SVERI's COLLEGE OF ENGINEERING, PANDHARPUR

Engineering for Excellence

PROGRAMME OUTCOMES AND COURSE OUTCOMES

PROGRAMME OUTCOMES

DEPARTMENT OF CIVIL ENGINEERING

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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DEPARTMENT OF ELECTRICAL ENGINEERING

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DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING

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DEPARTMENT OF MECHANICAL ENGINEERING

Students graduating from Mechanical Engineering will demonstrate:

1. **Engineering knowledge:** apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
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3. **Design/development of solutions :** design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
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11. **Project management and finance:**demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

DEPARTMENT OF MASTER OF BUSINESS ADMINISTRATION (MBA)

Students Post graduating from MBA will demonstrate:

Apply knowledge of management theories and practices to solve business problems..

1. Foster analytical and critical thinking abilities for data-based decision making
2. Ability to develop Value based Leadership ability.
3. Ability to understand, analyze and communicate global, economic, legal and ethical aspects of business.
4. Ability to lead themselves and others in the achievement of organizational goals, contributions effectively to environment.

PROGRAMME SPECIFIC OUTCOMES FOR ALL PROGRAMS

DEPARTMENT OF CIVIL ENGINEERING

Civil Engineering Graduates will be able to:

1. Design various Civil Engineering structures, components or processes to meet desired needs within the realistic constraints such as economic, environmental, social, regulatory, ethical, heath, safety, manufacturability and sustainability.
2. Conduct laboratory experiments and critically analyze to interpret data related to soil mechanics, fluid mechanics, environmental and civil engineering materials.
3. Use the techniques, skills, and modern software tools necessary for profession particularly in the areas of environmental / water resources, geotechnical, structural and transportation engineering.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Computer Science and Engineering Graduates will be able to:

1. Understand & design computer system using knowledge of Digital Techniques, Micro- Processor, Computer Organization, Advanced Computer Architecture, Operating System, System Programming, Compiler Construction, Application Softwares, etc.
2. Interpret, analyze and design software system programming knowledge using Algorithmic Skills, Web Technology, Big Data Analytics, Networking Fundamentals, Machine Learning and Internet of Things.
3. Adopt applications in emerging fields of Computer Science & Engineering.

DEPARTMENT OF ELECTRICAL ENGINEERING

Engineering Graduates will be able to:

1. Design a system, develop models and conduct experiments to analyze and interpret the data in the area of power sector, renewable energy, drives, control, etc.
2. Apply knowledge of electrical engineering to meet the desired needs within realistic constraints viz. economical, societal, ethical, environmental, health and safety.
3. Use the techniques and skills in modern engineering tools for Electrical Engineering.

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING

Electronics and Telecommunication Engineering graduates will be able to:

1. Design, develop and demonstrate experiments, analyze & interpret data in the areas of Analog & Digital design, Communication systems and allied branches.
2. Apply knowledge of Electronics & Telecommunication engineering to meet the desired needs within realistic constraints viz. economic, environmental, social & ethical.
3. Use the techniques, skills, and modern engineering tools necessary for Electronics &Telecommunication engineering.

DEPARTMENT OF MECHANICAL ENGINEERING

Mechanical Engineering Graduates will be able to:

1. Design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, regulatory, ethical, health and safety, manufacturability and sustainability.
2. Design and conduct experiments, as well as to analyze and interpret data, in different areas of Design Engineering, Heat Power, Renewable Energy, Automation, Industrial Engineering, Manufacturing and related Management.
3. Use techniques, skills and upcoming software, machine tools and processes necessary in the practice of Mechanical Engineering profession.

COURSE OUTCOMES

F. Y. B. Tech

SEMESTER-I		
Course Name &Code	**Course Outcomes**	**Bloom's Level (No. andName)**
C011 ENGINERING PHYSICS	Describe the concepts of semiconducting material andcrystal structure.	BL-1 Remembering, BL-2Understanding and BL-3 Applying
	Apply basic concepts of acoustics and ultrasonic inengineering field.	BL-1 Remembering, BL-2Understanding
	Relate space, time, mass and energy equations.	BL-1 Remembering, BL-2Understanding and BL-3 Applying
	Express the concepts of diffraction, polarization and canrelate them to day to day observable phenomena.	BL-1 Remembering, BL-2Understanding
	Explain the fundamental concepts, advantages and applications of laser and optical fiber in the field of science, engineering and medical.	BL-1 Remembering, BL-2Understanding and BL-3 Applying
	Express the basic concepts of quantum mechanics andnanotechnology.	BL-1 Remembering, BL-2Understanding
C012 ENGINERING CHEMISTRY	Describe importance of quality of water and appropriatewater treatment process.	BL-1 Remembering, BL-2Understanding and BL-3 Applying
	Recognize various types of corrosion & propose a suitableprevention technique.	BL-1 Remembering, BL-2Understanding
	Describe various instrumental techniques.	BL-1 Remembering, BL-2Understanding
	Identify and explain different engineering materials like metals, ceramics, fuels, Lubricants, polymers for variousengineering and day to day applications.	BL-1 Remembering, BL-2Understanding
	Calculate hardness of water, concentration of unknown solution, calorific value of fuels, saponification & acidvalue of oils, molecular weight of polymers etc.	BL-1 Remembering, BL-2Understanding and BL-3 Applying
	Describe various types of energy storage systems with their applications.	BL-1 Remembering, BL-2Understanding and BL-3 Applying

C112 ENGINEERING MATHEMATICS - I	Compute higher order derivative of standard functions and verify Mean Value Theorems.	BL-1 Remembering, BL-2Understanding and BL-3 Applying
	Describe the power series expansion of a given functionand evaluate limits	BL-1 Remembering, BL-2Understanding and BL-3 Applying
	Apply matrices techniques for solving system simultaneous linear equations, Eigen values and Eigen vectors of the matrix	BL-1 Remembering, BL-2Understanding and BL-3 Applying
	Evaluate Multivariable derivatives and can implement toestimate maxima and minima of multivariable function	BL-1 Remembering, BL-2Understanding and BL-3 Applying
	Compute velocity vector, gradient, divergence, curl and applications.	BL-1 Remembering, BL-2Understanding and BL-3 Applying
C113 BASICS OF CIVIL AND MECHANICAL ENGINEERING	Describe the role of civil engineer in the development of the society and Relationship of civil engineering with other branches of engineering and technology.	BL-1 Remembering, BL-2Understanding
	Explain various elements of Environment & Water Resources Management, transportation engineering, buildings, concepts of Green Buildings, Remote sensing Techniques, GIS &GPS.	BL-1 Remembering, BL-2Understanding
	Identify power producing/absorbing systems and related transmission systems.	BL-1 Remembering, BL-2Understanding and BL-3 Applying
	Explain various machining/joining processes implementedin everyday life.	BL-1 Remembering, BL-2Understanding and BL-3 Applying
	To determine heat and work quantum during different thermodynamic processes.	BL-1 Remembering, BL-2Understanding and BL-3 Applying
C114 ENGINEERING MECHANICS	Apply fundamentals of Engineering Mechanics for analyzing effects of a system forces acting on a rigid body.	BL-1 Remembering, BL-2Understanding BL-3 Applying, BL-4 Analyze
	Analyze various types of statically determinate beams, pin jointed trusses by analytical and graphical methods.	BL-1 Remembering, BL-2Understanding BL-3 Applying, BL-4 Analyze
	Locate centroid and centre of Gravity and calculatemoment of Inertia of plane lamina.	BL-1 Remembering, BL-2Understanding BL-3 Applying, BL-4 Analyze
	Apply knowledge of Kinematics and Kinetics of rigid body motion to solve problems of bodies in motion.	BL-1 Remembering, BL-2Understanding and BL-3 Applying, BL-4 Analyze
	Use Work Energy methods for analyzing linear and rotational motion.	BL-1 Remembering, BL-2Understanding and BL-3 Applying, BL-4 Analyze

C115 UNIVERSAL HUMAN VALUES	Appreciate the essential complementarily between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity, which are the core aspirations of all human beings.	BL-1 Remembering, BL-2 Understanding
	Develop holistic perspective towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of Existence.	BL-1 Remembering, BL-2 Understanding
	Appreciate the Universal Human Values and movement towards value-based living in a natural way.	BL-1 Remembering, BL-2 Understanding
	Highlight ethical human conduct, trustful and mutually fulfilling human behavior and mutually enriching interaction with Nature.	BL-1 Remembering, BL-2 Understanding
C116 COMMUNICATION SKILLS	Frame grammatically correct sentences for day to day Communication.	BL-2 Understanding and BL-3 Applying, Creating
	Use numerous appropriate words and sentences in written communication.	BL-2 Understanding and BL-3 Applying, Creating
	Demonstrate effective oral communication skills in various situations.	BL-2 Understanding and BL-3 Applying, Creating
	Read, comprehend and answer the questions based on a passage.	BL-2 Understanding and BL-3 Applying, Creating
	Draft letters, emails, write paragraphs and essays with appropriate content and context.	BL-2 Understanding and BL-3 Applying, Creating
	Solve verbal ability questions in competitive exams	BL-2 Understanding and BL-3 Applying, Creating
C117 CREATIVITY AND DESIGN THINKING	Relate with and Compare the various learning styles and memory techniques and Apply them in their engineering education.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying,
	Analyze emotional experience and Experiment with emotional expressivity to better understand users while designing products.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying,
	Appreciate the importance creativity and design thinking, Develop new ways of thinking and Learn the innovation cycle for creating innovative products.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying,
	Understand individual differences and its impact on everyday decisions so as to demonstrate frameworks, strategies, techniques while creating innovative products.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying,
	Develop skills for evaluating, articulating, refining, and creating an innovative engineering product that solves customer problems(s).	BL-1 Remembering, BL-2 Understanding and BL-3 Applying,

C118 WORKSHOP PRACTICE	Identify various hardware and software components of a computer and compare between them.	Perception (LI), Set L2), Guided response(L3, Mechanism (L4)
	Assemble a desktop from components supplied and Setup a working desktop system using a Raspberry Pi board.	Perception (LI), Set L2), Guided response(L3, Mechanism (L4)
	Identify and use various electronic components and instruments.	Perception (LI), Set L2), Guided response(L3, Mechanism (L4)
	Develop basic electronic circuits on breadboards.	Perception (LI), Set L2), Guided response(L3, Mechanism (L4)
	Demonstrate the use of an Arduino board using basic circuits.	Perception (LI), Set L2), Guided response(L3, Mechanism (L4)
	Prepare different shaped metal work piece joints from the given metal blanks by selecting different tools and machines.	Perception (LI), Set L2), Guided response(L3, Mechanism (L4)
	Perform different types of welding of metal components.	Perception (LI), Set L2), Guided response(L3, Mechanism (L4)
	Select different engineering tools required to perform, fitting, machining, welding and joining processes.	Perception (LI), Set L2), Guided response(L3, Mechanism (L4)

SEMESTER-II		
Course Name & Code	**Course Outcomes**	**Bloom's Level (No. and Name)**
C122 ENGINEERING MATHEMATICS -II	Solve first order ordinary differential equation and able toapply in different Engineering applications.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying
	Test divergence & convergence of infinite series.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying
	Use the tools of differentiation of functions of a complex variable that are used in various techniques dealing engineering problems.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying
	Draw approximate shape of planer curve with justification.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying
	Evaluate improper and multiple integrals and their usage.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying
C123 BASIC ELECTRICAL AND ELECTRONICS ENGINEERING	Apply the various simplification methods to analyze dccircuits.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying
	Use the concept of magnetic circuits to calculate parameters of magnetic circuits and single phase transformer.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying
	Apply knowledge of ac fundamentals and poly phase to analyze ac circuits.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying
	Explain working, characteristics and applications of diodeand BJT.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying
	Select appropriate transducers to measure various physical parameters like distance, temperature etc.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying
	Perform arithmetic operations on digital number system.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying
C124 PROGRAMMING FOR PROBLEM SOLVING	Design the flowcharts and algorithms for the given problem .	BL-2 Understanding and BL-3 Applying,
	Translate the algorithms into C programs and test & execute the programs.	BL-2 Understanding and BL-3 Applying,
	Implement C programs by appropriately selecting control and loop structures.	BL-2 Understanding and BL-3 Applying,
	Implement C programs using functions and pointers.	BL-2 Understanding and BL-3 Applying,
	Implement C programs using arrays, structure and unions and files.	BL-2 Understanding and BL-3 Applying,
	Develop small applications using C Programming concepts.	BL-2 Understanding and BL-3 Applying,

C125 ENGINEERING GRAPHICS AND CAD	Draw projection of lines and planes for engineering applications.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying,
	Draw regular and sectional views of various types of solids.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying,
	Draw the 2 D view (orthogonal views) given 3D drawing.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying,
	Draw the development of the regular and truncated solids.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying,
	Draft the 2-D drawing of machine components.	BL-1 Remembering, BL-2 Understanding and BL-3 Applying,
C126 PROFESSIONAL COMMUNICATION	Prepare good quality presentation and deliver it effectively.	Remembering, understanding, applying, evaluating, creating
	Participate effectively in group discussion	Remembering, understanding, applying, evaluating, creating
	Perform effectively in personal interview	Remembering, understanding, applying, evaluating, creating
	Prepare effective resume for job interviews	Remembering, understanding, applying, evaluating, creating
	Draft and write various reports professionally.	Remembering, understanding, applying, evaluating, creating
	Demonstrate various soft skills like team skills, leadership, creativity, etc. in different situations.	Remembering, understanding, applying, evaluating, creating

