3120) Design of Solar and Wind Systems****Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the prediction & measurement, Solar energy utilization. ☐
- ☐ Understand the concepts Nuclear Waste Disposal and Nuclear Fusion. ☐
- ☐ Understand the concepts of Wind Energy Conversion Systems and Various Types of Systems to use Geothermal Energy
- ☐ Understand the Direct Energy Conversion

### **(18HS0839) Advanced Mathematical Methods in Engineering**

#### **Course Outcomes:**

At the end of the course, students will demonstrate the ability to:

- ☐ Students will be able to analyse and develop the mathematical model of thermal system.
- ☐ Student should able analyse the reliability and maintainability of the series and parallel

thermal system.

- ☐ Students will be able to solve differential equations using numerical techniques.

### **(18HS0824) Business Analytics**

#### **Course Outcomes:**

- ☐ Design, device, and query relational databases for operative data.
- ☐ Design, implement, populate and query data warehouses for informational data.
- ☐ To integrate very large data sets to make business decisions.
- ☐ Evaluate the use of data from acquisition through cleansing, warehousing, analytics, and visualization to the ultimate business decision.

### **(18ME3121) Industrial Safety**

#### **Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the points of factories act 1948 for health and safety.
- ☐ Understand the cost & its relation with replacement economy.
- ☐ Understand the concepts of sequence of fault finding activities
- ☐ Understand the Program and schedule of preventive maintenance of mechanical and electrical equipment.

### **(18ME3021) Advances in Operations Research**

#### **Course Outcomes:**

Students undergoing this course are able to

- Upon completion of this course, the students can able to use the optimization techniques for use engineering and Business problems

### **(18CE1028) Cost Management of Engineering Projects**

#### **Course Outcomes:**

After completion of this course, the student shall be able to

- ☐ Implement generic and special Construction Project Management skills to a higher level
- ☐ Understand the special management skills required in multidisciplinary and global Construction Industry
- ☐ Integrate and apply theoretical concepts, ideas, tools and techniques to Construction practice.
- ☐ Can plan, execute, monitor and control construction projects using Construction Project Management Tools such as CPM & PERT

**(18ME3022) Composite Materials**

**Course Outcomes:**

- ☐ Upon completion of this course, the students will have an overview of the mechanical behavior and application of composite materials.

**(18EE2128) Waste to Energy**

**Course Outcomes:**

- ☐ Upon completion of this course, the students can able to identify the new methodologies / technologies for effective utilization of renewable energy sources.

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**Computer Aided Design and Manufacturing**

**M. Tech. – I Semester (CAD&M)**

**(18HS0845) Computational Methods**

**Course Outcomes:**

- ☐ At the end of the course student would demonstrate competence with understanding the theoretical and practical aspects of the use of computational methods. They would be able to establish the limitations, advantages, and disadvantages of different computational methods. Further, they would be able to implement computational methods for solving various engineering problems.

**(18ME3001) Computer Integrated Manufacturing**

**Course Outcome:**

The students will be able to:

- ☐ Solve the design problems of different type of transfer mechanism.



- ☐ perform design and analysis of automatic storage and retrieval system.
- ☐ evaluate the space requirements of different storage system.

#### **(18ME3011) Geometric Modeling**

##### **Course Outcomes:**

At the end of the course, the student will:

- ☐ understand the need for, and the different applications of geometric modelling techniques
- ☐ understand some of the technical solutions
- ☐ be able to reason about the range of solutions to problems involving 3D objects

#### **(18ME3012) CNC Technology & Programming**

##### **Course Outcomes:**

The students will be able to:

- ☐ Understand fundamentals of NC/CNC
- ☐ Learn and Write NC Part Programming
- ☐ Learn Tooling for NC/CNC
- ☐ Learn Maintenance and Trouble Shooting of CNC Machine Tools

#### **(18ME3013) Quality Engineering and Manufacturing**

##### **Course Outcomes:**

- ☐ Select and use rational sampling, conduct reliability tests and analyze data.
- ☐ Analyze the measurement system.
- ☐ Compute process capabilities.
- ☐ Understand quality engineering methods and tools.

