

ACADEMIC YEAR 2018-19

ODD SEMESTER

S1 CE (2018 Batch)

| Sl no | Course code | Subject name | Staff handled |
|-------|-------------|---|-------------------|
| 1 | MA 101 | Calculus | Ms Manju |
| 2 | CY 100 | Engineering Chemistry | Dr. Shalini |
| 3 | BE103 | Introduction to Sustainable Engineering | Mr .Anoop M S |
| 4 | BE101-02 | Introduction to Mechanical Engineering | Ms. Subi |
| 5 | BE110 | Engineering Graphics | Mr. Dileepkumar C |
| 6 | CE100 | Introduction to Civil Engineering | Mrs Greeshma |
| 7 | CY 110 | Engineering Chemistry Lab | Dr. Shalini |
| 8 | ME110 | Mechanical Engineering Workshop | Mr. Soman |
| 9 | CE110 | Civil Engineering Workshop | Ms. Greeshma |

S3 CE (2017 Batch)

| Sl no | Course code | Subject name | Staff handled |
|-------|-----------------|-----------------------------------|----------------|
| 1 | MA201 | Linear Algebra & Complex Analysis | Liji |
| 2 | CE201 | Mechanics of Solids | suji p l |
| 3 | CE203 | Fluid Mechanics | siva l |
| 4 | CE205 | Engineering Geology | chandrashekhar |
| 5 | CE207 | Surveying | AthiraRaj |
| 6 | HS200/ HS210 | Business Economics | Prof Rajan |
| 7 | CE231 | Civil Engineering Drafting Lab | Athira mohan |
| 8 | CE233 | Surveying Lab | vishnu |
| 9 | | | |

S5 CE (2016 Batch)

| Sl no | Course code | Subject name | Staff handled |
|-------|-------------|-----------------------------------|-----------------|
| 1 | CE301 | DESIGN OF CONCRETE STRUCTURE I | Athira raj |
| 2 | CE303 | STRUCTURAL ANALYSIS II | Mrs Priya Grace |
| 3 | CE305 | GEOTECHNICAL ENGINEERING II | Siva |
| 4 | CE307 | GEOMATICS | Vishnu |
| 5 | CE309 | WATER RESOURCE ENGINEERING | Tincy |
| | | | |
| 6 | CE361 | ADVANCED CONCRETE TECHNOLOGY | Neeraja |
| 7 | CE331 | MT LAB | Siva |
| 8 | CE333 | GT LAB | Gayathri Suja |
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S7 CE (2017 Batch)

| Sl no | Course code | Subject name | Staff handled |
|-------|-------------|----------------------------------|-----------------|
| 1 | CE401 | Design of steel structures | Gayathri Thampi |
| 2 | CE403 | Structural Analysis III | Suji P |
| 3 | CE405 | Enviornmental Engg I | Tincy |
| 4 | CE407 | Transportation Engg II | Athira Mohan |
| 5 | CE409 | Quantity surveying and valuation | Vishnu K |
| 6 | CE469 | Environmental impact assessment | Jayalekshmi |
| 7 | CE 431 | Environmental engineering lab | Gayathri Thampi |
| 8 | CE 451 | Seminar &Project Preliminary | Tincy |

COURSE OUTCOME AND OBJECTIVE FOR S1

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

MA 101 CALCULUS

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
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| | | On completion of course the students will be able to: |
| 1 | To give the definition of an infinite series and explain what is meant by the sequence of partial sums. Relate the convergence or divergence of the series to the sequence of partial sums. | Evaluate the limit of a sequence of numbers (infinite series) and determine whether the series converges. |
| 2 | Compute partial derivatives of functions of several variables. Apply the theorem on mixed partial derivatives. | Understand the meaning of partial derivatives and calculate partial derivatives. |
| 3 | Use concepts of calculus to the model real-world problems | Compute dot product, cross product, length of vectors. Compute partial derivatives, derivatives of vector-valued functions, gradient functions. |
| 4 | Evaluate volumes of bounded solids and areas of bounded regions by using the ideas of double and triple integrals. | To change a double integral to polar coordinate. Compute (relatively simple) triple integrals |
| 5 | Apply the concept of line integral to work and circulation. Know the definition and properties of conservative vector fields and their relationship to gradient fields. | Determine if a vector field is conservative and find a potential function if conservative. Evaluate line integrals in the plane and in space, including line integrals of vector fields. |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
CY 100 ENGINEERING CHEMISTRY**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
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| | | On completion of course the students will be able to: |
| 1 | To acquire knowledge about desalination of brackish water and treatment of municipal water. | Develop innovative methods to produce soft water for industrial use and potable water at cheaper cost. |
| 2 | To gain the knowledge of conducting polymers, bio-degradable polymers and fibre reinforced plastics. | Substitute metals with conducting polymers and also produce cheaper biodegradable polymers to reduce environmental pollution. Design economically and new methods of synthesis nano materials. |
| 3 | To learn significance of green chemistry and green synthesis. | Have the knowledge of converting solar energy into most needy electrical. |
| 4 | To understand mechanism of corrosion and preventive methods. | Apply their knowledge for protection of different metals from corrosion. To prevents the monuments from getting corroded. |
| 5. | To have an idea and knowledge about the Chemistry of Fuels. | Recent trends in electrochemical energy storage devices. |
| 6. | To study different types of spectroscopy. | Learn how to use different spectroscopy techniques for analysis purpose of simple molecules. |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
BE103 INTRODUCTION TO SUSTAINABLE ENGINEERING COURSE**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|--|--|
| | | On completion of course the students will be able to: |
| 1 | To have an increased awareness among students on issues in areas of sustainability. | Able to appreciate and explain the different types of environmental pollution problems and their sustainable solutions |
| 2 | To have an insight into global environmental issues. | To be aware of problem related to global environmental issues |
| 3 | To establish a clear understanding of the role and impact of various aspects of engineering and engineering decisions on environmental, societal, and economic problems. | Able to apply the concepts of sustainability in their respective area of specialization |
| 4 | To understand the role of engineering in achieving sustainable world | To understand the need of waste disposal and management |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
BE101 INTRODUCTION TO MECHANICAL ENGINEERING SCIENCES**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|---|
| | | On completion of course the students will be able to: |
| 1 | To introduce different disciplines of Mechanical Engineering. | Enable students to distinguish different processes around them by applying knowledge in thermodynamics. |
| 2 | To kindle interest in Mechanical Engineering. | To explain the working of different energy conversion devices. |
| 3 | To impart basic mechanical engineering principles. | To differentiate between refrigeration and air conditioning devices and describe their working. |
| 4 | | To recognize different parts of an automobile and explain their working. |
| 5 | | To enumerate various engineering materials used in manufacturing industries. |
| 6 | | Indicate the appropriate manufacturing method for production. |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
BE 110: ENGINEERING GRAPHICS**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|--|--|
| | | On completion of course the students will be able to: |
| 1 | Increase ability to communicate with people. | To hand letter will improve. |
| 2 | Learn to sketch and take field dimensions. | To perform basic sketching techniques will improve. |
| 3 | Learn to take data and transform it into graphic drawings. | To draw orthographic projections and sections. |
| 4 | Learn basic Auto Cad skills. | To use architectural and engineering scales will increase. |
| 5 | Learn basic engineering drawing formats | To produce engineered drawings will improve |
| 6 | Prepare the student for future Engineering positions | To convert sketches to engineered drawings will increase. |
| | | 7. Students will become familiar with office practice and standards. |
| | | 8. Students will become familiar with Auto Cad two dimensional drawings. |
| | | 9. Students will develop good communication skills and team work. |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
CE100 BASIC CIVIL ENGINEERING**

