

**KAVIKULGURU INSTITUTE OF TECHNOLOGY AND
SCIENCE, RAMTEK**

Sr. No.	Department of Science and Humanities	
	First Semester	
1	BESI-1T	Applied Mathematics – I
2	BESI-2T	Engineering Physics
3	BESI-2P	Engineering Physics Practical
4	BESI-3T	Engineering Chemistry
5	BESI-3P	Engineering Chemistry Practical
6	BESI-4T	Basic Electrical Engineering
7	BESI-5T	Basics of Civil Engineering
8	BESI-6T	Engineering Graphics-I
9	BESI-7P	Communication Skills Practical
10	BESI-8P	Computational Skills
	Second Semester	
1	BESII-1T	Applied Mathematics – II
2	BESII-2T	Materials Chemistry Practical
3	BESII-2T	Advanced Physics
4	BESII-2P	Advanced Physics Practical
5	BESII-3T	Materials Chemistry
6	BESII-4T	Engineering Mechanics
7	BESII-5T	Advanced Electrical Engineering
8	BESII-4T	Engineering Mechanics
9	BESII-4P	Engineering Mechanics
10	BESII-6T	Engineering Graphics-II
11	BESII-7T	Workshop
12	BESII-8T	Ethical Sciences

Department of Science and Humanities

The department of Science and Humanities has framed the following Course Outcomes in consultation with concerned stakeholder and corresponding committees.

BE First Semester	
	Applied Mathematics – I (BESI-1T)
CO101.1	Student will be able to understand successive differentiation process and to find the limiting value of the function with indeterminate form. Also able to
CO101.2	Student will be able to understand the concept of function of several variables
CO101.3	Student will be able to apply concept of matrices to solve system of linear
CO101.4	Student will be able to understand and apply the various techniques to solve the
CO101.5	Student will be able to develop an ability to solve higher order linear and non-
CO101.6	Student will be able to understand the concept of complex numbers and its
	Engineering Physics (BESI-2T)
CO102.1	At the end of course, the students will be able to understand the limitations of Classical Physics and the evolution of modern physics Planck's
CO102.2	At the end of course, the students will be able to apply the concept of the matter wave to understand the concept of wave packet, Heisenbergs uncertainty principle, Wave function and application of Schrodinger's time independent equation as one dimensional wave equation to trapped particle, concept of tunneling.
CO102.3	At the end of course, the students will be able to understand the basic of crystallography, cubic unit cell. Recognize various planes in a crystal
CO102.4	At the end of course, the students will be able to understand the band theory and its application to classification of solids, concept of Fermi level, Intrinsic and extrinsic semiconductors, PN-junction, diodes and transistors and
	Engineering Physics Practical (BESI-2P)
CO102.1	Data interpretation by using graphs, estimation of % error to arrive at the desires outcome of the experiment.
CO102.2	Determine band gap energy value by various methods to gain an insight into the
CO102.3	To study electrical behavior of the p-n junction diode and BJT to understand their
CO102.4	To study Hall effect in semiconductor to understand its significance.

	Engineering Chemistry (BESI-3T)
CO103.1	Domestic and industrial waste water analysis and treatment methods to minimize
CO103.2	Scientific approach on theories of corrosion and designing the methods to control
CO103.3	Modern tools for the manufacture of quality materials and applications of them
CO103.4	Principles and applications of green chemistry and designing the different
	Engineering Chemistry Practical (BESI-3P)
CO103.1	To determine chemical parameters such as hardness and alkalinity.
CO103.2	To estimate the metals like iron and copper in solution of unknown concentration
CO103.3	Determination of capacity of different resins and their applications.
CO103.4	Principles and applications P ^H metry Titrations
	Basic Electrical Engineering (BESI-4T)
CO104.1	To understand the basic knowledge of electrical quantities such as current,
CO104.2	To understand the analysis of basic DC and AC circuit use to solve the complex
CO104.3	To understand the basic properties of magnet and its application to magnetic
CO104.4	To understand AC circuit and its application in global world and to solve
CO104.5	To understand the principal, operation and application of transformer.
CO104.6	To understand the different test on transformer and its equivalent circuit.
	Basics of Civil Engineering (BESI-5T)
CO105.1	To know the scope of Civil Engineering and role of engineers in the
CO105.2	Ability to understand functions of different structures and planning of building
CO105.3	To understand the types of construction, building material and types of soil to
CO105.4	To know various types of maps, surveying instruments, surveying methods, GIS
CO105.5	To know the importance of conventional and modern methods of purification of water and to understand waste management collection methods of liquid,
CO105.6	To ability to know different instruments and equipment used in construction field
	Engineering Graphics-I (BESI-6T)
CO106.1	The students will be able to understand basics knowledge of engineering graphics such as instruments, lines, dimensioning techniques, scales, sheet layout and different methods of Engineering curves. They will also understand

CO106.2	The students will be able to understand projections of different types of planes
CO106.3	The students will be able to understand conversion of pictorial view into orthographic views also they will be able to draw orthographic views
CO106.4	The students will be able to understand the concept of isometric projection and view also they will be able to draw isometric projection and view
	Communication Skills Practical (BESI-7P)
CO107.1	Enhanced in four skills- LSRW
CO107.2	Build the confidence of the students.
CO107.3	Build-up the confidence to face group discussions
CO107.4	Prepared effectively for various job interviews.
CO107.5	Enhanced vocabulary for facing competitive examinations.
CO107.6	Improved body language while Communicating.
	Computational Skills (BESI-8P)
CO108.1	Students can understand structure of Computer, its assembly, use of each I/O device and ports, use of System Software like: Windows Operating System, Linux, and basics Concepts of C Language.
CO108.2	Students can understand and able to write the programs on control structures (like
CO108.3	Students can understand and able to write the programs on pointers, strings and functions.
CO108.1	Students can understand structure of Computer, its assembly, use of each I/O device and ports, use of System Software like: Windows Operating System, Linux, and basics Concepts of C Language.
CO108.2	Students can understand and able to write the programs on control structures (like
CO108.3	Students can understand and able to write the programs on pointers, strings and functions.

BE Second Semester	
	Applied Mathematics – II (BESII-1T)
CO201.1	Student will be able to evaluate improper integral by Beta/Gamma function and
CO201.2	Student will be able to trace different types of curves and find its length, area,
CO201.3	Student will be able to understand the concept of double and triple integration and their application in finding mass, area and center of gravity in Cartesian
CO201.4	Student will be able to understand the concept of Dot and Cross product of multi-vectors and vector differentiation of scalar and vector point function and
CO201.5	Student will be able to understand the concept of vector integration and use the
CO201.6	Student will be able to analyze and interpret the data in mathematical form.
	Advanced Physics (BESII-2T)
CO202.1	At the end of course, the students will be able to understand the dual nature of light by studying principle and working of Lasers and the phenomenon
CO202.2	At the end of course, the students will be able to understand the effect of electric
CO202.3	At the end of course, the students will be able to understand working principle of modern devices like Cyclotron, Mass-septrograph and CRO as an application
CO202.4	At the end of course, the students will be able to understand the working principle of optical fiber and its characteristics and their applications.
	Advanced Physics Practical (BESII-2P)
CO202.1	Data interpretation by using graphs, estimation of % error to arrive at the desires
CO202.2	Understand the concept to thin film interference of light and Diffraction.
CO202.3	Understand the working of CRO and its applications.
CO202.4	Able to understand the propagation of light through fiber and determination of
	Materials Chemistry (BESII-3T)
CO203.1	Calorific value determination , analysis of coal, renewable and non-renewable
CO203.2	Extraction and manufacture of liquid fuels, combustion calculations and principle
CO203.3	Mechanism of lubrication, properties, selections and applications of different
CO203.4	Properties and applications of different materials and applications of nano

	Materials Chemistry (BESII-3P)
CO203.1	To determine chemical parameter of lubricating oils viz. acid value
CO203.2	To determine physical properties of lubricating oils viz. variation of viscosity
CO203.3	Determination of CV and Moisture of solid fuels by using standard apparatus.
CO203.4	Determination of flash and fire points of oils by using standard apparatus.
	Engineering Mechanics (BESII-4T)
CO204.1	An ability to construct free-body diagrams and to calculate the reactions
CO204.2	An understanding of the analysis of distributed loads.
CO204.3	Knowledge of internal forces and moments in members
CO204.4	An ability to calculate centroid and moments of inertia.
CO204.5	Knowledge of kinetic analyses and energy and momentum methods for particles
CO204.6	Knowledge of kinetic analyses and energy and momentum methods for rigid
	Engineering Mechanics (BESII-4P)
CO204.1	Student will able to understand nature of forces in various members.
CO204.2	Student will able to know how to verify law of polygon of forces.
CO204.3	Student will able to understand working principle of various machines.
	Advanced Electrical Engineering (BESII-5T)
CO205.1	Students will learn types of power generation of both conventional and non-
CO205.2	Able to understand different voltage levels at different stages through single line
CO205.3	Learn basic protection system of power system
CO205.4	Study about Dc machines and 3phase ,1 phase induction motors briefly
CO205.5	Able to understand types of tariffs and calculate domestic load and charges
CO205.4	Study about illumination, different lamps, working principles and calculate no. of
	Engineering Graphics-II (BESII-6T)
CO206.1	The students will be able to understand various commands in AutoCAD and also
CO206.2	The students will be able to understand concept of section of solids and will be
CO206..3	The students will be able to understand the concept of development of lateral surfaces of different types of solids and will be able to draw development
CO206.4	The students will be able to understand the concept of missing view and will be
	Workshop (BESII-7)
CO207.1	Students will be able to understand applications of hand tools and power tools.
CO207.2	Students will be able to understand the operations of machine tools.
CO207.3	Students will be able to select the appropriate tools required for specific

CO207.4	Students will be able to comprehend the safety measures required to be taken
	Ethical Sciences (BESII-8T)
CO208.1	Culture and Civilization, Applied Humanities and Social Engineering, Socio
CO208.2	Industrial Psychology, Industrial Sociology, Fatigue, Selection and Training,
CO208.3	Sustainable Development, Professional Ethics, Leadership in Industry
CO208.4	Indian Constitution, Federal System, Fundamental Rights, Directive Principles,
CO208.5	Industrial Democracy, Works Organization, Power, Authority and Status, Formal

Sr. No.	Department of Civil Engineering	
Third Semester		
1	BECVE301T	Mathematics-III
2	BECVE302T	Strength of Materials
3	BECVE302P	Strength of Materials
4	BECVE303T	Environmental Engineering-I
5	BECVE303P	Environmental Engineering.-I
6	BECVE304T	Engineering Geology
7	BECVE304P	Engineering Geology
8	BECVE305T	Concrete Technology
9	BECVE305P	Concrete Technology
Fourth Semester		
1	BECVE401T	Structural Analysis-I
2	BECVE401P	Structural Analysis-I
3	BECVE402T	Geotechnical Engineering-I
4	BECVE402P	Geotechnical Engineering-I
5	BECVE403T	Transportation Engineering-I
6	BECVE404T	Surveying-I
7	BECVE404P	Surveying-I
8	BECVE405 T	Building Construction and Materials
Fifth Semester		
1	BECVE501T	Structural Analysis – II
2	BECVE501P	Structural Analysis – II
3	BECVE502T	RCC Structures
4	BECVE502P	RCC Structures
5	BECVE503T	Fluid Mechanics-I
6	BECVE503P	Fluid Mechanics-I
7	BECVE504T	Geotechnical Engineering-II
8	BECVE 505 T	Hydrology and Water Resources
9	BECVE506P	Communication English & Technical Writing
Sixth Semester		
1	BECVE601T	Steel Structures
2	BECVE601P	Steel Structures
3	BECVE602T	Surveying-II
4	BECVE602P	Surveying-II
5	BECVE603T	Fluid Mechanics-II
6	BECVE603P	Fluid Mechanics-II
7	BECVE604T	Building Design and drawing
8	BECVE 605T	Environmental Engineering-II
9	BECVE606P	Site Visit & Mini Project
Seventh Semester		
1	BECVE701T	Advance Concrete Structures
2	BECVE701P	Advance Concrete Structures
3	BECVE702T	Estimating and Costing
4	BECVE702P	Estimating and Costing
5	BECVE703T	Earthquake Resistant Design (Elective-I)
6	BECVE704 T	Construction Management and Law

7	BECVE 705T	Transportation Engineering-II
8	BECVE706P	Industrial Case Study
Eighth Semester		
1	BECVE801T	Irrigation Engineering
2	BECVE802T	Water Transmission and Distribution System Elective-II
3	BECVE803T	Applied Remote Sensing and GIS (Elective-III)
4	BECVE803P	Applied Remote Sensing And GIS (Elective-III)
5	BECVE804T	Construction Management and materials
6	BECVE805P	Project

Department of Civil Engineering

The Civil Engineering program subscribes to the following Program Specific Outcomes (PSOS):

PSO1	To Apply the basic knowledge of construction aspect in civil engineering for
PSO2	To Design a system in Civil Engineering considering safety, economy, sustainability
PSO3	To Understand the basic concept of economics and leadership through consultancy
PSO4	To Develop entrepreneurship for the services to the community and to pursue higher

BE Civil Engineering Third Semester	
	Mathematics-III (BECVE301T)
CO301.1	Will understand the concept of periodic function, even and odd function, half
CO301.2	Will have knowledge in the technique, methodology of solving partial differential equation and basic understanding in the transforms which are useful in
CO301.3	Will be able to formulate vibrational problems and analyze them to deduce key
CO301.4	Will be able to aware of mathematical background for different numerical methods such as to solve algebraic and transcendental equations, ordinary differential equations. Using these knowledge students may work on multidisciplinary projects.
CO301.5	Will be able to simplify the power of matrices, system of linear equations,
CO301.6	Will gain proficiency with tools for optimization Technique (i.e. linear programming problems) including fundamental applications of those tools
	Strength of Materials (BECVE302T)
CO302.1	Students will able to understand the fundamental concepts of stress strain at a point and formulate relationship between elastic moduli for homogenous, isotropic materials. Provide knowledge of ductile and brittle material. Also
CO302.2	Students will able to understand the fundamental concepts of shear force and bending moment. Students will use their knowledge to draw shear force and bending moment diagram which will be lifelong learning for them. Also
CO302.3	Students will apply knowledge of stress and strain to draw bending stress diagram, shear stress distribution diagram by applying proper technique
CO302.4	By applying basic knowledge of stress and strain, circular solid and hollow shaft can be design and analyzed. Students can design shaft for various condition of power transmission and rotational speed.

CO302.5	Students will able to understand and determine the deflections, rotations of simple beam produced by the fundamental types of loads for the safety by
CO302.6	Students will able to understand and calculate principal stress, strain maximum shear stress under various combination of bending, torsion and axial load
	Strength of Material (BECVE302P)
CO302.1	Students will able to test steel specimens to evaluate different physical
CO302.2	Students will able to test wooden material as per IS code to evaluate its
CO302.3	Students will able to understand the behavior of mechanical properties and
	Environmental Engineering-I (BECVE303T)
CO303.1	To identify the need of water supply scheme, type of water demand, quantity of water demand depending on estimated design population using different population forecasting method, type of water source and its suitability, different
CO303.2	To plan and design the conveyance system components like type, size and slope
CO303.3	To have knowledge about the various drinking water characteristics and test to determine their limit according to standards, various components conventional water treatment process, type and design of aerators, significance of coagulation
CO303.4	To have knowledge of principle of sedimentation, types, design simple sedimentation tank, principle and working of clariflocculator,
CO303.5	To have knowledge about disinfection process purpose, disinfection methods, types chlorination and dosages, distribution systems, types of storage
CO303.6	To understand engineering application to know briefly about solid waste
	Environmental Engineering-I (BECVE303P)
CO303.1	To determine the certain physical, chemical characteristics of drinking water and
CO303.2	To determine the optimum alum dose to remove turbid in given water sample and
CO303.3	To have knowledge about the test for bacteriological characteristics of given
	Engineering Geology (BECVE304T)
CO304.1	The students would have the knowledge of plate tectonics and landforms and this
CO304.2	Study of minerals and rocks will give knowledge of natural science which will help the students to select a suitable rock for construction work as well as
CO304.3	The knowledge of various geological structures developed in the rock masses will

	various civil engineering projects.
CO304.4	The knowledge of groundwater will be helpful to select the best construction sites
CO304.5	The knowledge of site investigation for civil engineering projects will help the
CO304.6	The knowledge of geological science will be helpful to the student to overcome
	Engineering Geology (BECVE304P)
CO304.1	Students will be able to identify various rock-forming minerals.
CO304.2	Students will be able to identify various types of rock.
CO304.3	Students learn to draw the engineering geological sections to solve the field
	Concrete Technology (BECVE305T)
CO305.1	Identify the functional role of ingredients of concrete including their sources, production and different properties, is utilized for the mix design which is
CO305.2	The method of manufacture of concrete and apply fundamental knowledge in fresh properties of concrete in multidisciplinary design teams and deliver
CO305.3	To understand different properties of concrete in hardened state. It gives a better knowledge about concrete and users can able to understand the comparative
CO305.4	To know the fundamental application of admixture and its properties which affects the quality of concrete and the design of concrete mix this fulfills
CO305.5	To develop research base knowledge for the awareness of the utilization of smart
CO305.6	Able to understand various environmental factors which affect durability of concrete and the analysis of concrete component with the suggestion for prevention measure for deterioration of structure by using Non
	Concrete Technology (BECVE305P)
CO305.1	The student will be able to test all the concrete material as per IS code.
CO305.2	Design the concrete mix using IS code method.
CO305.3	Determine the properties of fresh and hardened of concrete.
BE Civil Engineering Fourth Semester	
	Structural Analysis-I (BECVE401T)
CO401.1	The student would be able to apply knowledge to analyse concept of deflection, bending moment and shear force diagram in beams, frames, trusses and
CO401.2	The student would be able to apply knowledge to determine forces in
CO401.3	The students would be able to perform ILD analysis of determinate beams and

CO401.4	The students would be able to know the behaviors of a Buckling of columns by
CO401.5	The students would be able to analyze the Multistory Frame by Portal, Cantilever
CO401.6	The students would be able to apply the concept of Flexibility and
	Structural Analysis-I (BECVE401P)
CO401.1	The students would be able to study the behavior of different types of columns
CO401.2	The students would be able to measure the strain in cantilever beam with the help
CO401.3	The students would be able to find horizontal Thrust and to draw the influence line
	Geotechnical Engineering-I (BECVE402T)
CO402.1	Students would be able to determine the Density of soil and engineering
CO402.2	Students would be able to find Index properties and their determination in the
CO402.3	Students would be able to understand the Permeability and seepage condition of
CO402.4	Students would be able to evaluate the stress Distribution using Newmarks
CO402.5	Students would be able to know the mechanism of compaction and consolidation
CO402.6	Students would be able to know the measurement of shear strength by direct shear
	Geotechnical Engineering-I (BECVE402P)
CO402.1	Students would be able to understand the Liquid Limit, Plastic limit and
CO402.2	Students would be able to find out the Bulk density and dry Density of soil using
CO402.3	Students would be able to find out the Load Displacement Relationship curve
	Transportation Engineering-I (BECVE 403T)
CO403.1	Students should able to understand the various components of high way engineering, bridge engineering, classification of roads, network
CO403.2	Able to understand the cross section elements, sight distances, super elevations,
CO403.3	Able to understand the types of pavements, design parameters, axle load, ESWL
CO403.4	Students should able to understand the traffic studies (road user, driver, vehicle
CO403.5	Students will be able to understand classification of bridges, site selection, flood
CO403.6	Students will be able to understand the various types of bridge foundations,

	bridges.
	Transportation Engineering-I (BECVE403P)
CO403.1	The student will be able to understand the importance of shape (length, width,
CO403.2	The student will be able to know as per I.S. code, impact test, crushing value test,
CO403.3	The student will be able to know the bitumen properties as per I.S. code and case
	Surveying-I (BECVE404T)
CO404.1	Students will able to understand the basic principal of surveying. They should able to apply this knowledge for the linear measurement using basic
CO404.2	Students will able to understand the basic concepts of leveling. They should able
CO404.3	Students should able to understand the principles, operation, handling and
CO404.4	Students will able to use the theodolite to find the angular measurement for the
CO404.5	Students will able to measure area and volume for any project. They should able
CO404.6	Students will able to understand the basic concepts of different kinds of Surveying such as Hydrographic Survey and Underground Survey. They should able to apply this knowledge for solving different issues related to water
	Surveying-I (BECVE404P)
CO404.1	Able to understand the principles operation, handling and uses of various
CO404.2	Able to apply the knowledge of the subject for the practical problems.
CO404.3	Can carry surveying for any civil engineering project.
	Building Construction and Materials (BECVE405T)
CO405.1	The students would have the knowledge of various types of foundation, so that they can select and design the suitable foundation which will be beneficial
CO405.2	The students would understand the various building materials which are necessary
CO405.3	The students would have the knowledge of different modern techniques for
CO405.4	The students can understand the various modern flooring and roofing materials
CO405.5	The students would know the types, pattern and choice of materials for staircase,
CO405.6	They can select the various elements to enhance the life and strength of building

BE Civil Engineering Fifth Semester	
	Structural Analysis – II (BECVE501T)
CO501.1	The student would have the knowledge of applying Kanis method for analyzing
CO501.2	The student would able to solve problem of analyzing the frames in practical
CO501.3	The knowledge of stiffness method and apply the concept of stiffness method for
CO501.4	Formulation of stiffness matrix, transformation matrix load matrix for analyzing
CO501.5	Evaluation of stiffness matrix of frame and solve frame analysis by stiffness
CO501.6	Learn the basic knowledge of finite element method. Define and study the
	Structural Analysis – II (BECVE501P)
CO501.1	The student would have the knowledge of solving analysis problem by Kanis
CO501.2	The student would able to do modeling and solve above problem by STADPRO
CO501.3	The student would able to solve stiffness method problem by MDM software and
	RCC Structures (BECVE502T)
CO202.1	Develop the concepts of working stress method based on classical elastic theory using knowledge of general science. He shall be able to analyze and
CO202.2	Understand the concepts of prestress concrete and modern anchorage systems. Student shall be able to design prestress members for various engineering
CO202.3	Use probability and reliability knowledge to develop concepts of limit state method. Student shall be able to analyze and design singly and doubly
CO202.4	Analyse and design T and L beam section. He shall be able to formulate and analyse complex structural problems. He shall also be able to analyse
CO202.5	Analyze members subjected to torsion and shear action. He shall be able to analyse complex engineering problems and members subjected to combined nature of stress. Student shall also be able to design economic, serviceable
CO202.6	Design one way, two way and cantilever slabs and be able to use engineering concepts and modern tools to develop economic and public building for the society having knowledge of project management and economics. He shall further be involved in consultancy, research work and lifelong learning. He shall refer literature and research work and shall continue learning.