DEPARTMENT OF CIVIL ENGINEERING

SECOND YEAR

SEMESTER - I		
Course Name & Code	**Course Outcomes**	**Bloom's Level**
Course: Concrete Technology ,Material Testing And Evaluation (Cv211-19)	Understand Properties And Role Of Ingredients Likes Cement, Aggregate Etc. To ProduceBetter Quality Concrete.	Bl2 Understand
	Understand And Apply Fundamental Knowledge In The Fresh And Hardened Properties Of Concrete	Bl2 Understand
	Understand Various Methods For Testing OfPlastic And Hardened Concrete	Bl2 Understand
	Understand The Durability Requirements OfConcrete.	Bl2 Understand
	Design A Concrete Mix Which Fulfills The Required Properties For Fresh And HardenedConcrete.	Bl6 Create
	To Evaluate Properties Of Construction Materials Viz. Steel, Bricks, Timber, Tiles Etc.In Laboratory For The Quality Assurance	Bl5 Evaluate
Course: Surveying And Geomatics (Cv212-19)	Explain Construction, Temporary AdjustmentAnd Applications Of Modern Surveying Equipments	Bl2 Understand
	Explain The Use Of The Surveying InstrumentsNamely Levels, Theodolite, Edm, Total StationFor Surveying Measurements Such As Horizontal/ Vertical/Inclined Distance, Horizontal/ Vertical Angles, Bearings, Reduced Levels, And Coordinates	Bl2 Understand
	Create Plans, Maps And Reports For SurveyingProjects Of Civil Engineering Works	Bl2 Understand
	Use The Modern Surveying Techniques NamelyRemote Sensing, Global Positioning System And Geographic Information System For Civil Engineering Applications	Bl2 Understand
	Demonstrate The Attributes Of Leadership, Working In The Team And Professional EthicsWhile Performing The Surveying Projects	Bl3 Apply
	Describe Construction, Temporary AdjustmentAnd Applications Of Modern Surveying Equipments	Bl2 Understand

Course: Building Construction And Drawing (Cv213-19)	Elucidate Functional Requirements Of Buildings And Types Of Foundation And Its Suitability.	Bl2 Understand
	Draw Neat Drawings Of Different Building Components Such As Doors, Windows, Stairsetc With The Suitable Scale Using Cadd Software.	Bl3 Apply
	Design Different Types Of Staircases Commonly Used In Residential And Public Buildings.	Bl3 Apply
	Draw Neat Perspective View Drawings Of An Object And Given Small Residential Building.	Bl3 Apply
	Select Appropriate Ventilation Systems And Building Finishes.	Bl2 Understand
	Identify Various Types Of Bonds Such As English, Flemish, Stretcher And Header Bond.	Bl2 Understand
Course: IntroductionTo Fluid Mechanics (Cv214-19)	Identify And Obtain Values Of Fluid Properties And Relationship Between Them.	Bl1 Remember
	Compute Force Of Buoyancy On A Partially Or Fully Submerged Body And Analyze The Stability Of A Floating Body.	Bl3 Apply
	Understand Fluid Kinematics And Apply Fundamental Principles Of Fluid Mechanics ForThe Solution Of Practical Civil Engineering Problems	Bl2 Understand
	Explain Fluid Dynamics And Make Use Of Principles Of Continuity, Momentum, And Energy As Applied To Fluid Motions.	Bl3 Apply
	Understand Characteristic Of Turbulent FlowAnd Flow Through Pipes	Bl2 Understand
	Demonstrate An Insight Into Boundary Layer Analysis.	Bl2 Understand
Course: Engineering Geology (Cv215-19)	Describe Issues Concerning The Geological Formations And Geological Structure Of A Region	Bl2 Understand
	Describe The Characteristics Of The Most Important Geological Formations And ProblemsThat May Arise In The Various Civil Engineering Projects In Such Formations.	Bl2 Understand
	Interpret And Explain The Geological StructuresIn The Geological Maps And Cross Sections.	Bl2 Understand
	Assess And Appropriately Adjust The Results Of Geological Study In Order To Ascertain Secure Construction And Operation Of A CivilEngineering Projects Like Dams, Reservoirs Hilly Roads And Railway Tracks.	Bl5 Evaluate
	Receive, Analyze And Evaluate Data And Appropriately And Solve Technical As Well As Ground Water Related Problems.	Bl4 Analyze
	Identify The Rocks And Minerals In Field.	Bl1 Remember

Course: IntroductionTo Solid Mechanics (Cv216-19)	Discuss The Knowledge Of Structural Mechanics To Depict The Behavior Of Structures.	Bl2 Understand
	Calculate Principal Planes And Find Principal Stresses.	Bl3 Apply
	Apply The Knowledge Of Principal Stresses For Bending, Torsion, Thrust And Failure Analysis Problems	Bl3 Apply
	Construct Shear Force Diagrams And Bending Moment Diagrams Of Statically Determinate Beams.	Bl3 Apply
	Calculate Bending And Shear Stresses In Beams.	Bl3 Apply
	Analyze The Behavior Of Structure Under Moving Load Using Influence Line Diagrams.	Bl4 Analyze
Course: Energy Science And Engineering (Cv217-19)	List And Generally Explain The Main SourcesOf Energy And Their Primary Applications Nationally And Internationally. Have Basic Understanding Of The Energy Sources And Scientific Concepts/Principles Behind Them.	Bl2 Understand
	List And Describe The Primary Renewable Energy Resources And Technologies. DescribeThe Challenges And Problems Associated WithThe Use Of Various Energy Sources, IncludingFossil Fuels, With Regard To Future Supply And The Impact On The Environment.	Bl2 Understand
	Understand Effect Of Using These Sources On The Environment And Climate.	Bl2 Understand
	To Classify Or Quantify Energy Demands And Make Comparisons Among Energy Uses, Resources, And Technologies. Collect And Organize Information On Renewable Energy Technologies As A Basis For Further Analysis And Evaluation.	Bl4 Analyze
	Understand The Engineering Involved In Projects Utilizing These Sources.	Bl2 Understand
Course: Lab Practice (Cv218-19)	To Develop And Draw Architectural Floor Plan Of A Small Residential Building Using Cadd Software Tool	Bl6 Create
	To Develop And Draw The Geometric Constructions, Multi-View, Sectional View, Dimensioning And Detail Drawings Of Typical2-D Engineered Objects.	Bl6 Create
	To Develop And Draw Views Like Elevation, Section, Furniture Plan For A Small Residential Building	Bl6 Create
	To Develop And Draw Detailed Formatted And Dimensioned Civil Engineering Drawings.	Bl6 Create

SEMESTER-II		
Course Name & Code	**Course Outcomes**	**Bloom's Level**
Course: Water Supply Engineering (Cv221-19)	Calculate Forecasted Population, Water Demand And Experiment Water Quality Parameter As Per Drinking Water QualityStandards	Bl3 Apply
	Design Primary Water Treatment Unit Operations And Unit Processes On The BasisOf Raw Water Quality And Water Demand	Bl3 Apply
	Design Rapid Sand Filter And UnderstandSecondary Water Treatment Units For A Rural/Urban Area Based On Population Forecast	Bl3 Apply
	Explain The Appropriate TransmissionSystem For Conveyance Of Water	Bl2 Understand
	Describe The Complete Water Distribution System For A City As Well As For TheRural Area.	Bl2 Understand
	Understand Different Aspects Of O & M OfWater Distribution Systems.	Bl2 Understand
Course: Building Planning And Design(Cv222-19)	Apply The Principal Of Building PlanningAnd Design Of Residential And Public Building With Special Reference To Asthetics,Acoustics And Fire Fighting	Bl2 Understand
	Utilize Knowledge For Planning For Residential And Public Building AccordingTo By Laws Of Municipal Bodies	Bl2 Understand
	Draw Permission Drawings Of ResidentialAnd Public Building	Bl3 Apply
	Design Rain Water Harvesting System ForBuilding	Bl3 Apply
	Explain Fire Resistant Structure And Characterestics Of Fire Resistant Material	Bl2 Understand
	Define Acoustics And Sound Frequency,Intensity,Absorption Of SoundVariation Material	Bl2 Understand
Course: Hydraulic Engineering (Cv223-19)	Apply Their Knowledge Of Fluid MechanicsIn Solving Problems In Open Channels	Bl2 Understand
	Understand The Phenomenon Of Uniform,Gradually And Rapidly Varied Flows In Steady State Conditions And Find The Hydraulic Parameters Of Channels.	Bl2 Understand
	Understand The Basic Concepts Related To Notches, Weir And Spi Nderstand The BasicConcepts Related To Notches, Weir And Spi Nderstand The Basic Concepts Related To Notches, Weir And Spi Nderstand The Basic Concepts Related To Notches, Weir AndSpinderstan	Bl2 Understand
	Explain The Working Of Pelton, Francis AndKaplan Turbines Along With Their Performance Parameters.	Bl3 Apply
	Suggest The Type Of Pumps Required ForSpecific Purpose.	Bl2 Understand
	Understand The Fundamentals Of Dimensional Analysis And Application Of Buckingham Theorem Along With Different Model Laws	Bl2 Understand

Course: Open Elective IIct For Development (Cv224-19)	Apply The Basic Knowledge Of Ict	Bl1 Remember
	Explain The E-Services	Bl2 Understand
	Prepare & Check The Report By Using Different Tools	Bl3 Apply
	Explain The Netiquettes	Bl2 Understand
	Design Websites & Create Blogs UsingWordpress	Bl5 Evaluate
Course: Structural Analysis (Cv225-19)	Employ The Knowledge Of Structural Mechanics To Describe The Behavior OfStructures.	Bl3 Apply
	Analyze Determinate And Indeterminate Structural Members Subjected To DifferentTypes Of Loadings.	Bl4 Analyze
	Discretize Simple Structures; Identify StaticAnd Kinematic Degrees Of Freedom	Bl3 Apply
	Analyze Beams, Trusses And Frames ForJoint Displacements, And Forces In Members, By Force Method And Displacement Method.	Bl4 Analyze
	Select And Use Appropriate Application Software For Structural Analysis.	Bl4 Analyze
Course: Engineering Mathematics Iii (Cv226-19)	Solve Higher Order Linear Differential Equation With Constant Coefficient.	Bl3 Apply
	Solve Partial Differential Equation Of FirstOrder.	Bl3 Apply
	Express A Function In Terms Of Sine And Cosine Components So As To Model SimplePeriodic Functions.	Bl3 Apply
	Apply Laplace And Inverse Laplace Transforms For Solving Linear DifferentialEquations.	Bl3 Apply
	Find The Relation Between Two Variables For The Given Data Using Regression.	Bl2 Understand
	Sketch And Explain Various Probability Distribution Functions.	Bl2 Understand
Course: Computer Programming And Numerical Methods (Cv227-19)	To Recall Basic Concepts Of C Language.	Bl1 Remember
	To Apply The Knowledge Of C Language To Solve Civil Engineering Problems.	Bl3 Apply
	To Explain A Through Understanding Of Principles Of Numerical Methods To SolveCivil Engineering Problems	Bl2 Understand
	To Solve Numerical Integration Using Computer Program In C Language.	Bl3 Apply
	To Solve Ordinary Differential EquationsUsing Computer Program In C Language.	Bl3 Apply
	To Explain Computer Program For CivilEngineering Based Problems Using Statistical Analysis.	Bl2 Understand

THIRD YEAR

SEMESTER - I		
Course Name & Code	**Course Outcomes**	**Bloom's Level**
Course: Design Of Steel Structures (Cv311-20)	Apply Â€˜Limit Stateâ€™ Design Approach ForDesigning Various Elements Of Steel Structures For Strength And Serviceability.	Bl3 Apply
	Design Various Steel Structure Elements Viz. Bolted And Welded Connections As Per Procedures Defined By Indian Standard Code Of Practice : Is 800: 2007	Bl3 Apply
	Design A Tension Members ,Compression Members /Column As Per Procedures Defined ByIndian Standard Code Of Practice : Is 800: 2007	Bl3 Apply
	Analyze Beams And Portal Frames By PlasticAnalysis Approach.	Bl4 Analyze
	Design A Roof Truss And Its Elements And Choose Appropriate Is Code.	Bl3 Apply
	Design A Beam, Column Base As Per ProceduresDefined By Indian Standard Code Of Practice : Is 800: 2007	Bl3 Apply
Geotechnical Engineering-I (Cv 312)	Determine Various Index Properties And Strength Properties Of Soil In The Laboratory ToCharacterize And Classify The Soil	Bl3:Applying
	Estimate The Permeability And Seepage ThroughSoil Mass By Applying Basic Hydraulic Flow Principles	Bl3:Applying
	Draw Stress Contours Of Soil Mass By ApplyingThe Stress Distribution Theory	Bl4:Analyzing
	Determine Shear Strength Parameters Of SoilUnder Various Drainage Conditions	Bl3:Applying
	Assess Compaction And Consolidation SettlementOf Soil For Given Loading Conditions	Bl5:Evaluating
	Determine Earth Pressure For Earth RetainingStructure	Bl3:Applying
Course: Waste Water Engineering And Air Pollution (Cv313-20)	Explain The Characterization Of Municipal Waste, As Well As Sewage Collection &Conveyance Systems	Bl2 Understand
	Evaluate And Design Waste Water Collection System And Wastewater Treatment Units.	Bl6 Create
	Apply The Low Cost Treatment Technologies ToTreat The Sewage	Bl3 Apply
	Apply The Knowledge For Disposal Of Treated/Untreated Waste Water	Bl3 Apply
	Select Appropriate Methods Of Solid Waste Disposal And Management Of Hazardous Waste	Bl4 Analyze
	Summarize Air Pollution Impacts And Plan ForControl It	Bl2 Understand

