NPR College of Engineering & Technology
NPR Nagar, Natham, Dindigul - 624401, Tamil Nadu, India.
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.
An ISO 9001:2015 Certified Institution.
Phone No: 04544- 246 500, 246501, 246502.
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CRITERION 2 – TEACHING LEARNING AND EVALUATION

KEY INDICATOR 2.6 – STUDENTS PERFORMANCE AND LEARNING OUTCOMES

Metric No 2.6.1. Programme and course outcomes offered by the institution are stated and displayed on website and communicated to teachers and students.

NPR COLLEGE OF ENGG. & TECHNOLOGY NATHAM

PRINCIPAL
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COURSE OUT COME REGULATION 2017

PROGRAMME: **CIVIL ENGINEERING**	DEGREE: **UG**	A.Y: **2017-18**	SEMESTER: **01**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	I / I	HS8151 - COMMUNICATIVE ENGLISH	C101.1	Communicate clearly both in the written form and orally using appropriate vocabulary and comprehend written texts to make inferences.	K2
			C101.2	Speak persuasively in different social contexts and write biographical details and technical documents cohesively, coherently and flawlessly using appropriate words.	K2
			C101.3	Speak, read and write effectively for a variety of professional and social settings.	K2
			C101.4	Read descriptive, narrative, expository and interpretive texts and write using creative, critical, analytical and evaluative methods.	K6
			C101.5	Listen, comprehend and respond to different spoken and written discourses/excerpts in different accents and write different genres of texts adopting various writing strategies.	K6
2	I / I	MA8151 - ENGINEERING MATHEMATICS - I	C102.1	Use both the limit definition and rules of differentiation to differentiate functions.	K3
			C102.2	Apply differentiation to solve maxima and minima problems	K3
			C102.3	Evaluate integrals both by using Reimann sums and by using the fundamental theorem of convergent improper integrals. Evaluate integrals using techniques of integration, such as substitution, partial Fractions, integration by parts and improper integrals.	K5
			C102.4	Apply integration to compute multiple integrals, area, volume, integrals in polar Coordinates, in addition to change of order and change of variables.	K3
			C102.5	Apply various techniques in solving differential equations.	K3

3	**I / I**	**PH8151 - ENGINEERING PHYSICS**	C103.1	Discuss the Young's modulus and Rigidity modulus of elasticity of materials and its determination through experimental methods .	K2
			C103.2	Describe the characteristics of laser light and their application in semiconductor laser .	K2
			C103.3	Discuss the principle behind the propagation of light through an optical fibre and its application in sensors.	K2
			C103.4	Summarize the different modes of heat transfer.	K2
			C103.5	Describe the unit cell characteristics and the growth of crystals	K2
4	**I / I**	**CY8151 - ENGINEERING CHEMISTRY**	C104.1	Summarize the water related problems in boilers and their treatment techniques.	K2
			C104.2	Discuss the applications of adsorption in the field of water and air pollution abatement.	K1
			C104.3	Discuss the types of catalysis and the mechanism of enzyme catalysis.	K2
			C104.4	Associate phase rule in the alloying and the behaviour of one component and two component systems using phase diagram.	K2
			C104.5	Summarize the principles and generation of energy in batteries ,nuclear reactors, solar cells, wind mills and fuel cells.	K2
5	**I / I**	**GE8151- PROBLEM SOLVING AND PYTHON**	C105.1	Discuss the logical solutions through Flowcharts, Algorithms and Pseudo code	K2
			C105.2	Explain the syntax for python programming constructs.	K2
			C105.3	Compute the flow of the program to obtain the programmatic solution.	K2
			C105.4	Examine the programs with sub problems using 'Python' language	K3
			C105.5	Compute the compound data using Python lists, tuples, and dictionaries	K2

6	**I / I**	**GE8152-ENGINEERING GRAPHICS**	C106.1	Sketch the conic sections, special curves, and draw orthographic views from pictorial views and models.	K4
			C106.2	Apply the principles of orthographic projections of points in all quadrants, lines and planes in first quadrant.	K3
			C106.3	Sketch the projections of simple solids like prisms, pyramids, cylinder and cone and obtain the traces of plane figures.	K4
			C106.4	Practice the sectional views of solids like cube, prisms, pyramids, cylinders & cones and extend its lateral surfaces	K3
			C106.5	Sketch the perspective projection of simple solids, truncated prisms, pyramids, cone and cylinders and sketch the isometric projection of simple machine parts.	K4
7	**I / I**	**GE8161-PROBLEM SOLVING AND PYTHON LAB**	C107.1	Write, test, and debug simple Python programs	K1
			C107.2	Apply the concept of conditionals and loops in Python programs.	K3
			C107.3	Develop the Python programs step-wise by defining functions and calling them.	K4
			C107.4	Use Python lists, tuples, dictionaries for representing compound data.	K3
			C107.5	Read and write data from/to files in Python.	K2
8	**I / I**	**BS8161 - PHYSICS AND CHEMISTRY LABORATORY**	C108.1	Apply physics principles of optics and thermal physics to evaluate engineering properties of materials.	K3
			C108.2	Ability to test materials by using their knowledge of applied physics principles in optics and properties of matter.	K5
			C108.3	Perform the quantitative chemical analysis of chloride and dissolved oxygen.	K5
			C108.4	Determine the amount of acids by using the instruments of conductivity meter and pH meter.	K5
			C108.5	Determine the hardness, alkalinity and metal ion content in the water samples by volumetric titration.	K5

PROGRAMME: **CIVIL ENGINEERING**	DEGREE: **UG**	A.Y: **2017-18**	SEMESTER: **02**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	I / II	HS8251 - TECHNICAL ENGLISH	C109.1	Read technical texts and write area specific texts effortlessly.	K2
			C109.2	Listen and comprehend lectures and talks in their areas of specialization and write effectively for a variety of professional and social settings	K2
			C109.3	Speak and write appropriately and effectively in varied formal and informal contexts.	K6
			C109.4	Write effectively and persuasively and produce different types of writing such as letters, minutes, reports and winning job applications.	K6
			C109.5	Communicate clearly using technical vocabulary in their professional correspondences	K2
2	I / II	MA8251 - ENGINEERING MATHEMATICS - II	C110.1	Calculate the eigen values and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices	K3
			C110.2	Evaluate the line, surface and volume integrals using Gauss, Stokes and Green‘s theorems and their verification	K5
			C110.3	Determine Analytic functions, Conformal mapping and Bilinear transformation	K3
			C110.4	Evaluate the Cauchy’s integrals, Taylor’s and Laurent’s and residue theorem for evaluation for real integrals using circular and semicircular, contour	K5
			C110.5	Evaluate Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constantcoefficients.	K5
			C110.6	Discuss Laplace Transform methods to solve initial value problems for constant coefficient linear ODEs.	K2

3	**I / II**	**PH8201 - PHYSICS FOR CIVIL ENGINEERING**	C111.1	Analyze the thermal performance of buildings.	K2
			C111.2	Acquire knowledge on the acoustic properties of buildings.	K1
			C111.3	Understand the various lighting design of buildings.	K2
			C111.4	Knowledge on the properties and performace of engineering matrials	K3
			C111.5	Understand the Hazards of buildings.	K2
4	**I / II**	**BE8251 - BASIC ELECTRICAL AND ELECTRONICS ENGINEERING**	C112.1	Understand the electrical circuit and their working principles	K2
			C112.2	Identify the electrical components of a machines and their applications	K2
			C112.3	Explain the characteristics of the electrical machines	K2
			C112.4	Identify the digital electronics circuits and their components	K2
			C112.5	Explain the fundamentals of communication systems	K2
5	**I / II**	**GE8291- ENVIRONMENTAL SCIENCE AND ENGINEERING**	C113.1	Summarize the values, threats, conservation of biodiversity and ecosystems.	K2
			C113.2	Discuss the sources, effects, control measures of different types of pollution, and solid waste management.	K1
			C113.3	Associate the effects of exploitation of Natural resources on environment	K3
			C113.4	Summarize the water conservation methods and various environmental acts for environmental sustainability	K2
			C113.5	Discuss scientific, technological, economic and social solutions to environmental problems	K1

6	**I / II**	**GE8292 - ENGINEERING MECHANICS**	C114.1	Iilustrate the vectorial and scalar representation of forces and moments	K2
			C114.2	Analyse the rigid body in equilibrium	K3
			C114.3	Evaluate the properties of surfaces and solids	K4
			C114.4	Calculate dynamic forces exerted in rigid body	K3
			C114.5	Determine the friction and the effects by the laws of friction	K3
7	**I / II**	**GE8261 - ENGINEERING PRACTICES LABORATORY**	C115.1	Fabricate carpentry components and pipe connections including plumbing works.	K2
			C115.2	Use welding equipments to join the structures.	K2
			C115.3	Carry out the basic machining operations	K2
			C115.4	Make the models using sheet metal works	K4
			C115.5	Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings	K4
			C115.6	Carry out basic home electrical works and appliances	K2
8	**I / II**	**CE8211 - COMPUTER AIDED BUILDING DRAWING Laboratory**	C116.1	Draft the plan, elevation and sectional views of the buildings, using computer softwares	K3
			C116.2	Draft the plan, elevation and sectional views of the industrial structures using computer softwares	K3
			C116.3	Draft the plan, elevation and sectional views of the framed buildings using computer softwares	K3

PROGRAMME: **CIVIL ENGINEERING**	DEGREE: **UG**	A.Y: **2018-2019**	SEMESTER: **03**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	II / III	MA8353 - TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS	C201.1	Solve First, Second order homogeneous and non homogeneous partial differential equations	K3
			C201.2	Find the Fourier series of a given function satisfying Dirchlet's condition.	K2
			C201.3	Apply Fourier series to solve one dimensional wave, one and two dimensional heat equations.	K3
			C201.4	Determine Fourier transform for a given function and use them to evaluate certain definite Integrals	K2
			C201.5	Determine z transforms of standard functions and use them to solve difference equations	K3
2	II / III	CE8301 - STRENGTH OF MATERIALS I	C202.1	Understand the concepts of stress and strain, principal stresses and principal planes.	K2
			C202.2	Determine Shear force and bending moment in beams and understand concept of theory of simple bending.	K4
			C202.3	Calculate the deflection of beams by different methods and selection of method for determining slope or deflection.	K4
			C202.4	Apply basic equation of torsion in design of circular shafts and helical springs.	K3
			C202.5	Analyze the pin jointed plane and space trusses	K4
3	II / III	CE8302 - FLUID MECHANICS	C203.1	Get a basic knowledge of fluids in static, kinematic and dynamic equilibrium.	K2
			C203.2	Understand and solve the problems related to equation of motion.	K3

			C203.3	Gain knowledge about dimensional and model analysis.	K3
			C203.4	Learn types of flow and losses of flow in pipes.	K2
			C203.5	Understand and solve the boundary layer problems.	K3
4	**II / III**	**CE8351 - SURVEYING**	C204.1	The use of various surveying instruments and mapping	K2
			C204.2	Measuring Horizontal angle and vertical angle using different instruments	K3
			C204.3	Methods of Leveling and setting Levels with different instruments	K2
			C204.4	Understand the Concepts of astronomical surveying and methods to determine time, longitude, latitude and azimuth.	K3
			C204.5	Understand the Concept and principle of modern surveying.	K2
5	**II / III**	**CE8391 CONSTRUCTION MATERIALS**	C205.1	Compare the properties of most common and advanced building materials.	K2
			C205.2	Understand the typical and potential applications of lime, cement and aggregates	K2
			C205.3	Know the production of concrete and also the method of placing and making of concrete elements.	K2
			C205.4	Understand the applications of timbers and other materials	K2
			C205.5	Understand the importance of modern material for construction.	K2
6	**II / III**	**GE8392- ENGINEERING GEOLOGY**	C206.1	Explain the importance of geology and compare the geological features with engineering importance.	K2
			C206.2	Explain about the types of various minerals.	K2
			C206.3	Apply knowledge regarding the underline rock formation to get complete idea about igneous, sedimentary and metamorphic rock	K2

			C206.4	Explain about fault, folds, unconformity and joints which are present in the strata of the earth crest, by which they can able to compare the particular area with their construction site or engineering projects.	K2
			C206.5	Apply knowledge related with the dams, tunnels, bridges and reservoir with the help of these they can be able to apply their knowledge for making of their engineering projects	K2
7	**II / III**	**CE8311-CONSTRUCTION MATERIALS LABORATORY**	C207.1	The students will have the required knowledge in the area of testing of construction materials	K4
			C207.2	The students will have the required knowledge in components of construction elements experimentally.	K4
			C207.3	The students will have the required knowledge in the area of testing of concrete	K4
8	**I / II**	**CE8361 - SURVEY LAB**	C208.1	Acquired practical knowledge on handling basic survey instruments including Theodolite, Tacheometry.	K4
			C208.2	Acquired practical knowledge on handling basic survey instruments including Total Station and GPS	K4
			C208.3	Knowledge to carryout Triangulation and Astronomical surveying including general field marking for various engineering projects and Location of site etc.	K4
9	**I / II**	**HS8381 - INTERPERSONAL SKILLS/LISTENING &SPEAKING**	C209.1	Speak effectively on various academic topics and respond to questions.	K2
			C209.2	Converse effectively with the use of conversation starters and discourse markers.	K6
			C209.3	Listen and respond to various academic dialogues and discussions	K2
			C209.4	Participate confidently and appropriately in informal and formal conversations and group discussions.	K6
			C209.5	Use a range of presentation tools like PPT, Videos, and Charts etc. to make an engaging presentation.	K6

PROGRAMME: **CIVIL ENGINEERING**	DEGREE: **UG**	A.Y: **2018-2019**	SEMESTER: **04**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	II / IV	MA8491- NUMERICAL METHODS	C210.1	Determine the solution of algebraic and transcendental system of linear equations	K3
			C210.2	To interpolate the values of unknown functions using Newton's Formula	K3
			C210.3	Estimate the numerical values of the derivatives and integrals of unknown function.	K3
			C210.4	Solve first and second order initial value problem	K3
			C210.5	Solve Numerically boundary value problem	K3
2	II / IV	CE8401- CONSTRUCTION TECHNIQUES, EQUIPMENTS & PRACTICES.	C211.1	Explain the different construction techniques and structural systems	K2
			C211.2	Understand various techniques and practices on masonry construction, flooring, and roofing.	K2
			C211.3	Plan the requirements for substructure construction.	K3
			C211.4	Choose the methods and techniques requireed for the construction of various types of super structures	K3
			C211.5	Select, maintain and operate hand and power tools and equipment used in the building construction sites	K3
3	II / IV	CE8402 STRENGTH OF MATERIALS II	C212.1	Determine the strain energy and compute the deflection of determinate beams, frames and trusses using energy principles.	K4
			C212.2	Analyze propped cantilever, fixed beams and continuous beams using theorem of three moment equation for external loadings and support settlements.	K4

			C212.3	Examine the load carrying capacity of columns and stresses induced in columns and cylinders.	K4
			C212.4	Determine principal stresses and planes for an element in three dimensional state of stress and study various theories of failure	K4
			C212.5	Determine the stresses due to Unsymmetrical bending of beams, locate the shear center, and find the stresses in curved beams	K3
4	**II / IV**	**CE8403 APPLIED HYDRAULIC ENGINEERING**	C213.1	Apply their knowledge of fluid mechanics in addressing problems in open channels.	K3
			C213.2	Solve problems in uniform, gradually varied flows in steady state conditions.	K3
			C213.3	Solve problems in uniform, rapidly varied flows in steady state conditions.	K3
			C213.4	Understand the principles, working and application of turbines.	K3
			C213.5	Understand the principles, working and application of pumps.	K3
5	**II / IV**	**CE8404 CONCRETE TECHNOLOGY**	C214.1	Summarize the various requirements of cement, aggregates and water for making concrete	K2
			C214.2	Illustrate the effect of admixtures on properties of concrete	K2
			C214.3	Understand The concept and procedure of mix design as per IS method	K2
			C214.4	Outline the properties of concrete at fresh and hardened state	K2
			C214.5	Explain the importance and application of special concretes.	K2
6	**II / IV**	**CE8491SOIL MECHANICS**	C215.1	Classify the soil and assess the engineering properties, based on index properties.	K2
			C215.2	Understand the stress concepts in soils	K2
			C215.3	Understand and identify the settlement in soils.	K2

			C215.4	Determine the shear strength of soil	K3
			C215.5	Analyze both finite and infinite slopes	K4
7	**II / IV**	**CE8481 STRENGTH OF MATERIALS LABORATORY**	C216.1	Analyze the various stresses on mild steel rod by conducting tension and torsion tests	K4
			C216.2	Identify deflection test of metals and carriage springs	K3
			C216.3	Test for compression strength of wood and helical springs	K4
			C216.4	Compare hardness and impact strength of different metals	K4
8	**II / IV**	**CE8461 APPLIED HYDRAULIC ENGINEERING LABORATORY**	C217.1	Identify the flow in pipes	K3
			C217.2	Examine the frictional losses in pipes	K4
			C217.3	Develop characteristics of pumps	K3
			C217.4	Develop characteristics of turbines	K3
9	**II / IV**	**HS8461 ADVANCED READING AND WRITING LAB**	C218.1	Strengthen the reading skills	K2
			C218.2	Enhance the technical writing skills	K3
			C218.3	Develop proposal writing skills	K6
			C218.4	Write winning job applications.	K2

PROGRAMME: **CIVIL ENGINEERING**	DEGREE: **UG**	A.Y: **2019-2020**	SEMESTER: **05**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	III / V	CE8501DESIGN OF REINFORCED CONCRETE STRUCTURES	C301.1	Understand the various design methodologies for the design of RC elements.	K3
			C301.2	Analyse and design of flanged beams by limit state method and sign of beams for shear, bond and torsion.	K4
			C301.3	Analyse and design the various types of slabs and staircase by limit state method.	K4
			C301.4	Analyse and design columns for axial, uniaxial and biaxial eccentric loadings.	K4
			C301.5	Analyse and design of footing by limit state method.	K4
2	III / V	CE8502 STRUCTURAL ANALYSIS I	C302.1	Analyze continuous beams, pin-jointed indeterminate plane frames and rigid plane frames by strain energy method	K3
			C302.2	Analyse the continuous beams and rigid frames by slope defection method.	K3
			C302.3	Understand the concept of moment distribution and analysis of continuous beams and rigid frames with and without sway.	K3
			C302.4	Analyse the indeterminate pin jointed plane frames continuous beams and rigid frames using matrix flexibility method.	K3
			C302.5	Understand the concept of matrix stiffness method and analysis of continuous beams, pin jointed trusses and rigid plane frames.	K3
3	III / V	EN8491 WATER SUPPLY	C303.1	Understand an insight into the structure of drinking water supply systems, including water transport, treatment and distribution	K2

		ENGINEERING	C303.2	Learn about intake structure, pipe materials ,pumps	K2
			C303.3	Gain knowledge in various unit operations and processes in water treatment,	K3
			C303.4	Design the various functional units in water treatment(primary treatment)	K2
			C303.5	Gain knowledge in various unit operations and processes in water treatment,	K3
4	**III / V**	**CE8591 FOUNDATION ENGINEERING**	C304.1	Design the various functional units in water treatment(secondary treatment)	K2
			C304.2	Understand about the water distribution system and analyse the pipe network	K3
			C304.3	Design shallow footings.	K3
			C304.4	Determine the load carrying capacity, settlement of pile foundation.	K3
			C304.5	Determine the earth pressure on retaining walls and analysis for stability.	K3
5	**II / IV**	**GI8013 ADVANCED SURVEYING**	C305.1	Know the astronomical surveying concepts &Various Problems.	K3
			C305.2	Understand the concept of photogrammetric surveying and interpretation	K2
			C305.3	Solve the field problems with Totalstation	K2
			C305.4	Know the GPS surveying and the data processing	K2
			C305.5	Design the route surveys and tunnel alignments	K3
6	**III / V**	**OAI551 ENVIRONMENT AND AGRICULTURE**	C306.1	Understand the environmental concerns in agriculture	K2
			C306.2	Understand the environmental impacts in modernized agriculture	K2

			C306.3	Understand the climate change and water scarcity problems in our environment	K2
			C306.4	Understand the Genenitically modified crops,Ecological diversity in our environment	K2
			C306.5	Understand the emerging issues in global environmetal concerns and alternate culture system	K2
7	**III / V**	**CE8511SOIL MECHANICS Laboratory**	C307.1	Conduct tests to determine both the index and engineering properties of soils	K4
			C307.2	Interpreting the shear strength of all types of soils by conducting lab tests	K4
			C307.3	Conduct tests to determine characterize the soil based on their properties.	K4
8	**III / V**	**CE8512 WATER AND WASTE WATER ANALYSIS LABORATORY**	C308.1	Quantify the pollutant concentration in water and wastewater	K3
			C308.2	Suggest the type of treatment required and amount of dosage required for the treatment	K3
			C308.3	Examine the conditions for the growth of micro-organisms	K4
9	**III / V**	**CE8513 SURVEY CAMP**	C309.1	Applying the concepts of surveying	K3
			C309.2	Applying the practical experience of the realities in the field of Surveying	K3
			C309.3	Applying the concepts complexities involved in the field of Surveying	K3

PROGRAMME: **CIVIL ENGINEERING**	DEGREE: **UG**	A.Y: **2019-20**	SEMESTER: **06**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	III / VI	CE8601 DESIGN OF STEEL STRUCTURAL ELEMENTS	C310.1	Understand the concepts of various design philosophies	K2
			C310.2	Design common bolted and welded connections for steel structures	K3
			C310.3	Design tension members and understand the effect of shear lag.	K3
			C310.4	Understand the design concept of axially loaded columns and column base connections.	K3
			C310.5	Understand specific problems related to the design of laterally restrained and unrestrained steel beams	K3
2	III / VI	CE8602 STRUCTURAL ANALYSIS - II	C311.1	Draw influence lines for statically determinate structures and calculate critical stress resultants.	K3
			C311.2	Understand Muller Breslau principle and draw the influence lines for statically indeterminate beams.	K3
			C311.3	Analyse of three hinged, two hinged and fixed arches.	K4
			C311.4	Analyse the suspension bridges with stiffening girders	K4
			C311.5	Understand the concept of Plastic analysis and the method of analyzing beams and rigid frames.	K3
3	III / VI	CE8603 IRRIGATION ENGINEERING	C312.1	understand the knowledge and skills on crop water requirements.	K2
			C312.2	Understand the methods and management of irrigation.	K2

			C312.3	Gain knowledge on types of Impounding structures	K2
			C312.4	Understand methods of irrigation including canal irrigation.	K2
			C312.5	Get knowledge on water management on optimization of water use.	K2
4	**III / VI**	**CE8604 HIGHWAY ENGINEERING**	C313.1	Understand the planning and aligning of highway.	K2
			C313.2	Understand the Geometric design of highways	K3
			C313.3	Understand the Design flexible and rigid pavements.	K3
			C313.4	Gain the knowledge on Highway construction materials, properties, testing methods	K2
			C313.5	Understand the concept of pavement management system, evaluation of distress and maintenance of pavements.	K2
5	**III / VI**	**EN8592 WASTE WATER ENGINEERING**	C314.1	estimate sewage generation and design sewer system including sewage pumping stations , the characteristics and composition of sewage, self-purification of streams	K3
			C314.2	perform basic design of the unit operations and processes - primary treatment of sewage that are used in sewage treatment	K3
			C314.3	perform basic design of the unit operations and processe- secondary treatment of sewage that are used in sewage treatment	K3
			C314.4	Understand the standard methods for disposal of sewage	K2
			C314.5	Gain knowledge on sludge treatment and disposal.	K2
6	**III / VI**	**CE8001 GROUND IMPROVEMENT TECHNIQUES**	C315.1	Gain knowledge on methods and selection of ground improvement techniques	K2
			C315.2	Understand dewatering techniques and design for simple cases.	K2