| SI No | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|-------|---|---|
| | | On completion of course the students will be able to: |
| 1 | To inculcate the essentials of civil engineering field to the students of all branches | The students will be able to illustrate the fundamental aspects of civil engineering |
| 2 | To provide the students an illustration of the significance of the civil engineering professions satisfying societal needs. | The students should able to plan a building |
| 3 | | Students will be able to explain about surveying for making horizontal and vertical measurements. |
| 4 | . | They will able to illustrate the uses of various building materials and construction of different components of a building. |

COURSE OBJECTIVES AND COURSE OUTCOMES FOR**CY 110 ENGINEERING CHEMISTRY LAB**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|----------------|---|--|
| | | On completion of course the students will be able to: |
| 1 | To make students familiarize with the practical aspects of volumetric analysis of water samples and determine the parameters like alkalinity, chlorides and hardness. | To equip the students to apply the knowledge of Chemistry and take up Chemistry related topics as parts of their project works during higher semester of the course. |
| 2 | To improve the knowledge of different types of titrations used in volumetric analysis | To impart sound knowledge in the different fields of theoretical chemistry so as to apply it to the problems in engineering field. (b) To develop analytical capabilities of students so that they can characterize, transform and use materials in engineering and apply knowledge gained in solving related engineering problems |
| 3 | To make students develop in terms of practical skills required for analytical projects. | To develop abilities and skills that are relevant to the study and practice of Chemistry. |
| 4 | To study flash and fire point | To familiarize the students with different application oriented topics like new generation engineering material different instrumental methods etc. |
| | | To enable the students to acquire the knowledge in the concepts of chemistry for |

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| | | engineering applications. |
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**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
ME 110 MECHANICAL WORKSHOP**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|---|
| | | On completion of course the students will be able to: |
| 1 | Introduction to basic manufacturing process like welding, moulding, fitting, assembling, smithy, carpentry works etc. | Knowledge achieved to explain the various manufacturing process in the basic mechanical engineering workshop sections-smithy, carpentry, assembling, welding etc. |
| 2 | Familiarization of basic manufacturing hand tools and equipment like files, hacksaw, spanner chisel hammers, etc. | Identify the various hand tools used in the basic mechanical engineering workshop sections-smithy, carpentry, assembling, welding etc. |
| 3 | Familiarization of various measuring devises like vernier height gauge, vernier caliper, micrometer, steel rule etc. | Able to choose different measuring devises according to the work. |
| 4 | Demonstration and study of various machine tools like lathe, drilling machine, milling machine etc. | Ability to name and summarise the operations of various machine tools like lathe, milling, drilling and shaping machines. |
| 5 | Familiarizing the disassembling and assembling of machine parts. | Knowledge achieved to disassemble and assemble the machine like IC engines. |
| 6 | | Skill achieved to construct models by using basic mechanical workshop sections like |

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| | welding, moulding, smithy, carpentry etc. |
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**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
CE110 CIVIL ENGINEERING WORKSHOP**

| SI No | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|-------|--|--|
| | | On completion of course the students will be able to: |
| 1 | To inculcate the essentials of civil engineering field to the students of all branches. | The ability to practice civil engineering using up-to-date techniques, skills, and tools as a result of life-long learning ability to design and conduct experiments |
| 2 | To provide the students an illustration of the significance of the civil engineering profession satisfying societal needs. | An ability to design a system or component to satisfy stated or code requirements of Civil Engineering. |
| 3 | To develop awareness about the instruments used in civil engineering field work. | The students will be able to illustrate the fundamental aspects of civil engineering |
| 4 | . | The students should able to plan a building |

COURSE OBJECTIVES AND OUTCOMES FOR S3

MA201 LINEAR ALGEBRA & COMPLEX ANALYSIS

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|--|
| | | On completion of course the students will be able to: |
| 1 | Learn to work with vectors in two and three dimensions. | Compute the distance between points, the distance from a point to a line, and the distance from a point to a plane in the three-dimensional coordinate system. Perform algebraic operations with vectors in two and three dimensions, Find the length of a vector, Compute dot and cross product of vectors. |
| 2 | An understanding of Fourier Series and Laplace Transform to solve real world problems | Solve first-order linear or separable equations, finding both the general solution and the solution satisfying a specified initial condition. |
| 3 | Identify an ordinary differential equation and its order | Sketch and describe regions in space. |

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| 4 | Verify whether a given function is a solution of a given ordinary differential equation (as well as verifying initial conditions when applicable) | Solve constant-coefficient, linear, homogeneous equations of higher order (especially second order) and find the solution satisfying specified initial conditions |
| 5 | Solve first order linear differential equations Find solutions of separable differential equations, Model radioactive decay, compound interest, and mixing problems using first order equations, Model population | Determine whether solutions of such an equation are linearly independent. Use the methods of undetermined coefficients and variation of parameters to solve nonhomogeneous equations equation |

