PROGRAMME: B.TECH(CE)	DEGREE: UG	
S.No	Year/ Sem	COURSE CODE
1	II-I	MA301BS
2	II-I	CE302ES
3	II-I	CE303ES
4	II-I	CE304ES
5	II-I	CE305ES
6	II-I	CE306ES
7	II-I	CE307ES
8	II-I	CE308ES

9	II-I	MC300HS
10	III-I	CE501PC
11	III- I	CE502PC
12	III- I	CE503PC
13	III- I	SM504MS
14	III-I	EE511OE
15	III- I	CE505PC
16	III- I	CE506PC

17	III- I	CE507PC
18	III-I	MC500HS
19	IV-I	A70140
20	IV-I	A70143
21	IV-I	A70138
22	IV-I	A70133
23	IV-I	A70145
24	IV-I	A70139
25	IV-I	A70195

26	IV-I	A70192
27	II-II	SM405MS
28	II-II	CV404ES
29	II-II	CE402ES
30	II-II	CE401ES
31	II-II	CE403ES
32	II-II	CE406ES
33	II-II	CE408ES
34	II-II	CV407ES

35	II-II	MC400ES
36	III-II	CE612PE
37	III- II	CE601PC
38	III- II	CS623OE
39	III- II	CE602PC
40	III-II	CE603PC
41	III-II	CE604PC
42	III-II	CE605PC
43	III-II	EN606HS

44	IV-II	A80146
45	IV-II	A80150
46	IV-II	A80151
47	IV-II	A80087
48	IV-II	A80089
49	IV-II	A80088
50	IV-II	A80090

A.Y: 2018-2019	COURS
Course Name	At the e
MATHEMATICS - IV	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
	CO6:
STRENGTH OF MATERIALS - I	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
FLUID MECHANICS - I	CO1
	CO2:
	CO3:
	CO4:
	CO5:
BUILDING MATERIAL, CONSTRUCTION AND PLANNING	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
SURVEYING	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
STRENGTH OF MATERIAL LAB	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
COMPUTER AIDED DESIGN - I LAB	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
SURVEYING LAB - I	CO1:
	CO2:
	CO3:

	CO4:
	CO5:
	CO1:
	CO2:
GENDER SENSITIZATION LAB	CO3:
	CO4:
	CO5:
	CO1:
	CO2:
CONCRETE TECHNOLOGY	CO3:
	CO4:
	CO5:
	CO1:
	CO2:
DESIGNOF REINFORCED CONCRETE STRUCTURES	CO3:
	CO4:
	CO5:
	CO1:
	CO2:
WATER RESOURCES ENGINEERING	CO3:
	CO4:
	CO5:
	CO1:
	CO2:
FUNDAMENTALS OF MANAGEMENT	CO3:
	CO4:
	CO5:
	CO1:
	CO2:
NON - CONVENTIONAL POWER GENERATION	CO3:
	CO4:
	CO5:
	CO1:
	CO2:
CONCRETE TECHNOLOGY LAB	CO3:
	CO4:
	CO5:
	CO1:
	CO2:
GEOGRAPHICAL INFORMATION SYSTEMS LAB	CO3:
	CO4:
	CO5:
	CO1:
HYDRAULICS AND HYDRAULIC	CO2:

HYDRAULICS AND HYDRAULIC MACHINERY LAB	CO3:
	CO4:
	CO5:
PROFESSIONAL ETHICS	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
REMOTE SENSING AND GIS	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
TRANSPORTATION ENGINEERING - II	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
ESTIMATION AND COSTING	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
WATER RESOURCES ENGINEERING - II	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
WATERSHED MANAGEMENT	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
INDUSTRIAL WASTE WATER TREATMENT	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
CTHM - LAB	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
	CO1:

Subject	CO
EE - LAB	CO2:
	CO3:
	CO4:
	CO5:
BEFA	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
ENGINEERING GEOLOGY	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
FLUID MECHANICS - II	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
STRENGTH OF MATERIALS-II	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
STRUCTURAL ANALYSIS	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
FLUID MECHANICS LAB	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
SURVEYING -II LAB	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
ENGINEERING GEOLOGY LAB	CO1:
	CO2:
	CO3:
	CO4:
	CO5:

Course	Course Outcomes
ENVIRONMENTAL SCIENCE AND TECHNOLOGY	CO1: CO2: CO3: CO4:
ADVANCED STRUCRURAL ANALYSIS	CO1: CO2: CO3: CO4: CO5:
DESIGN OF STEEL STRUCTURES	CO1: CO2: CO3: CO4: CO5:
CYBER SECURITY	CO1: CO2: CO3: CO4: CO5:
ENVIRONMENTAL ENGINEERING	CO1: CO2: CO3: CO4: CO5:
SOIL MECHANICS	CO1: CO2: CO3: CO4: CO5:
SOIL MECHANICS LAB	CO1: CO2: CO3: CO4: CO5:
COMPUTER AIDED DRAFTING-II LAB	CO1: CO2: CO3: CO4: CO5:
ADVANCED ENGLISH COMMUNICATION SKILLS LAB	CO1: CO2: CO3:

SKILLS LAB	CO4:
	CO5:
CONSTRUCTION MANAGEMENT	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
PRESTRESSED CONCRETE STRUCTURES	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
REHABILITATION AND RETROFITTING OF STRUCTURES	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
INDUSTRY ORIENTED MINI PROJECT	CO1:
	CO2:
	CO3:
SEMINAR	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
PROJECT WORK	CO1:
	CO2:
	CO3:
	CO4:
	CO5:
	CO6
COMPREHENSIVE VIVA	CO1:
	CO2:
	CO3:
	CO4:

SE OUTCOMES

nd of the course, the student will be able to

Solve the differential and integral equations of complex variables.

Evaluate the integrals using cauchy's integral function

Evaluate the Taylor's and Laurent's series of expansion of complex functions

Analyse the bilinear transformations & integrals

Analyse fourier series and fourier transform

Calculate one dimensional wave equation and distribution of one dimensional heat equation

Analyze stress strain behaviour of materials upon action of load and draw stress strain diagram.

Calculate shear and bending moments under various load conditions.

Calculate bending stresses & modulus of elasticity of different shapes.

Analyze deflection of beams using macaulays method ,double integration method and conjugate beam met

Calculate normal & tangential stress on members and evaluate principal stresses and strains.

Calculate pressure of fluids by understanding its physical properties.

Compute force of buoyancy on a partially or fully submerged body and Analyze the stability of a floating b

Calculate coefficients of discharge velocity and curvature in venturimeter.Calculate dicharge through notch

Calculate major and minor losses in pipes of different arrangements.

Analyze boundary layer and explain its transition,seperation and control

Illustrate the classification, properties and behaviour of various building materials

chemical admixtures

Explain various building components and building services

Analyze the characteristics and uses of Mortars, masonary and Finishings

Outline the principles of building planning, building classificatin and building by laws

Calculate Linear distances and angles using prismatic compass and chainage by understanding concepts of
surveying

Compute levels, areas and volumes of boundaries and sections,

Measure and record horizontal and vertical angles using theodilite

Understand methods of tacheometry and set curve for a section.

Discuss modern surveying methods

Calculate tension of materials like steel etc., using Tension Tests

Calculate Compression Strength of spring, wood & concrete using compression testing machines

Calculate flexural & torsion strength.

Determine elastic constant of materials.

Determine hardness of metal .

Apply commands of CAD software for drawing sections.

Draw plans of buildings. Using CAD software.

Develop sections & elevations using CAD software.

Detail building components using CAD software.

Develop working drawings of building using CAD software.

Plot Structural and Highway Profiles using conventional surveying tools such as chain/tape,compass,plane

Calculate and plot an area by using chain and prismatic compass survey

Demonstrate ability tocalculeate distance between two inaccessible points by compass and theodolite.

Plot areas by using radiation and intersection methods and levelling- longitudinal and cross-section.

 Locate field stations using two point and three point problems,Height and distance using of tacheometric s

Develop a better understanding of important issues related to gender in contemporary India.

Develop a finer grasp of how gender discrimination works in our society and how to counter it .

Develop insight to the gender division of labour and its relation to politics and economics.

Develop an attitude Adhere to work and live together as equals with different genders.

Develop a sense of appreciation of women in all walks of life.

Summarize composition setting time and grades of cement

Analyze Physical, Chemical, Mechanical and Thermal Properties of Aggregates.

Evaluate Workability, Setting Time of Fresh Concrete

Illustrate Tests on Hardened concrete

Analyze mix design of concrete and illustrate concepts and utilization of special concrete

Design Singly Reinforced, Doubly Reinforced, T & L Beam Sections using IS:456-2000

Design Canopy and analyze sections for shear and torsion.

Design Long and short Columns under Uniaxial and Biaxial Bending using IS:456-2000

Design footings using IS:456-2000

Design Slabs, Dog Legged Staircases and Analyze limit state of serviceability

Compute rainfall over a basin and measure runoff and evaporation

Derive Unit Hydrograph from Direct Runoff , S & Synthetic Hydrographs

Differentiate aquifers and illustrate Well Construction and Well Development Methods

Summarize types and methods of Irrigation and Calculate water requirements for crop period

Design canals by Kennedy`s , Lacey`s, IS Methods and compute design discharge

Interpret the functions, levels approaches of Management

Infer steps and strategies involved in Planning, Problem Solving and Decision making

Illustrate the structure and categeorization of Organization, HRM and outline business strategies

Explain characteristics, styles and theories of Leadership and Motivation

Analyze characteristics, levels and stages of controlling

Analyze Solar radiation and thermal conversions for energy conversions

conversion

Analyze aerodynamics of wind turbines and wind energy conversion systems

Explain the biomass conversion technologies and Geothermal energy conversion technologies

Illustrate wave energy conversions in tidal power plants and operation principles of fuel cells

 Calculate Physical properties of cement.

 Calculate physical properties of aggregates.

 Demonstrate propeties of fresh concrete and hard concrete.

 Demonstrate properties of Self Compacting Concrete.

 Calculate Strength of Structures by Non Destructive testing

 Develop Geo referencing of maps using QGIS Software.

 Identify locations of different sources using QGIS Software.

 Develop GIS Co-ordinates of sources using QGIS Software.

Apply GIS interface to find co-ordinates of source using QGIS Software.

Apply GIS for alignment of roads and maping of topographical entities using QGIS Software.

Compute drag coefficient of channels

Test performance of pumps and turbines.

Determine Manning's coefficient for smooth channel.
Determine Chezy's coefficient for smooth channel.
Determine energhy loss in hydraulic jump and calibrate sandy wave.
Apply professional ethics for accountability, success and achieve lifeskill development
Understand basic theories of ethics
Outline professional Practices in Engineering
Analyze workplace rights and ethics in changing domains of research
Analyze Global Issues, Policies Rights of Professional Ethics
Analyze principles of photogrammetry and stereoscopy
Illustrate Concepts of Remote sensing and electromagnetice spectrum
Analyze GIS Operations and spatial data input
Analyze data representation of Spatial features and objects using Data Models
Evaluate the integration of Raster, Vector Data Modelling and analyze Data Input, Digitization
Illustrate the functions of way components and cross sectional components in railways
Evaluate the geometric design of elements of railway track
Analyze the factors for site selection of Airport
Illustrate the classifications, requirements and features for planning ports and harbours
Analyze Intelligent Transport Systems and its implementation in developed countries.
Analyze principles of working of quantities and Prepare Detailed and Abstract Estimates
Estimate the earthwork required for construction of roads and canals
Analyze rates of various items of work over head and contingency charges
Prepare bar bending schedules and Summarize types and conditions of contract
Valuate buildings using standard specifications for different items of construction
selection
Analyze Profile of gravity dam and its stability characteristics
Illustrate the criteria for safe design of Earth Dam and Evaluate design principles of spillways
Analyze design principles of weirs by understanding Diversion Headworks
Works
Analyze the Concepts and characteristics of Watershed
Compute runoff from Catchment of Watershed and Plan Watershed Management Activities.
Illustrate principles of soil erosion and its control measures
Analyze methods of rain water harvesting
Analyze the methods of forest, grassland and ecosystem management
Analyze industrial an municipal waste waters and Illustrate their effects of Sewers and Waterbodies
Analyze pre and primary treatment methods of waste water
Evaluate special treatment methods of waste water
Evaluate the characteristics and compostion of waste water from Sugar, Steel, Petroleum and Food Process
Evaluate Design, Operation and Maintenance of Common Effluent Treatment Plant
Demostrate the ability to calculate physical properties of aggregates and their strength
Demostrate the ability to calculate physical properties and flash and fire points of bitumen
Estimate Workability and calculate physical properties, setting time of Cement
Calculate strength and youngs modulus of concrete specimens
Demostrate the ability to dtermine strength of structures using Non Destructive testing methods
Demonstrate ability to calculate the physical properties of fresh and waste water

Demonstrate ability to calculate the chemical properties of fresh and waste water
Demonstrate ability to calculate the biological properties of fresh and waste water
water.
Calculate e-coli content in waste water.
Economics
Forecast good demand and analyze Determinants of Supply and Law of Supply
Illustrate factors, functions and types of Production, Cost Analysis, Market Structures and Pricing
Prepare Trial Balance, Ledger and Account Statement
Solve Ratios, Fund Flow and Cash Flow problems
process of rocks
Analyze physical properties and identification factors of rocks and minerals
exploration of ground water
Evaluate the importance and Methods of geophysical studies of Geological Formations
Analyze the Geological Considerations for Site Selection of Dams and Tunnels
and Energy Dissipation
Evaluate Dimensional Analysis of Hydraulic Models and analyze model and prototype relations
Evaluate Hydrodynamic Forces of Jet on Vanes and Interpret its working efficiency
and its prevention
Calculate Efficiency and Specific Speed of Centrifugal Pumps and Contrast Hydropower Plants
Analyze stresses in members subjected to torsion
Evaluate stresses in Columns and Struts subjected to longitudinal and lateral loading conditions.
different support conditions
Analyze stresses and strains in Thin & Thick Cylinders and Shells
Analyze stresses, Moment of inertia and locate Shear centre of members subjected to Symmetrical and Un
Analyze determinacy of Beams
Analyze Pin Jointed frames for vertical, horizontal and inclined loads
Illustrate Strain Energy theorems and Deflection of Simple Beams and Pin Jointed Trusses
Analyze Beams for Deflection using Slope Deflection and Moment Distribution Methods
Analyze members under moving loads and draw influence lines of members
Determine coefficient of Discharge for Orific and Mouth Piece
Calibrate Notchs, Venturi meter and Orifice meter..
Determine Coefficient of minor losses in pipes.
Verify Bernoulli's equation using practical setup.
Demonstrate water hammer in pipes.
Determine area using Total Station.
Determine Remote height using Total Station.
Calculate distance gradient and differential height between two inaccessiable point in Total Station
Setting curve, Resection using Total Station.
Find position of station using GPS.
Identify Rocks depending on geological classification
Identify minerals depending on geological classification
Identify and draw section for Geological maps
Solve simple structural geology problem
Identify rock and minerals using electrical resistivity meter.

Apply mathematical concepts, including statistical methods to field and laboratory data to study scientific
Demonstrate GIS to solve geospatial problems.
Demonstrate the complex relationships between natural and human systems
Design and execute a scientific project.
Analyze Stresses and Moments in Frames, Trusess and Arches
Analyze Portal Frames using Slope Deflection and Moment Distribution Method
Analyze Continuous Beams and frames by Kani`s Method and SFD and BMD
Analyze Continuous Beams , Pin Jointed Plane Frames using Matrix Method and draw SFD and BMD
Analyze Multi Storey Frames and Draw Influence Line Diagrams for Beams
Design Welded Connections and Calculate Efficiency of Joints using IS:800-2007
Design tension and compression members using IS:800-2007
Design beams and Eccentric Connections using IS:800-2007
Design Plate Girders and Stiffeners using IS:800-2007
Design Roof Trusses, Joints and End Bearings using IS:800-2007
Analyze information security awareness and legal perspectives of cyber crime
Illustrate how threats to an organization are discovered, analyzed and dealt with
Analyze different attacks on mobile devices and apply different counter measures
Analyze the different tools used in cybercrime and apply the safety measures from different attacks
Analyze the security and privacy implications on organization and apply the methods for prevention
Calculate Water Demand, Fire Demand and Summarize Water Quality parameters and Testing Methods
Analyze Design Factors of Treatment Units and Treatment Methods of Water
Evaluate Design Methods of distribution systems and estimate concentration of Sewage and Storm Water
Analyze characteristics of Sewage and Illustrate Disposal Methods of Sewage
Design Primary and Secondary Treatment units of Waste Water Treatment plant
Interpret Soil Structure, Mass- Volume Relationships and Analyze Index Properties of Soils
Calculate Permeability, Effective Stresses and Seepage through soils
Mechanisms and Quality Control
Compute Total Settlement of soils by analyzing stages of Consolidation
Calculate shear strength of soils using failure theories and analyze Laboratory testing methods
Demonstrate Atterberg's limits & field density
Classify and evaluate the behavior of the soils subjected to various loads.
Apply principles of phase diagram for soil properties and perform basic weight-volume calculations
Determine strength of soil under shear and compression loads.
Demonstrate the ability to calculate swell index of soil .
Demonstrate the detailing of reinfoecement of columns and beams
Demonstrate the detailing of reinforcement of footing and slabs.
Draw the connections and steel in compression and tension members.
Draft stell beam and Built up section.
Draft plate girder Roof trusses.
Acquire vocabulary & use it contextually.
Listen & speak effectively
Develop proficiency in academic reading & writing .