			C315.3	Get knowledge on insitu treatment of cohesionless and cohesive soils	K3
			C315.4	Understand the concept of earth renforcement and design of reinforced earth	K3
			C315.5	Get to know types of grouts and grouting technique.	K3
7	**III / VI**	**CE8611 HIGHWAY ENGINEERING LABORATORY**	C316.1	Identification of the techniques to characterize various pavement materials through relevant tests.	K4
			C316.2	Testing techniques and characteristics of aggregate and bituminous materials	K4
8	**III / VI**	**CE8612 IRRIGATION AND ENVIRONMENTAL DRAWING LAB**	C317.1	Design and draw various units of Municipal water treatment plants	K4
			C317.2	Design and draw various types of a dam structures.	K4
			C317.3	Design and draw various units of sewage treatment plants.	K4
9	**III / VI**	**HS8581 PROFESSIONAL COMMUNICATION**	C318.1	Summarize various skills such as Soft Skills, Hard skills, employability and career Skills and demonstrate values such as Time Management and general awareness of current affairs.	K2
			C318.2	Demonstrate oneself before the audience by making effective presentations on introducing oneself, answering questions and visual presenting.	K3
			C318.3	Demonstrate oneself by participating in group discussions, brainstorming sessions and question sessions. Develop activities to improve GD Skills	K6
			C318.4	Develop interview skills so as to be successful in them.	K6
			C318.5	Develop adequate Soft Skills required for the workplace and long-term career.	K6

PROGRAMME: **CIVIL ENGINEERING**	DEGREE: **UG**	A.Y: **2020-21**	SEMESTER: **07**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	IV / VII	CE8701 ESTIMATION , COSTING AND VALUATION ENGINEERING.	C401.1	Estimate the quantities for buildings,	K3
			C401.2	Rate Analysis for all Building works, canals, and Roads and Cost Estimate.	K3
			C401.3	Understand types of specifications, principles for report preparation, tender notices types.	K2
			C401.4	Gain knowledge on types of contracts	K2
			C401.5	Evaluate valuation for building and land.	K3
2	IV / VII	CE8702 RAILWAY AIRPORT, DOCKS AND HARBOUR ENGINEERING	C402.1	Understand the methods of route alignment and design elements in Railway Planning and Constructions.	K2
			C402.2	Understand the Construction techniques and Maintenance of Track laying and Railway stations.	K2
			C402.3	Gain an insight on the planning and site selection of Airport Planning and design.	K3
			C402.4	Analyze and design the elements for orientation of runways and passenger facility systems.	K3
			C402.5	Understand the various features in Harbours and Ports, their construction, coastal protection works and coastal Regulations to be adopted.	K2
3	IV / VII	CE8703 STRUCTURAL DESIGN AND DRAWING	C403.1	Design and draw reinforced concrete Cantilever and Counterfort Retaining Walls	K3
			C403.2	Design and draw flat slab as per code provisions	K3

			C403.3	Design and draw reinforced concrete and steel bridges	K3
			C403.4	Design and draw reinforced concrete and steel water tanks	K3
			C403.5	Design and detail the various steel trusses and cantry girders	K3
4	**IV / VII**	**EN8591 MUNICIPAL SOLID WASTE MANAGEMENT**	C404.1	Understanding of the nature and characteristics of municipal solid wastes and the regulatory requirements regarding municipal solid waste management.	K2
			C404.2	Reduction, reuse and recycling of waste.	K2
			C404.3	Plan and design systems for storage, collection, transport, processing and disposal of municipal solid waste.	K2
			C404.4	Gain knowledge on the issues on solid waste management from an integrated and holistic perspective, as well as in the local and international context.	K2
			C404.5	Design and operation of sanitary landfill.	K2
5	**IV / VII**	**OML751 TESTING OF MATERIALS (AY-2020-2021)**	C405.1	Understand the the standards and advantages of testing	K2
			C405.2	Understand the mechanical testing and the techniques.	K2
			C405.3	Understand and perform the non testructive testing methods.	K2
			C405.4	Understand the macro and micropic testing of materials	K2
			C405.5	Understand the chemical testing of materials	K2
6	**IV / VII**	**CE8711- CREATIVE AND INNOVATIVE PRTOJECT**	C406.1	Solve various design problems related to Civil Engineering while designing the structures.	K3
			C406.2	Solve various design problems related to industrial and residential structures	K3
			C406.3	Solve various design problems related to commercial structures.	K3

7	**IV / VII**	**CE8712 INDUSTRIAL TRAINING**	C407.1	Analyse any challenging practical problems related to civil engineering	K4
			C407.2	Solve the problem from its identification and through literature reviews	K4
			C407.3	Prepare project reports, presentations and to face interviews.	K3
			C407.4	Develop different solution by formulating proper methodology	K5

PROGRAMME: **CIVIL ENGINEERING**	DEGREE: **UG**	A.Y: **2020-21**	SEMESTER: **08**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	IV / VIII	CE8018 GEO-ENVIRONMENTAL ENGINEERING	C408.1	Assess the contamination in the soil	K3
			C408.2	Understand the current practice of waste disposal	K2
			C408.3	Prepare the suitable disposal system for particular waste.	K2
			C408.4	Stabilize the waste and utilization of solid waste for soil improvement.	K2
			C408.5	Select suitable remediation methods based on contamination	K3
2	IV / VIII	CE8020 MANINTENANCE, REPAIR AND REHABHILITATION OF STRUCTURES	C409.1	Understand the importance of maintenance and assessment method of distressed structures.	K2
			C409.2	Understand the strength and durability properties ,their effects due to climate and temperature.	K2
			C409.3	Understand recent development in concrete	K2
			C409.4	Understand the techniques for repair rand protection methods	K2
			C409.5	Understand repair, rehabilitation and retrofitting of structures and demolition methods	K2
3	IV / VIII	CE8811 PROJECT WORK	C410.1	Analyse any challenging practical problems related to civil engineering	K4
			C410.2	Solve the problem from its identification and through literature reviews	K4
			C410.3	Prepare project reports, presentations and to face interviews.	K3
			C410.4	Develop different solution by formulating proper methodology	K5

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
COURSE OUTCOME REGULATION 2017

PROGRAMME:**COMPUTER SCIENCE AND ENGINEERING**	DEGREE: **UG**	A.Y: **2017-18**	SEMESTER: **01**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	I / I	**HS8151 - COMMUNICATIVE ENGLISH**	C101.1	Communicate clearly both in the written form and orally using appropriate vocabulary and comprehend written texts to make inferences.	K2
			C101.2	Speak persuasively in different social contexts and write biographical details and technical documents cohesively, coherently and flawlessly using appropriate words.	K2
			C101.3	Speak, read and write effectively for a variety of professional and social settings.	K2
			C101.4	Read descriptive, narrative, expository and interpretive texts and write using creative, critical, analytical and evaluative methods.	K6
			C101.5	Listen, comprehend and respond to different spoken and written discourses/excerpts in different accents and write different genres of texts adopting various writing strategies.	K6
2	I / I	**MA8151 - ENGINEERING MATHEMATICS - I**	C102.1	Use both the limit definition and rules of differentiation to differentiate functions.	K3
			C102.2	Apply differentiation to solve maxima and minima problems	K3
			C102.3	Evaluate integrals both by using Riemann sums and by using the fundamental theorem of convergent improper integrals. Evaluate integrals using techniques of integration, such as substitution, partial Fractions, integration by parts and improper integrals.	K5

			C102.4	Apply integration to compute multiple integrals, area, volume, integrals in polar Coordinates, in addition to change of order and change of variables.	K3
			C102.5	Apply various techniques in solving differential equations.	K3
3	**I / I**	**PH8151 - ENGINEERING PHYSICS**	C103.1	Discuss the Young's modulus and Rigidity modulus of elasticity of materials and its determination through experimental methods.	K2
			C103.2	Describe the characteristics of laser light and their application in semiconductor laser.	K2
			C103.3	Discuss the principle behind the propagation of light through an optical fibre and its application in sensors.	K2
			C103.4	Summarize the different modes of heat transfer.	K2
			C103.5	Describe the unit cell characteristics and the growth of crystals	K2
4	**I / I**	**CY8151 - ENGINEERING CHEMISTRY**	C104.1	Summarize the water related problems in boilers and their treatment techniques.	K2
			C104.2	Discuss the applications of adsorption in the field of water and air pollution abatement.	K1
			C104.3	Discuss the types of catalysis and the mechanism of enzyme catalysis.	K2
			C104.4	Associate phase rule in the alloying and the behavior of one component and two component systems using phase diagram.	K2
			C104.5	Summarize the principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells.	K2
5	**I / I**	**GE8151- PROBLEM SOLVING AND PYTHON PROGRAMMING**	C105.1	Discuss the logical solutions through Flowcharts, Algorithms and Pseudo code	K2
			C105.2	Understand the syntax for python programming constructs.	K2
			C105.3	Compute the flow of the program to obtain the programmatic solution.	K2
			C105.4	Examine the programs with sub problems using 'Python' language	K3

			C105.5	Compute the compound data using Python lists, tuples, and dictionaries	K2
6	**I / I**	**GE8152- ENGINEERING GRAPHICS**	C106.1	Sketch the conic sections, special curves, and draw orthographic views from pictorial views and models.	K4
			C106.2	Apply the principles of orthographic projections of points in all quadrants, lines and planes in first quadrant.	K3
			C106.3	Sketch the projections of simple solids like prisms, pyramids, cylinder and cone and obtain the traces of plane figures.	K4
			C106.4	Practice the sectional views of solids like cube, prisms, pyramids, cylinders & cones and extend its lateral surfaces	K3
			C106.5	Sketch the perspective projection of simple solids, truncated prisms, pyramids, cone and cylinders and sketch the isometric projection of simple machine parts.	K4
7	**I / I**	**GE8161- PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY**	C107.1	Write, test, and debug simple Python programs	K1
			C107.2	Apply the concept of conditionals and loops in Python programs.	K3
			C107.3	Develop the Python programs step-wise by defining functions and calling them.	K4
			C107.4	Use Python lists, tuples, dictionaries for representing compound data.	K3
			C107.5	Read and write data from/to files in Python.	K2
8	**I / I**	**BS8161 - PHYSICS AND CHEMISTRY LABORATORY**	C108.1	Apply physics principles of optics and thermal physics to evaluate engineering properties of materials.	K3
			C108.2	Ability to test materials by using their knowledge of applied physics principles in optics and properties of matter.	K5
			C108.3	Perform the quantitative chemical analysis of chloride and dissolved oxygen.	K5
			C108.4	Determine the amount of acids by using the instruments of conductivity meter and pH meter.	K5
			C108.5	Determine the hardness, alkalinity and metal ion content in the water samples .	K5

PROGRAMME:**COMPUTER SCIENCE AND ENGINEERING**	DEGREE: **UG**	A.Y: **2017-18**	SEMESTER: **02**

S.No	Year / Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	I / II	HS8251 - TECHNICAL ENGLISH	C109.1	Read technical texts and write area specific texts effortlessly.	K2
			C109.2	Listen and comprehend lectures and talks in their areas of specialization and write effectively for a variety of professional and social settings	K2
			C109.3	Speak and write appropriately and effectively in varied formal and informal contexts.	K6
			C109.4	Write effectively and persuasively and produce different types of writing such as letters, minutes, reports and winning job applications.	K6
			C109.5	Communicate clearly using technical vocabulary in their professional correspondences	K2
2	I / II	MA8251 - ENGINEERING MATHEMATICS - II	C110.1	Calculate the Eigen values and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices	K3
			C110.2	Evaluate the line, surface and volume integrals using Gauss, Stokes and Green‘s theorems and their verification	K5
			C110.3	Determine Analytic functions, Conformal mapping and Bilinear transformation	K3
			C110.4	Evaluate the Cauchy’s integrals, Taylor’s and Laurent’s and residue theorem for evaluation for real integrals using circular and semicircular, contour	K5
			C110.5	Evaluate Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients.	K5
			C110.6	Discuss Laplace Transform methods to solve initial value problems for	K2

				constant coefficient linear ODEs.	
3	**I / II**	**PH8252 - PHYSICS FOR INFORMATION SCIENCE**	C111.1	Discuss about Weidman Franz law and the conduction in solids.	K2
			C111.2	Associate the concept of quantum electron theories with energy band structures.	K2
			C111.3	Discuss the carrier concentration in semiconducting materials.	K2
			C111.4	Understand the origin of magnetism and the properties of magnetic materials.	K2
			C111.5	Discuss the working of Opto-electronic devices.	K2
			C111.6	Summarize the basics of quantum structures and their applications in nano devices.	K2
4	**I / II**	**BE8255 - BASIC ELECTRICAL ELECTRONICS AND MEASUREMENT ENGINEERING**	C112.1	Illustrate the behavior of electric circuits using fundamental laws and techniques	K2
			C112.2	Understand the operation of DC, AC and Special machines	K2
			C112.3	Summarize different energy sources, protective devices and its applications	K2
			C112.4	Outline the characteristics and applications of semiconductor diodes.	K2
			C112.5	Summarize the characteristics and errors of the instruments	K2
			C112.6	Understand the working of different types of Analog Instruments and transducers	K2
5	**I / II**	**GE8291- ENVIRONMENTAL SCIENCE AND ENGINEERING**	C113.1	Summarize the values, threats, conservation of biodiversity and ecosystems.	K2
			C113.2	Discuss the sources, effects, control measures of different types of pollution, and solid waste management.	K1
			C113.3	Associate the effects of exploitation of Natural resources on environment	K3
			C113.4	Summarize the water conservation methods and various environmental acts for environmental sustainability	K2
			C113.5	Discuss scientific, technological,	K1

				economic and social solutions to environmental problems	
6	**I / II**	**CS8251 – PROGRAMMING IN C**	C114.1	Understand the syntax for C programming	K2
			C114.2	Associate the programs in 'C' for real world situation	K2
			C114.3	Apply the concepts of Arrays, Strings in 'C' language for user defined Problems.	K3
			C114.4	Apply the concept of functions and pointers.	K3
			C114.5	Associate the programs with structure using 'C' language.	K2
			C114.6	Discuss to read and write data from/to files in 'C' Programs.	K2
7	**I / II**	**GE8261 - ENGINEERING PRACTICES LABORATORY**	C115.1	Fabricate carpentry components and pipe connections including plumbing works.	K2
			C115.2	Use welding equipments to join the structures.	K2
			C115.3	Carry out the basic machining operations	K2
			C115.4	Make the models using sheet metal works	K4
			C115.5	Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings	K4
			C115.6	Carry out basic home electrical works and appliances	K2
8	**I / II**	**CS8261 – C PROGRAMMING LABORATORY**	C116.1	Develop C programs for simple applications making use of basic constructs	K4
			C116.2	Apply the concept of conditionals and loops in C programs.	K3
			C116.3	Develop the C programs with arrays and strings.	K4
			C116.4	Apply the concept of functions, recursion in C programs	K3
			C116.5	Analyze the concept of pointers, and structures in C	K4
			C116.6	Examine the use of sequential and random access file processing	K3

PROGRAMME: **COMPUTER SCIENCE AND ENGINEERING**	DEGREE: **UG**	A.Y: **2018-2019**	SEMESTER: **03**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	II / III	MA8351 – DISCRETE MATHEMATICS	C201.1	Summarize the concept of elementary mathematical logical arguments.	K2
			C201.2	Apply basic counting techniques to solve combinatorial problems.	K2
			C201.3	Associate the applications of Graph theory models and data structures.	K3
			C201.4	Describe the concepts and properties of algebraic structures such as groups, rings and fields.	K3
			C201.5	Extend the concepts of Boolean algebra in the area of lattices.	K3
			C201.6	Apply the knowledge of argumental discrete mathematical problems.	K2
2	II / III	CS8351 – DIGITAL PRINCIPLES AND SYSTEM DESIGN	C202.1	Apply the Boolean functions using K-Map	K3
			C202.2	Interpret Combinational circuits for a given functions using logic gates.	K3
			C202.3	Recognise Synchronous Sequential circuits for the given condition	K3
			C202.4	Recognise Asynchronous Sequential circuits for the given condition.	K3
			C202.5	Apply Programmable Logic towards memory management	K3
			C202.6	Solve codes for the design of digital circuits.	K2
3	II / III	CS8391 – DATA STRUCTURES	C203.1	Describe linear data structures using array and linked list.	K1
			C203.2	Apply data structures like stacks, queues in linear data structure.	K4

			C203.3	Discuss non-linear data structures tree and its application.	K6
			C203.4	Apply various algorithms in graph.	K2
			C203.5	Solve searching, sorting and hashing techniques in data structures.	K3
			C203.6	Interpret sorting algorithms for a given problem.	K2
4	**II / III**	**CS8392 – OBJECT ORIENTED PROGRAMMING**	C204.1	Develop Java programs using OOP principles	K3
			C204.2	Develop Java programs with the concepts inheritance and interfaces	K3
			C204.3	Build Java applications using exceptions and I/O streams	K2
			C204.4	Relate Java applications with threads and generics classes	K6
			C204.5	Develop interactive Java programs using swings	K3
			C204.6	Demonstrate simple Graphical User Interfaces	K6
5	**II / III**	**EC8395 COMMUNICATION ENGINEERING**	C205.1	Describe the concepts of analog modulation systems.	K2
			C205.2	Illustrate pulse communication techniques	K2
			C205.3	Summarize the concepts of digital modulation systems.	K2
			C205.4	Implement the source coding techniques.	K2
			C205.5	Understand the basic principles in the generation of spread spectrum signals.	K2
			C205.6	Understand the methods of multiple access in communication systems.	K2
6	**II / III**	**CS8381 – DATA STRUCTURES LABORATORY**	C206.1	Enumerate functions to implement linear and non-linear data structure operations	K2
			C206.2	Design and develop appropriate linear / non-linear data structure operations for solving a given problem	K3

			C206.3	Apply the linear / non-linear data structure operations for a given problem based on the user needs	K3
			C206.4	Design new solutions for programming problems or improve existing code using learned algorithms and data structures	K3
			C206.5	Apply appropriate hash functions that result in a collision free scenario for data storage and retrieval	K3
7	**II / III**	**CS8383 - OBJECT ORIENTED PROGRAMMING LABORATORY**	C207.1	Develop and implement Java programs for simple applications that make use of classes	K3
			C207.2	Develop and implement Java programs with array list	K3
			C207.3	Design applications using file processing	K3
			C207.4	Build software development skills using java programming for real-world applications	K3
			C207.5	Apply the concepts of classes, packages, interfaces, exception handling	K3
			C207.6	Develop applications using generic programming and event handling	K3
8	**I / II**	**CS8382 – DIGITAL SYSTEMS LABORATORY**	C208.1	Interpret Combinational circuits Using Logic gates.	K3
			C208.2	Illustrate Combinational circuits Using MSI Devices.	K3
			C208.3	Practice various counters using Flip-flops.	K3
			C208.4	Practice shift registers using Flip-flops	K3
			C208.5	Solve codes for the design of digital circuits.	K3
			C208.6	Demonstrate simple digital system	K3
9	**I / II**	**HS8381 - INTERPERSONAL SKILLS/LISTENING &SPEAKING**	C209.1	Speak effectively on various academic topics and respond to questions.	K2
			C209.2	Converse effectively with the use of conversation starters and discourse markers.	K6

			C209.3	Listen and respond to various academic dialogues and discussions	K2
			C209.4	Participate confidently and appropriately in informal and formal conversations and group discussions.	K6
			C209.5	Use a range of presentation tools like PPT, Videos, and Charts etc. to make an engaging presentation.	K6

PROGRAMME: **COMPUTER SCIENCE AND ENGINEERING**	DEGREE: **UG**	A.Y: **2018-2019**	SEMESTER: **04**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	II / IV	**MA8402 – PROBABILITY AND QUEUEING THEORY**	C210.1	Identify the functions of discrete and continuous random variables, moments and moment generating function	K2
			C210.2	Solve problems in marginal conditional distribution, using the concepts of correlation, regressions and transformation of two dimensional random variables.	K2
			C210.3	Determine the process is either SSS or WSS, find the TPM of Markov chain and its classifications.	K2
			C210.4	Analyze the concepts of queuing models	K2
			C210.5	Apply non Markovian queues to open and closed networks.	K2
2	II / IV	**CS8491 – COMPUTER ARCHITECTURE**	C211.1	Describe the basic structures of a computer system.	K2
			C211.2	Understand the various arithmetic operations for computers.	K2
			C211.3	Analyze pipelined control units and the different types of hazards in the Instructions.	K3
			C211.4	Interpret the concepts of parallel processing architecture	K2
			C211.5	Summarize the fundamentals of memory system.	K2
			C211.6	Describe the concepts of I/O system	K2
3	II / IV	**CS8492 – DATABASE MANAGEMENT SYSTEMS**	C212.1	Discuss the fundamental concepts of relational database and SQL	K2
			C212.2	Use ER model for Relational model mapping to perform database design effectively	K3
			C212.3	Summarize the properties of transactions and concurrency control mechanisms	K2
			C212.4	Outline the various storage and optimization techniques	K2

			C212.5	Compare and contrast various indexing strategies in different database systems	K2
			C212.6	Understand the different advanced databases	K2
4	**II / IV**	**CS8451 – DESIGN AND ANALYSIS OF ALGORITHMS**	C213.1	Discuss the fundamental concepts problem solving algorithm, its types and the parameters to analyze those algorithms	K2
			C213.2	Understand the Brute Force method and Divide and Conquer method to solve computing problems.	K2
			C213.3	Understand the dynamic programming and greedy techniques to solve computing problems	K2
			C213.4	Describe how scientific problems can be solved using iterative method and how to cope with limitations of algorithm power	K2
			C213.5	Critically analyze the different algorithm design techniques for a given problem based on its time and space complexity.	K3
			C213.6	Modify existing algorithms to improve efficiency	K3
5	**II / IV**	**CS8493 – OPERATING SYSTEMS**	C214.1	Understand the overall view of the computer system and operating system	K2
			C214.2	Identify various scheduling algorithm and deadlock prevention and avoidance algorithm	K2
			C214.3	Compare and contrast various memory management schemes and file system functionalities	K2
			C214.4	Discuss the performance of the various page replacement algorithms and interpret the file system implementation, sharing and protection mechanisms.	K2
			C214.5	Demonstrate administrative tasks on Linux servers and to be familiar with the basics of Mobile OS.	K3
			C214.6	Make use of various algorithms to solve computing problems	K3
6	**II / IV**	**CS8494 - SOFTWARE ENGINEERING**	C215.1	Identify the key activities in managing a software project and recognize different process model	K2

			C215.2	Understand the concepts of requirements engineering and Analysis Modeling	K2
			C215.3	Outline the systematic procedures for software design and deployment	K2
			C215.4	Compare various testing and maintenance methods	K2
			C215.5	Interpret the project schedule, estimate project cost and effort required.	K2
			C215.6	Develop a software using the software engineering principles	K3
7	**II / IV**	**CS8481 - DATABASE MANAGEMENT SYSTEMS LABORATORY**	C216.1	Use typical data definitions and manipulation commands.	K3
			C216.2	Design applications to test Nested and Join Queries	K3
			C216.3	Implement simple applications that use Views	K3
			C216.4	Make use of ER modeling and normalization to design and implement database	K3
			C216.5	Implement applications that require a Front-end Too	K3
			C216.6	Critically analyze the use of Tables, Views, Functions and Procedures	K4
8	**II / IV**	**CS8461 – OPERATING SYSTEMS LABORATORY**	C217.1	Illustrate the various CPU scheduling algorithms.	K3
			C217.2	Implement deadlock avoidance and detection algorithms.	K3
			C217.3	Implement semaphore concepts.	K3
			C217.4	Create processes and implement IPC.	K3
			C217.5	Analyze the performance of the various page replacement algorithms.	K3
			C217.6	Implement file organization and file allocation strategies.	K3
9	**II / IV**	**HS8461 ADVANCED READING AND WRITING LAB**	C218.1	Strengthen the reading skills	K2
			C218.2	Enhance the technical writing skills	K3
			C218.3	Develop proposal writing skills	K6
			C218.4	Write winning job applications.	K2