Highway And Tunnel Engg.-I(Cv314)	Explain Various Modes Of Transportation &Highway Development Plans	Bl2:Understanding
	Design Geometric Components Of Highway And Highway Pavements As Per Irc Standards	Bl5:Evaluating
	Test Various Highway Materials Using Modern Equipments And Instruments As Per Irc Standards	Bl3:Applying
	Describe The Different Steps In HighwayConstruction, Maintenance And Select Appropriate Drainage System.	Bl2:Understanding
	Analyze Economy Of Highway Projects	Bl4:Analyzing
	Explain Tunneling Methods In Various Types Of Soil	Bl2:Understanding
Hydrology And Water Resources Engineering(Cv315)	Estimate Runoff, Based On Rainfall Data And Watershed Characteristics.	Bl3:Applying
	Calculate A Stream Flow And Estimate Design Flood For A Civil Engineering Project.	Bl3:Applying
	Calculate Yield Of Open Well And Tube Well ForVarious Types Of Aquifers Using Knowledge Of Ground Water Hydrology	Bl3:Applying
	Elaborate National And State Water Policies	Bl2:Understanding
	Select Appropriate Water Application Technique Of Irrigation, Depending Upon Type Of Crop,Soil Moisture And Water Availability.	Bl2:Understanding
	Select Suitable Soil & Water Conservation Techniques For Particular Watershed.	Bl3:Applying
Self Learning (Cv316)	Explain The Sociological, Perspective, Broadly Defined; Use Sociological Theory To Explain Social Problems And Issues :Make Theoretical Informed Recommendation To Address CurrentSocial Problem: And Demonstrate The Utility OfThe Sociological Perspect	Bl2:Understanding
	Demonstrate The Ability To Interpret, Locate, Evaluate, Generate ,And Use Socioalogically Relevant Data To Test Hypothesis And Draw Evidence Based Conclusion	Bl3:Applying
	Integrate Sociological Theory,Research,And Data In Order To Assess Various Explanation Of SocialPhenomena And To Assess Social Policy	Bl4:Analyzing
Planning And Design Ofpublic Buildings (Cv317)	Modeling Of Public Building According To Requirements	Bl3 Apply
	Design And Drawing Of Public Building With Standard Norms By Laws	Bl6 Create
	Modeling Municipal Drawing For Public BuildingFor Obtaining Building Permission From Authority	Bl3 Apply
	Modeling Drawing Of Public Building With Water Supply And Drainage Connection	Bl3 Apply
	Understanding The Application Of Autocad Software In Civil Engineering	Bl2 Understand
	Modeling The Building Drawings By Using Suitable Computer Aided Drawing And Design Software	Bl3 Apply

Mini Project (Cv318)	Identify And Formulate Civil Engineering Problems To Meet Desired Need Within RealisticConstraints	Bl6 Create
	Design The Solution Using Modern Design ToolsAnd Techniques With The Understanding Of TheImpact Of Engineering Solutions In A Global, Economic, Environmental, And Societal Context	Bl6 Create
	Develop An Ability To Work On Multidisciplinary Environment To Evaluate TheEconomic And Financial Performance Of An Engineering Activity	Bl5:Evaluating
	Build Models, Prototypes And Conduct Various Experiments To Develop Diverse Set Of DesignSolutions With Appropriate Consideration For Safety	Bl6 Create
	Break Down A Complex Problem Into Parts And Analyze The Relationships Between The Different Parts Of Complex Problem	Bl4:Analyzing
	Â Show An Ability To Communicate EffectivelyIn Team And Present Results As A Team, With Smooth Integration, Substantiated Conclusions And Documentation Of Project Work	Bl3:Applying

SEMESTER - II		
Course Name & Code	**Course Outcomes**	**Bloom's Level**
Foundation Engineering (Cv321)	Investigate Different Properties Of Soil By Obtaining The Data From Soil Exploration	Bl3:Applying
	Evaluate Bearing Capacity Of Soil By Various Analytical And Field Tests Such AsPlate Load Test, Standard Penetration Test	Bl5 Evaluate
	Apply Suitable Ground Techniques For Construction Of Footing In Difficult Soil	Bl3:Applying
	Perform Geotechnical Design Of Shallow Foundation Such As Isolated Footing, Combine Footing And Raft Foundation	Bl4:Analyzing
	Perform Geotechnical Design Of Deep Foundations Such As Pile Foundations And Caisson Foundations	Bl4:Analyzing
	Apply The Knowledge Of Various Slope Stability Theories For The Design Of Embankment	Bl3:Applying
Hydraulic Structures And Water Power Engineering (Cv322)	Plan And Design The Dams And Reservoirs Depending Upon The Water Resources Potential	Bl3:Applying
	Analyze And Design Gravity Dams AndEarth Dams (Simple Designs)	Bl4:Analyzing
	Elaborate The Design Principles Of Arch Dams.And Weirs On Permeable Foundations	Bl4:Analyzing
	Carry Out Hydraulic Design Of SpillwaysAnd Canal Structures	Bl6:Creating
	Select Appropriate Method Of River Training Depending Upon River Characteristics	Bl2:Understanding
	Estimate Water Power Potential At A Site.	Bl4:Analyzing
Professional Elective Course I (Cv323)-Solid And Hazardous Waste Management	Classify Solid Waste	Bl3:Applying
	Understand Basic Principle Of Solid Waste Management	Bl2 Understand
	Suggest Waste Reduction And Resource Recovery Methods	Bl3:Applying
	Explain Various Waste Disposal Methods	Bl3:Applying
	Examine Legal, Political And Administrative Considerations In Design And Operation Of Solid And Hazardous Waste Management.	Bl4:Analyzing
	Identify Legal Framework Related To SwmAnd Hazardous Waste Manegment	Bl2 Understand

Dcs I(Cv324)	Apply Â€˜Limit Stateâ€™ Design ApproachFor Designing Various Elements Of Concrete Structures For Strength And Serviceability	Bl3 Apply
	Design Various Types Of Slabs Viz. One Way Slabs, One Way Continuous Slabs, TwoWay Slabs, Cantilever Slabs As Per Is Code	Bl5 Evaluate
	Design Of Singly & Doubly Reinforced Sections For Flexure, Shear & Bond As Per Is Codes	Bl5 Evaluate
	Design Of T-Beams, L-Beams & Continuous Beams As Per Is Code	Bl5 Evaluate
	Design Of Beams For Combined Shear, Bending & Torsion As Per Is Code	Bl5 Evaluate
	Design Of Rectangular & Circular ColumnsWith Helical Reinforcement As Per Is Code	Bl5 Evaluate
Principles Of Management And Quantitative Techniques (Cv325)	Demonstrate Leadership Quality As Member Of A Team, For Effective Management Of Construction Projects.	Bl3:Applying
	Apply The Various Optimization TechniquesFor Decision Making In Construction Industry.	Bl3:Applying
	Describe The Inventory Of A Project Or Industry.	Bl2:Understanding
	Assess And Assure About Quality Of Materials And Workmanship, In Civil Engineering Projects.	Bl5:Evaluating
	Describe Resources Library And MarketRates, Perform Rate Analysis .Prepare A Wbs (Work Breakdown Structure) And Prepare An Estimate Etc. Using The ErpSystem.	Bl2:Understanding
	Calculate Revenue To Date For The Project, Evaluate The Performance Of A Firm Based On Financial Statements And Manage Working Capital Of A Construction Company.	Bl3:Applying
(Self Learning Technical Course) (Cv326)	1. Plan The Rural Roads And Develop RuralRoad Network.	Bl2:Understanding
	2. Design Different Elements Of Road Geometrics Of Rural Roads.	Bl3:Applying
	3. Apply The Knowledge Of Using Locally Available Materials For Construction And Maintenence Of Low Cost Rural Roads.	Bl3:Applying
	4. Design The Rural Road Pavement As Per Irc Standards.	Bl3:Applying
	5. Carry Out Construction And MaintenanceOf Rural Roads.	Bl2:Understanding

Project On Steel Structures (Cv327)	Design The Various Components Of Industrial Shed With Roof Truss Or Portal Frame Or Gable Frame	Bl5:Evaluating
	Prepare Drawings Of Industrial Shed With Roof Truss Including Gusset Plates, Bearing Plates And Foundation Details	Bl5:Evaluating
	Design The Various Components Of Building Frame/Foot Bridge/Welded PlateGirder	Bl5:Evaluating
	Prepare Drawings Of Building Frame/Foot Bridge/Welded Plate Girder In Details Of The Sections With Bolted And Welded System	Bl5:Evaluating
	Analyze Any One Of The Structure Using Any Standard Civil Engineering Software	Bl4:Analyzing
	Analysis And Design Report Generation As Per The Requirements Of Civil Engineering Industry	Bl4:Analyzing
Assessment of Field Training Report (Cv328)	Demonstrate The Use,Interpretation And Application Of An Approprite International Engineering Standard In A Specific Situtations.	Bl3:Applying
	Analyze A Given Engineering Problem, Identify An Appropriate Problem Solving Methodology ,Implement The MethodologyAnd Propose A Meaningful Solution.	Bl5:Evaluating
	Conclude A Project Within A Given Time Frame.	Bl5:Evaluating
	Apply Prior Acquired Knowledge In Problem Solving	Bl3:Applying
	Apply Factual Approach To Decision Making.	Bl2:Understanding
	Recomming Solution To Resolve Problems.	Bl5:Evaluating

FINAL YEAR

SEMESTER - I		
Course Code And Name	**Co**	**Bl**
Course: Design Of Concrete Structures-I (Cv411-19)	Apply Â€˜Limit Stateâ€™ Design Approach For Designing Various Elements Of Concrete Structures For Strength And Serviceability	Bl3 Apply
	Design Various Types Of Slabs Viz. One Way Slabs, One Way Continuous Slabs, Two Way Slabs, Cantilever Slabs As Per Is Code	Bl5 Evaluate
	Design Of Singly & Doubly Reinforced Sections For Flexure, Shear & Bond As Per Is Codes	Bl5 Evaluate
	Design Of T-Beams, L-Beams & Continuous Beams As Per Is Code	Bl5 Evaluate
	Design Of Beams For Combined Shear, Bending & Torsion As Per Is Code	Bl5 Evaluate
	Design Of Rectangular & Circular Columns With Helical Reinforcement As Per Is Code	Bl5 Evaluate
Course: Quantity Surveying & Valuation (Cv412-19)	Select Specifications For Different Items Of Work In A Building.	Bl4 Analyze
	Evaluate Quantity Of Various Civil Engineering Works And Rate Of Items Of Work Based On Material And Workmanship	Bl5 Evaluate
	Classify Types Of Contracts And Tenders For Civil Projects.	Bl4 Analyze
	Illustrate Professional Ethics In Civil Engineering Sector	Bl4 Analyze
	Interpret Concept Of Value, Price And Cost Used In Civil Engineering Sector.	Bl2 Understand
	Evaluate Value Of Land And Buildings Using Different Methods Of Valuation	Bl5 Evaluate
Course: Earthquake Engg. (Cv413-19)	To Explain Concept Of Siesmology	Bl2 Understand
	To Demonstrate The Knowledge Of Dynamic Analyisis	Bl3 Apply
	Corelate The Knowledge Of Dynamics For Earthquake Enginerring	Bl4 Analyze
	Calculate Siesmic Load For Multystory Building	Bl5 Evaluate
	Evalution Of Siesmic Forces	Bl4 Analyze
	Adopt Concept Of Earthquake Reisistance Low Cost Building Concept For High Rise Building	Bl3 Apply