Increase possibilities of job prospects.
Communicate confidently in formal & informal contexts.
Illustrate Management Responsibilities strategies and implentation of organizational structures
Techniques
Illustrate Resource Planning, Scheduling, Allocation and Budgetary Control Methods
Outline types of Contracts, its specifications and conditions
Illustrate Management Information Systems, Labour Laws and Legal Aspects of Accidents in Construction
Illustrate mechanical behavior, methods and systems of of pre stressing in concrete
Evaluate Losses of Prestress in Pre-Tensioned and Post-Tensioned Members
Analyze Prestressed Concrete Sections for Flexure and Shear using IS Codal Provisions
Analyze the transfer of Prestressing Force developed in pre tensioned members using IS Codal provisions
Analyze Composite Beams and illustrate the Deflection control methods in beams using IS Codal provision
Design and explain the composite beams and deflections
Analyze the corrosion in Reinforcement and Fire Rating of Structures
Inspect Distress and Damage using Non Destructive Testing Methods
Analyze Common Types of Repairs and Strengthening Techniques in Concrete Structures
Interpret Health of Structures by Monitoring using Sensors
Gather requirements of the problem.
Analyze, design and develop the application with the explored technologies.
Initiate efforts to solve real time problems
Express and master public speaking during technical presentations.
Get an opportunity; where in individuals can meet others with the same Interests/problems/concerns and al
Have a sense of renewed hope and inspiration, as sometimes business concerns are lessened by sharing exp
Have a great morale booster for students for career making advancement
Become speaker and it will motivate students in facing technical and HR interview rounds.
Analyze a problem, identify and define the computing requirements appropriate to its solutions.
Function effectively on teams to accomplish a common goal.
Use current techniques, skill and tools necessary for civil engineering .
Design and develop principles in civil.
Get an eye opener to bridge gap between Academia and real time industry issues on technological front
Meet industrial requirement and to improve technical interview skills of a student.
Communicate orally about analyzing a problem.
Express effectively to accomplish a common goal.
Recapitulate fundamentals from across all semesters of B-Tech course work [4 years of learning].
Handle difficult scenario during Viva Voce in the event of plenty of subjects under question

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lso to envisage emerging technologies.
periences with others.

S.NO	YEAR / SEM	COURSE CODE	COURSE NAME
1	II-I	MA301BS	Mathematics - IV
2	II-I	EE305ES	Electronic Circuits
3	II-I	EE302ES	Electromagnetic Fields
4	II-I	EE304ES	Network Theory
5	II-1	EE303ES	Electrical Machines - I
6	II-I	EC306ES	Electronic Devices & Circuits Lab
7	II-I	EE306ES	Electrical Machines Lab - I

S.NO	YEAR / SEM	COURSE CODE	COURSE NAME

8	II-I	EE307ES	Networks Lab
9	II-I	MC300ES	Environmental Science and Technology
10	II-II	EE404ES	Control Systems
11	II-II	EE402ES	Power System - I
12	II-II	EE403ES	Electrical Machines – II
13	II-II	SM405MS	Business Economics and Financial Analysis
14	II-II	EC401ES	Switching Theory & Logic Design

15	II-II	EE407ES	Electrical Machines Lab - II
16	II-II	EE406ES	Control Systems Lab
17	II-II	EE408ES	Electronic Circuits Lab
18	II-II	MC400HS	Gender Sensitization Lab
19	III-I	SM504MS	Fundamentals of Management
20	III-I	EI503PC	Microprocessors & Microcontrollers
21	III-I	EE501PC	Electrical Measurements & Instrumentation
22	III-I	EE502PC	Power Systems - II

23	III-I	CS511OE	Operating System
24	III-I	EE505PC	Electrical Measurements &Instrumentation Lab
25	III-I	EE506PC	Basic Electrical simulation Lab
26	III-I	EI507PC	Microprocessors and Microcontrollers Lab
27	III-I	MC500HS	Professional Ethics
28	III-II	EE601PC	Power Systems Analysis
29	III-II	EE602PC	Power Electronics
30	III-II	EE603PC	Switch Gear and Protection

31	III-II	CS623OE	Cyber Security
32	III-II	EE613PE	Linear and Digital IC Applications
33	III-II	EE604PC	Power Systems Lab
34	III-II	EE605PC	POWER ELECTRONICS LAB
35	III-II	EN606HS	Advanced English Communication Skills Lab
36	III-II	A70231	Switch Gear and Protection
37	IV-I	A70232	Utilization of Electrical Energy
38	IV-I	A70421	Digital Signal Processing

39	IV-I	A70230	Power System Operation and Control
40	IV-I	A70228	High Voltage Engineering
41	IV-I	A70226	Electrical Distribution Systems
42	IV-I	A70498	Microprocessors and Interfacing Devices Lab
43	IV-I	A70293	Electrical Measurements Lab
44	IV-II	A80237	Fundamentals of HVDC and FACTS Devices
45	IV-II	A80324	Renewable Energy Sources

46	IV-II	A80235	EHV AC Transmission
47	IV-II	A80087	Industry Oriented Mini Project
48	IV-II	A80089	Technical Seminar
49	IV-II	A80088	Major Project
50	IV-II	A80090	Comprehensive Viva

COURSE OUTCOMES (STUDENTS WILL BE ABLE TO)
CO1:Analyze the differentiation and integration of complex functions
CO2: Evaluate the integrals using Cauchy's integral function
CO3: Evaluate the Taylor's and Laurent's series expansion of complex functions
CO4:Analyze the bilinear transformation& integrals
CO5:AnalyzeFourier series and Fourier transform
CO6: Analyze one dimensional wave equation and distribution of one dimensional heat equation
CO1:To organize modeling and analysis of electrical and mechanical systems
CO2:Apply the knowledge of Hybrid -Pi CE Transistor model for obtaining other results
CO3: Apply the Knowledge of JFET Amplifiers and their basic concepts including MOSFET characteristics.
CO4:Observe the effect of positive feedback and able to design and working of different Oscillators using BJTS
CO5:Analyze positive and negative Feedback Amplifiers for different configurations and Design different RC & LC Oscillators.
CO6:Design different Power Amplifiers and Tuned Amplifiers
CO1 Apply vector calculus to static electric – magnetic fields.
CO2Compute the force, fields & Energy for different charge & current configurations
CO3evaluate capacitance and inductance
CO4 Analyze Maxwell's equation in different forms (Differential and integral) in Electrostatic, Magnetic time varying fields.
CO5Analyze Know the electro-magnetic principles on capacitors are studied and behavior
CO6 Analyze The electro-magnetic principles on capacitors are studied
CO1: Analyze the Electrical Circuits with the concept of Network topology
CO2:Aanalyse the concepts of Magnetic circuit & Analyze Magnetic circuits
CO3: Analyze the self and mutually induced EMF's for Magnetically coupled coils
CO4:Understand the importance of three phase circuits and Analyze the three phase circuits with Star & Delta connected balanced and unbalanced loads.
CO5:Analyze the transient behavior of electrical networks for various excitations.
CO6:Understand the transfer function for the given network , Determine the parameters for the design of various filters
CO1 Analyze the fundamental principles and classification of electromagneticmachines
CO2 Analyze the constructional details and principle of operation of dc machines.
CO3 Control the voltage and speed of a DC machines
CO4 To Carry out different testing methods to predetermine the efficiency of DC machine
CO5Understand different excitation and starting methods of DC machines
CO6To acquire the Knowledge about the tests conducted on transformers
CO1: Analyze the diode and transistor characteristics.
CO2: Understand the principles of rectifier circuits using diodes and implement them using hardware
CO3: Design the biasing circuits like self-biasing.
CO4: Design various amplifiers like CE, CC, common source FET amplifiers and implement them using hardware and also observe their frequency responses
CO1:Start and control the Different DC Machines.
CO2 Assess the performance of different machines using different testing methods
CO3:Identify different conditions required to be satisfied for self - excitation of DC Generators.
CO4:understand and Separate iron losses of DC machines into different components
CO1Analyze complex DC and AC linear circuits
CO2Apply concepts of electrical circuits across engineering

CO3:Evaluate response in a given network by using theorems
CO4: Obtaining steady state solutions for non-sinusoidal inputs using Fourier series and to analyze the effect of harmonics in circuits, Design low pass, high pass, band pass and band elimination filter networks
CO1 Are you able to Analyze Understand the engineering graduate
CO2 Are you able to analyze and analysis natural resources and classification
CO3 Are you able to analyze and discuss biodiversity and biotic resources
CO4 Are you able to analyze and discuss environmental pollution and control technologies y
CO5 Are you able to analyze and discuss environmental policy legislation &emp
CO1: Improve the system performance by selecting a suitable controller and/or a compensator for a specific application.
CO2: Apply various time domain and frequency domain techniques to assess the system performance
CO3: Apply various control strategies to different applications (example: Power systems, electrical drives etc…)
CO4: Test system Controllability and Observability using state space representation
CO5: To understand the applications of state space representation to various systems.
CO1: to analyze and draw the layout of hydro power plant, thermal power station, Nuclear power plant and gas power plant and explain its operation
CO2: Understanding the A.C. and D.C. distribution systems and its voltage drop calculations.
CO3: Analyzevarious economic aspects of the power plant erection, operation and different tariff methods
CO4: Understand power factor improvement methods and determine economical power factor.
CO5: Understand and compare air insulated and gas insulated power sub stations
CO6: Understanding the concept of cost generation and factors affecting the utilization.
CO1:To identify different parts of transformers and induction motors it's their functions
CO2:Understanding the operation of transformers and induction motors
CO3:Carry out different testing methods and assess the performance of transformers and induction motors
CO4:to perform Start and control the induction motor.
CO1: Define the objectives, nature, scope, role & responsibilities of a manager of a commercial Venture.
CO2: Analyze the demand for and supply of a product or product mix of a company & to analyze various
CO3: Forecast & compute the future sales level of a product by using various quantitative & qualitative techniques and with the help of past sales data.
CO4: Examine optimum production & cost functions with the help of mathematical equations & by developing graphical solutions through linear programming applications. Assess the cost behavior, costs useful for managerial decision making and determine Break Even Point (BEP) of an enterprise. Discuss the concept of equilibrium price and output in different market situations i.e., perfect, monopoly, monopolistic & Oligopoly competition with the help of graphs. Differentiate private & public sector undertakings in their promotion, incorporation, regulation, administration, legal formalities & existence.
CO5: Analyze and apply the process & principles of accounting and prepare Journal, Ledger, Trial Balance, Manufacturing A/c, Trading A/c., Profit & Loss A/c. and Balance Sheet of an enterprise.
CO6: Analyze, interpret & comment on the financial statements of a business enterprise by using liquidity leverage, coverage and turnover & profitability ratios.
CO1: Able to manipulate numeric information in different forms
CO2: Able to manipulate simple Boolean expressions using the theorems and postulates of Boolean algebra.
CO3: Able to minimize combinational functions.
CO4: Able to design and analyze small combinational circuits and to use standard combinational functions.
CO5: Able to design building blocks in order to build larger more complex circuits.
CO6: Able to design and analyze small sequential circuits and devices and to use standard sequential functions/building blocks to build larger more complex circuits.
CO1:Assess the performance of different machines using different testing methods

CO2:To convert the Phase from three phase to two phase and vice versa and to Compensate the changes in terminal voltages of synchronous generator after estimating the change by different methods	
CO3:Control the active and reactive power flows in synchronous machines	
CO4:Start different machines and control the speed and power factor.	
CO1: To improve the system performance by selecting a suitable controller and/or a compensator for a specific application	
CO2: Apply various time domain and frequency domain techniques to assess the system performance	
CO3: Apply various control strategies to different applications (example: Power systems, electrical drives etc.)	
CO4: Test system controllability and observability using state space representation and applications of state space representation to various systems.	
CO1 Apply the concepts of amplifiers in the Design of Public Addressing System	
CO2 Generate Sinusoidal wave forms of given specifications.	
CO3 Design Stable System using feedback concepts.	
CO4 Design Multivibrators using Transistor.	
CO1Develop students' sensibility with regard to issues of gender in contemporaryIndia	
CO2:Provide a critical perspective on the socialization of men and women	
CO3Introduce students to information about some key biological aspects of genders.	
CO4 Expose the students to debates on the politics and economics of work	
CO1 Express the basic interpretation of management functions such as planning,organizing,staffing,	
CO2 Examine howwell the managers are making use of these functions and commercialresources to accomplish businessgoals.	
CO3 Describe planning, decision making and problem solving and analyze its relationship with organizational performance	
CO4 Explain theterms Organizational-Design, Structure, Chart, Climate, Culture, Change, Departmentalization	
CO5 Describe Leadership and Motivation and their characteristics, styles andtheories and stages	
CO6 Define controlling-types, steps, levels	
CO1 Understand internal architecture and organization of 8086	
CO2 Analyze the assembly language program of 8086	
CO3 Analyze the internal architecture and real time control of 8051	
CO4 Discuss the i/o memory interface, serial communication interface devices	
CO5 Analyze the internal architecture of ARM Processor	
CO6 Classify the internal architecture of COTEX, ARM Processor and OMAP ARMProcessor	
CO1 AnalyzeandCompare the different types of measuring instruments, their construction, operation and characteristics. and generators	
CO2 AnalyzeMeasure the voltage and current through potentiometers and instrument	
CO3 Analyze measurement of active, reactive powers	
CO4 Analyzing the suitable method for measurement of resistance, inductance, capacitance.Operation and characteristics.	
CO5 Analyze detailed study of resistance, inductance and capacitance measuring	
CO6 Apply the knowledge about transducers and instrument transformers to use them effectively.	
CO1 Able to compute inductance and capacitance for different configurations of transmission lines.	
CO2 Able to analyze the performance of transmission lines	
CO3 Can understand transient's phenomenon of transmission lines.	
CO4 Able to calculate sag and tension calculations.	
CO5Will is able to understand overhead line insulators and underground cables.	
CO6 AnalyzeAwareness of deregulated	
CO1 Ability to Understand and Implement the Techniques used to improve SystemPerformance.	

CO2 Ability to Understand and Implement the Techniques used to improve SystemPerformance.
CO3 Ability to Learn Memory Management Strategies.
CO4: Ability to Provide Protection to file System.
CO5 Ability to Detect and Recover Deadlocks.
CO1 Acquire hand on experience about different Measurement devices and its working principles
CO2 Acquire knowledge measurement of parameters like determination of B-H curve μr - H curve and μr - B curve using standard solenoid, search coil and Hibbert's magnetic standard
CO3 Acquire knowledge of principle of calibration of a measuring instrument and plotting of calibration curves.
CO4calibrate PMMC instrument using D.C potentiometer
CO1Apply signal generation in different systems and Basic Operations on Matrices, Generation of various signals and sequences (Periodic and Aperiodic).
CO2Analyze networks by various techniques and operationson signals and sequences such as Addition, Multiplication, Scaling, Shifting, Folding, Computation
CO3Analyze circuit responses and application ofNetwork Theorems to Electrical Networks.
CO4Analyze bridge rectifiers and harmonic analysis of non-sinusoidal waveforms, Simulation of DC Circuits.
CO1 Apply different addressing modes & Model programs using 8086 Instruction set
CO2 Explain the usage of string instructions of 8086 for string manipulation, Comparison
CO3 : Design different programs using C cross compilers for 8051 controller
CO4 Design interfacing program with 8086
CO1 Analyze the Understand the importance of values and ethics
CO2 Analyze learn the right and responsibilities as an employee
CO3Analyze and understand the personal lives and professional careers
CO4Analyze and discuss professional practices in engineering
CO5 Analyze and understand about global issues in professional ethics
CO1 Analyze the Understanding power system network matrix
CO2Understand and analyze the Algorithm for the Modification of ZBus Matrix for addition element for different cases power systems
CO3 Analyze the Understanding power flow studies and load flow equations
CO4 Analyze the Determination of Bus Voltages, Injected Active and Reactive Powers (Sample One Iteration only) and finding Line Flows/Losses for the given Bus Voltages.
CO5Analyze theUnderstanding per unit representation of three phase power system
CO6Determination of Transient Stability by Equal Area Criterion, Application of Equal Area Criterion, Critical Clearing Angle Calculation.
CO1 Choose the appropriate converter for various applications and learn the details of power electronics
CO2Design the power converters suitable for particular applications and learn the details of power electronics.
CO3 To understand the working of various power electronic devices types of converters.
CO4 To learn how to analyze the converters andspecifications.
CO5 To learn about the control of variousconverters. Specifications.
CO6 Develop the novel control methodologies for better performance and analyze operation of power electronic Devices
CO1 Understand the types of Circuit breakers.
CO2 Understand the choice of Relays for appropriate protection of power system equipment.
CO3 Understand various types of Protective devices in Electrical Power Systems.
CO4 Interpret the existing transmission voltage levels
CO5 Understand and analyze various means to protect the system against over voltages.
CO6 Understand the importance of Neutral Grounding, Effects of Ungrounded Neutral grounding on system performance, Methods and Practices.