	RCC Structures (BECVE502P)
CO202.1	Design singly reinforced, doubly reinforced and flanged beam and draw structural
CO202.2	Design columns subjected to axial load with and without bending moment and
CO202.3	Design one way, two way slab and isolated footing foundation and draw structural
	Fluid Mechanics-I (BECVE503T)
CO503.1	To know the importance of fluid fundamentals which are useful in engineering
CO503.2	To study the principles and methodology to evaluate forces exerted on submerged body and to evaluate mathematical procedure to check stability of floating
CO503.3	To know the fundamentals of fluid behavior with practical example and its
CO503.4	Apply continuity equation, Bernoulli's equation and momentum equation to solve Engineering problems in fluid mechanics in mathematical form for various
CO503.5	Discuss Engineering application of flow measuring devices such as notches and weir to measure rate of flow through the canal system which is useful for
CO503.6	Engineering application of dimensional analysis for designing of models and
	Fluid Mechanics-I (BECVE503P)
CO503.1	Verification of Bernoulli's theorem along with its practical application in solving
CO503.2	Calibration and engineering application of various flow measuring devices
CO503.3	Demonstration of some phenomenon in flow measuring devices and understand
	Geotechnical Engineering-II (BECVE504T)
CO504.1	The students shall be able to use the knowledge of different soil exploration
CO504.2	The students shall be able to analyze the stability of natural slopes, safety and
CO504.3	The students shall be able to apply the concept of Lateral Earth Pressure for
CO504.4	The students shall be able to practice Ground Improvement Techniques to
CO504.5	The students shall be able to Design the shallow foundation for different Bearing
CO504.6	The students shall be able to Design the Deep foundation by static, Dynamic and

	Hydrology and Water Resources (BECVE 505 T)
CO505.1	The students would have the knowledge of the fundamentals of hydrology and hydrological cycle in water resource engineering. Study the various instruments which are used to measure the precipitation which will be useful to the study
CO505.2	Students would have the knowledge of water infiltration and evaporation which
CO505.3	The students would be able to understand the hydrograph theory in the analysis of
CO505.4	The students would be able to exhibit the various statistical methods used in
CO505.5	The students can apply the knowledge of ground water hydrology in terms of assessment and computing the ground water yield, which will be useful to
CO505.6	The knowledge of geo-hydrology the students can plan for artificial recharging of ground water by using various techniques. This may be useful for the society
	Communication English and Technical Writing (BECVE506P)
CO506.1	Student will become adept in using Grammar for communicating in English.
CO506.2	Student would be able to write at workplaces
CO506.3	Student will be able to draft technical report and write the proposal
CO506.4	Student will be dexterous in presentation skills.
CO506.5	Student will become well prepared to face job interviews.
CO506.6	Student will be able to plan and carry out the research projects
BE Civil Engineering Sixth Semester	
	Steel Structures (BECVE601T)
CO601.1	Apply knowledge of basic science and mathematics to understand various material properties of hot rolled and cold drawn steel sections. He shall be able
CO601.2	Refer various texts, theories and research literatures to understand tension and compression analysis and design. Based on this learning he shall be able to assess loads on roof trusses for various environmental conditions. And be able to design
CO601.3	Use fasteners like rivet, bolts and weld. He shall be able to analyse and design simple, semi-rigid and rigid joints. He shall be able to suggest design for complex engineering problem. To enhance knowledge, he shall involve in site visits and visits to resource persons.
CO601.4	Design simple and built up beam, laterally restrained and unrestrained based on IS code, texts and research literature. He shall be able to understand complex plate behavior and design of plate girder. He shall also be able to provide
CO601.5	Understand complex behavior of members subjected to combined nature of loading like beam column. He shall be able to design structural members
CO601.6	Student shall be able to design economic built up column members and column

	structures like communication and transmission towers, different bracing systems. He shall get involved in continuous learning, design and consultancy to
	Steel Structures (BECVE601P)
CO601.1	Design tension member, compression members in roof trusses and draw structural
CO601.2	Design rolled and built up beams, rolled and built up column and draw structural
CO601.3	Design plate girder, beam to beam, beam to column connection and draw
	Surveying-II (BECVE602T)
CO602.1	The students shall be able to carry forward the concepts of basic surveying
CO602.2	The students shall be able to setting out the different types Simple, Compound,
CO602.3	The students shall be able to setting out the different types Vertical and Transition
CO602.4	The students shall be able to apply the concepts of modern surveying techniques
CO602.5	The students shall be able to Take – up mini project using different photographic
CO602.6	The students shall be able to apply the knowledge of GIS and GPS Techniques in
	Surveying-II (BECVE602P)
CO602.1	Students would be able to Setting out the Simple Curve, Compound and Reverse
CO602.2	Students would be able to study the Topography Sheet using GIS and GPS
CO602.3	Students would be able to do the Road Project or Irrigation Project for in the
	Fluid Mechanics-II (BECVE603T)
CO603.1	Understand the concept and significance of boundary layer theory, drag and lift, and their formulation with mathematical approach to understand their
CO603.2	Analysis of flow through pipe system, formulation of expression, analysis and
CO603.3	Use of concept and computation of uniform flow, design of most efficient section,
CO603.4	To know the importance and basic principles of Hydraulic jump and gradually varied flow with mathematical formulation and discuss their practical utility
CO603.5	Understanding the technique of dimensional analysis, concept of model testing
CO603.6	Understand the basic design principle of turbine and pumps with the study of their performance characteristics, so that their efficient functioning is obtained for

	Fluid Mechanics-II (BECVE603P)
CO603.1	Determination and verification of loss of energy in flow measuring devices.
CO603.2	Performance characteristics of various hydraulic machines and check their
CO603.3	Calibration of various structures, which are used in the actual field of fluid
	Building Design and drawing (BECVE604T)
CO604.1	The student would able to understand building byelaws and building code useful in planning of civil engineering structure, which will be useful in
CO604.2	The student would able to apply the principal of planning for planning of residential building to minimize wastage of space and pleasant appearance
CO604.3	Knowledge of submission drawing and able to draw manually and by using
CO604.4	To make use of knowledge to give the layout on field as per given plan
CO604.5	To visualize and draw prospective view of building to understand prospective
CO604.6	To know and draw detailing of building services for professional practice and
	Environmental Engineering-II (BECVE605T)
CO605.1	To know the general concepts about sewage, sewer and sewerage system and their components this will be useful in Engineering problem and beneficial
CO605.2	To have complete knowledge about the design of sewer analytically to compute
CO605.3	To understand the philosophy and procedure for the construction of sewer, its
CO605.4	To analyze the characteristics of sewage through experimental studies and to design various units of conventional sewage treatment plant through
CO605.5	To study different methods of disposal of sewage and to discuss their practical utility for engineers and users in society by sewage farming in safe environmental conditions. Also to plan various provisions of sanitation for the community in rural areas.
CO605.6	To study and understand the basic principles, significance of Industrial Wastewater Treatment. Also to understand Air Pollution, its sources and effect
	Site visit and Mini Project (BECVE606P)
CO606.1	Get an idea of various project details such as contracts, layout, planning, drawing,
CO606.2	Get an idea of various construction equipment, manpower and techniques used at
CO606.3	Techniques of batching, mixing, transportation, and placement of different
CO606.4	Get an overview on safety measures, basic amenities to provide,

	control.
CO606.5	Write a legible, correct and technically sound report after the visit
CO606.6	Ascertain the provisions and execution as per the working drawing
BE Civil Engineering Seventh Semester	
	Advance Concrete Structures (BECVE701T)
CO701.1	Students will able to apply the basic knowledge of mathematic, engineering and IS code recommendations for planning, analysis and design of safe and economical water tanks resting on ground
CO701.2	Students would able to understand the structural behavior of structural members
CO701.3	Student will able to understand the effect of backfill and select suitable type of retaining wall for the safety and convenience of society and carry out analysis, design and detailing of retaining wall as per IS Code provisions.
CO701.4	Students will be able to plan the building and design the structural elements such as building frame and staircase as per the requirement of society.
CO701.5	Students will able to interpret the soil - structural interaction and design suitable type of combined foundation using modern tools and techniques for the benefit
CO701.6	Students will able to interpret the soil - structural interaction and design suitable type of combined foundation using modern tools and techniques for the benefit
	Advance Concrete Structures (BECVE701P)
CO701.1	Students would able to understand the design concept of various RCC members.
CO701.2	Students will able to apply the theoretical knowledge to design the RCC member
CO701.3	Students will able to use advance software for design of building
	Estimating and Costing (BECVE702T)
CO702.1	To understand basic fundamentals of Estimates. Also to prepare preliminary estimates using different methods without much mathematical computations. Also to understand various approvals to be taken for the execution of project to understand their practical utility.
CO702.2	To compute the quantities of various items of work of building using
CO702.3	To know the basic principles and importance of earthwork in road estimate and to compute the quantities of earthwork in roads and canals and to discuss
CO702.4	To have detailed knowledge about execution process of carrying out works in Govt. Departments for its practical utility. Also to know types of
CO702.5	To know an importance and necessity of specification and draft detailed specification of items which are useful for Engineers on site and others. Also to calculate rate per unit item through mathematical computation and to include them in CSR which is useful to Engineers as well as owners in the society
CO702.6	To discuss the various methods of valuation through mathematical representation so that it would be beneficial to the people in the society. Also to calculate

	know the various types of cost and cost accounting useful for the community.
	Estimating and Costing (BECVE702P)
CO702.1	To prepare preliminary estimates without much computations the quantities of various items of work using mathematical approach and formulations for
CO702.2	To compute the quantities of earthwork in roads and canals for the practical utility
CO702.3	To have detailed knowledge about execution process in Govt. departments for its practical utility and to calculate rate per unit item valuation and cost
	Earthquake Resistant Design (Elective-I) (BECVE703T)
CO703.1	Idea on Engineering Seismology , Response Spectra, Strong Ground motion
CO703.2	Earthquake Analysis of Multistoried Building by Equivalent Lateral Load
CO703.3	Meaning of Single Degree of Freedom and Multi-degree of Freedom. What is Mathematical Modeling. Modeling of 2D and 3D frame and with effect of
CO703.4	Idea on soil structure interaction. Winkler Model. What is Soft Storey? Shear
CO703.5	Idea on Ductility. Types of ductility. What is beam to beam connection and beam
CO703.6	Introduction to Retrofitting. Methods of Retrofitting. Need of Retrofitting. Introduction to base isolation. Types of base isolation. Working principle. IS
	Construction Management and Law (BECVE704T)
CO704.1	Demonstrate the understanding of various types of projects, Modern Construction
CO704.2	To analyze network analysis CPM and PERT, resource allocation leveling and resource smoothing construction planning. Crashing and time cost optimization
CO704.3	To achieve the knowledge of various types of equipments used in the construction and to apply the principle of management for various types organization, organizational charts, duties and responsibilities of personal manager. To know various modern techniques used for material management quality checks, inventory control etc.
CO704.4	To know the quality control aspects in quality management, safety provisions as
CO704.5	To know the town planning requirements and knowledge of acts and codes of regional town planning, housing development act, highway act, and local
CO804.6	To know different laws, environmental (protection) act, forest conservation act water and air pollution act, transfer of property act, understand the social

	Transportation Engineering-II (BECVE705T)
CO705.1	To understand the classification of railways, traction and tractive resistances, tractive efforts of locomotives, high speed track to apply the knowledge
CO705.2	To conduct studies on rail functions, different rail fixtures, to design geometric
CO705.3	Planning and designing of points and crossing, turnouts modern technology used
CO705.4	To know airport planning, zoning laws, imaginary surfaces, analyze wind direction runway orientation geometric design of runway taxiway,
CO705.5	To plan and design terminal area, aircrafts parking hangers, and to study international airport layouts, visual aids, airport markings and air traffic
CO705.6	To plan and design tunnels, ventilation economic transport by using tunnels. To know the classification of harbors, types of break waters, wharves, quays
	Industrial Case Study (BECVE706P)
CO706.1	An ability to design and conduct experiments, as well as to analyze and interpret
CO706.2	An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political,
CO706.3	An ability to function on multidisciplinary teams.
CO706.4	An ability to identify, formulates, and solves engineering problems
CO706.5	An ability to use the techniques, skills, and modern engineering tools necessary
CO706.6	An understanding of the elements of Project Management, Construction and asset
BE Civil Engineering Eighth Semester	
	Irrigation Engineering (BECVE801T)
CO801.1	Understanding the methods, efficiency and application of Irrigation as an Engineering concept for the proper growth of crops to enhance the
CO801.2	Complete knowledge of planning, design and operational approach of storage
CO801.3	Understanding of philosophy of large and small dams and engineering concept for analysis and design of such structures with consideration of economic and
CO801.4	Use of mathematical approach to check the stability, analysis and design of spillways with their engineering approaches to be adopted for energy
CO801.5	Allocation of analysis and design approaches for various hydraulic structures with
CO801.6	Understanding design methodology for unlined and lined canal, selection of lining

	use of water for the benefit of water user communities.
	Water Transmission and Distribution System Elective-II (BECVE802T)
CO802.1	To know the purpose of various appurtenances used in distribution system and analysis, design consideration, working mechanics and engineering applications of such appurtenances.
CO802.2	To do the planning of various distribution system and to analyze and design of such system by using various mathematical technique by formulating
CO802.3	To know the concept and fundamentals of node flow analysis and design the
CO802.4	Use of concepts of distribution reservoir to use of mathematical approach to calculate the capacity of reservoir by analytical and graphical solution and
CO802.5	To understand the design of single source balancing network using CPM, number
CO802.6	To understand linear programming technique, non linear programming technique
	Applied Remote Sensing and GIS (Elective-III) (BECVE803T)
CO803.1	To know the fundamentals of remote sensing as a modern technique for
CO803.2	To understand fundamental knowledge of Aerial photography which may solve
CO803.3	To understand the appropriate techniques of interpretation of satellite images and
CO803.4	The knowledge of remote sensing and GIS for mapping and monitoring land
CO803.5	To apply knowledge of remote sensing and GIS in environmental studies.
CO803.6	Use of satellite images as a new technique for site selection for civil engineering projects to overcome the complex civil engineering problems in
	Applied Remote Sensing and GIS (Elective-III) (BECVE803P)
CO803.1	Students will understand the basic concepts of stereoscopes to create three-D
CO803.2	Students will be able to interpret the aerial photographs and satellite images.
CO803.3	Students will be able to interpret the digital satellite images on software.
	Construction Management and materials (BECVE804T)
CO804.1	Acquaint with various economic and financial aspects of construction industry
CO804.2	Understand the tools and techniques of economic analysis for improving their
CO804.3	Understand the knowledge of economic analysis for improving their decision making skills
CO804.4	Understand the Concept of IRR, Turnkey Construction Projects.
CO804.5	Apply Knowledge of Inflation , Recession , Financial Ratios
CO804.6	Idea on Working Capital. Structure of Working capital. Economic Analysis.

	Project (BECVE805P)
CO805.1	Engaged in professional practices, such as construction, environmental, geotechnical, structural, transportation, or water resources engineering by
CO805.2	Overseen the design and/or construction of a civil engineering project.
CO805.3	Registered as a professional engineer or developed a strong ability leading to
CO805.4	Demonstrated a commitment to continuing professional development by pursuing formal education in an advanced degree program or by maintaining
CO805.5	Served in a leadership position in any professional or community organization, or
CO805.6	The broad education necessary to understand the impact of engineering solutions

Sr. No.	Department of Electronics Engineering	
Third Semester		
1	BEENE301T	Applied Mathematics -III
2	BEENE302T	Electronics Devices And Circuits
3	BEENE303T	Electronics Measurement And Instrumentation
4	BEENE304T	Object Oriented Programming And Data Structure
5	BEENE305T	Network Analysis And Synthesis
Fourth Semester		
1	BEENE401T	Applied Mathematics -IV
2	BEENE402T	Power Devices And Machines
3	BEENE403T	Electromagnetic Field
4	BEENE404T	Digital Circuits And Fundamentals Of Microprocessor
5	BEENE405T	Signals And Systems
Fifth Semester		
1	BEENE501T	Switching Theory & Automata
2	BEENE502T	Microprocessor And Microcontroller
3	BEENE503T	Analog Circuit And Design
4	BEENE504T	Communication Electronics
5	BEENE505T	Industrial Economics And Entrepreneurship Development
Sixth Semester		
1	BEENE601T	Micro Wave Engineering
2	BEENE602T	Digital Signal Processing
3	BEENE603T	Control System Engineering
4	BEENE604T	Digital Communication
5	BEENE605T	Functional English
Seventh Semester		
1	BEENE701T	DSP Processor & Architecture
2	BEENE702T	Embedded System
3	BEENE703T	Optical Fiber Communication
4	BEENE704T	Advance Digital System Design
5	BEENE705T	Elective I-Digital Image Processing
Eighth Semester		
1	BEENE801T	Micro Electro-Mechanical System
2	BEENE802T	Computer Communication Network
3	BEENE803T	CMOS VLSI Design
4	BEENE804T	Elective 2-Nanotechnology
5	BEENE805T	Robotics And Automation
6	BEENE805T	Data Compression And Encryption

Department of Electronics Engineering

The Electronics Engineering program subscribes to the following Program Specific Outcomes (PSOS):

PSO1	Core and Design Competence- To comprehend the technological advancements in the design of circuits leading to higher education and research inclination with the ability to associate the high impact learning from the courses related to Nanotechnology , Signal processing, Image processing, Embedded Systems, VLSI, Robotics and MEMS to arrive at solutions to real world
PSO2	Career Prospects with Collaborative Endeavour- To appreciate an academic culture that ignites the spirit of excellence and passion by grafting the entrepreneurial paradigm onto the learning methodologies through projects with Government organizations inculcating the professional etiquettes,

BE Electronics Engineering Third Semester	
	Applied Mathematics –III (BEENE301T)
CO301.1	Understand Laplace Transform and should able to solve differential equations,
CO301.2	Expand the function in periodic form using Fourier series and understand the
CO301.3	Will be able to formulate variation problems and analyze them to deduce key
CO301.4	Understand the fundamental concepts of complex analysis and also be able to
CO301.5	Formulate and solve linear partial differential equations problems and basic understanding in the transform which are useful in solving
CO301.6	Will be able to simplify the power of matrices, system of linear equations,
	Electronics Devices And Circuits (BEENE302T)
CO302.1	Analyze the characteristic of different diodes and its applications
CO302.2	Learn the basics of bipolar junction transistor and analyze its performance
CO302.3	Study the transistor amplifier circuit
CO302.4	Explore the positive feedback amplifier
CO302.5	To acquire the knowledge about the power amplifier circuits
CO302.6	Understand the concepts of JFET and MOSFET
	Electronics Measurement And Instrumentation (BEENE303T)
CO303.1	To understand basic concepts ,definitions in measurements and statistical
CO303.2	Able to understand the operation and design of Electronics instruments for
CO303.3	To describe different miscellaneous bridges and their methods for

	of electrical quantities.
CO303.4	To discuss different types of transducers along with their working principle and
CO303.5	Explain the operation of oscilloscope with basic circuit block and appreciate the
CO303.6	Describe the different signal analyzer with their types and data acquisition
	Object Oriented Programming And Data Structure (BEENE304T)
CO304.1	Be able to implement the concept of object oriented programming in any
CO304.2	Explain the basic data structures and algorithms for manipulating them
CO304.3	Implement these data structures and algorithm in the C++language
CO304.4	Integrate these data structures and algorithms in larger programs
CO304.5	Code and test well-structured programs of moderate size using the C++
CO304.6	Apply principles of good program design to the C++ language
	Network Analysis And Synthesis (BEENE305T)
CO305.1	Analyse the network using source transformation, mesh analysis and nodal
CO305.2	To determine current and change in current through a branch, and maximum
CO305.3	Analyse series and parallel resonance circuit.
CO305.4	Analyse different types of Filters and Attenuators
CO305.5	Analyse application of Laplace transform to different electrical circuits and
CO305.6	To analyse different network parameter of two port network.
BE Electronics Engineering Fourth Semester	
	Applied Mathematics IV (BEENE401T)
CO401.1	Know and understand various types of numerical methods and apply them to solve algebraic and transcendental equations, system of linear equations
CO401.2	Apply the concept of Z-transform for solving difference equations and analyze
CO401.3	Able to Series solution of Ordinary Differential Equations by Frobenius method
CO401.4	Know about discrete and continuous random variables and theory of
CO401.5	Know and understanding about expectations, moments and moment generating
CO401.6	Understanding thoroughly standard probability distributions and apply the in
	Power Devices And Machines (BEENE402T)
CO402.1	To understand operation, working and construction of SCR and TRIAC with
CO402.2	To understand operating principle, construction and application of IGBT, Power
CO402.3	To understand basic idea of AC to DC conversion i.e. operation of

	controlled rectifier with numerical and cycloconverter (AC-AC).
CO402.4	To understand operation of chopper i.e. DC-DC conversion ,chopper types and
CO402.5	To understand operation and working of 3-phase transformer, 3-phase induction
	Electromagnetic Field (BEENE403T)
CO403.1	Understand the basic concept of electric and magnetic field and coordinate
CO403.2	Understand the different theorems and laws which are used in electromagnetic
CO403.3	Ability to Solve Electromagnetic Relation using Maxwell's formulae
CO403.4	Understand the concept of propagation of wave in different medium.
CO403.5	Understand the use of waveguide for transmission of electromagnetic wave.
CO403.6	Understand the concept of radiation element used for radiation along with basic
	Digital Circuits And Fundamentals Of Microprocessor (BEENE404T)
CO404.1	Students will be able to understand Analog, Digital systems and also the types of
CO404.2	Able to understand the different combinational logic circuits with examples.
CO404.3	Able to understand the Sequential logic circuits with their conversions.
CO404.4	Able to design the applications of Flip Flops like Counter, Register.
CO404.5	Able to understand various characteristics of Semiconductor Memories and
CO404.6	Acquire the knowledge of internal architecture of 8085 Microprocessor including instruction sets and how to use them in writing assembly
	Signals And Systems (BEENE405T)
CO405.1	Get knowledge about different types of signals and systems used in communication electronics and also the use of Fourier series and
CO405.2	Understand the concept of probability and its use in communication system.
CO405.3	Understand different coding schemes and able to apply selective coding scheme
CO405.4	Understand the different analog and digital modulation schemes.
CO405.5	Able to understand the digital carrier system and its features.
CO405.6	Understand the information theory concept and different error control coding
BE Electronics Engineering Fifth Semester	
	Switching Theory and Automata (BEENE501T)
CO501.1	Demonstrate basic tools for the design of digital circuits and fundamental
CO501.2	Find out structural properties by using Functional Decomposition and
CO501.3	Describe designing aspects of logic circuits using threshold elements.
CO501.4	Design sequential logic circuits.