CE 201 MECHANICS OF SOLIDS

| | | Subject Learning Outcomes or Course Outcomes |
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| Sl. | Course Objectives | On completion of course the students will be able to: |
| 1 | To enable to students to calculate internal forces in member subjected to axial load shear torsion and bending | ability to calculate internal forces in member subjected to axial load shear torsion and bending |
| 2 | To enable to students to calculate normal shear torsion bending stresses and strains | ability to calculate normal shear torsion bending stresses and strains |
| 3 | to enable to students to analyse state of stress at a point and determine the principle of maximum shear stress using equation as well as mohr circle | ability to analyse state of stress at a point and determine the principle of maximum shear stress using equation as well as mohr circle |
| 4 | to enable to students to analyse column buckling | To understand and analyse column buckling |
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CE203 FLUID MECHANICS 1

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
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| | | On completion of course the students will be able to: |
| 1 | Fluid mechanics describes all the physical laws that govern the flow of fluid and gases and | Understand the behaviour of fluids at rest as well as in motion and utilizing the principles develop in previous mechanics courses. |
| 2 | helps us to recognize the causes and effects of fluid flow through the determination of characteristic parameters like pressure field, velocity field in a fluid flow along with different properties of fluid like | Develop the principles and equations for pressure flow and momentum analysis |

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| | density, viscosity and mainly an interrelation between these two and in different situation not only the flow of fluid but also the case when fluid is at rest. | |
| 3 | | Provide the students with the analysis and design principles for water distribution and pressure flow system design (pressure flow, pumps and network analysis). |
| 4 | | Illustrate and develop the equations and design principles for open channel flow, including sanitary and storm sewer design and flood control hydraulics. Introduce the varied flow principles and their application. Discuss the use of software-based solutions etc. |
| | | Students will understand the working of different types of turbines and be able to design their parts such as blades, casing, draft tube etc. |

CE205 ENGINEERING GEOLOGY

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|---|
| | | On completion of course the students will be able to: |
| 1 | To impart the knowledge of geology in order to fulfill the geological requirements in various fields of Civil. | Students will be benefited by the knowledge of dynamics of the earth, properties of rocks and minerals and the occurrence and distribution of ground water and the recent geo information technologies. |
| 2 | Engineering like Soil Mechanics, Rock Mechanics, Water Resources Engg, Environmental Engg, and Earthquake Engineering | Helps to determine the stability of earth surface |
| 3 | Helps to have deep knowledge about mineralogical aspect of rock body | The student would comprehend better the earth resources used as building material |
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CE 207 SURVEYING

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
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| | | On completion of course the students will be able to: |
| 1 | To introduce the principles of surveying | 1. understand the basics of surveying |
| 2 | To impart awareness on the various fields of surveying and type of instruments | 2. understand the modern instruments for surveying |
| 3 | To understand the various methods of surveying and computations | 3. different methods of surveying |

HS200/HS210 BUSINESS ECONOMICS

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
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| | | On completion of course the students will be able to: |
| 1 | To familiarize the prospective | Make investment decisions based on capital |
| 2 | engineers with elementary Principles | budgeting methods in alignment with |
| 3 | of Economics and Business | micro economic theories. |
| 4 | Economics. | |
| 5 | To acquaint the students with tools | Make investment decisions based on capital |
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CE231 CIVIL ENGINEERING DRAFTING LAB

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
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| | | On completion of course the students will be able to: |
| 1 | To introduce the students to draft the plan, elevation and sectional views of buildings in accordance with development and control rules satisfying orientation and functional requirements as per National Building Code. | The students will be able to draft the plan, elevation and sectional views of the buildings, industrial structures, framed buildings using computer softwares. |
| 2 | The objectives of this course are to enable the students to understand the general concepts of engineering drawing and general principles on a CAD (particularly AUTOCAD provided by AUTODESK) and extend this knowledge to general use of CADs. | Use the AutoCAD® software program to create drawings from scratch and to modify, manipulate, copy, delete, save, and plot drawings. |
| 3 | | Use the full range of AutoCAD® commands and options and employ shortcuts and time-saving strategies |

CE233 SURVEYING LAB

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|--|--|
| | | On completion of course the students will be able to: |
| 1 | To equip the students to undertake survey using levels | After successful completion of the course, the students will be able to undertake survey using level |
| 2 | <input type="checkbox"/> To equip the students to undertake survey using theodolites | Surveying using theodolite |
| 3 | <input type="checkbox"/> To impart awareness on modern levels | Surveying using total station |

COURSE OUTCOME AND OBJECTIVES FOR S5

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

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CE301 DESIGN OF RC STRUCTURES 1

| Sl. No. | Course Objectives | Course Outcomes |
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| | | On completion of course the students will be able to: |
| 1 | To develop an understanding of and appreciation for basic concepts in the behaviour and design of reinforced concrete systems and elements. | Able to understand the general mechanical behavior of reinforced concrete in accordance with IS 456:2000. |
| 2 | II. To give an ability to differentiate between working stress design and limit state design. | 2. Able to identify and apply the applicable industry design codes relevant to the design of reinforced concrete members.. |
| 3 | III. To introduce the basic concepts and steps for reinforced concrete sectional design mainly in accordance with ultimate strength design. | 3. Able to analyze and design with detailing of reinforced concrete flexural members. |
| 4 | IV. To help the student develop an intuitive feeling about structural and material wise behaviour and design of reinforced concrete systems and elements. | 4. Able to analyze and design for shear, torsion and bond for structural members. |
| 5 | | Ability to design and check for serviceability (crack and deflection) and ultimate limit state conditions. |
| | | 6. Able to analyze and design with detailing |

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| | | for vertical and horizontal shear in reinforced concrete. |
| | | 7. Able to analyze and design with detailing of reinforced concrete compression members. |

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

CE303 STRUCTURAL ANALYSIS II

| SI NO | COURSE OBJECTIVE | Subject Learning Outcomes or Course Outcomes |
|-------|---|---|
| | | On completion of course the students will be able to: |
| 1 | To enable to students to apply three moment theorem to continuous beams | to apply three moment theorem to continuous beams |
| 2 | to enable students to apply slope deflection method , moment distribution method, kanis method to beams and frames. | to apply slope deflection method , moment distribution method, kanis method to beams and frames |
| 3 | To enable students to analyse beams curved in plans | to analyse beams curved in plans |
| 4 | To enable students to analyse using plastic theory | to analyse using plastic theory |