#### **(18ME3014) Computer Aided Process Planning**

##### **Course Outcomes:**

At the end of the course, the student will be able to

- ☐ Generate the structure of automated process planning system and uses the principle of generative and retrieval CAPP systems for automation
- ☐ Select the manufacturing sequence and explains the reduction of total set up cost for a particular sequence
- ☐ Explain the generation of tool path and solve optimization models of machining processes
- ☐ Create awareness about the implementation techniques for CAPP

#### **(18ME3002) Computer Aided Design Lab**

#### **(18ME3003) Computer Aided Modeling Lab**

#### **(18HS0823) Research Methodology and IPR**

**Course Outcomes:**

- ☐ Understood the Meaning of research problem, Characteristics of a good research problem, Errors in selecting a research problem, Scope and objectives of research problem.
- ☐ Got the knowledge of How to get new ideas.
- ☐ Acquired the knowledge of various government and NGO or agencies for Research Funding.

**(18HS0818) English for Research Paper Writing****(18CE1029) Disaster Management****Course Outcomes:**

On completion of the course the students will have knowledge on

- ☐ Types of disasters and their effects on environment
- ☐ Causes of disasters
- ☐ Disaster management through engineering applications

**(18HS0825) Sanskrit for Technical Knowledge****Course Output**

Students will be able to

- ☐ Understanding basic Sanskrit language
- ☐ Ancient Sanskrit literature about science & technology can be understood
- ☐ Being a logical language will help to develop logic in students

**(18HS0826) Value Education****Course outcomes**

- ☐ Students will be able to:
- ☐ Knowledge of selfdevelopment.
- ☐ Learn the importance of Human values.

**(18ME3004) Finite Element Methods****Course Outcomes:**

Students undergoing this course are able to

- ☐ Use finite element software to stimulate physical behaviors of Mechanical structures.
- ☐ Apply FEA principles for components and assembly design.

**(18ME3005) Rapid Prototyping****Course Outcome**

- ☐ The student will be able to apply solid modeling concepts and techniques in RP

- ☐ Analyze and implement the different algorithms associated with STL file errors.
- ☐ Able to calculate the layer thickness in different layering techniques and carry out design manipulations for the generation of support structure.
- ☐ Able to identify, characterize and select the ideal materials for a given Rapid Prototyping system.

### **(18ME3015) Advances in Manufacturing Technology**

#### **Course Outcome:**

- ☐ Define and describe the fundamentals and principals of advanced manufacturing Technology
- ☐ Apply relevant theories to solve manufacturing problems
- ☐ Explain manufacturing processes via experimental and theoretical analyses
- ☐ Relate manufacturing theory to practice through laboratory experiments
- ☐ Improve a manufacturing process either working in a team or individually

### **(18ME3016) Advanced Optimization Techniques**

#### **Course Outcome:**

Upon completion of the subject, students will be able to:

- ☐ Explain the fundamental knowledge of Linear Programming and Dynamic Programming problems.
- ☐ Use classical optimization techniques and numerical methods of optimization.
- ☐ Describe the basics of different evolutionary algorithms.
- ☐ Enumerate fundamentals of Integer programming technique and apply different techniques to solve various optimization problems arising from engineering areas.

### **(18ME3017) Computer Graphics**

#### **Course Outcome:**

- ☐ Learn the principles and commonly used paradigms and techniques of computer graphics.
- ☐ Develop a facility with the relevant mathematics of computer graphics.
- ☐ Be able to write basic graphics application programs including animation .
- ☐ Be able to design programs to display graphic images to given specifications.

### **(18ME3018) Robotics**

#### **Course outcomes:**

- ☐ Upon completion of the course, students will be able to understand:
- ☐ Importance of robotics in today and future goods production
- ☐ Robot configuration and subsystems
- ☐ Principles of robot programming and handle with typical robot
- ☐ Working of mobile robots

**(18ME3006) Virtual Lab in Manufacturing Engineering**

**(18ME3007) Computer Aided Analysis Lab**

**(18HS0829) Constitution of India**

**(18HS0827) Pedagogy Studies**

**Course Outcomes**

Students will be able to understand:

- ☐ What pedagogical practices are being used by teachers in formal and informal classrooms in developing countries
- ☐ What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of learners
- ☐ How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy

**(18HS0828) Stress Management by Yoga**

**(18HS0819) Personality Development through Life Enlightenment Skills**

**Course Outcomes**

Students will be able to:

- ☐ Study of Shrimad-Bhagwad-Geeta will help the student in developing his personality and achieve the highest goal in life.
- ☐ The person who has studied Geeta will lead the nation and mankind to peace and prosperity.
- ☐ Study of Neetishatakam will help in developing versatile personality of students.