Course: Engineering Management- Ii (Cv414-19)	Plan The Project And Prepare Bar Chart And Network To Optimize The Project Duration And Cost	Bl4 Analyze
	Update The Network And Re Evaluate The Resources.	Bl5 Evaluate
	Demonstrate The Decision Making Abilities Based On Economics In Projects And To Appraise Alternative Projects	Bl3 Apply
	Analyze Life Cycle Cost And Value Of The Project.	Bl4 Analyze
	Use Appropriate Project Management Application Software For Planning, Tracking And Reporting Progress Of Civil Engineering Projects	Bl5 Evaluate
Course: Elective - Ii (Cv415-19)	Examine The Sources Of Air Pollution And Their Effect On Human, Plants And Material	Bl3 Apply
	Analyze The Effect Of Various Meteorological Parameter And Stability Conditions On Air Pollutant Dispersion.	Bl3 Apply
	Select Appropriate Methods For Air Sampling And Analysis	Bl3 Apply
	Analyze The Effects Of Photo-Chemical Smog, Odor And Indoor Air Pollution	Bl4 Analyze
	Design Control Equipment Of Air Pollution	Bl5 Evaluate
	Apply Emission Standards And Legislation For Air Pollution Control	Bl3 Apply
Course: Seminar (Cv416-19)	Collect Information, Understand And Describe It	Bl1 Remember
	Write Technical Documents And Give Oral Presentations Related To The Work Completed	Bl4 Analyze
	Show The Ability To Communicate Effectively As An Individual	Bl3 Apply
	Use The Techniques, Skills, And Modern Tools And Modern Softwares	Bl3 Apply
	Develop Ability To Utilize Various Technical Resources	Bl4 Analyze
	Understand Professional And Ethical Responsibility	Bl4 Analyze

Course: Project Work (Cv417-19a)	Identify And Formulate Civil Engineering Problems To Meet Desired Need Within Realistic Constraints	Bl6 Create
	Design The Solution Using Modern Design Tools And Techniques With The Understanding Of The Impact Of EngineeringSolutions In A Global, Economic, Environmental, And Societal Context	Bl6 Create
	Develop An Ability To Work On Multidisciplinary Environment To Evaluate The Economic And Financial Performance Of An Engineering Activity	Bl5 Evaluate
	Build Models, Prototypes And Conduct Various Experiments To Develop Diverse SetOf Design Solutions With Appropriate Consideration For Safety	Bl6 Create
	Break Down A Complex Problem Into Parts And Analyze The Relationships Between The Different Parts Of Complex Problem	Bl4 Analyze
	Show An Ability To Communicate Effectively In Team And Present Results As A Team, With Smooth Integration, Substantiated Conclusions And Documentation Of Project Work	Bl3 Apply
Course: Assessment Of Report On Field Training-Ii (Cv418-19)	Demonstrate The Use, Interpretation And Application Of An Approprite International Engineering Standard In A Specific Situtations.	Bl3 Apply
	Analyze A Given Engineering Problem, Identify An Appropriate Problem Solving Methodology ,Implement The Methodology And Propose A Meaningful Solution.	Bl5 Evaluate
	Conclude A Project Within A Given Time Frame.	Bl5 Evaluate
	Apply Prior Acquired Knowledge In Problem Solving	Bl3 Apply
	Apply Factual Approach To Decision Making.	Bl2 Understand
	Recomming Solution To Resolve Problems.	Bl5 Evaluate

SEMESTER- II		
Course Code And Name	**Co**	**Bl**
Course: Project Work (Cv417-19)	Identify And Formulate Civil EngineeringProblems To Meet Desired Need Within Realistic Constraints	Bl6 Create
	Design The Solution Using Modern DesignTools And Techniques With The Understanding Of The Impact Of Engineering Solutions In A Global, Economic, Environmental, And Societal Context	Bl6 Create
	Develop An Ability To Work On Multidisciplinary Environment To EvaluateThe Economic And Financial Performance Of An Engineering Activity	Bl5 Evaluate
	Build Models, Prototypes And Conduct Various Experiments To Develop DiverseSet Of Design Solutions With Appropriate Consideration For Safety	Bl6 Create
	Break Down A Complex Problem Into PartsAnd Analyze The Relationships Between The Different Parts Of Complex Problem	Bl4 Analyze
	Show An Ability To Communicate Effectively In Team And Present Results AsA Team, With Smooth Integration, Substantiated Conclusions And Documentation Of Project Work	Bl3 Apply
Course: Design Of Concrete Structures-Ii (Cv421-19)	Identify The Various Design Philosophies	Bl2 Understand
	Design The Various Reinforced Cement Concrete Structural Components Such As Staircases & Footing By Limit State Method	Bl5 Evaluate
	Understand The Basic Concepts AndSystems Of Prestressing	Bl2 Understand
	Analyze The Losses Of Prestress Members.	Bl4 Analyze
	Analyze And Design The End Block	Bl5 Evaluate
	Design Of Counterfort Retainnig Walls &Rcc Water Tanks By Approximate Indian Standard Method	Bl5 Evaluate
Course: Construction Practices And Town Planning (Cv422-19cptp)	Plan Layout Of Small Town	Bl4 Analyze
	Select And Identify Inputs For Town Planning	Bl4 Analyze
	Explain Various Laws Related To City And	Bl2 Understand
	Rural Development	
	Classify Construction Equipment As Per Requirement Of Building Structure	Bl4 Analyze
	Calculate Output Of Construction Machines	Bl3 Apply
	Explain Appropriate Safety Measures	Bl2 Understand

Course: Transportation Engineering-Ii (Cv423-19)	Show Geometric Design For The Railway Tracks.	Bl3 Apply
	Evaluate Engineering Properties Of The Materials, To Calculate The Material Quantities Required For Construction.	Bl3 Apply
	Show Simple Turnout At Points And Crossings And Describe The Geometric Design And Working Principles Of Railway Interlocking System	Bl3 Apply
	Show Airport Layout, Design Facilities Required For Runway, Taxiway And Impart	Bl3 Apply
	Explain Knowledge About Visual Aids.	Bl2 Understand
	Describe Components Of Docks And Harbor And Their Working Principles	Bl2 Understand
Course: Elective - Iii Solid And Hazardous & Waste Management (Cv424-19)	Understand The Functional Outline For Solid And Hazardous Waste Management	Bl2 Understand
	Classify Common Types Of Solid Waste	Bl4 Analyze
	Select And Adopt The Appropriate Waste Disposal Method For The Prevailing Situation	Bl5 Evaluate
	Predict Consequences And Ill Effects Of Improper Solid Waste And Hazardous Waste Management	Bl3 Apply
	Implement Legal, Political And Administrative Considerations In Design And Operation Of Solid And Hazardous Waste Management	Bl3 Apply
Course: Elective - Iii - Traffic Engg. & Control (Cv424-19eleliiib)	Undertake Various Traffic Studies And Analysis Of Traffic Data Including Parking Studies And Calculation Of Parking Demand.	Bl4 Analyze
	Paraphrase Relation Between Flow, Density, Speed, Concept Of Level Of Service For Urban And Rural Area.	Bl2 Understand
	Define Traffic Regulations On Vehicle, Driver And Speed. Also Able To Understand	Bl1 Remember
	Various Traffic Control Devices Like Different Signs, Markings, Signals And Lighting.	
	Demonstrate Intelligent Transport System (Its) And Their Application In Traffic Engineering.	Bl3 Apply
	Demonstrate The Use Of Various Instruments Used In Traffic Studies And Their Applications.	Bl3 Apply
	Demonstrate The Use Of Traffic Volume Measurement Instrument.	Bl3 Apply

Course: Project On R. C. C. Structures(Cv425-19)	To Study Is Recommendations & Limit State Theory In Design Of Structures	Bl1 Remember
	Analysis And Design Of Rcc Building	Bl5 Evaluate
	Prepare Detailed Drawing Of Rcc Sections	Bl2 Understand
	Analysis And Design Of Combined Footing	Bl4 Analyze
	Analysis And Design Of Pile Foundation For Structure With Pile Cap	Bl5 Evaluate
	Analysis And Design Of Water Tank By Working Stress Method Using Is:3370	Bl5 Evaluate

DEPARTMENT OF COMPUTER SCIENCE& ENGINEERING

SECOND YEAR

SEMESTER-I		
Course Name & Code	**Course Outcomes**	**Bloom's Level**
APPLIED MATHEMATICS-I (CS211-19)	Solve higher order linear differential equation with constant coefficient	BL3
	Apply Laplace and inverse Laplace transforms for solving linear differential equations.	BL3
	Express a function in terms of sine's and cosines components so as to model simple periodic functions and solve problems on even and odd functions	BL4
	Find the relation between two variables for the given data using regression	BL4
	Solve problems on Z transform and explain its properties	BL2
	Sketch and explain various problems based on queuing theory	BL3
Discrete Mathematical structure (CS212)	Make use of connectives and develop well-formed formulas and find the equivalence of formulas and equivalent normal forms.	BL2 Understand
	Construct principal normal forms for given statement formulas.	BL3 Apply
	Apply set theory and relations to draw conclusions.	BL3 Apply
	Define the function and apply it to different scenarios.	BL2 Understand
	Demonstrate use of Algebraic structures with examples.	BL2 Understand
	Illustrate the concepts of algebraic systems, lattices &Boolean algebra with examples.	BL2 Understand
Data Communication(CS 213)	Send data through various data communication modes.	BL1
	Differentiate between the OSI reference model and TCP/IP model.	BL2
	Identify and classify different physical media and devices.	BL2
	Demonstrate functions of Data Link Layer.	BL3
	Implement IEEE standard frame format and	BL3
	understdifferent medium access protocols.	
	Simulate different routing algorithms in Network Layer.	BL4

DIGITAL TECHNIQUES (CS214-19)	Design and analyze digital circuits.	BL1, BL2
	Demonstrate the principles of combinational logic design and sequential circuit design.	BL1, BL2
	Design different digital circuits based on available instruction set.	BL1, BL2
	Design Digital circuit using VHDL code.	BL1, BL2
	Design, implement and analyze, asynchronous and synchronous sequential circuits.	BL1, BL2
	Explain Boolean algebra and the various methods of Boolean function reduction, Kmap Reduction.	BL1, BL2
Computer Graphics (CS215)	Summarize the working principle of display devices, interactive input devices and graphic applications.	BL2
	Analyse line, circle, ellipse and character generation algorithms.	BL3
	Evaluate geometrical transformations including translation, scaling, rotation, reflection and shear for 2-Dimensional objects.	BL2
	Apply clipping procedure on points, lines and polygons using clipping algorithms.	BL4
	Applying Warnock algo. to detect hidden surfaces.	BL2
	Explain Curves in Computer Graphics	BL3
ADVANCED C CONCEPTS (CS216-19)	Define and demonstrate storage classes in C.	BL1, BL2
	Develop recursive solutions for given problems.	BL3, BL6
	Implement file concepts and pointer concepts.	BL3
	Describe and implement searching algorithms - linear, binary search technique.	BL2,BL3
	Describe and implement sorting algorithms –like selection sort, insertion sort, merge sort etc.	BL2,BL3
	Describe and implement hashing technique.	BL2,BL3

SEMESTER - II		
Course Name & Code	**Course Outcomes**	**Bloom's Level**
Theory of Computation (CS222)	Construct finite automaton for a given regular expression and Simplify automata	BL3 APPLY
	Apply the Kleene's Theorem to solve NFA problems	BL3 APPLY
	Explain Context Free Grammar and parsing techniques.	BL2 UNDERSTAND
	Construct a pushdown automaton for a given CFL and CFG.	BL3 APPLY
	Explain Pumping Lemma property and closure properties of context-free languages.	BL2 UNDERSTAND
	Construct a Turing machine for given problem and variations of Turing machines	BL3 APPLY
Microprocessors CS223	Explain the basic microprocessor architecture, its functionality	BL2 Understand
	Apply knowledge and demonstrate programming proficiency using the various addressing modes and instructions of the 8086 microprocessor	BL3 Apply
	Explain the effects of the configuration of the bus on the overall performance of a system	BL2 Understand
	List out different types of interrupts and its functions	BL2 Understand
	Outline the architecture and operation of Programmable Interface Devices and interfacing with 8086	BL2 Understand
	Explain the advanced microprocessor series of 8086	BL2 Understand
Data Structures (CS224)	Explain the basic concepts of data structures and demonstrate stack as a linear data structure	BL2 Understand
	Develop programming skills to implement and analyze Queues as a linear data structures.	BL3 Apply
	Develop programming skills to implement Linked list as a linear data structures and apply this data structure for problem solving.	BL3 Apply
	Develop programming skills to implement and analyze Binary Tree, Binary Search Tree as a nonlinear data structure.	BL3 Apply
	Apply various operations on multi-way search trees, B-trees, AVL tree and evaluate their performance.	BL3 Apply
	Develop skills to design and implement graph data structure and build real life applications using it	BL3 Apply
Computer Networks cs225	Demonstrate the purpose of IP	BL2
	Analyse application protocol using the services offered by the transport layer protocol such as, TCP,UDP etc.	BL4
	Develop client server model , chat application program using socket programming	BL3
	Show the function the functioning of DHCP ,DNS BOOTP.	BL1
	Explain the various features and oeration of application layer protocol	BL2
	Explain the functioning of web based mail system and web services mechanism	BL2

Object oriented programming through C++ CS226	Illustrate principles of OOP like data abstraction,polymorphism,Inheritance and File handling.	BL3
	Implement OOPS concepts through C++	BL3
	Demonstrate understanding of Object oriented concepts like inheritance,operator overloading ,streams etc.	BL3
	Solve the real world problems using learned object oriented concepts.	BL5