CE305 GEOTEHNIICAL ENGINEERING II

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|---|
| | | On completion of course the students will be able to: |
| 1 | To emphasize the importance of soil investigations including destructive and nondestructive methods | carry out soil investigation for any civil engineering construction |
| 2 | To explain how earth pressure theory is important in retaining structure design | analyse earth retaining structures for any kind of soil medium |
| 3 | To explain the concept of bearing capacity and how to estimate the safe bearing capacity for various foundation | estimate bearing capacity using Terzhagi's methods |

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| | system including settlement consideration | |
| 4 | To explain in what circumstances pile is needed and how do analysis the pile and pile group under various soil conditions | design proper foundations for any kind of shallow foundation system |
| 5 | To study the features of well foundation and machine foundation | estimate pile and pile group capacity for any kind of soil including group efficiency and |
| 6 | | negative friction Identifying the features of well foundation and machine foundation |

CE309 WATER RESOURCES ENGINEERING (C)

| SI NO | COURSE OBJECTIVES | SUBJECT LEARNING OUTCOMES OR COURSE OUTCOMES |
|-------|---|---|
| | | ON COMPLETION OF THE COURSE STUDENTS WILL BE THE ABLE TO: |
| 1 | To convey the knowledge on the causes of failure, design criteria and stability analysis of different types of dams | Determine reservoir capacity for design of irrigation systems |
| 2 | To impart knowledge regarding the design of the various minor irrigation structures | Compute the hydrostatic pressures and uplift. |
| 3 | To impart knowledge regarding design criteria of dams | Describe the diversion head works and estimate the different components |
| 4 | To communicate fundamental knowledge on reservoir engineering and river engineering | |
| 5 | | Know the features of various river head works works |

CE 307 GEOMATICS

| SI No | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|-------|--|---|
| | | On completion of course the students will be able to: |
| 1 | <ul style="list-style-type: none"> To impart awareness on the advanced surveying techniques | <ul style="list-style-type: none"> The students will possess knowledge on the advanced methods of surveying, the instruments and the spatial representation of data. |
| 2 | <ul style="list-style-type: none"> To understand the errors associated with survey measurements | <ul style="list-style-type: none"> Fully equipped with various surveying concepts and methods using advanced ground survey equipments. |
| 3 | <ul style="list-style-type: none"> To provide a basic understanding on geospatial data acquisition and its process | <ul style="list-style-type: none"> Acquire skills in handling spatial data base warehousing and mining. |
| 4 | <ul style="list-style-type: none"> To Prepare the student to plan and conduct field work and application of scientific methodology in handling field samples. | <ul style="list-style-type: none"> Prepare the candidates with National Global employability. |
| 5 | <ul style="list-style-type: none"> To equip the candidate with the art, science and technology of cartography and applications of GIS in Mapping Resources. | <ul style="list-style-type: none"> It empower the candidate with confidence and leadership qualities. |
| 6 | <ul style="list-style-type: none"> To develop the skills in surveying and thematic mapping. | <ul style="list-style-type: none"> The students will possess knowledge on the advanced methods of surveying, the |

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| | | instruments and the spatial representation of data. |
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CE331 MATERIAL TESTING LAB II

| SI No | Course Objectives | Subject Learning Outcomes or Course Outcomes |
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| | | On completion of course the students will be able to: |
| 1 | To understand the characteristics and behavior of civil engineering materials used in buildings and infrastructure. | Prove good understanding of concepts and their applications in the lab. |
| 2 | Students will learn standard principles and procedure to design prepare and/or test materials such as concrete mix design including field test methods for fresh concrete. | Write formal technical report & convey engineering message efficiently. |
| 3 | Know how to select materials based on their properties and their proper use for a particular facility under prevailing loads and environmental conditions. | Understand ethical issues associated with engr. experiments and professional practice. |
| 4 | Students will have exposure to practical applications including writing of a technical report related to each experiment. | Work in teams to perform experimental tasks. |



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CE333 GEOTECHNICAL ENGINEERING LAB

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
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| | | On completion of course the students will be able to: |
| 1 | . Provide basic knowledge to carry out field investigations and to identify soils in | Knowledge of site specific field investigations including collection of soil samples for testing and observation of soil behavior/ building damage. |
| 2 | Geotechnical engineering practice. | Identify the type of soil based on the soil classification tests like sieve analysis and hydrometer. |
| 3 | 2. Educate students in performing and interpreting laboratory tests for evaluating subgrade | Be able to identify and classify soil based on standard geotechnical engineering practice. |
| 4 | performance and for pavement design. | Be able to perform laboratory compaction and in-place density tests for fill quality control. |
| 5 | 3. Knowledge of and ability to perform laboratory tests needed to determine soil design parameters | Be able to perform and evaluate unsoaked california bearing ratio (cbr) tests used to estimate subgrade behavior during construction and beneath permanent structures. |

COURSE OBJECTIVES AND COURSE OUTCOMES FOR S7
CE401 DESIGN OF STEEL STRUCTURES

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|--|
| | | On completion of course the students will be able to: |
| 1 | Learn the behaviour of structural steel components Ability to perform analysis and design of steel members and connections. | Identify and compute the design loads on a typical steel building. |
| 2 | Ability to design steel structural systems | Identify the different failure modes of steel tension and compression members and beams, and compute their design strengths. |
| 3 | learn the behaviour of structural steel components | Select the most suitable section shape and size for tension and compression members and beams according to specific design criteria. |
| 4 | Familiarity with professional and contemporary issues | Identify the different failure modes of bolted and welded connections, and determine their design strengths. |
| 5 | | Ability to analyze and design of tension members, columns, beams and simple bolted and welded connections |
| | | Apply relevant Indian Standard provisions to |

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| 6 | ensure safety and serviceability of structural steel elements. |
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CE403 STRUCTURAL ANALYSIS III

| SI NO | COURSE OBJECTIVE | Subject Learning Outcomes or Course Outcomes |
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| | | On completion of course the students will be able to: |
| 1 | To enable the students to have a comprehensive idea of matrix structural analysis with emphasis on the relative advantages of the flexibility method and the stiffness method | analyse structures using approximate method |
| 2 | To enable the students to visualize structural dynamics problems with a proper blend of structural analysis and vibration theory | analyse trusses, continuous beams and rigid frames using flexibility method |
| 3 | | analyse trusses, continuous beams and rigid frames by stiffness method |
| 4 | | conceive Finite element procedures by direct stiffness method |
| 5 | | use the basics of structural dynamics and analyse the response of SDOF systems |
| 6 | | analyse trusses, continuous beams and rigid frames by stiffness method |