CO1 Analyze information security awareness and legal perspectives of cyber crime specifications.
CO2 Analyze To familiar with how threats to an
organization are discovered, analyzed and dealt
CO3 Analyze different attacks on mobile devices and apply different counter measures
CO4 Analyze the different tools used in cybercrime and apply the safety measures from different attacks
CO5 Analyzethe security and privacy implications on organization and apply the methods for prevention
CO1Analyze Understand the internal operation of Op-Amp and its specifications.
CO2 Analyze and design linear applications like adder,
CO3 Analyze and design non linear applications like multiplier, comparator and etc, using Op-Amp.
CO4 Classify various active filter configurations
CO5 To Operate 555 timers in different modes like bistable
CO6 To Determine the lock range and capture range of PLL
CO1 Perform various load flow techniques
CO2 Understand Different protection methods.
CO3 Analyze the experimental data and draw the conclusions.
CO4Understand the Fault Analysis on a Three Phase Transmission Line Model, IDMT Characteristics of Over Current Relay .
CO1 Understand the operating principles of various power electronic converters.
CO2Use power electronic simulation packages& hardware to develop the power converters.
CO3Analyze and choose the appropriate converters for various applications
CO4Study of PWM techniques.
CO1 Able to acquire vocabulary and use it contextually
CO2 Able to gather ideas relevantly and coherently to develop proficiency in academic reading
CO3 Able to write Project Reports, Research Reports, Technical Reports and Formal letters
CO4 Able to make Oral presentations
CO5 Able to practice in Group discussions and Facing interviews.
CO1Understand the types of Circuit breakers and choice of Relays for appropriate protection of power system equipment.
CO2Understand various types of Protective devices in Electrical Power Systems.
CO3Interpret the existing transmission voltage levels and various means to protect the system against over
CO4Understand the importance of Neutral Grounding, Effects of Ungrounded Neutral grounding on system performance.
CO5To understand the Methods and Practices on system performance.
CO6knowledge on practical application of the relays and protection.
CO1 To understand the operating principles and characteristics of traction motors with respect to speed, temperature, loading condition abnormal conditions that could occur in power system.
CO2Ability to acquaint with the different types of heating and welding techniques
CO3 Knowledge of various types of existing To study the basic principles of illumination and its measurement
CO4 Knowledge of various conventional relays, To understand the basic principle of electric traction
CO5 To understand the method of calculation of various traction systems for braking, acceleration related to switchgear and protection.
CO6 To understand the method of other related parameters, including demand side management.
CO1 Understand the discrete time processing theory and different forms of realization of digital filters
CO2 Ability to Compute the DFT of sequences and implement it by using FFT algorithms
CO3 Design IIR Butterworth filters by using transformation techniques
CO4 Design IIR Chebychev filters by using transformation techniques

CO5 Design FIRfilters by using different techniques	
CO6Analyze various concepts of Multirate Digital Signal Processing	
CO1Analyze the optimal scheduling of power plants	
CO2 Analyze the steady state behavior of the power system for voltage	
CO3 Describe reactive power control of power system	
CO4 Understand real power control and operation	
CO5 Describe computer of power systems	
CO6 Design suitable controller to dampen the frequency	
CO1Analyse Acquire the knowledge of necessity of high voltage engineering basics	
CO2 Ability to Knowledge of various circuits for generating high voltages for testing various apparatus and their measurement method.	
CO3 AnalyzingKnowledge of the various reasons of overvoltage in power system circuit breakers, their design and constructional details.	
CO4 Describe reactive power control of a power system	
CO5 Analyzing the Knowledge of standards and specifications Knowledge of insulation coordination related to protection.	
CO6 Analyze Design of various parts of High Voltage equipment in power system	
CO1Analyze and Discuss Transmission and distribution systems	
CO2 Ability to Understand design considerations of feeders	
CO3 Analyze and Discuss substations and protection of distribution systems	
CO4Analyze and Discuss compensation for power	
factor improvement	
CO5:Analyzing the shunt and series compensation through various static compensators related to switchgear and protection.	
CO1 Apply different addressing modes & Model programs using 8086 Instruction set	
CO2 Explain the usage of string instructions of 8086 for string manipulation, Comparison	
CO3 Design different programs using C cross compilers for 8086	
CO4 Design interfacing program with 8086	
CO1 Acquire hand on experience about different Measurement devices and its working principles	
CO2 Acquire knowledge of dealing with magnetic circuit and measurement of its parameters like determination of B-H curve μr - H curve and μr - B curve using standard solenoid, search coil and Hibbert's magnetic standard	
CO3 Acquire knowledge of principle of calibration of a measuring instrument and plotting of calibration curves.	
CO4 Acquire hand on experience and knowledge on working of ammeter, voltmeter, wattmeter, Kelvin's double bridge and wheat stone's bridge, AC bridges, slide wire potentiometer. CT/PT, single – phase energy meter, concept of direct loading and phantom loading, 3-phase energy meter using standard wattmeter, AC	
CO1analyze the Students gets a thorough knowledge on basic HVDC & FACTS	
CO2 Ability to Control schemes of converters and Harmonic Filters	
CO3 Analyzing Power flow analysis in HVDC systems	
CO4 Analyze Understanding theOperation and necessity of FACTS controllers	
CO5 Analyzing the shunt and series compensation through various static compensators related to switchgear and protection.	
CO6 Analyze Simulation In power networks and FACTS modeling	
CO1Analyze the Knowledge about various types of renewable energy sources	
CO2 Knowthe Principles of Direct energy Conversion	
CO3 AnalyzingApplication of the renewable energy sources to real-conceptual things	
CO4 Analyze Real world Electrical and Electronics problem solving by using them	
CO5 Analyzing the Different Applications of renewable energy sources	

CO6 Analyze Advantages of Renewable energy sources over conventional sources
CO1 Analyze thorough knowledge on general aspects and necessity of high voltage transmission
CO2 Ability to Finding out the advantages and disadvantages of EHVAC
CO3Analyzing of skin and gradient effects
CO4 AnalyzeAnalyzing and calculating the corona effect and electro static fields
CO5 Analyze Knowledge of standards and specifications related to switchgear and protection.
CO6 AnalyzeVoltage control of EHVAC transmission and theory of travelling waves
CO1 Enable the Students to undertake short research projects in a team under the direction of members of the
CO2 To impart skills in preparing detailed report describing the project and results
CO3 To enable the students to undertake fabrication work of new experimental set up/devices or develop software packages
CO4 To effectively communicate by making an oral presentation before an evaluation committee
CO1 Express and master public speaking during technical presentations
CO2 Get an opportunity; where in individuals can meet others with the same Interests/problems/concerns and also to envisage emerging technologies
CO3 Have a sense of renewed hope and inspiration, as sometimes business concerns are lessened by sharing experiences with others
CO4 Have a great morale booster for students for career making advancement
CO1 To enable the students to develop comprehensive solution to issues identified in previous semester work and to meet the requirements as stated in project brief
CO2 To inculcate the ability to synthesize results of the detailed analytical studies conducted ,lay down validity and design criteria,interpret the results for application
CO3 To interpret the results for application to the problem
CO4 To develop the concept and detailed design solution and to effectively communicate the thesis rationale
CO1 Communicate orally about analyzing a problem
CO2 Express the effectively to accomplish a common goal
CO3 Recapitulate fundamentals from across all semesters of B-Tech course work [4 years of learning]
CO4 Handle difficult scenario during Viva Voce in the event of plenty of subjects under question

Degree: B.Tech		A.Y: 2018-2019
S.No	Year/ Sem	Course Name
1	II-I	Mathematics-IV
2	II-I	Thermodynamics
3	II-I	Kinematic of Machinery
4	II-I	Metallurgy and Material Science
5	II-I	Mechnics of Solids
6	II- I	Fuels and Lubricants Lab

7	II-I	**Mechanics of Solids Lab**
8	II- I	**Metallurgy and Material Science Lab**
9	II- I	**General Sensitization Lab**
10	III- I	**Design of Machine Members-I**
11	III-I	**Thermal Engineering-I**
12	III-I	**Metrology and Machine Tools**
13	III-I	**Fandamentals of Management**

14	III-I	Disaster Management
15	III-I	Thermal Engineering Lab
16	III-I	Machine Tool Lab
17	III-I	Engineering Metrology Lab
18	III-I	Professional Ethics
19	IV-I	Operational Research
20	IV-I	Power Plant Engineering

21	IV-I	CAD/CAM
22	IV-I	Instrument and Control Systems
23	IV-I	Industrial Management
24	IV- I	Unconventional Machining Process
25	IV- I	CAD & M Lab
26	IV- I	PDP& I Lab
27	II- II	Fluid Mechanics and Hydraulic Machines

28	II- II	Business Economics and Financial Analysis
29	II-II	Dynamics of Machinery
30	II-II	Manufacturing Process
31	II-II	Machine Drawing
32	II-II	Manufacturing Processes Lab
33	II-II	Fluid Mechanics and Hydraulic Machines Lab
34	II-II	Kinematics and Dynamics Lab
35	II-II	Environmental Science and Technology

36	III-II	Thermal Engineering - II
37	III-II	Design of Machine Members-II
38	III-II	Heat Transfer
39	III-II	Industrial Management
40	III-II	Refrigeration and Air Conditioning
41	III-II	Heat Transfer Lab
42	III-II	CADD & MATLAB

43	III-II	Advanced English Communication Skills Lab
44	IV-II	Renewable Energy Sources
45	IV-II	Plant Layout and Material Handling
46	IV-II	Production Planning and Control
47	IV-II	Comprehensive Viva
48	IV-II	Seminar
49	IV-II	Industry Oriented Mini Project
50	IV-II	Project Work

Branch : MECHANICAL	Semester: I &II

Course Outcomes (Students will be able to)

CO1: Analyze the Differentiation and Integration of Complex Functions

CO2: Evaluate the Integrals using Cauchy's Integral Function

CO3: Evaluate the Taylor's and Laurent's Eeries Expansion of Complex Functions

CO4: Analyse the Bilinear Transformation& Integrals

CO5: Analyse Fourier Series and Fourier Transform

CO6: Analyse One Dimensional Wave Equation and Distribution of One Dimensional Heat

CO1: Understand and differentiate between various thermodynamic systems and processes

CO2: Understand and apply the laws of Thermodynamics to different types of systems under

CO3: Apply the concepts of pure substances and perfect gas laws

CO4: Understand the Gas Tables, Psychrometric Properties and charts

CO5: Analyze the Thermodynamic cycles and evaluate performance parameters.

CO1: Designing a suitable mechanism depending on application

CO2: Drawing displacement diagrams and cam profile diagram for followers executing diffe

CO3. Drawing velocity and acceleration diagrams for different mechanisms

CO4: Selecting gear and gear train depending on application

CO5: Analysis and synthesis of gear trains

CO1: Comprehension of different crystal structures, grain size and grain boundaries by diffe

CO2: Application of phase diagrams and the phase rule.

CO3: Comprehension of iron-carbon phase diagram, different heat treatment processes and t

CO4: Understand the structure and properties of cast iron.

CO5: Comprehension of the structure and properties of non-ferrous metals and alloys.

CO6: Understand the properties and application of ceramics, polymers and composites.

CO1: Apply the principles of elasticity, plasticity, stresses, strains and their relationships und

CO2: Able to draw shear force and bending moment diagrams for various loads.

CO3: To determine flexural and shear stresses developed in various sections of beams.

CO4: To find principle stresses and strains and to apply theories of failure in the design of va

CO5: To determine stresses developed in a shaft and design of a shaft

CO1: Determine Flash and Fire Points of Liquid Fuels/Lubricants

CO2: Determine the Percentage of Carbon Residue present in the Liquid Fuels.

CO3: Determine the Viscosity of Liquid Lubricants and Fuels using Different Viscometers

CO4: Determine the Calorific Value of Solid/Liquid/Gaseous Fuels using Different Types of

CO5: Determine the Drop Point and Penetration for Grease

atmospheric pressure and determine the cloud and pour point of petroleum products

CO1: The students will be able to Analyze the behavior of the solid bodies subjected to vari

CO2:The students will be able to Apply knowledge of materials and structural elements to th

CO3: The students will be able to Calculate & Compare the hardness values for various mat

CO4: The students will be able to Calculate the delections of beams

CO5: The students will be able to Apply the concept of impact loading and to determine imp

CO6: The students will be able to Analyse the compression strength of different materials an

CO1: Student will be able to know the Metallurgy and Material science program is to provi

CO2: Students will be able to know the Relate properties of metals to micro structures.

CO3: Students will be able to know the Apply the principles of heat treatment for improving

 CO4: Students will be able to know the Select metals and alloys for engineering application

CO5: Students will be able to know the Understand various advantages and limitations of no

CO6: Students will be able to know the Identify suitable metals, non-metals for various ind

CO1:   Sensitize basic dimensions of the biological, sociological, psychological and legal asp

CO2: Attain a finer grasp of how gender discrimination works in our society and how to cou

CO3:   Equipped to work and live together as equals.

CO4: Develop a sense of appreciation of women in all walks of life.

CO5: Through providing accounts of studies and movements as well as the new laws that pr

CO1; At the end of this course, students will be able to formulate and analyze stresses, able

CO2: At the end of this course, students will be able to apply multidimensional fatigue failur

CO3: At the end of this course, students will be able to analyze and design structural joints.

CO4: At the end of this course, students will be able to analyze and design structural joints (

CO5: At the end of this course, students will be able to analyze and design structural joints (

CO1: Evaluate the performance of IC engines under the given operating conditions

CO2: Evaluate the performance of compressors under the given operating conditions.

CO3: Apply the laws of Thermodynamics to evaluate the performance of Refrigeration

CO4: Apply the laws of Thermodynamics to evaluate the performance air-conditioning cycle

CO5: Understand the functionality of the major components of the IC Engines and effects of

CO1: Understand various metal cutting principles and lathe machine processes

CO2: Apply various speed and feed mechanisms and perform machining calculations in drill

CO3: Apply various speed and feed mechanisms and perform machining calculations in milli

CO4: Identify techniques to minimize the errors in measurement and understand fundamenta

CO5: Identify methods and devices for measurement of length, angle, gear & thread paramet

CO1: Express a basic interpretation of management functions such as planning,   organizi

CO2: Examine how well the managers are making use of these functions and commercial res

CO3: Describe planning, decision making and problem solving and analyze its relationship v

CO4: Explain the terms Organizational-Design, Structure, Chart, Climate, Culture, Change,

CO5: Describe Leadership and Motivation and their characteristics, styles and theories.

CO6: Define controlling-types, steps, levels and stages

CO1: Understanding Disasters
CO2: Man-made Hazards and Vulnerabilities
CO3: Understanding disaster management mechanism
CO4: Understanding capacity building concepts
CO5: Planning of disaster managements
CO1: Students will able to undestand the I.C. Engines Valve / Port Timing Diagrams and I.C
CO2:Students will able to determine I.C. Engines Performance Test for 2 Stroke SI engines
CO3:Students will able to determine I.C. Engine Heat Balance – CI/SI Engines and I.C. Eng
CO4:Students will find out I.C. Engines effect of A/F Ratio in a SI engine and Performance
CO5:Students will find out IC engine Performance Test on a 4S CI Engine at constant speed
CO6:Students will able to Dis-assembly / Assembly of Engines and all parts of Boilers and
CO1. Understand the cutting tool geometry, mechanism of chip formation and mechanics of orthogonal cut
CO2. Identify basic parts and operations of machine tools including lathe, shaper, planer, slotter.
CO3. Identify basic parts and operations of machine tools like drilling, boring, milling and grinding machine
CO4. Design locating and clamping devices to produce a component.
CO1. Select a machining operation and corresponding machine tool for a specific application in real time.
CO2. Understand the concept of tool makers microscope.
CO3. Select a measuring instrument to inspect the dimensional and geometric features of a given compone
CO4. Understand the concept of 2 wire – 3 wire method.
CO1: The student is able to understand the importance of values and ethics in their personal
CO2: The student is able to understand the basic theories related to the values and ethics
CO3: The student is abel to understand the professional practices in engineering with the live
CO4: The student is able to understand pollution control measures
CO5:The student is able to understand the environmental policies and regulation
CO1: Define &Formulate the Linear Programming Problem, utilization of Simplex method,
CO2: Identify the Transportation problem to compile for least transportation cost, Solve & d
CO3: Sequencing Problem to manipulate & modify the man hours to reduce the idle time.R
CO4: Design different optimal strategies to win the game, justify the games using minimax o
CO5: List out different waiting lines & describe the trade off between cost of service and co
CO6: Distinguish between Linear programming problem & Dynamic programming problem
CO1: Understand the sources of energy, steam Power Plant and combustion processes
CO2: Understand internal combustion engine plant and direct energy conversion
CO3: Compare the hydro electric power plant and power from non conventional sources
CO4: Understand the nuclear power plant, types of reactors
CO5: Apply the power plant economics and environmental considerations
CO1: Describe basic structure of CAD workstation, Memory types, input/output devices
CO2: Display devices and computer graphics

CO3: Acquire the knowledge of geometric modeling and Execute the steps required

CO4: Explain fundamental and advanced features of CNC machines

CO5: Illustrate Group Technology, CAQC and CIM concepts

CO1: Understand the basic Characteristics of a Typical Instrument and to study the static an

CO2: Evaluation of various types of transducers used in displacement measurement

CO3: Understand various types of Methods and transducers used in level, flow speed, accele

CO4: Understand various types of Methods and transducers used in level, flow speed, accele

CO5: Understand the concept of strain gauge and various instruments used in Humidity, For

CO6: Application of Various control systems for temperature, speed and position

CO1: Choose, prepare, interpret and use cost estimates as a basis for the different situations

CO2: Interpret financial statements and other financial reports

CO3: Explain how strategic planning, management, management control, entrepreneurship

CO4: Explain how the industrial company markets and price it's product

CO5: Explain how the company deal with it's environment

CO1: Analyze various Unconventional Machining processes based on parameters and applic

CO2: Apply USM based on parameters and applications

CO3: Apply Abrasive jet machining ,Water jet machining, Electro chemical machining based

CO4: Apply   Thermal metal removal processes like Electric Discharge Machining and wire

CO5: Compare Thermal and non thermal processes like Electron beam machining and Laser

CO6: Apply   Plasma Arc machining and chemical machining processes bsed on parameters

CO1: Students Able to perceive working knowledge in Computer Aided Design methods and

CO2: Students Able to construct solid modeling using 3D modeling standard software.