CO501.5	Describe behavior, capabilities and structure of finite state machines and
CO501.6	Describe diagnosis of faults of switching circuits and methods of improving
	Microprocessor And Microcontroller (BEENE502T)
CO502.1	Describe internal organization of 8086/8088 microprocessors and
CO502.2	Understand the basic idea about data transfer schemes and its applications and
CO502.3	Interface 8086 and 8051 with Keyboard/ Display, ADC/DAC, Stepper motor
CO502.4	Demonstrate the concept of interrupts and its use. Demonstrate the concept of
CO502.5	Describe the concept of DMA and Pentium. Describe 8087 Numeric
CO502.6	Develop programming skills in assembly language for 8086MP, 8051MC and apply the fundamentals of assembly level programming of microprocessor
	Analog Circuit And Design (BEENE503T)
CO503.1	Be able to describe the basic differential amplifier using transistor and its
CO503.2	Design linear Op-Amp circuit such as voltage follower, summing amplifier, scaling and averaging amplifier, Instrumentation amplifier, Integrator circuit, Differentiator circuit, Log and Antilog Amplifier circuit for various practical applications.
CO503.3	Design Non-linear Op-Amp circuit such as comparators, Schmitt trigger, Clipper, Clamper, Rectifiers, Sample and Hold circuit, A/D and D/A
CO303.4	Design Regulated power supply such as SVR and SMPS.
CO503.5	Design Wein bridge oscillator, Phase shift oscillator, Hartley and Colpitts
CO503.6	Design active filter of LPF, HPF, BPF, Butterworth filter, Relay driver circuit,
	Communication Electronics (BEENE 504T)
CO504.1	Able to understand and analyze various forms of amplitude modulation, its
CO504.2	Able to demonstrate FM techniques, evaluate the bandwidth requirements and
CO504.3	Able to learn sampling, quantization and various pulse modulation techniques,
CO504.4	Able to understand various types of noise and solve numerical on noise.
CO504.5	Able to understand detection techniques for AM and FM signals
CO504.6	Able to learn multiplexing techniques and broadband communication links.
	Industrial Economics and Entrepreneurship Development (BEENE505T)
CO505T.1	Subject makes the student understand and learn the basic concepts of Industrial

	organization as economic analysis.
CO505T.2	Students learn the basic concepts like market structures, pricing strategies, business integration, economies and diseconomies of scale and the
CO505T.3	Students are familiarized with working of banking system, foreign direct investment, the concept of free trade, capital formation, inflation,
CO505T.4	Students learn about entrepreneurship as career avenue and factors affecting entrepreneurial growth. Students learn about project formulation, market survey and research, techno economic feasibility assessment and project appraisal.
CO505T.5	Subject enhances their understanding about needs and sources of finance, various types of loans, capital structures, break even analysis, network
CO505T.6	Students learn about role of small scale industries in the economy, problems of SSI,FDI as a threat to SSI, technical consultancy organizations,
BE Electronics Engineering Sixth Semester	
Microwave Engineering (BEENE 601T)	
CO601.1	Able to describe and differentiate between klystron amplifier and TWT on
CO601.2	Able to describe and analyze about magnetron and solve numerical based on it
CO601.3	Able to describe about various transmission lines and their fabrication
CO601.4	Able to analyze various passive components with the help of scattering matrix
CO601.5	Able to demonstrate about measurement of different microwave parameters
CO601.6	Able to describe different solid state devices and discuss its applications
Digital Signal Processing (BEENE602T)	
CO602.1	Represent discrete time signals analytically and visualize them in the time
CO602.2	Design and implement digital filters for various applications
CO602.3	Describe various transforms for analysis of signals and systems
CO602.4	Understand the behavior of discrete time using Z-transform
CO602.5	Explore the concept of multirate signal processing
CO602.6	Acquire knowledge on DSP architecture
Control System Engineering (BEENE603T)	
CO603.1	This is to understand the fundamental concepts control system and mathematical
CO603.2	To determine the Time response of different order systems for various inputs,
CO603.3	To understand the fundamental concept of stability and to Analyze the stability
CO603.4	To analyze the concept stability of in frequency domain. Polar plot, Bode plot,
CO603.5	Able to analyze the need for compensation and types of compensation for

CO603.6	Able to understand concept of state space representation, Obtain transfer function of systems using signal flow graph. Apply the state variable
	Digital Communication (BEENE604T)
CO604.1	Model digital communication system using appropriate mathematical
CO604.2	Describe a random process in terms of its mean and correlation functions and
CO604.3	Describe digital modulation techniques.
CO604.4	Demonstrate the concept of coding and decoding techniques.
CO604.5	Explain the receiver techniques for detection of signals in AWGN channel
CO604.6	Describe the spread spectrum analysis and analyze the performance of spreading
	Functional English (BEENE605T)
CO605.1	Will become adept in using functional grammar
CO605.2	Would be able to write at workplaces
CO605.3	Will be able to draft technical reports and write proposals
CO605.4	Will be able to understand the planning and procedure of carrying out research
CO605.5	Will become well prepared to face competitive examinations and job
CO605.6	Dexterous in presentation skills
BE Electronics Engineering Seventh Semester	
	DSP Processor and Architecture (BEENE701T)
CO701.1	Understand the fundamentals of programmable Digital Signal Processors (P-
CO701.2	Understand the architecture of TMS and Motorola processors.
CO701.3	Understand the assembly language instructions and write simple assembly
CO701.4	Write and execute the application programs for processing of real time signals.
CO701.5	Interface DSP processors hardware to a software Integrated Development
CO701.6	Implement different Digital Signal processing algorithms on DSP processors.
	Embedded System (BEENE702T)
CO702.1	To give sufficient background for understanding embedded systems design and describe the difference between the general computing system and
CO702.2	Describe the hardware and software architecture of embedded system and
CO702.3	Describe the architecture of ARM processor and its programming aspects and to
CO702.4	Describe the different communication protocols and buses required for an embedded system and to understand connections of various peripherals
CO702.5	Describe the real time operating system concepts and different scheduling

CO702.6	Describe the detail contextual analysis of a limited number of events and their
	Optical Fiber Communication (BEENE703T)
CO703.1	Understand the basic operating principles of physics, optical fiber
CO703.2	Understand the mechanism of optical fiber drawing apparatus, optical fiber
CO703.3	Classify various optical source materials, LED structures and LASER diodes.
CO703.4	Learn the fiber optic receivers, their operation and performances.
CO703.5	understand the concept of analog and digital link,
CO703.6	Learn optical network SONET/SDH, WDM, high speed optical network Such
	Advance Digital System Design (BEENE704T)
CO704.1	Learn the VHDL development flow
CO704.2	Explore the basic language constructs of VHDL
CO704.3	Develop a formal test bench from informal system requirement
CO704.4	Design the FSM and ASM using VHDL
CO704.5	Understand the synthesis concepts in digital design
CO704.6	Learn the basics of the programmable logic devices
	Elective I-Digital Image Processing (BEENE705T)
CO705.1	Understand the fundamental of Digital image processing
CO705.2	Define image transforms and filtering
CO705.3	Understand the image compression techniques
CO705.4	Explore advanced topics of color image processing
CO705.5	Acquire the knowledge on segmentation methods
CO705.6	Analyse different restoration techniques
BE Electronics Engineering Eighth Semester	
	Micro-Electromechanical System (BEENE801T)
CO801.1	To understand Major classes, components, and applications of MEMS devices/systems and to demonstrate an understanding of the fundamental principles behind the operation of these devices/systems such as optical mems, bio mems, RF-mems.
CO801.2	To understand Standard micro fabrication techniques and the issues surrounding
CO801.3	To understand Major classes, components, and applications of MEMS devices/systems and to demonstrate an understanding of the fundamental principles behind the operation of these devices/systems like different types of sensors and transducers such as chemical sensor, molecule based bio-sensor, optical transducer, and thermal transducer.
CO801.4	To understand micro fabrication techniques and applications to the design and Manufacturing of an MEMS device or a Microsystems like RF MEMS
CO801.5	Describe different packaging methods for microelectronics and Microsystems.
CO801.6	Describe Microsystems technology and core architecture for digital media.

	Computer Communication Network (BEENE802T)
CO802.1	To learn the design issues of various layers and architecture of networks
CO802.2	Able to understand physical medias and switching concept
CO802.3	Study of data link protocols and characteristic of different methods
CO802.4	To understand various routing algorithms and data formats.
CO802.5	Explain majority of application along with their working principle ,advantages
CO802.6	study the concept to provide security and administration to the network
	CMOS VLSI Design (BEENE803T)
CO804.1	To be aware about the trend in semiconductor technology ,MOS transistor
CO803.2	To understand MOS (Metal Oxide Semiconductor)Transistor
CO803.3	To design Combinational Logic Circuits using CMOS logic
CO803.4	Analyze the switching characteristic and power dissipation of MOS inverter
CO803.5	Able to draw layout , stick diagram
CO803.6	Learn the fault coverage and design for testability
	Elective 2-Nanotechnology(BEENE804T)
CO804.1	Understand the fundamental of nanotechnology
CO804.2	Apply different tools for the measurements of nanotechnology
CO804.3	Apply specific methodology for fabrication of nano devices for specific
CO804.4	Learn different nano materials and its applications
CO804.5	Understand nano electronics for advanced computation
CO804.6	Apply nanotechnology concepts in electronics engineering field
	Robotics And Automation (BEENE805T)
CO805.1	Will get overview of robot technology, sensory perception categories and Artificial intelligence (AI). Students will be able to compare human brain
CO805.2	Able to know and compare the different techniques used for knowledge
CO805.3	Will get idea about different techniques used for speech synthesis and speech
CO805.5	Will be able to find range of the object for the robot using different techniques.
CO805.6	Explore various robot programming language, their characteristics and
	Data Compression And Encryption (BEENE805T)
CO805.1	Understand various text compression techniques and compare their performances.
CO805.2	Understand various audio compression techniques and audio coding formats
CO805.3	Understand various image and video compression techniques and image compression
CO805.4	Understand various types of attacks on secrete messages and encryption measures to
CO805.5	Gain knowledge of various public key encryption techniques.
CO805.6	Gain knowledge of system security from intruders, viruses and warms

Sr. No.	Department of Mechanical Engineering	
Third Semester		
1	BEME301T	Applied Mathematics – III
2	BEME302T	Kinematics of Machines
3	BEME303T	Fluid Mechanics
4	BEME304T	Manufacturing Processes
5	BEME305T	Engineering Metallurgy
6	BEME306P	Machine Drawing
Fourth Semester		
1	BEME401T	Applied Mathematics
2	BEME402T	Engineering Thermodynamics
3	BEME403T	Hydraulic Machines
4	BEME404T	Machining Processes
5	BEME405T	Mechanics of Materials
Fifth Semester		
1	BEME501T	Industrial Economics & Entrepreneurship Development
2	BEME502T	Design of Machine Elements
3	BEME503T	Advanced Production Processes
4	BEME504T	Heat Transfer
5	BEMT505T	Mechanical Measurement and Metrology
Sixth Semester		
1	BEME601T	Energy Conversion -I
2	BEMT602T	Control System Engineering
3	BEME603T	Operations Research
4	BEME604T	Mechatronics
5	BEME605T	Dynamics of Machines
6	BEME606T	Functional English
Seventh Semester		
1	BEME701T	Industrial Engineering
2	BEME702T	Automobile Engineering
3	BEME702T	Power plant engineering
4	BEME703T	Computer Aided Design
5	BEME704T	Energy Conversion - II
6	BEME705T	Design of Mechanical Drives
Eighth Semester		
1	BEME801T	Industrial Management
2	BEME802T2	Computer Integrated Manufacturing (Elective II)
3	BEME802T	Refrigeration and Air Conditioning (Elective – II)
4	BEME803T5	Advance Internal Combustion (IC) Engine (Elective III)
5	BEME803T	Advanced Manufacturing Techniques (Elective III)
6	BEME803T3	Renewable Energy Systems (Elective III)
7	BEME804T	Automation in Production
8	BEME805T	Energy Conversion – III

Department of Mechanical Engineering

The department of Mechanical Engineering has framed the following Program Specific Outcomes in consultation with concerned stakeholder and corresponding committees.

PSO1	Graduates will be able to apply technical skills and modern engineering tools to
PSO2	Graduates will be capable of developing Research Skills in utilization of

BE Mechanical Engineering Third Semester	
	Applied Mathematics – III (BEME301T)
CO301.1	Understand Laplace Transform and should able to solve differential equations,
CO301.2	Expand the function in periodic form using Fourier series and understand the
CO301.3	Will be able to formulate variation problems and analyze them to deduce key
CO301.4	Understand the fundamental concepts of complex analysis and also be able to
CO301.5	Formulate and solve linear partial differential equations problems and basic
CO301.6	Will be able to simplify the power of matrices, system of linear equations ,
	Kinematics of Machines (BEME302T)
CO302.1	The students will able to understand the basics of mechanism and its
CO302.2	The students will able to understand determination of velocity and acceleration of
CO302.3	The students will able to understand the basic concept of cam and followers and it applications. Also displacement, velocity and acceleration for various types
CO302.4	The students will able to understand different types of gears and its applications.
CO302.5	The students will able to understand the Synthesis of Mechanism by graphical
CO302.6	The students will able to understand friction theory, various types of clutch, brake
	Fluid Mechanics (BEME303T)
CO303.1	Student will familiar with different fluid properties and its measurement,
CO303.2	Student will develop an understanding of the behavior of fluid at rest or in
CO303.3	Students will ability to apply the Bernoulli's equation to solve practical

CO303.4	Student will be able to carry out functional relationship of parameters and
CO303.5	Students will be able to analyses the flow through the pipeline, power
CO303.6	Students acquire knowledge of laminar and turbulent layer fundamentals and analyze drag and lift forces on immersed
	Manufacturing Processes (BEME304T)
CO304.1	Student should able to understand practical applications of Pattern making, Core
CO304.2	Student should able to understand Gating system and Foundry mechanizing of
CO304.3	Student should able to understand various types of advanced joining processes
CO304.4	Student should able to understand forming processes metals and determination of forging forces and tresses.
CO304.5	Student should able to understand various types of sheet metal operations and
CO304.6	Student should able to understand various types of advanced plastic processes
	Engineering Metallurgy (BEME305T)
CO305.1	Student will be able to understand the fundamentals of various engineering materials, their crystal structure and describe the imperfections, mechanical properties and plastic
CO305.2	Student will be able to acquire the knowledge of solidification mechanism and explain the equilibrium diagram and interpret this knowledge to illustrate the Iron-Iron carbide
CO305.3	Student will be able to obtain basic information of common heat treatment process performed on steel and relate its influence on properties of Steel by which design and
CO305.4	Student will be able to differentiate between carbon steel alloy steels and their and use for the various applications, in light of microstructure.
CO305.5	Student will be able to describe the different type's cast iron and non ferrous alloys, their microstructures, properties and applications.
CO305.6	Student will be able to understand different types of non-destructive tests employed to detect the flaws in materials and explain the powder metallurgy mechanism and its
	Machine Drawing (BEME306P)
CO306.1	Students will be able to understand the concepts of machine drawing and its
CO306.2	Students will be able to draw the orthographic projection and sectional view of
CO306.3	Students will be able to understand the constructions of various fasteners and also
CO306.4	Student will be able to understand the principles and standard technique for
CO306.5	Student will be able to understand the machining processes for machine

BE Mechanical Engineering Fourth Semester	
	Applied Mathematics (BEME401T)
CO401.1	Grasp the concept of numerical methods and apply them to solve various types of equations such as algebraic and transcendental equations and simultaneous
CO401.2	Solve linear and non-linear differential equations and Eigen value problems using
CO401.3	Apply concept of Z- transform for solving difference equations analyze discrete
CO401.4	Find Series solution of Ordinary Differential Equations by Frobenius method and
CO401.5	Know discrete and continuous random variables and their probability
CO401.6	Know about standard probability distribution and random processes.
	Engineering Thermodynamics (BEME402T)
CO402.1	Students will be able to understand the basic concepts of thermodynamics such as
CO402.2	Students will be able to apply the first law of thermodynamics on closed and
CO402.3	Students will be able to apply second law of thermodynamics and entropy concepts in analyzing the performance of heat engines, refrigerators and
CO402.4	Students will be able to analyze the thermodynamic properties of pure substances, formulate heat and work expressions for various thermodynamic processes,
CO402.5	Students will be able to understand different components of steam thermal power
CO402.6	Students will be able to understand and analyze various thermodynamics air
	Hydraulic Machines (BEME403T)
CO403.1	Student will understand practical applications of fluid, impulse momentum
CO403.2	Student will be able to understand classification, basic principle, working,
CO403.3	Student will be able to understand classification, basic principle, working,
CO403.4	Student will be able to understand classification, working, selection and analysis
CO403.5	Student will be able to understand other positive displacement pump and rotary
CO403.6	Student will be able to understand model testing of hydraulic machineries for
	Machining Processes (BEME404T)
CO404.1	Students will understand basic parameters of machining, cutting tools and tool

	of metal cutting.
CO404.2	Students will understand the working principle, construction, specifications and types of lathe machine. Students will performed various operations on
CO404.3	Students will explore to various surface planning processes including shaping, planning and slotting. Also they will understand constructional and
CO404.4	Students will learn and operate milling machines and its types. Also students will
CO404.5	Students will learn about various surface finishing and super finishing processes such as grinding. Classification of grinder and its types and manufacturing
CO404.6	Students will understand drilling process and types of drilling machines. Also
	Mechanics of Materials (BEME405T)
CO405.1	Understand basic concepts of stress, strain and their relations based on linear
CO405.2	Learn analytical and graphical analysis of compound stresses and analysis of
CO405.3	Develop shear-moment diagrams of a beam, and analyze bending stresses, shear
CO405.4	Analyze torsional shear stresses and deformation of circular bars.
CO405.5	Understand stability and buckling phenomena for a slender member under an
CO405.6	Analyze stresses by using various theories of Failure
BE Mechanical Engineering Fifth Semester	
	Industrial Economics and Entrepreneurship Development (BEME501T)
CO501.1	Students will be able to understand Economics and its relation with Capitalism and Socialism, business integration and understanding difference
CO501.2	Students will be able to understand Demand Analysis and Law of return and Marginality, Customer satisfaction and Elasticity of Demand along with
CO501.3	Students will be able to understand factors of Production and their theories. Various associated costs. Stock exchange roles and Functions, Taxation, types
CO501.4	Students will be able to analyze the feasibility of new venture business concept. Evaluate his or her entrepreneur tendency and ability. Brainstorming Ideas
CO501.5	Students will be able to use a variety of feasibility tests, assess and select prospective new ventures and concepts for further study. Conduct focus groups, surveys and other methods for researching customer reactions for various new venture concepts.
CO501.6	Students will be able to conduct a variety of secondary research activities to analyze competition, market trends, industry structures and other issues relevant to specific new venture concepts. Examine and analyze issues

	trade name related)
	Design of Machine Elements (BEME502T)
CO502.1	Students will be able to understand introduction to machine design, design methods, design procedure, various design considerations, modes of
CO502.2	Students will be able understand and design - welded and bolted joints, pressure
CO502.3	Students will be able to understand introduction, types and design of helical and
CO502.4	Students will be able to understand introduction, terminology, applications and design of power screw; introduction, types, theories and design of clutch
	Advanced Production Processes (BEME503T)
CO503.1	Student should able to understand Non-Conventional Machining processes and
CO503.2	Student should able to understand various types of advanced joining processes
CO503.3	Student should able to understand various types of advanced machining processes and also micro-machining, Nano fabrication and High Energy Rate
CO503.4	Student should able to understand various types of sheet metal operations.
CO503.5	Student should able to understand various types of Jigs, Fixtures, Bushes and
CO503.6	Student should able to understand various types of super finishing processes and
	Heat Transfer (BEME504T)
CO504.1	Students will be able to understand and learn the concept of conduction heat transfer without uniform heat generation. Students will be able to analyze
CO504.2	Students will be able to understand and learn the concept of conduction heat transfer with uniform heat generation, Fin and Transient Heat transfer. Students will be able to analyze the conduction heat transfer with uniform heat generation for geometries like plane wall, cylinder and sphere, also they will analyze the
CO504.3	Students will be able to understand and learn the concept of Boundary layer thickness and forced convection. Students will be able to analyze the
CO504.4	Students will be able to understand and learn the concept natural convection dimensional analysis. Students will be able to analyze the natural convection
CO504.5	Students will be able to understand and learn the concept of radiation heat transfer, radiation laws and analyze the radiation heat transfer with and
CO504.6	Students will be able to understand and learn the concept of Heat exchangers and

	Mechanical Measurement and Metrology (BEMT505T)
CO505.1	The course is designed to study various measurement systems and their significance along with the characteristics and order of the instruments.
CO505.2	Students will understand the functionality of various measuring instruments for measuring different physical parameters such as displacement, strain, speed,
CO505.3	Through the course students will gain understanding on different standards of measurement along with their allowances and tolerances. Moreover they
CO505.4	The course is oriented for understanding the working methodology of limits and
CO505.5	Study of different comparators such as mechanical. Electrical, optical etc., for inspection along with optical profile projection is a part of curriculum.
BE Mechanical Engineering Sixth Semester	
	Energy Conversion -I (BEME601T)
CO601.1	The students will be able to understand and learn the concept of Power plant.
CO601.2	The students will be able to understand and learn the concept of Draught. Students will be able to analyze and design the chimney. Students can able
CO601.3	The students will be able to understand and learn the concept of fluidization and
CO601.4	The students will be able to understand and learn the concept steam nozzle. Students will be able to analyze various steam nozzles. Students will be able
CO601.5	The students will be able to understand and learn the concept steam turbines, their
CO601.6	The students will be able to understand and learn the concept of steam condensers
	Control System Engineering (BEMT602T)
CO602.1	The course is designed to understand different control systems along with their types. In this systems, students will analyses and study various actuators
CO602.2	The course is formulated to familiarize students with modeling of different type of systems, including mechanical, electrical, electromechanical etc. and
CO602.3	Through the course students will orient him with concepts related to the
CO602.4	The course is objected towards the understanding of various control systems and its stability analysis using analytical and graphical technique. The understanding of concept related to time domain and frequency domain is
CO602.5	Students will study responses for different types of signals and would cumulate

CO602.6	At the end of the course student will gain up-to date knowledge in control system field through the study of industrial automatic controls and there
	Operations Research (BEME603T)
CO603.1	To provide a formal quantity approach to problem solving by using mathematical model to solve linear programming such as linear programming problem formulation, graphical and simplex method, principle of duality that are used
CO603.2	The students will have the knowledge of mathematical model techniques in
CO603.3	The students will have the knowledge of mathematical model techniques in game
CO603.4	The students will able to understand the concept of network model and use quantitative approach in project management such as CPM and PERT
CO603.5	The students will use mathematical model in Replacement model such as replacement of items that deteriorate with time, items fail suddenly,
CO603.6	The students will use mathematical model such as Queuing theory. Simulation
	Mechatronics (BEME604T)
CO604.1	The course is designed to study basic elements of general mechatronics system. Students would understand the working of mechatronics system and acquire
CO604.2	The students will understand different DAQ Systems, which are the key elements of any control system. In addition they will study the interfacing of
CO604.3	Through the course students will gain understanding on different actuating systems including the study of different actuators such as mechanical,
CO604.4	They will understand different logic elements and with this understanding, they
CO604.5	Students will get up-to date knowledge on PLC and SCADA systems, which are heart of any industrial automation. Through the course module they would
CO604.6	Conceptual knowledge of MEMS and related systems are also studied, which are the future of mechatronics systems, where systems are smaller and with
	Dynamics of Machines (BEME605T)
CO605.1	The students should be able to understand the concept of machine element dynamics and its application for simple two degree of freedom system,
CO605.2	The students should be able to understand dynamic force analysis of four bar
CO605.3	The students should be able to understand static and dynamic balancing in
CO605.4	The students should be able to understand turning moment Vs. crank

	diagram for various engines, flywheels, governors and various types of
CO605.5	The students should be able to understand vibratory systems and their analysis in
CO605.6	The students should be able to understand vibratory system analysis in two
	Functional English (BEIT606T)
CO606.1	The students will become adept in using functional grammar.
CO606.2	The students would be able to write at workplaces.
CO606.3	The students will be able to draft technical reports and write proposals.
CO606.4	The students will be able to understand the planning and procedure of carrying
CO606.5	The students will become well prepared to face competitive examinations and job
CO606.6	The students will become dexterous in presentation skills.
BE Mechanical Engineering Seventh Semester	
	Industrial Engineering (BEME701T)
CO701.1	Define and recognize the concept of Productivity, Work study and Method
CO701.2	Various techniques of work measurement and calculate the standard time
CO701.3	Human factor in engineering in the context of man machine system.
CO701.4	Types of plant layouts and know the principles of material handling.
CO701.5	The concept of value engineering and be aware of other productivity
CO701.6	Various types of maintenance and the concept of reliability and maintainability.
	Automobile Engineering (BEME702T)
CO702.1	Student will be able to understand concept of Automobile Engineering and IC
CO702.2	Student will be able to understand concept of clutches and requirement and
CO702.3	Student will be able to understand concept of how transmission works and how it
CO702.4	Student will be able to understand concept of and need of steering and suspension
CO702.5	Student will be able to understand electrical system in automobile.
CO702.6	Student will be able to understand concept of advances in automobile purpose.
	Power Plant Engineering (BEME702T)
CO702.1	Students will be able to understand the Indian energy scenario and economics of
CO702.2	Students will be able to understand thermal power plant operations, analyze steam cycle and will have ability to understand combined power generation
CO702.3	Students will be able to understand basic combustion reactions, combustion equipment used in thermal power plant, component of steam generator,
CO702.4	Students will be able to understand electricity production from hydro

	plant, component of hydro power plant, types, site selection and advantages of
CO702.5	Students will be able to understand binding energy, fission reactions, components
CO702.6	Able to describe basic principle of gas turbine and diesel engine power plant and provides basic knowledge of non conventional power plant like solar,
	Computer Aided Design (BEME703T)
CO703.1	Students will be able to understand to develop a framework where the designers works with the computer to develop an engineering system and use of
CO703.2	Students will be able to understand concept of computer graphics, windowing,
CO703.3	Students will be able to understand and create 2D,3D,assembly modeling with the help of computer aided design software, student have knowledge of graphics standards, various types of geometric modeling and curves used in CAD
CO703.4	Students will be able to understand and analyze the one dimensional finite element analysis and properties of stiffness matrix, assembly global
CO703.5	Students will be able to understand and analyze the two dimensional finite
CO703.6	Students will be able to understand and analyze optimization in design by using Johnson's method of optimum design for simple machine elements like bar,
	Energy Conversion - II (BEME704T)
CO704.1	Students will be able to understand the working principle of single and multistage reciprocating compressor, minimum work required to drive multistage compressor, applications and analyze the performance of reciprocating
CO704.2	Students will be able to understand the working principle of blowers, rotary
CO704.3	Students will be able to understand working principle of SI, CI, 2-S and 4-S Internal Combustion Engines, Combustion phenomenon, parameters
CO704.4	Students will be able to calculate the performance parameters, preparation of heat balance sheet and interpret the performance curves of Internal
CO704.5	Students will be able to analyze vapor compression refrigeration system, understand the working of VARS, air refrigeration systems,
CO704.6	Students will be able to find the psychrometric properties of air, analyze the
	Design of Mechanical Drives (BEME705T)
CO705.1	Students will be able to understand Types of shaft coupling, Design of rigid coupling (Protective type), Bush pin type Flexible coupling, Flywheel rim