PROGRAMME:**COMPUTER SCIENCE AND ENGINEERING**	DEGREE: **UG**	A.Y: **2019-2020**	SEMESTER: **05**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	III / V	**MA8551 – Algebra And Number Theory**	C301.1	Summarize the notations and properties of algebraic structures such as groups, rings and fields	K2
			C301.2	Understand the concepts of finite fields and polynomials to solve problems in advanced algebra.	K2
			C301.3	Associate the applications of divisibility theory and canonical decompositions.	K2
			C301.4	Describe the concept of Diophantine equations and congruences and exhibit the efficient use of advanced algebraic techniques in number theory	K2
			C301.5	Extend the concepts of multiplicative functions and classical theorems.	K2
			C301.6	Associate the knowledge of integrated approach to Number theory and abstract algebra.	K2
2	III / V	**CS8591 – COMPUTER NETWORKS**	C302.1	Identify various layers of network and discuss the functions of physical layer	K2
			C302.2	Discuss how data flows from one node to another node with regard to data link layer	K2
			C302.3	Understand the different services of network layer	K2
			C302.4	Compare the different transport layer protocols and their applicability based on user requirements	K3
			C302.5	Describe the working of various application layer protocols	K2

			C302.6	Evaluate the performance of network and analyze routing algorithms	K3
3	**III / V**	**EC8691 – MICROPROCESSORS AND MICROCONTROLLERS**	C303.1	Understand the architecture and instruction set of Microprocessor	K2
			C303.2	Discuss about System Bus Structure for Multiprocessor Configuration	K2
			C303.3	Infer the functions of various interfacing integrated chips	K2
			C303.4	Understand the architectures and instruction set of Microcontroller	K2
			C303.5	Illustrate the functions of various interfacing devices with Microcontroller	K2
			C303.6	Build an assembly language program for interfacing	K3
4	**III / V**	**CS8501 – THEORY OF COMPUTATION**	C304.1	Define the mathematical principles and design automata for any given pattern.	K3
			C304.2	Specify the regular expression of string pattern.	K2
			C304.3	Understand the concepts of context free grammar of any language.	K2
			C304.4	Design and propose computational solutions for Turing machine.	K4
			C304.5	Identify decidable and Undecidable problems.	K1
			C304.6	Correlate the different types of automata to real world applications	K5
5	**II / IV**	**CS8592 OBJECT ORIENTED ANALYSIS AND DESIGN**	C305.1	Express the software design concepts with UML diagram.	K2
			C305.2	Construct the domain model and design model to various use case scenarios.	K3
			C305.3	Identify various scenarios based on software requirements	K3

			C305.4	Design software applications using object oriented concepts.	K2
			C305.5	Transform UML based software design into pattern based design using design patterns.	K3
			C305.6	Understand the various testing methodologies for object oriented software	K2
6	**III / V**	**OMD551 – BASIC OF BIOMEDICAL INSTRUMENTATION**	C306.1	Learn the different bio potential and its propagation	K2
			C306.2	Get Familiarize the different electrode placement for various physiological recording	K2
			C306.3	Design bio amplifier for various physiological recording	K2
			C306.4	Understand various technique non electrical physiogical measurements	K2
			C306.5	Understand the different biochemical measurements	K2
7	**III / V**	**EC8681 - MICROPROCESSORS AND MICROCONTROLLERS LABORATORY**	C307.1	Interpret the architecture and operation of microprocessor (8086).	K2
			C307.2	Implement simple assembly language programs using instruction sets of microprocessor and microcontroller.	K3
			C307.3	Compare instruction sets of 8086 microprocessor and 8051 microcontroller.	K3
			C307.4	Implement assembly language programs using instruction sets of microcontroller.	K3
			C307.5	Develop applications using instructions of microprocessors and microcontroller.	K3
			C307.6	Interpret the architecture and operation of microcontroller(8051)	K2

8	**III / V**	**CS8582 OBJECT ORIENTED ANALYSIS AND DESIGNLABORATORY**	C308.1	Make use of object oriented and design concepts to solve a given problem specifications	K3
			C308.2	Identify and map basic software requirements in UML mapping.	K2
			C308.3	Apply design patterns to improve the software quality	K3
			C308.4	Test the compliance of the software with SRS	K3
			C308.5	Map the object oriented design to the developed code	K3
			C308.6	Apply object oriented design to develop a software	K3
9	**III / V**	**CS8581 - NETWORKS LABORATORY**	C309.1	Implement various protocols using TCP and UDP	K3
			C309.2	Compare the performance of different transport layer protocols	K3
			C309.3	Use simulation tools to analyze the performance of various network protocols	K3
			C309.4	Analyze various routing algorithms	K3
			C309.5	Implement error correction codes	K3
			C309.6	Understand Network simulator (NS) and Simulate Congestion Control Algorithms using NS	K3

PROGRAMME:**COMPUTER SCIENCE AND ENGINEERING**	DEGREE: **UG**	A.Y: **2019-20**	SEMESTER: **06**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	III / VI	**CS8651 – INTERNET PROGRAMMING**	C310.1	Demonstrate simple website using HTML and CSS.	K2
			C310.2	Build dynamic web pages with validation using Java Script objects and apply different event handling mechanisms.	K3
			C310.3	Illustrate server side programs using Servlet and JSP.	K2
			C310.4	Demonstrate simple web pages in PHP and to represent data in XML format.	K2
			C310.5	Illustrate AJAX and web services to develop interactive web applications.	K2
			C310.6	Develop interactive web applications for real world problems.	K3
2	III / VI	**CS8691 – ARTIFICIAL INTELLIGENCE**	C311.1	List the characteristics and types of intelligent agents	K2
			C311.2	Interpret search algorithms for any AI problem	K2
			C311.3	Illustrate a problem using first order and predicate logic	K2
			C311.4	Understand the appropriate agent strategy to solve a given problem	K2
			C311.5	Develop software agents to solve a problem	K2
			C311.6	Demonstrate applications for NLP that use Artificial Intelligence	K2
3	III / VI	**CS8601 – MOBILE COMPUTING**	C312.1	Understand the basic concepts of mobile computing	K2
			C312.2	Understand the basics of mobile telecommunication systems	K2
			C312.3	Illustrate the generations of telecommunication systems in wireless networks	K2
			C312.4	Demonstrate the functionality of MAC, network layer and Identify a routing protocol for a given Ad hoc network	K2

			C312.5	Understand the functionality of Transport and Application layers	K2
			C312.6	Develop a mobile application using android/blackberry/ios/Windows SDK	K3
4	**III / VI**	**CS8602 – COMPILER DESIGN**	C313.1	Illustrate a lexical analyzer for a sample language.	K2
			C313.2	Understand different parsing algorithms to develop the parsers for a given grammar.	K2
			C313.3	Understand syntax-directed translation and run-time environment.	K2
			C313.4	Understand intermediate code generation and run-time environment	K2
			C313.5	Apply code optimization techniques for programming construct	K3
			C313.6	Develop a scanner and a parser using LEX and YACC tools	K3
5	**III / VI**	**CS8603 – DISTRIBUTED SYSTEMS**	C314.1	Elucidate the foundations and issues of distributed systems	K2
			C314.2	Understand the various synchronization issues and global state for distributed systems.	K2
			C314.3	Comprehend the Mutual Exclusion and Deadlock detection algorithms in distributed systems	K2
			C314.4	Show the use of agreement protocols and fault tolerance mechanisms in distributed systems.	K2
			C314.5	Relate the features of peer-to-peer and distributed shared memory systems	K2
			C314.6	Interpret the real-time distributed system applications	K2
6	**III / VI**	**IT8076 - SOFTWARE TESTING**	C315.1	Demonstrate knowledge of the fundamentals of software testing and competence in using software designed to assist in the software testing life cycle for given portions of the testing cycle.	K2
			C315.2	Evaluate the limitations of a given testing process.	K3
			C315.3	Analyze the design of test cases for different testing techniques.	K3
			C315.4	Create test strategies and plans, design test cases, prioritize and execute them.	K6

			C315.5	Apply a wide variety of software testing activities in an effective and efficient manner.	K3
			C315.6	Understand the significance of software testing in web and Object orient techniques.	K2
7	III / VI	CS8661 – INTERNET PROGRAMMING LABORATORY	C316.1	Construct web pages using HTML/XML and style sheets.	K3
			C316.2	Build dynamic web pages with validation using javascript objects and apply different event handling mechanisms.	K3
			C316.3	Develop dynamic web pages using server side scripting.	K3
			C316.4	Use PHP programming to develop web applications.	K3
			C316.5	Construct web applications using AJAX and web services.	K3
			C316.6	Develop interactive web applications for real world problems	K3
8	III / VI	CS8662 – MOBILE APPLICATION DEVELOPMENT LABORATORY	C317.1	Illustrate mobile applications using GUI and Layouts.	K3
			C317.2	Demonstrate mobile applications using Event Listener.	K3
			C317.3	Experiment with mobile applications using Databases.	K3
			C317.4	Make use of mobile applications using RSS Feed, Internal/External Storage, SMS, Multithreading and GPS.	K3
			C317.5	Build own mobile app for simple needs.	K3
			C317.6	Model various mobile applications using different application development frameworks.	K3
9	III / VI	CS8611 – MINI PROJECT	C318.1	Choose problems with technical importance and societal contribution	K3
			C318.2	Identify and survey the relevant literature for getting exposed to related solutions.	K3
			C318.3	Build project plans with feasible requirements	K3

			C318.4	Analyse, design and develop adaptable and reusable solutions	K4
			C318.5	Implement and test solutions to trace against the user requirements	K4
			C318.6	Deploy the solutions for better manageability and provide scope for improvability	K4
10	**III / VI**	**HS8581 PROFESSIONAL COMMUNICATION**	C319.1	Summarize various skills such as Soft Skills, Hard skills, employability and career Skills and demonstrate values such as Time Management and general awareness of current affairs.	K2
			C319.2	Demonstrate oneself before the audience by making effective presentations on introducing oneself, answering questions and visual presenting.	K3
			C319.3	Demonstrate oneself by participating in group discussions, brainstorming sessions and question sessions. Develop activities to improve GD Skills	K6
			C319.4	Develop interview skills so as to be successful in them.	K6
			C319.5	Develop adequate Soft Skills required for the workplace and long-term career.	K6

PROGRAMME:**COMPUTER SCIENCE AND ENGINEERING**	DEGREE: **UG**	A.Y: **2020-21**	SEMESTER: **07**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	IV / VII	MG8591 – PRINCIPLES OF MANAGEMENT	C401.1	Discuss the evolution of management thoughts and the challenges of managerial activities in a global business environment.	K2
			C401.2	Understand the types of Planning and Decision making methodologies in Organizations	K2
			C401.3	Summarize various types of Organization structure and associated Human Resources activities for man-power utilization.	K2
			C401.4	Understand about motivation theories, behavior, leadership theories and communication for effective directing.	K2
			C401.5	Understand various Controlling techniques to maintain standards in Organizations.	K2
			C401.6	Associate managerial functions and knowledge on international aspect for Organizational growth	K2
2	IV / VII	CS8792 – CRYPTOGRAPHY AND NETWORK SECURITY	C402.1	Describe the fundamentals of networks security, security architecture, threats and vulnerabilities	K2
			C402.2	Discuss the mathematical support for both symmetric and asymmetric key cryptography	K2
			C402.3	Make use of symmetric key cryptographic algorithms to perform cryptographic operations	K3
			C402.4	Solve cryptographic operations using public key cryptographic algorithms	K3
			C402.5	Apply the various Authentication schemes to simulate different applications.	K3
			C402.6	Understand various Security practices and System security standards	K2
3	IV / VII	CS8791 – CLOUD COMPUTING	C403.1	Articulate the main concepts, key technologies, strengths and limitations of cloud computing	K2

			C403.2	Understand the key and enabling technologies that help in the development of cloud.	K2
			C403.3	Make use of NIST cloud computing architecture to solve architecture design challenges	K3
			C403.4	Understand the core issues of cloud computing such as resource management and security.	K2
			C403.5	Install and use current cloud technologies.	K3
			C403.6	Illustrate and choose the appropriate technologies, algorithms and approaches for implementation and use of cloud.	K3
4	**IV / VII**	**OIE751 - ROBOTICS**	C404.1	Understand the functions of the basic components of a Robot.	K2
			C404.2	Use of various types of End of Effectors and Sensors	K2
			C404.3	Impart knowledge in Robot Kinematics and Programming	K2
			C404.4	Learn Robot safety issues and economics.	K2
			C404.5	Apply the basic engineering knowledge for the design of robotics	K3
5	**IV / VII**	**GE8077 – TOTAL QUALITY MANAGEMENT**	C405.1	Outline the Dimensions and Barriers regarding with Quality.	K2
			C405.2	Illustrate the TQM Principles.	K2
			C405.3	Demonstrate Tools utilization for Quality improvement	K2
			C405.4	Understand the various types of Techniques are used to measure Quality.	K2
			C405.5	Apply various Quality Systems and Auditing on implementation of TQM.	K3
			C405.6	Apply the tools and techniques of quality management to manufacturing and services processes	K3
6	**IV / VII**	**CS8079 – HUMAN COMPUTER INTERACTION**	C406.1	Learn the foundations of Human Computer Interaction.	K2
			C406.2	Design effective dialog for HCI.	K3
			C406.3	Design effective HCI for individuals and persons with disabilities.	K3
			C406.4	Assess the importance of user feedback.	K3

			C406.5	Understand the HCI implications for designing multimedia / ecommerce / e-learning Web Sites	K2
			C406.6	Develop meaningful user interface.	K3
7	**IV / VII**	**CS8711 – CLOUD COMPUTING LABORATORY**	C407.1	Configure various virtualization tools such as Virtual Box, VMware workstation.	K2
			C407.2	Design and deploy a web application in a PaaS environment link layer	K2
			C407.3	Learn how to simulate a cloud environment to implement new schedulers	K2
			C407.4	Demonstrate generic cloud environment that can be used as a private cloud	K2
			C407.5	Manipulate large data sets in a parallel environment.	K3
			C407.6	Apply Hadoop single node cluster and run simple applications	K2
8	**IV / VII**	**IT8761 - SECURITY LABORATORY**	C408.1	Develop code for classical Encryption Techniques to solve the problems.	K3
			C408.2	Build cryptosystems by applying symmetric and public key encryption algorithms.	K3
			C408.3	Construct code for authentication algorithms	K3
			C408.4	Develop a signature scheme using Digital signature standard.	K2
			C408.5	Demonstrate the network security system using open source tools	K3
			C408.6	Develop code for classical Encryption Techniques to solve the problems.	K3

PROGRAMME:**COMPUTER SCIENCE AND ENGINEERING**	DEGREE: **UG**	A.Y: **2020-21**	SEMESTER: **08**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	IV / VIII	GE8076 - PROFESSIONAL ETHICS IN ENGINEERING	C409.1	Describe the human values with regard to the individual life style for the society	K2
			C409.2	Explain the role of ethics to the engineering field	K2
			C409.3	Describe how engineering is applied in association with ethics based on engineering experimentation	K2
			C409.4	Explain the engineering ethics based safety, responsibilities and rights	K2
			C409.5	Discuss the global issues of professional ethics in engineering	K2
			C409.6	Experiment the professional ethics in engineering based product development	K3
2	IV / VIII	CS8080 - INFORMATION RETRIEVAL TECHNIQUES	C410.1	Interpret open source search engine framework and explore its capabilities	K2
			C410.2	Apply appropriate method of classification or clustering	K3
			C410.3	Design and implement innovative features in a search engine	K3
			C410.4	Design and implement a recommender system	K3
			C410.5	Demonstrate an open source search engine framework and explore its capabilities	K2
			C410.6	Demonstrate the entire process flow of a search engine	K2
3	IV / VIII	CS8811 - PROJECT WORK	C411.1	Identify technically and economically feasible problems of social relevance	K3
			C411.2	Plan and build the project team with assigned responsibilities	K5
			C411.3	Identify and survey the relevant literature for getting exposed to related solutions	K4
			C411.4	Analyse, design and develop adaptable and reusable solutions of minimal complexity by using modern tools	K6
			C411.5	Implement and test solutions to trace against the user requirements	K4

			C411.6	Deploy and support the solutions for better manageability of the solutions and provide scope for improvability	K5

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
COURSE OUT COME REGULATION 2017

PROGRAMME: **ELECTRONICS AND COMMUNICATION ENGG**	DEGREE: **UG**	A.Y: **2017-2018**	SEMESTER: **01**

S.No	Year/ Sem	Course Name	Course Outcomes (The students will be able to understand the)		Knowledge Level
1.	I/I	HS8151 - Communicative English	C101.1	Communicate clearly both in the written form and orally using appropriate vocabulary and comprehend written texts to make inferences.	K2
			C101.2	Speak persuasively in different social contexts and write biographical details and technical documents cohesively, coherently and flawlessly using appropriate words.	K2
			C101.3	Speak, read and write effectively for a variety of professional and social settings.	K2
			C101.4	Read descriptive, narrative, expository and interpretive texts and write using creative, critical, analytical and evaluative methods.	K6
			C101.5	Listen, comprehend and respond to different spoken and written discourses/excerpts in different accents and write different genres of texts adopting various writing strategies.	K6
2.	I/I	MA8151 - Engineering Mathematics - I	C102.1	Use both the limit definition and rules of differentiation to differentiate functions.	K3
			C102.2	Apply differentiation to solve maxima and minima problems	K3
			C102.3	Evaluate integrals both by using Reimann sums and by using the fundamental theorem of convergent improper integrals. Evaluate integrals using techniques of integration, such as substitution, partial Fractions, integration by parts and improper integrals.	K5
			C102.4	Apply integration to compute multiple integrals, area, volume, integrals in polar Coordinates, in addition to change of order and change of variables.	K3
			C102.5	Apply various techniques in solving differential	K3

				equations.	
3.	**I/I**	**PH8151 - Engineering Physics**	C103.1	Discuss the Young's modulus and Rigidity modulus of elasticity of materials and its determination through experimental methods .	K2
			C103.2	Describe the characteristics of laser light and their application in semiconductor laser .	K2
			C103.3	Discuss the principle behind the propagation of light through an optical fibre and its application in sensors.	K2
			C103.4	Summarize the different modes of heat transfer.	K2
			C103.5	Describe the unit cell characteristics and the growth of crystals	K2
4.	**I/I**	**CY8151 - Engineering Chemistry**	C104.1	Summarize the water related problems in boilers and their treatment techniques.	K2
			C104.2	Discuss the applications of adsorption in the field of water and air pollution abatement.	K1
			C104.3	Discuss the types of catalysis and the mechanism of enzyme catalysis.	K2
			C104.4	Associate phase rule in the alloying and the behaviour of one component and two component systems using phase diagram.	K2
			C104.5	Summarize the principles and generation of energy in batteries ,nuclear reactors, solar cells, wind mills and fuel cells.	K2
5.	**I/I**	**GE8151- Problem Solving and Python**	C105.1	Discuss the logical solutions through Flowcharts, Algorithms and Pseudo code	K2
			C105.2	Understand the syntax for python programming constructs.	K2
			C105.3	Compute the flow of the program to obtain the programmatic solution.	K2
			C105.4	Examine the programs with sub problems using 'Python' language	K3
			C105.5	Compute the compound data using Python lists, tuples, and dictionaries	K2
6.	**I/I**	**GE8152- Engineering Graphics**	C106.1	Sketch the conic sections, special curves, and draw orthographic views from pictorial views and models.	K4

			C106.2	Apply the principles of orthographic projections of points in all quadrants, lines and planes in first quadrant.	K3
			C106.3	Sketch the projections of simple solids like prisms, pyramids, cylinder and cone and obtain the traces of plane figures.	K4
			C106.4	Practice the sectional views of solids like cube, prisms, pyramids, cylinders & cones and extend its lateral surfaces	K3
			C106.5	Sketch the perspective projection of simple solids, truncated prisms, pyramids, cone and cylinders and sketch the isometric projection of simple machine parts.	K4
7.	**I/I**	**GE8161-Problem Solving and Python Laboratory**	C107.1	Write, test, and debug simple Python programs	K1
			C107.2	Apply the concept of conditionals and loops in Python programs.	K3
			C107.3	Develop the Python programs step-wise by defining functions and calling them.	K4
			C107.4	Use Python lists, tuples, dictionaries for representing compound data.	K3
			C107.5	Read and write data from/to files in Python.	K2
8.	**I/I**	**Physics and Chemistry Laboratory**	C108.1	Apply physics principles of optics and thermal physics to evaluate engineering properties of materials.	K3
			C108.2	Ability to test materials by using their knowledge of applied physics principles in optics and properties of matter.	K5
			C108.3	Perform the quantitative chemical analysis of chloride and dissolved oxygen.	K5
			C108.4	Determine the amount of acids by using the instruments of conductivity meter and pH meter.	K5
			C108.5	Determine the hardness, alkalinity and metal ion content in the water samples by volumetric titration.	K5

PROGRAMME: **ELECTRONICS AND COMMUNICATION ENGG**	DEGREE: **UG**	A.Y: **2017-2018**	SEMESTER: **02**

S.No	Year/ Sem	Course Name	Course Outcomes (The students will be able to understand the)		Knowledge Level
9.	**I/II**	**HS8251 - Technical English**	C109.1	Read technical texts and write area specific texts effortlessly.	K2
			C109.2	Listen and comprehend lectures and talks in their areas of specialization and write effectively for a variety of professional and social settings	K2
			C109.3	Speak and write appropriately and effectively in varied formal and informal contexts.	K6
			C109.4	Write effectively and persuasively and produce different types of writing such as letters, minutes, reports and winning job applications.	K6
			C109.5	Communicate clearly using technical vocabulary in their professional correspondences	K2
10.	**I/II**	**MA8251 - Engineering Mathematics - II**	C110.1	Calculate the Eigen values and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices	K3
			C110.2	Evaluate the line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification	K5
			C110.3	Determine Analytic functions, Conformal mapping and Bilinear transformation	K3
			C110.4	Evaluate the Cauchy's integrals, Taylor's and Laurent's and residue theorem for evaluation for real integrals using circular and semicircular, contour	K5
			C110.5	Evaluate Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients.	K5