CO3: Able to solve simple structural, heat and fluid flow problems using standard FEA softw

CO4: Students able to understand the CNC Control in Modern Manufacturing System

CO5: Students able to prepare CNC part programming and perform Manufacturing

CO1: Ability to recognize measurement of pressure, flow and speed.

CO2:Able to identify various types of transducers used in displacement measurements and .

CO3: Able to explain the conventional representation of parts, by practicing detailed drawing

CO4: Able to indentifying the indication of form and position tolerances on drawings.

CO5:Able to analyze part drawing from assembly drawings

CO1: Identify importance of various fluid properties at rest and in transit.

CO2: Derive and apply general governing equations for various fluid flows

CO3: Understand the concept of boundary layer theory and flow seperation.

CO4: Plot velocity and pressure profiles for any given fluid flow

CO5: Evaluate the perfomance characteristics of hydraulic turbines and pumps.

CO1: Define the objectives, nature, scope, role & responsibilities of a manager of a commer

CO2: Analyze the demand for and supply of a product or product mix of a company & to an

CO3: Forecast & compute the future sales level of a product by using various quantitative &

CO4: Examine optimum production & cost functions with the help of mathematical equation

CO5: Analyze and apply the process & principles of accounting and prepare Journal, Ledge

CO6: Analyze, interpret & comment on the financial statements of a business enterprise by u

CO1: Designing a suitable mechanism depending on application

CO2: Drawing displacement diagrams and cam profile diagram for followers executing diffe

CO3: Drawing velocity and acceleration diagrams for different mechanisms,

CO4: Selecting gear and gear train depending on application.

CO5: Analysis and synthesis of gear trains

CO1: Explain Basic Concepts Of Casting Related To Moulding And Solidification , Melting

CO2: Distinguish the different welding processes, gas flames used for fabrication techniques

CO3: Describe advanced welding processes like TIG and MIG, Brazing and Soldering proce

CO4: Distnguish between hot and cold working of metals with respect to rolling, forging and

CO5: Perform calculation on Extrusion,Coining and Deep drawing operations

CO1: Identify the elements of Detailed Drawing prepared engineering Drawing using orthog

CO2: Practise of part drawing of simple machine components

CO3: Produce the assembly drawings using part drawings

CO1: Understand the idea for selecting materials for patterns. Types and allowances of patte

resistance welding processes.

CO3: To understand the working principle of inert and solid type welding process

Identify the effect of process variables to manufacture defect free products.

CO1: The student will be able to Perform experiments to determine the coefficient of dischar

CO2: The student will be able to Conduct experiments on hydraulic turbines and pumps to d

CO3: The students will be able to Test basic performance parameters of hydraulic turbines a

CO4: The students will be able to Determine the energy flow pattern through the hydraulic tu

CO5: The students will be able to Exhibit his competency towards preventive maintenance o

CO1: Identify and analyze errors in measurement.

CO2:Analyze measured data using regression analysis.

CO3: Measure balancing parameters of rotors.

CO4:measure vibration parameters in single degree freedom systems.

CO1 : Able to understand the importance of ecological balance

CO 2: Able to analyze the importance of natural resources

CO 3 : Able to understand the value of Bio diversity and Biotic resources

CO4 : Able to understand pollution control measures

CO5: Able to understand the environmental policies and regulation

diagrams of process flow of steam and gas turbine plants

CO2: The Students will be able to analyse Apply the laws of Thermodynamics to analyze th

CO3: The Students will be able to understand the Difference between vapour power cycles

CO4: The Students will be able to understand the property charts and tables and to apply th

CO5: The Students will be able to Understand the functionality of major components of stea

CO1: Apply and analyze journal bearing design using different empirical relations

 CO2: Estimate the life of rolling element bearings and select optimal design based on varyir

CO3: Design engine parts and components as per the standards and recommended procedure

CO4: Understand and analyze behaviors of mechanical springs under various loading conditi

CO5: Design gearing systems applicable in machinery

CO1: Understand the basic modes of heat transfer and steady state heat transfer

CO2: Apply and analyze different fins and transient conduction heat tarnsfer

CO3: Apply the concpets of continuity,momentum , energy equations and forced convection

CO4: Apply the concept of free convection and design of heat exchangers using LMTD and

CO5: Evaluate the concept of boiling, condensation and radiation heat transfer

CO1: Choose, prepare, interpret and use cost estimates as a basis for the different situations

CO2: Interpret financial statements and other financial reports

CO3: Explain how strategic planning, management, management control, entrepreneurship

CO4: Explain how the industrial company markets and price it's product

CO5: Explain how the company deal with it's environment

refrigeration systems

application as well as conventional and unconventional refrigeration systems.

and air conditioning systems

systems

design the air conditioning loads for the industrial applications.

thermal conductivity of different materials

CO2: The Student will be able to Perform transient heat conduction experiment

CO3: The students will be able to determine Critical Heat flux

CO4: The student will be able to Obtain variation of temperature along the length of the pin

CO5: The students will be able to Perform radiation experiments to Determine surface emiss

CO6: The student will be able to Estimate heat transfer coefficients in forced convection, fre

CO1: Students able to develop 2Dpart modeling using CAD Software

CO2: Students able to assemble assemble 3D Models using CAD Software

CO3:Students able to analyze arthematic,logical and vector operations by using   MATLAB

CO4:Students able to analyze colon operator,Line plotting,2D plotting using MAT LAB

CO5:Student able to observe Regression and polynomial functions

CO1: The student is able to acquire vocabulary and use it contextually

CO2: The student is able to gather ideas relevantly and coherently to develop proficiency in

CO3: Able to write Project Reports, Research Reports, Technical Reports and Formal letter

CO4.Able to make Oral presentations

CO5.Able to practice in Group discussions and Facing interviews.

CO1: Understand the principles of solar radiation and instrument for measuring the solar rad

CO2: Apply fundamentals to design a solar energy renewable energy system

CO3: Apply fundamentals to design a wind energy and biomass renewable energy system

CO4: Compare geothermal energy, OTEC, tidal and wave energy renewable energy system

CO5: Apply the fundamentals to design Direct energy conversion

CO1: Identify the role that each department plays in achieving the goals of an organization

CO2: Explain the problems in organizing, planning and controlling the use of men, money, r

CO3: Apply industrial engineering principles to solve the problems in organizing, planning a

CO4: Explanation about process of manufacturing, selection of material, function oriented sy

CO5: Design flexibility into a plant layout to accommodate changes in product volume or pr

CO1: Recognize the objectives, functions, applications of PPC and forecasting techniques.

CO2: Explain different Inventory control techniques

CO3: Solve routing and scheduling problems

CO4: Summarize various aggregate production planning techniques.

CO5: Describe way of integrating different departments to execute PPC functions

CO1: The Student able to communicate orally about analyzing a problem.

CO2: Students will be able to recapitulate fundamentals from across all semesters of B-Tech

CO3: Students will be able to handle difficult scenario during Viva Voce in the event of ple

CO1: Students will be able to express and master public speaking during technical presentati

CO2: Students will be able to have a sense of renewed hope and inspiration, as sometimes b

CO3: Students will be able to have a great morale booster for students for career making adv

CO4: Students will be able to become speaker and it will motivate students in facing technic

CO1: Student will able to gather the requirements of the problem.

CO2: Students will be able to analyze, design and develop the application, tool with the expl

CO3: Students will be able to initiate efforts to solve real time problems

CO1: Students will be able to analyze a problem, identify and define the project requirement

CO2: Students will be able to function effectively as team to accomplish a common goal.

CO3: Students will be able to get an exposure to bridge the gap between Academia and indu

CO4: Students will be able to meet industrial requirement and to improve technical interview

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| ls of limits, fits and tolerances |
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C. Engines Performance Test for 4 Stroke SI engines.
and I.C. Engines Morse, Retardation, Motoring Tests
gines Economical speed Test on a SI engine
Test on Variable Compression Ratio Engine
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NTU Method

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nd controlling the use of men, money, materials and machines for industrial production.
ystems
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course work [4 years of learning].
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ı, facts, everyday life, literature and film.

ıd respond to gender violence.

cost behavior, costs useful for managerial decision making and determine Break Even Poin
f an enterprise.

ng system in metal casting processes

t (BEP) of an enterprise. Discuss the concept of equilibrium price and output in different ma

arket situations i.e., perfect, monopoly, monopolistic & Oligopoly competition with the help

of graphs. Differentiate private & public sector undertakings in their promotion, incorporat

:ion, regulation, administration, legal formalities & existence.

PROGRAMME:B.Tech(ECE)	DEGREE:UG
S.NO	YEAR/SEM
1	II-I
2	II-I
3	II-I
4	II-I
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8	II-I
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14	**II-II**
15	**II-II**
16	**II-II**
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18	**II-II**
19	**III-I**

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A.Y. 2018-19
Course Name
Specific Learning Outcomes - Mathematics - IV(MA301BS)
Specific Learning Outcomes - Analog Electronics (EC302ES)
Specific Learning Outcomes - Electrical Technology (EC303ES)
Specific Learning Outcomes - Signal and stochastic process (EC304ES)
Specific Learning Outcomes -Network Analysis (EC305ES)
Specific Learning Outcomes - Electronic Device and circuits lab (EC306ES)
Specific Learning Outcomes - Basic Simulation lab (EC307ES)

Specific Learning Outcomes - Basic Electriccal Engineering Lab (EC308ES)

Specific Learning Outcomes - Environmental Science and Technology (MC300ES)

Specific Learning Outcomes - Swithching Theory and Logic Design (EC401ES)

Specific Learning Outcomes - Pulse and Digital Circuits (EC402ES)

Specific Learning Outcomes - Control Systems (EC404ES)

Specific Learning Outcomes - Analog Comunication (EC405ES)

Specific Learning Outcomes - Business Economics and Financial Analysis (SM405MS)

Specific Learning Outcomes - Analog Communication Lab (EC406ES)

Specific Learning Outcomes - Pulse and Digital Circuits lab (EC407ES)

Specific Learning Outcomes - Analog Electronics lab (EC408ES)

Specific Learning Outcomes - Gender Sensitization Lab (MC400HS)

Specific Learning Outcomes - Electromagnetic Theory and Transmission Line (EC501PC)

Specific Learning Outcomes - Linear and Digital IC Applications (EC502PC)

Specific Learning Outcomes - Digital Communication (EC503PC)

Specific Learning Outcomes - Fundamentals Of Management (SM504M)

Specific Learning Outcomes - Nano Technology (EE513OE)

Specific Learning Outcomes - Linear IC Applications lab (EC505PC)

Specific Learning Outcomes - Digital IC Applications lab (EC506PC)

Specific Learning Outcomes - Digital Communication Lab (EC507PC)
Specific Learning Outcomes - Professional Ethics (MC500HS)
Specific Learning Outcomes - Environmental Impact Assesment (CN621OE)
Specific Learning Outcomes - Digital Image Processing (EC603PC)
Specific Learning Outcomes - Antennas And Wave Propagation (EC601PC)
Specific Learning Outcomes - Microprocessor And Microcontroller (EC602PC)

Specific Learning Outcomes - Digital Signal Processing (EC603PC)

Specific Learning Outcomes - Digital Signal Processing lab (EC604PC)

Specific Learning Outcomes - Microprocessor And Microcontroller lab (EC605PC)

Specific Learning Outcomes - Advanced English Communication Lab (EN606HS)

Specific Learning Outcomes - Management science (A70014)

Specific Learning Outcomes -Microwave Engineering (A70442)

Specific Learning Outcomes - Computer Networks (A70515)

Specific Learning Outcomes - Cellular and Mobile Communications (A70434)

Specific Learning Outcomes - Digital Image Processing (A70436)

Specific Learning Outcomes - Embedded System Design (A70440)

Specific Learning Outcomes - Advanced communications skill lab (A70086)

Specific Learning Outcomes - Microwave engineering and Digital Communication lab (A70499)

Specific Learning Outcomes - Satellite Communications (A80452)

Specific Learning Outcomes - Radar Systems (A80450)

Specific Learning Outcomes - Wireless Communication & Networks (A80454)

Specific Learning Outcomes - Industry oriented Mini Project (A80087)

Specific Learning Outcomes - Technical Seminar (A80089)

Specific Learning Outcomes - Major Project (A80088)

Specific Learning Outcomes - Comprehensive Viva (A80090)

COURSE OUTCOMES
CO1: Analyze the differentiation and integration of complex functions
CO2: Evaluate the integrals using Cauchy's Integral Function
CO3: Evaluate the Taylor's and Laurent's series expansion of Complex Functions
CO4: Analyze the Bilinear Transformation & Integrals
CO5: Analyze Fourier Series and Fourier Transform
CO1: To organize modeling and analysis of electrical and mechanical systems
CO2: Apply the knowledge of Hybrid -Pi CE Transistor model for obtaining other results
CO3: Apply the Knowledge of JFET Amplifiers and their basic concepts including MOSFET
CO4: Observe the effect of positive feedback and able to design and working of different Oscillators using BJTS.
CO5: Analyze positive and negative Feedback Amplifiers for different configurations and Design different RC & LC Oscillators.
CO6: Design different Power Amplifiers and Tuned Amplifiers
CO1: To analyze the performance of dc generators and motors.
CO2: To analyze the performance of transformers.
CO3: To learn the in-depth knowledge on three phase induction motors.
CO4: To analyze the performance of special motors
CO5: To analyze the performance of electrical instruments in real time applications.
CO1: Understand various kinds of standard signals and LTI systems
CO2: Apply Fourier transformations to the signals and sequences
CO3: Apply Laplace transformations to the signals and sequences
CO4: Apply Z-transformations to the signals and sequences
CO5: Analyze the temporal characteristics of the random processes
CO6: Analyze the Spectral characteristics of the random processes
CO1: Gains the knowledge on Basic network elements. Knowledge
CO2: Learn and analyze the RLC Circuits behavior in detail.
CO3: Analyze the performance of periodic waveforms. Analyze
CO4: Learn and gain the knowledge in characteristics of two port network parameters
CO5: Analyze the filter design concepts in real world applications.
CO1: Analyze the diode and transistor characteristics.
CO2: Understand the principles of rectifier circuits using diodes and implement them using hardware
CO3: Design the biasing circuits like self-biasing.
CO4: Design various amplifiers like CE, CC, common source FET amplifiers and implement them using hardware and also observe their frequency responses
CO1: Understand Basic Operations on Matrices.
CO2: Analyze the Even and Odd parts of Signal/Sequence and Real and Imaginary parts of Signal
CO3: Analyze the Fourier Transform of a given signal and plotting its magnitude and phase spectrum
CO4: Analyze Verification of Weiner-Khinchine Relations.
CO1: Understand the concept of circuit laws and network theorems and apply them to laboratory measurements

CO2: Understand systematically obtain the equations that characterize the performance of an electric circuit as well as solving both single phase and DC Machines
CO3: Understand the principles of operation and the main features of electric machines and their
CO4: Acquire skills in using electrical measuring devices.
CO1: Describe the structure and function of environment and different types of environmental pollution.
CO2: Identify all types of resources and learn the quality parameter to maintain proper balance.
CO3: Demonstrate environmental problems like global warming, acid rain, natural and manmade
CO4: Demonstrate the controlling method of environmental pollution and apply their knowledge for environment management.
CO5: Apply the method of synthesis of green chemistry and find green solution.
CO1: Understand number systems, binary addition and subtraction, 2's complement representation and operations with this representation and understand the different binary codes.
CO2: Explain switching algebra theorems and apply them for logic functions
CO3: Identify the importance of SOP and POS canonical forms in the minimization or other optimization of Boolean formulas in general and digital circuits. .
CO4: Discuss about digital logic gates and their properties.
CO5: Evaluate functions using various types of minimizing algorithms like Boolean algebra, Karnaugh map or tabulation method.
CO6: Analyze the design procedures of Combinational & sequential logic circuits.
CO1: Analyze the application of attenuators
CO2: Analyze the clamping circuit theorem.
CO3: Analyze the diode & transistor switching times.
CO4: Analyze sampling gates applications like chopper stabilized amplifier, sampling scope and etc
CO5: Analyze various non-sinusoidal signals using different multivibrators for various electronic
CO6: Apply time base generator circuits which are used in applications like CRO and TV
CO1: To organize modeling and analysis of electrical and mechanical systems
CO2: To evaluate systems by applying block diagrams, signal flow graphs to study the time response
CO3: To demonstrate the analytical and graphical techniques to study the stability to design the control system
CO4: Formulate different types of analysis in frequency domain to explain the nature of stability of the
CO5: To illustrate the frequency domain and state space analysis
CO6: To apply state space design techniques for modeling and control system design
CO1: Define the modulation and represent the amplitude modulation in both time and frequency domains
CO2: Represent the single side band modulation in time and frequency domains and apply demodulation to recover the original signal.
CO3: Differentiate the narrow band and wide band types of frequency modulation techniques
CO4: Analyze the types of frequency demodulation techniques
CO5: Describe different types of noises included in communication system
CO6: Elaborate the types of radio receivers and analyze the pulse modulation techniques
CO1: Define the objectives, nature, scope, role & responsibilities of a manager of a commercial Venture
CO2: Analyze the demand for and supply of a product or product mix of a company & to analyze various factors influencing demand elasticity
CO3: Forecast & compute the future sales level of a product by using various quantitative & qualitative techniques and with the help of past sales data