CE 305 ENVIRONMENTAL ENGINEERING I

| SI NO | COURSE OBJECTIVE | Subject Learning Outcomes or Course Outcomes |
|-------|--|--|
| | | On completion of course the students will be able to: |
| 1 | To study the significance of water resources and the factors affecting the quality and quantity of water | become aware of the various pollutants affecting water quality |
| 2 | To study the various types of treatment techniques adopted for a public water supply system | know about the different treatment units available in a water treatment plant and their design |
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CE 431 ENVIRONMENTAL ENGINEERING LAB

| Sl. | Course Objectives | Subject Learning Outcomes or |
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| No. | | Course Outcomes |
| | | On completion of course the students will be able to: |
| 1 | To get an idea of sampling and preservation of water samples | Helps the students to characterize the water sample |
| 2 | To make an awareness on the importance of drinking water standards and its specified limits | Identify the importance of drinking water standards and their permissible limits |
| 3 | To get the practical experience in analysis of water samples | |

COURSE OBJECTIVES AND COURSE OUTCOMES FOR
Seminar & Project ,Survey Camp& Industrial Training

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|--|
| | | On completion of course the students will be able to: |
| 1 | To improve the professional skill and competency of the students | Improves interpersonal communication skills |
| 2 | To understand the real problems in civil engineering construction site and to identify the solution | Able to analyse a problem and design a solution to the problem. |
| 3 | To study about a topic in trend, based on the literature survey in leading journals | Able to create a report on a new topic in trend based on the study and literature survey. |
| | To practice the use of survey | Improve their leadership quality as well as the ability to work in groups and aid them in building a successful career as a civil engineer |

EVEN SEMESTER**S2 CE (2018 Batch)**

| Sl no | Course code | Subject name | Staff handled |
|--------------|--------------------|-----------------------------------|-----------------------|
| 1 | MA102 | Differential Equations | MS SANGEETHA |
| 2 | PH100 | Engineering Physics | Ms. Sreeti Gangadaran |
| 3 | BE100 | Engineering GRAPHICS | SASI |
| 4 | BE102 | Design & Engineering | MSCHINJU |
| 5 | EC 100 | Basics of Electronics Engineering | Mr. Prajeesh R |
| 6 | EE 100 | Basics of Electrical Engineering | Ms. Karthika |
| 7 | PH 110 | Engineering Physics Lab | DR. SASI |
| 8 | EE110 | Electrical Engineering Lab | VINDHUJA |
| 9 | EC110 | Electronic Engineering Lab | MALU |

S4 CE (2017 Batch)

| Sl no | Course code | Subject name | Staff handled |
|--------------|--------------------|---|----------------------|
| 1 | MA202 | Probability Distributions, Transforms and Numerical Methods | AMBADI V K |
| 2 | CE202 | Structural Analysis I | Priya |
| 3 | CE204 | Construction Technology | NEERAJA |
| 4 | CE206 | Fluid Mechanics- II | JAYALEKSHMI |
| 5 | CE208 | Geotechnical Engineering- I | Athira Raj |
| 6 | HS210/HS200 | Life Skills/Business Economics | ANISHA |
| 7 | CE232 | Materials Testing Lab | SUJI |
| 8 | CE234 | Fluid Mechanics Lab | RAKESH RAJ |
| 9 | | | |

S6 CE (2015 Batch)

| Sl no | Course code | Subject name | Staff handled |
|--------------|--------------------|---|------------------------------|
| 1 | CE302 | DESIGN OF HYDRAULLIC STRUCTURES | Mr Vishnu K |
| 2 | CE304 | DESIGN OF RC STRUCTURESII | SUJI/ATHIRA RAJ |
| 3 | CE306 | COMPUTER PROGRAMMING AND NUMERICAL METHOD | Mrs Amitha S |
| 4 | CE308 | TRANSPORTATION ENGINNEERING I | RAJALEKSHMI/NEERA JA |
| 5 | HS300 | PRINCIPLES OF MANAGEMENT | DEVIKA/SREELEKSHM I |
| 6 | CE362 | GROUND IMPROVEMENT | JAYALEKSHMI/GAYAT HRI THAMPI |
| 7 | CE332 | TRANSPORTATION LAB | ATHIRA RAJ/VISHNU |
| 8 | CE334 | CADD LAB | GAYATHRI THAMPI/TINCY |
| 9 | | | |

S8 CE (2014 Batch)

| Sl no | Course code | Subject name | Staff handled |
|--------------|--------------------|--------------------------------------|-----------------------|
| 1 | CE402 | ENVIOURMENTAL ENGG II | TINCY |
| 2 | CE404 | CIVIL ENGINEERING PROJECT MANAGEMENT | ATHIRA DAS |
| 3 | CE474 | MUNICIPAL SOLID WASTE MANAGEMENT | GAYATHRI/ RAJALEKSHMI |
| 4 | BT362 | SUSTAINABLE ENERGY PROCESS | SAMITHA |
| 5 | CE492 | PROJECT | TINCY /VISHNU |
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COURSE OBJECTIVES AND OUTCOME FOR S2

COURSE OBJECTIVES AND COURSE OUTCOMES FOR MA 102 - DIFFERENTIAL EQUATIONS

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|--|---|
| | | On completion of course the students will be able to: |
| 1 | To put it briefly, the point of this class is to take your existing knowledge of calculus and apply it towards the construction and solution of mathematical models in the form of differential equations. | Distinguish between linear, partial and ordinary differential equations. State the basic existence theorem for 1st order ODE's and use the theorem to determine a solution interval |
| 2 | Solve non-homogeneous linear equations with constant coefficients using the methods of undetermined coefficients and variation of parameters. | Recognize and solve a non homogeneous differential equation. Find particular solutions to initial value problems. |
| 3 | Introduce the Fourier series and its application to the solution of partial differential equation. | Find the Fourier series representation of a function of one variable. |