CO705.2	Students will be able to design Flat belt, V-belt, wire ropes, and chain drives for
CO705.3	Students will be able to design Spur, helical and bevel gears for industrial
CO705.4	Students will be able to design worm and worm wheel and I.C. Engine parts like
BE Mechanical Engineering Eighth Semester	
Industrial Management (BEME801T)	
CO801.1	Students will get knowledge about evolution of management thoughts and the
CO801.2	Students will understand the functions of personnel management and the related
CO801.3	Students will know the different types of production system and the concept of
CO801.4	Students will get knowledge about entrepreneurship, traits and competencies for
CO801.5	Students will get knowledge about the steps involved in setting up a business.
CO801.6	Students will get overview of the marketing function and the various sources of
Computer Integrated Manufacturing (BEME802T2) (Elective II)	
CO802.1	Students will acquaint with data bases related to CIM. Its evolution and basic
CO802.2	Students will understand Computer Aided Manufacturing (CAM). The basic
CO802.3	Students will explore and trained to understand part families and generating part codes. They will also understand concept of cellular manufacturing and
CO802.4	Students will understand the concept of Flexible Manufacturing System, Its basic components and need. Further explore to basic components of FMS and types
CO802.5	Students will understand the algorithm and relevance of Computer Aided Process Planning (CAPP). They will also understand the details of
CO802.6	Students will understand Manufacturing System Control, Computerized statistical process control, including Shop Floor Control. Further they will understand
Refrigeration and Air Conditioning (BEME802T) (Elective – II)	
CO802.1	Illustrate the basic concepts of vapor compression and vapor absorption refrigeration systems. Analyze the performance of vapor
CO802.2	Understand the components, controls and defrosting methods of vapor compression refrigeration system. Analyze the performance of
CO802.3	Understand air refrigeration system and can perform the analysis. Understand the
CO802.4	Understand the concept of cryogenics and its applications. Methods

	liquefaction of air and its analysis.
CO802.5	Find the psychrometric properties of air; analyze the psychrometric processes and its application to condition the air. Understand the heat load calculations of an
CO802.6	Understand the principle of air transmission and distribution. Different components used for distribution of conditioned air. Understand the analysis
	Advance Internal Combustion (IC) Engine (BEME803T5) (Elective III)
CO803.1	Students will be able to differentiate between among different IC engine and will demonstrate the ability to perform a thermodynamic analysis of Otto, Diesel
CO803.2	Students will be able to understand the basic components of IC engine and role of lubrication and cooling in reducing friction and wear. Students will be able to understand the characteristics of different fuels. Students will be able
CO803.3	Students will be able to understand combustion phenomenon and combustion chambers in SI engine. Students will be able to understand ignition systems
CO803.4	Students will be able to understand combustion and combustion chambers design
CO803.5	Students will be able to understand the generation of undesirable exhaust
CO803.6	Students will demonstrate the ability to analyze engine performance through
	Advanced Manufacturing Techniques (BEME803T) (Elective-III)
CO803.1	In this unit is designed to provide students with an overview of a wide variety of
CO803.2	Student will learn principles operations capability process parameters economics and applications of various mechanical machining processes and
CO803.3	In this unit student will learn principles, operation, capabilities, process parameter, economics and applications of electrochemical machining and
CO803.4	In this unit student will learn various unconventional welding techniques, control
CO803.5	In this unit is designed to understand the solid phase welding techniques such as ultrasonic friction welding with recent developments and economics
CO803.6	In this unit student will understand the advanced casting processes such as metal casting continuous squeeze / Centrifugal and ceramic shell casting on completion of this unit student Shall understand the importance of advance advanced casting process for unconventional foreign conventional machining
	Renewable Energy Systems (BEME803T3) (Elective III)
CO803.1	Students will be able to understand spectral distribution of solar radiation, solar
CO803.2	Students will be able to understand solar flat plate collector and its

CO803.3	Students will be able to understand concentrating collector and application of
CO803.4	Students will be able to understand biomass, biogas, its generation and
CO803.5	Students will be able to understand wind energy, ocean energy, tidal energy its
CO803.6	Students will be able to understand geothermal energy, magneto hydrodynamic
	Automation in Production (BEME804T)
CO804.1	Students will be able to understand arguments for and against automation, Types of production, Automation principles and strategies. Workpart transfer mechanisms, buffer storage, and analysis of flow line: general terminology and analysis of transfer line without storage and with buffer storage. Line
CO804.2	Types of NC system, Machine control unit, tape and tape readers. DNC, CNC, Adaptive control and their applications. APT (computer assisted
CO804.3	Robot anatomy, work volume, joint notation system, robot control system. Characteristics of robot, robot programming, End effectors. Accuracy, repeatability of robot and Robot applications, work cell layout use of robots in material handling, processing, assembly and inspection.
CO804.4	Automated material handling and storage-conveyor system Types of conveyors, Automated guided vehicle system, vehicle guidance technology, Analysis
CO804.5	Automated Inspection, sensor technology, radio frequency identification, Coordinate measuring machine, machine vision, image acquisition, digitization, image
CO804.6	Computer aided manufacturing, Flexible manufacturing system, Computer aided process planning (CAPP) and their types e.g. Retrieval and generative. Basics
	Energy Conversion – III (BEME805T)
CO805.1	Students will be able to understand the basics, components, working principle,
CO805.2	Students will be able to understand the basics and analysis of jet propulsion
CO805.3	Students will be able to understand the importance of renewable energy sources,
CO805.4	Students will be able to understand the role of energy conservation and its management in an industry; methods, procedure and instruments to conduct
CO805.5	Students will be able to understand basic structure, working principle, various
CO805.6	Students will be able to understand basic structure, working principle,

Sr. No.	Department of Computer Technology	
Third Semester		
1	BECT201T	Applied Mathematics-III
2	BECT202T	Program Logic Design in “C”
3	BECT202P	Program Logic Design in “C” Practical
4	BECT203T	Digital Electronics and Microprocessor
5	BECT203P	Digital Electronics and Microprocessor Practical
6	BECT204T	Social and Ethical Aspects of IT
7	BECT205T	Computer Architecture And Organization
8	BECT206P	Computer Workshop-1 Practical
Fourth Semester		
1	BECT208T	Discrete Mathematics and Graph Theory
2	BECT209T	Data Structure and Program Design
3	BECT209P	Data Structure and Program Design Practical
4	BECT210T	Advance Microprocessor and Interfacing
5	BECT210P	Advance Microprocessor and Interfacing Practical
6	BECT211T	Theory of Computation
7	BECT2012T	Introduction to Main-Frame Languages
8	BECT213P	Computer Workshop-2 Practical
Fifth Semester		
1	BECT301T	Object Oriented Modeling
2	BECT301P	Object Oriented Modeling Practical
3	BECT302T	Database Management Systems
4	BECT302P	Database Management Systems Practical
5	BECT303T	Operating System
6	BECT303P	Operating System Practical
7	BECT304T	Design Analysis and Algorithm
8	BECT304P	Design Analysis and Algorithm Practical
9	BECT305T	Data Communication
Sixth Semester		
1	BECT306T	Computer Graphics
2	BECT306P	Computer Graphics Practical
3	BECT307T	Computer Network
4	BECT307P	Computer Network Practical
5	BECT308T	Software Engineering And Project Management
6	BECT308P	Software Engineering And Project Management Practical
7	BECT309T	Embedded System Design
8	BECT310T	Communicative English & Technical Writing
9	BECT311P	Mini project
Seventh Semester		
1	BECT401T	Compilers
2	BECT401P	Compilers Practical
3	BECT402T	Artificial Intelligence
4	BECT402P	Artificial Intelligence Practical
5	BECT403T	Advance Database Systems Elective-I
6	BECT404T	Advance Operating System Elective-II

7	BECT405P	Project and Seminar
	Eighth Semester	
1	BECT406T	Data Warehousing and Mining
2	BECT406P	Data Warehousing and Mining Practical
3	BECT407T	Cyber and Information Security
4	BECT407P	Cyber and Information Security
5	BECT408T	Parallel Computing Elective -III
6	BECT409T	Cloud Computing Elective-IV
7	BECT410P	Project

Department of Computer Technology

The department of Computer Technology has framed the following Program Specific Outcomes in consultation with concerned stakeholder and corresponding committees.

PSO1	Graduates should be able to demonstrate the understanding of the conceptual
PSO2	Graduates should be able to develop and manage complex application and system
PSO3	Graduates should to be able to adapt current and new developments in the field of

BE Computer Technology Third Semester	
	Applied Mathematics-III (BECT201T)
CO201.1	Having studied this course, student will have the ability to solve integral equation, integro-differential equations, convolution type integrals, differential
CO201.2	Students will attain considerable level of competence in being able to analyze the frequency response and representation of discrete time system in
CO201.3	Students will have a critical understanding of the methods for evaluation of integrals which provides the solution of numerous boundary value problems
CO201.4	Students will develop a deep understanding of laws of probabilities, random variables, expectations and distributions which provides a
CO201.5	Students will be familiar with the concepts of and applications of contour integration etc. which are useful in the study of numerous other fields of
CO201.6	Students will be able to simplify the power of matrices, system of linear
	Program Logic Design in “C” (BECT202T)
CO202.1	To learn basic programming constructs such as control statements, Arrays and
CO202.2	To study and understand functions of file handling and apply it to design
CO202.3	To learn basics of dynamic memory management and to construct a program that demonstrates effective use of pointers and dynamic memory
CO202.4	To develop the basic understanding of graphic functions and apply it to implement
CO202.5	To study and understand the various problem solving and programming
CO202.6	To get familiar with the paradigm such as procedural and Object Oriented

	Programming.
	Program Logic Design in “C” Practical (BECT202P)
CO202.1	To develop a ability to design algorithms and write programs that demonstrate
CO202.2	To be able to implement programs using various functions of file related
CO202.3	To be able to implement programs using various functions of file related operations. To study and compare different programming paradigm and also
	Digital Electronics and Microprocessor(BECT203T)
CO203.1	To explain the concept and terminology of digital electronics in terms of logic
CO203.2	To understand and examine the structure of various combinational circuits, code
CO203.3	To understand and examine the structure of various sequential circuits, arithmetic
CO203.4	To understand basic architecture of 8 bit microprocessors and its instruction set
CO203.5	To be able to identify and use addressing mode, timing diagram, PSW of any
CO203.6	To be able to understand programming techniques and interrupt structure along
	Digital Electronics and Microprocessor Practical (BECT203P)
CO203.1	To design and verify the logic GATES, De-morgan’s law.
CO203.2	To design and examine the structure of various combinational and sequential
CO203.3	To write assembly language program based on arithmetic, looping indexing and
	Social and Ethical Aspects of IT(BECT204T)
CO204.1	To identify and analyze social, legal and ethical issues of IT workers and IT
CO204.2	To understand a professional code of ethics, Internet crime and common types of
CO204.3	To manage Professional Relationships, Freedom of expression and the concept of
CO204.4	To recognize computing and Information Systems that gives rise to social issues
CO204.5	To understand the importance of Software Quality development.
CO204.6	To analyze the issues of Social networking web sites, local and global impact of
	Computer Architecture And Organization (BECT205T)
CO205.1	To understand the organization of a computer system in terms of its main
CO205.2	To know basic operational concept of computer system, its functional units and

CO205.3	To understand the concepts of hardwired and micro program unit and design MPC
CO205.4	To understand binary arithmetic and design of arithmetic and logic units such as
CO205.5	To understand the memory hierarchy and the structure of cache and virtual
CO205.6	To understand different processors i.e., array processor, RISC, CISC,
	Computer Workshop-1 Practical (BECT206P)
CO206.1	To understand the structure of Unix Operating System and learn basic Linux
CO206.2	To learn basic HTML tags and able to develop web pages.
CO206.3	To learn fundamentals of computer networking.
BE Computer Technology Fourth Semester	
	Discrete Mathematics and Graph Theory (BECT208T)
CO208.1	After going through this course, students will understand the concept and language of sets which plays an important role in expressing mathematical ideas as well as concepts of logic theory which is used to verify correctness of
CO208.2	Students will be able to understand the concepts of relation and function, their
CO208.3	Students will understand the basic concepts of graphs, directed graphs, weighted graphs and able to present a graph by matrix. Also understand the properties
CO208.4	Students will be able to understand the statement of group theory and be able to explain the key steps in proofs. They will be able to simplify Boolean
CO208.5	Students will be able to use a combination of theoretical knowledge and independent mathematical thinking to investigate questions if ring theory and
CO208.6	Students will be able to use basic counting techniques and generating function to
	Data Structure and Program Design (BECT209T)
CO209.1	To develop basic understanding of various searching and sorting technique their
CO209.2	To study linear data structures such as stack and queue and to be able to apply it
CO209.3	To study, understand and implement various operations over linked list data
CO209.4	To study and understand the various operations on trees like searching, insertion,
CO209.5	To develop a basic understanding about graphs and to apply graphs related algorithms to solve real life problems such as shortest path, minimum
CO209.6	To know about fundamental concepts of hashing techniques and storage structures

	Data Structure and Program Design Practical (BECT209P)
CO209.1	To implement different sorting and searching techniques using C program.
CO209.2	To study and implement basic operations data structures such as stack, queues and
CO209.3	To analyze and implement different non-linear data structures techniques such as
	Advance Microprocessor and Interfacing (BECT210T)
CO210.1	To understand the generalized architecture of Advanced Microprocessors.
CO210.2	To understand Interfacing of Microprocessors with external peripherals.
CO210.3	To understand interrupt mode, DMA, USART 8251 and interfacing details.
CO210.4	To understand bus controller 8288, bus arbiter, coprocessor, NDP architecture.
CO210.5	To understand of advanced microcontroller 8051 with its instruction set and
CO210.6	To understand pipelining, branch prediction, protecting segment access,
	Advance Microprocessor and Interfacing Practical (BECT210P)
CO210.1	To implement assembly language program using arithmetic and logical
CO210.2	To understand and implement assembly language program using data transfer
CO210.3	To understand the concept of interfacing of 8255 and DAC with 8086
	Theory of Computation (BECT211T)
CO211.1	To develop understanding of the mathematical foundations such as sets, relations,
CO211.2	To learn finite automata and regular languages and to design finite automata,
CO211.3	To learn closure properties of regular languages, context free languages and to develop ability to design push down automata, context free grammar for
CO211.4	To develop ability to design of push down automata for context free languages.
CO211.5	To understand of linear bounded automat automata, Turing machines and to able
CO211.6	To learn recursive and recursively enumerable languages and develop understand
	Introduction to Main-Frame Languages (BECT2012T)
CO212.1	To understand the evolution of mainframes systems and characteristics of
CO212.2	To know the mainframes strengths like security, scalability, reliability, availability etc. in handling mainframe workloads i.e. batch processing and online
CO212.3	To study the buffer management, dataset management, job scheduling and other
CO212.4	To learn the History, Evolution and Features of COBOL programming along

	the JCL.
CO212.5	To understand the different file organizations and different file access methods in
CO212.6	To study the COBOL program interaction with database, COBOL – DB2 program execution (involving precompilation steps) and various ABEND codes to
	Computer Workshop-2 Practical (BECT213P)
CO213.1	To install Linux OS. Understand concept of shell and different usage of
CO213.2	To understand basic concept of shell programming and develop ability to write
CO213.3	To write shell script programs using functions, recursive functions, arrays and strings. To learn how to manage partitions, create make file, bootable USB
BE Computer Technology Fifth Semester	
	Object Oriented Modeling (BECT301T)
CO301.1	To understand fundamentals concepts of object oriented features and introduction
CO301.2	To perceive the concept of Basic Structural Modeling.
CO301.3	To comprehend and construct various basic behavioral, advance behavioral
CO301.4	To recognize abstractions of architectural modeling.
CO301.5	To understand the Unified process and apply the unified process approaches
CO301.6	To realize the significance of Architecture centric process and to develop an
	Object Oriented Modeling Practical (BECT301P)
CO301.1	To understand fundamentals of Rational Rose software, SDLC, SRS.
CO301.2	To construct use case view diagrams and component view diagrams using IBM
CO301.3	To learn the development model and practice the forward and reverse engineering
	Database Management Systems (BECT302T)
CO302.1	To differentiate database systems from file systems by enumerating the features
CO302.2	To demonstrate an understanding of the relational data model and
CO302.3	To analyze an information storage problem and understand the concepts of
CO302.4	To present concept and technology relating to query processing and its query
CO302.5	To understand the concepts of Transaction and Transaction processing.
CO302.6	To present the different issues and technology relating to Concurrency and

	Database Management Systems Practical (BECT302P)
CO302.1	To understand Data Definition and Data Manipulation Languages of relational
CO302.2	To be able to design relational databases for various problems and fabricate
CO302.3	To be able to design and implement PL/SQL procedures for different problems.
	Operating System (BECT303T)
CO303.1	To develop good understanding of the concepts, structure and design of operating
CO303.2	To understand basic concepts process management, inter-process communication
CO303.3	To understand the concept of deadlocks.
CO303.4	To master the concepts of main memory management and virtual memory
CO303.5	To gain knowledge regarding issues related to file system interface and
CO303.6	To understand basics of protection and security mechanisms, disk space
	Operating System Practical (BECT303P)
CO303.1	To make students able to learn different types of operating systems and to make
CO303.2	To be able to write programs using UNIX system calls to implement basic file system related commands of UNIX such as ls, cp etc. To demonstrate the understanding of multithreading concept by developing a multithreaded
CO303.3	To demonstrate understanding of concept of CPU scheduling algorithms, page replacement algorithms and disk scheduling algorithms and their
	Design Analysis and Algorithm (BECT304T)
CO304.1	To study and understand fundamental concepts of mathematics, recurrence
CO304.2	To understand divide and conquer strategy and develop algorithms based on this
CO304.3	To study, understand and analyze standard greedy techniques based algorithms
CO304.4	To understand, design and analyze various dynamic strategies based algorithms.
CO304.5	To develop the basic understanding of various problems based on backtracking
CO304.6	To know the limitations on the time complexity of algorithm and to learn basic
	Design Analysis and Algorithm Practical (BECT304P)
CO304.1	To Implement different searching and sorting techniques and compare their time
CO304.2	To implement and analyze various algorithms based on different algorithm design

	and backtracking.
CO304.3	To study various concepts of NP-Complete theory.
	Data Communication (BECT305T)
CO305.1	To understand and study basic concepts of data transmission and data
CO305.2	To illustrate the signal conversions and analyze the mathematical problems with
CO305.3	To get the knowledge of wired and wireless transmission media and its applications and study of cellular telephony, satellite networks
CO305.4	To study the concepts and the applications of multiplexing and spread spectrum
CO305.5	To understand the use of real time protocol in multimedia application.
CO305.6	To study and evaluation of different data compression techniques used in MP3,
BE Computer Technology Sixth Semester	
	Computer Graphics (BECT306T)
CO306.1	To identify and explain the core concepts of computer graphics, understand terminologies used in the graphic
CO306.2	To understand the concept of geometric, mathematical and algorithm concept for
CO306.3	To recognize and evaluate the 2D images and viewing transformation with
CO306.4	To understand 3D graphics, projection, hidden surfaces, line removal algorithms
CO306.5	To understand the concept of line and polygon clipping about convex/concave
CO306.6	To understand OpenGL software and develop applications based on interactive
	Computer Graphics Practical (BECT306P)
CO306.1	To implement the geometric, mathematical, polygon filling, and clipping
CO306.2	To develop programs based on image transformation, viewing transformation and
CO306.3	To understand OpenGL software and develop programs using interactive
	Computer Network (BECT307T)
CO307.1	To analyze the basics of data communications and network architecture, and
CO307.2	To evaluate essential features of specific protocols in the common protocol
CO307.3	To analyze the methodology and the rationale behind addressing, routing, and
CO307.4	To evaluate the various multiplexing and switching methods used in networks.
CO307.5	To evaluate wireless LANs, high-speed digital access, such DSL and cable

CO307.6	To design and build a network using routers.
	Computer Network Practical (BECT307P)
CO307.1	To analyze the basics of data communications and network architecture, and
CO307.2	To provide security using encryption/decryption algorithms.
CO307.3	To design and build a network using Riverbed and NS2.
	Software Engineering And Project Management (BECT308T)
CO308.1	To understand software characteristics and its various software process models.
CO308.2	To understand and examine the various Software Engineering Principles and
CO308.3	To analyze the software model and its design.
CO308.4	To understand the concept of software testing fundamentals and debugging
CO308.5	To identify the quality of software maintenance, project management spectrum
CO308.6	To identify the various risk management strategies.
	Software Engineering And Project Management Practical (BECT308P)
CO308.1	To create SRS and test plan document for software development, draw UML
CO308.2	To demonstrate web testing tool on any test program and implement different test
CO308.3	To evaluate cost estimation and function point of any software, also to draw entity
	Embedded System Design (BECT309T)
CO309.1	To define and explain embedded systems and the different embedded system design technologies, explain the various metrics or challenges in designing
CO309.2	To express tasks and states, semaphores. Clarify about message queues, mailboxes, and pipes. Ability to solve shared data problems that may occur
CO309.3	To understand the concept and applications of Real Time Operating System (RTOS). Task scheduling in Real time operating system, the Real –
CO309.4	To understand the internal architecture of 8051 microcontroller, solve problems based on timers and counters. Interfacing of different peripheral devices
CO309.5	To study the use of RS-232 for communicating with 8051. The concept of
CO309.6	To interface some external peripherals like external memory, keyboard etc. with
	Communicative English and Technical Writing (BECT310T)
CO310.1	will become adept in using functional grammar
CO310.2	would be able to write at workplaces
CO310.3	will be able to draft technical reports and write proposals
CO310.4	will be able to understand the planning and procedure of carrying out

	Work
CO310.5	will become well prepared to face competitive examinations and job interviews
CO310.6	will become dexterous in presentation skills
	Mini project (BECT311P)
CO311.1	To develop an ability to identify, formulate, and design creative solution to real
CO311.2	To demonstrate the knowledge of standard software project management
CO311.3	To be able to demonstrate interpersonal skill.
CO311.4	To develop an ability to work as an individual and in multidisciplinary teams in
CO311.5	To develop recognition of the need for, and an ability to engage in life-long
CO311.6	To be able to effectively demonstrate technical communication skills.
BE Computer Technology Seventh Semester	
	Compilers (BECT401T)
CO401.1	To understand different phases of a compiler and justify their relevance as well as
CO401.2	To learn the top-down and bottom-up parsers and also understand the design of
CO401.3	To comprehend Syntax Directed Translation Schemes and different intermediate
CO401.4	To realize the importance of code optimization phase and the study of various
CO401.5	To apprehend code generation algorithms and its implementation for the
CO401.6	To learn different table management techniques and its usage in various phases of
	Compilers Lab (BECT401P)
CO401.1	To implement lexical analyzer using LEX tool.
CO401.2	To implement top-down and bottom-up parsing techniques.
CO401.3	To implement intermediate code and object code generator using YACC tool
	Artificial Intelligence (BECT402T)
CO402.1	To learn basic concept of AI and various AI search algorithms (Uninformed,
CO402.2	To be able to represent the knowledge into the knowledge base using different
CO402.3	To understand the advanced Artificial Intelligence techniques (Artificial Neural
CO402.4	To be able to understand the learning strategies of the system and the processing
CO402.5	To understand the working of basic working of Game Playing search programs
CO402.6	To be able to analyze probability and fuzzy logic concept to solve a problem.

	Artificial Intelligence Practical (BECT402P)
CO402.1	To implement various AI search algorithms (Uninformed, Informed, Heuristic and
CO402.2	To implement medical diagnosis system using logic form to create knowledge
CO402.3	To study basic concept of computational intelligence and robotics.
	Advance Database Systems Elective-I (BECT403T)
CO403.1	To understand the concepts of Distributed Databases, types, and protocols to
CO403.2	To understand the need of Parallel Databases, various architectures, and query
CO403.3	To be able to understand Object Oriented Databases, concepts of objects, and
CO403.4	To be able to understand XML Databases as industry standard, data exchange
CO403.5	To understand the evolution of Data Warehouses, concepts of schemas and data
CO403.6	To understand the need of security in Databases, types of threats, permissions,
	Advance Operating System Elective-II (BECT404T)
CO404.1	To understand the basic functions and fundamental concerns in design of
CO404.2	To understand and analysis of different mutual exclusion algorithm and their
CO404.3	To study of various deadlock detection and handling techniques and agreement
CO404.4	To understand architecture of distributed file system and shared memory and
CO404.5	To analyze the distributed scheduling algorithm for load balancing and load
CO404.6	To understand basic concepts of synchronous and asynchronous check pointing
	Project and Seminar (BECT405P)
CO405.1	To develop an ability to identify, formulate, and design creative solution to real
CO405.2	To demonstrate the knowledge of standard software project management
CO405.3	To be able to demonstrate interpersonal skill.
CO405.4	To develop an ability to work as an individual and in multidisciplinary teams in
CO405.5	To develop recognition of the need for, and an ability to engage in life-long
CO405.6	To be able to effectively demonstrate technical communication skills.