CO4: Examine optimum production & cost functions with the help of mathematical equations & by developing graphical solutions through linear programming applications. Assess the cost behavior, costs useful for managerial decision making and determine Break Even Point (BEP) of an enterprise. Discuss the concept of equilibrium price and output in different market situations i.e., perfect, monopoly, monopolistic & Oligopoly competition with the help of graphs. Differentiate private & public sector undertakings in their promotion, incorporation, regulation, administration, legal formalities & existence.	
CO5: Analyze and apply the process & principles of accounting and prepare Journal, Ledger, Trial Balance, Manufacturing A/c, Trading A/c., Profit & Loss A/c. and Balance Sheet of an enterprise.	
CO6: Analyze, interpret & comment on the financial statements of a business enterprise by using liquidity leverage, coverage and turnover & profitability ratios.	
CO1: Comprehend the fundamental in explain the functionality of Modulation & Demodulation	
CO2: Analyze the concept, write and simulate the concept of AM FM Modulation process in Communications	
CO3: Acquire with AM , FM Basics functionalities	
CO4: Discriminate the AM , FM Basics functionalities	
CO1: Generate and process sinusoidal and non-sinusoidal signals	
CO2: Understand fundamentals of basic logic gates and design applications	
CO3: Design and analyze various Multivibrator circuits.	
CO4: Design and analyze UJT relaxation oscillator and boot-strap sweep circuits	
CO1: Apply the concepts of amplifiers in the Design of Public Addressing System	
CO2: Generate Sinusoidal wave forms of given specifications.	
CO3: Design Stable System using feedback concepts.	
CO4: Design Multivibrators using Transistor.	
CO1: Achieve sensibility with regard to issues of gender in contemporary India	
CO2: Provide a critical perspective on the socialization of men and women	
CO3: Able to get information about some key biological aspects of genders	
CO4: Able to debates on the politics and economics of work	
CO5: Able to reflect critically on gender violence	
CO6: Able to more egalitarian interactions between men and women	
CO1: Distinguish between the static and time-varying fields, establish the corresponding sets of Maxwell's Equations and Boundary Conditions, and use them for solving engineering problems.	
CO2: Analyze the Wave Equations for good conductors and good dielectrics, and evaluate the UPW Characteristics for several practical media of interest.	
CO3: Establish the proof and estimate the polarization features, reflection and transmission coefficients for UPW propagation, distinguish between Brewster and Critical Angles, and acquire knowledge of their applications.	
CO4: Determine the Transmission Line parameters for different lines, characterize the distortions and estimate the characteristics for different lines.	
CO5: Analyze the RF Line features and configure them as SC, OC Lines, QWTs and HWTs, and design the same for effective impedance transformation.	
CO6: Study the Smith Chart profile and stub matching features, and gain ability to practically use the same for solving practical problems.	
CO1: Analyze and design linear applications like adder, substractor, instrumentation amplifier and etc. using Op-Amp	

CO2: Classify various active filter configurations based on frequency response and construct using 741 OpAmp	
CO3: Operation & applications of 555 timers,565 ICs	
CO4: Differentiate between fixed and variable voltage regulator ICs and also A/D and D/A conversion techniques.	
CO5: Understand the conversion process of ADC and DAC in digital electronics	
CO6: Explain the differences between CMOS and TTL logic families and study various digital ICs.	
CO1: Design digital communication systems, given constraints on data rate, bandwidth, power, fidelity, and complexity.	
CO2: Analyze the performance of a digital communication link when additive noise is present in terms of the signal-to-noise ratio and bit error rate.	
CO3: Compute the power and bandwidth requirements of modern communication systems, including those employing ASK, PSK, FSK, and QAM modulation formats.	
CO4: Design a scalar quantizer for a given source with a required fidelity and determine the resulting data rate.	
CO5: Determine the auto-correlation function of a line code and determine its power spectral density.	
CO6: Determine the power spectral density of band pass digital modulation formats.	
CO1: Express a basic interpretation of management functions such as planning, organizing, staffing, directing, controlling, coordinating, reporting, budgeting and decision making	
CO2: Examine how well the managers are making use of these functions and commercial resources to accomplish business goals.	
CO3: Describe planning, decision making and problem solving and analyze its relationship with organizational performance and define and distinguish the difference between strategic, tactical and operational plans and decisions and their procedures.	
CO4: Explain the terms Organizational-Design, Structure, Chart, Climate, Culture, Change, Departmentalization, Centralization, Decentralization and their salient features and importance. Recognize the crucial elements of HRP, staffing, employee compensation, salary administration and methods of employee orientation and training and development.	
CO5: Describe Leadership and Motivation and their characteristics, styles and theories.	
CO6: Define controlling-types, steps, levels and stages	
CO1: Analyze the essential concepts used in nanotechnology	
CO2: Evaluate the properties of materials used in Nano Technology	
CO3: Analyze the characterization of Carbon allotropes and synthesis of Diamond	
CO4: Evaluate the properties, synthesis and fabrication, characterization of nano materials	
CO5: Understand the synthesis of nanomaterials and their application and the impact of nanomaterials	
CO6: Discuss the applications in material science, biology and medicine, surface science, energy and environment. Applications of nano structured thin fins, applications of quantum dots	
CO1: Understand Inverting and Non-inverting Amplifiers using Op Amps	
CO2: Understand Integrator Circuit using IC 741	
CO3: Analyze IC 565 – PLL Applications.	
CO4: Analyze Mono-stable Multivibrator using IC 555.	
CO1: Analyze a 16 x 4 priority encoder using two 8 x 3 priority encoder	
CO2: Analyze a 4 bit pseudo random sequence generator using 4 – bit ring counter.	
CO3: Analyze an 8 bit parallel load and serial out shift register using two 4 bit shift register.	
CO4: Analyze a 4 digit hex counter using Asynchronous one digit hex counters.	

CO1: Analyze various digital modulation techniques. II III IV	
CO2: Verify the Sampling Theorem.	
CO3: Understand the spectral characteristics of PAM and QAM.	
CO4: Analyze various pulse modulation techniques	
CO1: Understand basic purpose of profession, professional ethics and various moral and social issues.	
CO2: Get awareness of professional rights and responsibilities of a Engineer, safety and risk benefit analysis of a Engineer	
CO3: Acquire knowledge of various roles of Engineer in applying ethical principles at various professional levels	
CO4: Professional Ethical values and contemporary issues	
CO5: Excelling in competitive and challenging environment to contribute to industrial growth.	
CO1: Identify the environmental attributes to be considered for the EIA study	
CO2: Formulate objectives of the EIA studies	
CO3: Identify the suitable methodology and prepare rapid EIA	
CO4: Identify and incorporate mitigation measures.	
CO5: Apply the Quality requirements concerning the EIA process and the Environmental Impact Statement (EIS)	
CO1: Explain the Basic Elements and Applications of Image Processing	
CO2: Analyze Image Sampling and quantizatation requirements and Implications	
CO3: Design and Implement Two Dimensional Spatial and Frequency Filter for Image Enhancement	
CO4: Model and Demonstration the Image Restoration Problem in both Time and Frequency Domain	
CO5: Explain the Image Segmentation and Image Compression Problem	
CO6: Develop & Illustrate Morphological Image Processing.	
CO1: Understand the mechanism of radiation, distinguish between different Antenna characteristic parameters, establish their mathematical relations, and estimate them for different practical cases.	
CO2: Understand the difference between short dipoles, half-wave dipoles, quarter-wave monopoles and small loops, configure their current distributions, derive their far fields and radiation characteristics and sketch their patterns.	
CO3: Understand antennas based on frequency, configure the geometry and established the radiation patterns of folded dipole, Yagi-Uda Antenna, Helical Antennas, Horn Antennas, and to acquire the knowledge of their analysis, design and development.	
CO4: Distinguish between short dipoles, half-wave dipoles, quarter-wave monopoles and small loops, configure their current distributions, derive their far fields and radiation characteristics and sketch their patterns.	
CO5: Analyze the requirements for microwave measurements and arrange a setup to carry out the antenna far zone pattern and gain measurements in the laboratory.	
CO6: Analyze the different wave propagation mechanisms, identify their frequency ranges, determine the characteristic features of ground wave, Ionospheric wave, Space wave, duct and Tropospheric propagations, and estimate the parameters involved.	
CO1: Understand internal Architecture and Organization of 8086	
CO2: Analyze the Assembly language program of 8086	
CO3: Analyze the internal Architecture and real time control of 8051	
CO4: Discuss the I/O memory interface, serial communication interface devices	
CO5: Analyze the internal Architecture of ARM Processor	
CO6: Classify the internal Architecture of COTEX, ARM Processor and OMAP ARM Processor	

CO1:	Understand the discrete time processing theory and different forms of realization of digital filters
CO2:	Compute the DFT of sequences and implement it by using FFT algorithms
CO3:	Design IIR Butterworth filters by using transformation techniques
CO4:	Design IIR Chebyshev filters by using transformation techniques
CO5:	Design FIR filters by using different techniques
CO6:	Analyze various concepts of Multirate Digital Signal Processing
CO1:	Understand the handling of discrete/digital signals using MATLAB
CO2:	Understand the basic operations of Signal processing
CO3:	Analyse the spectral parameter of window functions
CO4:	Design IIR, and FIR filters for band pass, band stop, low pass and high pass filters.
CO1:	Apply different addressing modes & Model programs using 8086 Instruction set
CO2:	Explain the usage of string instructions of 8086 for string manipulation, Comparison
CO3:	Design different programs using C cross compilers for 8051 controller
CO4:	Design interfacing program with 8086
CO1:	Taking part in social and professional communication.
CO2:	Gathering ideas and information to organize ideas relevantly and coherently to develop proficiency in academic reading.
CO3:	Writing project, research reports, and technical reports and Writing formal letters.
CO4:	Making oral presentations.
CO5:	Participating in Group Discussions and Facing
CO1:	Analyze and apply the theory and fundamentals of management in real time.
CO2:	Plot and establish organization chart and structure for a commercial venture. Interpret the various types of organizations in their own business.
CO3:	Identify and use production planning, SQC, work study and contemporary management practices like JIT, six sigma, TQM, SCM, BPR, MIS, MRP, CMM, BPO, Bench marking techniques in the real time business.
CO4:	Relate the basics of HRM in manpower planning, recruitment, selection, training and development and placement.
CO5:	Sketch PERT/CPM networks of projects for management and evaluate time and cost of projects.
CO6:	Generate mission, vision, objectives, goals, programs and policies for a venture in ever changing circumstances.
CO1:	To analyze the rectangular waveguide in terms of Wave Equations and Microwave Spectrum.
CO2:	To Describe the Cavity Resonators in terms of Dominant Modes, Resonant Frequencies and different Waveguide components
CO3:	Analyze O-Type Microwave Tubes in terms of structure, Velocity Modulation and other Characteristics.
CO4:	Analyze M-Type Microwave Tubes in terms of structure, PI-Mode and o/p characteristics.
CO5:	Apply the knowledge of different Microwave Measurements in terms of Scattering Matrix and Microwave Bench.
CO6:	Design & analyze the micro wave integrated circuits.
CO1:	Students able to explain OSI Layer model
CO2:	Explain how communication works in data networks and the Internet
CO3:	Recognize the different internetworking devices and their functions
CO4:	Explain the role of protocols in networking.
CO5:	Analyze the services and features of the various layers of data networks.

CO1: Discuss cellular radio concepts
CO2: Identify various propagation effects
CO3: To have knowledge of the mobile system specifications
CO4: Classify multiple access techniques in mobile communication
CO5: Outline cellular mobile communication standards
CO6: Analyze various methodologies to improve the cellular capacity
CO1: Explain the Basic Elemets and Applications of Image Processing
CO2: Analyze Image Sampling and quantizatation requirements and Implications
CO3: Design and ImplementTwo Dimensional Spatial and Frequency Filter for Image Enhancement
CO4: Model and Demonostration the Image Restoration Problem in both Time and Frequency Domain
CO5: Explain the Image Segmentation and Image Compression Problem
CO6: Develop & Illustrate Morphological Image Processing.
CO1: Understand basic concept of Embedded Systems
CO2: Apply and analyze the applications in various processors and domains of Embedded System.
CO3: Analyze and develop Embedded hardware and software development cycles and tools.
CO4: Analyze to understand what a Microcomputer, core of the Embedded System.
CO5: Remember the definitions of ASICs, PLDs, memory,
CO6: Are you able to understand fdifferent concepts of RTOS, sensors, mempry interface, communication interface.
CO1: Taking part in social and professional communication .
CO2: Gathering ideas and information to organize ideas relevantly and coherently to develop proficiency in academic reading.
CO3: Writing project, research reports, and technical reports and Writing formal letters.
CO4: Making oral presentations.
CO5: Participating in Group Discussions and Facing
CO1: Explain and Perform the Reflex klystron Characteristics using Microwave bench setup
CO2: Explain and Perform the Gunn diode Characteristics using Microwave bench setup
CO3: Measure the Frequency, attenuation, VSWR, Impedance using Klystron Bench Setup
CO4: Explain the concepts of PCM, DM, DPCM, TDM, QPSK, DPSK, ASK, PSK, FSK, QAM.
CO1: Understand basic concepts and frequency allocations for satellite communication.
CO2: Demonstrate orbital mechanics, launch vehicles and launchers.. Identify effects of orbital inclination, azimuth and elevation and placement of a satellite in a Geostationary orbit.
CO3: Demonstrate the design of satellite links for specified C/N with systems
CO4: Visualize satellite subsystem like Telemetry, tracking, command and monitoring power systems.
CO5: Understand the various multiple access systems for satellite communication systems and satellite packet communications.
CO6: Analyze the environmental effect on satellite communication such as Atmospheric Absorption,
CO1: Understand about radar fundamentals and remember the radar ranges and parameters of general radar equation
CO2: Demonstrate the Doppler Effect and the concepts of continuous wave radars and the FM-CW Altimeter
CO3: Understand the operation of MTI radar and delay line cancellers
CO4: Understand blind speeds, range gated Doppler filters and compare MTI radar with Pulse Doppler radar.
CO5: Remember the tracking radar systems and mono pulse radar.

CO6: Analyze the detection of radar signals in noise and demonstrate the noise figure and radar receiver, Beam steering.	
CO1: Analyze the examples of wireless communication systems, paging systems, cordless telephone systems. second generation cellular networks, third generation wireless networks, wireless in local loop, wireless local area networks, Bluetooth and personal area networks.	
CO2: Understand the concepts of spectrum allocation, basic cellular system, frequency reuse, channel assignment strategies, handoff strategies, interference, improving coverage and capacity, cell splitting	
CO3: Explain various multiple accesses techniques: FDMA, TDMA, spread spectrum multiple access,SDMA. To understand the difference between wireless and fixed telephone networks, development of wireless networks.	
CO4: Explain the communication infrastructure , iIS-95 CDMA forward channel, IS-95CDMA risers channel, packet and frame formats in IS-95,IMT -20000, forward channel in W-CDMA.	
CO5: Analyze the Historical overviews of the land industry, evolution of the wan industry, wireless home networking IEEE 802.11 the physical layer, MAC layer wireless ATM.	
CO6: Understand the concepts of orthogonal frequency division multiplexing: basic principles of orthogonality single versus multi-channel systems, OFDM block diagram.	
CO1: Gather the requirements of the problem	
CO2: Analyze, design and develop the application, tool with the explored technologies	
CO3: Initiate efforts to solve real time problems	
CO4: Get an eye opener to bridge gap between Academia and Real Time Industry issues on technological front	
CO1: Express and master public speaking during technical presentations	
CO2: Get an opportunity; where in individuals can meet others with the same Interests/problems/concerns and also to envisage emerging technologies.	
CO3: Have a sense of renewed hope and inspiration, as sometimes business concerns are lessened by sharing experiences with others	
CO4: Have a great morale booster for students for career making advancement	
CO1: Analyze a problem, identify and define the computing requirements appropriate to its solutions.	
CO2: Function effectively on teams to accomplish a common goal	
CO3: Use current techniques, skills and tools necessary for computing practices	
CO4: Design and development principles in the construction of software systems of varying complexity	
CO1: Communicate orally about analyzing a problem	
CO2: Express the effectively to accomplish a common goal	
CO3: Recapitulate fundamentals from across all semesters of B-Tech course work [4 years of learning]	

S.No	Year/ Sem	Course Name
DEGREE: UG		A.Y: **2018-19**
1	**II-I**	**Mathematics – IV**
2	**II-I**	**Mathematical Foundations of Computer Science**
3	**II-I**	**Data Structures through C++**
4	**II-I**	**Digital Logic Design**
5	**II-I**	**Object Oriented Programming using through Java**
6	**II-I**	**Data Structures through C++ Lab**
7	**II-I**	**IT Workshop**

8	II-I	**Object Oriented Programming through Java Lab**
9	II-I	**Environmental Science and Technology**
10	III- I	**Design and Analysis of Algorithms**
11	III-I	**Data Communication and Computer Networks**
12	III- I	**Software Engineering**
13	III- I	**Fundamentals of Management**
`4	III- I	**Principles of Electronic Communication**
15	III-I	**Design and Analysis of Algorithms lab**
16	III-I	**Computer Networks Lab**

17	III-I	Software Engineering Lab
18	**III-I**	**Professional Ethics**
19	**III-I**	**Linux Programming**
20	**IV-I**	**Design Patterns**
21	**IV-I**	**Data Warehousing and Data Mining**
22	**IV-I**	**Cloud Computing**
23	**IV-I**	**Computer Graphics**
24	**IV-I**	**Information Retrieval System**
25	**IV-I**	**Linux Programming Lab**

26	IV-I	**Data Warehousing and Data Mining lab**
27	II-II	**Computer Organization**
28	II-II	**Database Management Systems**
29	II-II	**Operating Systems**
30	II-II	**Formal Languages and Automata Theory**
31	II-II	**Business Economics and Financial Analysis**
32	II-II	**Computer Organization lab**
33	II-II	**Database Management Systems Lab**
34	II-II	**Operating Systems Lab**

35	II-II	Gender Sensitization Lab
36	III- II	Compiler Design
37	III- II	Web Technologies
38	III- II	Cryptography and Network Security
39	III- II	Geo Informatics Systems
40	III- II	Design Patterns
41	III- II	Cryptography and Network Security Lab
42	III- II	Web Technologies Lab

43	III- II	Advanced English Communication Skills Lab
44	IV-II	Management Science
45	IV-II	Web Services
46	IV-II	Embedded Systems
47	IV-II	Industry oriented Mini Project
48	IV-II	Seminar
49	IV-II	Project work
50	IV-II	Comprehensive Viva

SEMESTER: I & SEMESTER:II

Course Outcomes

CO1: Students Will Be Able To Analyze the differentiation and integration of complex functions

CO2: Students Will Be Able To Evaluate the integrals using Cauchy's integral function

CO3: Students Will Be Able To Evaluate the Taylor's and Laurent's series expansion of complex functions

CO4: Students Will Be Able To Analyze the bilinear transformation& integrals

CO5: Students Will Be Able To Analyze Fourier series and fourier transform

CO6:Students Will Be Able To Analyze one dimensional wave equation and distribution of one dimensiona

CO1:Students Will Be Able To Apply mathematical logic to solve problems

CO2: Students Will Be Able To Use logical notations to define and reason about fundamental concepts

CO3:Students Will Be Able To Identify and Apply how to translate language with cross language informa

CO4:Students Will Be Able To Formulate problems and solve recurrence relations

CO5:Students Will Be Able To Model and solve real world problems using graphs and trees

CO1:Students Will Be Able To Choose appropriate data structures and analyze time and space complexitie

CO2: Students Will Be Able To Analyze the Representation of arrays, Linked List

CO3: Students Will Be Able To Ability to analyze the Binary tree properties, Tree traversals

CO4:Students Will Be Able To Ability to analyze various searching and sorting algorithms.