**(18ME3019) Mechatronics**

**Course outcomes:**

- ☐ Classify various sensors, transducer and actuators according to the applications.
- ☐ Explain various system models and controllers.
- ☐ Select a controller for a mechanical and Mechatronics system.

**(18ME3020) Mechanics of Composites**

**Course Outcomes:**

- ☐ Upon completion of this course, the students will have an overview of the mechanical behavior and application of composite materials

**(18HS0824) Business Analytics**

**Course Outcomes:**

- ☐ Design, device, and query relational databases for operative data.
- ☐ Design, implement, populate and query data warehouses for informational data.
- ☐ To integrate very large data sets to make business decisions.
- ☐ Evaluate the use of data from acquisition through cleansing, warehousing, analytics, and visualization to the ultimate business decision.

**(18ME3121) Industrial Safety****Course Outcomes:**

Students undergoing this course are able to

- ☐ Understand the points of factories act 1948 for health and safety.
- ☐ Understand the cost & its relation with replacement economy.
- ☐ Understand the concepts of sequence of fault finding activities
- ☐ Understand the Program and schedule of preventive maintenance of mechanical and electrical equipment.

**(18ME3021) Advances in Operations Research****Course Outcomes:**

Students undergoing this course are able to

- Upon completion of this course, the students can able to use the optimization techniques for use engineering and Business problems

**(18CE1028) Cost Management of Engineering Projects****Course Outcomes:**

After completion of this course, the student shall be able to

- ☐ Implement generic and special Construction Project Management skills to a higher level
- ☐ Understand the special management skills required in multidisciplinary and global Construction Industry
- ☐ Integrate and apply theoretical concepts, ideas, tools and techniques to Construction practice.
- ☐ Can plan, execute, monitor and control construction projects using Construction Project Management Tools such as CPM & PERT

**(18ME3022) Composite Materials****Course Outcomes:**

- ☐ Upon completion of this course, the students will have an overview of the mechanical behavior and application of composite materials.

**(18EE2128) Waste to Energy**

**Course Outcomes:**

□ Upon completion of this course, the students can able to identify the new methodologies / technologies for effective utilization of renewable energy sources.

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY  
(AUTONOMOUS)**

**Master of Technology**

**Department of Computer Science and Engineering**

**I M. Tech. – I Sem. (CSE)**

**(18HS0841) MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE**

**Course Outcomes:**

After completion of the course, students would be able to:

- To understand the basic notions of discrete and continuous probability.
- To understand the methods of statistical inference, and the role that sampling distributions play in those methods.
- To be able to perform correct and meaningful statistical analyses, of simple to moderate complexity.

**(18CS5001) ADVANCED DATA STRUCTURES**

**Course Outcomes:**

- Understand the implementation of symbol table using hashing techniques.
- Develop and analyze algorithms for red-black trees, B-trees and Splay trees.
- Develop algorithms for text processing applications.
- Identify suitable data structures and develop algorithms for computational geometry problems.

**(16CS5010) MACHINE LEARNING**

**Course Outcomes:**

After completion of course, students would be able to:

- Extract features that can be used for a particular machine learning approach in various IOT applications.
- To compare and contrast pros and cons of various machine learning techniques and to get an insight of when to apply a particular machine learning approach.
- To mathematically analyze various machine learning approaches and paradigms.

**(16CS501) WIRELESS SENSOR NETWORKS**

**Course Outcomes:**

- Describe and explain radio standards and communication protocols for wireless sensor networks.
- Explain the function of the node architecture and use of sensors for various applications.
- Be familiar with architectures, functions and performance of wireless sensor networks systems and platforms.

**(18CS5012) INTRODUCTION TO INTELLIGENT SYSTEMS****Course Outcomes:**

- Able to Demonstrate knowledge of the fundamental principles of intelligent systems and would be able to analyse and compare the relative merits of a variety of AI problem solving techniques.

**(16CS5013) DATA SCIENCE****Course outcome**

- Explain how data is collected, managed and stored for data science;
- Understand the key concepts in data science, including their real-world applications and the toolkit used by data scientists;
- Implement data collection and management scripts using MongoDB

**(16CS5014) DISTRIBUTED SYSTEMS****Course outcomes:**

- Able to demonstrate knowledge of the basic elements and concepts related to distributed system technologies;
- Able to demonstrate knowledge of the core architectural aspects of distributed systems;
- Able to design and implement distributed applications;
- Able to demonstrate knowledge of details the main underlying components of distributed systems (such as RPC, file systems);
- Able to use and apply important methods in distributed systems to support scalability and fault tolerance;
- Able to demonstrate experience in building large-scale distributed applications.