THIRD YEAR

SEMESTER-I		
Course Name & Code	**Course Outcomes**	**Bloom's Level**
Software Engineering(CS313)	Develop the software project using appropriate process	Bl1 Remember
	Develop a software project from requirement gathering to implementation.	Bl2 Understand
	Create design of system by using different design techniques	Bl2 Understand
	Estimate the cost and effort of software project.	Bl5 Evaluate
	Improve quality of the software project by applying testing of software	Bl3 Apply
	Influence activities in software project by usingproject planning, execution & closure with new agile method	Bl3 Apply
Java Programming (CS317)	Understand Java Runtime Environment and fundamentals of java.	Bl2 Understand
	Develop Object oriented programming paradigms using Java language.	Bl3 Apply
	Construct the basic Java API Classes in Application programming.	Bl3 Apply
	Apply Client Server methodology using socket programming in java and implement the conceptof RMI.	Bl3 Apply
	Apply and analyze platform independent application runtime environment to createstandalone GUI using Java language.	Bl3 Apply
	Build connection between different types of databases using java.	Bl3 Apply
Database Engineering (CS314)	Define and apply the basic concepts of database system design, relational model and schema.	Bl 2 Understand
	Design principles for logical design of database, including the E-R method and normalizationapproach for any real time application.	Bl6 Create
	Evaluate, using relational algebra and SQL, solutions to a broad range of query problems in arelational DBMS.	Bl 5 Evaluating
	Demonstrate an understanding of normalizationtheory and apply such knowledge to normalize a database.	Bl 2 Understand
	Compare the basic database storage structures and access techniques: indexing methods including B-	Bl4 Analyze
	tree, and hashing.	
	Be familiar with the basic issues of transaction processing (ACID properties), different methods of concurrency control and recovery techniques.	Bl 2 Understand

SYSTEM PROGRAMMING (CS311-20)	Identify the requirement of different System Software for the execution of applicationsoftware.	BL2
	Design and implement various System Programs Assembler and Macros.	BL6
	Recognize the importance of language processing development tools in formal language implementation.	BL2
	Examine the function of linker and loader	BL4
OPERATING SYSTEMS (CS312-20)	Explain the role of operating system and working of different operating systems.	BL1
	Understanding the concepts of process and threads along with its working.	BL2
	Gain knowledge of process scheduling and working with different scheduling algorithms.	BL2
	Interpreting typical semaphore problem and other problems of synchronization along with monitors.	BL3
	Learn the principles of deadlock and methods forhandling deadlocks along with different memory management techniques.	BL4
	Demonstrate virtual memory management anddifferent page replacement techniques in use.	BL4
DESIGN AND ANALYSIS OF ALGORITHM (CS315)	Analyze the Asymptotic Performance of Algorithm (Best, Worst. Average Case).	BL4
	Calculate the time and space complexity of an algorithm.	BL4
	Demonstrate the familiarity with the major Algorithm (Searching and Sorting) .	BL4
	Apply important algorithmic design paradigmsand methods of analysis(Divide & Conquer, Greedy, Dynamic, Backtracking approach)	BL3
	Apply algorithm design paradigm to solve real life problem	BL3
	Identify P, NP, NP-complete and NP-Hard Problem and differentiate between tractable andintractable problems.	BL4
PYTHON	Install and run python interpreter.	BL4
PROGRAMMING (CS316-20)	Develop proficiency in creating applications using python programming language.	BL4
	Design various data structure problems available in python and apply them in solvingcomputational problem.	BL4
	Use fundamental library packages available in python.	BL3
	Design python application using procedure oriented and objects oriented approach.	BL4
	Develop database application in python.	BL4
	To be able to do testing and debugging of codewritten in python.	BL4

SEMESTER - II		
Mobile Application Development (CS325)	Understand mobile app development aspects	Bl2 Understand
	Understand services and bound services application	Bl2 Understand
	Demonstrate new applications to handle devices with capabilities as communication, computing etc.	BL3 APPLY
	Analyse testing, signing, packaging and distribution of mobile apps	BL4 ANALYZE
	Develop mobile applications using modern mobile development tools for android.	BL6 CREATE
Unix Operating System (CS 322)	1. Describe architecture of Unix, its kernel and file system.	Bl2 Understand
	2. Apply algorithms of buffer allocation, buffer releasing, buffer reading and writing	BL3 APPLY
	3. Apply algorithms of regular file for inode assignment and disk block allocation.	BL3 APPLY
	4. Use system calls and program the Shell.	Bl3 Apply
	5. Describe structure of process, Memory and I/O management.	BL3 APPLY
	6. Implement programs using shell script.	Bl3 Apply
Computer Organization and Architecture (CS323)	Describe the functional architecture of computing systems.	Bl 2 Understand
	Analyze various algorithms for arithmetic computation and arrive at fastest one.	Bl 2 Understand
	Use ARC Processor based instructions to write assembly language program.	BL4 ANALYZE
	Analyze different method of control unit design.	Bl3 Apply
	Exemplify in a better way the I/O and memory organization	Bl3 Apply
	Demonstrate the design aspects of memory, instruction level parallelism and multiprocessors.	BL4 ANALYZE
Artificial Intelligence(CS324)	Illustarte and solve sequence of actions for an agent as a search problem.	Bl2 Understanding
	Infer from represented knowledge using logical and probabilistic reasoning methods	Bl2 Understanding
	Solve agent decision problems using probability theory	Bl3 Applying
	Analyze forms of learning and demonstrate their working.	Bl4 Analyzing
	Determine and implement an appropriate given real world supervised learning problem	BL5 Evaluate
Compiler Construction	Students can analyze various phases of compiler	Bl4
	Students can build lexical analyzer using different lex tools	Bl3
	Students will be able to design the parser for compiler.	Bl6
	Students can analyze intermediate code and optimize it if possible.	Bl4
	Students can discover various issues in the design of code generation	Bl4
	Students can apply different optimization techniques in the design of compiler	BL3

CS326A - Elective-I : 1. OBJECT ORIENTED MODELING & DESIGN	Demonstrate the key principles used in OO analysis, design and development	BL2 UNDERSTAND
	Explain the working understanding of the object oriented analysis and design.	BL2 UNDERSTAND
	Apply the knowledge of object oriented modeling and design to the given software development project	BL2 UNDERSTAND
	Apply the knowledge of behavioural and architectural modeling using UML for a given software development project.	BL2 UNDERSTAND
	List the objects of Unified Modeling Language for a given problem statement.	BL3 APPLY
	Devise the real world problem using object oriented modeling technique.	BL3 APPLY

FOURTH YEAR

SEMESTER-I		
ACA CS411	Distinguish the concepts of parallelism, multiprocessor systems & SIMD architectures	BL2: Understanding
	Estimate instruction sets, RISC & CISC processors and working of memory hierarchy technology	BL3: Application
	Compare the performance of conventional linear and non-linear pipelines	BL 5: Evaluating
	Select multiprocessor and multicomputer architectures, synchronization mechanisms	BL4: Analysis
	Analyse dataflow architectures, operators, static and dynamic, SIMD architectures	BL4: Analysis
	Compare the different types of parallel programming models and optimizing the compilers.	BL 5: Evaluating
Distributed Systems CS412	Define the basics of distributed systems and middlewar	BL 1: Remembering
	Explain distributed systems using various techniques such as IPC,RMI,CORBA and various architectures used to design distributed systems, such as client-server and peer-to-peer. .	BL2: Understanding
	Write typical algorithms related to synchronization and deadlock in distributedsystems	BL 5: Evaluating
	Evaluate various distributed mutual exclusion algorithms and distributed deadlock detection algorithms.	BL 5: Evaluating
	Apply knowledge of various Distributed Filesystem, its architecture and working for active research at the forefront of these areas.	BL3: Application
	Apply emerging trends of distributed systems in a real world setting across GRID,SOAareas.	BL3: Application
MDS	Discuss different database architectures	BL2: Understanding
	Compare different parallel algorithms	BL5: Evaluate
	Solve queries based on OLAP concepts	BL6: Create
	Create object oriented databases and measure	BL6: Create
	the cost of query processing	
	Discuss big data with hadoop concepts	BL2: Understanding
	Create databases using SQL, NoSQL & PostgreSQL concept	BL6: Create

INTERNET OF THINGS IoT (CS414-19)	Understand basics of Internet of Things	BL2 UNDERSTAND
	Identify the Architecture and various elements of an IoT System	BL2 UNDERSTAND
	Understand the IoT standards and connectivity protocols	BL3 APPLY
	Describe security concerns and challenges while implementing IoT solutions	BL3 APPLY
	Describe components of IoT Architecture and platforms of IoT ecosystem	BL3 APPLY
	Describe and choose Sensors and Actuators	BL3 APPLY
PROGRAMMING WITH PYTHON (CS416-19)	Utilize Python standard library modules in writing Python scripts for problem solving.	BL3 APPLY
	Demonstrate Python scripts in procedural and object-oriented style.	BL2 UNDERSTAND
	Develop Python scripts to perform database operation	BL3 APPLY
	Develop Python scripts to perform network and web related operations.	BL3 APPLY
	Test and profile Python scripts	BL6 CREATE
	Developing custom exception	BL3 APPLY
OOMD (Elective) (CS-415-19-C)	Demonstrate the key principles used in OO analysis, design and development	BL2 UNDERSTAND
	Explain the working understanding of the object oriented analysis and design.	BL2 UNDERSTAND
	Apply the knowledge of object oriented modeling and design to the given softwaredevelopment project	BL2 UNDERSTAND
	Apply the knowledge of behavioural and architectural modeling using UML for a given software development project.	BL2 UNDERSTAND
	List the objects of Unified Modeling Language for a given problem statement.	BL3 APPLY
	Devise the real world problem using object oriented modeling technique.	BL3 APPLY
PROJECT PHASE-I (CS417-19)	Identify, Interpret & Define A Realistic Problem Statement.	Bl2 Understand
	Select & Apply An Appropriate Technique To Create A Design	Bl3 Apply
	Analyse The Needs To Meet Desired Within Realistic Multiple Constraints	Bl4 Analyze
	Develop Soft Skills Including Presentation, Writing & Convincing.	Bl6 Create
	Categorize The Impact Of Engineering Solutions In A Global, Economic,Environmental,	Bl4 Analyze
VOCATIONAL TRAINING (CS418-19)	Dentify Problem Statement	Bl2 Understand
	Understand Professional Ethics	Bl2 Understand
	Get Antiquated With Latest Technologies	Bl5 Evaluate
	Develop Presentation Skills	Bl6 Create

SEMESTER - II		
MIS(CS421)	Understand the need of MIS and its uses in business	BL2: Understanding
	Use computerized management information systems in business	BL3: Apply
	In depth analysis and decision making	BL2: Understanding
	Understand information system using principles of communication technologies	BL2: Understanding
	Apply modern project management techniques	BL3: Apply
	Understand security related issues in information system	BL2: Understanding
ICS	Apply the concepts of symmetric ciphers.	3 Application
	Use the block ciphers for encryption and decryption.	5 Evaluating
	Implement the algorithms used in public key cryptography.	6 Creating
	Evaluate the security used in IP and email.	5 Evaluating
	Implement the algorithms used in message authentication and hash functions.	6 Creating
	Demonstrate application of block chain technology.	4 Analysis
BDA	Identify need for Big Data analysis	BL2: Understanding
	Student must be able to understand the specialized aspects of big	BL2:
	data with the help of different big data applications	Understanding
	Analyse and identify Big data processing technology for analysing big data	BL4: Analysis
	Apply the knowledge of new technologies like hadoop to identify and solve the problems of digital world	BL3: Application
	Write a Map reduce Programs to process big data by identifying the use case	BL3: Application
	Build the solution for a given problem by using different data management technologies like HIVE,Cassendra ,Pig etc.	BL3: Application
Software Testing and Quality Asurance (CS4 24 A)	Identify what a software bug is, how serious they can be, and why they occur	BL2: Understanding
	Test software to meet quality objectives and requirements	BL 5: Evaluating
	Apply testing skills to common testing tasks	BL3: Application
	Perform the planning and documentation of the test efforts	BL3: Application
	Describe software quality concepts, assurance and standards	BL2: Understanding
	Use testing tools to test software in order to improve test efficiency with automation	BL3: Application

Web Technology (CS425)	Develop The Web Pages Using Html And Css.	Bl1 Remember
	Develop The Responsive Web Applications	Bl3 Apply
	Show The Forms And Validations For Your Website	Bl2 Understand
	Construct The Structure Of Web Page, To Store The Data In Web Document, And Transport Information Through Web.	Bl2 Understand
	Develop Web Application Using Client/Server Side Scripting Technologies For A Given Problem.	Bl2 Understand
	Develop Simple Web Application Using Server Side Php Programing And Database Connectivity Using Mysql.	Bl3 Apply