BE Computer Technology Eighth Semester	
	Data Warehousing and Mining (BECT406T)
CO406.1	To understand architecture and design related issues of data warehouse.
CO406.2	To identify the data mining related common functionality and issues.
CO406.3	To describe and use various classification and clustering algorithms to solve real
CO406.4	To understand and apply various Association rule mining techniques.
CO406.5	To study the web data mining and analyze recent advances in web mining
CO406.6	To demonstrate basic understanding of recent trend of big data technology and
	Data Warehousing and Mining Practical (BECT406P)
CO406.1	To understand the concept of different programming construct and data structures
CO406.2	To design various data warehouse schemas and implement different data mining
CO406.3	To study basics of big data technology recent trends and issues.
	Cyber and Information Security (BECT407T)
CO407.1	To understand need of security in information world, legal and ethical issues, and
CO407.2	To demonstrate concepts of Secret Key cryptography, design principles, types of
CO407.3	To comprehend Public Key cryptographic architecture, prime number theory, theorems and modular arithmetic concepts in design of cipher systems,
CO407.4	To understand concept of message integrity and authentication, hash function
CO407.5	To demonstrate concept of firewalls and types, systems to prevent or detect
CO407.6	To understand different types of software vulnerabilities, remedies, card
	Cyber and Information Security (BECT407P)
CO407.1	To be able to design and implement encryption algorithms.
CO407.2	To be able to design and implement message digest and key management
CO407.3	To design and implement the software vulnerabilities and to be able to make use
	Parallel Computing Elective -III (BECT408T)
CO408.1	To understand parallel computing models, tools and its components.
CO408.2	To understand various types of dependencies in parallel processing environment and investigate parallel algorithm for dependencies and the study of
CO408.3	To understand and analysis of different parallel computing algorithms.
CO408.4	To understand message passing technique and to develop ability to

	message passing programs under parallel programming architecture.
CO408.5	To understand various debugging techniques for message passing and shared
CO408.6	To understand the different techniques for memory and I/O subsystem and evaluation of parallel programming architecture and performance of
	Cloud Computing Elective-IV (BECT409T)
CO409.1	To understand basic concepts of cloud computing technologies, architecture and
CO409.2	To evaluate the key trade-offs between multiple approaches to cloud system design and identify appropriate design choices when solving real-world
CO409.3	To perceive big data analysis and its application using Hadoop.
CO409.4	To comprehend security in cloud, challenges in cloud computing and different
CO409.5	To apprehend object oriented concepts in C#.NET, and application development
CO409.6	To develop small cloud applications and understand deployment issues.
	Project (BECT410P)
CO410.1	To develop an ability to identify, formulate, and design creative solution to real
CO410.2	To demonstrate the knowledge of standard software project management
CO410.3	To be able to demonstrate interpersonal skill.
CO410.4	To develop an ability to work as an individual and in multidisciplinary teams in
CO410.5	To develop recognition of the need for, and an ability to engage in life-long
CO410.6	To be able to effectively demonstrate technical communication skills.

Sr. No.	Department of Electronics and Communication Engineering	
Third Semester		
1	BEECE301T	Applied Mathematics III
2	BEECE302T	Electronic Devices and circuits
3	BEECE302P	Electronic Devices and circuits
4	BEECE303T	Electronics Measurements and Instrumentation
5	BEECE303P	Electronics Measurements and Instrumentation
6	BEECE304T	Object oriented programming & data structure
7	BEECE304P	Object oriented programming & data structure
8	BECEE305T	Network Analysis and Synthesis
Fourth Semester		
1	BEECE401T	Applied Mathematics – IV
2	BEECE402T	Power Devices & Machine
3	BEECE402P	Power Devices & Machine
4	BEECE403T	Electro Magnetic Field
5	BEECE404T	Digital Circuit and Fundamental of Microprocessor
6	BEECE404P	Digital Circuit and Fundamental of Microprocessor
7	BEECE405T	Signals and Systems
8	BEECE407P	Software Workshop
Fifth Semester		
1	BEECE501T	Antenna and Wave Propagation
2	BEECE502T	Microprocessor and Microcontroller
3	BEECE502P	Microprocessor and Microcontroller
4	BEECE503T	Analog Circuit and Design
5	BEECE503P	Analog Circuit and Design
6	BEECE504T	Communication Electronics
7	BEECE504P	Communication Electronics
8	BEECE505T	Industrial Economics and Entrepreneurship Development
Sixth Semester		
1	BEECE601T	Telecommunication Switching System
2	BEECE602T	Digital Signal Processing
3	BEECE602P	Digital Signal Processing
4	BEECE603T	Control System Engineering
5	BEECE604T	Digital Communication
6	BEECE604P	Digital Communication
7	BEECE605T	Functional English
8	BEECE606P	Electronics Workshop
Seventh Semester		
1	BEECE701T	DSP Processor & Architecture
2	BEECE701P	DSP Processor & Architecture
3	BEECE702T	Television & Video Engineering
4	BEECE702P	Television & Video Engineering
5	BEECE703T	Optical communication
6	BEETE704T	Advanced Digital System Design
7	BEETE704P	Advanced Digital System Design
8	BEECE705T	VLSI Signal Processing

Eighth Semester		
1	BEECE801T	Microwave and Radar Engineering
2	BEECE801P	Microwave and Radar Engineering
3	BEECE802T	Computer Communication Network
4	BEECE802P	Computer Communication Network
5	BEECE803T	Wireless and Mobile Communication
6	BEECE804T	Embedded System Elective - II
7	BEECE804T	Digital Image Processing Elective – II
8	BEECE805T	Satellite Communication Elective –III
9	BEECE805T	CMOS VLSI Design Elective –III

Department of Electronics and Communication Engineering

The department of ECE Engineering has framed the following Program Specific Outcomes in consultation with concerned stakeholder and corresponding committees.

PSO1	Apply the basic knowledge acquired in Electronic Devices and Circuits, Electromagnetic fields, signal processing, communication engineering, VLSI circuits and Embedded Systems to provide efficient solutions to engineering problems.
PSO2	Should acquire the skills to communicate and document the ideas with necessary road maps and demonstrating the practices of professional ethics for societal

BE Electronics and Communication Engineering Third Semester	
	Applied Mathematics III (BEECE301T)
CO301.1	Will have the ability to solve integral equation, integral-differential equations, convolution type integrals, differential equations using operational
CO301.2	Will have a critical understanding of the methods for evaluation of integrals which provides the solution of numerous boundary value problems of engineering and understand the concept of periodic function, even and odd function, half range series, shape and symmetry etc. and can be expressed as a Fourier series.
CO301.3	Will have knowledge in the Technique, methodology of solving partial differential equation and basic understanding in the transforms which are
CO301.4	Will be able to formulate variational problems and analyze them to deduce key
CO301.5	Will be familiar with the concepts and applications of contour integration etc.
CO301.6	Will be able to simplify the power of matrices, system of linear equations,
	Electronic Devices and circuits (BEECE302T)
CO302.1	Understand diode functions, grasp the techniques for the analysis of diode circuits through modeling the diode characteristics, use of diode in various applications including design of rectifier circuits, filters, voltage doublers, voltage regulators etc.
CO302.2	An ability to analyze the BJT terminal characteristics, design of biasing circuits
CO302.3	An ability to utilize transistor H-parameter models to perform the analysis of BJT circuits and to design four basic single stage BJT amplifiers
CO302.4	Understand introduction of positive feedback in BJT amplifier to design various
CO302.5	An ability to analyze and design various power amplifier circuits.
CO302.6	Understand FET, MOSFET functions, its biasing techniques, comparison of

	and FET, Small signal analysis of FET circuits.
	Electronic Devices and circuits (BEECE302P)
CO302.1	Get basic concepts of different semiconductor components. They will be able to
CO302.2	To calculate different performance parameters of transistors and plot and study
CO302.3	To understand the use of Regulated power supply (RPS) and CRO. Set up a bias point in a transistor. Learn to design different types of filters and apply the
	Electronics Measurements and Instrumentation (BEECE303T)
CO303.1	Describe the fundamental concepts electronic instruments.
CO303.2	Understand the principle of operation, working of Different electronic instruments and Apply the knowledge about the Instruments to use them
CO303.3	Describe different terminology related to measurements and Measure various
CO303.4	Understand the principles of various types of transducers and sensors.
CO303.5	Apply the measurement techniques for different types of tests.
C303.6	Students will understand functioning, specification and application of signal
	Electronics Measurements and Instrumentation (BEECE303P)
CO7303.1	Measure various electrical parameters with accuracy, precision, resolution.
CO303.2	Use AC and DC bridges for relevant parameter measurement.
CO303.3	Select appropriate passive or active transducers for measurement of physical
	Object oriented programming and data structure (BEECE304T)
CO304.1	Students can understand and implement the concept of object oriented
CO304.2	Students can understand the concept of polymorphism and can apply the same in
CO304.3	Students can understand the concept of inheritance and reusability and
CO304.4	Students can perceive the knowledge of basic data structures and algorithm and
CO304.5	Students can comprehend the idea of stack and queue and can apply the concept
CO304.6	Students can encompass the basic terminologies and can integrate these data
	Object oriented programming and data structure (BEECE304P)
CO304.1	Students can understand and implement the concepts of object oriented
CO304.2	Students can perceive the knowledge of basic data structures and algorithm and
CO304.3	Students can encompass the basic terminologies of data structures and

	implement the related algorithms in large program.
	Network Analysis and Synthesis (BECEE305T)
CO305.1	Analyze the network using source transformation, mesh analysis and nodal
CO305.2	To determine current and change in current through a branch, and maximum
CO305.3	Analyze series and parallel resonance circuit.
CO305.4	Analyze different types of Filters and Attenuators.
CO305.5	Analyze application of Laplace Transform to different electrical circuits and
CO305.6	To analyze different network parameter of two port network.
BE Electronics and Communication Engineering Fourth Semester	
	Applied Mathematics – IV (BEECE401T)
CO401.1	Will be able to aware of mathematical background for different numerical methods such as to solve algebraic and transcendental equations, ordinary differential equations. Using these knowledge students may work on multidisciplinary projects.
CO401.2	Will be able to analyze the frequency response and representation of discrete
CO401.3	Will able to solve series solution of ordinary differential equations by Frobenious method and the concept of Bessel's functions, Rodrigue's
CO401.4	Will develop a deep understanding of laws of probabilities, random variables, expectations and distributions which provides a mathematical framework and
	Power Devices and Machine (BEECE402T)
CO402.1	Understand the basic concept and operation of unidirectional and bidirectional
CO402.2	Understand working principles, symbols and characteristics of power devices
CO402.3	Understand the concept of AC-AC and AC-DC converter for industry
C402.4	Understand the principle and operation of DC-DC and DC-AC converter along
CO402.5	Understand the construction and operation of 3 phase transformer and 3 phase
CO402.6	Understand different types of DC motor with its speed control technique and
	Power Devices and Machine (BEECE402P)
CO402.1	Understand the working and nature of characteristics of different power components used in Power Devices and be able to calculate
CO402.2	Be able to perform different tests on Transformers and motors for calculating the
CO402.3	Able to simulate the power Electronics circuit using

	software
	Electro Magnetic Field (BEECE403T)
CO403.1	Understand the different coordinate system, Calculate force, electric field, potential, and energy from various charge distributions; calculate electric
CO403.2	Understand magnetic field intensity, magnetic potential, and laws and theorems
CO403.3	Analyse Maxwell's equations for time varying fields and solve simple
CO403.4	Apply Maxwell's equations for derivation of electromagnetic wave equation in different media. Derive Poyntings theorem from Maxwell's equations and interpret the terms in the theorem.
CO403.5	Understand the basic concepts of rectangular waveguide for the transmission of
CO403.6	Understand the basic concepts of Radiation and Elements used for radiation
	Digital Circuit and Fundamental of Microprocessor (BEECE404T)
CO404.1	Analyze and understand K map representation of logic functions (SOP and POS forms), minimization of logical functions for min-terms and max-terms (up to 4 variables), don't care conditions, Design: Arithmetic Circuits, BCD - to
C404.2	Analyze and design Combinational logic circuits like Adders, subtractor, look ahead carry, Digital Comparator, Parity generators/checkers, Multiplexers,
CO404.3	Analyze and design Sequential logic circuits like 1 Bit Memory Cell, Clocked SR, JK, MS J-K flip flop ,D and T flip-flops. Excitation Table for flip
CO404.4	Analyze and design Registers, Shift registers, Counters (ring counters, twisted ring counters),Sequence Generators, ripple counters, up/down
CO404.5	Analyze and understand Classification of logic families, Characteristics of digital ICs and there Comparison. Classification and characteristics of
CO404.6	Analyze and understand Basics of microprocessor, Architecture of 8085 microprocessor, Addressing modes, 8085 instruction set, Concept of
	Digital Circuit and Fundamental of Microprocessor (BEECE404P)
CO405.1	Understand the fundamental of basic gates and their use in combinational and
CO405.2	Design the applications for performing Arithmetic and logical functions.
CO405.3	Understand the Architecture of 8085 microprocessor with instruction sets and to write and execute assembly language programs using instructions of

	Signals and Systems (BEECE405T)
CO405.1	Get knowledge about different types of signals and systems used in communication electronics.
CO405.2	Understand the concept of probability and its use in communication system.
CO405.3	Be able to embed the use of Fourier series and Fourier transform for feature
CO405.4	Understand different coding schemes and able to apply selective coding scheme
CO405.5	Understand the different analog and digital modulation schemes.
CO405.6	Get knowledge about various error detecting and error correcting coding
	Software Workshop (BEECE407P)
CO407.1	Write MATLAB program for basic problem.
CO407.2	Plot various functions using different graphical techniques.
CO407.3	To draw, analyze and plot the electronic circuits using pSpice Software.
BE Electronics and Communication Engineering Fifth Semester	
	Antenna and Wave Propagation (BEECE501T)
CO501.1	Understand the basic concepts of transmission line characteristics and use of
CO501.2	Ability to analyze wire antenna(Monopol, Dipoles, and Loop antenna)
CO501.3	Understand the basic antenna array principles and Ability to analyze and design
CO501.4	Understand the basics concept of Micro strip antennas and Ability to analyze
CO501.5	Understand the operation of aperture and reflector antennas and ability to
CO501.6	Understand the effects of atmosphere on radio wave propagation.
	Microprocessor and Microcontroller (BEECE502T)
CO502.1	Describe Architecture, Pin diagram, Features with operating modes, Memory organization and interfacing, Different Addressing modes and Instruction set
CO502.2	Describe the concepts of Interrupts , Timing diagram , different I/O interfacing techniques and interfacing of 8086/8088 with 8255 PPI for key board,7
CO502.3	Interface of 8086/8088 with PIT 8254/8253, PIC 8259, USART 8251 and its working principle, Architecture and concepts of serial and
CO502.4	Demonstrate the concepts of Multiprocessing, Coprocessor 8087 NDP and DMAC 8237, along with its architecture and interfacing and Introduction
CO502.5	Describe the internal organization, architecture of 8051 microcontroller,
CO502.6	Describe the instruction set of 8051 microcontroller, addressing modes and programming examples along with Keyboard, LED, ADC, DAC and

	Microprocessor and Microcontroller (BEECE502P)
CO502.1	Understand the Architecture of 8086 microprocessor with pin diagram and demonstrate the concept of Assembly language structure and programming
CO502.2	Simulate the programs on different software platforms.
CO503.3	Interface various peripherals with 8086.
	Analog Circuit and Design (BEECE503T)
CO503.1	Understand and discuss the op-amp basic building blocks such as differential amplifier, its parameters and characteristics, inverting and non-
C503.2	Analyze and design various Op-amp based circuits such as Voltage Follower, Summing amplifier, Scaling amplifier, Averaging amplifier, Instrumentation amplifier and applications, Integrator and Differentiators, Log and Antilog amplifiers for linear practical applications.
CO503.3	Analyze and design various op-amp based circuit such as Comparators, Schmitt trigger, PLL circuit, Clipper and Clamper circuit, Multivibrators, D/A and
CO503.4	Analyze and design power supply circuit such as Series Voltage Regulator, IC
CO502.5	Analyze and design op-amp based and transistor based oscillator circuits and
CO503.6	Analyze and design active filters, relay driver circuits, stepper motor control
	Analog Circuit and Design (BEECE503P)
CO503.1	Gain a sound understanding of the operation, analysis and design of analog
CO503.2	Design linear and nonlinear applications of operational amplifier.
CO503.3	Design the oscillators and other complex circuits using op amp ICs and Demonstrate the gain-bandwidth concept and frequency response of
	Communication Electronics (BEECE504T)
CO504.1	Demonstrate different amplitude modulation techniques used in electronic
CO504.2	Study of angle modulation techniques with their comparison.
CO504.3	Evaluate pulse modulation techniques necessary for various engineering
CO504.4	Explain noise, signal to noise ratio, noise figure, and its calculations.
CO504.5	Study AM and FM radio receivers with their performance characteristics.
CO505.6	Study and Comparison of multiplexing techniques and haul systems.
	Communication Electronics (BEECE504P)
CO504.1	Demonstrate different modulation techniques used in electronic communication
CO504.2	Use the modulation techniques and modern communication tools necessary

	various engineering applications.
CO504.3	Evaluate fundamental communication system parameters, such as bandwidth
	Industrial Economics and Entrepreneurship Development (BEECE505T)
CO505T.1	Subject makes the student understand and learn the basic concepts of Industrial Economics such as types of business structures, top and bottom line
CO505T.2	Students learn the basic concepts like market structures, pricing strategies, business integration, economies and diseconomies of scale and the
CO505T.3	Students are familiarized with working of banking system, foreign direct investment, the concept of free trade, capital formation, inflation,
CO505T.4	Students learn about entrepreneurship as career avenue and factors affecting entrepreneurial growth. Students learn about project formulation, market survey and research, techno economic feasibility assessment and project appraisal.
CO505T.5	Subject enhances their understanding about needs and sources of finance, various types of loans, capital structures, break even analysis, network
CO505T.6	Students learn about role of small scale industries in the economy, problems of SSI,FDI as a threat to SSI, technical consultancy organizations,
BE Electronics and Communication Engineering Sixth Semester	
	Telecommunication Switching System (BEECE601T)
CO601.1	Describe the need for switching systems the working principles of switching systems From manual and electro- mechanical Systems to stored
CO601.2	Understand and Analyze basic telecommunication traffic theory.
CO601.3	Design single stage, multistage switching structures involving time and space
CO601.4	Describe public switched telephone network, Network Synchronization and Network Management.
CO601.5	Learn about ISDN (Integrated Services Digital Network), Compare telephone
CO601.6	Learn about Data Communication Architecture and ISO-OSI Reference Model,
	Digital Signal Processing (BEECE602T)
CO602.1	Meet the requirement of the theoretical and practical aspects of DSP with respect
CO602.2	Represent discrete time signals analytically and visualize them in the time
CO602.3	Classify and analyze the discrete time signals and systems.
CO602.4	Describe the various transforms for analysis of signals and systems.
CO602.5	Design and implement digital filters for various applications.
CO602.6	Describe the concept of multirate-signal processing and how to apply it for

	wavelet transform.
	Digital Signal Processing (BEECE602P)
CO602.1	Analyze and process the signals in the discrete domain.
CO602.2	Design the filters to suit requirements of specific applications.
CO602.3	Apply the techniques, skills, and modern engineering tools like MATLAB and
	Control System Engineering (BEECE603T)
CO603.1	Students shall be able to represent the mathematical model of systems.
CO603.2	Able to determine the system response of different order systems for various
CO603.3	To analyze the stability of the system using root locus, Bode plot and Nyquist
CO603.4	Obtain the transfer function of the system using SFG.
CO603.5	Design the Controller and Compensator based on the requirement of the
CO603.6	To apply the state variable approach in design and find the system condition.
	Digital Communication (BEECE604T)
CO604.1	Explain the working principles of basic building blocks of a digital communication system and describe a random process in terms of its mean
CO604.2	Study source and waveform coding techniques and describe optimum
CO604.3	Study digital modulation techniques
CO604.4	Study of Galois field, error control methods, error correction and detection
CO604.5	Study the different channel coding techniques
CO604.6	Describe spread spectrum analysis.
	Digital Communication (BEECE604P)
CO604.1	Describe the concept of the digital communication based design for testing and
CO604.2	Design and conduct experiments for testing digital communication circuits and
CO604.3	Analyze the different coding technique for design and modeling of digital communication. Identify, formulate and solve digital communication
	Functional English (BEME606T)
CO605.1	Will become adept in using functional grammar.
CO605.2	Would be able to write at workplaces.
CO605.3	Will be able to draft technical reports and write proposals
CO605.4	Will be able to understand the planning and procedure of carrying out research
CO605.5	Will become well prepared to face competitive examinations and job
CO605.6	Dexterous in presentation skills.
	Electronics Workshop (BEECE606P)
CO606.1	To make students familiar with measuring instruments like CRO, DSO,

	Signal Generator.
CO606.2	Design PCB using PCB designing software.
CO606.3	To enable students to design and fabricate their own Hardware.
BE Electronics and Communication Engineering Seventh Semester	
	DSP Processor and Architecture (BEECE701T)
CO701.1	Understand the fundamentals of programmable Digital Signal Processors (P-
CO701.2	Understand the architecture of TMS and Motorola processors.
CO701.3	Understand the assembly language instructions and write simple assembly
CO701.4	Write and execute the application programs for processing of real time signals.
CO701.5	Interface DSP processors hardware to a software Integrated Development
CO701.6	Implement different Digital Signal processing algorithms on DSP processors.
	DSP Processor and Architecture (BEECE701P)
CO701.1	Understand the architecture of TMS and Motorola Processors.
CO701.2	Implement different processing algorithms on DSP processors.
CO701.3	Design different types of filters and study their characteristics.
	Television and Video Engineering (BEECE702T)
CO702.1	Analyze and understand monochrome and color T.V. Systems.
CO702.2	Understand fundamental techniques of different color T.V. standards.
CO702.3	Understand Advance TV Technology – Digital T.V. and Video Compression
CO702.4	Understand HDTV standards and Digital TV systems – CCTV, CATV, and
CO702.5	Understand IPTV system, mobile TV and video transmission in 3G mobile
CO702.6	Understand different types of digital cameras, LED and LCD display systems
	Television and Video Engineering (BEECE702P)
CO702.1	Analyze and synthesize TV Pictures, Composite Video Signal, and TV Receiver
CO702.2	Develop an understanding of electronics, mechanical and environmental factors
CO702.3	Study and classify the concept of troubleshoot and repair.
	Optical communication (BEECE703T)
CO703.1	Able to understand the basic operating principles of physics, optical fiber, and its
CO703.2	Able to understand the transmission characteristics of optical fibers.
CO703.3	Able to learn the optical receiver fiber couplers and connectors
CO703.4	Able to learn the optical source and detectors, optical receiver
CO703.5	Able to understand the concept of analog and digital link, WDM concept and
CO703.6	Able to learn optical network SONET/SDH, WDM, high speed optical

	Such as GPON, FTTX, and High speed optical links.
	Advanced Digital System Design (BEETE704T)
CO704.1	Understand the development flow of VLSI system.
CO704.2	Design the combinational and sequential circuit using VHDL. Understand the HDL.
CO704.3	Test the system with test benches
CO704.4	Design finite state machines and asynchronous state machine.
CO704.5	Understand the synthesis process.
CO704.6	Understand the architecture of programmable logic devices and its working.
	Advanced Digital System Design (BEETE704P)
CO704.1	To model, simulate and verify the digital model with hardware description
CO704.2	To design and prototype with programmable logic devices.
CO704.3	To learn the modular design style to create large digital logic.
	VLSI Signal Processing (BEECE705T) Elective –II
CO705.1	Various methodologies to optimize power delay and area of VLSI design.
CO705.2	Transformation techniques used to generalize pipelining approach.
CO705.3	Transformation techniques used to design parallel architectures.
CO705.4	Build Real Time processing systems for area reduction.
CO705.5	Design of algorithm structure for DSP algorithms based on algorithm
CO705.6	Design of fast short length convolution algorithms.
	BE Electronics and Communication Engineering Eighth Semester
	Microwave and Radar Engineering (BEECE801T)
CO801.1	Understand the use of active and passive microwave devices.
CO801.2	Analyze Different UHF components with the help of scattering parameter.
CO801.3	Understand and analyze different O-type and M-type microwave components:
CO801.4	Understand the working of Solid State Microwave Devices like PIN diode, Gunn
CO801.5	Acquire technical competence in specialized areas of Radar engineering.
CO801.6	Able to identify, formulate and model problems and find Radar engineering
	Microwave and Radar Engineering (BEECE801P)
CO801.1	Describe working of microwave bench.
CO801.2	Measure power and VSWR of microwave component.
CO801.3	Measure different losses like insertion loss, isolation loss of different passive
	Computer Communication Network (BEECE802T)
CO802.1	Understand the requirement of theoretical and practical aspect of computer network. Students will be able to define and describe the services and features
CO802.2	Understand the network traffic in computer network.