			C110.6	Discuss Laplace Transform methods to solve initial value problems for constant coefficient linear ODEs.	K2
11.	**I/II**	**PH8253 - Physics for Electronics Engineering**	C111.1	Gain knowledge on classical and quantum electron theories and energy band structures.	K2
			C111.2	Acquire knowledge on basis of semiconductor physics and its applications in various devices.	K2
			C111.3	Get knowledge on magnetic and dielectric properties of materials.	K2
			C111.4	Have the necessary understanding on the functioning of optical materials for opto electronics.	K2
			C111.5	Understand the basics of quantum structures and their applications in spintronics	K2
12.	**I/II**	**BE8254 - Basic Electrical and Instrumentation Engineering**	C112.1	Predict the behavior of any electrical and magnetic circuits.	K3
			C112.2	Formulate and solve complex AC, Dc circuits	K4
			C112.3	Identify the type of electrical machine used for that particular application.	K3
			C112.4	Realize the requirement of transformers in transmission and distribution of electric power and other applications.	K5
			C112.5	Function on multi-disciplinary teams.	K2
13.	**I/II**	**EC8251- Circuit Analysis**	C113.1	To analyze electrical circuits	K4
			C113.2	Apply the Circuit theorems in real time	K3
			C113.3	To analyze resonance and coupled circuits	K4
			C113.4	To analyze the transient circuits	K4
			C113.5	To analyze the two port networks	K4
14.	**I/II**	**EC8252 - Electronic Devices**	C114.1	Describe the theory, construction and operations of semiconductor diodes.	K2
			C114.2	Explain the operation and characteristics of bipolar junction devices	K3
			C114.3	Explain field effect transistor characteristics and their operations..	K1
			C114.4	Illustrate working of various types of special semiconductor devices	K2
			C114.5	Explain the construction, operation and	K6

				applications of power and display devices	
15.	**I/II**	**EC8261 - Circuits and Devices Laboratory**	C115.1	Describe the characteristics of basic electronic devices	K2
			C115.2	Demonstrate the RL and RC circuits	K2
			C115.3	Demonstrate the Thevinin & Norton theorem	K2
			C115.4	Test for KVL & KCL, and Super Position Theorems	K4
			C115.5	Test for maximum power transfer & reciprocity theorems	K4
16.	**I/II**	**GE8261 - Engineering Practices Laboratory**	C116.1	Fabricate carpentry components and pipe connections including plumbing works.	K2
			C116.2	Use welding equipments to join the structures.	K2
			C116.3	Carry out the basic machining operations	K2
			C116.4	Make the models using sheet metal works	K4
			C116.5	Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings	K4
			C116.6	Carry out basic home electrical works and appliances	K2

PROGRAMME: **ELECTRONICS AND COMMUNICATION ENGG**	DEGREE: **UG**	A.Y: **2018-2019**	SEMESTER: **03**

S.No	Year/ Sem	Course Name	Course Outcomes (The students will be able to understand the)		Knowledge Level
1.	II/III	MA8352 - Linear Algebra and Partial Differential Equations	C201.1	Compute basic objects associated with vector areas and linear transformation.	K2
			C201.2	Concepts on Eigen values and Eigenvectors of a matrix.	K2
			C201.3	Understand the Concepts of inner product spaces	K2
			C201.4	The essential principles of partial differential equations and the various answer processes for solving the First order non-linear partial differential equations.	K2
			C201.5	Analytical methods for solving better order partial differential equations and the application of Fourier series for solving the initial and boundary value issues in a one dimensional wave and heat equations and boundary price problems in elliptic equations	K2
2.	II/III	EC8393 - Fundamentals of Data Structures In C	C202.1	Develop the programs in C using basic constructs.	K4
			C202.2	Develop the programs in C using function, pointers, structures and unions.	K4
			C202.3	Suggest and Implement appropriate linear data structure operations for any given data set in C.	K6
			C202.4	Suggest and Implement appropriate non-linear data structure operations for a given application in C.	K6
			C202.5	Appropriately choose the sorting algorithms and also apply hashing concepts for a given problem.	K5
3.	II/III	EC8351 -	C203.1	Explain various methods of transistor biasing.	K1

		Electronic Circuits- I	C203.2	Design of single stage and multistage BJT amplifiers	K5
			C203.3	Analyze the single stage FET, MOSFET amplifiers	K4
			C203.4	Discuss the frequency of amplifiers	K2
			C203.5	Design and testing of power supplies	K5
4.	**II/III**	**EC8352 - Signals and Systems**	C204.1	Make use of the properties of signals & systems	K3
			C204.2	Apply Laplace transform, Fourier transform, Z transform and DTFT in signal analysis	K3
			C204.3	Build the continuous time LTI systems using Fourier and Laplace Transforms	K3
			C204.4	Build discrete time LTI systems using Z transform and DTFT	K3
			C204.5	Apply the transforms in designing the systems	K3
5.	**II/III**	**EC8392- Digital Electronics**	C205.1	Concept of Boolean algebra and Boolean minization using K-Map and Tabulation Method	K2
			C205.2	Compose the digital combinational circuits	K6
			C205.3	Design of synchronous sequential circuits	K6
			C205.4	Design of asynchronous sequential circuits	K6
			C205.5	Illustrate the classifications of memories and programmable logic devices	K2
6.	**II/III**	**EC8391 - Control Systems Engineering**	C206.1	Categorize the various control systems by using various techniques.	K2
			C206.2	Attain the time response and steady state error of control systems.	K5
			C206.3	Study the various frequency response plots and its system.	K2
			C206.4	Apply the concepts of various system stability criterions.	K3
			C206.5	Analyse and obtain state space models using state variables.	K4
7.	**II/III**	**EC8381- Fundamentals of Data**	C207.1	Develop C programs for simple applications making use of basic constructs.	K4
			C207.2	Apply basic data structures for a given problem	K3

		Structures in C Laboratory		using C.	
			C207.3	Implement linear and non-linear data structures using C	K6
			C207.4	Implement functions and recursive functions in C.	K6
			C207.5	Choose appropriate searching, sorting and hashing algorithm for an application and implement it in a modularized way.	K4
8.	**II/III**	**EC8361 - Analog and Digital Circuits Laboratory**	C208.1	Analyze the rectifiers, filters and regulated power supplies.	K4
			C208.2	Demonstrate the response of BJT and JFET amplifiers.	K2
			C208.3	Design a Cascode and Cascade amplifiers.	K6
			C208.4	Design a Combinational and Sequential Circuit using Logic Gates & Flip-flop	K6
			C208.5	Simulate the Circuit using Pspice Model	K5
9.	**II/III**	**HS8381 - Interpersonal Skills/Listening &Speaking**	C209.1	Speak effectively on various academic topics and respond to questions.	K2
			C209.2	Converse effectively with the use of conversation starters and discourse markers.	K6
			C209.3	Listen and respond to various academic dialogues and discussions	K2
			C209.4	Participate confidently and appropriately in informal and formal conversations and group discussions.	K6
			C209.5	Use a range of presentation tools like PPT, Videos, and Charts etc. to make an engaging presentation.	K6

PROGRAMME: **ELECTRONICS AND COMMUNICATION ENGG**	DEGREE: **UG**	A.Y: **2018-2019**	SEMESTER: **04**

S.No	Year/ Sem	Course Name	Course Outcomes (The students will be able to understand the)		Knowledge Level
1.	II/IV	MA8451- Probability and Random Processes	C210.1	Identify the functions of discrete and continuous random variables, moments and moment generating function	K1
			C210.2	Solve problems in marginal conditional distribution, using the concepts of correlation, regressions and transformation of two dimensional random variables	K3
			C210.3	Determine the process is either SSS or WSS, find the TPM of Markov chain and its classifications.	K2
			C210.4	Explain the correlation and spectral densities.	K2
			C210.5	Solve the linear system and compute the linear time invariant inputs.	K3
2.	II/IV	EC8452- Electronic Circuits II	C211.1	Explain the concepts of feedback amplifiers	K1
			C211.2	Classify the various types of oscillators.	K3
			C211.3	Design different types of tuned amplifiers and analyze its performance.	K5
			C211.4	Discuss wave shaping circuits and multivibrators.	K3
			C211.5	To study about Power amplifiers, Power MOSFET, MOSFET, buck boost and DC-DC converter	K2
3.	II/IV	EC8491 Communication Theory	C212.1	Design AM communication systems	K2
			C212.2	Design Angle modulated communication systems	K2
			C212.3	Apply the concepts of Random Process to the design of Communication systems	K3

			C212.4	Analyze the noise performance of AM and FM systems	K4
			C212.5	Gain knowledge in sampling and quantization	K4
4.	**II/IV**	**EC8451 Electromagnetic Fields**	C213.1	Basic vector algebra concepts related to electromagnetic model in different co-ordinate system.	K2
			C213.2	Electric field, potential, energy density and their applications.	K2
			C213.3	Magnetic field, potential, energy density, forces, torques and their applications.	K2
			C213.4	Analyze the relation between electric fields and magnetic fields using Maxwell's equations.	K4
			C213.5	Wave propagation in lossless and in lossy media	K2
5.	**II/IV**	**EC8453 Linear Integrated Circuits**	C214.1	Fundamentals of Opamp and also AC and DC Performance	K3
			C214.2	Design the linear and non linear applications of op-amps.	K3
			C214.3	Analyze the applications using analog multiplier and PLL	K4
			C214.4	Conversion of ADC and DAC using op-amps.	K6
			C214.5	Analyze the Special Functions ICs	K4
6.	**II/IV**	**GE8291 Environmental Science and Engineering**	C215.1	Summarize the values, threats, conservation of biodiversity and ecosystems.	K2
			C215.2	Discuss the sources, effects, control measures of different types of pollution, and solid waste management.	K1
			C215.3	Associate the effects of exploitation of Natural resources on environment	K3
			C215.4	Summarize the water conservation methods and various environmental acts for environmental sustainability	K2
			C215.5	Discuss scientific, technological, economic and social solutions to environmental problems	K1
7.	**II/IV**	**EC8461 Circuits Design and Simulation Laboratory**	C216.1	Design and Analyze the various types of feedback amplifiers	K4
			C216.2	Design and Analyze Oscillator and Tuned Amplifier	K6

			C216.3	Design and Analyze Wave-shaping circuits	K6
			C216.4	Model the different Multivibrator circuits	K3
			C216.5	Design and simulate feedback amplifiers, oscillators, tuned amplifiers, wave-shaping circuits and multivibrators using SPICE Tool	K6
8.	**II/IV**	**EC8462 Linear Integrated Circuits Laboratory**	C217.1	Design oscillators and amplifiers using operational amplifiers	K6
			C217.2	Design filters using Opamp and perform experiment on frequency response.	K6
			C217.3	Analyse the working of PLL and use PLL as frequency multiplier.	K4
			C217.4	Design DC power supply using ICs	K6
			C217.5	Analyse the performance of oscillators and multivibrators using SPICE	K4

PROGRAMME: **ELECTRONICS AND COMMUNICATION ENGG**	DEGREE: **UG**	A.Y: **2019-2020**	SEMESTER: **05**

S.No	Year/ Sem	Course Name	Course Outcomes (The students will be able to understand the)		Knowledge Level
1.	III/V	EC8501 Digital Communication	C301.1	Design PCM systems	K2
			C301.2	Design and implement base band transmission schemes	K2
			C301.3	Design and implement band pass signaling schemes	K2
			C301.4	Analyze the spectral characteristics of band pass signaling schemes and their noise performance	K3
			C301.5	Design error control coding schemes	K4
2.	III/V	EC8553 Discrete-Time Signal Processing	C302.1	Apply DFT for the analysis of digital signals and systems	K3
			C302.2	Design IIR filters	K6
			C302.3	Design FIR filters	K6
			C302.4	Analyze the effects of finite precision representation on digital filters	K4
			C302.5	Study Digital signal Processors	K2
3.	III/V	EC8552 Computer Architecture and Organization	C303.1	Describe data representation, instruction formats and the operation of a digital computer	K3
			C303.2	Illustrate the fixed point and floating-point arithmetic for ALU operation	K3
			C303.3	Discuss about implementation schemes of control unit and pipeline performance	K5
			C303.4	Explain the concept of various memories, interfacing and organization of multiple processors	K2
			C303.5	Discuss parallel processing technique and unconventional architectures	K2
4.	III/V	EC8551 Communication	C304.1	Describe the Internet architecture and link layer services	K1

		Networks	C304.2	Compare various media access and internetworking protocols	K5
			C304.3	Apply various routing protocols and algorithms for a given network along with IP addresses	K3
			C304.4	Demonstrate the flow of information from one process to another process in the network	K3
			C304.5	Summarize the various Application requirements	K6
5.	**III/V**	**EC8073 Medical Electronics**	C305.1	Human body electro- physiological parameters and recording of bio-potentials	K1
			C305.2	Comprehend the non-electrical physiological parameters and their measurement – body temperature, blood pressure, pulse, blood cell count, blood flow meter etc	K2
			C305.3	Interpret the various assist devices used in the hospitals viz. pacemakers, defibrillators, dialyzers and ventilators	K4
			C305.4	Comprehend physical medicine methods eg. ultrasonic, shortwave, microwave surgical diathermies , and bio-telemetry principles and methods	K2
			C305.5	Recent trends in medical instrumentation	K2
6.	**III/V**	**OMD551 Basic of Biomedical Instrumentation**	C306.1	Learn the different bio potential and its propagation.	K2
			C306.2	get Familiarize the different electrode placement for various physiological recording	K4
			C306.3	design bio amplifier for various physiological recording	F4
			C306.4	various technique non electrical physiogical measurements	K2
			C306.5	physiogical measurements CO5: Understand t	K2
7.	**III/V**	**EC8562 Digital Signal Processing Laboratory**	C307.1	Analyze the various types of continuous signal and discrete signal.	K4
			C307.2	Demonstrate their abilities towards DSP processor based implementation of DSP system.	K2
			C307.3	Demonstrate the continuous and discrete signals using FFT algorithm.	K2

			C307.4	Analyze Finite word length effect on DSP systems.	K4
			C307.5	Construct adaptive filters for various applications of DSP.	K3
8.	**III/V**	**EC8561 Communication Systems Laboratory**	C308.1	Simulate end-to-end Communication Link	K4
			C308.2	Demonstrate their knowledge in base band signaling schemes through implementation of FSK, PSK and DPSK	K5
			C308.3	Apply various channel coding schemes & demonstrate their capabilities towards the improvement of the noise performance of communication system	K6
			C308.4	To implement Equalization algorithms and Error control coding schemes	K4
			C308.5	Simulate & validate the various functional modules of a communication system	K4
9.	**III/V**	**EC8563 Communication Networks Laboratory**	C309.1	Perform client-server communication between two desktop computers using Socket Programming.	K3
			C309.2	Implement the different protocols.	K6
			C309.3	Simulate various network topologies like Star, Bus and Ring.	K2
			C309.4	Implement and compare the various routing algorithms	K6
			C309.5	5 Simulate the algorithms with the help of Network Simulator tool	K2

PROGRAMME: **ELECTRONICS AND COMMUNICATION ENGG**	DEGREE: **UG**	A.Y: **2019-2020**	SEMESTER: **06**

S.No	Year/ Sem	Course Name	Course Outcomes (The students will be able to understand the)		Knowledge Level
1.	III/VI	EC8691 Microprocessors and Microcontrollers	C310.1	Architecture of 8086 microprocessor	K1
			C310.2	Execute programs based on 8086 microprocessor.	K1
			C310.3	Design Memory Interfacing circuits.	K6
			C310.4	Design and interface I/O circuits.	K6
			C310.5	Design and implement 8051 microcontroller based systems.	K6
2.	III/VI	EC8095 VLSI Design	C311.1	Knowledge of digital building blocks using MOS transistor.	K2
			C311.2	Design and construct combinational MOS circuits and power strategies.	K6
			C311.3	Design and construct Sequential Circuits and Timing systems.	K6
			C311.4	Design arithmetic building blocks and memory subsystems.	K6
			C311.5	Apply the knowledge and implement FPGA design flow and testing.	K4
3.	III/VI	EC8652 Wireless Communication	C312.1	Characteristic of wireless channel	K2
			C312.2	Design of a cellular system	K4
			C312.3	Various digital signaling techniques and multipath mitigation techniques	K4
			C312.4	Concepts of multiple antenna techniques	K2
			C312.5	Identify suitable signaling and multipath mitigation techniques for the wireless channel and system under consideration	K3

4.	**III/VI**	**MG8591 Principles of Management**	C313.1	Enable the students to study the evolution of Management,	K2
			C313.2	Study the functions and principles of management	K4
			C313.3	Learn the application of the principles in an organization .	K5
			C313.4	Able to have clear understanding of managerial functions like planning, organizing, staffing, leading & controlling	K5
			C313.5	Same basic knowledge on international aspect of managemen	K2
5.	**III/VI**	**EC8651 Transmission Lines and RF Systems**	C314.1	Explain the characteristics of transmission lines and its losses.	K2
			C314.2	Explain the measurements of power, impedance, VSWR and wavelength	K2
			C314.3	Analyze impedance matching by stubs using smith charts.	K3
			C314.4	Analyze the characteristics of TE and TM waves.	K3
			C314.5	Design a RF transceiver system for wireless communication	K4
6.	**III/VI**	**EC8004 Wireless Networks**	C315.1	Conversant with the latest 3G/4G networks and its architecture	K2
			C315.2	Study about mobile network layer	K2
			C315.3	Design and implement wireless network environment for any application using latest wireless protocols and standards	K6
			C315.4	Ability to select the suitable network depending on the availability and requirement	K4
			C315.5	Implement different type of applications for smart phones and mobile devices with latest network strategies	K5
7.	**III/VI**	**EC8681 Microprocessors and Microcontrollers Laboratory**	C316.1	Write ALP Programmes for fixed and Floating Point and Arithmetic operations	K6
			C316.2	Interface different I/Os with processor	K4
			C316.3	Generate waveforms using Microprocessors	K6

			C316.4	Execute Programs in 8051	K6
			C316.5	Explain the difference between simulator and Emulator	K2
8.	**III/VI**	**EC8661 VLSI Design Laboratory**	C317.1	Write HDL code for basic as well as advanced digital integrated circuit	K6
			C317.2	Design the logic modules into FPGA Boards	K5
			C317.3	Design and Synthesize Place and Route the digital IPs	K4
			C317.4	Design, Simulate and Extract the layouts of Digital IC Blocks using EDA Tools	K4
			C317.5	Design, Simulate and Extract the layouts of Analog IC Blocks using EDA Tools	K4
9.	**III/VI**	**EC8611 Technical Seminar**	C318.1	Research papers for understanding of a new field, in the absence of a textbook, to summarise and review them.	K4
			C318.2	Identify promising new directions of various cutting edge technologies	K4
			C318.3	Impart skills in preparing detailed report describing the project and	K4
			C318.4	To effectively communicate by making an oral presentation before an evaluation committee	K3
			C318.5	Inculcate the ability to synthesize the results of the detailed analytical studies conducted	K4
10.	**III/VI**	**HS8581 Professional Communication**	C319.1	Summarize various skills such as Soft Skills, Hard skills, employability and career Skills and demonstrate values such as Time Management and general awareness of current affairs.	K2
			C319.2	Demonstrate oneself before the audience by making effective presentations on introducing oneself, answering questions and visual presenting.	K3
			C319.3	Demonstrate one by participating in group discussions, brainstorming sessions and question sessions. Develop activities to improve GD Skills	K6
			C319.4	Develop interview skills so as to be successful in them.	K6

			C319.5	Develop adequate Soft Skills required for the workplace and long-term career.	K6

PROGRAMME: **ELECTRONICS AND COMMUNICATION ENGG**	DEGREE: **UG**	A.Y: **2020-2021**	SEMESTER: **07**

S.No	Year/ Sem	Course Name	Course Outcomes (The students will be able to understand the)		Knowledge Level
1.	IV/VII	EC8701 Antennas and Microwave Engineering	C401.1	To enable the student to understand the basic principles in antenna and microwave system design.	K2
			C401.2	To enhance the student knowledge in the area of various antennas.	K4
			C401.3	To enhance the student knowledge in the area of antenna arrays	K4
			C401.4	To enhance the student knowledge in the area of microwave passive and active components	K4
			C401.5	To design a microwave system for a given specifications and its application.	K6
2.	IV/VII	EC8702 Ad hoc and Wireless Sensor Networks	C402.1	Know the basics of Ad hoc networks and Wireless Sensor Networks	K2
			C402.2	Apply this knowledge to identify the suitable routing algorithm based on the network and user requirement	K3
			C402.3	Apply the knowledge to identify appropriate physical and MAC layer protocols	K3
			C402.4	Understand the transport layer and security issues possible in Ad hoc and sensor networks	K2
			C402.5	Be familiar with the OS used in Wireless Sensor Networks and build basic modules	K5
3.	IV/VII	EC8751 Optical Communication	C403.1	Elements of optical fiber communication and types of fiber fabrication techniques	K2
			C403.2	Various kind of losses, distortion and degradation associated with optical fiber cable	K2
			C403.3	Various optical sources, optical detectors and fiber joints.	K5

			C403.4	Receiver operation and different fiber parameter measurements.	K3
			C403.5	Interpret the optical networks in real time application.	K4
4.	**IV/VII**	**EC8791 Embedded and Real Time Systems**	C404.1	Outline the concepts of embedded systems	K2
			C404.2	Describe the architecture and programming of ARM processor	K4
			C404.3	Explain the basic concepts of embedded programming	K4
			C404.4	Explain the basic concepts of real time operating system design	K4
			C404.5	To enhance the Model real-time applications using embedded-system concepts.	K4
5.	**IV/VII**	**EC8092 Advanced Wireless Communication**	C405.1	Importance of improving capacity of wireless channel using MIMO	K2
			C405.2	Channel impairment mitigation using space-time block and Trellis codes	K4
			C405.3	Advanced MIMO system like layered space time codes, MU-MIMO System and MIMO-OFDM systems	K5
			C405.4	Comprehend and appreciate the significance and role of this course in the present contemporary world	K3
			C405.5	Appreciate the various methods for improving the data rate of wireless communication system	K5
6.	**IV/VII**	**OIC751 Transducer Engineering**	C406.1	how physical quantities are measured and how they are converted to electrical or other forms.	K2
			C406.2	apply an adequate knowledge in resistance, transducers.	K3
			C406.3	develop the knowledge of inductance and capacitance transducers	K5
			C406.4	study the characteristics of Transducers	K2
			C406.5	knowledge on various types of transducers	K3
7.	**IV/VII**	**EC8711 Embedded Laboratory**	C407.1	Write programs in ARM for a specific Application	K3
			C407.2	Interface memory, A/D and D/A convertors with ARM system	K4

			C407.3	Analyze the performance of interrupt	K4
			C407.4	Write program for interfacing keyboard, display, motor and sensor.	K3
			C407.5	Formulate a mini project using embedded system	K6
8.	**IV/VII**	**EC8761 Advanced Communication Laboratory**	C408.1	working principle of optical sources, detector, fibers	K2
			C408.2	Analyze the performance of simple optical link by measurement of losses and Analyzing the mode characteristics of fiber	K5
			C408.3	Analyze the Eye Pattern, Pulse broadening of optical fiber and the impact on BER	K5
			C408.4	Estimate the Wireless Channel Characteristics and Analyze the performance of Wireless Communication System	K5
			C408.5	intricacies in Microwave System design	K2

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S.No	Year/ Sem	Course Name	Course Outcomes (The students will be able to understand the)		Knowledge Level
9.	IV/VIII	EC8094 Satellite Communication	C409.1	To understand the basics of satellite orbits.	K2
			C409.2	To understand the satellite segment and earth segment.	K2
			C409.3	To analyze the various methods of satellite access.	K4
			C409.4	To analyze the various Multiple access techniques for satellite communication.	K4
			C409.5	To understand the applications of satellites	K2
10.	IV/VIII	EC8076 Professional Ethics in Engineering	C410.1	Apply ethics, morals and human values in society	K3
			C410.2	Understand about engineering ethics	K2
			C410.3	Describe the responsibilities of engineers as experimenters	K1
			C410.4	Recognize the safety, risks, risk benefit analysis and rights of an engineer	K1
			C410.5	Discuss the importance of the global issues, moral leadership and code of conduct	K2
11.	IV/VIII	EC8811 Project Work	C411.1	To develop the ability to solve a specific problem right from its identification.	K3
			C411.2	To Analysis the literature review till the successful solution of the same	K4
			C411.3	On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology	K3
			C411.4	To train the students in preparing project reports.	K6
			C411.5	To train the students to face reviews and viva voce examination	K3

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE OUT COME FOR REGULATION – 2017