CO5:Students Will Be Able To Implementation of Graphs,AVL Tress ,Red -Black Trees

CO1:Students Will Be Able To Understand number systems, binary addition and subtraction, 2's

CO2: Students Will Be Able To Explain switching algebra theorems and apply them for logic functions

CO3: Students Will Be Able To Identify the importance of SOP and POS canonical forms in the

CO4: Students Will Be Able To Discuss about digital logic gates and their properties

CO5: Students Will Be Able To Evaluate functions using various types of minimizing algorithms like

CO6:Students Will Be Able To Analyze the design procedures of Combinational & sequential logic

CO1: Students Will Be Able To Summarize object oriented programming concepts

CO2:Students Will Be Able To Create simple applications using Interfaces, packages and collections

CO3:Students Will Be Able To Analyze and recover runtime exceptions arise in the applications

CO4:Students Will Be Able To Apply parallel processing applications using threads

CO5:Students Will Be Able To Develop Interactive applications for standalone and Internet (Applet)

CO 1: Students Will Be Able To analyze the basic concepts such as arrays, linked list, stacks &Queues.

CO 2: Students will be Able to evaluate the hash function and concepts of collision and its resolution methc

CO 3: Students will be Able to solve problem involving graphs, trees and heaps

CO 4: Students will be Able to Apply Algorithm for solving problems like sorting, searching, Insertion and

CO 5: Students will be Able to analyze the different pattern matching algorithms and develop Programs.

CO1: Students Will Be Able To Identify peripherals of a computer, describe types of Operating System, Ir

CO2: Students Will Be Able To Assembling and Disassemble system

CO3:Students Will Be Able To Install and Use Microsoft Windows 7 for programming and application dev

CO4: Students Will Be Able To Troubleshoot Software and hardware problems along with setting configur

CO1: Students Will Be Able To Debug Applications using Net beans.

CO2: Students Will Be Able To Write programs for solving real world problems using java collection frame

CO3:Students Will Be Able To Write programs using Abstract Classes.

CO4:Students Will Be Able To Write multithreaded programs.

CO5:Students Will Be Able To Write GUI programs using swing controls in java.

CO6:Students Will Be Able To Develop Applications using Abstract window toolkit and applet

CO1: Students Will Be Able To Describe the scope and importance of Ecosystem

maintain proper balance

CO3: Students Will Be Able To Describe the Biodiversity and Biotic Resources

their knowledge for environment management

CO5: Students Will Be Able To Apply the Environmental Policy and Legal Aspects.

CO1:Students Will Be Able To Analyze the performance of the algorithm, Implement different sorting and

CO2: Students Will Be Able To Apply 8-Queens Problem and Backtracking to Various problems.

CO3: Students Will Be Able To Design and Apply Greedy Methods to Various Problems.

CO4:Students Will Be Able To Analyze and Apply dynamic programming technique to various problems

CO5:Students Will Be Able To Categorize the algorithms as NP Hard and NP Complete

design models

CO2:Students Will Be Able To Examine various Data Link layer design issues and Data Link protocols.

CO3:Students Will Be Able To Compare and select appropriate routing algorithms for a network.

CO4:Students Will Be Able To Analyze the security Issues in transport layer.

CO5:Students Will Be Able To Demonstrate functions of application layer in Internetworking.

CO1:Students Will Be Able To Illustrate software process framework and models for the development of s

CO2: Students Will Be Able To Analyze and validate the requirements engineering strategy for developing

CO3: Students Will Be Able To Choose appropriate model to create an architectural design

CO4:Students Will Be Able To Apply various testing strategies to verify the software quality and illustrate

CO5:Students Will Be Able To Identify the risk strategies and QA techniques for developing quality softwa

CO1:Students Will Be Able To Express a basic interpretation of management functions such as planning, o

CO2:Students Will Be Able To Describe planning, decision making and problem solving and analyze its rel

CO3: Students Will Be Able To Explain the terms Organizational-Design, Structure, Chart, Climate, Cultu

CO4:Students Will Be Able To Describe Leadership and Motivation and their characteristics, styles and the

CO5:Students Will Be Able To Define controlling-types, steps, levels and stages

modulation schemes

concepts

CO3:Students Will Be Able To Demonstrate the design of various communication modules

CO4: Students Will Be Able To Working of various types of modulations

types of modulation and demodulation techniques

systems

CO1:Students Will Be Able To Analyze the performance of the algorithm, Implement different sorting and

CO2: Students Will Be Able To Apply 8-Queens Problem and Backtracking to Various problems.

CO3:Students Will Be Able To Design and Apply Greedy Methods to Various Problems.

CO4:Students Will Be Able To Analyze and Apply dynamic programming technique to various problems

CO5:Students Will Be Able To Categorize the algorithms as NP Hard and NP Complete

CO1: Students Will Be Able To Able to understand encryption and decryption in Linux environment

CO2: Students Will Be Able To apply appropriate algorithm for finding the shortest route

CO3: Students Will Be Able To configure the routing table

CO4:Students Will Be Able To Develop application to implement CRC

CO1:Students Will Be Able To understand the software engineering methodologies involved in the phases

CO2:Students Will Be Able To acquire the generic software development skill through various stages of so

CO3:Students Will Be Able To gain knowledge about open source tools used for implementing software e

CO4:Students Will Be Able To develop efficient software using case tools.

CO1:Students Will Be Able To Explain basic purpose of profession, professional ethics and various moral

CO2: Students Will Be Able To Gain Awareness of professional rights and responsibilities of a Engineer, sa

CO3: Students Will Be Able To Apply various social issues, industrial standards, code of ethics and role of

CO4: Students Will Be Able To Analyze Professional Ethics and responsibilities of an Engineer

CO5: Students Will Be Able To Excell in competitive and challenging environment to contribute to industri

CO1:Students Will Be Able To Identify and use Linux utilities to create and manage simple file processing

CO2:Students Will Be Able To Illustrate file processing operations such as standard I/O and formatted I/O

CO3:Students Will Be Able To Illustrate internal procedures and state of process and generalize signal gen

CO4:Students Will Be Able To Design and Implement IPCS using unnamed and named pipes

CO5:Students Will Be Able To Design custom based network application using the socket interface in hete

CO1:Students Will Be Able To Identify appropriate design patters to solve OOD problems

CO2: Students Will Be Able To Describe the design patterns that are common in software applications such

CO3: Students Will Be Able To Develop design solutions using creational patterns.

CO4:Students Will Be Able To Apply structural patterns to solve design problems.

CO5:Students Will Be Able To Construct design solutions by using behavior pattern

CO1:Students Will Be Able To Design data ware house with dimensional modeling and apply OLAP opera

CO2: Students Will Be Able To Apply different methods to extract knowledge from data

CO3: Students Will Be Able To Identify Association rule for large data sets

CO4:Students Will Be Able To Analyze and build Classification Algorithms on different parameters

CO5:Students Will Be Able To Analyze and visualize different Groups of data in to clusters

CO1:Students Will Be Able To Analyze the importance of clustering and virtualization

CO2: Students Will Be Able To Analyze the importance of cloud computing and integration as service para

CO3: Students Will Be Able To Analyze the importance of IAAS,PAAS,SAAS service models

CO4:Students Will Be Able To Evaluate the service level agreement and performance of cloud

CO5:Students Will Be Able To Analyze the importance of data security and legal issues in cloud computing

CO1: Students Will Be Able To Illustrate   the various output primitives and graphics systems

CO2: Students Will Be Able To Analyze various 2D transformations, viewing and clipping techniques

CO3:Students Will Be Able To Identify the 3D objects and projections

CO4:Students Will Be Able To Demonstrate basic illumination and color models

CO5: Students Will Be Able To Discuss various animation sequences and graphics realism

CO1:Students Will Be Able To Understand the various retrieval strategies in Information Retrieval System.

CO2:Students Will Be Able To Apply the best Retrieval Utilities Techniques and its advantages.

CO3:Students Will Be Able To Identify and Apply how to translate language with cross language informat

CO4:Students Will Be Able To Evaluate how efficient the system can be with indexing and Query processi

CO5:Students Will Be Able To Analyzing the relationship between structured and semi structured data in r

CO1:Students Will Be Able To Develop shell script to solve problems.

CO2:Students Will Be Able To Implement standard Linux utilities such as lp,cp using system calls.

CO3:Students Will Be Able To Develop network based applications using C.

CO4:Students Will Be Able To Develop awk script to find words in a file.

CO1:Students Will Be Able To evaluate the different models of OLAP and Data Preprocessing.

CO2:Students Will Be Able To Build a data warehouse and query it using open source tools.

CO3:Students Will Be Able To work with the Algorithms for data mining tasks such as association rule min

CO4:Students Will Be Able To demonstrate the knowledge retrieved through solving problems.

CO1: Students Will Be Able To Understand basic components of computers

CO2: Students Will Be Able To Understand the architecture of 8086 processor

CO3:Students Will Be Able To Understand the instruction sets, instruction formats and various addressing

CO4: Students Will Be Able To Understand the representation of data at the machine level and how

CO5: Students Will Be Able To Understand the memory organization and I/O organization

CO6: Students Will Be Able To Understand the parallelism both in terms of single and multiple processors

CO1:Students Will Be Able To Demonstrate the basic elements of Relational database management systems

CO2:Students Will Be Able To Identify the data models of relevant problems

CO3:Students Will Be Able To Design Entity relationship and convert entity relationship diagrams into RD

CO4:Students Will Be Able To Demonstrate their understanding of key notions of query evaluation and op

CO5:Students Will Be Able To Extend Normalization for the development of application Softwares

CO1:Students Will Be Able To Analyze the basic architectural components involved in operating system

CO2:Students Will Be Able To Apply the Scheduling of process by cpu

CO3:Students Will Be Able To Apply the memory management techniques for time sharing and distributed

CO4:Students Will Be Able To Evaluate the mechanisms used for file management

CO5:Students Will Be Able To Analyze the mutual exclusion, deadlock detection and deadlock Recovery

CO1:Students Will Be Able To explain the concept of abstract machines and their power to recognize the la

CO2:Students Will Be Able To describe language classes and grammars relationship with the help of Chom

CO3:Students Will Be Able To Explain the Turning Machines used.

CO4:Students Will Be Able To Explain Context Free Grammar, Push Down Automata.

CO5: Students Will Be Able To Explain Push Down Automata

CO1: Students Will Able To Define the objectives, nature, scope, role & responsibilities of a manager of a

CO2: Students Will Able To Forecast & compute the future sales level of a product by using various quant

CO3: Students Will Able To Examine optimum production & cost functions with the help of mathematical

CO4: Students Will Able To Analyze and apply the process & principles of accounting and prepare Journal

CO5: Students Will Able To   Analyze, interpret & comment on the financial statements of a business enter

CO1: Students Will Be Able To Recognize basic logic gates with IC chips

CO2:Students Will Be Able To Design combinational circuits using IC Chips

CO3: Students Will Be Able To Connect the theory of computer organization with hardware

CO4: Students Will Be Able To Understand the instruction set, instruction formats and addressing modes

CO1:Students Will Be Able To Design and implement a database schema for a given problem

CO2:Students Will Be Able To   Apply Normalization Techniques

CO3: Students Will Be Able To Construct Sql Queries using DDL, DML Commands

CO1: Students Will Be Able To perform cpu scheduling and file allocation

CO2: Students Will Be Able To avoid deadlocks

CO3:Students Will Be Able To perform page replacement and memory management

CO4: Students Will Be Able To perform inter process communication

CO1:Students Will Be Able To Obtain sensibility with regard to issues of gender in contemporary India.

CO2:Students Will Be Able To Provide a critical perspective on the socialization of men and women.

CO3.Students Will Be Able To Get information about some key biological aspects of genders.

CO4: Students Will Be Able To Analyze the politics and economics of work.

CO5:Students Will Be Able To Reflect critically on gender violence.

CO6: Students Will Be Able To Apply egalitarian interactions between men and women

CO1:Students Will Be Able To Ability to design, develop and implement a compiler for any language.

CO2:Students Will Be Able To use lex and yacc for tools for developing a scanner and a parser.

CO3:Students Will Be Able To design and implement LL and LR parsers.

CO4:Students Will Be Able To design algorithms to perform code optimization in order to improve the per

CO5:Students Will Be Able To design algorithms to generate machine code.

CO1:Students Will Be Able To Develop server side application with PHP language

CO2:Students Will Be Able To Develop a well formed XML document & how to parse and use XML data

CO3:Students Will Be Able To Develop a server side java application called servlet to catch from data sent

CO4:Students Will Be Able To Develop a server side java application called jsp to catch from data sent fro

CO5:Students Will Be Able To Apply the knowledge of client side scripting, validation of forms AJAX pro

CO1:Students Will Be Able To Summarize cryptographic concepts and techniques

CO2:Students Will Be Able To Differentiate symmetric cryptographic Algorithms and Asymmetric cryptog

CO3:Students Will Be Able To Interpret different authentication and digital signatures schemes

CO4:Students Will Be Able To Analyze the security Issues in transport layer and outline the wireless Netw

CO5: Students Will Be Able To Analyze E-mail security services.

CO1:Students Will Be Able To Illustrate the characteristics of aerial photography and understand digital ph

CO2:Students Will Be Able To explain the science of remote sensing and understand the basic elements.

CO3:Students Will Be Able To Apply satellite images under different landure land cover systems.

CO4:Students Will Be Able To Understand basic concept of GIS functioning and its applications.

CO5: Students Will Be Able To Outline basic methods of Satellite Navigation and its Applications in Map

CO1:Students Will Be Able To Illustrate a design consisting of a collection of Modules

CO2:Students Will Be Able To Evaluate the design pattern using OOPS concept

CO3:Students Will Be Able To Develop and Determine the design solution using Creational pattern

CO4:Students Will Be Able To Evaluate the structural patterns to solve design problems

CO5: Students Will Be Able To Construct and determine design solution by using behavioral patterns

CO1:Students Will Be Able To Develop Applications by implementing the Bitwise operations.

CO2:Students Will Be Able To Implement the symmetric encryption Techniques

CO3:Students Will Be Able To Implement the Asymmetric encryption Techniques

CO4:Students Will Be Able To Develop Applications by Implementing the Hash Algorithms.

CO1:Students Will Be Able To Create static Web pages using HTML and CSS

CO2:Students Will Be Able To Develop JavaScript code for Data Validation.

CO3:Students Will Be Able To Integrate Frontend and Backend Technologies in client-server systems.

CO4:Students Will Be Able To Design dynamic web applications Using PHP and JSP.

CO5:Students Will Be Able To Demonstrate database connectivity for developing web applications.

CO6:Students Will Be Able To Ability to design Dynamic web Applications and Interactive WebPages

CO1:Students Will Be Able To Take part in social and professional communication

CO2:Students Will Be Able To Gather ideas and information to organize ideas relevantly and coherently

CO3:Students Will Be Able To Write Project Report, Research Report, Technical Report and formal

CO4:Students Will Be Able To Make oral presentations

CO5:Students Will Be Able To Participate in Group Discussions and Facing

CO1:Students Will Be Able To Analyze and apply the theory and fundamentals of management in real

CO2:Students Will Be Able To Plot and establish organization chart and structure for a commercial

CO3:Students Will Be Able To Identify and use production planning, SQC, work study and

CO4:Students Will Be Able To Relate the basics of HRM in manpower planning, recruitment, selection,

CO5:Students Will Be Able To Sketch PERT/CPM networks of projects for management and evaluate

CO6:Students Will Be Able To Generate mission, vision, objectives, goals, programs and policies for a

CO1:Students Will Be Able To Analyze distributed technologies like CORBA,Java RMI,DCOM,MOM

CO2:Students Will Be Able To Implement Simple Web Service and SOA

CO3:Students Will Be Able To Analyze Web Service Architecture and communication model and Analyze

CO4:Students Will Be Able To Analyze and implement web service interface using WSDL

CO5:Students Will Be Able To Develop service discovery mechanism using UDDI

CO6:Students Will Be Able To Develop WS client and server with interoperable system

CO1:Students Will Be Able To Understand basic concept of Embedded Systems

CO2:Students Will Be Able To Apply and analyze the applications in various processors and domains of

CO3:Students Will Be Able To Analyze and develop Embedded Hardware and software development

CO4:Students Will Be Able To Analyze to understand what a microcomputer, core of the Embedded

CO5:Students Will Be Able To Remember the definitions of ASICs, PLDs, memory, memory interface

CO6:Students Will Be Able To Analyze to understand different concepts of a RTOS, sensors, memory

CO 1:Students Will Be Able To Able to collect a data from journals and literature.