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| 4 | To provide the student with the concept and the understanding of basics in Partial Differential Equations. | Knowledge in the Technic, methodology of solving Partial Differential Equations. A basic understanding in the Transforms which are useful in solving engineering problems. |
| 5 | This course introduces ideas of wave equation and heat equation which are widely used in the 43 modeling and analysis of a wide range of physical phenomena and has got applications across all branches of engineering. | At the end of the course students will have acquired basic knowledge of differential equations and methods of solving them and their use in analyzing typical mechanical or electrical systems. |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
PH 100 ENGINEERING PHYSICS**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|--|
| | | On completion of course the students will be able to: |
| 1 | Dynamics of mechanical and electrical oscillation using Fourier series and integrals; time and frequency representations for driven damped oscillators, resonance; one-dimensional waves in classical mechanics and electromagnetism; normal modes. | Solve for the solutions and describe the behavior of a damped and driven harmonic oscillator in both time and frequency domains. Damped and Forced Oscillations oscillating system problems. |
| 2 | The fundamental principles of photonics that complement the topics in the optics and laser courses and to help students develop problem-solving skills applicable to real-world photonics problems. | Define and explain the propagation of light in conducting and non-conducting media. |
| 3 | Introduce basic concepts and | Define and explain the physics governing laser behaviour and light matter interaction ting and |

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| | principles of acoustics. | non-conducting media. |
| 4 | | Apply wave optics and diffraction theory to a range of problems |
| 5 | | Explain and calculate the physical effects of acoustic reflections, absorption, scattering, diffusion, diffraction, and propagation losses. |
| 6 | | Use advanced theoretical, numerical, and experimental techniques to model and analyze acoustical elements in musical instruments, the human voice, room acoustics, and audio. |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
ENGINEERING MECHANICS COURSE (BE-100)**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|--|
| | | On completion of course the students will be able to: |
| 1 | To apply the principles of mechanics to practical engineering problems. | Understand the fundamental concepts of mechanics. |
| 2 | To identify appropriate structural system for studying a given problem and isolate it from its environment. | Students would be able to apply and demonstrate the concepts of resultant and equilibrium of force system. |
| | To develop simple mathematical model for engineering problems and carry out static analysis. | Students would be able to determine the properties of planes and solids. |
| 4 | To develop simple mathematical model for engineering problems and carry out static analysis. | Understand the concepts of moment of inertia. |
| 5 | | Students would be able to apply fundamental concepts of dynamics to practical problems. |
| 6 | | Understand the basic elements of vibration. |

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

BE 102 DESIGN AND ENGINEERING COURSE

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|---|
| | | On completion of course the students will be able to: |
| 1 | To excite the student on creative design and its significance | To appreciate different elements involved in design and to apply them when they called for. |
| 2 | To make the student aware of the processes involved in design | Aware of product centred and user centred aspects that makes in the design process. |
| 3 | To make the student understand the interesting interaction of various segments of humanities, sciences and engineering in the evolution of a design | To be aware of different stages in design process and results of incorporating other fields with engineering stream |
| 4 | To get an exposure as to how to engineer a design. | Understand different stages in manufacturing of a designed product |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
EC 100 BASIC ELECTRONICS ENGINEERING**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|--|
| | | On completion of course the students will be able to: |
| 1 | To get basic idea about types, specification and common values of passive components. | Student can identify the active and passive electronic components. |
| 2 | To familiarise the working and | Student can setup simple circuits using |

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| | characteristics of diodes transistors, MOSFET and some measuring instruments. | diodes, transistors and other electronic components. |
| 3 | To understand working of diodes in circuits and in rectifiers. | Student will get fundamental idea about basic communication and entertainment electronics. |
| 4 | To understand the concept of mobile networks. | Student will get fundamental idea about mobile operation. |
| 5 | | Student will get fundamental idea about different electronic circuits. |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
EEE 100 BASIC ELECTRICAL ENGINEERING**

| SI No | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|-------|--|---|
| | | On completion of course the students will be able to: |
| 1 | To impart a basic knowledge in Electrical Engineering with an understanding of fundamental concepts. | Gain preliminary knowledge in basic concepts of Electrical Engineering. |
| 2 | To impart the basic knowledge about the Electric and Magnetic circuits. | Discuss the working of various dc and ac machines |
| 3 | To inculcate the understanding about the AC fundamentals. | To predict the behavior of any electrical and magnetic circuits. |
| 4 | To understand the working of various | To identify the type of electrical machine |

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| | Electrical Machines. | used for that particular application. |
| 5 | | To wire any circuit depending upon the requirement. |
| 6 | | Understand working principle of various analogue electrical measuring instruments. |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
PH 110 ENGINEERING PHYSICS LAB**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|--|---|
| | | On completion of course the students will be able to: |
| 1 | Competency in an engineering or science profession via promotion to positions of increasing responsibility, publications, and/or conference presentations. | An ability to apply knowledge of mathematics, science, and engineering. |
| 2 | Adaptability to new developments in science and technology by successfully completing or pursuing graduate education in engineering or related | An ability to design and conduct experiments, as well as to analyze and interpret data. |

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| | fields, or participating in professional development and/or industrial training courses. | |
| 3 | | An ability to identify, formulate, and solve engineering problems |
| 4 | | Understanding of professional and ethical responsibility |
| 5 | | The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context |
| 6 | | A recognition of the need for, and an ability to engage in life-long learning |

**COURSE OBJECTIVES AND COURSE OUTCOME FOR
EE 110 ELECTRICAL ENGINEERING WORKSHOP**

| Sl. No. | Course Objectives | Course Outcomes |
|---------|--|--|
| | | On completion of course the students will be able to: |
| 1 | Study and practice on electric circuits | Draw and practice simple house wiring and testing methods |
| 2 | To develop skills leading to achievement to connect basic electrical instruments and devices | Develop practical workshop skills in the students. |
| 3 | To develop knowledge of electrical wiring and electronic circuits. | Grasp the applications of workshop equipment, wiring accessories etc |

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| | To introduce the concept of random variables, probability distributions, specific discrete and continuous distributions with practical application in various Engineering and social life situations. | t |
| | To know Laplace and Fourier transforms which has wide application in all Engineering courses | |
| | To enable the students to solve various engineering problems using numerical methods | |
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**COURSE OBJECTIVES AND COURSE OUTCOME FOR
CE 202 STRUCTURAL ANALYSIS I**

| SI NO | COURSE OBJECTIVE | Subject Learning Outcomes or Course Outcomes |
|-------|--|--|
| | | On completion of course the students will be able to: |
| 1 | To enable students to analysis determinate trusses | analysis determinate trusses |
| 2 | To enable students to apply strain energy-castiglianos method and unit load method in the analysis of determinate beams frames trusses | apply strain energy-castiglianos method and unit load method in the analysis of determinate beams frames trusses |
| 3 | To enable students to apply strain energy-castiglianos method and unit load method in the analysis of indeterminate beams frames trusses | apply strain energy-castiglianos method and unit load method in the analysis of indeterminate beams frames trusses |
| 4 | To enable students to apply influence line for | apply influence line for determinate beams |
| 5 | To enable students to analyse cables and suspension bridges | analyse cables and suspension bridges |
| 6 | To enable students to analyse three hinged arches | analyse three hinged arches |