PROGRAMME: **ELECTRICAL ANDELECTRONICS ENGG**	DEGREE: **UG**	A.Y: **2017-2018**	SEMESTER: **01**

S.No	Year / Sem	Course Name	Course Outcomes (The students will be able to understand the)		Knowledge Level
1.	I/I	HS8151 - Communicative English	C101.1	Communicate clearly both in the written formand orally using appropriate vocabulary and comprehend written texts to make inferences.	K2
			C101.2	Speak persuasively in different social contextsand write biographical details and technical documents cohesively, coherently and flawlessly using appropriate words.	K2
			C101.3	Speak, read and write effectively for a varietyof professional and social settings.	K2
			C101.4	Read descriptive, narrative, expository and interpretive texts and write using creative, critical, analytical and evaluative methods.	K6
			C101.5	Listen, comprehend and respond to differentspoken and written discourses/excerpts in different accents and write different genres of texts adopting various writing strategies.	K6
			C102.1	Use both the limit definition and rules ofdifferentiation to differentiate functions.	K3
			C102.2	Apply differentiation to solve maxima andminima problems	K3

2.	**I/I**	**MA8151 - Engineering Mathematics - I**	C102.3	Evaluate integrals both by using Reimann sums and by using the fundamental theorem of convergent improper integrals. Evaluate integrals using techniques of integration, suchas substitution, partial Fractions, integration by parts and improper integrals.	K5
			C102.4	Apply integration to compute multiple integrals, area, volume, integrals in polar Coordinates, in addition to change of order	K3
				and change of variables.	
			C102.5	Apply various techniques in solvingdifferential equations.	K3
3.	**I/I**	**PH8151 - Engineering Physics**	C103.1	Demonstrate the properties of elasticity andmeasure the different moduli of elasticity.	K2
			C103.2	Examine the characteristics of waves, Laserand optical fiber	K2
			C103.3	Illustrate different modes of heat transferthrough objects.	K2
			C103.4	Explain the block body radiation, propertiesof matter waves and schrodinger equations.	K2
			C103.5	Classify the bravais lattices, crystal structures,crystal imperfections and crystal growth techniques	K2
			C104.1	Explain the hardness of water, its types and estimation, boiler troubles and treatment ofboiler feed water.	K2
			C104.2	Explain adsorption, types and theories of adsorption isotherm and its application in pollution abatement, theories of catalysis andapplications	K2

4.	**I/I**	**CY8151 - ENGINEERING CHEMISTRY I**	C104.3	Understand the basic concepts of phase ruleand its application to one and two component systems, properties, significanceand applications of alloys	K2
			C104.4	Relate the significance of solid, liquid and gaseous fuels and to calculate the calorificvalue of fuels	K2
			C104.5	Illustrate the methods of harvesting energyfrom non-conventional energy sources.	K2
5.	**I/I**	**GE8151- Problem Solving and Python Programming**	C105.1	Develop algorithmic solutions to simplecomputational problems .	K2
			C105.2	Demonstrate programs using simple Pythonstatements and expressions.	K3
			C105.3	Explain control flow and functions concept inPython for solving problems.	K2
			C105.4	Use Python data structures- lists, tuples & dictionaries for representing compound data.	K3
			C105.5	Explain files, exception, modules and packages in Python for solving problems.	K2
6.	**I/I**	**GE8152- Engineering Graphics**	C106.1	Familiarize with the fundamentals andstandards of engineering graphics.	K2
			C106.2	Perform freehand sketching of basic geometrical constructions and multiple viewsof objects.	K3
			C106.3	Project orthographic projections of lines andplane surfaces.	K2
			C106.4	Draw projections, solids and development ofsurfaces.	K3
			C106.5	Visualize and to project isometric andperspective sections of simple solids.	K3

7.	**I/I**	**GE8161- Problem Solvingand Python Programming Laboratory**	C107.1	Develop solutions to simple computationalproblems using Python programs.	K2
			C107.2	Solve problems using conditionals and loopsin Python.	K3
			C107.3	Develop Python programs by definingfunctions and calling them.	K3
			C107.4	Use Python lists, tuples & dictionaries forrepresenting compound data.	k3
			C107.5	Develop Python programs using files.	K2
8.	**I/I**	**BS8161 - Physicsand Chemistry Laboratory**	C108.1	Determine and estimate the types of alkalinity & hardness of a given water sample.	K2
			C108.2	Estimate the amount of copper content	K2
				present in a given sample.	
			C108.3	Determine the strength of an acid by using pHmeter.	K2
			C108.4	Determine the strength of a pure acid and mixture of acids by using conductivity meter.	K2
			C108.5	Estimate the amount of iron content presentin a given solution by means of potentiometric titration.	K2

PROGRAMME: **ELECTRICAL ANDELECTRONICS ENGG**	DEGREE: **UG**	A.Y: **2017-2018**	SEMESTER: **02**

S.No	**Year / Sem**	**Course Name**	**Course Outcomes (The students will be able to understand the)**		**Knowledge Level**
			C109.1	Read technical texts and write area-specific texts effortlessly	K2
			C109.2	Listen and comprehend lectures and talksin their area of specialization	K2

				successfully	
1.	**I/II**	**HS8251 - Technical English**	C109.3	Speak appropriately and effectively invaried formal and informal contexts	K2
			C109.4	Write reports and winning jobapplications.	K3
			C109.5	Use appropriate technologies to organize,present, and communicate information toaddress a range of audiences, purposes, genres	K3
2.	**I/II**	**MA8251 - MATHEMATICS II**	C110.1	Calculate the eigen values and eigenvectors, diagonalization of a matrix,Symmetric matrices, Positive definite matrices and similar matrices	K3
			C110.2	Evaluate the line, surface and volume integrals using Gauss, Stokes and Green'stheorems and their verification	K5
			C110.3	Determine Analytic functions, conformal	K3
				mapping and Bilinear transformation	
			C110.4	Evaluate the Cauchy's integrals, Taylor's and Laurent's and residue theorem for evaluation for real integrals using circularand semicircular, contour	K5
			C110.5	Evaluate Laplace transform and inverse transform of simple functions, properties,various related theorems and application to differential equations with constant coefficients.	K5
			C111.1	Gain knowledge on classical and quantumelectron theories and energy band structures.	K2

3.	**I/II**	**PH8253 - PHYSICSFOR ELECTRONICS ENGINEERING**	C111.2	Acquire knowledge on basis of semiconductor physics and its applicationsin various devices.	K2
			C111.3	Get knowledge on magnetic and dielectricproperties of materials.	K2
			C111.4	Have the necessary understanding on thefunctioning of optical materials for opto electronics.	K2
			C111.5	Understand the basics of quantum structures and their applications inspintronics	K2
4.	**I/II**	**BE8252 - BASIC CIVIL AND MECHANICAL ENGINEERING**	C112.1	State the scope of civil Engineering and Overview of Civil Engineering and Explainthe scope of Mechanical Engineering andOverview of Mechanical Engineering.	K2
			C112.2	State the functions of IC engine and differentiate the working principle of 2stroke, 4 stroke petrol and diesel engine,Types of power plant and classify the various types of boilers and conclude the use of boiler in power plant.	K3
			C112.3	Apply the principles of vapour absorption and compression systems and Explain the Operation and type of air conditioner.	K3
			C112.4	Apply the principles of surveying and usevarious measurements for surveying andExplain about various engineering materials and leveling instruments	K3
			C112.5	Classify the types of bridges, foundation, floorings, roofs, plasters and R.C.C structural members and state the purposeof dam	K2

5.	**I/II**	**EE8251- CIRCUIT THEORY**	C113.1	Apply Kirchhoff's current and voltage lawsto simple circuits and Solve complex circuits using Mesh & Nodal Methods.	K3
			C113.2	Apply Network theorems to linear circuitsand to solve simple and complex problems.	K3
			C113.3	Analyze the Transient response of RLC circuits under DC and AC excitation usingLaplace Transform	K4
			C113.4	Analyze three phase balanced andunbalanced star, delta network	K4
			C113.5	Compute the frequency response of Seriesand Parallel resonance and analyze tuned circuits.	K2
6.	**I/II**	**GE8291- ENVIRONMENT ALSCIENCE AND ENGINEERING**	C114.1	Explain the values, threats and conservation of biodiversity and classifyvarious ecosystems.	K2
			C114.2	Identify and implement technological andeconomical solution to environmental pollution.	K3
			C114.3	Develop the knowledge on various naturalresources, their causes and their effects	K3
			C114.4	Explain various environmental acts and to	K2
				explain various disaster management	
			C114.5	Relate population growth and environment and the role of IT inenvironment and human health	K2
		GE8261- ENGINEERIN GPRACTICES	C115.1	Demonstrate wiring for a simple residential house; identify the ratings ofvarious appliances like fluorescent tube	K4
			C115.2	Calculate the different electrical quantities	K3

7.	**I/II**	**LABORATORY**	C115.3	Measure the resistance to earth ofelectrical equipment	K3
			C115.4	Verify the truth tables of logic gates AND	K5
			C115.5	Develop soldering in a PCB	K6
8.	**I/II**	**EE8261-ELECTRIC CIRCUIT LABORATORY**	C116.1	Apply Kirchhoff's voltage and current lawsto solve simple and complex circuits.	K3
			C116.2	Apply network theorems to solve simpleand complex circuits.	K3
			C116.3	Demonstrate the working of Analog anddigital storage oscilloscopes.	K2
			C116.4	Determine frequency response of RLCcircuits and Use MATLAB to simulate series, parallel resonant circuit.	K3
			C116.5	Apply MATLAB tool to simulate three phase balanced and unbalanced star, deltanetwork circuit.	K3

PROGRAMME: **ELECTRICAL AND ELECTRONICS ENGG**	DEGREE: **UG**	A.Y: **2018-2019**	SEMESTER: **03**

S.No	**Year / Sem**	**Course Name**	**Course Outcomes (The students will be able to understand the)**		**Knowledge Level**
1.	**II/III**	**MA8353 TRANSFORMS ANDPARTIAL**	C201.1	Solve First, Second order homogeneous and non homogeneous partial differential equations	K3
			C201.2	Find the Fourier series of a given function satisfying Dirchlet's condition.	K2
			C201.3	Apply Fourier series to solve onedimensional wave, one and two dimensional heat equations.	K3

		DIFFERENTIAL EQUATIONS	C201.4	Determine Fourier transform for a given function and use them to evaluate certain definite Integrals	K2
			C201.5	Determine z transforms of standard functions and use them to solve difference equations	K3
2.	**II/III**	**EE8351 DIGITAL LOGIC CIRCUITS**	C202.1	Analyze the various types of number system and compare the digital logic families.	K4
			C202.2	Apply K –Map for simplification and implementation of combinational logic circuit.	K3
			C202.3	Design the synchronous Sequential logic circuits, draw the block diagramof Shift Registers.	K3
			C202.4	Design of asynchronous sequential circuits and describe the operation of Programmable Logic Devices.	K3
			C202.5	Design the VHDL coding for combinational logic and Sequential circuits..	K3
			C203.1	Apply the vector calculus to staticelectric-magnetic fields.	K3
			C203.2	Apply the principles of electrostatics related to electric field and electric potential, boundary conditions, energy density and capacitance of different configurations.	K3

3.	**II/III**	**EE8391-ELECTROMAGNETICTHEORY**	C203.3	Apply the principles of magnetostaticsrelated to magnetic field and magnetic potential,boundary conditions, energydensity and inductance of different configurations.	K3
			C203.4	Apply Maxwell‘s equations in differential and integral forms.	K3
			C203.5	Apply Maxwell‘s equations to solutionsof problems relating to uniform plane wave propagation in different media and its interfaces	K3
4.	**II/III**	**EE8301-ELECTRICAL MACHINES-1**	C204.1	Apply the basic laws in the magnetic circuits, which are the foundation for all electricl machines.	K3
			C204.2	Build the equivalent circuit of transformers at different loading condition ,thereby finding their voltageregulation and eficiency	K3
			C204.3	Interpret the electric and magnetic field interactions in electromechanicaldevices and machines	K2
			C204.4	Classify the DC machines based ontheir type of excitation	K2
			C204.5	Identify the type of speed control ofDC motor in different application	K3
5.	**II/III**	**EC8353-ELECTRON DEVICES AND CIRCUITS**	C205.1	Explain the structure and working operation of basic electronic devices.	K2
			C205.2	Able to identify and differentiate bothactive and passive elements	K3

			C205.3	Analyze the characteristics of different electronic devices such as diodes and transistors	K3
			C205.4	Choose and adapt the required components to construct an amplifier circuit.	K2
			C205.5	Employ the acquired knowledge in design and analysis of oscillators	K2
6.	**II/III**	**ME8792 POWER PLANT ENGINEERING**	C206.1	Identify the various components of modern coal power plant and analyse the safety measures of environmental factors in thermal power plant.	K1
			C206.2	Apply the knowledge of various gas power cycles to analyse the construction and working of various liquid and gas Power Plants.	K2
			C206.3	Review the layout and working of the components of nuclear power plants and analyze the safety measures of the environment for the healthy society.	K2
			C206.4	Identify the various renewable energy resources of power generation and gain the knowledge for sustainable development.	K2
			C206.5	Formulate the cost of electrical energy based on Power tariff, analyse the Economics and discuss the safety aspects of power plant operation	K2
7.	**II/III**	**EC8311-ELECTRONICS LABORATORY**	C207.1	Analyze the PN junction diode acts as a perfect switch and Zener diode act as a voltage regulator. Design an experimental setup of a voltage buffer, current buffer and amplifier circuit	K4

				using NPN transistor.	
			C207.2	Analyze the characteristics of a voltagecontrolled device. Design an experimental setup of the relaxation oscillator using UJT.	K4
			C207.3	Design a experiment and determinethe frequency response of commonemitter amplifier. Analyze the characteristics of photo sensitive semiconductor device and Light activated relay circuit.	K4
			C207.4	Design an experimental setup of a Audio frequency oscillator and Radio frequency oscillator. Design and implement a circuit that converts AC voltage to DC voltage for the given input and calculate its ripple factor andpercentage of regulation with and without capacitive and inductive filter.	K4
			C207.5	Design an experimental setup of a differential amplifier using field effect transistor and determine its gain and CMRR. Analyze the sine, square and triangular waveforms Using Cathode ray oscilloscope and then measure its corresponding amplitude, frequency and phase respectively. Design the lowpass filter and High pass filter using passive components with cutoff frequency of 1khz and determine its gain	K4

8.	**II/III**	**E8351-ELECTRICAL MACHINES-1 LABORATORY**	C208.1	Investigate the voltage drop due to armature reaction effect in DC shuntand DC compound generators and Design Ampere turns for Inter poles and compensating winding. Examine critical resistance and critical speed.	K3
			C208.2	Analyze load characteristics DC shunt, series and compound motor. Examineits maximum output and maximum efficiency	K3
			C208.3	Investigate the constant losses of the DC shunt motor predict the efficiency in different methods at different loadcondition	K3
			C208.4	Analyze load characteristics of single and three phase transformer. Examinethe different losses and efficiency	K3
			C208.5	Investigate the the equivalent circuitparameters of single phase transformer to predetermine its voltage regulation and efficiency	K3

PROGRAMME: **ELECTRICAL ANDELECTRONICS ENGG**	DEGREE: **UG**	A.Y: **2018-2019**	SEMESTER: **04**

S.No	**Year/ Sem**	**Course Name**	**Course Outcomes (The students will be able to understand the)**		**Knowledge Level**
			C209.1	Determine the solution of algebraic andtranscendental system of linear equations	K3
			C209.2	To interpolate the values of unknownfunctions using Newton's Formula	K3

1.	**II/IV**	**MA8491 - Numerical Methods**	C209.3	Estimate the numerical values of the derivatives and integrals of unknown function.	K3
			C209.4	Solve first and second order initial value problem	K3
			C209.5	Solve Numerically boundary value problem	K3
2.	**II/IV**	**EE8401- Electrical Machines - II**	C210.1	Apply the Knowledge of Engineering fundamentals to the solutions of induced emf, voltage regulation,	K3
				performance characteristics and analyzing the operation of synchronous generator	
			C210.2	Apply the Knowledge of Engineering fundamentals to the solutions of induced emf, torque developed, performance characteristics and analyzing the operation of synchronous motor	K3
			C210.3	Apply the Knowledge of Engineering fundamentals to the solutions of torque developed, performance characteristics and analyzing the operation of three phase induction motor	K3
			C210.4	Analyze the operations of starter used for AC motor, speed control of three phase induction motor.	K4
			C210.5	Apply the Knowledge of Engineering fundamentals to the solutions of torque developed, performance characteristics and analyzing the operation of single phase induction motor and Special Electrical Machines	K3

3.	**II/IV**	**EE8402 TRANSMISSION AND DISTRIBUTION**	C211.1	Explain the structure of Electrical power system and to analyze Transmission LineParameters	K2
			C211.2	Analyze the equivalent circuits for thetransmission lines based on distance and to analyze voltage regulation andefficiency.	K4
			C211.3	Analyze the mechanical design of transmission lines and the voltagedistribution in insulator strings to improve the efficiency.	K4
			C211.4	Analyze the types and construction of cables and to review the methods of	K4
				grading of cables	
			C211.5	Review about distribution systems,types of substations, methods of grounding, EHVAC, HVDC	K2
4.	**II/IV**	**EE8403 MEASUREMENT AND INSTRUMENTATION**	C212.1	Analyze the basic functional blockelements in Different measuring Instruments and the errors in the measurement system	K4
			C212.2	Analyze construction and working of electrical and electronics instruments	K4
			C212.3	Design AC and DC bridge circuits todetermine the values of resister, inductor and capacitors	K3
			C212.4	Review the knowledge on various typesof storage and display devices.	K2
			C212.5	Analyze the concepts of various transducers and data acquisitionsystems	K4

5.	**II/IV**	**EE8451-Linear Integrated Circuits and Applications**	C213.1	Describe knowledge in IC fabrication process	K2
			C213.2	Infer the DC and AC characteristics of operational amplifiers and its effect on output and their compensation techniques.	K2
			C213.3	Elucidate and design the linear and non-linear applications of an opamp and special application Ics.	K3
			C213.4	Explain and compare the working of multivibrators using special application IC 555 and general purpose opamp	K2
			C213.5	Illustrate the function of application specific ICs such as Voltage regulators, PLL and its application in communication.	K3
6.	**II/IV**	**C8451 Control Systems**	C214.1	Develop mathematical models for physical system and simplify it using reduction techniques.	K3
			C214.2	Determine the time domain responses of first and second-order systems to test inputs.	K2
			C214.3	Analyze system's stability using different frequency domain methods.	K3
			C214.4	Design compensators and their selection to meet desired response.	K5
			C214.5	Develop and analyze state space models	K3
			C215.1	Apply the Knowledge of Engineering fundamentals to the solutions of induced emf, voltage regulation, performance characteristics and analyzing the operation of synchronous generator	K3

7.	**II/IV**	**EE8411-Electrical Machines Laboratory -II**	C215.2	Apply the Knowledge of Engineering fundamentals to the solutions of induced emf, torque developed, performance characteristics and analyzing the operation of synchronous motor	K3
			C215.3	Apply the Knowledge of Engineering fundamentals to the solutions of torque developed, performance characteristics and analyzing the operation of three phase induction motor	K3
			C215.4	Analyze the operations of starter used for AC motor, speed control of three phase induction motor.	K4
			C215.5	Apply the Knowledge of Engineering fundamentals to the solutions of torque developed, performance characteristics and analyzing the operation of single phase induction motor and Special Electrical Machines	K3
8.	**II/IV**	**EE8461-Linear and Digital Integrated Circuits Laboratory**	C216.1	Design and implement the experimental setup of combinational circuits like Boolean functions, code converters, parity generator, parity checker, encoders, decoders, multiplexer and demultiplexer.	K3
			C216.2	Design and implement the experimental setup of Counters and Shift registers using specific IC's.	K3
			C216.3	Design a experimental setup of Timer IC applications.	K3
			C216.4	Design an experimental setup of a Op- Amp applications like inverting and Non inverting amplifier, adder, comparator, integrator and differentiator	K3

			C216.5	Analyze the voltage to frequency characteristics of voltage controlled oscillator using NE/SE 566 IC and Designthe variability voltage regulator using LM317 IC.	K4
9.	**II/IV**	**EE8412- Technical Seminar**	C217.1	Function effectively as an individual andMake effective presentation on Engineering/ technology	K2
			C217.2	Review, prepare and present technological developments in the field of electrical and electronics engineering.	K2
			C217.3	Design documentation and write effective reports on seminar topics	K2

PROGRAMME: **ELECTRICAL AND ELECTRONICS ENGG**	DEGREE: **UG**	A.Y: **2019-2020**	SEMESTER: **05**

S.No	**Year / Sem**	**Course Name**	**Course Outcomes (The students will be able to understand the)**		**Knowledge Level**
1.	**III/V**	**E8501- Power System Analysis**	C301.1	Apply engineering knowledge to evaluate theper unit values and to formulate bus impedance, admittance matrices for the given power system network.	K3
			C301.2	Analyze load flow techniques using Newton –Raphson and Gauss Seidel methods for the power system networks and interpret the results	K4
			C301.3	Analyze the power system network under symmetrical fault condition using Thevenin'stheorem and bus impedance matrix	K4

			C301.4	Analyze the power system network underunsymmetrical fault condition using symmetrical components	K4
			C301.5	Analyze the transient stability of power system using equal area criterion and to apply Runge Kutta and Euler's methods tosolve the swing equation	K4
2.	**III/V**	**EE8551-Microprocessors and Microcontrollers**	C302.1	Analyze the functional building blocks of 8085microprocessor	K4
			C302.2	Identify the instructions with the help of addressing modes of 8085 microprocessor and develop the assembly language programon addition	K3
			C302.3	Analyze the functional building blocks of 8051microcontroller	K4
			C302.4	Analyze the architecture and functionalmodes of 8255	K4
			C302.5	Apply the instructions of 8051 microcontroller to develop the program for Closed loop control of servo motor	K3
3.	**III/V**	**EE8552-Power Electronics**	C303.1	Apply the knowledge on Different types ofpower semiconductor devices and their switching characteristics	K3
			C303.2	Analyze and compare the Operation, characteristics and performance parameters of various types controlled rectifiers and to design controlled rectifiers and interpret withtheir applications	K4
			C303.3	Analyze the Operation, switching techniquesand basics topologies of different types DC- DC switching Regulators and design regulators that meet the appropriate applications	K4

			C303.4	Apply the modulation techniques for pulsewidth modulated inverters and analyze harmonic reduction methods. Infer the applications of inverter	K3
			C303.5	Apply the Operation of AC voltage controller and various configurations to design for theirapplications	K3
4.	**III/V**	**EE8591-Digital Signal Processing**	C304.1	Apply the Mathematical knowledge to evaluate the different types of signals and systems and analyze the sampling process ofcontinuous time signal.	K3
			C304.2	Analyze the discrete time systems using z-transform and inverse Z transform	K4
			C304.3	Apply the Radix-2 Decimation in Time (DIT)and Decimation in Frequency (DIF) FFT Algorithm to Compute the Discrete FourierTransform	K3
			C304.4	Design of different types of Infinite ImpulseResponse (IIR) filters and Finite Impulse Response (FIR) filters.	K3
			C304.5	Analyze the various architectures of DigitalSignal Processors and addressing formats.	K4
5.	**III/V**	**CS8392-Object Oriented Programming**	C305.1	Develop Java programs using OOP principles	K2
			C305.2	Develop Java programs using the concepts ofinheritance and interfaces	K2
			C305.3	Build Java applications using exceptions andI/O streams	K2
			C305.4	Develop Java applications with threads andgenerics classes	K2
			C305.5	Develop interactive Java programs usingswings	K2