**(16CS5015) ADVANCED WIRELESS AND MOBILE NETWORKS****Course Outcomes:**

After completion of course, students would be:

- Demonstrate advanced knowledge of networking and wireless networking and understand various types of wireless networks, standards, operations and use cases.

- Be able to design WLAN, WPAN, WWAN, Cellular based upon underlying propagation and performance analysis.
- Demonstrate knowledge of protocols used in wireless networks and learn simulating wireless networks.
- Design wireless networks exploring trade-offs between wire line and wireless links. Develop mobile applications to solve some of the real world problems.

### **(16HS0823) RESEARCH METHODOLOGY AND IPR**

#### **Course outcomes:**

At the end of this course, students will be able to

- Understand research problem formulation.
- Analyze research related information
- Follow research ethics
- Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
- Understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering in particular.
- Understand that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits.

### **(18CS5002) ADVANCED DATA STRUCTURES LAB**

### **(18CS5002) MACHINE LEARNING LAB**

### **(18HS0818) ENGLISH FOR RESEARCH PAPER WRITING**

#### **Course outcomes:**

At the end of this course, students will be able to

- Understand that how to improve your writing skills and level of readability
- Learn about what to write in each section
- Understand the skills needed when writing a Title
- Ensure the good quality of paper at very first-time submission

### **(18CE1029) DISASTER MANAGEMENT\***



**Course Outcomes:**

On completion of the course the students will have knowledge on

- Types of disasters and their effects on environment
- Causes of disasters
- Disaster management through engineering applications

**(18HS0825) SANSKRIT FOR TECHNICAL KNOWLEDGE****Course Outcomes:**

Students will be able to

- Understanding basic Sanskrit language
- Ancient Sanskrit literature about science & technology can be understood
- Being a logical language will help to develop logic in students

**(18HS0826) VALUE EDUCATION****Course outcomes:**

- Students will be able to:
- Knowledge of self-development.
- Learn the importance of Human values.

**I M. Tech. – II Sem. (CSE)****(18CS5003) ADVANCE ALGORITHMS****Course Outcomes:**

- After completion of course, students would be able to:
- Analyze the complexity/performance of different algorithms.
- Determine the appropriate data structure for solving a particular set of problems.
- Categorize the different problems in various classes according to their complexity.
- Students should have an insight of recent activities in the field of the advanced data structure.

**(18CS5004) SOFT COMPUTING****Course Outcomes:**

After completion of course, students would be able to:

- Identify and describe soft computing techniques and their roles in building intelligent machines
- Apply fuzzy logic and reasoning to handle uncertainty and solve various engineering problems.
- Apply genetic algorithms to combinatorial optimization problems.
- Evaluate and compare solutions by various soft computing approaches for a given problem

### **(18CS5017) DATA PREPARATION AND ANALYSIS**

#### **Course Outcomes:**

After completion of course, students would be:

- Able to extract the data for performing the Analysis.

### **(18CS5018) SECURE SOFTWARE DESIGN & ENTERPRISE COMPUTING**

#### **Course Outcomes:**

After completion of course, students would be:

- Students would learn concepts in parallel programming, implementation of programs on GPUs, debugging and profiling parallel programs.

### **(18CS5019) COMPUTER VISION**

#### **Course Outcomes:**

After completion of course, students would be able to:

- Developed the practical skills necessary to build computer vision applications.
- To have gained exposure to object and scene recognition and categorization from images.

### **(18CS5020) HUMAN AND COMPUTER INTERACTION**

#### **Course Outcomes:**

After completion of course, students would be:

- Understand the structure of models and theories of human computer interaction and vision.
- Design an interactive web interface on the basis of models studied.

### **(18CS5021) GPU COMPUTING**

#### **Course Outcomes:**

After completion of course, students would be:

- Students would learn concepts in parallel programming, implementation of programs on GPUs, debugging and profiling parallel programs.

