ACADEMIC YEAR 2020-2021

CIVIL ENGINEERING

ODD SEMESTER

S1 CE (2020 Batch)

Sl no	Course code	Subject name	Staff handled
1	MAT101	Linear Algebra And Calculus	SANGEETHA
2	CYT 100	Engineering Chemistry	RENJU
3	EST130	Basics Of Electrical & Electronics Engineering	SEETHU/ PRAJEESH
4	HUT101	Life Skills	SREETI
5	EST100	Engineering Mechanics	SASI K S
6	CYL120	Engineering Chemistry Lab	RENJU
7	ESL130	Electrical And Electrical Workshop	AMJITH/

S3 CE (2018Batch)

Sl no	Course code	Subject name	Staff handled
1	MAT201	Partial Differential Equation And Complex Analysis	Ambadi V K
2	CET201	Mechanics Of Solids	Suji P
3	CET203	Fluid Mechanics& Hydraulics	Ajay V
4	CET205	Surveying & Geomatics	AthiraRaj
5	HUT200	Professional Ethics	Lekshmi M G
6	MCN201	Sustainable Engineering	Arun Kumar G
7	CEL201	Civil Engineering Drafting Lab	Rajalekshmi
8	CEL203	Surveying Lab	Lekshmi M G

S5 CE (2018)

Sl no	Course code	Subject name	Staff handled
1	CE301	DESIGN OF CONCRETE STRUCTURE I	Athira Raj/ Najma
2	CE303	STRUCTURAL ANALYSIS II	Rajalekshmi
3	CE305	GEOTECHNICAL ENGINEERING II	Lekshmi M G
4	CE307	GEOMATICS	Ajay V
5	CE309	WATER RESOURSE ENGINEERING	Neeraja
6	CE361	ADVANCED CONCRETE TECHNOLOGY	Najma
7	CE331	MT LAB	Ajay V
8	CE333	GT LAB	Athira Raj
9			

S7 CE (2017 Batch)

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

COURSE OBJECTIVES AND COURSE OUTCOMES MAT 101: LINEAR ALGEBRA AND CALCULUS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes 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 partialsums.	Solve the consistent system of linear equations and apply orthogonal to a quadratic form
2	Compute partial derivatives of functions of several variables. Apply the theorem on mixed partial derivatives.	Find the maxima and minima of multivariable functions
3	Use concepts of calculus to the model real-world problems	Find areas and volumes of geometrical shapes, mass and centre of gravity of plane laminas using double and triple integrals
4	Evaluate volumes of bounded solids and areas of bounded regions by using the ideas of double and triple integrals.	Perform various tests to determine whether a given series is convergent, absolutely convergent or conditionally convergent
5	Apply the concept of line integral to work and circulation. Know the definition and properties of conservative vector fields and their relationship to gradientfields.	Determine the power series expansion of a given function
6	Prepare the student for future Engineeringpositions	Solve the consistent system of linear equations and apply orthogonal to a quadratic form

COURSE OBJECTIVES AND COURSE OUTCOMES
CYT 100 : ENGINEERING CHEMISTRY

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes

		On completion of course the students will be able to:
1	To enable the students to acquire knowledge in the concepts of chemistry. for engineering applications which enable them to develop abilities and skills that are relevant to the study and practice of chemistry.	.Apply the basic concepts of electrochemistry and corrosion to explore its possible applications in various engineering fields.
2	Familiarize the students with different application oriented topics like spectroscopy, electrochemistry, instrumental methods etc.	Apply the basic concepts of electrochemistry and corrosion to explore its possible applications in various engineering fields.
	Familiarize the students with topics like mechanism of corrosion, corrosion prevention methods, SEM, stereochemistry, polymers, desalination etc.,	Apply the knowledge of analytical method for characterizing a chemical mixture or a compound. Understand the basic concept of SEM for surface characterisation of nanomaterials. CO 4 Learn about the basics of stereochemistry and its application.
4	Enable them to develop abilities and skills that are relevant to the study and practice of chemistry.	Apply the knowledge of conducting polymers and advanced polymers in engineering
5		Study various types of water treatment methods to develop skills for treating wastewater
6		

COURSE OBJECTIVES AND COURSE OUTCOMES
EST100: ENGINEERING MECHANICS

Sl. No.	**Course Objectives**	**Subject Learning Outcomes or Course Outcomes**
		On completion of course the students will be able to:
1	Goal of this course is to expose the students to the fundamental concepts of mechanics and enhance their problem-solving skills..	Recall principles and theorems related to rigid body mechanics .