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

CE206 FLUID MECHANICS II

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|--|--|
| | | On completion of course the students will be able to: |
| 1 | Application of the Basic principles and laws governing fluid flow to open channel flow including hydraulic jump & gradually varied flow. | The students become capable of analysis of open channel flows & design of open channels. |
| 2 | An understanding of basic modelling laws in fluid mechanics and dimensional analysis | They get an insight into the working of hydraulic machines |
| 3 | An ability to apply the fundamental theories of fluid mechanics for the analysis and design of hydraulic machines | They become capable of studying advanced topics such as design of hydraulic structures |

CE204 CONSTRUCTION TECHNOLOGY

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|--|
| | | On completion of course the students will be able to: |
| 1 | To study details regarding properties and testing of building materials,. | understand construction materials, their components and manufacturing process |
| 2 | To study details regarding the construction of building components | know the properties of concrete and different mix design methods |
| 3 | To study properties of concrete and concrete mix design | understand the details regarding the construction of building components |
| 4 | To impart the basic concepts in functional requirements of building and building services | analyse and apply learning of materials, structure, servicing and construction of masonry domestic buildings |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
CE 208 GEOTECHNICAL ENGINEERING I**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|--|--|
| | | On completion of course the students will be able to: |
| 1 | To impart fundamentals of the principles of soil mechanics | 1.Understand the basic principles governing soil behavior |
| 2 | To impart knowledge about the index and engineering properties of soil | 2.Understand the properties and basic relationships |
| 3 | To impart a basic idea on the various soil tests | 3.Understand the procedure ,applicability and limitations of tests |

HS210/HS200 LIFE SKILLS/BUSINESS ECONOMICS

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|---|
| | | On completion of course the students will be able to: |
| 1 | To familiarize the prospective | Make investment decisions based on capital |
| 2 | engineers with elementary Principles | budgeting methods in alignment with |
| 3 | of Economics and Business | micro economic theories. |
| 4 | Economics. | |
| 5 | To acquaint the students with tools | Make investment decisions based on capital |
| 6 | and techniques that are useful in | budgeting methods in alignment with macro |
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**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
CE232 MATERIAL TESTING LAB**

| SI No | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|-------|---|---|
| | | On completion of course the students will be able to: |
| 1 | The objective of the strength of materials lab is to demonstrate the basic principles in the area of strength and mechanics of materials and structural analysis to the undergraduate students through a series of experiments. The experiments are performed to measure the properties of the materials such as impact strength, tensile strength, compressive strength, hardness, ductility etc.. | To provide knowledge on mechanical behaviour of materials To acquaint with the experimental methods to determine the mechanical properties of materials. |
| 2 | The experiments are performed to measure the properties of the materials such as impact strength, tensile strength, compressive strength, hardness, ductility etc | To acquaint with the experimental methods to determine the mechanical properties of materials. |

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

CE234 FLUID MECHANICS LAB

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|--|--|
| | | On completion of course the students will be able to: |
| 1 | To provide practical knowledge in verification of principles of fluid flow. | To provide the students with a solid foundation in fluid flow principles. |
| 2 | To impart knowledge in measuring pressure, discharge and velocity of fluid flow. | To provide the students knowledge in calculating performance analysis in turbines and pumps and can be used in power plants. |
| 3 | To understand Major and Minor Losses. | Students can able to understand to analyze practical problems in all power plants and chemical industries. |
| 4 | To gain knowledge in performance testing of Hydraulic Turbines and Hydraulic Pumps at constant speed and Head. | Conduct experiments (in teams) in pipe flows and open-channel flows and interpreting data from model studies to prototype cases. |
| 5 | | Analyze a variety of practical fluid-flow devices and utilize fluid mechanics principles in design. |
| 6 | | Given the required flow rate and pressure rise, select the proper pump to optimize the pumping efficiency. |

COURSE OBJECTIVES AND COURSE OUTCOMES FOR S6

CE304 DESIGN OF REINFORCED CONCRETE STRUCTURES I

| SI NO | COURSE OBJECTIVE | Subject Learning Outcomes or Course Outcomes |
|-------|---|---|
| | | On completion of course the students will be able to: |
| 1 | To provide knowledge in the structural design of selected advanced structures of concrete and enable them to design reinforced concrete structures for real-world applications. | Design eccentrically loaded and slender columns using SP 16 design charts and different types of foundations |
| 2 | | Design and detail cantilever retaining wall and understand the design principles of Counter fort retaining wall |
| 3 | | Design and detail circular slabs and domes |
| 4 | | vi. Gain knowledge of prestressed concrete fundamentals and analyse pre and post tensioned |
| 5 | | |
| 6 | | |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
CE306 COMPUTER PROGRAMMING AND COMPUTATIONAL TECHNIQUES58**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|---|
| | | On completion of course the students will be able to: |
| 1 | To provide adequate knowledge for coding in C++ language. | The students will be able to write computer programs for numerical solutions for engineering problems like system of equations and heat equations.. |
| 2 | To give awareness about the different computational methods and their implementation to analyze basic engineering problems. | The students will be able to write computer programs using functions, class and arrays.. |
| 3 | General Skills (Definition of and calculation of error terms, convergence rate, interpretation of general error properties given the expression for an error. Derivation of pseudo code for any numerical method. | . Be familiar with finite precision computation, |
| 4 | Computer Arithmetic (Floating point numbers, scientific notation, single precision and double precision IEEE floating point formats, binary numbers, between formats, accuracy of floating point representation. Rounding and | Discussion of the use of numerical methods for real world problems in science, engineering and the humanities. |

Chopping of numbers, loss of significant figures, noise in evaluating functions, underflow and overflow,