CO 2:Students Will Be Able To Develop their communication skills.

CO 3:Students Will Be Able To Create competitive atmosphere in order to meet the global needs.

CO 4:Students Will Be Able To Able to initiate to design real world applications

CO 5:Students Will Be Able To Able to work their project effectively Individual/ Teamwork

CO1:Students Will Be Able To Analyze & collect data from journal & literature.

CO2:Students Will Be Able To Evaluate a report on an advanced topic.

CO3:Students Will Be Able To Apply learned topic on practical applications.

CO4:Students Will Be Able To Apply communication skills to prepare good power point presentation.

CO 1:Students Will Be Able To Able to collect a data from journals and literature.

CO 2:Students Will Be Able To Able to apply engineering knowledge to solve a problem.

CO 3:Students Will Be Able To Able to Design and develop the project with current tools

CO 4:Students Will Be Able To Able to write a project report including design and diagrams.

CO 5:Students Will Be Able To Able to work their project effectively Individual/ Teamwork

CO1:Students Will Be Able To Graduate will be able to communicate orally about analyzing a problem.

CO2:Students Will Be Able To   Graduate will be able to express effectively to accomplish a common goal.

CO3:Students Will Be Able To Comprehend the Knowledge gained in the course work.[4 years of learning

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titative & qualitative techniques and with the help of past sales data.
equations & by developing graphical solutions through linear programming applications. Assess the cost b
, Ledger, Trial Balance, Manufacturing A/c, Trading A/c., Profit & Loss A/c. and Balance Sheet of an ente
prise by using liquidity leverage, coverage and turnover & profitability ratios.

formance of a program in terms of space and time complexity

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the principles of SOAP

3].

well the managers are making use of these functions and commercial resources to accomplish business go
tical and operational plans and decisions and their procedures.

. Recognize the crucial elements of HRP, staffing, employee compensation, salary administration and meth

ta.

to analyze various factors influencing demand elasticity.

ehavior, costs useful for managerial decision making and determine Break Even Point (BEP) of an enterpr
erprise.

als.

ods of employee orientation and training and development.

ise. Discuss the concept of equilibrium price and output in different market situations i.e., perfect, monopo

ly, monopolistic & Oligopoly competition with the help of graphs. Differentiate private & public sector un

ıdertakings in their promotion, incorporation, regulation, administration, legal formalities & existence..

Degree: M.Tech			A.Y: 2018-2019
S.No		Year/ Sem	Course Name
I-I	I-I	I-I	Advanced reinforced Concrete Design
I-I	I-I	I-I	Advanced Concrete Technology
I-I	I-I	I-I	Advanced Structural Analysis
I-I	I-I	I-I	Advanced Structural Engineering LAB
I-I	I-I	I-I	Renewal Energy System
I-I	I-I	I-I	Structural Dynamics
I-I	I-I	I-I	Technical Seminar-1
I-I	I-I	I-I	

I-I	I-I	I-I	**Theory of Elasticity**
I-II	I-II	I-II	**Advanced Steel Design**
I-II	I-II	I-II	**CAD LAB**
I-II	I-II	I-II	**Design Of Substructures**
I-II	I-II	I-II	**Engineering Research Methodology**
I-II	I-II	I-II	**Prestressed Concrete Structures**
I-II	I-II	I-II	**Repair & Rehabilitaion of Buildings**
I-II	I-II	I-II	**Technical Seminar-2**

I-II	I-II	I-II	**Theory Of Plates**
I-II	I-II	I-II	**Technical Paper Writing**
II-I	II-I	II-I	**Comprehensive Viva Voce**
II-I	II-I	II-I	**Project Review-2**
II-II	II-II	II-II	**Project Review-3**
II-II	II-II	II-II	**Major Project Viva Voce**

Semester: I,II,III &IV

Course Outcomes (Students will be able to)

CO1:The student will be able to design the reinforced concrete elements like beams, slabs and compression

CO2: The student will be Ability to analyze and design the one way slab and two way slab as per the IS456

CO3:The student will be ability to design of ribbed slab and flat slabs

CO4: The student will be Ability to design and analysis of deep beam, corbels and Nibs.

CO5: Student will be Understand the designing and detailing of footings as per the code IS456:2000.

CO6:The student will be ability to design of square and rectangle footing with code provisions. .

CO1:The Student will be able to design concrete mixes of different grades

CO2:The Student will be able to acquire knowledge on the Ingredients of concrete

CO3:Student will be able to acquire knowledge on Fresh and Hardened Concrete

CO4:Student will be able to acquire knowledge on performance of high grade concrete

CO5:Student will be able to acquire knowledge on need for special concrete like LWC, SCC, FRC and RPC

CO6:Student will be able to Design form work for variour structures

CO1:student will be able to analyze the indeterminacy of structures by using matrices

CO2:student will be able to analyze indeterminacy of structures by stiffness method

CO3:student will be able to analyze indeterminacy of plane trusses by flexibilty method

CO4:student will be able to analyze indeterminacy of plane trusses by stiffness method

CO5:student will be able to analyze initial and thremal stresses for static condensation and sub structuring

CO6:student will be able to analyze the structural behaviour of shear walls by approximate method of analy

CO1:The student will be able to design concrete mix

CO2:The student will be able to do tests on fresh properties of concrete

CO3:The student will be able to do test on strength properties of hardened concrete

CO4:The student will be able to acquire knowledge on the behavior of structural elements under load

CO1:Students will able to perform an initial design of a renewable energy systems

CO1:Students will able to design in detail a subsystem

CO2:Students will be able to analyze how changes in functionality in component will affect the other compo

CO3:Students will be able to use laboratories and emulators of renewable energy systems to analyze relever

CO4:Students will be able to identify, define, present and communicate issues with in the subjected area

CO5: Students will be able to conduct research or development project with research ethical standards in R

CO1:student will be Able to analyze different vibratory systems

CO2:Student will be able to analyze dynamic loads with equations of motion

CO3:student will be able to analyze SDOF systems subjected to dynamic load with Duhamel integral

CO4:student will be able to analyze Dynamic response of MDOF system by mode of superposition

CO5:student will be able to analyze undamped free vibration of beams in flexure and find its mode shapes

CO6:Student will be able to analyze deterministic earth quake reponse of rigid foundation and combination

CO1: Student will be able to convey ideas, emotions, and information through speech?

CO2: Student will be able to demonstrating skills such as appropriate selection of topic and effective presen

CO3: Student will be able to utilize your knowledge gathered from various research sources?

CO4: Student will be to think and create PPT presentation to become speaker and facing technical HR inter

CO5: Student will be able to actively participate in classroom discussions and group critique sessions?

CO1:Student will be able to analyze plane stress , plane stain and strain displacement with compatibilty equa

CO2:Student will be able to analyze bending of beams for two dimensional problems in rectangular coordin

CO3:Student will be able to analyze pure bending of curved beams for two dimensional problems in polar c

CO4:Student will be able to analyze bending of prismatic bar, cantiliver beam, circular-elliptical and rectang

CO5:Student will be able to analyze principal stress, ellipsoidal stress, stress invariants, max shear stress an

CO6:Student will be able to analyze tortion and warping effect on circular and prismatic bars

CO1: Student will be able to design welded and bolted connections as per IS 800 -2007

CO2:Student will be able to design beam-column eccentric and momet connections as per IS 800 2007

CO3:Student will be able to design bracings and purlins for a roof truss of industrial building

CO4:Student will be able to design lateral bracing, portal bracing and sway bracing of steel truss girder brid

CO5:Student will be able to analyze and design bins and hopper bottom of bunkers

CO6:Student will be able to analyze and design bins and hopper bottom of silos

CO1:the student will be able design RCC and steel beam using Excel for flexural, shear and deflection chec

CO2:the student will be able design RCC slabs, column and isolated footing using Excel

CO3:the student will be able to analyze and design frames subjected lateral loads

CO4:the student will be able to analyze plate bending using FEM

CO1:Student be able to design shallow and deep foundations from bothgeotechnical and structural consider

CO2:The Student able to design various types of foundations

CO3:The student able to design raft foundation

CO4:Student able to design pile foundation

CO5:Student able to design retaining wall

CO6:The Student able to design machine foundation

CO1:Students will be able to be able to define research problem,problem formulation,necessity of defining t

CO2:Students will be able to conduct literature survey

CO3:Students will be able to do design research process

CO4:Students will be able to collect the data

CO5:Students will be able to do data analysis

CO6:Students will be able to write research proposal and research paper

CO1:Students will be able to analyze pre-tentioning and post-tensioning and design tendons

CO2:Students will be able to design section for flexure and shear for beam as per IS 1343: 2012.

CO3:Students will be able to design for short term aand long term deflecton of PSC beam as per IS coe 134

CO4:Student will be able to analyze transfer of prestress in pretention members by Guyon and Magnel meth

CO5:Student will be able to analyze transformation of secondary moments-P and C lines for concordant an

CO6:Student will be able to analyze continous beams and simple portal frame of statically indeterminate st

CO1:The Student will be able to understand the reasons for distress in structureswill be able to suggest suit

CO2:Student will be able to acquire knowledge on prevention of Corrosion of Steel Reinforcement

CO3:Student will be able to acquire knowledge on Symptoms and Diagnosis of Distress

CO4:Student will be able to acquire knowledge on various types of repairs

CO5:Student will be able to acquire knowledge on Damage assessment and NDT test

CO6:Student will be able to learn to do Health Monitoring of Structures

CO1: Student will be able to convey ideas, emotions, and information through speech?

CO2: Student will be able to demonstrating skills such as appropriate selection of topic and effective preser

CO3: Student will be able to utilize your knowledge gathered from various research sources?

CO4: Student will be to think and create PPT presentation to become speaker and facing technical HR inter

CO5: Student will be able to actively participate in classroom discussions and group critique sessions?

CO1:Student will be able to analyze cylindrical bending and pure bending of plates
CO2:Student will be able to analyze small deflection of thin rectangular plates
CO3:Student will be able to analyze slope, deflection and curvature of circular plates
CO4:Student will be able to analyze bending of orthographic plates
CO5:Student will be able to analyze plates on elastic foundation with Navier and Levy solutions
CO6:Students will be able analyze buckling of rectangular plates in two directions
CO1:Participate actively in writing activities (individually and in collaboration) that model effective scientifi
CO2:Understand how to apply technical information and knowledge in practical documents for a variety of
CO3:Practice the unique qualities of professional writing style, including sentence conciseness, readability,
CO4:Recognize, explain, and use the rhetorical strategies and the formal elements of these specific genres c
CO5:Collect, analyze, document, and report research clearly, concisely, logically, and ethically; understand
CO6:Recognize and develop professional format features in print, html, and multimedia modes, as well as u
CO1:Student will be able to demonstrate a sound technical knowledge on the subject studied in 2 semesters
CO2: Student will be able to undertake problem identification, formulation and solution.
CO3: Student will be able to Design engineering solutions to complex problems utilising a systems approac
CO4:Student will be able to start an engineering project
CO5: Student will be able to communicate with engineers and the community at large in written an oral for
CO6: Student will be able to face interview both in the academic and the industrial sector
CO1:Student will be able to demonstrate a sound technical knowledge of their selected project topic.
CO2: Student will be able to undertake problem identification, formulation and solution.
CO3:Student will be able to Design engineering solutions to complex problems utilising a systems approach
CO4: Student will be able to conduct an engineering project
CO5:Student will be able to communicate with engineers and the community at large in written an oral for
CO1:Student will be able to demonstrate a sound technical knowledge of their selected project topic.
CO2: Student will be able to undertake problem identification, formulation and solution.
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CO3:Student will be able to Design engineering solutions to complex problems utilising a systems approach
CO4: Student will be able to conduct an engineering project
CO5:Student will be able to communicate with engineers and the community at large in written an oral for

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of technical communication: technical abstracts, data based research reports, instructional manuals, technic
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PROGRAMME: B.TECH(CSE /EEE)	DEGREE : UG	A.Y: **2018-19**
S.No	**Year/ Sem**	**Course Name**
1	**I-I**	**Mathematics-I**
2	**I-I**	**Chemistry**
3	**I-I & II**	**Basic Electrical Engineering**
4	**I-I & II**	**Basic Electrical Engineering Lab**
5	**I-I**	**English**
6	**I-I**	**Chemistrty Lab**
7	**I-I**	**English Language Communication Skills Lab**

8	I-I	**Engineering Physics**
9	I-I	**Applied Physics**
10	I-I	**Engineering Physics Lab**
11	I-I	**Applied Physics Lab**
12	I-II	**Mathematics-II**
13	I-II	**Chemistry**
14	I-II	**English**
15	I-II	**Chemistrty Lab**

16	I-II	English Language Communication Skills Lab
17	I-II	Applied Physics
18	I-II	Applied Physics Lab
19	I-I & II	Programme for Problem Solving
20	I-I & II	Programme for Problem Solving Lab
21	I-I & II	Engineering Workshop
22	I-I& II	Engineering Mechanics
23	I-I& II	Engineering Graphysics

| 24 | I-I & II | Environmental Science |

SEMESTER: **I**

Course Outcomes

CO1 :Apply the concepts of matrices and their properties to know the rank and consistency.

form.

C03: Apply the nature of sequence and series.

C04: Apply the improper integrals using beta gamma functions.

CO5: Evaluate the maxima and minima of function of two and three variables.

CO6: Analyze the extreme values of functions of two variables.

CO 1: Basic concepts of molecular orbitals , band theory and related to conductivity.

CO 2 : Hardness of water and water treatment techniques problem related hardness.

CO 3: Concepts of electro chemistry and battery application, understanding mechanism of corrosion.

CO 4: The knowledge of stereo chemistry and conformational analysis and uses of drugs.

CO 5 : Basic concept of spectro scopy and applications of MRI.

CO 1: To analyze circuit elements for design in power system and circuit theorems.

CO 2: To understand average, apparent and complex powers and average R.M.S.values.

CO 3: To design of Transformers and their equivalent circuits and about auto transformer.

CO 4: To know about electrical machines for both A.C. and D.C.and their characteristics.

CO 5: To study about electrical installations and their importance in design of power system.

CO1: Verification of ohm's law.

CO2: Verification of Kirchoff's voltage law and Kirchoff's current law.

CO3: To understand transient response of series RL and RC circuit using D.C.exictation.

CO4: To know about transient response of series RLC circuit using D.C.exictation

CO5:To calculate resonance frequancy inseries RLC circuit by using A.C. excitation.

CO1: Apply the basic proficiency in English langugae.

CO2: Apply the language effectively in spoken and written communication.

CO3: Analyze the given texts and respond appropriately.

CO4: Apply the language confidently in various contexts and different cultures.

CO5: Analyze the study skills and communication skills in formal and informal situations.

CO6: Evaluate the importance of writing skills and its techniques.

CO1: Determination of parameters like hardness and chloride content in water.

CO2: Estimation of rate constant of a reaction from concentration – time relationships.

CO3: Determination of physical properties like adsorption and viscosity.

CO4: Calculation of Rf values of some organic molecules by TLC technique.

CO1: Apply the speech sounds, word accent, intonation and rhythm in day to day communication.

practice in speaking.

CO3: Apply the fluency in spoken English and neutralize mother tongue influence.

skills.

CO5:Apply the language appropriately for Interviews, Group Discussions and Public speaking.

CO1: Estimate ,improve and interpret their knowledge on the mechanism of physical bodies upon the

CO2: Evaluate and formulate the solutions and interpret the behavior of a damped and driven harmonic

CO3: Compare nd ccontrast the charecteristics of transfers and longitudinal waves.

CO4: Summarize , apply and demonstrate the importance of light phenomena in thin films and resolution.
CO5: Analyze and explain principle , working of various laser systems.
CO6: Analyze ,explain principle and examine light propogation through optical fibers.
CO1: Apply the concept of Quantum Mechanics on matter in its micro state.
CO2: Analyze the semiconductor physics and its charecteristics.
CO3: Apply the optoelectronics in semiconductor photo detectors like solar cell.
CO4: Understand the basics of lasers & optical fibers and its applications.
CO5: Analyze the phenomenon of electromagnatism and dielectric materils.
CO6: Analyze the magnetic materials and its applications.
CO1: Estimate the moment of inertia of any spinning system and apply it to find the mechanical properties
CO2: Analyze the fundamental concept of diffraction phenomenon of light and utilization of laser beam in various fields and the importance of optical fibers .
CO3: Identify the importance of optical fiber benefits including transmit the light and immunity to light
CO4: Define the resolving power and dispersive power for both prism spectrometers and grating
C05: Low laser beam divergence for applications such as pointing or free space optical communications.
CO1: Evaluate the frequncy response to understand the behaviour of electronic circuits.
CO2: Analyze the propagation of laser light and how it is used for communication and optical network.
CO3: Analyze the dc circuits of semiconductor device with their physical operation.
CO4: To evaluate the correlation between the theory and the practical observations.
CO1: Identify the given differential equation of first order is exact.
CO2: Apply the concept of differential equation to real world problems.
CO3: Evaluate the multiple integrals and apply the concept to find areas and volumes.
CO4: Apply the basic properties of vector valued functions.
CO5: Evaluate the line, surface and volume integrals and converting them from one to another.
CO6: Apply the applications to line, surface and volume integrals.
CO 1: Basic concepts of molecular orbitals , band theory and related to conductivity.
CO 2 : Hardness of water and water treatment techniques problem related hardness.
CO 3: Concepts of electro chemistry and battery application, understanding mechanism of corrosion.
CO 4: The knowledge of stereo chemistry and conformational analysis and uses of drugs.
CO 5 : Basic concept of spectro scopy and applications of MRI.
CO1: Apply the basic proficiency in English langugae.
CO2: Apply the language effectively in spoken and written communication.
CO3: Analyze the given texts and respond appropriately.
CO4: Apply the language confidently in various contexts and different cultures.
CO5: Analyze the study skills and communication skills in formal and informal situations.
CO6: Evaluate the importance of writing skills and its techniques.
CO1: Determination of parameters like hardness and chloride content in water.
CO2: Estimation of rate constant of a reaction from concentration – time relationships.
CO3: Determination of physical properties like adsorption and viscosity.
CO4: Calculation of Rf values of some organic molecules by TLC technique.
CO1: Apply the speech sounds, word accent, intonation and rhythm in day to day communication.
practice in speaking.
CO3: Apply the fluency in spoken English and neutralize mother tongue influence.

skills.