2	It introduces students to the influence of applied force system and the geometrical properties of the rigid bodies while stationary or in motion.	Identify and describe the components of system of forces acting on the rigid body
	After this course students will be able to recognize similar problems in real-world situations and respond accordingly	Apply the conditions of equilibrium to various practical problems involving different force system.
4	To develop simple mathematical model for engineering problems and carry out static analysis.	Choose appropriate theorems, principles or formulae to solve problems of mechanics
5		Solve problems involving rigid bodies, applying the properties of distributed areas and masses
6		

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

EST130: BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	equip the students with an understanding of the fundamental principles of electrical engineering	Apply fundamental concepts and circuit laws to solve simple DC electric circuits
2	provide an overview of evolution of electronics, and introduce the working principle and examples of fundamental electronic devices and circuits	Develop and solve models of magnetic circuits

3	provide an overview of evolution of communication systems, and introduce the basic concepts in radio communication.	Apply the fundamental laws of electrical engineering to solve simple ac circuits in steady state
4		Describe working of a voltage amplifier
5		Outline the principle of an electronic instrumentation system
6		Explain the principle of radio and cellular communication

COURSE OBJECTIVES AND COURSE

OUTCOMES ESL 130 ELECTRICAL &

ELECTRONICS WORKS HOP

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	Electrical Workshop is intended to impart skills to plan and carry out simple electrical wiring.	Demonstrate safety measures against electric shocks.
2	It is essential for the practicing engineers to identify the basic practices and safety measures in electrical wiring.	Identify the tools used for electrical wiring, electrical accessories, wires, cables, batteries and standard symbols
3	Work in a team with good interpersonal skills	Develop the connection diagram, identify the suitable accessories and materials necessary for wiring simple lighting circuits for domestic buildings
4		Identify and test various electronic components
5		Draw circuit schematics with EDA tools Assemble and test electronic circuits on boards

COURSE OBJECTIVES AND COURSE

OUTCOMES CYL 120 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 impart scientific approach and to familiarize with the experiments in chemistry relevant for research projects in higher semesters	Develop skills relevant to synthesize organic polymers and acquire the practical skill to use TLC for the identification of drugs CO 3
2	Understand and practice different techniques of quantitative chemical analysis to generate experimental skills and apply these skills to various analyses	Develop the ability to understand and explain the use of modern spectroscopic techniques for analysing and interpreting the IR spectra and NMR spectra of some organic compounds
3	Acquire the ability to understand, explain and use instrumental techniques for chemical analysis CO 5	Learn to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments
4		Function as a member of a team, communicate effectively and engage in further learning. Also understand how chemistry addresses social, economical and environmental problems and why it is an integral part of curriculum
5		
6		

COURSE OBJECTIVES AND OUTCOMES FOR S3

MAT201 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.
4	Verify whether a given function is a solution ofa 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

CET 201 MECHANICS OF SOLIDS

Sl.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	To enable to students tocalculate internal forces in member subjected to axial load shear torsion and bending	ability tocalculate 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 appoint and determine the principle of maximum shear stress using equation as well as mohr circle	ability to to analyse state of stress at appoint 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 uder standing analyse column buckling

CET203 FLUID MECHANICS AND HYDRAULLICS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		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

	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.

HUT 200 PROFESSIONAL ETHICS

COURSE OBJECTIVE

The subject aims to create awareness on ethics and human values among students.