CE308 TRANSPORTATION ENGINEERING I

| S.NO | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|------|---|---|
| | | On completion of course the students will be able to: |
| 1 | To introduce the principles and practice of Highway Engineering and Airport Engineering. | Design various geometric elements of a highway |
| 2 | To enable students to have a strong analytical and practical knowledge of geometric design of highways. | Determine the characteristics of pavement materials and design flexible pavements |
| 3 | To introduce pavement design concepts, material properties, construction methods and to design highway pavements. | Conduct traffic engineering studies and analyze data for efficient management of roadway facilities, Plan and design basic airport facilities |
| 4 | To understand the principles of traffic engineering and apply this for efficient management of transportation facilities. | |

CE362 GROUND IMPROVEMENT TECHNIQUES

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|---|
| | | On completion of course the students will be able to: |
| 1 | To introduce engineering properties of soft, weak and compressible deposits, principles of treatment for granular and cohesive soils and various stabilization techniques | Will gain competence in properly devising alternative solutions to difficult and earth construction problems and in evaluating their effectiveness before |
| 2 | To bring out concepts of reinforced earth. | A study of the many different approaches to the ground modification broadens the mind of any engineer and inspires creativity and innovation in Geotechnical construction and related fields. |
| 3 | Applications of geotextiles in various civil engineering projects. | Familiarity with professional and ethical issues and the importance of lifelong learning in structural engineering |
| | | |

HS 300 PRINCIPLE OF MANAGEMENT

| SI No | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|-------|---|---|
| | | On completion of course the students will be able to: |
| 1 | <ul style="list-style-type: none"> Relate, discuss, understand, and present management principles, processes and procedures in consideration of their effort on individual actions. | <ul style="list-style-type: none"> Manage people and organisations |
| 2 | <ul style="list-style-type: none"> Participate, summarize and/or lead class discussions, case problems and situations from both the text and student experience that relate to the text material. | <ul style="list-style-type: none"> Critically analyse and evaluate management theories and practices |
| 3 | <ul style="list-style-type: none"> Knowledge and understanding of the Principles of Management will enable the student manager and/ or employee and gain valuable insight into the workings of business and other organizations. | <ul style="list-style-type: none"> Plan and make decisions for organisations |

CE 332 TRANSPORTATION ENGINEERING LAB

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|---|
| | | On completion of course the students will be able to: |
| 1 | To achieve practical experience in testing of pavement materials | Helps to assess the basic engineering properties of pavement materials |
| 2 | To get familiar with standard quality lab testing procedures for determining the basic properties and engineering behaviour of soil, aggregates and bitumen | Capable of conducting specific tests required for field application and draw necessary inferences |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
CE334 CADD LAB**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|--|--|
| | | On completion of course the students will be able to: |
| 1 | To introduce the students to draft the plan, elevation and sectional views of buildings in accordance with development and control rules satisfying orientation and functional requirements as per National Building Code. | The students will be able to draft the plan, elevation and sectional views of the buildings, industrial structures, framed buildings using computer softwares. |
| 2 | The objectives of this course are to enable the students to understand the general concepts of engineering drawing and general principles on a CAD (particularly AUTOCAD provided by AUTODESK) and extend this knowledge to general use of CADs. | Use the AutoCAD® software program to create drawings from scratch and to modify, manipulate, copy, delete, save, and plot drawings. |
| 3 | | Use the full range of AutoCAD® commands and options and employ shortcuts and time-saving strategies |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR S8
ENVIRONMENTAL ENGINEERING II**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|--|---|
| | | On completion of course the students will be able to: |
| 1 | To understand the various sources and characteristics of wastewater | Understand the various types of treatment methods for wastewater |
| 2 | To know the various treatment methods available for wastewater treatment | Able to design various treatment units in a wastewater treatment plant. |
| 3 | To study the design of various treatment plants | The principles and processes involved in the removal of contaminants from water |
| 4 | To provides the fundamentals for the selection and design of the most appropriate, cost-effective and sustainable wastewater or sanitation treatment system. I | Able to know the design of various treatment plants |
| 5 | To impart knowledge on basics on technology selection and costing and engineering economics for the analysis, evaluation and comparison of different treatment alternatives. | Familiarise the safety practices and procedures. |
| 6 | To understand the engineering design process of a membrane bioreactor and compare the design parameters with a conventional treatment plant. | Apply various cost effective methods in sanitation engineering |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
CE404 CIVIL ENGINEERING PROJECT MANAGEMENT**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|--|
| | | On completion of course the students will be able to: |
| 1 | To impart knowledge on principles of planning and scheduling projects, with emphasis on construction. | The students will be able to Plan and schedule a construction project. |
| 2 | To understand the uses and suitability of various construction equipment, | Select an appropriate construction equipment for a specific job |
| 3 | To study the legal and ethical issues related to construction projects | Familiarise the legal procedures in construction contracts |
| 4 | To become familiar with TQM and similar concepts related to quality | Formulate suitable quality management plan for construction |
| 5 | To impart knowledge in the principles of safe construction practices | Familiarise the safety practices and procedures. |
| 6 | To understand the need of ethical considerations in construction. | Apply principles of ethics in decision making. |

CE474 MUNICIPAL SOLID WASTE MANAGEMENT

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|--|---|
| | | On completion of course the students will be able to: |
| 1 | Understanding of problems of municipal waste, biomedical waste, hazardous waste, ewaste, industrial waste etc. | Explain municipal solid waste management systems with respect to its physical properties, and associated critical considerations in view of emerging technologies |
| 2 | Knowledge of legal, institutional and financial aspects of management of solid wastes. | Outline sources, types and composition of solid waste with methods of handling, sampling and storage of solid waste. |
| | Become aware of Environment and health impacts solid waste mismanagement | Select the appropriate method for solid waste collection, transportation, redistribution and disposal. |

**COURSE OBJECTIVES AND COURSE OUTCOMES FOR
CE492 PROJECT**

| Sl. No. | Course Objectives | Subject Learning Outcomes or Course Outcomes |
|---------|---|---|
| | | On completion of course the students will be able to: |
| 1 | To improve the professional skill and competency of the students | Able to develop a product and present it effectively. |
| 2 | To encourage the students to develop an application by themselves | Acquired enough confidence to enter into an industry |
| 3 | To understand the real problems in civil engineering construction site and to identify the solution | Improves interpersonal communication skills |
| 2 | To assess their overall knowledge about the subjects studied in their curriculam | Able to identify their weaker areas and helps to improve. |