6.	**III/V**	**OMD551-Basicsof Biomedical Instrumentation**	C306.1	Identify the functions of human nervous system, Basic Components of a biomedical system and able to analyze the functions ofdifferent transducers used in biomedical system.	K2
			C306.2	Apply the knowledge of medical science toanalyse the different non-electrical parameter measurements	K3
			C306.3	Analyse the different electrodes and amplifiers used in physiological measurements like EEG, ECG, EMG etc.,	K4
			C306.4	Analyse the different imaging techniques andbiotelemetry system	K4
			C306.5	Analyse the different life assisting, Therapeutic and robotic devices used inBiomedical field.	K4
7.	**III/V**	**EE8511-Control and Instrumentation Laboratory**	C307.1	Analyze the characteristics of P, PI and PID controllers experimentally and analyze the stability of the control system using MATLAB	K4
			C307.2	Compute the transfer function of a Field controlled DC motor experimentally and analyze the response of Lag, Lead and Lag-	K3
				Lead Compensators	
			C307.3	Analyze the transient response of Position Control system experimentally and analyze the Characteristics of Synchro- Transmitter-Receiver and to Use MATLAB for the Simulation of Control Systems	K4
			C307.4	Ability to analyze the basic concepts of bridgenetworks and to analyze the Dynamics of Sensors/Transducers	K4

			C307.5	Measure the Power and Energy experimentally and analyze signal conditioning circuits and to Use MATLAB forProcess Simulation	K4
8.	**III/V**	**HS8581-Professional Communication**	C308.1	Summarize various skills such as Soft Skills, Hard skills, employability and career Skills anddemonstrate values such as Time Management and general awareness of current affairs.	K2
			C308.2	Demonstrate oneself before the audience by making effective presentations on introducing oneself, answering questions andvisual presenting	K3
			C308.3	Demonstrate oneself by participating in group discussions, brainstorming sessions and question sessions. Develop activities toimprove GD Skills	K3
			C308.4	Develop interview skills so as to be successfulin them	K2
			C308.5	Develop adequate Soft Skills required for theworkplace and long-term career	K2
9.	**III/V**	**CS8383 Object Oriented Programming Laboratory**	C309.1	Design C++ programs using functions, classeswith objects, member functions and constructors.	K3
			C309.2	Develop operator and function overloading and run time polymorphism using C++.	K3
			C309.3	Develop file handling techniques in C++ for sequential and random access also use Javacode for strings.	K3
			C309.4	Construct packages and interfaces in Java.	K2
			C309.5	Create threads in Java and handle predefinedand user defined exceptions.	K6

PROGRAMME: **ELECTRICAL AND ELECTRONICS ENGG**	DEGREE: **UG**	A.Y: **2019-2020**	SEMESTER: **06**

S.No	Year/ Sem	Course Name	Course Outcomes (The students will be able to understand the)		Knowledge Level
1.	III/VI	EE8601 – Solid State Drives	C310.1	Understand the types of drives and loadtorque characteristics for motors.	K2
			C310.2	understand the operation of the converter /chopper fed dc drive and to solve simple problems	K2
			C310.3	understand the operation of both classicaland modern induction motor drives	K2
			C310.4	Operate and maintain solid state drives forspeed control of Synchronous motor.	K2
			C310.5	Apply these skills to design the current and speed controllers for a closed loop solid-stateDC motor drive.	K3
2.	III/VI	EE8602-Protection and Switchgear	C311.1	Analyze the causes and effects of faults andungrounded system	K4
			C311.2	Analyze the characteristics and functions ofElectromagnetic type protective relays	K4
			C311.3	Analyze the various abnormal conditions inpower system apparatus and to select a suitable protection scheme	K4
			C311.4	Synthesize the static relays using comparatorsand numerical relays.	K5

			C311.5	Analyze arc interruption and to select asuitable circuit breaker	K4
3.	**III/VI**	**EE8691 - Embedded Systems**	C312.1	Analyze the basic build process of embeddedsystems, structural units in embedded processor and selection of processor and memory devices depending upon the applications.	K2
			C312.2	Analyze the different types of I/O device ports, buses and different interfaces for datatransfer in embedded networking	K1
			C312.3	Apply the different techniques like state machine model, sequential program model and concurrent model in Embedded ProductDevelopment Life Cycle (EDLC).	K3
			C312.4	Analyze the basic concept of Real Time Operating Systems and scheduling of different task and compare the features ofdifferent types of Real Time Operating Systems	K2
			C312.5	Apply the knowledge of programming concepts of Embedded Systems for variousapplications like Washing Machine automotive and Smart Card System applications	K1
4.	**III/VI**	**EE8004-Modern Power Converters**	C313.1	Understand the overview of different types loads with single phase thyristor controlledconverter.	K2
			C313.2	To understand the operation, characteristicsand performance parameters three phase thyristor controlled converter	K2
			C313.3	Analyze the different types of dc-dcconverters	K4
			C313.4	Understand the single-phase bi-directional controllers with R, L and R-L loads & 3-phasecontrollers	K2

			C313.5	Understand the Principle of operation, singlephase and three phase Cycloconverters	K2
5.	**III/VI**	**EE8005-Special Electrical Machines**	C314.1	Apply the magnetic circuit concept to increase the saliency ratio of synchronous reluctance motor and compare improvementof the saliency ratio for the different rotor constructions	K3
			C314.2	Apply the magnetic circuit concept in steppermotor for various methods of excitation and compare its static and dynamic performance	K3
			C314.3	Apply basic engineering knowledge to compare the performance of switched reluctance motor with and without sensors	K3
			C314.4	Apply the concept of D.C motor for brushlessoperation with electronic commutation in brushless D.C. motor and to develop the torque .	K3
			C314.5	Apply basic engineering knowledge in permanent magnet synchronous motor todesign power controller for permanent magnet synchronous motors.	K3
6.	**III/VI**	**EE8661-Power Electronics andDrives Laboratory**	C315.1	Analyze the VI characteristics of SCR,TRIAC and Generation of Gate Pulse using R, RC andUJT.	K4
			C315.2	Analyze the characteristics ofMOSFET,IGBT,GTO and IGCT	K4
			C315.3	Design a single phase AC to DC half controlledconverter, AC to DC fully controlled converter, step down chopper and step up MOSFET, Switched Mode Power Converter and analyze the output response.	K4

			C315.4	Analyze the output waveforms of single phase and three phase IGBT based PWMinverter, AC Voltage controller and the characteristic of PMBLDC motor	K4
			C315.5	Analyze the Simulation of output waveformPE circuits (1Φ & 3Φ semi converters, 1Φ &3Φ fullconverters, DC-DC converters, AC voltage controllers).	K4
7.	**III/VI**	**EE8681-Microprocessorsand Microcontrollers Laboratory**	C316.1	Design a program for arithmetic operation, Ascending/ Descending order, finding Maximum/Minimum numbers, rotate instruction and code conversions and executeusing 8085 processor	K4
			C316.2	Identify and convert Analog to Digital , Digitalto Analog numbers and implement the trafficlight controller with 8085	K4
			C316.3	Design a code to display the given words using keyboard display controller for serial communication and programming practiceswith simulator/Emulator /open source	K4
			C316.4	Analyze a program using read key to interfacewith display units and demonstrate conditional jumps ,loops and calling subroutines with 8051 Microcontroller	k4
			C316.5	Create program using I/O port ,8051 timer , A/D & D/A interface with DC & AC motors anddevelop a program for hardware application using embedded processors	K6
8.	**III/VI**	**EE8611-Mini Project**	C317.1	Apply practical knowledge within the chosenarea of expertise for project development	K3
			C317.2	Identify, analyze, design and handle prototype projects with a complete andorganized approach	K4

			C317.3	Contribute as an individual or in a team indevelopment of technical projects	K2
			C317.4	Develop effective communication skills for presentation of project related activities and prepare mini project reports and examination	K2

PROGRAMME: **ELECTRICAL AND ELECTRONICS ENGG**	DEGREE: **UG**	A.Y: **2020-2021**	SEMESTER: **07**

S.No	Year/ Sem	Course Name	Course Outcomes (The students will be able to understand the)		Knowledge Level
1.	IV/VII	EE8701-High Voltage Engineering	C401.1	Apply the knowledge of Engineering fundamentals to identify the causes of different over voltages in Electrical Power System and select the protection system according to the types of over voltages.	K3
			C401.2	Identify the factors that leads the breakdown mechanism of different dielectric materials and Compare dielectric strength of the different dielectric materials (Gas, Oil, Vacuum and solid)	K2
			C401.3	Apply the knowledge of Engineering fundamentals to identify the generating circuits to produce different high voltages and High currents	K3
			C401.4	Apply the knowledge of Engineering fundamentals to identify the measuring instrument to measure the different over voltages and currents in Electrical Power System	K3
			C401.5	Analyse the testing of different Electrical power apparatus and the insulation coordination	K4

2.	**IV/VII**	**E8702-Power System Operation and Control**	C402.1	Outline the voltage, frequency regulation and load forecasting methods	K2
			C402.2	Analyze the real – power frequency control for single area and two area power system	K4
			C402.3	Analyze reactive power – voltage control and select a suitable controller to improve the	K4
				voltage profile	
			C402.4	Analyze the Energy Management System and Design a SCADA system	K4
			C402.5	Prepare a comprehensive report on micro turbine modelling	K2
3.	**IV/VII**	**EE8703-Renewable Energy Systems**	C403.1	Analyze the challenges and problems associated with the use of various energy sources, including fossil fuels, with regard to future supply and the environment	K4
			C403.2	Formulate the power in wind energy, classify the types of WPPs, select the site for WPPs and analyze the grid integration issues of WPPs.	K2
			C403.3	Apply the knowledge of engineering for harnessing thermal and electrical energy from solar energy	K3
			C403.4	Apply the knowledge of engineering for harnessing electrical energy from biomass, geothermal and hydro power energy	K3
			C403.5	Apply the knowledge of engineering for harnessing electrical energy from ocean energy, fuel cell, hybrid energy systems and production with storage of the hydrogen	K3
		OML751-Testing	C404.1	Identify suitable testing technique to inspect industrial component	K2
			C404.2	Ability to use the different technique and know its applications and limitations	K2

4.	**IV/VII**	**of Materials**	C404.3	Utilize information about elastic and plastic deformation to predict loads or strains that lead to yielding, necking, or fracture	K3
			C404.4	Understand and identify the stress-strain response of ceramics, metals, and polymers, and know generally how these are altered by strengthening/hardening mechanisms, alloying, etc.	K5
			C404.5	Know types of dislocation, how they move, what strain-fields occur and how dislocations interact, what effects are created in crystals when they move, and how they lead to plastic deformation.	K2
5.	**IV/VII**	**EI8075-Fibre Optics and Laser Instrumentation**	C405.1	Analyze the characteristics of optical fibres and working the light through the fibre	K4
			C405.2	Apply the gained knowledge of optical fibres and application of the fibre in industries for measurement system and units.	K3
			C405.3	Analyze the fundamentals concepts of laser operation and its characteristics of various types of lasers.	K4
			C405.4	Analyze the application of lasers in industrials for various units and working methods.	K4
			C405.5	Apply the level of laser in hologram and medical application.	K3
6.	**IV/VII**	**EE8010-Power Systems**	C406.1	Apply engineering fundamentals to compute the solution of transient current equation for RL and RLC circuits.	K3
			C406.2	Identify the importance of switching transients and illustrate the concept of resistance switching, load switching and capacitance switching	K4
			C406.3	Recall the concept of lightning mechanism and analyze the interaction between lightning and power system	K4

		Transients	C406.4	Apply the concept of reflection and refraction and determine the Bewley Lattice diagram for different systems.	K3
			C406.5	Analyze transients in integrated power system and apply IT tools for transient computation	K4

7.	**IV/VII**	**EE8711 - PowerSystem Simulation Laboratory**	C407.1	Develop the coding to analyze the performance of transmission line in electrical power system and to formulate bus impedance, admittance matrix for the given power network.	K3
			C407.2	Develop the coding to Analyse the load flow problems using Newton Raphson and Gauss seidal methods for the power system and interpret the results.	K4
			C407.3	Design the simulation model to Analyse the power system under symmetrical and unsymmetrical fault conditions and analyse the transient stability of the power system	K4
			C407.4	Develop the coding to Analyse the economic dispatch and load frequency dynamic problems for the given power system and interpret the results	k4
			C407.5	Design the simulation model to Analyse the occurrence of electromagnetic transients in power system and interpret the results	K4
		EE8712-	C408.1	Analyze the V-I characteristics and efficiency of 1 KW solar PV system with stand alone and grid connected by conducting experiment and simulation using MATLAB Simulink.	K4
			C408.2	Analyze the performance and assessment of micro wind energy generator by conducting experiment and simulation using MATLAB Simulink.	K4

8.	**IV/VII**	**Renewable Energy Systems Laboratory**	C408.3	Analyze the performance and assessment of solar-wind hybrid system by conducting experiment and simulation using MATLAB Simulink.	K4
			C408.4	Analyze the Hydel power using MATLAB Simulink and analyze the performance and assessment of Fuel cell by conducting experiment and simulation using MATLAB	k4
				Simulink.	
			C408.5	Analyze the various types of intelligent controller for hybrid system using MATLABSimulink	K4

PROGRAMME: **ELECTRICAL ANDELECTRONICS ENGG**	DEGREE: **UG**	A.Y: **2020-2021**	SEMESTER: **08**

S. No	**Year/ Sem**	**Course Name**	**Course Outcomes (The students will be able to understand the)**		**KnowledgeLevel**
1.	**IV/VIII**	**EE8015 - Electric Energy Generation, Utilization and Conservation**	C409.1	Evaluate tractive effort for the propulsion of train, name the traction motors, list the traction motor control, track equipment and collection gear.	K1
			C409.2	Categorize different light sources and designvarious illumination systems for the indoor lighting schemes, factory lighting, halls, outdoor lighting schemes, flood lighting, street lighting.	K2
			C409.3	Compare the different methods of electricheating and types of electric welding.	K2
			C409.4	Estimate average solar radiation and illustratethe physical principles of the conversion of solar radiation into heat.	K5

			C409.5	Analyze aerodynamic forces acting on the blade and draw basic components of a WECS.	K4
2	IV/VIII	EE8617 - High Voltage DirectCurrent Transmission	C410.1	Describe the concept, planning of DC power transmission and comparison with AC Powertransmission	K1
			C410.2	Analyze HVDC converters	K4
			C410.3	Explain about HVDC control systems	K2
			C410.4	Analyze harmonics and design of filters.	K4
			C410.5	Analyse DC system under steady state	K4
3	IV/VIII	EE8811 - Project Work	C412.1	Apply the fundamentals of mathematics, science and engineering knowledge to identify , formulate , design and investigate complexengineering problems of electrical and electronics engineering andallied applications .	K2
			C412.2	Apply appropriate techniques and modern engineering hardware and software tools inelectrical and electronics engineering and allied applications.	K2
			C412.3	Apply reasoning informed by the contextual knowledge to assess societal , health, safety,	K2

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DEPARTMENT OF MECCHANICAL ENGINEERING
COURSE OUT COME REGULATION 2017

PROGRAMME: **MECHANICAL ENGINEERING**	DEGREE: **UG**	A.Y: **2017-18**	SEMESTER: **01**

S.No	Year/ Sem	Course Name	Course Outcomes (The students should be able to)		Knowledge Level
1	I / I	HS8151 - Communicative English	C101.1	Communicate clearly both in the written form and orally using appropriate vocabulary and comprehend written texts to make inferences.	K2
			C101.2	Speak persuasively in different social contexts and write biographical details and technical documents cohesively, coherently and flawlessly using appropriate words.	K2
			C101.3	Speak, read and write effectively for a variety of professional and social settings.	K2
			C101.4	Read descriptive, narrative, expository and interpretive texts and write using creative, critical, analytical and evaluative methods.	K6
			C101.5	Listen, comprehend and respond to different spoken and written discourses/excerpts in different accents and write different genres of texts adopting various writing strategies.	K6
2	I / I	MA8151 - Engineering Mathematics - I	C102.1	Use both the limit definition and rules of differentiation to differentiate functions.	K3
			C102.2	Apply differentiation to solve maxima and minima problems	K3
			C102.3	Evaluate integrals both by using Reimann sums and by using the fundamental theorem of convergent improper integrals. Evaluate integrals using techniques of integration, such as substitution, partial Fractions, integration by parts and improper integrals.	K5
			C102.4	Apply integration to compute multiple integrals, area, volume, integrals in polar Coordinates, in addition to change of order and change of variables.	K3
			C102.5	Apply various techniques in solving differential equations.	K3

3	**I / I**	**PH8151 - Engineering Physics**	C103.1	Discuss the Young's modulus and Rigidity modulus of elasticity of materials and its determination through experimental methods .	K2
			C103.2	Describe the characteristics of laser light and their application in semiconductor laser .	K2
			C103.3	Discuss the principle behind the propagation of light through an optical fibre and its application in sensors.	K2
			C103.4	Summarize the different modes of heat transfer.	K2
			C103.5	Describe the unit cell characteristics and the growth of crystals	K2
4	**I / I**	**CY8151 - Engineering Chemistry**	C104.1	Summarize the water related problems in boilers and their treatment techniques.	K2
			C104.2	Discuss the applications of adsorption in the field of water and air pollution abatement.	K1
			C104.3	Discuss the types of catalysis and the mechanism of enzyme catalysis.	K2
			C104.4	Associate phase rule in the alloying and the behavior of one component and two component systems using phase diagram.	K2
			C104.5	Summarize the principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells.	K2
5	**I / I**	**GE8151- Problem Solving And Python**	C105.1	Discuss the logical solutions through Flowcharts, Algorithms and Pseudo code	K2
			C105.2	Explain the syntax for python programming constructs.	K2
			C105.3	Compute the flow of the program to obtain the programmatic solution.	K2
			C105.4	Examine the programs with sub problems using 'Python' language	K3
			C105.5	Compute the compound data using Python lists, tuples, and dictionaries	K2
6	**I / I**	**GE8152- ENGINEERING GRAPHICS**	C106.1	Sketch the conic sections, special curves, and draw orthographic views from pictorial views and models.	K4
			C106.2	Apply the principles of orthographic projections of points in all quadrants, lines and planes in first quadrant.	K3
			C106.3	Sketch the projections of simple solids like prisms, pyramids, cylinder and cone and obtain the traces of plane figures.	K4

			C106.4	Practice the sectional views of solids like cube, prisms, pyramids, cylinders & cones and extend its lateral surfaces	K3
			C106.5	Sketch the perspective projection of simple solids, truncated prisms, pyramids, cone and cylinders and sketch the isometric projection of simple machine parts.	K4
7	**I / I**	**GE8161- Problem Solving And Python Lab**	C107.1	Write, test, and debug simple Python programs	K1
			C107.2	Apply the concept of conditionals and loops in Python programs.	K3
			C107.3	Develop the Python programs step-wise by defining functions and calling them.	K4
			C107.4	Use Python lists, tuples, dictionaries for representing compound data.	K3
			C107.5	Read and write data from/to files in Python.	K2
8	**I / I**	**BS8161 - Physics And Chemistry Laboratory**	C108.1	Apply physics principles of optics and thermal physics to evaluate engineering properties of materials.	K3
			C108.2	Ability to test materials by using their knowledge of applied physics principles in optics and properties of matter.	K5
			C108.3	Perform the quantitative chemical analysis of chloride and dissolved oxygen.	K5
			C108.4	Determine the amount of acids by using the instruments of conductivity meter and pH meter.	K5
			C108.5	Determine the hardness, alkalinity and metal ion content in the water samples by volumetric titration.	K5

PROGRAMME: **MECHANICAL ENGINEERING**	DEGREE: **UG**	A.Y: **2017-18**	SEMESTER: **02**

S.No	Year/ Sem	Course Name	Course Outcomes (The students should be able to)		Knowledge Level
1	I / II	**HS8251 - Technical English**	C109.1	Read technical texts and write area specific texts effortlessly.	K2
			C109.2	Listen and comprehend lectures and talks in their areas of specialization and write effectively for a variety of professional and social settings	K2
			C109.3	Speak and write appropriately and effectively in varied formal and informal contexts.	K6
			C109.4	Write effectively and persuasively and produce different types of writing such as letters, minutes, reports and winning job applications.	K6
			C109.5	Communicate clearly using technical vocabulary in their professional correspondences	K2
2	I / II	**MA8251 Engineering Mathematics - II**	C110.1	Calculate the eigen values and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices	K3
			C110.2	Evaluate the line, surface and volume integrals using Gauss, Stokes and Green‘s theorems and their verification	K5
			C110.3	Determine Analytic functions, Conformal mapping and Bilinear transformation	K3
			C110.4	Evaluate the Cauchy’s integrals, Taylor’s and Laurent’s and residue theorem for evaluation for real integrals using circular and semicircular, contour	K5
			C110.5	Evaluate Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constantcoefficients.	K5
			C110.6	Discuss Laplace Transform methods to solve initial value problems for constant coefficient linear ODEs.	K2
3	I / II	**PH8201 – Material Science**	C111.1	Analyze the thermal performance of buildings.	K2
			C111.2	Acquire knowledge on the acoustic properties of buildings.	K1

			C111.3	Understand the various lighting design of buildings.	K2
			C111.4	Knowledge on the properties and performace of engineering matrials	K3
			C111.5	Understand the Hazards of buildings.	K2
4	**I / II**	**BE8251 - Basic Electrical And Electronics Engineering**	C112.1	Understand the electrical circuit and their working principles	K2
			C112.2	Identify the electrical components of a machines and their applications	K2
			C112.3	Explain the characteristics of the electrical machines	K2
			C112.4	Identify the digital electronics circuits and their components	K2
			C112.5	Explain the fundamentals of communication systems	K2
5	**I / II**	**GE8291- Environmental Science And Engineering**	C113.1	Summarize the values, threats, conservation of biodiversity and ecosystems.	K2
			C113.2	Discuss the sources, effects, control measures of different types of pollution, and solid waste management.	K1
			C113.3	Associate the effects of exploitation of Natural resources on environment	K3
			C113.4	Summarize the water conservation methods and various environmental acts for environmental sustainability	K2
			C113.5	Discuss scientific, technological, economic and social solutions to environmental problems	K1
6	**I / II**	**GE8292 - Engineering Mechanics**	C114.1	Illustrate the vectorial and scalar representation of forces and moments	K3
			C114.2	Analyse the rigid body in equilibrium	K3
			C114.3	Evaluate the properties of surfaces and solids	K3
			C114.4	Calculate dynamic forces exerted in rigid body	K3
			C114.5	Determine the friction and the effects by the laws of friction	K3
7	**I / II**	**GE8261 - Engineering Practices Laboratory**	C115(L).1	Construct carpentry components and pipe connections including plumbing works.	K3
			C115(L).2	Use welding equipment’s to join the structures.	K3
			C115(L).3	Carry out the basic machining operations.	K2

			C115(L).4	Create the models using sheet metal works.	K6
			C115(L).5	Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundry and fittings	K3
			C115(L).6	Create Electrical and Electronics circuits.	K6
			C115(L).7	Design the simple electrical circuits based on the applications.	K6
			C115(L).8	Solder the electrical and electronic devices and components in the PCB.	K6
			C115(L).9	Explain the functioning of electrical and electronic circuits.	K4
8	**I / II**	**CE8211 - Computer Aided Building Drawing Laboratory**	C116(L).1	Draft the plan, elevation and sectional views of the buildings, using computer softwares	K3
			C116(L).2	Draft the plan, elevation and sectional views of the industrial structures using computer softwares	K3
			C116(L).3	Draft the plan, elevation and sectional views of the framed buildings using computer softwares	K3