### **(18CS5022) DIGITAL FORENSICS**

#### **Course Outcomes:**

After completion of course, students would be able to:

- Understand relevant legislation and codes of ethics
- Computer forensics and digital detective and various processes, policies and procedures
- E-discovery, guidelines and standards, E-evidence, tools and environment.
- Email and web forensics and network forensics

### **(16HS0816) CONSTITUTION OF INDIA**

#### **Course Outcomes:**

Students will be able to:

- Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
- Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
- Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.
- Discuss the passage of the Hindu Code Bill of 1956.

### **(18HS0827) PEDAGOGY STUDIES**

#### **Course Outcomes:**

Students will be able to understand:

- What pedagogical practices are being used by teachers in formal and informal classrooms in developing countries?
- What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of learners?
- How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy?

### **(18HS0828) STRESS MANAGEMENT BY YOGA**

#### **Course Outcomes:**

Students will be able to:

- Develop healthy mind in a healthy body thus improving social health also
- Improve efficiency.

### **(18HS0819) PERSONALITY DEVELOPMENT THROUGH LIFE ENLIGHTENMENT SKILLS**

#### **Course Outcomes:**

Students will be able to:

- Study of Shrimad-Bhagwad-Geeta will help the student in developing his personality and achieve the highest goal in life.
- The person who has studied Geeta will lead the nation and mankind to peace and prosperity.
- Study of Neetishatakam will help in developing versatile personality of students

### **(18CS5005) ADVANCE ALGORITHMS LAB**

## **(18CS5006) SOFT COMPUTING LAB**

**II M. Tech. – I Sem. (CSE)**

### **(18CS5023) MOBILE APPLICATIONS AND SERVICES**

**Course Outcomes:**

On completion of the course the student should be able to

- Identify the target platform and users and be able to define and sketch a mobile application
- Understand the fundamentals, frameworks, and development lifecycle of mobile application platforms including iOS, Android, and Phone Gap
- Design and develop a mobile application prototype in one of the platform (challenge project)

### **(18CS5024) COMPILER FOR HPC**

**Course Outcomes:**

After completion of course, students would be:

- Familiar with the structure of compiler.
- Parallel loops, data dependency and exception handling and debugging in compiler.

### **(18CS5025) OPTIMIZATION TECHNIQUES**

**Course Outcomes:**

**After completion of course, students would be:**

- Formulate optimization problems.
- Understand and apply the concept of optimality criteria for various types of optimization problems.
- Solve various constrained and unconstrained problems in Single variable as well as multivariable.
- Apply the methods of optimization in real life situation.

### **(18HS0824) BUSINESS ANALYTICS**

**Course Outcomes:**

**After completion of course, students would be:**

- Analyze and solve problems from different industries such as manufacturing, service, retail, software, banking and finance, sports, pharmaceutical, aerospace etc.
- Analyze data using statistical and data mining techniques and understand relationships between the underlying business processes of an organization.

### **(18ME3121) INDUSTRIAL SAFETY**

#### **Course Outcomes:**

Students undergoing this course are able to

- Understand the points of factories act 1948 for health and safety.
- Understand the cost & its relation with replacement economy.
- Understand the concepts of sequence of fault finding activities
- Understand the Program and schedule of preventive maintenance of mechanical and electrical equipment.

### **(18ME3122) OPERATIONS RESEARCH**

#### **Course Outcomes:**

At the end of the course, the student should be able to

- Students should able to apply the dynamic programming to solve problems of discrete and continuous variables.
- Students should able to apply the concept of non-linear programming
- Students should able to carry out sensitivity analysis
- Student should able to model the real world problem and simulate it.

### **(18CE1028) COST MANAGEMENT OF ENGINEERING PROJECTS**

#### **Course Outcomes:**

After completion of this course, the student shall be able to

- Implement generic and special Construction Project Management skills to a higher level
- Understand the special management skills required in multidisciplinary and global Construction Industry
- Integrate and apply theoretical concepts, ideas, tools and techniques to Construction practice.
- Can plan, execute, monitor and control construction projects using Construction Project Management Tools such as CPM & PERT

### **(18ME3022) COMPOSITE MATERIALS**

#### **Course Outcomes:**

- Upon completion of this course, the students will have an overview of the mechanical behavior and application of composite materials.

**(18EE2128) WASTE TO ENERGY**

**Course Outcomes:**

- Upon completion of this course, the students can able to identify the new methodologies / technologies for effective utilization of renewable energy sources.

**(18CS5008) Dissertation-I /Industrial Project**

**II M. Tech. – II Sem. (CSE)**

**(18CS5009) Phase –II Dissertation II**