DEPARTMENT OF ELECTRICAL ENGINEERING
SECOND YEAR

SEMESTER – I		
Course Name &Code	**Course Outcomes**	**Bloom's Level (No. andName)**
Engineering Mathematics-III	Student can solve linear differential equations with constant coefficients.	BL:3-Applying
	Student can reduce homogeneous and Legendre's linear equation to linear differential equation with constant coefficients and solve it.	BL:3-Applying
	Students are able to use or apply Laplace transform for getting solution for electric circuits.	BL:3-Applying
	Student can solve partial differential equations.	BL:3-Applying
	Student can solve Cauchy integral problems and complex integration problems.	BL:3-Applying
	Students can compute Z - transform and Inverse Z – Transform.	BL:3-Applying
Electrical Machines-I	Explain the working principles, construction, and operation of DC machines and single-phase and three-phase transformers.	BL-2- Explain
	Solve numerical problems and analyse the performance of DC machines through different characteristics.	BL-3- Solve & BL-4-Analyse
	Apply the knowledge of testing and applications of DCmachines	BL-3- Apply
	Use different connections, develop the equivalent circuit and phasor diagram of transformers.	BL-3- Apply & BL-5-Develop
	Analyze the performance of transformers by conducting tests.	BL-4- Analyse
Electrical Measurement and Instrumentation	Define and apply the various characteristics of measuring instruments	BL1 & BL2-Understand
	Analyze the various parameters and draw the construction and working of different measuring instruments	BL2 & BL4
	Understand concept of potentiometer and Apply the fundamental measurement method of resistance, capacitance, inductance, frequency etc. by using various bridges with the help of bridge circuit and phasor diagram and other techniques .	BL2 & BL3
	Understand the various transducers for measurement of different parameters and apply the operation of CT and PT for different functions	BL2 and BL3
	Discuss the suitable applications of digital instruments	BL2
	Apply the operation of various oscilloscopes	BL2 & BL3

Power System I	•Student will be able to understand operation of different power plants	BL-2 Understand
	•Student will be able to analyze economic aspects of power system	BL-4 Analysis
	• Student will be able to investigate need and areas of application for non-conventional energy sources	BL-4 Analysis BL-3 Application
	• Students will be able to understand overhead structure of power system.	BL-2 Understand
Electronic Devices and Circuits	Define & Apply Basic Terms Used In Power System Operation And Describe & Apply The Concept Of Load Curve And Tariff Methods.	Bl2- Understand
	Solve The Problems Of Single Stage Bjt Amplifier	Bl3-Apply
	Analyze Hybrid Equivalent Circuit Of Bipolar Junction Transistor	Bl4-Analyse
	Understand The Concept Of Field Effect Transistor	Bl2- Understand
	Apply The Concept Of Filter To Design Unregulated Power Supply	Bl3 -Apply
	Classify Various Types Of Amplifiers	Bl4 -Analyze
Object Oriented Programming with C++	Student will be able to read, understand and analyze the simple C++ Program	BL2-Understand
	Student will be able to apply principal of OOP concept and explore their skill to develop complex C++ program	BL2 -Understand
	Student will be able to apply various OOP functions to write C++ program	BL3-Applying
	Student will be able to write the simple object orientedprograms in C++ using objects and classes	BL3-Applying
	Student will able to understand and apply the concept of Inheritance to write C++ program	BL3-Applying
	Student will be able to develope the applictions using object oriented programming with C++	BL3-Applying

SEMESTER – II		
Course Name & Code	**Course Outcomes**	**Bloom's Level (No. andName)**
Numerical Methods and Linear Algebra	To introduce to student to solve algebraic, transcendental and simultaneous linear equations by using various methods	BL-2 Understand
	To expose students to techniques of solving first order differential equation and simultaneous differential equation	BL:3-Applying
	To introduce the numerical methods for solving definite integrals	BL:3-Applying
	To develop the skills essential for solving matrix equationsand to find linear transformation, also to understand the theory of vector spaces and column spaces	BL-2 Understand
	To introduce to student the theory of eigen values andeigen vectors.	BL:3-Applying
	To introduce to student orthogonality property and inner product concept	BL-2 Understand
Electrical Machines-II	Explain the working principles, construction and operationof three-phase, single-phase induction motors and synchronous machines	BL-2- Explain
	Compare characteristics, starting and speed control of induction motors.	BL-2- Compare
	Solve problems on induction motors and synchronous Machines	BL-3- Solve
	Analyze the performance of three-phase, single-phase induction motors and synchronous machines through the equivalent circuit and vector diagram.	BL-4- Analyse
Power System II	Analyze the concept of corona and sag	BL3 APPLY
	Understand and apply the knowledge of resistance, inductance & capacitance of transmission line (single phaseand three phase),	BL3 APPLY
	Explain and use the knowledge of electrical, mechanical design of underground cables.	BL4 ANALYZE
	Analyze short, medium and long transmission line & calculate efficiency and regulation of short, medium &long lines.	BL4 ANALYZE
	Describe various power distribution systems & Calculate various parameters of power distribution systems	BL4 ANALYZE
	Summarize the components of substation equipments and methods of grounding	BL2 UNDERSTAND
Analog & Digital	Understand fundamentals of op amp and compare characteristics of ideal and practical op amp	BL2 UNDERSTAND
	Describe and analyze the concept open loop and closedloop configuration of op amp its applications	BL4 ANALYZE
	Understand the fundamentals of logic families.	BL2 UNDERSTAND
	Realize different combinational logic circuits	BL3 APPLY
	Analyze and Demonstrate synchronous and asynchronous sequential circuits using flip flops.	BL4 ANALYZE

Network Analysis	Solve network problems using mesh current and node voltage equations, theorems and two port network	BL3 APPLY
	Define and express the various electrical networks by graphical representation	BL2 UNDERSTAND
	Analyze the responses of first order and second order networks using time domain analysis	BL4 ANALYZE
	Examine and Analyze the circuit response using Laplace Transform	BL4 ANALYZE
	Examine and Analyze the circuit response using Laplace Transform	BL4 ANALYZE
Computer Aided Design [EL-226]	Handle Design and simulation software's for different applications in electrical engineering.	BL2: Understant
	Create and Design of Various devices used in electrical engineering	BL3: Application
	Simulate and Compute KCL, KVL and different network theorems	BL3: Application
	Analyze steady state condition of various electrical devices through simulation	BL4: Analysis

THIRD YEAR

SEMESTER-I		
Power System-III	**Explain** basic concepts of various powers, PU system and **Draw** single line diagram of given power system.	BL2 & BL1
	Analysing performance of power system during symmetrical fault and **select** proper circuit breaker underthis fault condition	BL4
	Draw and **calculate** various sequence impedance and network for a given system.	BL1 & BL3
	Derive expression for fault current equation under unsymmetrical fault.	BL3
	Analyze power equation for the solution of different load flow problem.	BL4
	Analyze steady state and transient stability of powersystem using analytical method	BL4
Linear Control System	**Explain** basic terminologies, types, configurations and applications of control systems.	BL-2
	Derive mathematical model of physical systems	BL-3
	Determine the transfer function of a given control system through various techniques.	BL-3
	Compute the time response and **analyse** the performance through time domain specifications, error constants	BL-3 & BL-4
	Examine the stability of given system.	BL-3
	Analyse the performance and stability of control system intime and frequency domain.	BL-4
Microprocessor and Microcontroller	List features of 8085, draw and explain pin diagram and architecture of 8085.	BL1 REMEMBER, BL2 UNDERSTAND, BL3 APPLY
	Compare microprocessor and microcontroller , define embedded system state its characteristics , draw and and explain pin diagram and architecture of 8051 microcontroller .	BL1 REMEMBER, BL2 UNDERSTAND, BL3 APPLY, BL4 ANALYZE
	Understand different assembly language programming tools, explain addressing modes and instruction set of 8051.	BL2 UNDERSTAND, BL3 APPLY
	Analyze various interfacing techniques for IO and peripherals.	BL4 ANALYZE
	Draw the diagram and write a machine code to interfacedifferent electrical devices with 8051.	BL3 APPLY, BL4ANALYZE

Electromagnetic Engineering	**Identify** and convert vectors in different co-ordinate systems. **Derive** expressions to calculate electric field intensity.	BL-1 BL-2&BL-3
	State and **apply** Gauss law, Divergence theorem and electric flux density. **Derive** expressions to solve numerical in electrostatic field.	BL-2 &BL-3
	Derive expression and **compute** numerical of ohm's law, Poisson's and Laplace's equation, boundary conditions for electric fields.	BL-3
	Explain and apply Biot-Savart law, Ampere's circuital law, Stoke's theorem and Lorentz force equation in magneto static field.	BL-2 &BL-3
	Define inductance and energy density in magnetic fields. **Derive** expression to calculate numerical on magnetic boundary conditions.	BL-1 &BL-3
	Derive Maxwell's equations in integral and point form for static, time varying and harmonically varying fields.	BL-3
Open Elective-I Managerial Economics	Explain the basic concepts of Managerial Economics	BL-2 Understand
	Relate the issue related to the demand, supply & market	BL-2 Understand
	Understand the use of diffrent tools for demand analysis& forecasting	BL:3-Applying
	Explain the production and cost function	BL-2 Understand
	Determine the price on the basis of market ,demand & supply	BL:3-Applying
Electrical Workshop	Understand different types of switches, sweachgears, meters, power supply, function generator, DSO, CRO	BL-2
	Study and apply different wiring systems	BL-1, BL-3
	Perform soldering and desoldering of components on PCB	BL-3

SEMESTER –II		
ElectricalMachine Design	Explain the basic concepts related to the design of Electrical Machine	BL2: Understant
	Design the main dimensions & analyze the performance ofsingle phase, three phase transformer	BL4: Analysis & BL5:Evaluate
	Estimate the main dimensions & analyze the performance ofDC machine	BL4: Analysis & BL5:Evaluate
	Calculate the main dimensions & analyze the performance of Induction Motor	BL4: Analysis & BL5:Evaluate
	Design the main dimensions & analyze the performance of Synchronous machine	BL4: Analysis & BL5:Evaluate
Electrical Utilisation	**Introduce** different types of traction systems and **compute** speed time curves for different services	BL-1,2
	Define and **explain** different braking systems, selection ofcontrol and auxiliary equipment.	BL-1,2
	Explain concepts, operation and application of different types of motors and **choose** motor for particular application.	BL- 2,3
	Describe and **apply** modern learning techniques of heatingand welding.	BL-2,3
	Discuss terms used in illumination and different types of lighting schemes	BL-2
	Explain the importance of Energy Conservation and maximizing the energy efficiency.	BL-2
Power Electronics (EL 323)	**Understand** the Principle of SCR & **Draw** its characteristics	BL1
	Understand the principal & operation of Various Power Electronic devices & **Draw** the Characteristics	BL1
	Understand the concepts & operating principles of phase controlled rectifiers, **Draw** the waveforms to each & **Analyse** the Average & R.M.S values.	BL1 & BL4
	Understand the concepts,operating principles of DC to DC converters & Analyse the DC-DC converters.	BL1 & BL4
	Understand the concepts, operating principles of inverters & **Analyze** inverter circuits	BL1 & BL4
	Understand the concepts,operating principles of AC to AC converters & **Analyze** AC to AC converters.	BL1 & BL4
Signals &Systems	Illustrate the types of basic signals and its properties	BL-2
	Classify the types of systems and its properties	BL-2
	Analyze LTI systems in the time domain using convolutionand Examine their properties using impulse response	BL-4
	Examine system in frequency domain & their properties byusing Z transform	BL-4
	Analyzing system in frequency domain & their properties byusing Fourier transform	BL-4
	Evaluate DFT and FFT of DT signals	BL-5

Open Elective-II Advancedcontrol System	**Design** and realize lead, lag, lag-lead compensators in time domain	BL-5
	Design various controller in frequency domain using Bodeplot.	BL-5
	Examine the control system using modern approach.	BL-3
	Design the control system using modern approach.	BL-5
	Explain the nonlinear systems and **Analyze** their performance using various techniques.	BL-2 & BL-4
	Derive discrete-time mathematical models and **analyze** the transient and steady state performance	BL-3 & BL-4
Open Elective-II Sensors & ApplicationsEL-325	**Elaborate** the concept of sensors and its characteristics.	BL-1
	State and Explain of working principle of analog and digital sensors.	BL-1 &BL-2
	Design sensor interface circuits for a given engineering problem.	BL-4
	Select an appropriate sensor for different engineering application	BL-1
	Describe the principle of sensor material and technology of a sensor.	BL-2
	Describe the working principle of different types of actuators.	BL-2
Mini Hardware Project	Understand, plan and execute a mini project with team.	BL-2, BL-3
	Device electronic hardware by implementing knowledge ofPCB design techniques, soldering techniques and hardware debugging techniques	BL-3
	Prepare technical report based on the mini project	BL-3
	Estimate cost of the mini project, deliver technical seminarover mini project.	BL-6