PROGRAMME: **MECHANICAL ENGINEERING**	DEGREE: **UG**	A.Y: **2018-2019**	SEMESTER: **03**

S.No	Year/ Sem	Course Name	Course Outcomes (The students should be able to)		Knowledge Level
1	II / III	MA8353 - Transforms And Partial Differential Equations	C201.1	Understand how to solve the given standard partial differential equations.	K1
			C201.2	Solve differential equations using Fourier series analysis which plays a vital role in engineering applications.	K3
			C201.3	Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations.	K4
			C201.4	Understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering.	K2
			C201.5	Use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems.	K2
2	II / III	ME8391 Engineering Thermodynamics	C202.1	Apply the first law of thermodynamics for simple open and closed systems under steady and unsteady conditions	K3
			C202.2	Apply second law of thermodynamics to open and closed systems and calculate entropy and availability	K3
			C202.3	Apply Rankine cycle to steam power plant and compare few cycle improvement methods	K3
			C202.4	Derive simple thermodynamic relations of ideal and real gases	K3
			C202.5	Calculate the properties of gas mixtures and moist air and its use in psychrometric processes	K3
3	II / III	CE8394 Fluid Mechanics and Machinery	C203.1	Apply mathematical knowledge to predict the properties and characteristics of a fluid	K3
			C203.2	Analyze and calculate major and minor losses associated with pipe flow in piping networks	K3

			C203.3	Mathematically predict the nature of physical quantities	K3
			C203.4	Critically analyze the performance of pumps	K2
			C203.5	Critically analyze the performance of turbines	K2
4	**II / III**	**ME8351 Manufacturing Technology-I**	C204.1	Explain different metal casting processes, associated defects, merits and demerits	K2
			C204.2	Compare different metal joining processes.	K3
			C204.3	Summarize various hot working and cold working methods of metals.	K3
			C204.4	Explain various sheet metal making processes.	K3
			C204.5	Distinguish various methods of manufacturing plastic components	K2
5	**II / III**	**Electrical Drives and Controls**	C205.1	Illustrate heating and cooling curves with factors influencing the choice of electrical drives.	K2
			C205.2	Explain different types of electrical machines and their performances.	K2
			C205.3	Employ various starting methods in electrical motors.	K2
			C205.4	Apply various methods adopted in conventional and solid state speed control of DC drives.	K2
			C205.5	Use various methods adopted in conventional and solid state speed control of AC drives.	K4
6	**II / III**	**ME8361 Manufacturing Technology Laboratory – I**	C206 (L).1	Demonstrate the safety precautions exercised in the mechanical workshop.	K2
			C206 (L).2	Make the work piece as per given shape and size using Lathe.	K2
			C206 (L).3	Join two metals using arc welding.	K2
			C206 (L).4	Use sheet metal fabrication tools and make simple tray and funnel.	K2
			C206 (L).5	Use different moulding tools, patterns and prepare sand moulds.	K2
7	**II / III**	**ME8381 Computer Aided Machine Drawing**	C207(L).1	Follow the drawing standards, Fits and Tolerances	K2
			C207(L).2	Re-create part drawings, sectional views and assembly drawings as per standards	K2
			C207(L).3	Describe Indian Standards on drawing practices and standard components	K2
			C207(L).4	Sketch drawings of machine components	K3

			C207(L).5	Construct drawings both manually and using standard CAD packages	K2
8	**II / III**	**EE8361 Electrical Engineering Laboratory**	C208(L).1	Determine the load characteristics of DC motors and Generators.	K3
			C208(L).2	Draw the equivalent circuit of transformer.	K4
			C208(L).3	Predetermine the voltage regulation of an alternator.	K3
			C208(L).4	Sketch the characteristics of three phase synchronous and induction motors.	K3
			C208(L).5	Differentiate various types of D.C. and A.C. motor starters.	K4
9	**II / III**	**HS8381 Interpersonal Skills / Listening & Speaking**	C209(L).1	Speak effectively on various academic topics and respond to questions.	K2
			C209(L).2	Converse effectively with the use of conversation starters and discourse markers.	K2
			C209(L).3	Listen and respond to various academic dialogues and discussions.	K1
			C209(L).4	Participate confidently and appropriately in informal and formal conversations and group discussions.	K2
			C209(L).5	Use a range of presentation tools like PPT, Videos, and Charts etc. to make an engaging presentation.	K2

PROGRAMME: **MECHANICAL ENGINEERING**	DEGREE: **UG**	A.Y: **2018-2019**	SEMESTER: **04**

S.No	Year/ Sem	Course Name	Course Outcomes (The students should be able to)		Knowledge Level
1	II / IV	**MA8452 Statistics and Numerical Methods**	C210.1	Apply the concept of testing of hypothesis for small and large samples in real life problems.	K3
			C210.2	Apply the basic concepts of classifications of design of experiments in the field of designing engineering problems.	K3
			C210.3	Appreciate the numerical techniques for solving algebraic, transcendental and system of linear equations.	K3
			C210.4	Make use the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.	K3
			C210.5	Apply the knowledge of various techniques and methods for solving first order ordinary differential equations with initial and boundary conditions in engineering problems.	K3
2	II / IV	**ME8492 Kinematics of Machinery**	C211.1	Discuss the basics of mechanism	K2
			C211.2	Calculate velocity and acceleration in simple mechanisms	K2
			C211.3	Draw CAM profiles	K2
			C211.4	Solve problems on gears and gear trains	K2
			C211.5	Examine friction in machine elements	K2
3	II / IV	**ME8451 Manufacturing Technology-II**	C212.1	Explain the mechanism of material removal processes.	K4
			C212.2	Describe the constructional and operational features of centre lathe and other special purpose lathes	K3
			C212.3	Describe the constructional and operational features of shaper, planner, milling, drilling, sawing and broaching machines.	K1
			C212.4	Explain the types of grinding and other super finishing processes apart from gear manufacturing processes.	K3

			C212.5	Summarize numerical control of machine tools and write a part program.	K3
4	**II / IV**	**ME8491 Engineering Metallurgy**	C213.1	Explain alloys and phase diagram, Iron-Iron carbon diagram and steel classification.	K2
			C213.2	Explain isothermal transformation, continuous cooling diagrams and different heat treatment processes.	K2
			C213.3	Clarify the effect of alloying elements on ferrous and non-ferrous metals	K2
			C213.4	Summarize the properties and applications of non-metallic materials.	K2
			C213.5	Explain the testing of mechanical properties.	K4
5	**II / IV**	**CE8395 Strength of Materials for Mechanical Engineers**	C214.1	Understand the concepts of stress and strain in simple and compound bars, the importance of principal stresses and principal planes.	K3
			C214.2	Understand the load transferring mechanism in beams and stress distribution due to shearing force and bending moment.	K2
			C214.3	Apply basic equation of simple torsion in designing of shafts and helical spring	K3
			C214.4	Calculate the slope and deflection in beams using different methods.	K3
			C214.5	Analyze and design thin and thick shells for the applied internal and external pressures	K2
6	**II / IV**	**ME8493 Thermal Engineering – I**	C215.1	Apply thermodynamic concepts of different air standard cycles and solve problems.	K3
			C215.2	Solve problems in single stage and multistage air compressors.	K3
			C215.3	Explain the functioning and features of I.C. engines, components and auxiliaries.	K3
			C215.4	Calculate performance parameters of I.C. Engines.	K3
			C215.5	Explain the flow in Gas turbines and solve problems.	K2
7	**II / IV**	**ME8462 Manufacturing Technology Laboratory – II**	C216(L).1	Design different parts of mechanical equipment's	K3
			C216(L).2	Apply skills in various designing and manufacturing industries	K3
			C216(L).3	Create 2D and 3D models using modeling software's	K6

			C216(L).4	Make appropriate selection of CAD functionality to use as tools in the design process	K6
			C216(L).5	Communicate effectively the geometry and intent of design features	K3
8	**II / IV**	**CE8381 Strength of Materials and Fluid Mechanics and Machinery Laboratory**	C217(L).1	Perform different destructive testing and Compare Characteristics of material	K4
			C217(L).2	Utilize appropriate materials in design considering engineering properties, sustainability, cost and weight	K3
			C217(L).3	Perform engineering work in accordance with ethical and economic constraints related to the design of structures and machine parts	K3
			C217(L).4	Analyze and design structural members subjected to tension, compression,torsion, bending and combined stresses using the fundamental concepts of stress, strain and elastic behavior of materials	K4
			C217(L).5	Measure the discharge of fluid flow in a pipe by using different flow measurement devices	K5
			C217(L).6	Calculate the energy losses of friction in a pipe flow for various flow conditions	K3
			C217(L).7	Perform the characteristics of positive displacement and dynamic pumps	K6
			C217(L).8	Determine the efficiency of impulse and reaction turbine in various load conditions	K3
			C217(L).9	Compare the performance characteristics of pumps and turbines	K3
9	**II / IV**	**HS8461 Advanced Reading and Writing**	C218(L).1	Read and evaluate different types of texts critically and predict content.	K2
			C218(L).2	Write different types of essays using appropriate discourse markers.	K2
			C218(L).3	Display critical thinking in various professional contexts.	K2
			C218(L).4	Write winning job applications.	K2
			C218(L).5	Prepare technical documents like project proposals and statement of purpose	K2

PROGRAMME: **MECHANICAL ENGINEERING**	DEGREE: **UG**	A.Y: **2019-2020**	SEMESTER: **05**

S.No	Year/ Sem	Course Name	Course Outcomes (The students should be able to)		Knowledge Level
1	III / V	ME8595 Thermal Engineering II	C301.1	Solve problems in Steam Nozzle	K3
			C301.2	Explain the functioning and features of different types of Boilers and auxiliaries and Calculate performance parameters.	K3
			C301.3	Explain the flow in steam turbines, draw velocity diagrams for steam turbines and solve problems.	K2
			C301.4	Summarize the concept of Cogeneration, Working features of Heat pumps and Heat exchangers	K3
			C301.5	Solve problems using refrigerant table / charts and psychometric charts	K4
2	III / V	ME8593 - Design of Machine Elements	C302.1	Explain the influence of steady and variable stresses in machine component design.	K2
			C302.2	Apply the concepts of design to shafts, keys and couplings.	K3
			C302.3	Apply the concepts of design to temporary and permanent joints.	K3
			C302.4	Apply the concepts of design to energy absorbing members, connecting rod and crank shaft.	K3
			C302.5	Apply the concepts of design to bearings.	K3
3	III / V	ME8504 - Metrology and Measurements	C303.1	Describe the concepts of measurements to apply in various metrological Instruments.	K2
			C303.2	Outline the principles of linear and angular measurement tools used for industrial applications.	K3
			C303.3	Explain the procedure for conducting computer aided inspection.	K2
			C303.4	Demonstrate the techniques of form measurement used for industrial components.	K2
			C303.5	Discuss various measuring techniques of mechanical properties in industrial Applications.	K2
4	III / V	ME8594 -	C304.1	Calculate static and dynamic forces of mechanisms.	K3

		Dynamics of Machines	C304.2	Calculate the balancing masses and their locations of reciprocating and rotating masses.	K2
			C304.3	Compute the frequency of free vibration.	K2
			C304.4	Compute the frequency of forced vibration and damping coefficient.	K2
			C304.5	Calculate the speed and lift of the governor and estimate the gyroscopic effect on automobiles, ships and airplanes.	K2
5	**II / IV**	**OAT551 Automotive System**	C305.1	Recognize the various parts of the automotive engines and their functions and materials , discuss the engine auxiliary systems	K1
			C305.2	Recognize the various types of automotive chassis , Explain the Steering system	K1
			C305.3	Distinguish the working of different types of Transmission system	K2
			C305.4	Explain the Suspension systems, Brake system	K2
			C305.5	Predict possible alternate sources of energy for IC Engines and engine emission controls	K3
6	**III / V**	**ME8511 Kinematics and Dynamics Laboratory**	C306.1	Explain gear parameters and working of lab equipment's.	K2
			C306.2	Analyze the kinematics of mechanisms, gyroscopic effect and two-dimensional (planar) rigid-body motion.	K4
			C306.3	Determine mass moment of inertia of mechanical element, governor effort and range sensitivity and compare for different governors.	K3
			C306.4	Determine the natural frequency and damping coefficient, torsional frequency and critical speeds of shafts.	K3
			C306.5	Analyze balancing mass of rotating and reciprocating masses and transmissibility ration.	K4
7	**III / V**	**ME8512 Thermal Engineering Laboratory**	C307(L).1	Conduct tests on heat conduction apparatus and evaluate thermal conductivity of materials.	K2
			C307(L).2	Conduct tests on natural and forced convective heat transfer apparatus and evaluate heat transfer coefficient.	K2
			C307(L).3	Conduct tests on radiative heat transfer apparatus and evaluate Stefan Boltzmann constant and emissivity.	K5

			C307(L).4	Conduct tests to evaluate the performance of parallel/counter flow heat exchanger apparatus and reciprocating air compressor.	K2
			C307(L).5	Conduct tests to evaluate the performance of refrigeration and air conditioning test rigs.	K4
8	**III / V**	**ME8512 Metrology and Measurements Laboratory**	C308(L).1	Measure the gear tooth dimensions, angle using sine bar, straightness and	K2
			C308(L).2	Conduct test for flatness, thread parameters, temperature using thermocouple, force, displacement, torque and vibration.	K5
			C308(L).3	Calibrate the vernier, micrometer and slip gauges and setting up the comparator for the inspection.	K5
			C308(L).4	Measure the components precisely using non-contact (optical) measurement system.	K3
			C308(L).5	Demonstrate the functions of Coordinate measuring machine and surface roughness tester for measuring complex profiles.	K2

PROGRAMME: **MECHANICAL ENGINEERING**	DEGREE: **UG**	A.Y: **2019-20**	SEMESTER: **06**

S.No	Year/ Sem	Course Name	Course Outcomes (The students should be able to)		Knowledge Level
1	III / VI	ME8601 - Design of Transmission Systems	C309.1	Apply the concepts of design to belts, chains and rope drives.	K3
			C309.2	Apply the concepts of design to spur, helical gears.	K4
			C309.3	Apply the concepts of design to worm and bevel gears	K4
			C309.4	Apply the concepts of design to gear boxes.	K4
			C309.5	Apply the concepts of design to cams, brakes and clutches.	K3
2	III / VI	ME8691 - Computer Aided Design and Manufacturing	C310.1	Explain the 2D and 3D transformations, clipping algorithm, Manufacturing models and Metrics	K2
			C310.2	Explain the fundamentals of parametric curves, surfaces and Solids	K2
			C310.3	Summarize the different types of Standard systems used in CAD	K2
			C310.4	Apply NC & CNC programming concepts to develop part program for Lathe & Milling Machines	K2
			C310.5	Summarize the different types of techniques used in Cellular Manufacturing and FMS	K4
3	III / VI	ME8693 - Heat and Mass Transfer	C311.1	The students will be able to develop the knowledge about steady and unsteady state heat conduction in one dimensional heat transfer.	K2
			C311.2	The students will be able to understand the mechanism of natural and forced convection for different fluid flow.	K2
			C311.3	The students will be able to learn the various regimes of phase change heat transfer and design parameters of heat exchanger.	K1
			C311.4	The students will be able to acquire the concept radiation heat transfer mode for different surfaces.	K3
			C311.5	The students will be able to understand the	K2

				mechanism of diffusion and convective mass transfer in stagnant and flow condition.	
4	**III / VI**	**ME8692 - Finite Element Analysis**	C312.1	Summarize the basics of finite element formulation.	K2
			C312.2	Apply finite element formulations to solve one dimensional Problem.	K3
			C312.3	Apply finite element formulations to solve two dimensional scalar Problems	K3
			C312.4	Apply finite element method to solve two dimensional Vector problems.	K4
			C312.5	Apply finite element method to solve problems on iso parametric element and dynamic Problems.	K2
5	**III / VI**	**ME8694 - Hydraulics and Pneumatics**	C313.1	Explain the Fluid power and operation of different types of pumps.	K3
			C313.2	Summarize the features and functions of Hydraulic motors, actuators and Flow control valves	K3
			C313.3	Explain the different types of Hydraulic circuits and systems	K2
			C313.4	Explain the working of different pneumatic circuits and systems	K3
			C313.5	Summarize the various trouble shooting methods and applications of hydraulic	K3
6	**III / VI**	**PR8592 Welding Technology**	C314.1	Understand the construction and working principles of gas and arc welding process.	K3
			C314.2	Understand the construction and working principles of resistance welding process.	K2
			C314.3	Understand the construction and working principles of various solid states welding process.	K2
			C314.4	Understand the construction and working principles of various special welding processes.	K3
			C314.5	Understand the concepts on weld joint design, weld ability and testing of weld elements.	K2
7	**III / VI**	**ME8681 CAD CAM Lab**	C315(L).1	Design different parts of mechanical equipment's.	K4
			C315(L).2	Apply skills in various designing and manufacturing industries	K2
			C315(L).3	Create 2D and 3D models using modeling software's.	K6

			C315(L).4	Make appropriate selection of CAD functionality to use as tools in the design process.	K4
			C315(L).5	Explain effectively the geometry and intent of design features.	K3
8	**III / VI**	**ME8682 Design and Fabrication Project**	C316(P).1	Design the machine element or the mechanical product.	K2
			C316(P).2	Develop a 3D model of the designed product.	K3
			C316(P).3	Fabricate the machine element or the mechanical product.	K3
			C316(P).4	Demonstrate the working model of the machine element or the mechanical product.	K3
			C316(P).5	Prepare the necessary documents and reports for the final fabricated product	K2
9	**III / VI**	**HS8581 Professional Communication**	C 317(L).1	Cultivate intercultural communication skills, to guide students in making appropriate and responsible decisions, to develop leadership traits and soft skills and to create a desire to fulfill individual goals and team goals.	K6
			C 317(L).2	Help the learners acquire listening and speaking skills through lab based activities, and enable them to introduce themselves and make effective presentations.	K2
			C 317(L).3	Guide learners to evaluate their thinking skills, acquire listening and speaking skills and enable them to involve in group participation.	K4
			C 317(L).4	Teach various formats of interview, answering techniques, body language and paralinguistic skills.	K3
			C 317(L).5	Describe the prioritize learners' objectives and goals, to contribute and work as a team by creating more leadership opportunities.	K2

PROGRAMME: **MECHANICAL ENGINEERING**	DEGREE: **UG**	A.Y: **2020-21**	SEMESTER: **07**

S.No	Year/ Sem	Course Name	Course Outcomes (The students should be able to)		Knowledge Level
1	IV / VII	ME8792 Power Plant Engineering	C401.1	Describe the layout, construction and working of the components of a thermal power plant	K2
			C401.2	Outline the layout, construction and working of the components of a Diesel, Gas and Combined cycle power plants	K2
			C401.3	Illustrate the layout, construction and working of the components of nuclear power plant	K2
			C401.4	Outline the layout, construction and working of the components of a Renewable energy power plants	K2
			C401.5	Explain about energy, economic and environmental issues of power plant	K2
2	IV / VII	ME8793 Process Planning and Cost Estimation	C405.1	Recall the steps involved in process planning	K1
			C405.2	Summarize the procedure and parameters required for process planning activities	K2
			C405.3	Explain the importance of costing and estimation procedures	K4
			C405.4	Estimate the cost for various shops	K5
			C405.5	Estimate the machining time required for drilling, boring, milling, planning and grinding etc.	K5
3	IV / VII	ME8791 Mechatronics	C402.1	Explain about various sensors and its working principles	K4
			C402.2	Design the microprocessor of 8085 and 8051	K4
			C402.3	Identify the program and the microcontroller	K3
			C402.4	Know about the functions, working and selection of PLC	K2
			C402.5	Design the mechatronic system with electrical and electronic circuits	K4
4	IV / VII	OIE751 ROBOTICS	C403.1	Summarize the basic concepts of industrial robotics and key components of robotics technologies.	K5

			C403.2	Summarize the robot drive systems, gripper sand various end effectors.	K5
			C403.3	Describe the various sensors and image processing & data reduction method for the control of robots.	K2
			C403.4	Analyze the various kinematics of robots and prepare the robot program.	K4
			C403.5	Explain the implementations of robots in industries and analyzing robot economics.	K2
5	**IV / VII**	**ME8073Unconventional Machining Process.**	C404.1	Explain the need for unconventional machining processes and its classification	K2
			C404.2	Compare various thermal energy and electrical energy based unconventional machining processes.	K2
			C404.3	Summarize various chemical and electro-chemical energy based unconventional machining processes.	K2
			C404.4	Explain various Nano abrasives based unconventional machining processes.	K2
			C404.5	Distinguish various recent trends based unconventional machining processes.	K2
6	**IV / VII**	**ME 8097 Non Destructive Testing and Evaluations**	C405.1	Discuss the concept of NDT and materials	K3
			C405.2	Explain the various processes involved in surface NDE	K4
			C405.3	Describe the role of eddy current and thermography testing in NDT	K4
			C405.4	Compare the principles of ultrasonic and acoustic testing	K3
			C405.5	Explain the influence of radiography testing in NDT	K2
7	**IV / VII**	**ME8711 Simulation and Analysis Laboratory**	C406(L).1	Demonstrate the engineering design problem that involves interaction between heat, stress and to generate the model using a proper element type, and then solve the problem	K2
			C406(L).2	Discretize, apply load and constrains for the given model	K3
			C406(L).3	Display the results such as Von Mises stress, displacement, temperature, pressure, and velocity etc. obtained from analysis	K2
			C406(L).4	Model, analyse and simulate experiments under	K4

				real time environment and evaluate the performance	
			C406(L).5	Demonstrate the use of MATLAB software for multi-physic type of problems	K2
8	**IV / VII**	**ME8781 Mechatronics Laboratory**	C407(L).1	Summaries how mechatronics integrates knowledge from different disciplines in order to realize engineering and consumer products that are useful in everyday	K2
			C407(L).2	Design the mechatronics circuits for suitable applications	K6
			C407(L).3	Demonstrate the functions of 8051 microcontroller and their interface	K2
			C407(L).4	Simulate the various pneumatic and hydraulic circuits for real time applications	K3
			C407(L).5	Select suitable actuators and sensors and integrate them for suitable applications	K2
9	**IV / VII**	**ME8712 TECHNICAL SEMINAR**	C408(L).1	Comprehend any given problem related to mechanical engineering field.	K2
			C408(L).2	Apply knowledge of mathematics, science, and mechanical engineering.	K2
			C408(L).3	Solve the problems in the field for thermal sciences	K4
			C408(L).4	Develop the knowledge in field for manufacturing technology.	K6
			C408(L).5	Utilize the skills learned in the design domain	K2

PROGRAMME: **MECHANICAL ENGINEERING**	DEGREE: **UG**	A.Y: **2020-21**	SEMESTER: **08**

S.No	Year/ Sem	Course Name	Course Outcomes (The students should be able to)		Knowledge Level
1	IV / VIII	MG8591 Principles of Management	C409.1	Understand the management functions and organizations	K2
			C409.2	Understand the management functions of planning	K2
			C410.3	Understand the management functions of organizing	K2
			C409.4	Explain the management functions of controlling	K2
			C409.5	Explain the management functions of directing	K2
2	IV / VIII	IE8693 Production Planning and Control	C410.1	Enumerate the activities involved in the Production Planning and Control function	K1
			C410.2	Explain the significance and applications of work study techniques	K2
			C410.3	Describe the process planning activities with reference to production control	K2
			C410.4	Discuss the concepts of production scheduling	K2
			C410.5	Enumerate the activities involved in the Production Planning and Control function	K1
3	IV / VIII	ME8811(P)- Project Work	C411(P).1	Take up any challenging practical problems and find solution by formulating proper methodology.	K4

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DEPARTMENT OF CIVIL ENGINEERING