CO802.3	Describe various protocols used in network.
CO802.4	Describe the concept of computer network security.
CO802.5	Understand the different wired and wireless LAN Standards. and Routers.
CO802.6	Understand the Basics of Security Requirements/Services/Dimensions, Security
	Computer Communication Network (BEECE802P)
CO802.1	Understand various types of protocols working on various layers of OSI
CO802.2	Establish peer to peer computers as well as Local Area Network connectivity
CO802.3	Effectively use available networking tools like NS2 in Computer Communication
	Wireless and Mobile Communication (BEECE803T)
CO803.1	Describe the evolution and history of wireless technology and improving
CO803.2	Understand mobile radio environment, causes and effects of path loss and signal
CO803.3	Define fundamentals of Equalization, Diversity and channel coding.
CO803.4	To construct and analyze the GSM system.
CO803.5	Understand difference between wireless and fixed telephone networks and
CO803.6	Understand difference between wired LAN and wireless LAN technology and
	Embedded System (BEECE804T) Elective - II
CO804.1	To understand embedded systems design and describe the difference between the general computing and embedded system, optimization and design metrics,
CO804.2	Describe the hardware and software architecture of embedded system, memory
CO804.3	Understand the concepts of RISC, CISC processors, ARM processor organization, programming modes, operating modes and programming
CO804.4	Describe the different communication protocols and buses required for an embedded system like IEEE802.11, IEEE802.16, GPRS MODBUS CAN,
CO804.5	Understand the concepts of Real time operating system, Kernel architecture,
CO804.6	Describe the detail contextual analysis as a case study in different fields like
	Digital Image Processing (BEECE804T) Elective – II
CO804.1	Learn and understand the fundamental of digital image processing
CO804.2	To learn and understand various image enhancement technique used in digital
CO804.3	To learn and understand various image transform used in digital image
CO804.4	To learn and understand various image coding and compression used in digital

CO804.5	To learn and understand various image analysis and segmentation used in digital
CO804.6	To learn and understand various image restoration technique and methods used in
	Satellite Communication (BEECE805T) Elective –III
CO806.1	To understand the basic concepts and working principle of satellite
CO806.2	To understand the orbital aspects and components of a satellite communication
CO806.3	To analyze the link budget of a satellite communication system and study of
CO806.4	To understand the Propagation effects and Signal attenuation
CO806.5	To understand the concept and basics of Encoding and decoding on satellite
CO806.6	To get knowledge and relate different components in satellite communication and
	CMOS VLSI Design (BEECE805T) Elective –III
CO805.1	Design of PMOS and NMOS transistor.
CO805.2	Various types of CMOS Inverters.
CO805.3	Implementation of different combinational logic circuits.
CO805.4	Characterization and Performance estimation for CMOS transistor.
CO805.5	To design layout for various circuits.
CO805.6	To Detect and correct errors in VLSI Design.

Sr. No.	Department of Information Technology	
Third Semester		
1	BEIT301T	Applied Mathematics-III
2	BEIT302T	Programming Logic and Design using 'C'
3	BEIT302P	Programming Logic and Design using 'C'
4	BEIT303T	Ethics in Information Technology
5	BEIT304T	Digital Electronics and Fundamentals of Microprocessor
6	BEIT304P	Digital Electronics and Fundamentals of Microprocessor
7	BEIT305T	Data Communication
8	BEIT306T	Environmental Engineering
9	BEIT307P	Computer Lab-I
Fourth Semester		
1	BEIT401T	Discrete Mathematics and Graph Theory
2	BEIT402T	Algorithms and Data Structures
3	BEIT402P	Algorithms and Data Structures
4	BEIT403T	Theory of Computation
5	BEIT404T	Computer Architecture and Organization
5	BEIT405T	Object Oriented Methodology
6	BEIT405P	Object Oriented Methodology
7	BEIT406P	Computer Lab-II
Fifth Semester		
1	BEIT501T	System Programming
2	BEIT502T	Design and Analysis of Algorithms
3	BEIT503T	Software Engineering
4	BEIT503P	Software Engineering
5	BEIT504T	Computer Graphics
6	BEIT504P	Computer Graphics
7	BEIT505T	Java Programming
8	BEIT505P	Java Programming
9	BEIT506T	Industrial Economics and Entrepreneurship Development
Sixth Semester		
1	BEIT601T	Computer Networks
2	BEIT602T	Operating Systems
3	BEIT603T	Database Management Systems
4	BEIT603P	Database Management Systems
5	BEIT604T	Internet Programming
6	BEIT604P	Internet Programming
7	BEIT605T	Functional English
8	BEIT606P	Mini Project and Industrial Visit
Seventh Semester		
1	BEIT701T	Data Warehousing and Mining
2	BEIT701P	Data Warehousing and Mining
3	BEIT702T	Computer System Security
4	BEIT702P	Computer System Security
5	BEIT703T	Artificial Intelligence
6	BEIT704T2	Elective-I Multimedia Systems

7	BEIT704T4	Elective-I Compiler Design
8	BEIT705T2	Elective-II Cluster and Grid Computing
9	BEIT706P	Seminar on Project
Eighth Semester		
1	BEIT801T	Distributed Systems
2	BEIT801P	Distributed Systems
3	BEIT802T	Gaming Architecture and Programming
4	BEIT802P	Gaming Architecture and Programming
5	BEI803T3	Elective-III Pattern Recognition
6	BEIT804T4	Elective-IV Wireless Sensor Networks
7	BEIT805P	Project

Department of Information Technology

The department of Information Technology has framed the following Program Specific Outcomes in consultation with concerned stakeholder and corresponding committees.

PSO1	An ability to define a problem, design an algorithm for it, identify input and
PSO2	Able to implement computer skills in the even related to software engineering,

BE Information Technology Third Semester	
	Applied Mathematics-III (BEIT301T)
CO301.1	Having studied this course, student will have the ability to solve integral equation, integro-differential equations, convolution type integrals,
CO301.2	Students will have a critical understanding of the methods for evaluation of integrals which provides the solution of numerous boundary value problems
CO301.3	Students will attain considerable level of competence in being able to analyze the frequency response and representation of discrete time system in
CO301.4	Students will be able to simplify the power of matrices, system of linear
CO301.5	Students will develop a deep understanding of laws of probability, discrete and
CO301.6	Students will be able to use the significant numbers of single random variable, two random variables and more than two random variables to make
	Programming Logic and Design using 'C' (BEIT302T)
CO302.1	Understand the process of problem solving using computer system.
CO302.2	Able to design a problem solution using algorithmic approach.
CO302.3	Understands the usage of pointers and parameter passing mechanisms.
CO302.4	Understand the purpose of functions and usage of function libraries.
CO302.5	Able to develop small real life applications using structures, files and graphic
CO302.6	Understand the concepts of ROM BIOS and TSR concepts.
	Programming Logic and Design using 'C' (BEIT302P)
CO302.1	Able to implement basic operations using operators and control structures.
CO302.2	Able to implement the concept of functions and arrays on various scenarios.
CO302.3	Able to develop basic file and graphic operations.
	Ethics in Information Technology (BEIT303T)
CO303.1	Understanding the concept of Ethical Hacking to avoid or prevent cybercrimes.
CO303.2	Understanding the need of Ethics in business, IT professionals and IT users.
CO303.3	Understanding the issues of cybercrime and knowing the importance of data

CO303.4	Understanding the concepts of Software Engineering for better management of
CO303.5	Understanding the importance of intellectual property.
CO303.6	The importance of Information Technology and its application in Real World will
	Digital Electronics and Fundamentals of Microprocessor (BEIT304T)
CO304.1	Students will be able to understand the advantages of digital system over analog system also they can examine the structure of various number systems and
CO304.2	Students will be able to use Boolean algebra and Karnaugh's map for reducing
CO304.3	Students will be able to understand, analyze and design various arithmetic and
CO304.4	Students will be able to study the basics for constructing memory and will design
CO304.5	Students will be able to describe the architecture and comprehend the instruction
CO304.6	Students will be able to illustrate the use of interrupts and apply the principles of assembly language programming in developing microprocessor
	Digital Electronics and Fundamentals of Microprocessor (BEIT304P)
CO304.1	Become familiar with basic logic gates and understand Boolean algebra and simpl
CO304.2	Ability to Identify and describe flip-flop circuits, counter, design of
CO304.3	Introduction to the Architecture and programming of the microprocessor 8085.
	Data Communication (BEIT305T)
CO305.1	Understand the basic concepts data communication and learn how the data is
CO305.2	Understand the knowledge of different protocols at different layers of models.
CO305.3	Able to get depth knowledge of physical layer fundamentals. Describe the
CO305.4	Understand the general principles of circuit and packet switching and conversion
CO305.5	Understand various guided and unguided media to have communication over
CO305.6	Able to get various hardware devices used in networking along with different
	Environmental Engineering (BEIT306T)
CO306.1	Introductory part for the public awareness and social understanding about our
CO306.2	Scientific approach on Importance of energy and reutilization of resources for the
CO306.3	Concept of ecosystems, energy flow, food chains, gives complete awareness

CO306.4	Gives Idea about Flora and fauna, wildlife in country, various habitat and value
CO306.5	Various types of pollutions, related activities, natural and manmade, its cure, solid waste management and explains roll of individual for prevention
CO306.6	It addresses the social issues like sustainable- unsustainable developments, prevention of resources for future generations, environmental ethics,
CO306.7	Awareness about Global population growth, human health, AIDS, Human rights along with its scope. Include field visit and observations of various
Computer Lab-I (BEIT307P)	
CO307.1	Learning of various I/O devices, Network accessories, touch screens, i-series
CO307.2	Learning of installation and working of windows operating system, Ubuntu and
CO307.3	Learning DOS commands ,batch programming, web page creation using HTML
BE Information Technology Fourth Semester	
Discrete Mathematics and Graph Theory (BEIT401T)	
CO401.1	After going through this course, students will understand the concept and language of sets, which plays an important role in expressing mathematical ideas as well as concepts of logic theory, which is used to verify correctness
CO401.2	Students will be able to understand the concepts of relation and function and their
CO401.3	Students will be able to understand the statement of group, types of groups and
CO401.4	Students will be able to use a combination of theatrical knowledge and independent mathematical thinking to investigate questions of ring theory and construct proofs and simplify Boolean expression, logical operations, truth
CO401.5	Students will understand the basic concepts of graphs, directed graphs, weighted graphs and able to present a graph by matrix. Also understand the properties
CO401.6	Students will be able to use basic counting techniques and generating function to
Algorithms and Data Structures (BEIT402T)	
CO402.1	To understand to choose appropriate data structure as applied to specified
CO402.2	To understand use linear data structures like stacks, queues.
CO402.3	To understand concepts and implementation of Linked list.
CO402.4	To understand storing of data in the form of Tree and its implementation.
CO402.5	To understand concepts and to handle operations like searching, insertion,
CO402.6	To understand to handle different searching, sorting techniques and method

	storing the data using hash value through hashing techniques.
	Algorithms and Data Structures (BEIT402P)
CO402.1	Students can able to create stacks, queue and to perform various operations on
CO402.2	Students able to create linked list and to perform various operations on them.
CO402.3	Students can able to implement various searching and sorting techniques,
	Theory of Computation (BEIT403T)
CO403.1	Analyze and design finite automata, pushdown automata, Turing machines,
CO403.2	Demonstrate the understanding of key notions, such as algorithm, computability,
CO403.3	Prove the basic results of the Theory of Computation.
CO403.4	State and explain the relevance of the Church-Turing thesis.
CO403.5	Be familiar with thinking analytically and intuitively for problem - solving
CO403.6	Demonstrate advanced knowledge of formal computation and its relationship to
	Computer Architecture and Organization (BEIT404T)
CO404.1	Understand the major components and usage of the computer system.
CO404.2	Understand the organization of control unit, arithmetic logic unit, memory unit
CO404.3	Able to implement basic programs in assembly language.
CO404.4	Understand the instruction level execution at micro level.
CO404.5	Understand the operation of the arithmetic unit and implementation of fixed-
CO404.6	Understand the study of hierarchical memory system including cache and virtual
	Object Oriented Methodology (BEIT405T)
CO405.1	To understand the basic concepts of Object Oriented Methodology and models.
CO405.2	To understand the Dynamic modeling, Functional modeling and their
CO405.3	To understand the Object modeling, Dynamic modeling and their phases.
CO405.4	To understand the concepts of System Design and this stages.
CO405.5	To understand the concepts of Object Design and its phases.
CO405.6	To understand the concepts of the Object Oriented Styles.
	Object Oriented Methodology (BEIT405P)
CO405.1	To understand the structure of C++ program.
CO405.2	To study and implement various object oriented features.
CO405.3	To implement a real world problem using object oriented features.
	Computer Lab-II (BEIT406P)
CO406.1	Install Linux OS, study its basic commands and write programs based on shell
CO406.2	To understand how to store and maintain data in Access and Oracle Database.

CO406.3	To Study Python and MATLAB Programming and it's various features
BE Information Technology Fifth Semester	
	System Programming (BEIT501T)
CO501.1	Understanding on how to write assembly language program and differentiate between machine-ops and pseudo-ops able to process them if present in
CO501.2	Understanding on General machine structure, its function of components and
CO501.3	Able to understand working of assemble and different tables generated by
CO501.4	To have clear idea about the number of phases of compiler and role of each
CO501.5	Understanding on function of loader and types. Also, advantages and disadvantages of different types of loaders and able to generate ESD cards,
CO501.6	Better understanding on macro processor, table generation by macro processor and working, installation of device driver and understanding of various types
	Design and Analysis of Algorithms (BEIT502T)
CO502.1	Argue the correctness of algorithms using recurrence relation.
CO502.2	Analyze worst-case running times of algorithms using asymptotic analysis. Explain what amortized running time is and what it is good for. Describe the different methods of amortized analysis (aggregate analysis, accounting,
CO502.3	To understand the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it. Synthesize divide-and-conquer algorithms. Describe the greedy paradigm and explain when an algorithmic design situation
CO502.4	To understand the dynamic-programming paradigm and explain when an algorithmic design situation calls for it. Synthesize dynamic-
CO502.5	Explain what an approximation algorithm is, and the benefit of using
CO502.6	Analyze the approximation factor of an algorithm. Analyze NP-hard and NP-
	Software Engineering (BEIT503T)
CO503.1	Plan and deliver an effective software engineering process, based on knowledge
CO503.2	Employ group working skills including general organization, planning and time
CO503.3	Capture, document and analyze requirements.
CO503.4	Make effective use of UML, along with design strategies such as defining
CO503.5	Formulate a testing strategy for a software system, employing techniques such as
CO503.6	Understand the process of risk management, change management, evaluate

	quality of the requirements, analysis and design work done during the module
	Software Engineering (BEIT503P)
CO503.1	Students shall be able to get exposure of Rational Rose software.
CO503.2	Students shall be to understand Software requirement specification (SRS).
CO503.3	Students can able to design all diagrams during software project development.
	Computer Graphics (BEIT504T)
CO504.1	To understand the basic concepts of graphics and algorithms to draw line, circle
CO504.2	To understand 2D transformation and algorithms to fill a polygon.
CO504.3	To understand the segment tables and various algorithms for polygon clipping.
CO504.4	To understand 3D transformations and algorithms for removal of hidden surfaces
CO504.5	To understand the curves and surface rendering algorithms.
CO504.6	To understand the various color models and their applications, steps involved in
	Computer Graphics (BEIT504P)
CO504.1	To learn various graphics primitives and its applications.
CO504.2	To understand and implement various algorithms for line and circle generation,
CO504.3	To understand and implement 2D, 3D transformations and animations.
	Java Programming (BEIT505T)
CO505.1	To understand about data types, operators, classes and objects, where object
CO505.2	To understand about the vectors and generics with the String, String Buffer and
CO505.3	To understand about object classes, packages and various exception handling
CO505.4	To understand the multithreading concept with their life cycle.
CO505.5	To understand about file system where reading, writing by using transient or
CO505.6	To understand about java applet application used for creating user interface with
	Java Programming (BEIT505P)
CO505.1	To learn the object oriented programming language and its application.
CO505.2	To understand the use of applets in creating the web sites.
CO505.3	To understand the concept of packages in solving the real world problems.
	Industrial Economics and Entrepreneurship Development (BEIT506T)
CO506.1	Subject makes the student understand and learn the basic concepts of Industrial Economics such as types of business structures, top and bottom line
CO506.2	Students learn the basic concepts like market structures, pricing strategies, business integration, economies and diseconomies of scale and the new

CO506.3	Students are familiarized with working of banking system, foreign direct investment, the concept of free trade, capital formation, inflation,
CO506.4	Students learn about entrepreneurship as career avenue and factors affecting entrepreneurial growth. Students learn about project formulation, market
CO506.5	Subject enhances their understanding about needs and sources of finance, various types of loans, capital structures, break even analysis, network
CO506.6	Students learn about role of small scale industries in the economy, problems of SSI,FDI as a threat to SSI, technical consultancy organizations,
BE Information Technology Sixth Semester	
	Computer Networks (BEIT601T)
CO601.1	To understand about computer networks and internet, with layered architecture of
CO601.2	To understand about data link layer where using error correcting or detecting
CO601.3	To understand the importance of network layered in OSI and TCP/IP model, also
CO601.4	To understand the role of transport and application layered, with client-server
CO601.5	To understand the various servers are used to resolve the problems of internet.
CO601.6	To understand the mobile IP with their addressing, also various techniques are
	Operating Systems (BEIT602T)
CO602.1	To make students able to learn different types of operating systems along with
CO602.2	To understanding file system interface and implementation, disk management.
CO602.3	Understand and analyse theory and implementation of various process
CO602.4	Understand and analyse concepts of memory management including virtual memory. Compare and contrast paging and contiguous blocks in
CO602.5	Able to Compare and contrast semaphores and mutex locks.
CO602.6	To provide students' knowledge of memory management and deadlock handling
	Database Management Systems (BEIT603T)
CO603.1	Understand database concepts and structures and terms related to database design
CO603.2	Understand the objectives of using data, information system, data modeling and
CO603.3	Able to construct, normalize conceptual data models and able to develop logical
CO603.4	Implement a relational database into database management system using SQL

CO603.5	Students become proficient in using database query language such as SQL.
CO603.6	Understand the issues related to database performance.
	Database Management Systems (BEIT603P)
CO603.1	One will able to understand the data and creation of data base and tables inside
CO603.2	One will able to write the queries using DDL and DML and execute the same
CO603.3	One will able to perform aggregate functions and advanced operations on created
	Internet Programming (BEIT604T)
CO604.1	To learn how the CSS is implemented.
CO604.2	To create dynamically generated web pages based on DHTML. To learn how to
CO604.3	To learn processing of XML and how to use its elements.
CO604.4	Learn the Servlet programming for distributed enterprise application
CO604.5	Learn the Java Server Pages programming for distributed enterprise application
CO604.6	Learn how to develop basic android application with all details.
	Internet Programming (BEIT604P)
CO604.1	Students can able to create and develop HTML/DHTML/XHTML pages with
CO604.2	Students can able to create XML files with required specifications and also
CO604.3	Students can able to create and develop server side JSP's and also can be able to
	Functional English (BEIT605T)
CO605.1	will become adept in using functional grammar
CO605.2	would be able to write at workplaces
CO605.3	will be able to draft technical reports and write proposals
CO605.4	will be able to understand the planning and procedure of carrying out research
CO605.5	will become well prepared to face competitive examinations and job interviews
CO605.6	dexterous in presentation skills
	Mini Project and Industrial Visit (BEIT606P)
CO606.1	Able to acquire practical knowledge within the chosen area of technology for
CO606.2	Able to identify, analyze, formulate and handle programming objects with
CO606.3	Able to develop a design solution for a set of requirements
CO606.4	Able to express technical ideas, strategies and methodologies in written form and
CO606.5	Able to contribute as an individual or in a team in development of technical

CO606.6	Develop effective communication skills for presentation of project related
BE Information Technology Seventh Semester	
	Data Warehousing and Mining(BEIT701T)
CO701.1	Students should get the knowledge of data preprocessing for data warehouse and
CO701.2	Students will be able to understanding of the fundamental theories and concepts
CO701.3	Students can understand online analytic processing (OLAP) is used for business
CO701.4	Students should get the knowledge of data mining functionalities and
CO701.5	Students can be able to work on association rule mining for market basket
CO701.6	Students should get the knowledge of business intelligence used in business from
	Data Warehousing and Mining (BEIT701P)
CO701.1	Students can able to design and perform data warehouse schemas and online
CO701.2	Students can able to perform data mining techniques such as classification,
CO701.3	Students can able to install Hadoop single node cluster and its commands.
	Computer System Security (BEIT702T)
CO702.1	Students can understand security concepts, Ethics in Network Security.
CO702.2	Students can understand security services and mechanisms and can implement
CO702.3	Students can comprehend and apply relevant cryptographic techniques like RSA
CO702.4	Students can comprehend various authentication services and mechanisms like
CO702.5	Students can understand email security services and mechanisms like PGP,
CO702.6	Students can understand meaning of virus, worms, and firewalls and different
	Computer System Security (BEIT702P)
CO702.1	Able to implement the concept of encryption and decryption using various
CO702.2	Able to implement the concept of encryption and decryption using various
CO702.3	Able to implement the concept of various authentication and digital signature
	Artificial Intelligence (BEIT703T)
CO703.1	To understand the basic concepts of Artificial Intelligence, AI techniques and AI

CO703.2	To understand concept of Informed and Uninformed search strategies.
CO703.3	To understand issues, approaches of knowledge representation and logical form
CO703.4	To understand different representations scheme of knowledge in knowledge
CO703.5	To understand the different development phases of expert system and rule based
CO703.6	To understand concepts of certainty, uncertainty factors and fuzzy logic.
	Elective-I Multimedia Systems (BEIT704T2)
CO704.1	Students will gain the knowledge on different technologies and architecture of
CO704.2	Students will understand the concepts of multimedia tools
CO704.3	Students able to know various elements of multimedia
CO704.4	Students will able to apply image and video compression in mini real-time
CO704.5	Students will get the concepts of Storage models and Access Techniques of
CO704.6	Students will get the concepts of developing multimedia applications and
	Elective-I Compiler Design (BEIT704T4)
CO704.1	To acquire the knowledge of modern compiler and its features.
CO704.2	To learn and use the new tools and technologies used for designing a compiler
CO704.3	Demonstrate the phases of the compilation process and be able to describe the
CO704.4	Proficiently explain the aspects of theoretical computer science including
CO704.5	Providing the student with skills and knowledge (such as lexical analysis and parsing) which are applicable to a broad range of computer science
CO704.6	To learn new code optimization techniques to improve the performance of
	Elective-II Cluster and Grid Computing (BEIT705T2)
CO705.1	Understanding the basic requirement of evolution of Grid from a Cluster.
CO705.2	Be familiar with the fundamental components of Grid environments, such as
CO705.3	Be able to design and implement Grid computing applications using Globus or
CO705.4	Be able to justify the applicability, or non-applicability of Grid technologies for a
CO705.5	Understand the suitable topology and design to set up an initial grid for research
CO705.6	Know what a grid is and what it can do for whom uses it is essential when planning to use this technology to tackle the most demanding

	Seminar on Project (BEIT706P)
CO706.1	Able to improve oral and presentation skills in their project domain.
CO706.2	Able to apply mathematics and scientific method in computational problems
CO706.3	Able to use latest tools and methods in the computing practice
CO706.4	Gains knowledge on the process involved in team work of computing
CO706.5	Able to design and implement systems on the various social needs.
CO706.6	Understand the importance of various process models of the project
BE Information Technology Eighth Semester	
	Distributed Systems (BEIT801T)
CO801.1	Students will gain the models of distributed systems which help in developing
CO801.2	Students will understand the concepts of Inter process communication using RPC
CO801.3	Students will know how the processes are synchronized in distributed systems.
CO801.4	Students will know how the deadlocks are occurred, detected and resolved in
CO801.5	Students will gain the knowledge about how the data is shared in distributed
CO801.6	Students will know the structure of file systems in distributed systems.
	Distributed Systems (BEIT801P)
CO801.1	Students will able to create communication between systems.
CO801.2	Students will able to migrate the code from one system to another.
CO801.3	Students can implement synchronization between the systems with respect to
	Gaming Architecture and Programming (BEIT802T)
CO802.1	Design, analyze, implement and evaluate computer games.
CO802.2	Appreciate computer games designs and complexities.
CO802.3	Demonstrate understanding of game production process through developing a
CO802.4	Demonstrate understanding of technical components in realizing a 2D and 3D
CO802.5	Collaborate, organize and communicate with others in effective team work.
CO802.6	Realize the interdisciplinary nature in computer games development and appreciate importance of collaboration, be creative and critical to game and
	Gaming Architecture and Programming (BEIT802P)
CO802.1	Students are able to design and implement the basic concept of game using unity
CO802.2	Students are able to implement the animation concept of game.
CO803.3	Students are able to implement, integrate and test the game with animation,

	Elective-III Pattern Recognition (BEI803T3)
CO803.1	Students can understand pattern, pattern classifier and pattern recognition with
CO803.2	Students should get the knowledge of Bayes theorem and usefulness in pattern
CO803.3	Students can understand clustering and different clustering techniques.
CO803.4	Students can understand feature extraction process with KL transform in pattern
CO803.5	Students able to use hidden markov model and support vector machine in pattern
CO803.6	Students can understand the concepts of fuzzy logic and genetic algorithm in
	Elective-IV Wireless Sensor Networks (BEIT804T4)
CO804.1	Introduce students to the characteristics, challenges, standards and applications of
CO804.2	To provide the knowledge of architecture and structure of wireless sensor
CO804.3	Provide the depth knowledge of contention based and contention free MAC
CO804.4	To understand the general principles of routing and its challenges. To make them
CO804.5	To understand security concepts in WSN using Message authentication code,
CO804.6	Make the students aware of network management design issues, operating system
	Project (BEIT805P)
CO805.1	Able to develop applications in real life.
CO805.2	Able to identify, analyze, formulate and handle programming projects with a
CO805.3	They can acquire practical knowledge within the chosen area of technology for
CO805.4	They can learn new tools, algorithms, and/or techniques that contribute to the
CO805.5	Able to test the functionalities of the project by different testing methodologies. And they can improve effective communication skills for presentation of project related activities.
CO805.6	They can express technical ideas, strategies and methodologies in written form.