DEPARTMENT OF MECHANICAL ENGINEERING

SECOND YEAR

SEMESTER - I		
Course Name & Code	**Course Outcomes**	**Bloom's Level**
Applied Thermodynamics (ME211)	Apply basic laws of thermodynamics to engineering applications.	BL3 Apply
	Make use of steam tables & mollier diagram forsolving thermodynamic problems.	BL3 Apply
	Classify boilers and compare vapor powar cycles andfind various performance parameters.	BL2 Understand
	Determine performance of steam nozzles and explain condensers with their construction & working.	BL3 Apply
	Classify steam turbines and calculate their performance parameters.	BL3 Apply
	Describe reciprocating air compressor and calculate its performance.	BL3 Apply
Mechanics of Materials (ME212)	Determine the stresses, strains and deformation under various axial, torsional and flexural loading.	BL5 Evaluate
	Determine strain energy in axially loaded members	BL5 Evaluate
	Calculate principal stresses & position planes in a member subjected to various types of stress system by analytical & graphical method.	BL5 Evaluate
	Calculate principal stresses & position planes in a member subjected to various types of stress systemby analytical & graphical method.	BL5 Evaluate
	Determine torsional shear stress, angle of twist &design dimensions of shaft.	BL5 Evaluate
	Draw s.f.d, b.m.d and determine shear & bendingstresses, slope and deflection in various types of beams & sections.	BL5 Evaluate
Manufacturing Processes (ME213)	Select appropriate manufacturing process for a given component.	BL3 Apply
	Understand performance of each process.	BL2 Understand
	Prepare manufacturing plan for the given component	BL3 Apply
	Explain the methods adopted for their performance improvement.	BL2 Understand
	Performance analysis different types of Manufacturing processes.	BL3 Apply

Machine Drawing & CAD (ME214)	Recall knowledge regarding basics of machine drawing and bis conventions	BL1 Remember
	Construct free hand sketching of machine components.	BL3 Apply
	Relate the significance of auxiliary view and draw auxiliary views.	BL2 Understand
	List the significance and identify problems based on limits, fits and tolerances.	BL1 Remember
	Construct assembly, details drawing and identify applications of same.	BL3 Apply
	Construct 3-d drawing by using isometric projection method.	BL3 Apply
Internal Combustion Engines (ME215)	Distinguish between the different types of engine constructions and their thermodynamic principles.	BL2 Understand
	Differentiate the working principles and constructional details of various fuel systems used in different types of i. C. Engines.	BL3 Apply
	Explain the methods adopted for their performance improvement.	BL3 Apply
	Correlate the difference in si and ci engine combustion processes with the design of combustion chambers used in these engines.	BL3 Apply
	Performance analysis different types of i. C. Engines.	BL4 Analyze
	Develop the understanding of alternative fuels for i. C. Engines and i.c. engines pollution.	BL3 Apply

SEMESTER - II		
Course Name & Code	**Course Outcomes**	**Bloom's Level**
Engineering Mathematics-III (ME221)	Student can solve partial differential equation of first order	BL3 Apply
	Student can express a function in terms of sine and cosine components so as to model	BL3 Apply
	Student can use numerical methods for evaluating definite integrals.	BL3 Apply
	Student can use numerical methods for solving linear and non-linear equations.	BL2 Understand
	Student can sketch and explain various probability distribution functions.	BL2 Understand
	Students can use correlation concept in dat to day life and estimate lines of regression	BL2 Understand
Manufacturing Technology (ME222)	Apply different mechanisms, accessories, attachments and operations of lathe machine.	BL3 Apply
	Understand and analyze frequency response of op amp	BL3 Apply
	Make use of reciprocating machine tools	BL3 Apply
	Experiments with different operations of milling machine and solve indexing problems..	BL3 Apply
	Make use of grinding machine tools.	BL3 Apply
	Explain and compare the concept of unconventional machining processes.	BL3 Apply
Fluid Mechanics & Fluid Machines (ME223)	Explain total pressure, center of pressure on plane and curved surfaces encountered in damstructures, and metacentric height of floating & submerged body in a static fluid.	BL2 Understand
	Identify types of fluid flow and calculate velocity, acceleration, stream function andvelocity potential at any point in the fluid flow.	BL3 Apply
	Illustrate different flow measurement devices& energy lossess in a pipe network using darcy weis-batch and empirical formulae.	BL2 Understand
	Construct mathematical correlation for fluid flow phenomenon in terms of dimensionless parameters & find out forces on immersed bodies.	BL3 Apply
	Solve impulse & reaction turbine for itsvarious design parameters.	BL3 Apply
	Make use of different operating parameters of centrifugal pump for finding its performance.	BL3 Apply

Kinematics & Theory of Machines (ME224)	Distinguish between the different mechanismsand draw velocity and acceleration diagram for different mechanisms.	BL2 Understand
	Predict cam profiles required for different motions of followers in different applicationsusing graphical method.	BL3 Apply
	Examine different parameters of brake dynamics.	BL3 Apply
	Identify and evaluate gear trains used in different power transmission applications	BL3 Apply
	Illustrate use of control devices such as governor and gyroscope in variousapplications.	BL3 Apply
	Perform balancing of rotating and reciprocating masses.	BL3 Apply
Power Plant Engineering (ME225)	Get basic knowledge for effective use of available energy sources by suitable planningof power generation in thermal, hydro, gas & atomic power plant.	BL2 Understand
	Describe energy conversion on power plants &describe role of various organization ofpower plants	BL2 Understand
	Explain load curves and load factors.	BL3 Apply
	Explain calculation of fixed & operating cost.	BL3 Apply
	Study the classification of wind energy conversion systems (wecs).	BL2 Understand
	Explain duties & responsibilities of energy auditors.	BL2 Understand
Mechanical Workshop-I (ME226)	Operate Different Machines Such As Lathe, Drilling, Milling, Grinding, etc.	BL2 Understand
	Demonstrate the understanding of process of manufacturing the component as per drawing and specifications.	BL2 Understand
	Differentiate between metal machining and composite machining.	BL2 Understand
Electrical Technology (ME227)	Develop the capability to identify and selectsuitable dc motors / ac motors for given applications in mechanical engineering	BL1 Remember
	Explain starting and determine speed-torque characteristics of electrical motors	BL2 Understand
	Describe and apply the concept of electricalheating and welding in manufacturing processe	BL2 Understand
	Discuss the concepts of digital circuits and usethese concepts in digital design	BL3 Apply
	Apply the concept of signal conditioning and explain the various applications of operational amplifier.	BL3 Apply
	Explain the fundamentals of microcontroller8051 and write its industrial applications.	BL1 Remember

THIRD YEAR

SEMESTER -I		
Machine Design –I (ME311)	Explain material Selection, Factor of safety, theories of failure and general design procedure.	BL4 Analyse
	Analysis of Design parameters of Simple Mechanical Parts under static and fluctuatingloading conditions.	BL4 Analyse
	Select and design proper belt and spring forvarious applications.	BL3 Apply
	Apply design considerations for casting, forging, assembly, manufacturing, non-metals, and environment.	BL4 Analyse
	Analysis of Design parameters of shafts, keys and couplings.	BL4 Analyse
	Analysis of Design parameters of welded, rivetedand bolted joint under various loading conditions.	BL4 Analyse
CAD-CAM & CAE (ME312)	Describe the concept of modern product cycle	BL2 Understand
	Apply knowledge of the fundamental mathematical theories for geometrictransformation.	BL3 Apply
	Apply cae analysis tool for simulation of 1-d component.	BL3 Apply
	Explain the concept of gt, capp and fms	BL2 Understand
	Select appropriate tooling for cnc machine.	BL4 Anlyze
	Outline part programming to operate cnc milling & turning machine to manufacture a mechanical part.bl4 analyze	BL4 Anlyze
Metallurgy (ME313)	Demonstrate relevance of principles of physical metallurgy and its significance.	BL2 Understand
	Identify and make use of various ferrous materialsfor engineering applications.	BL3 Apply
	Identify and make use of nonferrous alloys & advanced materials for engineering applications.	BL3 Apply
	Apply the knowledge for selection of proper heat treatment process for obtaining desired properties.	BL3 Apply
	Make use of suitable destructive and non-destructive methods for material testing.	BL3 Apply
	Utilize the powder metallurgy process for manufacturing of products.	BL3 Apply

Industrial Engineering and Operation Research (ME314)	Analyse and measure productivity.	BL4 Anlyze
	Perform method study and work measurement.	BL3 Apply
	Describe optimization process and OR models.	BL2 Understand
	Apply and develop various optimization techniques and prepare project plan for industrial applications.	BL3 Apply
Non-Conventional Machining (ME315) (Professional Elective-III)	Summarize different non-conventional machining processes.	BL 2 Understand
	Select the suitable non-conventional machining process based on mechanical energy source for suitable materials.	BL 4 Analyse
	Examine the Electric Discharge Machining (EDM) and Wire cut EDM processes and their applications.	BL 3 Apply
	Explain working principle, process parameters and applications of Chemical machining, Electro-Chemical machining, and Photochemical Machining.	BL 2 Understand
	Categorize different non-conventional processes based on thermal energy source and their applications.	BL 4 Analyse
	Discuss different coating methods like Metal Spraying, Metallic coating, Plasma flame spraying.	BL 2 Understand

SEMESTER –II		
Machine Design –II (ME321)	Calculate design parameters of spur gear and helical gear under different loading condition.	BL3 Apply
	Apply the design principles for pressure vessel design.	BL3 Apply
	To undestand basic terms related to statistical considerations in design.	BL2 Understand
	To deisgn the bevel gear.	BL3 Apply
	To deisgn the worm gear.	BL3 Apply
	To select bearing from manufacturer's catalogue.	BL3 Apply
Instrumentation & Control (ME322)	Students will understand the design & construction of measuring instruments.	BL2 Understand
	Students will setup the Instruments & accessories for measurement of properties by avoiding	BL3 Apply
	Students will calibrate the simple instruments using more accurate standards.	BL3 Apply
	Describe construction, functioning and application of various measuring instruments	BL4 Analyse
	Design control systems and draw block diagrams	BL3 Apply
	Analyze root locus diagram, Bode plot and discuss stability of mechanical system.	BL4 Analyse
Heat Transfer (ME323)	Apply 1-D heat conduction equations to solve wall, Cylinder, Sphere Problems.	BL3 Apply
	Analyze Heat transfer rate, Effectiveness & Efficiency in various cases of the fins.	BL4 Anlyze
	Apply different laws related to radiation for calculation ofheat transfer rate.	BL3 Apply
	Determine heat transfer coefficient associated with different geometries by considering natural and forcedconvection**.**	BL3 Apply
	Explain the boiling Curves and Types of Condensation.	BL2 Understand
	Analyze heat exchanger with the help of LMTD and NTU method.	BL4 Anlyze
Industrial & Quality Management (ME324)	Outline the different aspects of management for bettermentof organization.	BL4 Anlyze
	Illustrate the concept of Planning, organizing & staffing.	BL3 Apply
	Illustrate the concept of leading and controlling.	BL3 Apply
	Summarize the elements of quality along with its specifications.	BL2 Understand
	Select different quality control tools.	BL4 Anlyze
	Select different charts to check the quality of new products.	BL4 Anlyze

Plastic Engineering (ME325) (Professional Elective-IV)	Select the plastic materials for particular end user applications.	BL 3 Apply
	Suggest the suitable plastic molding process and welding technique for the end user application.	BL 3 Apply
	Design simple plastic components for end use application.	BL 3 Apply
	Design simple compression mold.	BL 3 Apply
	Design simple injection mold and gating system.	BL 3 Apply
	Calculate heat dissipated, mass flow rate of cooling medium and cooling time required.	BL 3 Apply
Mini Project (ME326)	To identify potential problems in engineering.	BL 2 Understand
	To provide a solution for the problem identified.	BL 3 Apply
	To express technical ideas, strategies and methodologies in written form.	BL 3 Apply
Metrology (ME327)	To illustrate the theoretical concepts taught in Mechanical Measurements & Metrology through experiments.	BL 3 Apply
	To illustrate the use of various measuring tools measuring techniques.	BL 3 Apply
	To understand calibration techniques of various measuring devices.	BL 3 Apply
Mechanical Workshop –III (ME328)	To set the manufacturing set up of different machining operations and study the corresponding set up parameters while working on actual machine tools.	BL 3 Apply
	To select appropriate and proper process parameter for obtaining desired requirement on work piece.	BL 3 Apply
	To identify the operational / processing problems andsuggest remedial solution for adopted manufacturing processes.	BL 3 Apply

FOURTH YEAR

SEMESTER -I		
Automatic Control Engineering (ME411)	Formulate mathematical model for different types ofcontrol systems.	BL2 Understand
	Compare the systems with the help of block diagram reduction rules to obtain closed loop transferfunction.	BL3 Apply
	Examine the modes of control in accordance with output of control system.	BL3 Apply
	Analyze transient response of the systems, steady state conditions and characteristics of a system whenit is in equilibrium state.	BL4 Anlyze
	Analyze root locus diagram, bode plot and discussstability of mechanical system.	BL4 Anlyze
	Evaluate state space techniques for representingcontrol systems.	BL5 Evaluate
Refrigeration and Air Conditioning (ME412)	Analyze various types of refrigeration systems such as vapour compression, air refrigeration, multi compression & multi-evaporative.	BL4 Anlyze
	Select refrigerants for different refrigeration systems.	BL3 Apply
	Explain various types of vapour absorption refrigerationsystems.	BL2 Understand
	Explain various psychrometric terms, psychrometric processes & factors forming load on air conditioning systems	BL2 Understand
	Make use of knowledge of human comfort & duct designwhile designing of air conditioning systems.	BL3 Apply
	Apply knowledge of contemporary issues in the area of refrigeration & air conditioning	BL3 Apply
Operation Research (ME413)	Choose operations research models & solve linear programming problems.	BL3 Apply
	Apply the optimization principles to solve assignmentand transportation problems.	BL3 Apply
	Analyze the strategies of operations research to solvegames & sequencing problems	BL4 Anlyze
	Build replacement model for getting life of machine	BL3 Apply
	Choose appropriate tools to solve the industrial problemsrelated to inventory analysis.	BL3 Apply
	Analyze operations research models for scheduling the projects.	BL4 Anlyze