M.E – STRUCTURAL ENGINEERING

COURSE OUT COME - REGULATION - 2017

PROGRAMME:**STRUCTURAL ENGINEERING**	DEGREE: P**G**	A.Y: **2018-19**	SEMESTER: **01**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	I / I	MA5151 - ADVANCED MATHEMATICAL METHODS	C101.1	Application of Laplace and Fourier transforms to initial value, initial–boundary value and boundary value problems in Partial Differential Equations.	K3
			C101.2	Maximizing and minimizing the functional that occur in various branches of Engineering Disciplines.	K2
			C101.3	Construction of conformal mappings between various domains and use of conformal mapping in studying problems in physics and engineering particularly to fluid flow and heat flow problems.	K3
			C101.4	Applications in applied sciences and engineering and develops ability to solve mathematical problems involving tensors.	K4
			C101.5	Competently use tensor analysis as a tool in the field of applied sciences and related fields.	K3
2	I / I	ST5101- ADVANCED CONCRETE STRUCTURES	C102.1	Design concepts of various concrete structures and structural elements by limit state design	K4
			C102.2	Design of the limit state design of RCC beams and columns	K4
			C102.3	Design special structures such as Deep beams, Corbels, Deep beams, and Grid floors	K4
			C102.4	Make the students confident to design the flat slab as per Indian standard, yield line theory and strip method.	K4
			C102.5	Design the beams based on limit analysis and detail the beams, columns and joints for ductility.	K4

3	**I / I**	**ST5102 - DYNAMICS OF STRUCTURS**	C103.1	Concept of free and forced vibration analysis of different systems.	K3
			C103.2	Design of structures subjected to dynamic responses of two degree of freedom and understand their application in building system.	K4
			C103.3	Design of structures subjected to dynamic responses of three degree of freedom and understand their application in building system.	K4
			C103.4	Mathematical model of dynamic response continuous system	K4
			C103.5	Analyse of multiple degree of freedom system for dynamic response	K4
4	**I / I**	**ST5103 - THEORY OF ELASTICITY AND PLASTICITY**	C104.1	Concept of elastic analysis of plane stresses problems	K3
			C104.2	Concept of elastic analysis of plane strains problems	K3
			C104.3	Analyse the concept of shear stress and starin in non circular sections	K4
			C104.4	Design of the baems on elastic foundations.	K4
			C104.5	Knowledge in various theories of failures and plasticity.	K4
5	**I / I**	**ST5001- MAINTENANCE AND REHABILITATION OF STRUCTURES**	C105.1	Explain and suggest maintenance and repair strategies	K2
			C105.2	Apply the concept of durability due to various climatie conditions	K3
			C105.3	explain the suitable materials and techniques for repair	K2
			C105.4	choose various retrofitting and rehabilitation techniques	K3
			C105.5	select the suitable strengthening the techniques for structures	K3
6	**I / I**	**ST5002- PREFABRICATED STRUCTURES**	C106.1	principles of prefabrication, Modular co-ordination, Standardization	K2
			C106.2	explain the behaviour of long wall, cross-wall large panel buildings, one way and two way prefabricated slabs, Framed buildings with partial and curtain walls	K2
			C106.3	summarize the beahaviour of floors, stairs amd roofs	K2

			C106.4	illustrate the behaviour of joints in walls and design of shear walls	K2
			C106.5	understand the design concepts of prefabricated industrial buildings and shell roofs	K2

PROGRAMME:**STRUCTURAL ENGINEERING**	DEGREE: **PG**	A.Y: **2018-19**	SEMESTER: **02**

S.No	**Year/ Sem**	**Course Name**	**Course Outcomes (Student can able to understand)**		**Knowledge Level**
1	**I / II**	**ST5201 - ADVANCED STEEL STRUCTURES**	C107.1	Analyse and design the purlin,Louver rails, Gable column and Gable wind girder, guesseted base	K4
			C107.2	Analyse and design the different types od connection in steel members	K4
			C107.3	Analyse and design the industrial buildings	K4
			C107.4	Analyse and design the members buy plastic analysis	K4
			C107.5	Analyse and design the light gauge steel structures	K4
2	**I / II**	**ST5202 - STABILITY OF STRUCTURES**	C108.1	Apply and design the various buckling mechanism in columns	K3
			C108.2	Apply and design the various buckling mechanism in beam-column connections	K3
			C108.3	Apply the torsion and lateral buckling in structural members	K3
			C108.4	Apply and design buckling based calculations in plates	K3
			C108.5	Explain the types and functions of inelastic buckling	K2
3	**I / II**	**ST5203 - EXPERIMENTAL TECHNIQUES**	C109.1	Understand the principles of strain measuring devices	K2
			C109.2	Explain the principles of vibration and wind flow measurig devices	K2
			C109.3	understand the concept of distress management and structural health monitoring.	K2

			C109.4	Summarize the non destructive testing methods of structures	K2
			C109.5	Illustrate the needs and application of model analysis	K2
4	**I / II**	**ST5204 - FINITE ELEMENT ANALYSIS OF STRUCTURES**	C110.1	understand the basic concepts of FEM, types of elements	K2
			C110.2	analyse one dimensional problems and co-ordinate systems	K3
			C110.3	analyse two dimensional problems and higher order elements	K3
			C110.4	understand the concept of mesh generataion, techniques and error evaluation	K2
			C110.5	illustrate the software application of finite element anlaysis	K2
5	**I / II**	**ST5008 INDUSTRIAL STRUCTURES**	C111.1	planning and functional requirement of industrial structures	K2
			C111.2	design the various structural members in Steel and RCC lijke Gantry Girder, Crane Girders , Corbels and Nibs ,Staircase.	K4
			C111.3	design the powerplant structures like cooling towers ,bunkers and silos	K4
			C111.4	analyse and design of transmission line towers	K4
			C111.5	design of foundation for Towers, Chimneys and Cooling Towers	K4
6	**I / II**	**ST5009 - PRE STRESSED CONCRETE**	C112.1	understand principles, types of prestressing and method of analysis	K3
			C112.2	analyse and design the flexural members.	K4
			C112.3	analyse and design the continuous beams	K4
			C112.4	analyse and design the tension and compression members	K4

			C112.5	analyse and design the composite members	K4
7	**I / II**	**T5211 - ADVANCED STRUCTURAL ENGINEERING LABORATORY**	C113.1	cast and test RC beams for strength and deformation behaviour.	K5
			C113.2	test dynamic testing on steel beams, static cyclic load testing of RC frames	K5
			C113.3	conduct non-destruction testing on concrete.	K5
8	**I / II**	**ST5212 - PRACTICAL TRAINING I**	C114.1	Develop field work so as to have a firsthand knowledge of practical problems related to Structural Engineering in carrying out engineering tasks.	K5
			C114.2	develop skills in facing and solving the field problems.	K5

PROGRAMME:**STRUCTURAL ENGINEERING**	DEGREE: **PG**	A.Y: **2019-2020**	SEMESTER: **03**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	II / III	ST5301- EARTHQUAKE ANALYSIS AND DESIGN OF STRUCTURES	C201.1	Concept of free and forced vibration analysis of different systems.	K3
			C201.2	Design of structures subjected to dynamic responses of two degree of freedom and understand their application in building system.	K4
			C201.3	Design of structures subjected to dynamic responses of three degree of freedom and understand their application in building system.	K4
			C201.4	Mathematical model of dynamic response continuous system	K4
			C201.5	Analyse of multiple degree of freedom system for dynamic response	K4
2	II / III	ST5014- DESIGN OF STEEL COMPOSITE STRUCTURES	C202.1	concept of concrete composite construction, serviciability and construction issues.	K2
			C202.2	Design of connections in composite structures	K4
			C202.3	design of composite members and trusses.	K4
			C202.4	behaviour of composite box girder bridges	K4
			C202.5	seismic behaviour of composite structures.	K4
3	II / III	ST5015 - DESIGN OF	C203.1	analyse and design the short span RC bridges	K4

		BRIDGES	C203.2	apply the design principles recommended by IS for long span RC bridges	K4
			C203.3	analyse and design prestressed concrete bridges.	K4
			C203.4	analyse and design the steel bridges	K4
			C203.5	analyse and design the bearing and foundations	K4
4	**II / III**	**ST5311 - PRACTICAL TRAINING II**	C204.1	Develop field work so as to have a firsthand knowledge of practical problems related to Structural Engineering in carrying out engineering tasks.	K5
			C204.2	develop skills in facing and solving the field problems.	K5
5	**II / III**	**ST5312- SEMINAR**	C205.1	to face an audience and to tackle any problem during group discussion in the Interviews.	K3
			C205.2	to acquire writing abilities for seminars and conferences.	K3
			C205.3	to work on a specific technical topic in Structural Engineering and acquire the skills of written and oral presentation.	K3
6	**II / III**	**ST5313 - PROJECT WORK PHASE I**	C206.1	To identify a specific problem for the current need of the society in structural Engineering	K2
			C206.2	To develop the methodology to solve the identified practical problem in structural Engineering	K5
			C206.3	To prepare project reports and to face reviews and viva-voce examination.	K6

PROGRAMME:**STRUCTURAL ENGINEERING**	DEGREE: P**G**	A.Y: **2019-2020**	SEMESTER: **04**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	II / IV	ST5411-PRACTICAL TRAINING III	C207.1	Develop field work so as to have a firsthand knowledge of practical problems related to Structural Engineering in carrying out engineering tasks.	K5
			C207.2	develop skills in facing and solving the field problems.	K5
2	II / IV	ST5412-PROJECT WORK PHASE II	C208.1	Solve the identified problem based on the formulated methodology.	K5
			C208.2	Develop skills to analyze and discuss the test results, and make conclusions	K6

COURSE OUT COME REGULATION 2017

PROGRAMME: **MASTER OF BUSINESS ADMINISTRATION**	DEGREE: **PG**	A.Y: **2019-20**	SEMESTER: **01**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	I / I	BA7101 - Economic Analysis for Business	C1O1.1	Understand business economic principles, opportunities and risk and uncertainty.	K2
			C1O1.2	Evaluate Forecasting Demand and Supply in the business environment.	K5
			C1O1.3	Analyze Production and Cost Estimates .	K4
			C1O1.4	Understand the Study Market Structure and Pricing output decisions	K2
			C1O1.5	Understand the apply pricing strategies	K2
2	I / I	BA5102 - Principles of Management	C1O2.1	Understand and communicate the purpose and functions of management;	K2
			C1O2.2	Understand an understanding of the impact of globalisation on management and the role cultural factors play in the workplace.	K2
			C1O2.3	Understand the methods of employee compensation and their impact on employee motivation;	K2
			C1O2.4	Understand the components of business strategy;	K2
			C1O2.5	Apply the concepts of decision making in a business situation;	K3
3	I / I	BA5103 - Accounting for Management	C1O3.1	Remember the basic concept of financial accounting, cost accounting and management accounting.	K1
			C1O3.2	Apply the tools from accounting and cost accounting this would facilitate the decision making	K3
			C1O3.3	Create and Prepare simple final account for sole trader	K6
			C1O3.4	Apply the concepts of inventory costs, EOQ and inventory control in arriving at decisions related to inventory.	K3
			C1O3.5	Analyse the Standard Costing and Solve problems on material and Price Variances.	K4

4	**I / I**	**BA5104 - Legal Aspects of Business**	C1O4.1	Understand the Differentiate between an Agreement and Contract .	K2
			C1O4.2	Analyse to explain the importance Contract in Business Environment and Rights of Parties.	K4
			C1O4.3	Understand and Explain the importance Creation of Agency.	K2
			C1O4.4	Analyse the principle of international business and strategies adopted by firms to expand globally	K4
			C1O4.5	Understand to Prepare different negotiable instruments like Bills of Exchange, Promissory Note and Cheque .	K2
5	**I / I**	**BA5105 - Organizational Behaviour**	C1O5.1	Create to develop Right Attitude, Components of attitude, Relationship between behavior and attitude	K6
			C1O5.2	Apply to define, explain and illustrate a range of organisational behaviour theories;	K3
			C1O5.3	Analyse the behaviour of individuals and groups in organisations in terms of organisational behaviour theories.	K4
			C1O5.4	Apply organisational behaviour concepts, models and theories to real life management situations through case analysis;	K3
			C1O5.5	Analyse the demonstrate a critical understanding of organisational behaviour theories and current empirical research .	K4
6	**I / I**	**BA5106 - Statistics for Management**	C1O6.1	Analyse to facilitate objective solutions in business decision. Understand the Conceptual overview of Statistics.	K4
			C1O6.2	Evaluate the underlying assumptions of analysis tools.	K5
			C1O6.3	. Understand and critically discuss the issues surrounding sampling and significance.	K2
			C1O6.4	Apply to discuss critically the uses and limitations of statistical analysis.Students know about parametric test.	K3
			C1O6.5	Analyse to solve a range of problems using the techniques covered.	K4

7	**I / I**	**BA5107 - Total Quality Management**	C1O4.1	Understand the importance of total quality management and its Principles and Practices	K2
			C1O4.2	Apply to Continuous process Improvement through benchmarking	K3
			C1O4.3	Analyse the Knowledge the Tools and Techniques for Quality management System	K4
			C1O4.4	Understand Quality by Design through Total Productive Maintenance	K2
			C1O4.5	Apply various Management Tools for Quality Management in India	K3
8	**I / I**	**BA5111 – Spoken and Written Communication**	C1O8.1	Understand the importance of Communication in Business	K2
			C1O8.2	Create to develop writing skills and presentation	K6
			C1O8.3	Apply to Know to write business proposals and letters	K3
			C1O8.4	Create the learn Oral and Employment Communication	K6
			C1O8.5	Understand Contemporary Aspects in Communication and Communication in Information Technology	K2

PROGRAMME: **MASTER OF BUSINESS ADMINISTRATION**	DEGREE: **PG**	A.Y: **2019-20**	SEMESTER: **02**

S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	I / II	**BA5201 – Applied Operations Research**	C109.1	Understand the origin and application of Operation Research	K1
			C109.2	Evaluate the Linear Programming Method and Transportation Problem	K5
			C109.3	Understand the knowledge in Decision Theory and Network Analysis for taking decisions for business	K2
			C109.4	Understand the knowledge in Decision Theory and Network Analysis for taking decisions for business	K2
			C109.5	Understand the knowledge in Decision Theory and Network Analysis for taking decisions for business	K2
2	I / II	**BA5202 – Business Research Method**	C110.1	Understand the Business Research, Business Intelligence, Research	K2
			C110.2	Understand the Concept & Features of a good research design	K2
			C110.3	Remember the Research Design, Descriptive Research Designs and Experimental Design.	K1
			C110.4	Understand the Concept of Measurement and Levels of measurement	K2
			C110.5	Understand the data analysis, Graphical Representation of Data and Bivariate Analysis.	K2
3	I / II	**BA5203 – Financial Management**	C111.1	Understand the basic concept of financial management	K2
			C111.2	Apply the tools from financial management this would facilitate the decision making	K3
			C111.3	Create and develop analytical skills this would facilitate the decision making in business situations .	K6
			C111.4	Analyse and explain and use of financial analysis techniques i.e. Fund Flow, Cash Flow.	K4

			C111.5	Understaanad the knowledge the Current Assets Management and Corporate Restructuring .	K2
4	**I / II**	**BA5204 – Human Resource Management**	C112.1	Remember the importance of human resources and their effective management in organizations.	K1
			C112.2	Analyse the demonstrate a basic understanding of different tools used in forecasting and planning	K4
			C112.3	Apply the meanings of terminology and tools used in managing employees effectively.	K3
			C112.4	Create the record governmental regulations affecting employees and employers	K5
			C112.5	Analyze the key issues related to administering the human elements such as motivation.	K4
5	**I / II**	**BA5205 – Information Management**	C113.1	RememberDescribe the role of information technology and information systems in business.	K1
			C113.2	Create record the current issues of information technology and relate those issues to the firm.	K6
			C113.3	Apply the reproduce a working knowledge of concepts and terminology related to information technology.	K3
			C113.4	Apply the Appraise the knowledge previously acquired of Microsoft Office.Analyze how information technology impacts a firm.	K3
			C113.5	Understand the impact of information systems in society.	K2
6	**I / II**	**BA5206 – Operations Manangement**	C114.1	Understand the Concepts and Strategic of Operations management .	K2
			C114.2	Apply the Knowledge of Product process, design and analysis .Prepare Process Flow Diagrams	K3
			C114.3	Evaluate the Plant Location & Plant Layout .Elaborate process of Site Selection for Services	K5
			C114.4	Understand the Types, Job Shop and Machines of Scheduling .Elaborate Inventory Management in Services	K2
			C114.5	Understand Planning, Integration and scrap Materials Management	K2

7	**I / II**	**BA5207 – Marketing Management**	C115.1	Undestand concepts of marketing management and marketing environment and strategies,	K1
			C115.2	Analyze Marketing Opportunities, Customer Value and Marketing Mix.	K4
			C115.3	Remember a customer driven strategies in Market segmentation.	K1
			C115.4	Evaluate Distribution Decisions, Promotion & Communication Strategies	K5
			C115.5	Evaluate Pricing Decisions & Personal Communication	K5
8	**I / II**	**BA5211 – Data Analysis and Business Modelling**	C116.1	Understand the Importance of Data for Business Analytics.	K2
			C116.2	Create the Descriptive Statistical Measures in Data Analytics	K5
			C116.3	Apply Predictive Analytics tools .Describe the greedy paradigm and explain when an algorithmic design situation calls for it.	K3
			C116.4	Evaluate the Data Mining process .Analyze randomized algorithms.	K5
			C116.5	Understand the Knowledge data simulation to solve the business problems	K2

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S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	II / III	**BA5301 - International Business Management**	C201.1	Understand the importance and Opportunities and Challenges of International Business.	K2
			C201.2	Understand the Conduct, evaluate and present market research to support an organization's international business decision-making.	K2
			C201.3	Apply the Knowledge the International Business and Economic Integration	K3
			C201.4	Understand the Strategy and Structure of International Business	K2
			C201.5	Evaluate the International Business Operations .	K5
2	II / III	**BA5302 - Strategic Management**	C202.1	Create identification and brand awareness . It plays a vital role in capturing the customers mind with the brand name.	K6
			C202.2	Creat guarantee a certain level of quality, quantity, and satisfaction of a product or service.	K6
			C202.3	Creat help in the promotion of the product. It gives an image of an experienced, huge and reliable business.	K6
			C202.4	Evaluate shoppers treat brands as a guide to quality, the price of the product, service,	K5
			C202.5	Analyse the deals with determining the brand, positioning the brand and delivering the brand.	K4
3	II / III	**BA5014 - Entrepreneurship Development**	C203.1	Understand the concept and mindset of the entrepreneurs .	K2
			C203.2	Understand the entrepreneurs Personality, journey and Entrepreneurial competencies,	K2
			C203.3	Create the techniques for generating ideas and Launching Entrepreneurial Ventures.	K6
			C203.4	Understand the Legal challenges of Entrepreneurship.	K2
			C203.5	Evaluate Strategies for building entrepreneurship	K5

4	**II / III**	**BA5015 - Industrial Relations and Labour Welfare**	C204.1	Understand the concept and need of Customer Relationship Management	K2
			C204.2	Create building customer relations	K6
			C204.3	Evaluate building customer relations	K5
			C204.4	Understand Customer Relationship Management structures	K2
			C204.5	Understand the Customer Relationship Management Planning and Implementation	K2
5	**II / III**	**BA5019 - Strategic Human Resource Management**	C205.1	Apply critical thinking skills in analysing theoretical and applied perspectives of strategic HRM and ER	K3
			C205.2	Evaluate problems and develop managerial solutions to employment relations problems at both national and workplace level.	K5
			C205.3	Analyse Demonstrate the application of problem solving and evaluation skills in HRM and ER through exercises and case study work	K4
			C205.4	Analyse the Communicate knowledge of SHRM and employment relations in both written and verbal formats reactive to both audience and purpose.	K4
			C205.5	Apply the Investigate and communicate the professional values of HRM including the ethical problems inherent in HRM and ER professional roles	K3
6	**II / III**	**BA5008 – Banking Financial Services Management**	C206.1	Understand the dimensions of performance and risk relevant to financial firms	K2
			C206.2	Understand the contemporary measures of financial measures of performance and risk.	K2
			C206.3	Apply the Design hedging strategies to manage market risks	K3
			C206.4	Apply and Evaluate the economic environment and the impact of governmental economic policies	K3
			C206.5	Apply the impact that financial innovation, advances in technology	K3
7	**II / III**	**BA5011 - Merchant Banking and Financial**	C207.1	Understand the concept of Indian Financial system and Regulatory and Promotional Institutions	K2

		Services	C207.2	Remember Banking and Non Banking financial Institutions. Understand the various financial services and their future	K1
			C207.3	Understand the knowledge of Financial and Securities Markets .determine the most suitable financial service Factoring	K2
			C207.4	Create and Learn the Asset /Fund Based Financial Services .To enable the students get familiarized with Mutual Funds.	K6
			C207.5	Evaluate the Fee-based / Advisory services . An in-depth insight into the Various Financial Services	K5
8	**II / III**	**BA5031 - International Trade Finance**	C208.1	Understand the major models of international trade and compare and contrast them .	K4
			C208.2	Analyse the linkages between trade, labour and capital movements,	K4
			C208.3	Identify and critically examine policy implications of the linkages between trade, labour and capital movements .	K4
			C208.4	Apply equilibrium models to analyse the economic effects of policy interventions including tariffs, quotas, export subsidies.	K3
			C208.5	Critically analyse these policy interventions in terms of their costs and benefits, including their implications .	K4
9	**II / III**	**BA5004 - Brand Management**	C209.1	Create identification and brand awareness . It plays a vital role in capturing the customers mind with the brand name.	K6
			C209.2	Creat guarantee a certain level of quality, quantity, and satisfaction of a product or service.	K6
			C209.3	Creat help in the promotion of the product. It gives an image of an experienced, huge and reliable business.	K6
			C209.4	Evaluate shoppers treat brands as a guide to quality, the price of the product, service,	K5
			C209.5	Analyse the deals with determining the brand, positioning the brand and delivering the brand.	K4
10	**II / III**	**BA5005 - Retail Marketing**	C210.1	Remember the Introduction to Retailing.Describe retailing, the entities involved, and the impact of	K1

				decisions on a retail business.	
			C210.2	Apply the concept of strategic planning within the retail management decision process.	K3
			C210.3	Evaluate Compare and contrast single channel, multi-channel, and omnichannel retailing.	K5
			C210.4	Analyse and Explain the consumer decision-making proces.Identify the various models of buying processes	K4
			C210.5	Apply the main factors used to describe customers.	K3
11	**II / III**	**BA5006 - Services Marketing**	C211.1	Remember remonstrate a knowledge of the extended marketing mix for services;	K1
			C211.2	Understand and develop and justify marketing planning and control systems appropriate to service-based activities;	K2
			C211.3	Creat Prepare, communicate and justify marketing mixes and information systems for service-based organisations;	K6
			C211.4	Creat exhibit the capability to work effectively within a team environment.	K6
			C211.5	Apply relevant services marketing theory, research and analysis skills to contemporary case studies	K4
12	**II / III**	**BA5311 – Summer Training**	C212.1	Remember the fundamentals of Management Accounting, Cost analysis and Control .analyse strategic macro environmental issues;	K1
			C212.2	Apply to Know Costing for Specific Industries	K3
			C212.3	Understand Application of Marginal Costing . analyse industry factors, and identify their impact on profitability and strategic positioning;	K2
			C212.4	Analyse business Marginal Costing, planning and activities ,assess organisational performance	K4
			C212.5	Analyse the Knowledge of Budget and Budgetary controls. identify strategic capabilities and gaps	K4

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S.No	Year/ Sem	Course Name	Course Outcomes (Student can able to understand)		Knowledge Level
1	II / IV	**BA5411 - Project Work**	C213.1	Understand and establish the thesis of sufficiently high standard to merit the award of the degree for which it is submitted.	K2
			C213.2	Analyse investigate the awareness of original work sits in relation to the wider research field	K4
			C213.3	Understand the writing, justification and defending aspects in response to the examiners questions.	K2
			C213.4	Create learns the results from the work comprehensively through presentation.	K6
			C213.5	Evaluate presenting work in a conference or publish the work in a peer reviewed journal.	K5

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