Sr. No.	Department of Electrical Engineering	
Third Semester		
1	BEELE301T	Applied Mathematics-III
2	BEELE302T	Non Conventional Energy Sources
3	BEELE303T	Electrical Measurements And Instrumentation
4	BEELE304T	Network Analysis
5	BEELE305T	Electronics Devices and Circuits
Fourth Semester		
1	BEELE401T	Applied Mathematics-IV
2	BEELE402T	Elements of Electromagnetic
3	BEELE403T	Digital and Linear Electronics Circuits
4	BEELE404T	Electrical Machine- I
6	BEELE405T	Computer Programming
Fifth Semester		
1	BEELE501T	Electrical Power System-1
2	BEELE502T	Utilization of Electrical Energy
3	BEELE503T	Electrical Machine Design
4	BEELE504T	Microprocessor and Interfacing
5	BEELE505T	Electrical Machine-II
Sixth Semester		
1	BEELE601T	Power Station Practice
2	BEELE602T	Engineering Economics and Industrial Management
3	BEELE603T	Electrical Drives And their Control
4	BEELE604T	Power Electronics
5	BEELE605T	Control System-I
6	BEELE607T	Functional English
Seventh Semester		
1	BEELE701T	Control System-II
2	BEELE702T	Electrical Power System-II
3	BEELE703T	Flexible AC Transmission System
4	BEELE704T	High Voltage Engineering
5	BEELE705T	Electrical Installation and Design
Eighth Semester		
1	BEELE801T	Power Quality (EL-II)
2	BEELE802T	Electrical Distribution System (EL-III)
3	BEELE803T	Switchgear and Protection
4	BEELE804T	Computer Application in Power System

Department of Electrical Engineering

The department of Information Technology has framed the following Program Specific Outcomes in consultation with concerned stakeholder and corresponding committees.

PSO1	Identify, analyze, design lay out and provide engineering solution in the area related to electrical power system, power electronics and drives.
PSO2	To gain the skills of utilization and maintenance of electrical systems and develop

BE Electrical Engineering Third Semester	
	Applied Mathematics-III(BEELE301T)
CO301.1	Understand Laplace Transform and should able to solve differential equations,
CO301.2	Expand the function in periodic form using Fourier series and understand the
CO301.3	Will be able to formulate variational problems and analyze them to deduce key
CO301.4	Understand the fundamental concepts of complex analysis and also be able to
CO301.5	Formulate and solve linear partial differential equations problems and basic
CO301.6	Will be able to simplify the power of matrices , system of linear equations,
	Non Conventional Energy Sources(BEELE302T)
CO302.1	Important of non conventional energy sources in fast growing world, impact of conventional energy sources on environment, learn fundamentals of solar
CO302.2	To learn various types of solar energy collectors, efficiency of collector system.
CO302.3	To understand and learn various applications of solar energy.
CO302.4	Principle of wind energy conversion, site selection criteria for wind farm, different types of wind generators, various application of wind energy,
CO302.5	Understand the basics of energy from ocean, basic principle of tidal power and its
CO302.6	Understand the basics of energy from bio-mass i.e. utilization of waste,
	Electrical Measurements And Instrumentation (BEELE303T)
CO303.1	Measurement of resistance, Inductance, Capacitance using different DC and AC
CO303.2	Operating principle and working of analog instruments like PMMC, moving iron
CO303.3	Power and energy measurement in both 1- phase and 3-phase circuits and also
CO303.4	Data acquisition system, transducers types and operation.

CO303.5	Measurement of torque, torque meter, measurement of velocity, acceleration and
CO303.6	Temperature measurement using thermistors and RTD and pressure, flow
	Network Analysis (BEELE304T)
CO304.1	Source transformation and mesh basis equilibrium matrix approach for
CO304.2	Nodal basis equilibrium equation matrix for electrical network and concept of
CO304.3	Various Network Theorems as applied to A.C. and D.C. circuits
CO304.4	Initial and final conditions with Laplace transform to electrical network and
CO304.5	Concepts of Driving point and transfer function and poles and zeroes of transfer
CO304.6	Two port network parameters, study of series and parallel resonance and
	Electronics Devices and Circuits (BEELE305T)
CO305.1	Principle and working of basic semiconductor device, diode and its applications.
CO305.2	Principle and working of basic semiconductor device, BJT and its Biasing.
CO305.3	To design and analyze power amplifiers and negative feedback amplifiers.
CO305.4	Principle and working of Oscillator and FET.
CO305.5	Get knowledge of differential amplifier and apply as per application needed.
CO305.6	Conversion of numbers from one code to other code, Logic gates and truth tables
BE Electrical Engineering Fourth Semester	
	Applied Mathematics-IV (BEELE401T)
CO401.1	Acquaint with mathematical formulation of system and apply Laplace Transform
CO401.2	Apply the concept of Z-transform for solving difference equations and analyze
CO401.3	Deal with vague data using fuzzy sets and fuzzy logic.
CO401.4	Grasp the concept of numerical methods and apply them to solve various
CO401.5	Grasp the concept of numerical methods and apply them to solve linear and non-
CO401.6	Know discrete and continuous random variables and their probability
	Elements of Electromagnetic (BEELE402T)
CO402.1	Understand the different coordinate system, Transformation of Cartesian to
CO402.2	Understand Electric field intensity from various charge distributions, Calculate
CO402.3	Understand the application of Gauss's Law, Divergence theorem and potential of
CO402.4	Understand the concept of conductance, dielectric, capacitance and

	conditions and application of poisons and Laplace equation.
CO402.5	Understand magnetic field intensity, magnetic potential, and laws and theorems of
CO402.6	Be familiar with Maxwell's equations for time varying field. Understand the
	Digital and Linear Electronics Circuits (BEELE403T)
CO403.1	Basic fundamentals of logic families, combinational logic concepts, code
CO403.2	Basic fundamentals of flip flops, timers and digital memories.
CO403.3	Synchronous and Asynchronous counter, Arithmetic and logic unit (ALU).
CO403.4	Basic operational amplifier circuits: Inverting and non-inverting amplifier,
CO403.5	Simple linear circuits: ADC, DAC, Sample and hold. Applications of operational
CO403.6	Study of linear ICs: LM741, LM555, LM339, LM723, 78xx and 79xx.
	Electrical Machine- I (BEELE404T)
CO404.1	Construction, details, principal of 3 phase and 1 phase transformer. Calculation of efficiency of a single phase and three phase transformer with respective open circuit and short circuit test. Vector group identification of three phase
CO404.2	Three phase to two phase conversion, parallel operation of three phase
CO404.3	Construction, details, principal of operation and performance of DC machine, characteristics of DC motor and generator, control the speed of DC series
CO404.4	Construction, details, principal of 3 phase induction motor. Torque equation and torque slip characteristics varies of rotor resistance and three regions.
CO404.5	Starting method and different speed control method of three phase induction
CO404.6	Double field revolving theory, different type of single phase induction motor.
	Computer Programming (BEELE405T)
CO405.1	Structure of C program, data types, storage classes, variables, expression and
CO405.2	Use of Arrays and searching and sorting techniques.
CO405.3	Basic concepts of pointers, strings, structures and file handling in C
CO405.4	Basic concepts and characteristics of C++ and Object Oriented Programming.
CO405.5	Basic of Matlab programming, graphics tool, conditional and iterative
CO405.6	Matrix operations using Matlab functions and plotting of graphs (basic plots and
BE Electrical Engineering Fifth Semester	
	Electrical Power System-1 (BEELE501T)
CO501.1	Modeling power system component and concept of real and reactive power.
CO501.2	Per unit representation of power system components to facilitate calculation of

CO501.3	Various types of distribution system and concept of insulator string efficiency.
CO501.4	Concept of designing of transmission line (Short, Medium, and Long) and
CO501.5	The basics concept of load flow analysis.
CO501.6	Real and reactive power control of alternator connected in parallel.
	Utilization of Electrical Energy (BEELE502T)
CO502.1	Understand applications for heating using different techniques and their
CO502.2	Understand applications for electric welding using different methods.
CO502.3	Understand illumination and it's designing with various locations.
CO502.4	To get an overview of the refrigeration and air conditioning systems.
CO502.5	Understand fans, pumps and their utilization in efficient way.
CO502.6	Understand about compressors and diesel generating sets along with energy
	Electrical Machine Design (BEELE503T)
CO503.1	To select the material for making the machine and able to calculate temperature
CO503.2	To design the transformer and able to calculate all the dimension. To understand the relation between electrical quantiles and physical dimension of
CO503.3	To find the operating characteristics of the transformer, leakage reactance and
CO503.4	To calculate the main dimension of rotating machine and able to calculate electric
CO503.5	To design the stator and rotor of the induction motor. Able to calculate operating
CO503.6	To design field coil for salient pole machine and for turbo generator rotor and able
	Microprocessor and Interfacing (BEELE504T)
CO504.1	Types of integrated circuit and how to design them using microprocessor 8085.
CO504.2	The basics of 8085 architecture with addressing modes and software instruction
CO504.3	Represent each instruction graphically using timing diagrams.
CO504.4	Concept of stack, subroutines with programs.
CO504.5	Interrupt structure and their programming.
CO504.6	The architecture of 8255 peripheral device and interface 8085 with device like ADC, DAC, Stepper motor and design the hardware application by
	Electrical Machine-II (BEELE505T)
CO505.1	Understood principle, construction, laying of armature and field windings, types,
CO505.2	Understand the concept of voltage regulation methods to determine voltage
CO505.3	Understand Synchronization and parallel operation of synchronous generators.

CO505.4	Understood principle, construction, methods of starting of synchronous motor, its operation with variable load, operation with variable excitation,
CO505.5	Understand transient behavior of machine on sudden short circuit, hunting and
CO505.6	Understood special motors like Repulsion, Hysteresis, Reluctance, Universal and
BE Electrical Engineering Sixth Semester	
Power Station Practice (BEELE601T)	
CO601.1	Different fuel used for generation of electrical energy in different power plant and able to learn different factor connected with generating station, connected
CO601.2	Site selection for thermal power plant, layout, size and number of unit. Operation of thermal power plant, different auxiliaries, electric supply to the
CO601.3	Site selection and operation of hydro station. Type of hydro power plant, different
CO601.4	To learn principal and operation of nuclear power plant and nuclear material required for generation of electricity. Different type of nuclear reactor,
CO601.5	Able to learn exciter instability and different method of stabilizing exciter
CO601.6	Able to learn captive and cogeneration and its economics . Energy problem,
Engineering Economics and Industrial Management (BEELE602T)	
CO602.1	Understand the concept of economics regarding demand, supply, and production
CO602.2	Learn the basic laws of the economics such as laws of returns. Also learn about cost concept, price and output determination under various competitive
CO602.3	Understand the working of banking system, types of taxation, role of inflation and
CO602.4	Understand nature and scope of management in industrial arena and learn the various functions of management such as planning, organizing,
CO602.5	Understand the concepts of marketing, channel of distribution, advertising and
CO602.6	Learn about the nature and scope of financial management which includes topics such as profit and loss account, balance sheet, importance of budget and
Electrical Drives And their Control (BEELE603T)	
CO603.1	Speed-torque characteristics, starting ,running and braking of electric drive
CO603.2	Solve numerical on power capacity with effect, heating and cooling.
CO603.3	Basic idea of PLC and its programming and application.
CO603.4	Operation of DC,AC contactors and relays and their application for protection of
CO603.5	Operation of traction motor, traction characteristics.

CO603.6	The numerical on traction system and digital control of electric drive.
	Power Electronics (BEELE604T)
CO604.1	Basic operation of various power semiconductor devices.
CO604.2	Basic principal of switching devices.
CO604.3	Analyze and design an AC/DC rectifier circuit.
CO604.4	Analyse DC/DC converter circuit.
CO604.5	DC/AC Inverter circuit.
CO604.6	Role of power electronics in improving energy usage efficiency and the
	Control System-I (BEELE605T)
CO605.1	Modeling of liner system and transfer function calculation.
CO605.2	Feedback effects and electrical components.
CO605.3	Time response and various controllers.
CO605.4	Absolute stability and root locus method.
CO605.5	Frequency response tools as Bode plot, Nyquist plot.
CO605.6	Elementary concepts of state variable approach.
	Functional English (BEELE607T)
CO607.1	Will become adept in using functional grammar
CO607.2	Would be able to write at workplaces
CO607.3	Will be able to draft technical reports and write proposals
CO607.4	Will be able to understand the planning and procedure of carrying out research
CO607.5	Will become well prepared to face competitive examinations and job interviews
CO607.6	Will become dexterous in presentation skills
BE Electrical Engineering Seventh Semester	
	Control System-II (BEELE701T)
CO701.1	To know the different compensation technique of single input single output
CO701.2	To analyze the practical system for desired specification through the variable approach and concept of Eigen values and vectors with the diagonalization technique. Solution of sate equation with the determination of STM by different method.
CO701.3	To Controllability and observability and test on the design of control system in
CO701.4	To design the optimal control with and without constraints.
CO701.5	To function of non linear system and analysis the nonlinear system with phase
CO701.6	To analyze the linear time invariant discrete time system with the help of Z-
	Electrical Power System-II (BEELE702T)
CO702.1	Understand and analyze symmetrical component and sequence network.
CO702.2	Analyze the system with symmetrical fault and select circuit breakers.
CO702.3	Analyze the system with unsymmetrical faults.
CO702.4	Study power system stability.

CO702.5	Study economics operation and distributions of load between units.
CO702.6	Understand importance and types of grounding and compensation.
	Flexible AC Transmission System (BEELE703T)
CO703.1	To understand the constraints offered by transmission line related with transient stability, dynamic stability, voltage stability, thermal limit, frequency
CO703.2	To understand the importance of FACTS controller devices to improve the
CO703.3	Ability to understand and indentify the problem associated with large interconnected system like voltage instability, power oscillation,
CO703.4	Based on the problem, students are able understand to apply suitable controller (series, shunt, shunt-series, series-series) to overcome the problem in
CO703.5	Ability to understand different types of converter regulator and compensator.
CO703.6	To understand harmonic reduction and voltage control technique and its
	High Voltage Engineering (BEELE704T)
CO704.1	Students will understand about breakdown mechanism in gaseous, liquids and
CO704.2	Learn about lightening and switching over-voltages and its protection.
CO704.3	Study about insulation coordination, BIL, reduced BIL, SIL and Travelling
CO704.4	Study different methods of generation high voltage and currents.
CO704.5	Study different methods measurement of high voltage and currents in
CO704.6	Learn different methods of non destructive and High Voltage testing of
	Electrical Installation and Design (BEELE705T)
CO705.1	Concept of load forecasting, solve problems based load assessment.
CO705.2	Draw single line diagram with specification distribution network, motor and
CO705.3	Construction, installation, types and selection of PVC/XLPE cables and overhead
CO705.4	Design 11 KV and 33 KV substation layouts.
CO705.5	Determine fault level at various locations in power system and understand
CO705.6	IE rule for low, medium and .high voltage installation and understand provision
BE Electrical Engineering Eighth Semester	
	Power Quality (EL-II) (BEELE801T)
CO801.1	Knowledge of various power quality phenomenon.
CO801.2	Impact of poor power quality on various equipment of power system and
CO801.3	Various causes and origin of power quality problem.
CO801.4	Controlling of various power quality phenomenon to improve performance of
CO801.5	Monitoring of power quality phenomenon in order to protect and minimize

CO801.6	Assessment of power quality problem and phenomenon on line as well as offline
	Electrical Distribution System (EL-III) (BEELE802T)
CO802.1	To understand the different load factor, classification of load.
CO802.2	To understand different feeders, engineering consideration for voltage level and
CO802.3	To understand calculation of power loss and voltage drop. Method of solution of
CO802.4	To understand equipment for voltage control, effect of different equipment like
CO802.5	To understand the automation in distribution system, data acquisition control and
CO802.6	To understand layout, equipment of the substation.
	Switchgear and Protection (BEELE803T)
CO803.1	Classify the faults in power system.
CO803.2	Design the operating time of over current relays including backup protection.
CO803.3	Understand necessity of protection in power system.
CO803.4	Choose the proper protection system for various equipment like transformer,
CO803.5	Select circuit breakers for different voltage application.
CO803.6	Plot the characteristics of various distance relays and relay classification.
	Computer Application in Power System (BEELE804T)
CO801.1	Understand the fundamental concepts of graph theory. Determine Admittance matrix (required for Load flow) by graphically, Inspection and building
CO804.2	Bus Impedance matrices(required for Short circuit Studies) for system without
CO804.3	Three phase balance network elements with balanced and unbalanced excitation,
CO804.4	Load flow study of a power system by Newton-Raphson and Gauss-Seidal
CO804.5	Three phase Short circuit studies for balanced and unbalanced faults.
CO804.6	Transient stability by using Euler's, Modified Euler's and RK-4th order

Sr. No.	Department of Architecture	
	First Semester	
1	1S-A-1	Basic Design and Visual Arts
2	1S-A-2	Construction Technology And Materials – I
3	1S-A-3	Structural Design And Systems – I
4	1S-A-4	History of Art and Architecture –I
5	1S-A-5	Architectural Graphics –I
6	1S-A-6	Workshop Practice- I
7	1S-A-7	Computer Application(NG)
8	1S-AA-1	Presentation skills
9	1S-AA-2	Numerical Abilities
	Second Semester	
1	2S-A-1	Architectural Design-I
2	2S-A-2	Construction Technology and Materials –II
3	2S-A-3	Structural Design and Systems- II
5	2S-A-4	History of Art and Architecture –II
6	2S-A-5	Architectural Graphics II
7	2S-A-6	Workshop Practice – II
8	2S-AA-1	Elective A - Presentation Skills II
9	2S-AA-2	Elective B -Fundamentals of Drawing Techniques
	Third Semester	
1	3S-A-1	Architectural Design II
2	3S-A-2	Construction Technology And Material – III
3	3S-A-3	Structural Design And System III
4	3S-A-4	History of Art and Architecture-III
5	3S-A-5	Architectural Graphics III
6	3S-A-6	Surveying and Levelling
7	3S-A-7	Climate and Architecture
8	3S-AA-1	Vernacular Architecture (Elective A)
9	3S-AA-2	Architectural Documentation
	Fourth Semester	
1	4S-A-1	Architectural Design II
2	4S-A-2	Construction Technology and Material III
3	4S-A-3	Structural Design and System-IV
4	4S-A-4	Building Services –I
5	4S-A-5	Architectural Graphics IV
6	4S-A-6	Theory of architecture-I
7	4S-A-7	Theory of Landscape Architecture
8	4S-AA-1	Elective A Computer Application
9	4S-AA-2	Elective B Product Design
	Fifth Semester	
1	5S-A-1	Architectural Design-IV
2	5S-A-2	Construction Technology and Materials –V
3	5S-A-3	Structural Design and System-V
4	5S-A-4	Building Services –II
5	5S-A-5	Architectural Graphics-V

6	5S-A-6	Theory of Design-II
7	5S-A-7	Specifications
8	5S-AA-1	Computer Application II Elective A
9	5S-AA-2	Appropriate Technology Elective B
Sixth Semester		
1	6S-A-1	Architectural Design V
2	6S-A-2	Construction Technology and Materials –VI
3	6S-A-3	Structural Design and Systems- VI
4	6S-A-4	Building Services -II
5	6S-A-5	Architectural Graphics VI
6	6S-A-6	Design of Human and Settlements
7	6S-A-7	Estimating and Costing
8	6S-AA-1	Project Management
9	6S-AA-2	Advanced Spatial Analysis
Seventh Semester		
1	7S-A-1	Architectural Design-VII
2	7S-A-2	Construction Technology and Materials –VII
3	7S-A-3	Building Services-IV
4	7S-A-4	Structural Design and System-VII
5	7S-A-5	Research Skills and Project Introduction
6	7S-A-6	Acoustics and Illumination
7	7S-AA-1	Interior Design
8	7S-AA-2	Valuation
Eighth Semester		
1	8S-A-1	Practical Training
Ninth Semester		
1	9S-A-1	Practical Training
Tenth Semester		
1	10S-A-1	Project
2	10S-A-2	Construction Technology and Materials – VIII
3	10S-A-3	Professional Practice
4	10S-A-4	Elective- A – Housing

Department of Architecture

The objectives of the Bachelor of Architecture program are translated into a number of learning outcomes. These outcomes are directly related to the profession of architecture, the way in which it is practiced, and the knowledge components necessary for such a practice. The following list of outcomes represents the minimum learning outputs expected and therefore they are not exclusive. Specific exercises and individual and group projects may achieve additional learning outcomes:

1. An ability to conceptualize and coordinate designs, addressing social, cultural, environmental and technological aspects of architecture
2. An ability to recognize the dialectic relationship between people and the built environment
3. An ability to apply and integrate computer technology in design processes and products. An ability to utilize cutting edge building technology in design.
4. An ability to apply visual and verbal communication skills at various stages of architectural design and project delivery processes.
5. An ability to critically analyze building designs and conduct post occupancy evaluation studies.
6. An ability to employ architectural research methods including data collection and analysis to assess and propose improvements in existing built environments.
7. An ability to work collaboratively with teams of architects and various interdisciplinary design teams involved in the building industry.
8. An ability to recognize diversity of needs, values, behavioral norms, social patterns as they relate to the creation of the built environment.