CO5:Apply the language appropriately for Interviews, Group Discussions and Public speaking.

CO1: Apply the concept of Quantum Mechanics on matter in its micro state.

CO2: Analyze the semiconductor physics and its charecteristics.

CO3: Apply the optoelectronics in semiconductor photo detectors like solar cell.

CO4: Understand the basics of lasers & optical fibers and its applications.

CO5: Analyze the phenomenon of electromagnatism and dielectric materils.

CO6: Analyze the magnetic materials and its applications.

CO1: Evaluate the frequncy response to understand the behaviour of electronic circuits.

CO2: Analyze the propagation of laser light and how it is used for communication and optical network.

CO3: Analyze the dc circuits of semiconductor device with their physical operation.

CO4: To evaluate the correlation between the theory and the practical observations.

CO1: Apply the design algorithm and flowchart for solving problems.

CO2: Apply algorithm to build a program code

CO3: Apply the logic and execute the program.

CO4: Apply the use of functions and develop code reusability .

CO5: Apply differentiate different searching and sorting techniques.

CO 1: Able to develop c programs on operators and type conversions.

CO 2: Able to develop C program using control structures, arrays and strings.

CO 3: Able to develop c program for file handling operations.

CO 4: Able to develop c programs using functions and memory management techniques.

CO 5: Able to implement linear data structures and sorting techniques.

CO 1: To design and model different
prototypes in the carpentry trade such as Cross lap joint, Dove tail joint.

CO 2: To design and model various basic prototypes in the trade of fitting such as Straight fit, V- fit.

CO 3 : To make various basic prototypes in the trade of Tin smithy such as rectangular tray, and open Cylinder rectangular tray, and open Cylinder.

CO 4 : To perform various basic House Wiring techniques such as connecting one lamp with one switch, connecting two lamps with one switch, connecting a fluorescent tube, Series wiring, Go down wiring.

CO 5 : To design and model various basic prototypes in the trade of Welding such as Lap joint, Lap Tee joint, Edge joint, Butt joint and Corner joint.

CO1: Determine resultant of forces acting on a body and analyse equilibrium of a body subjected to a

CO2: Solve problem of bodies subjected to friction.

CO3: Find the location of centroid and calculate moment of inertia of a given section.

CO4: Understand the kinetics and kinematics of a body undergoing rectilinear, curvilinear, rotatory motic

CO5: Solve problems using work energy equations for translation, fixed axis rotation and plane motion

CO1: Read, understand, interpret and apply the basic concepts of engineering graphics to prepare engineering drawings as a language of engineers

CO2: Choose the suitable method to draw orthographic projection of points, lines and planes .

CO3: Choose the suitable method to draw orthographic projection and auxiliary views of regular solids.

CO4: Apply the suitable method for development of surfaces and intersection of solids

CO5: Prepare working drawings of isometric projections and convert it from orthographic projections and vice-versa along with basic introduction of CAD

CO1 : Able to understand the importance of ecological balance.

CO 2: Able to analyze the importance of natural resources.
CO 3 : Able to understand the value of Bio diversity and Biotic resources.
CO4 : Able to understand pollution control measures.
CO5: Able to understand the environmental policies and regulation.

on and rigid body motion.

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S.No.	Year Sem	Course Code	Course Name
1	I-I	17MBA01	Management and Organizational Behaviour
2	I-I	17MBA02	Business Economics
3	I-I	17MBA03	Financial Accounting & Analysis
4	I-I	17MBA04	Business Statistics
5	I-I	17MBA05	Business Law & Ethics
6	I-I	17MBA06	Technology Management
7	I-I	17MBA07	Business Communication-Lab

8	I-II	17MBA08	Human Resource Management
9	I-II	17MBA09	Marketing Management
10	I-II	17MBA10	Financial Management
11	I-II	17MBA11	Quantitative Analysis for Business Decisions
12	I-II	17MBA12	Entrepreneurship
13		17MBA13	International Business
14	I-II	17MBA14	Summer Internship
15	II-I	17MBA15	Production& Operation Management

16	II-I	17MBA16	Management Information Systems
17	II-I	17MBA17	Data Analytics
18	II-I	17MBA18F1	Security Analysis and Portfolio Management
19	II-I	17MBA19F2	Financial Institutions, Markets & Services
20	II-I	17MBA20F3	Strategic Management
21	II-I	17MBA18H1	Performance Management Systems
22	II-I	17MBA19H2	Learning and development
23	II-I	17MBA20H3	Management of industrial relations

24	II-II	17MBA21	Strategic Management
25	II-II	17MBA22F4	International Financial Management
26	II-II	17MBA23F5	Strategic Investment and Financing Decisions
27	II-II	17MBA24F6	Risk Management
28	II-II	17MBA22H4	International Human Resource Management
29	II-II	17MBA23H5	Leadership and change management
30	II-II	17MBA24H6	Talent and Knowledge Management
31	II-II	17MBA25	Pre submission of Project Work

32	II-II	17MBA26	Comprehensive Viva
33	II-II	17MBA27	Main Project Viva

Course Outcomes
(Students can be able to)

CO1: Embrace the management evolution and how it will affect future managers and explain how organizations adapt to an uncertain environment and identify techniques managers use to influence and control the internal environment

CO2: Interpret tools, techniques and frameworks to solve a range of decision situations that managers commonly confront and analyze organizational systems to identify opportunities to improve decision

CO3: Comprehend the specification of organizational standards for aligning the actions of employees with the goals of the organization, as well as the monitoring and rewarding of the extent to which such standards are met

CO4: Imbibe on the factors that can foster or hamper job imbibe on the factors that can foster or hamper job satisfaction, such as physical settings, organizational rewards and punishments or work-group characteristics

CO5: Encompass an organizational culture set up, hiring the best people and creating meaningful connections among them, resolving the conflicts, developing the qualities of the employees, and establish a firm and clear leadership chain

CO1: Understand the roles of managers in firms.

CO2: Understand the internal and external decisions to be made by managers

CO3: Analyze the demand and supply conditions and assess the position of a company

CO4: Design competition strategies, and market environment according to the products and the structure of the markets

CO5: Analyze real-world business problems with a systematic theoretical framework

CO1: Understand & Apply Generally Accepted Accounting Principles (GAAP)

CO2: Prepare & analyze the financial statements of sole proprietary concern

CO3: Apply costing techniques in managerial decision making

CO4: Prepare & Analyze Flexible Budget, Cash Budget

CO5: Apply standard costing techniques for cost reduction, cost control etc

CO1: Analyze different statistical tools and implement the managerial applications of statistics

CO2: Explore various measures of dispersion for business decision making

CO3: Examine classification of tabulations and small sample test for statistical analysis

CO4: Solve various and covariance analysis for optimal decision making

CO5: Implement and analyze components of time series analysis

CO1: Identify the fundamental legal principles behind Contractual Agreements

CO2: Appreciate the relevance of business law to individuals and businesses

CO3: Understand the legal and fiscal structure of business organizations

CO4: Acquire problem solving technique to be able to present coherent ,concise legal argument

CO5: Explain the relationship between ethics, moral and values in the workplace

CO1: Analyze about need and processes technology innovation for research and development

CO2: Explore various techniques and concepts of financial evaluation of research and development projects for optimal decision making

CO3: Examine various types and strategies of designing and planning of research and development

CO4: Solve real-world problems related to technological forecasting for decision making

CO5: Implement various concepts and techniques of transfer of technology

CO1: To understand and demonstrate writing and speaking processes through invention, organization, drafting, revision, editing, and presentation

CO2: To understand and appropriately apply modes of expression, i.e., descriptive, expositive, narrative, scientific, and self-expressive, in written, visual, and oral communication

CO3: To participate effectively in groups with emphasis on listening, critical and reflective thinking, and responding

CO4: To apply basic principles of critical thinking, problem solving, and technical proficiency in the development of exposition and argument

CO5: To develop the ability to research and write a documented paper and/or to give an oral presentation

CO1: To develop the understanding of the concept of human resource management and to understand its relevance in organizations

CO2: To identify the major issues affecting recruitment and selection, and discuss recruitment and selection

CO3: To analyze the process of identifying, measuring and developing the performance levels of individuals

CO4: To illustrate basic factors determining compensation and the concept of intrinsic and extrinsic compensation

CO5: To understand the concept of employee relations and its objectives and scope

CO1: Understand the marketing concepts and its evolution

CO2: Analyze the market based on segmentation, targeting and positioning

CO3: Know the consumer behavior and their decision making process

CO4: Make decisions on product, price , promotion mix and distribution

CO5: Understand the rural markets and the contemporary issues in marketing

CO1: Analyze common investment criteria and project cash flows associated with corporate project evaluation

CO2: Explore the measures of cost of capital and financial leverage for long term financial policies for business, various techniques and concepts of security analysis

CO3: Describe the common factors influencing dividend policy

CO4: Use of applications of options in financial management

CO5: Relate capital investment decisions and financial policies to business valuations

CO1: Analyze about need and processes of operation research for problem solving and decision making

CO2: Explore various techniques and concepts of linear programming methods and transportation problems

CO3: Examine various types and strategies of assignment model for optimal decision making

CO4: Solve real-world problems related to decision theory for optimal utilization of resources

CO5: Implement various concepts and techniques queuing theory in real life situations

CO1: Analyze about need and concept of entrepreneurial mindset for decision making

CO2: Explore various techniques and concepts entrepreneurial motivational behavior

CO3: Examine various types and strategies for launching entrepreneurial ventures for optimum utilization of resources

CO4: Solve real-world problems related to legal challenges of entrepreneurship

CO5: Implement various concepts and techniques for internal and external growth strategies for

CO1: Apply the current business phenomenon and to evaluate the global business environment in terms of economic, social and local aspects

CO2: Apply various theories and techniques to international business issues

CO3: Integrate concept in international business concepts with functioning of global trade

CO4: Analyse the principle of international business and strategies adopted by firms to expand globally

CO5: Understand the key legal issues related to businesses operating in other countries

CO1: To analyze the practical implication of theoretical knowledge acquired during MBA program

CO2: To apply knowledge and skills relevant to the area of study through co-workers interaction ,group work and techniques

CO3: To understand the major functions along with the products and services of the organization

CO4: To demonstrate a professional attitude towards work and responsibility

CO1: Identify the roles and responsibilities of operations managers in different organizational context

CO2: Understand the strategic role of operations management in creating and enhancing a firm's competitive advantage

CO3: Understand key concepts and issues of OM in both manufacturing and service organizations

CO4: Understand the interdependence of the operations function with the other key functional areas of a firm

CO5: Apply analytical skills and problem-solving tools to the analysis of the operations problems

CO1: Evaluate the role of information systems in today's competitive business environment and identify the major management challenges to building and using information systems in organizations

CO2: Interpret tools, techniques and frameworks to describe the types of information systems supporting

CO3: Comprehend the specification of organizational standards to provide confidentiality, integrity, and

CO4: Imbibe on the basic components of a telecommunications systems and compare the various types of telecommunications network and identify appropriate strategies to manage the system implementation process

CO5: Encompass an Global perspective on cybercrime – phenomena, challenges and legal response with the objective of proposing global strategies to address today's challenges

CO1: To facilitate objective solutions in business decision making under subjective conditions

CO2: To stress the need for collection of data and its dispersion techniques

CO3: To apply time series analysis in market prediction rates

CO4: To measure the trend setting factors for projection of sales and demand curves

CO5: To extract the variance among the factors of study concerned

CO1: Analyze about need and importance of investment decision making

 CO2: Explore various techniques and concepts of security analysis

CO3: Examine various types and strategies of valuation of bond

CO4: Solve real-world problems related to equity valuation models

CO5: Implement various concepts and techniques of portfolio management for financial decision making

CO1: Analyze about need and importance of Indian financial system

CO2: Explore various types of banking and non banking financial institutions

CO3: Examine various financial securities markets for investment decision

CO4: Solve real-world problems related to asset based financial services for optimum utilization of fund

CO5: Implement various concepts and techniques of fee based/asset based services to expand the financial market

CO1: Analyze about need and importance cost accounting minimizes the cost and maximizes the revenue

CO2: Test various techniques and concepts of costing for specific industries

CO3: Develop various types and strategies of marginal costing

CO4: Compare inter and intra firm of marginal costing for optimal utilization of resources

CO5: Implement various concepts and techniques of budgetary control for efficient utilization of cost

CO1: Design an organizations performance management process that is compliant with law and supports organizational mission and strategy

CO2: Compare and contrast various organizational performance management programs and best practices

CO3: Employ job-related performance standards and performance indicators that reflect the employees range of responsibilities

CO4: Assess how increased employee involvement can contribute to effective performance and coach employees to identify career paths and resources available to support individual development

CO5: Identify and communicate appropriate actions with employees, based on their performance strength and weakness

CO1: Analyze about need and importance of learning and development

CO2: Explore various techniques designing training for optimal utilization of resources

CO3: Examine various training methods for efficient utilization of human resources

CO4: Solve real-world problems related to training and development for interpersonal relationship

CO5: Implement various concepts and techniques contemporary issues of training and development

CO1: Analyze about need and importance management industrial relation

CO2: Explore various techniques and strategies of collective bargaining

CO3: Examine various methods of tripartism and social dialogue for decision making

CO4: Solve real-world problems related to labour legislation act 1948

CO5: Implement various concepts and techniques of labour legislation act 1948

CO1: To highlight the importance of Strategic Management in relevance to Factors that shape a company's strategy and Environmental Scanning

CO2: To Identify the major issues affecting strategy to fit specific industry and company situations

CO3: To analyze need and importance of Strategies for competing in Globalizing markets and internet

CO4: To illustrate basic factors influencing different types of diversification strategies, the concept of

CO5: To understand the relevance of Strategy Evaluation and control in Establishing strategic controls for Measuring performance

CO1: Analyze about need and importance of international financial management.

CO2: Test various techniques and concepts of flow of fund, International monetary system.

CO3: Examine various types and strategies of international stock market

CO4: Compare foreign exchange rates between different countries

CO5: Implement various concepts and techniques of foreign direct investment for international trade

CO1: Analyze about need and importance investment decision under risk and uncertainty

CO2: Explore various techniques and strategies of investment and disinvestment

CO3: Examine various methods of critical analysis of appraisal techniques of investment decision

CO4: Solve real-world problems related to strategic analysis of selected investment decision

CO5: Implement various concepts and techniques mergers and acquisition for optimum utilization

CO1: Analyze about need and concepts of risk management for minimize the risk and maximize the return

CO2: Test various techniques and concepts of measurement of risk

CO3: Examine various types and strategies of risk management techniques in forward and future contract

CO4: Explore risk management techniques in options for optimal utilization of fund

CO5: Implement risk management techniques and strategies in swaps for minimizing the cost of transaction

CO1: Analyze about cultural aspects of internal human resource management

CO2: Explore role of international human resource management in successful multinational companies

CO3: Test various techniques of global human resource planning

CO4: Examine various strategies of training and development of global employees

CO5: Implement different concepts and techniques performance of global employees

CO1: To highlight the concept of an Effective Leader in management and bring forth the complexities of leadership

CO2: To Identify the major issues affecting Leadership theories and styles in different situations

CO3: To analyze need and importance of Change Management and importance of organizational change

CO4: To illustrate basic factors influencing Management and Leadership in times of change and study the

CO5: To understand the concept of Systematic approaches to Change keeping in view The Organizational Development Models

CO1: Analyze about need and importance of talent management process for potential forecasting

CO2: Explore different approaches of succession and career planning

CO3: Test various techniques of knowledge management to make efficient employees

CO4: Develop assessment of knowledge for optimal utilization of human resource

CO5: Implement different approaches for knowledge management solution

CO1: To enable the student to put across his work on the project for evaluation and assessment

CO2: To provide an opportunity to make any online corrections or incorporate suggestions for better and improved work

CO3: To provide an opportunity to present the work on the first two stages of project work before an enlightened audience and have a critical assessment of the work carried out so far

CO4: To give an insight into the progress on the first stage of formulating research methodology and the second stage of data analysis before one can take up the final stage of writing the project report

CO1: To enable students to have firm grip of basic principles and concepts of management

CO2: To develop among the students the confidence and capability to communicate the concepts with ~~noise and clarity~~

CO3: The ability to use the theoretical framework to solve specific management problems

CO1: To evaluate the practical work & knowledge gained by the student from real time business

~~**CO2:** To assess the analytical skills used by the student in exploring the various functional areas and~~

~~**CO3:** To analyze best practices, system, processes, procedures and policies of a company/industry in~~

~~**CO4:** To develop skills in report writing through data collection, data analysis, data extraction, and~~

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