COURSE OUTCOME

CO 1	Understand the core values that shape the ethical behaviour of a professional.
CO 2	Adopt a good character and follow an ethical life.
CO 3	Explain the role and responsibility in technological development by keeping personal ethics and legal ethics.
CO 4	Solve moral and ethical problems through exploration and assessment by established experiments.
Co5	Apply the knowledge of human values and social values to contemporary ethical values and global issues

CET 205 SURVEYING AND GEOMATICS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		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

CEL201 CIVIL ENGINEERING DRAFTING 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 developmentand 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 bu 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

CEL203 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	To equip the students to undertake survey using theodolites	Surveying using theodolite
3	To impart awareness on modern levels	Surveying using total station

COURSE OUTCOME AND OBJECTIVES FOR S5

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

CE301 DESIGN OF RC STRUCTURES 1

Sl. No.	Course Objectives	Course Outcomes
		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

		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 GEOTEHNICAL ENGINEERING II

Sl. No.	Course Objectives	Subject Learning Outcomes or 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 system including settlement consideration	estimate bearing capacity using Terzhagi's methods
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 negative friction
6		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

Sl No	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	• To impart awareness on the advanced surveying techniques	• The students will possess knowledge on the advanced methods of surveying, the instruments and the spatial representation of data.
2	• To understand the errors associated with survey measurements	• Fully equipped with various surveying concepts and methods using advanced ground survey equipments.
3	• To provide a basic understanding on geospatial data acquisition and its process	• Acquire skills in handling spatial data base warehousing and mining.
4	• To Prepare the student to plan and conduct field work and application of scientific methodology in handling field samples.	• Prepare the candidates with National Global employability.
5	• To equip the candidate with the art, science and technology of cartography and applications of GIS in Mapping Resources.	• It empower the candidate with confidence and leadership qualities.
6	• To develop the skills in surveying and thematic mapping.	• The students will possess knowledge on the advanced methods of surveying, the instruments and the spatial

		representation of data.

CE331 MATERIAL TESTING LAB 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 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.

	CE333 GEOTECHNICAL EN INEERING LAB	

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	. Provide basic knowledge to carry out field investigations and to indentify 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 interpretating 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
6		Apply relevant Indian Standard provisions to ensure safety and serviceability of structural steel elements.

CE403 STRUCTURAL ANALYSIS III

SI NO	COURSE OBJECTIVE	Subject Learning Outcomes or Course Outcomes 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

CE 431 ENVIRONMENTAL ENGINEERING LAB

Sl. No.	Course Objectives	Subject Learning Outcomes or 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 successfulcareer as a civil engineer

EVEN SEMESTER

S2 CE (2019 Batch)

Sl no	Course code	Subject name	Staff handled
1	MAT102	Vector Calculus, Differential Equations And Transforms	MS SANGEETHA
2	PHT110	Engineering Physics B	Ms. Sreeti Gangadaran
3	EST101	Engineering GRAPHICS	SASI
4	EST102	Basics Of Civil And Mechanical Engineering	NEERAJA/JOHN
5	HUT102	PROFESSINAL COMMUNICATION	Dr. SALINI
6	PHL102	Engineering Physics Lab	SREETI
7	ESL102	Civil And Mechanical Workshop	NEERAJA/ARYA
8	EST102	PROGRAMMING IN C	AMITHA

S4 CE (2018 Batch)

Sl no	Course code	Subject name	Staff handled
1	MAT202	Probability Distributions, Transforms and Numerical Methods	LIJI S
2	CET202	Engineering geology	RESHMA S
3	CET204	GEOTECHNICAL ENGINEERINGI	ATHIRA RAJ
4	CET206	TRANSPORTATION ENGINEERING	NEERAJA
5	EST200	DESIGN &ENGINEERING	AJAY V
7	MCN202	CONSTITUTION OF INDIA	LEKSHMI MG
8	CET202	Materials Testing Lab	ATHIRA RAJ
9	CET 204	Fluid Mechanics Lab	YEDU KRISHNAN

S6 CE (2018Batch)

Sl no	Course code	Subject name	Staff handled
1	CE302	DESIGN OF HYDRAULLIC STRUCTURES	NAJMA
2	CE304	DESIGN OF RC STRUCTURESII	SUJI
3	CE306	COMPUTER PROGRAMMING AND NUMERICAL METHOD	AMITHA S
4	CE308	TRANSPORTATION ENGINNEERING I	LEKSHMI MG
5	HS300	PRINCIPLES OF MANAGEMENT	AJAY V
6	CE362	TRAFFIC ENGINEERING	NEERAJA
7	CE332	TRANSPORTATION LAB	LEKSHMI
8	CE334	CADD LAB	RAJALEKSHMI
9			