Bachelor of Architecture First Semester	
	Basic Design and Visual Arts (1S-A-1)
1S-A-1.1	To have basic knowledge about historical review of development of fine arts and
1S-A-1.2	Students got to know about basic elements of design and composition out of it which
1S-A-1.3	Students got to know about Principles of Design and its role in architecture through
1S-A-1.4	Students learned about representation of form in a various ways.
1S-A-1.5	Students get comfortable in outdoor free hand sketching of natural and manmade
1S-A-1.6	Students got to know about detailed knowledge of artists colour theory.
	Construction technology and materials – I(1S-A-2)
1S-A-2.1	Students got to know about various elements of building from foundation to roof. And also learned about basic building materials such as stone, wood, concrete, steel etc.
1S-A-2.2	Students got to know about basic about “construction” as a subject and its relevance to architectural design. E.g.-concept of span , etc
1S-A-2.3	Students understood the basic construction principles with respect to structural stability and its applications/ extensions /manifestations in terms structural

1S-A-2.4	Students got the knowledge about general conditions at site level such as site topography, climatic conditions and soil conditions and its implications on construction techniques, building materials, building elements, construction
1S-A-2.5	Students got to know about basic structural systems such as load bearing and frame structure through drafting exercise of it.
	Structural design and systems – I (1S-A-3)
1S-A-3.1	Students got to know types of coplanar and non- coplanar forces.
1S-A-3.2	Students understood about co-planer forces – resolution and resultants – lami's
1S-A-3.3	Students understood about equilibrium of 2d elements: basic principles, condition of
1S-A-3.4	Students understood about equilibrium of 3d elements, understanding of basic principles of resolution and equilibrium of 3d force system no
1S-A-3.5	Students learned about types of structural supports and support reactions, theoretical and practical study of reactions of simple support, hinge support, roller support
1S-A-3.6	Students learned about static friction: basic principles: application for elements on horizontal plane, inclined planes and ladders.
1S-A-3.7	Students understood the properties of plane sections A) centre of gravity B) Moment of inertia (second moment of area) – section modulus, radius of gyration, polar moment of inertia.
1S-A-3.8	Students learned application for C) Perfect frames (method of joints, method of sections and graphical methods.) D) simply supported beams – analytical and graphical E) weight less cables / strings
	History of Art and Architecture –I (1S-A-4)
1S-A-4.1	Students learned basic about Art, Culture, Society, Civilization and Architecture.
1S-A-4.2	Earlier attempts of man for shelter during the prehistoric period
1S-A-4.3	Students learned about Indian Art and Architecture.
1S-A-4.4	Students learned about Western Art and Architecture.
1S-A-4.5	Students got to know the Elements of Art and Principles of Design studied from
	Architectural Graphics –I (1S-A-5)
1S-A-5.1	Students learned basic understanding in object drawing, light and shade of simple, natural and geometric forms. Outdoor sketches of simple bldg. forms.
1S-A-5.2	Basic understanding of an Architectural symbols like trees, hedges, foliage, human figure in different postures, vehicles, furniture etc. their integration to
1S-A-5.3	Students learned scales, their use in practice and construction of Plain and Diagonal
	Workshop Practice- I (1S-A-6)
1S-A-6.1	Students got knowledge about various basic tools used for carpentry joinery and

1S-A-6.2	Students got to know workshop rules, safety norms and care in handling various
1S-A-6.3	Students got to know basic understanding of wooden joints, evolution of joints, needs
1S-A-6.4	Students got knowledge of various building materials and their tools used for cutting, joining and extension. Handling materials like wood, marble, steel, MS,
1S-A-6.5	Students understood about nailing, screwing, riveting and their various conditions
	Computer Application(NG) (1S-A-7)
1S-A-7.1	Students got to know about various basic software used in a 5 year architecture
	Presentation Skills (ELE A) (1S-AA-1)
1S-AA-1.1	To develop the presentation of the submissions through software like Microsoft
	Numerical Abilities (ELE B) (1S-AA-2)
1S-AA-2.1	After successful completion of course students built their mathematical knowledge
Bachelor of Architecture Second Semester	
	Architectural Design-I (2S-A-1)
2S-A-1.1	Students understood about anthropometry in that they studied human dimensions, concept of percentile in Indian standards, space required for various simple
2S-A-1.2	Students understood about form and space : Volumes, enclosure of space, semi enclosed spaces, defining space by elements, light as a factor of shape, color, texture and form, view, visual relationship. Properties of forms and their impact
2S-A-1.3	Students understood about elements of built form through some exercise of making
2S-A-1.4	Students understood about principles of design : Through exercises spatial organization, symbiosis of form and function concept generation convergent
2S-A-1.5	Students understood about furniture and facilitation placement.
2S-A-1.6	Students understood about integration of climatic factors in design.
	Construction Technology and Materials –II (2S-A-2)
2S-A-2.1	Students got to know about understanding of basic building materials, such as brick, stone, cement, lime, concrete, glass with respect to classification, composition
2S-A-2.2	Students got to know about different type of masonry
2S-A-2.3	Students studied about lintel and arches.
2S-A-2.4	Students studied about basic types of joints and its applications in various building elements such as timber doors, windows and timber roofs.

	Structural Design and Systems- II (2S-A-3)
2S-A-3.1	Students understood about stability of masonry structural elements
2S-A-3.2	Students understood about simple stresses and strains : concept and application Relationship.
2S-A-3.3	Students understood about thermal stresses and strains: simple and composite
2S-A-3.4	Students understood about elastic constants: definitions, Poisson's ratio, bulk
2S-A-3.5	Students understood about bending stresses – circular bending: concept and
2S-A-3.6	Students understood about Torsional stresses concept and application
	History of Art and Architecture –II (2S-A-4)
2S-A-4.1	Students got to know Progression of art and architecture of the River valley
2S-A-4.2	Students understood about Study of visual art principles, scale and proportions of
2S-A-4.3	Students got to know Role of culture and art on architecture in Indian context
	Architectural Graphics II (2S-A-5)
2S-A-5.1	Students understood orthographic projections in detail through exercises
2S-A-5.2	Students understood complex projections in detail through exercises
2S-A-5.3	Development of drafting skills for architectural drawings.
	Workshop Practice – II (2S-A-6)
2S-A-6	Developing understanding of various material and efficiency in technique in students.
	Elective A - Presentation Skills – II (2S-AA-1)
2S-AA-1.1	Development of communication and public speaking skills in students.
	Elective B -Fundamentals of Drawing Techniques (2S-AA-2)
2S-AA-2.1	Students got to know about correct drawing techniques and its fundamentals through
Bachelor of Architecture Third Semester	
	Architectural Design – II (3S-A-1)
3S-A-1.1	To understand Complexity in circulation- and pattern of horizontals as well as
3S-A-1.2	To understand Integration in terms of facilitation, planform, volume, concept and
3S-A-1.3	To know the Application of basic building materials to evolve a design with their aesthetic appeal, functional quality and elementary structural concepts to
3S-A-1.4	To understand Climatic consideration for the design, orientation of building on site, simple concepts of sun shading devices, their application in elevations

	Construction Technology And Material – III (3S-A-2)
3S-A-2.1	To understand about the use of materials i.e Tiles, Steel, Aggregate,
3S-A-2.2	To know Concept of vertical connector – Study of staircases.
3S-A-2.3	To understand the Concept of spanning and its extension in formation of roofs
3S-A-2.4	To understand Principle of framed structure: R.C.C. as a building material and all
	Structural Design And System III (3S-A-3)
3S-A-3.1	To understand stress strain curve for concrete and steel.
3S-A-3.2	To know Euler’s and Rankin’s theory and its concept and applications.
3S-A-3.3	To understand concept and applications of direct and bending stress.
3S-A-3.4	To draw shear force and bending moment diagram of simply supported beam,
3S-A-3.5	To understand stress at base, minimum base width of retaining wall.
3S-A-3.6	To know principle stresses and strains, applications of Mohr’s circle, study of
	History of Art and Architecture-III (3S-A-4)
3S-A-4.1	The student shall be able to understand the Islamic Architecture and Architectural
3S-A-4.2	The student shall be able to understand the Islamic Architecture of Provinces
3S-A-4.3	The student shall be able to understand about Architecture under Mughals -
3S-A-4.4	The student shall be able to learn about the Contemporary Architecture
3S-A-4.5	The student shall be able to understand the city planning of Chandigarh, Delhi
3S-A-4.6	The student shall be able to understand various schools of thoughts and
3S-A-4.7	The student shall be able to understand Industrial revolution in Europe
	Architectural Graphics III (3S-A-5)
3S-A-5.1	To understand the Perception and registration of an object when viewed.
3S-A-5.2	To know the Types perspective views such as one point, two point, three point,
3S-A-5.3	To know how to draw the Measured Drawing and Measurement techniques of existing object (such as building, plot, etc.) Chain survey, methods and
3S-A-5.4	To understand Levelling, methods of levelling -dumpy level and its uses. Contour
	Surveying and Levelling (3S-A-6)
3S-A-6.1	To surveying and levelling, types of surveying methods and application.
3S-A-6.2	To know how to use survey instruments for Chain survey, methods and compass

3S-A-6.3	To understand how to do Plane table survey, method and instruments used, Levelling, methods of levelling -dumpy level and its uses, contour
	Climate and Architecture (3S-A-7)
3S-A-7.1	The student shall be able to learn Study of traditional / vernacular architecture
3S-A-7.2	The student shall be able to understand the climate data, its analysis and method
3S-A-7.3	The student shall be able to learn the passive cooling techniques, techniques of
3S-A-7.4	The student shall be able to understand effect of orientation, topography, vegetation, form, building materials and surfaces on the building design
3S-A-7.5	The student shall be able to learn Approach to climate responsive built
	Vernacular Architecture (ELE A) (3S-AA-1)
3S-AA-1.1	Students got to know about various styles of veracular architecture among the
	Architectural Documentation (3S-AA-2)
3S-AA-2.1	To know how to document an as built structures and make presentation drawings
Bachelor of Architecture Fourth Semester	
	Architectural Design II (4S-A-1)
4S-A-1.1	To understand Complexity in circulation- and pattern of horizontals as well as
4S-A-1.2	To understand Integration in terms of facilitation, planform, volume, concept and
4S-A-1.3	To know the Application of basic building materials to evolve a design with their aesthetic appeal, functional quality and elementary structural concepts to
4S-A-1.4	To understand Climatic consideration for the design, orientation of building on site, simple concepts of sun shading devices, their application in elevations
	Construction Technology And Material - III (4S-A-2)
4S-A-2.1	To understand about the use of materials i.e. Metals: Aluminium, copper, steel,
4S-A-2.2	To know about the types of Doors Windows – Steel, aluminium and sliding doors, sliding and folding doors, revolving doors, revolving shutters,
4S-A-2.3	To understand and design different types of Partitions – Aluminium, timber,
4S-A-2.4	To know and understand how Timbering to trenches, formwork, centering, shoring and underpinning. Is done with Temporary Structures and
	Structural Design and System-IV (4S-A-3)
4S-A-3.1	Analysis and draw bending moment and shear force diagrams for fixed beam

4S-A-3.2	Apply the concept of three moment theorem for analysis and to drawing bending moment and shear force diagrams for continuous beam under different
4S-A-3.3	Apply the concept of moment distribution for analysis and to drawing bending moment and shear force diagrams for continuous beam and portal frame
4S-A-3.4	Apply the Macaulay's method for determination of deflection for simply
4S-A-3.5	Have the knowledge about determinate and indeterminate structure.
4S-A-3.6	Have the knowledge about the arches and apply the knowledge to analysis the
4S-A-3.7	Have the knowledge about loading conditions and unit weights of various
4S-A-3.8	Have the concept of load distribution system in suspension cable system, one-
	Building Services – I (4S-A-4)
4S-A-4.1	The students will know about importance, installation and working of essential services in buildings, and a way building services help in generating a cleaner and healthier built environment. The students should also be made familiar with I.S. codes related to services. To understand the basic aspects of water supply, sewage disposal, refuse and storm water disposal in buildings.
	Architectural Graphics IV (4S-A-5)
4S-A-5.1	To understand the effect of combination of shades and shadows using Complex problems on-buildings, building projections, louvers, chajjas, canopies
4S-A-5.2	To know the effect of shades and shadows cast by artificial light on built forms.
4S-A-5.3	To know how to make Perspective of interior of buildings rendered suitably
4S-A-5.4	To know how to make Bird's eye view showing a building or any object with
	Theory of Architecture-I (4S-A-6)
4S-A-6.1	To understand the definition of Architecture; Elements of Architecture backed by
4S-A-6.2	To know about Architectural Design and the Integration of aesthetic and
4S-A-6.3	To know about Mass and space, Visual and emotional effects of geometric forms
4S-A-6.4	To know about Aesthetic Components of Design
4S-A-6.5	To know about effect in of colour architecture
	Theory of Architecture-I (4S-A-6)
4S-A-6.1	To understand the definition of Architecture; Elements of Architecture backed by
	Theory of Landscape Architecture (4S-A-7)
4S-A-7.1	Through this subject the students shall be aware of architecture beyond buildings, in the outdoor environment and spaces, and, the role and importance

	environs, functionally and aesthetically
	Elective A Computer Application I (4S-AA-1)
4S-AA-1.1	The student shall be able to understand Auto cad 2D Implementation .
	Elective B Product Design (4S-AA-2)
4S-AA-2.1	Through this subject the students shall be aware of architecture beyond buildings, in the outdoor environment and spaces, and, the role and importance of landscaping and site planning in enhancing and improving the quality of building environs, functionally and aesthetically
Bachelor of Architecture Fifth Semester	
	Architectural Design-IV (5S-A-1)
5S-A-1.1	The student shall be able to understand the Effect of sun, rain and wind on
5S-A-1.2	The student shall be able to understand the Functional organization of activities
5S-A-1.3	The student shall be able to learn about the Development control rules, building
5S-A-1.4	The student shall be able to learn about the Functioning of building services like
5S-A-1.5	The student shall be able to learn about the Form to suit the purpose of
	Construction Technology and Materials –V (5S-A-2)
5S-A-2.1	The student shall be able to understand the Cement, paints, various types of
5S-A-2.2	The student shall be able to understand the Plasters and finishes. .
5S-A-2.3	The student shall be able to learn about the Expansion Joints, Water-Proofing,
5S-A-2.4	The student shall be able to learn about the False Ceiling, Suspended ceilings,
5S-A-2.5	The student shall be able to understand the Foundations, footings and advanced foundations. all
	Structural Design and System-V (5S-A-3)
5S-A-3.1	The student would be able to apply knowledge of Design component of Building
5S-A-3.2	The student would be able to apply Design of Beam using Various component of
5S-A-3.3	The student would be able to apply knowledge of IS code for various Component
5S-A-3.4	The student would be able to apply the concept of T and L Beam using various
5S-A-3.5	The student would be able to apply knowledge to analyze concept of Beam for
5S-A-3.6	The student would be able to apply knowledge to Design component.
	Building Services –II (5S-A-4)
5S-A-4.1	The student shall be able to understand the Electrical services, various

	systems detailed layout of electrical services in a residence.
5S-A-4.2	The student shall be able to understand the Schematic water distribution system
5S-A-4.3	The student shall be able to learn about the Hot water supply in high-rise buildings, boilers, furnaces, solar water heaters, computing a special demands of water for swimming pools, air conditioning plants, fire fighting, street
5S-A-4.4	The student shall be able to learn about the sewage collection and disposal for
5S-A-4.5	The student shall be able to understand the Rain water harvesting.
	Architectural Graphics-V (5S-A-5)
5S-A-5.1	The student shall be able to learn Submission drawing as per the local building
5S-A-5.2	The student shall be able to understand the Working drawings required for
5S-A-5.3	The student shall be able to learn the graphics of the drawings will be with specific reference to the code of practice for Architectural and
	Theory of Design-II (5S-A-6)
5S-A-6.1	The student shall be able to understand Organization of Forms and Spaces a) Spacial relationships b) Spacial Organization c) Articulation of Forms and
5S-A-6.2	The student shall be able to understand the Character and Style in Building
5S-A-6.3	The student shall be able to learn about the Principles of Composition
5S-A-6.4	The student shall be able to learn about the Harmony and specific qualities of
5S-A-6.5	The student shall be able to Study of circulation pattern
	Specifications (5S-A-7)
5S-A-7.1	The student shall be able to understand importance of specifications construction activity. building
5S-A-7.2	The student shall be able to understand Specifications of basic building materials such as bricks, stones, aggregate, cement,
5S-A-7.3	The student shall be able to learn about the Specifications of works for a
5S-A-7.4	The student shall be able to learn about the Specifications for items of services
5S-A-7.5	The student shall be able to study Specifications for demolition-work, temporary
	Computer Application II Elective A (5S-AA-1)
5S-AA-1.1	The student shall be able to understand AutoCAD 2D Implementation.
5S-AA-1.2	The student shall be able to understand AutoCAD 3D
5S-AA-1.3	The student shall be able to learn 3D model.

	Appropriate Technology Elective B (5S-AA-2)
5S-AA-2.1	The student shall be able to understand the concept of appropriate technology,
5S-AA-2.2	The student shall be able to understand. Study of soil and its composition and
5S-AA-2.3	The student shall be able to learn about the Specifications of works for a
5S-AA-2.4	The student shall be able to learn about Wattle and daub walls, Rammed earth
5S-AA-2.5	The student shall be able to study. Walls, vaults, Domes using soil cement blocks,
5S-AA-2.6	The student shall be able to understand Use of bamboo as building material
5S-AA-2.7	The student shall be able to understand Burnt clay tile roofing, Ferro cement
Bachelor of Architecture Sixth Semester	
	Architectural Design V (6S-A-1)
6S-A-1.2	The student shall be able to understand the Functional organization of activities
6S-A-1.3	The student shall be able to learn about the Development control rules, building
6S-A-1.4	The student shall be able to learn about the Functioning of building services like
6S-A-1.5	The student shall be able to learn about the Form to suit the purpose of
	Construction Technology and Materials –VI (6S-A-2)
6S-A-2.1	The student shall be able to understand the Cladding Materials
6S-A-2.2	The student shall be able to understand Bamboo, mud, Ferro-cement, vault
6S-A-2.3	The student shall be able to learn High rise construction
6S-A-2.4	The student shall be able to learn Advanced R.C.C. Structures
	Structural Design and Systems- VI (6S-A-3)
6S-A-3.1	The students would have the knowledge of the earthquake resistant structure.
6S-A-3.2	The students would be able to design the one way slab, two way slab and continuous slab.
6S-A-3.3	The students would be able to understand the design of different types of
6S-A-3.4	The students would be able to design the independent column footing.
6S-A-3.5	The students can apply the knowledge to design the RCC Grid Structure.
6S-A-3.6	The students would have the knowledge of the RCC building frame and its
6S-A-3.7	The students would be able to design the RCC section of retaining wall by
6S-A-3.8	The students would be able to understand the structural behavior of large span

	Building Services -II (6S-A-4)
6S-A-4.1	The student shall be able to understand the Communication systems in
6S-A-4.2	The student shall be able to understand the building automation systems, components and application of
6S-A-4.3	The student shall be able to learn about the Causes of fire in buildings, Fire safety
6S-A-4.4	The student shall be able to learn Fire fighting regulations with reference to
6S-A-4.5	The student shall be able to learn about of Fire detection systems
6S-A-4.6	The student shall be able to learn Ventilation of buildings
	Architectural Graphics VI (6S-A-5)
5S-A-5.1	The student shall be able to learn Submission drawing as per the local building
5S-A-5.2	The student shall be able to understand the Working drawings required for
5S-A-5.3	The student shall be able to learn the graphics of the drawings will be with specific reference to the code of practice for Architectural and
	Design of Humanities and Settlement (6S-A-6)
6S-A-6.1	The study aims at introducing students to the development of planning thought from that of historic to present age. It also gives emphasis on stressing broad principles of settlement in such period. The study of this subject continues with emphasis on planning philosophies and the student to carry out the further studies in the specialized field of Urban Planning
	Estimating and Costing (6S-A-7)
6S-A-7.1	The student shall be able to understand the Purpose of Estimating, types of
6S-A-7.2	The student shall be able to understand the Bill of quantities for single story
6S-A-7.3	The student shall be able to study about the IS-1200.
6S-A-7.5	The student shall be able to learn Estimation of quantities for R.C.C. structural
6S-A-7.6	The student shall be able to learn Estimation for electrification, water supply and
6S-A-7.7	The student shall be able to learn rate analysis.
6S-A-7.8	The student shall be able to learn brief specifications and schedule of rates.
	Project Management (6S-AA-1)
6S-AA-1.1	Students shall be able to understand the need of project management in architecture professional practices.
6S-AA-1.2	Students shall be able to work out the project planning, scheduling and implementation management.

	Advanced Spatial Analysis (6S-AA-2)
6S-AA-2.1	Students shall be able to understand the spatial grid and density of activity spaces
6S-AA-2.2	Students shall be able to analyse the requirements of development through surveys
Bachelor of Architecture Seventh Semester	
	Architectural Design-VII (7S-A-1)
7S-A-1.1	The student shall be able to understand the Design orientation of advance and specialized buildings and environmental services, climate and acoustical system oriented buildings, their appropriate structural
7S-A-1.2	The student shall be able to understand the Orientation on development control
7S-A-1.3	The student shall be able to learn about the study of urban environment, complex building forms, their design including positive and negative space
	Construction Technology and Materials –VII (7S-A-2)
7S-A-2.1	The student shall be able to understand the space structures, types of space
7S-A-2.2	The student shall be able to understand the Grid structures and Skeletal structures,
7S-A-2.3	The student shall be able to learn about the Pre-cast concrete, Design
7S-A-2.4	The student shall be able to learn about the methods of pre-stressing, advantages
7S-A-2.5	The student shall be able to understand the Temporary structures design and
7S-A-2.6	The student shall be able to understand the various external cladding materials
	Building Services-IV (7S-A-3)
7S-A-3.1	The student shall be able to understand the Principles of Psychometrics and heat
7S-A-3.2	The student shall be able to understand the Components of A.C. systems. Calculation of A.C. loads and Air distribution systems, ducts and ducting
7S-A-3.3	The student shall be able to learn about the Electric supply and distribution for
7S-A-3.4	The student shall be able to learn about the Importance and functions of bus bar, set up, step up and step down transformers, electrical substation,
7S-A-3.5	The student shall be able to understand the Electromechanical means of vertical
7S-A-3.6	The student shall be able to understand the Escalators and Trav-o-lators

	Structural Design and System-VII (7S-A-4)
7S-A-4.1	To know about the steel connections, types of welds, concentric section, eccentric
7S-A-4.2	To have complete knowledge about IS 800-2007 Design considerations.
7S-A-4.3	To understand the Design of Tension members.
7S-A-4.4	To understand the Design of Compression members like Struts or Independent.
7S-A-4.5	To know about the Design in columns
7S-A-4.6	To know about the Design of section in bending
7S-A-4.7	To know about the Design of section subjected to biaxial bending
7S-A-4.8	To study and understand about the structural behaviours of types of large span steel structure like arches, open web section, bow string girders,
	Research Skills and Project Introduction (7S-A-5)
7S-A-5.1	The student shall be able to learn about the investigation to be done in research,
7S-A-5.2	The student shall be able to understand the Assessment of data to be used in
7S-A-5.3	The student shall be able to learn the Data collection
7S-A-5.4	The student shall be able to understand the Concluding part of research
	Acoustics and Illumination (7S-A-6)
7S-A-6.1	The student shall be able to understand about the sounds.
7S-A-6.2	The student shall be able to understand the Components of A.C. systems. Calculation of A.C. loads and Air distribution systems, ducts and ducting layouts, space requirement, Water demand for A.C
7S-A-6.3	The student shall be able to learn about the Electric supply and distribution for
7S-A-6.4	The student shall be able to learn about the Importance and functions of bus bar, set up, step up and step down transformers, electrical substation,
7S-A-6.5	The student shall be able to understand the Electromechanical means of vertical
7S-A-6.6	The student shall be able to understand the Escalators and Trav-o-lators.
	Interior Design (7S-AA-1)
7S-AA-1.1	To how to make presentation drawings, working drawings details and 3d views of various interior projects ranging from industrial to commercial to
7S-AA-1.2	An understanding of interior design as an interdisciplinary as well as allied field
	Valuation (7S-AA-2)
7S-AA-2.1	To understand the Different methods of valuation for land and building Application of valuation and consideration of valuables in Town
7S-AA-2.2	To know the Application of valuation, tables Valuation

Bachelor of Architecture Eighth Semester	
	Practical Training (8S-A-1)
8S-A-1.1	To receive hands on Office experience in respect of preparation of working drawing, detailing drawings of perspective, preparation of architectural models, study of filing systems of documents, drawings, ammonia prints and preparation of tender document. To have on Site experience, in respect of supervision of the construction activity, Observation, layout on site, study of the staking methods of various building materials, taking the measurement and recording.
Bachelor of Architecture Ninth Semester	
	Practical Training (9S-A-1)
9S-A-1.1	To receive hands on Office experience in respect of preparation of working drawing, detailing drawings of perspective, preparation of architectural models, study of filing systems of documents, drawings, ammonia prints and preparation of tender document. To have on Site experience, in respect of supervision of the construction activity, Observation, layout on site, study of the staking methods of various building materials, taking the measurement and recording.
Bachelor of Architecture Tenth Semester	
	Practical Training (10S-A-1)
10S-A-1	To design a research project based on the synthesis of total experience and knowledge gained from the core and allied subjects with an effective
	Construction Technology and Materials - VIII (10S-A-2)
10S-A-2	To understand the advanced construction Techniques for long span structure by using various materials. Students shall be able to understand the design and construction requirements
	Professional Practice (10S-A-3)
10S-A-3.1	Students shall be able to understand the process of contract and tender bidding.
10S-A-3.2	Students shall be able to understand the legislation pertaining to arbitration,
	Elective – A – Housing (10S-AA-1)
10S-AA-1.1	To know about the housing programmes/Schemes by Government of India.
10S-AA-1.2	To know about the status of housing in India and housing mission.