S8 CE (2017 Batch)

Sl no	Course code	Subject name	Staff handled
1	CE402	ENVIOURMENTAL ENGG II	RAJALEKSHMI
2	CE404	CIVIL ENGINEERING PROJECT MANAGEMENT	AJAY
3	CE474	MUNICIPAL SOLID WASTE MANAGEMENT	RESHMA
4	BT362	SUSTAINABLE ENERGY PROCESS	ATHIRA RAJ
5	CE492	PROJECT	SUJI P

COURSE OBJECTIVES AND COURSE OUTCOMES

MAT 102: VECTOR CALCULUS,DIFFERENTIAL EQUATIONS AND TRANSFORMS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	: This course introduces the concepts and applications of differentiation and integration of vector valued functions, differential equations, Laplace and Fourier Transforms. The topics treated in this course have applications in all branches of engineering.	Apply computing integrals of scalar and vector field over surfaces in three-dimensional space.
2	The objective of this course is to familiarize the prospective engineers with some advanced concepts and methods in Mathematics which include the Calculus of vector valued functions, ordinary differential equations and basic transforms such as Laplace and Fourier Transforms which are invaluable for any engineer's mathematical tool box.	Apply Laplace transforms to solve physical problems arising in engineering
	The topics treated in this course have applications in all branches of engineering.	Solve homogeneous and non-homogeneous linear differential equation with constant coefficients
4		Apply Laplace transforms to solve physical problems arising in engineering
5		Apply Fourier transforms to solve physical problems arising in engineering
6		

COURSE OBJECTIVES AND COURSE OUTCOMES

PHT 100 ENGINEERING PHYSICS B

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	The aim of the Engineering Physics Program is to offer students a solid background in the fundamentals of Physics and to impart that knowledge in engineering disciplines.	Compute the quantitative aspects of waves and oscillations in engineering systems.
2	The program is designed to develop scientific attitudes and enable the students to correlate the concepts of Physics with the core programmes	Apply the interaction of light with matter through interference, diffraction and identify these phenomena in different natural optical processes and optical instruments.
3	Use concepts of calculus to the model real-world problems	Analyze the behaviour of matter in the atomic and subatomic level through the principles of quantum mechanics to perceive the microscopic processes in electronic devices.
		Classify the properties of magnetic materials and apply vector calculus to static magnetic fields and use Maxwell's equations to diverse engineering problems
		Analyze the principles behind various superconducting applications, explain the working of solid state lighting devices and fibre optic communication system

COURSE OBJECTIVES AND COURSE OUTCOMES

EST110: ENGINEERING GRAPHICS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes **On completion of course the students will be able to:**
1	To enable the student to effectively perform technical communication through graphical representation as per global standards.	Draw the projection of points and lines located in different quadrants
2	Learn to sketch and take field dimensions.	Prepare multiview orthographic projections of objects by visualizing them in different positions
3	Learn to take data and transform it into graphic drawings.	Draw sectional views and develop surfaces of a given object
4	Learn basic Auto Cad skills.	Prepare pictorial drawings using the principles of isometric and perspective projections to visualize objects in three dimensions.
5	Learn basic engineering drawing formats	Convert 3D views to orthographic views
6	Prepare the student for future Engineeringpositions	Obtain multiview projections and solid models of objects using CAD tools

COURSE OBJECTIVES AND COURSE OUTCOMES

EST 120 BASICS OF CIVIL AND MECHANICAL ENGINEERING

Sl No	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	To provide an insight and inculcate the essentials of Civil Engineering discipline to the students of all branches of Engineering and to provide the students an illustration of the significance of the Civil Engineering Profession in satisfying the societal needs.	Recall the role of civil engineer in society and to relate the various disciplines of Civil Engineering. Describe the importance, objectives and principles of surveying.
2	To design a system component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.	Explain different types of buildings, building components, building materials and building construction.
	To introduce the students to the basic principles of mechanical engineering.	Summarise the basic infrastructure services MEP, HVAC, elevators, escalators and ramps. Discuss the Materials, energy systems, water management and environment for green buildings. Describe the working of hydraulic machines. Explain the working of power transmission elements. Describe the basic manufacturing, metal joining and machining processes.
	To apply knowledge of mathematics, science, and engineering to mechanical engineering problems.	Analyse thermodynamic cycles and calculate its efficiency. Illustrate the working and features of IC Engines.

		Explain the basic principles of Refrigeration and Air Conditioning.
	To provide an insight and inculcate the essentials of Civil Engineering discipline to the students of all branches of Engineering and to provide the students an illustration of the significance of the Civil Engineering Profession in satisfying the societal needs.	Recall the role of civil engineer in society and to relate the various disciplines of Civil Engineering. Describe the importance, objectives and principles of surveying.

COURSE OBJECTIVES AND COURSE OUTCOMES

EST102 COMPUTER PROGRAMMING

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	Understand important concepts of C programming, pre-processor directives, data types, operators, input and output, control statements	Analyze a computational problem and develop an algorithm/flowchart to find its solution.
		Able to develop simple C programs for performing calculations like area of rooms, volume of a vessel etc.

		Able to develop programs for multiplication and addition tables, simple menu driven applications
2	Introduce arrays, strings, structure and union, enumerated data types, sorting and searching	Develop readable* C programs with branching and looping statements, which uses Arithmetic, Logical, Relational or Bitwise operators.
		Able to develop programs for sorting and searching simple things
		Write readable C programs which use pointers for array processing and parameter passing
3	Provide the concept of pointers and give brief idea about its application storage classes,	Write readable C programs with arrays, structure or union for storing the the data to be processed

COURSE OBJECTIVES AND COURSE OUTCOMES HUN102 -

PROFESSIONAL COMMUNICATION

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	Clear, precise, and effective communication has become a sine qua non in today's information-driven world given its interdependencies and seamless connectivity.	Develop vocabulary and language skills relevant to engineering as a profession.
2	Any aspiring professional cannot but master the key elements of such communication.	Analyze, interpret and effectively summarize a variety of textual content.
3	The objective of this course is to equip students with the necessary skills to listen, read, write, and speak so as to comprehend and successfully convey any idea, technical or otherwise, as well as give them the necessary polish to become persuasive communicators.	Create effective technical presentations. Discuss a given technical/non-technical topic in a group setting and arrive at generalizations/consensus

4		Identify drawbacks in listening patterns and apply listening techniques for specific needs
5		Create professional and technical documents that are clear and adhering to all the necessary conventions

COURSE OBJECTIVES AND COURSE OUTCOMES

EST 120 BASICS OF CIVIL AND MECHANICAL ENGINEERING

Sl No	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	To provide an insight and inculcate the essentials of Civil Engineering discipline to the students of all branches of Engineering and to provide the students an illustration of the significance of the Civil Engineering Profession in satisfying the societal needs.	Recall the role of civil engineer in society and to relate the various disciplines of Civil Engineering. Describe the importance, objectives and principles of surveying.
2	To design a system component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.	Explain different types of buildings, building components, building materials and building construction.

	To introduce the students to the basic principles of mechanical engineering.	Summarise the basic infrastructure services MEP, HVAC, elevators, escalators and ramps. Discuss the Materials, energy systems, water management and environment for green buildings. Describe the working of hydraulic machines. Explain the working of power transmission elements. Describe the basic manufacturing, metal joining and machining processes.
	To apply knowledge of mathematics, science, and engineering to mechanical engineering problems.	Analyse thermodynamic cycles and calculate its efficiency. Illustrate the working and features of IC Engines.

		Explain the basic principles of Refrigeration and Air Conditioning.
	To provide an insight and inculcate the essentials of Civil Engineering discipline to the students of all branches of Engineering and to provide the students an illustration of the significance of the Civil Engineering Profession in satisfying the societal needs.	Recall the role of civil engineer in society and to relate the various disciplines of Civil Engineering. Describe the importance, objectives and principles of surveying.

CET202 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 resourses used as building material
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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 thedetails 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

CET 204 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

CONSTITUTION OF INDIA

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

Sl 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
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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

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 ofengineering drawing and general principles on a CAD (particularly AUTOCAD provided bu 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 MUNCIPAL 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.