Automobile Engineering (ME414-1)	Compare the different vehicle layouts and body styles.	BL2 Understand
	Calculate the performance parameters of the vehicle such as resistance to vehicle, gear box ratio, accelerationetc.	BL4 Anlyze
	Select and explain the different transmission systemcomponents for efficient power transmission.	BL3 Apply
	Explain the working of different electrical and electronic systems and their use in modern automobiles.	BL3 Apply
	Analyze the different parameters influencing the automobile control systems such as steering and braking system	BL3 Apply
	Explain the different suspension systems used in automobiles.	BL2 Understand
Production and Operational Management (ME-414-2)	Explain the various types of the production systems,scope and need of production and operation management.	BL2 Understand
	Illustrate the needs and types of forecasting methods and determine the future demands using different forecasting methods.	BL3 Apply
	Discuss the concept of capacity planning, and its elements, importance and measures.	BL2 Understand
	Examine the production planning & control and inventory control in production process and its elements.	BL3 Apply
	Categorize different phases of plant maintenance.	BL4 Anlyze
	Describe the modern elements of production systemslike value engineering, value analysis, six sigma, kanban, and computer aided production management. Etc.	BL2 Understand
	Select financial institutions for establishing new enterprise.	BL3 Apply
Project Work-I (ME416)	Identify, interpret, and solve problems in mechanical engineering.	BL2 Understand
	Analyze and predict the systems using design tools and techniques.	BL3 Apply
	Categorize the impact of engineering solutions in a global, economic, environmental, and societal context	BL4 Anlyze
	Analyse the needs to meet desired within realisticmultiple constraints	BL4 Anlyze
	Demonstrate the ability to work on multidisciplinary level.	BL3 Apply
	Demonstrate the leadership ability to communicate effectively in team	BL3 Apply

Industrial Training (ME417)	To understand industrial culture & organizational setup.	BL2 Understand
	To understand technical report writing and presentation.	BL2 Understand
	To apply theoretical knowledge with the actual in industry	BL3 Apply
	To understand responsibility and role of engineer in industry	BL2 Understand

SEMESTER – II		
Industrial Engineering(ME421)	Introduce industrial engineering. Analyze and evaluatethe productivity	BL4 Anlyze
	Make use method study to reduce down time in the production using different recording techniques.	BL3 Apply
	Explain ergonomics concepts for industrial safety	BL5 Evaluate
	Determine the standard time required for a job	BL5 Evaluate
	Recommendation of types layout need for particular production	BL5 Evaluate
	Evaluate the job merit rating and valuation of job	BL5 Evaluate
Industrial &Quality Management(ME422)	Outline the different aspects of management for betterment of organization.	BL4 Anlyze
	Illustrate the concept of organizing, staffing, leading and controlling.	BL4 Anlyze
	Break down the functions of various basic departments in organization	BL4 Anlyze
	Summarize the elements of quality along with itsspecifications	BL2 Understand
	Select different quality control tools and charts to checkthe quality of new products	BL4 Anlyze
	Outline the aspects of iso 9000, iso 14000 and requirements of iso 9001.	BL4 Anlyze
Non-Conventional Machining (ME-423-A)	Summarize different non-conventional machiningprocesses.	BL2 Understand
	Select the suitable non-conventional machining process based on mechanical energy source for suitable materials.	BL4 Anlyze
	Examine the electric discharge machining (edm) and wirecut edm processes and their applications.	BL3 Apply
	Explain working principle, process parameters and applications of chemical machining, electro-chemical machining, and photo-chemical machining.	BL2 Understand
	Categorize different non-conventional processes based on thermal energy source and their applications.	BL4 Anlyze
	Discuss different coating methods like metal spraying, metallic coating, plasma flame spraying.	BL2 Understand
Marketing Management (ME-424)	To familiarize with marketing, marketing management,the marketing environment and marketing planning process.	BL2 Understand
	To get acquainted with new marketing trends, market segmentation and consumer behavior.	BL2 Understand
	To study the components of the marketing mix; identifyhow the firms marketing strategy, product and price mix evolve and adapt to match consumer behavior and perceptions of the product.	BL3 Apply
	To study the components of the place and promotion mix; identify how the firms marketing strategy, place and promotion mix evolve and adapt to match consumer behavior and perceptions of the product	BL3 Apply

Project Work-II(ME425)	Analyze & summarize the collected information in the form of literature review.	BL4 Anlyze
	Analyze, design and synthesize systems/ processes to solve societal, environmental & public health problems.	BL4 Anlyze
	Select and use modern tools to understand impact of professional engineering solutions in a global, economical, environmental contexts, etc.	BL4 Anlyze
	Perform effectively as an individual or in a team by following professional ethics.	BL5 Evaluate
	Develop the ability to communicate effectively to comprehend and write professional documents such as research paper, project reports, etc.	BL6 Create
	Integrate engineering & management principles to manage projects and to engage in life long learning as per the need of change in technology.	BL6 Create

DEPARTMENT MASTER IN BUSINESS ADMINISTRATION

FIRST YEAR

SEMESTER - I		
Course Name & Code	**Course Outcomes**	**Bloom's Level**
Principles of management 407101.1	Define the basic managerial roles and understand modern management	BL1 remember
	Explain basic elements of organizing and classify the process of planning and decision making	BL2 understand
	Classify the functions of staffing and related with directing	BL2 understand
	Build leadership, creativity and innovation in an organization	BL3 apply
Accounting for managers 407102.1 **Accounting for managers** 407102.1	Define basic accounting terminologies.	BL1 remember
	Understand accounting process and system.	BL2 understand
	Describe process of preparation of final accounts	BL2 understand
	Define depreciation and company accounts	BL1 remember
	Understand contemptory issues in accounting.	BL2 understand
Managerial economics 407103.1	Understand concept of managerial economics	BL2 understand
	Understand the various applications of managerial economics	BL2 understand
	Analyze the demand & forecasting of the product	BL2 understand, BL4 analyze
	Know the concept of macro economics	BL1 remember, BL2 understand
	Understand rbi & its monetary fund	BL1 remember
Organizational behavior 407104.1	Describe the key concepts of organizational behaviour	BL1 remember
	Understand individual behaviour processes like attitude, perception, learning and personality	BL2 understand
	Explain group and teams dynamics leading to organizational effectiveness	BL2 understand
	Articulate the concepts of emotional intelligence and change in an organizational setting	BL3 apply
	Analyse causes, types and sources of conflict and stress and their management	BL4 analyze
Statistics for management 407105	Understanding different statistical methods for data analysis and presentation.	BL1 remember, BL2 understand
	Apply different methods of measures of central tendancy in business or real life condition	BL3 apply
	Apply different methods of measures of dispersion in business or real life condition	BL3 apply
	Solve statistical problem based on correlation regression	BL3 apply
	Understanding the concept of index number and time series analysis and solve different problems related with association of attributes	BL2 understand, BL3 apply

SEMESTER - II		
Course Name & Code	**Course Outcomes**	**Bloom's Level**
Marketing management 407201	Explain the various concepts, scope of marketing and the various components of marketing environment	BL2 understand
	Apply principles of segmentation, targeting and positioning to real world marketing offering (goods, services, and e-products/e-services.)	BL3 apply
	Articulate the importance, factors and process of consumer behavior	BL3 apply
	Outline product and pricing decisions	BL2 understand
	Illustrate promotion, distribution decisions and trends in marketing	BL2 understand
Financial management 407202	Provide an in-depth view of the process in financial management of the firm	BL2 understand
	Develop knowledge on the allocation, management and funding of financial resources.	BL3 apply
	Improving students' understanding of the time value of money concept and the role of a	BL3 apply
	Enhancing student's ability in dealing short-term dealing with day-to-day working capital decision	BL2 understand
Human resource management 407203	Demonstrate an understanding of key terms, theories/concepts and practices within the field of hrm	BL3 apply
	Demonstrate competence in development and problem-solving in the area of hr management	BL3 apply
	Provide innovative solutions to problems in the fields of hrm	BL2 understand
	Be able to identify and appreciate the significance of the ethical issues in hrm	BL3 apply
	Demonstrate an understanding of key terms, theories/concepts and practices within the field of hrm	BL3 apply
Production management and operational research 407204	Understand basics of production and operations management	BL2 understand
	Apply management principals to production process	BL3 apply
	To get optimum solution by using lpp, assignment and transportation model	BL5 evaluate
	To understand the process of making decision in the condition of certainty, uncertainty and risk	BL2 understand
	Use of advanced optimization techniques for getting best results	BL3 apply
International business 407205	Define international business its drivers, stages, approaches and pros and cons	BL1 remember
	Outline globalization of markets, investment and technology	BL2 understand
	Explain concepts associated with mncs and theories of international trade	BL2 understand
	What is fdi and issues in it and the trade barriers	BL1 remember
	Explain international institutions and their role and the future of international business	BL2 understand
Managerial communication-II 407206	Demonstrate the skill of effective presentation	BL2 understand
	Develop the skills of job interviews	BL3 apply
	Apply the principles of effective writing	BL3 apply
	Demonstrate manners and etiquette	BL2 understand
	Apply soft skills in profession	BL3 apply

Research methodology 407207	Understand the application of research in business decisions.	BL3 apply
	Construct research hypothesis. By identifying research proBLem.	BL2 understand
	Apply the techniques of data collection and identifying the overall process of research design.	BL3 apply
	Develop the knowledge about measurement and scaling.	BL3 apply
	Demonstrate knowledge and understanding of data analysis and interpretation in relation to the research process	BL2 understand
Event management 407210	Understand the various aspects of events management and marketing from planning to management of event procedure	BL2 understand
	Demonstrate computer aided event management and undestanding conduction of an event	BL2 understand
	Build puBLic relations and applying acquired knowledge for media management	BL3 apply
	Discover all the components, various roles involved in planning, organising, running and evaluating corporate event	BL4 analyze
	Analyze the career opportunities in event management and discover the various roles in event management field.	BL4 analyze

SECOND YEAR

SEMESTER - III		
Course Name & Code	**Course Outcomes**	**Bloom's Level**
Corporate planning & strategic management 407301.1	Describe the basic terms and concepts in strategic management.	BL2 understand
	Understand various corporate and business level strategies	BL2 understand
	Apply tools and techniques of strategic analysis	BL3 apply
	Describe various aspects and types of implementation and strategic evaluation and control	BL2 understand
	Relate the various aspects of business ethics and corporate governance in strategic management	BL3 apply
Management accounting 407302	Explain the application of management accounting and the various tools used	BL2 understand
	Make inter-firm and inter-period comparison, of financial statements	BL3 apply
	Analyse the financial statement using various ratios	BL3 apply
	Prepare fund flow statement and cash flow statement	BL3 apply
	Prepare different budgets for the business	BL3 apply
Skill development 407303	Explain the s.w.o.t. analysis for inspection various skills within our self	BL2 understand
	Explain the time management for various Purposes	BL2 understand
	Make awareness to indusry and required skills	BL3 apply
Brand management and social marketing 407305	Explain the branding and relate brand equity towards any competative market.	BL2 understand
	Interpret brand positioning for market classify brand equity measurement.	BL2 understand
	Develop branding strategies and utilize for increasing brand equity for revenue.	BL3 apply
	Analyze social marketing and survey marketing mix for branding	BL4 analyze
	Discover social media branding and compare as a marketing tool for brand promotion.	BL4 analyze
Sales and distribution management 407306	To identify roles & responsibilities of sales manager.	BL1 remember
	Analyse various methods used for forecasting the sales.	BL4 analyze
	Define sales organisation structure for various organisations.	BL1 remember
	Illustrate various techniques used for training & motivation to sales force.	BL4 analyze
	Demonstrate various techniques used for selling.	BL2 understand
	Interpret various channels used for distribution & supply chain management	BL2 understand
Indian financial system 407202	Outline the structure and functions of the indian financial system.	BL4 analyze
	Illustrate the functioning of financial market and government security market in the ifs.	BL4 analyze
	Evaluate the functioning of different financial institutions	BL4 analyze

Financial decision analysis 407308	The concepts, theories, and techniques of decision and risk analysis	BL3 apply
	The concepts and practical implications of finance theories and financial management in the operation of capital markets	BL2 understand
	Evaluate management accounting decision-making techniques and apply them in relevant internal and external situations	BL2 understand
	Critically analyse and propose reasoned solutions to questions of capital allocation, retention and distribution	BL3 apply
	The concepts, theories, and techniques of decision and risk analysis	BL3 apply
Strategic human resource management 407309	Explain the scope of hrm	V-evaluating
	Understand the meaning and nature of strategic hrm	Ii understanding
	Describe the dynamic nature of global competition and of social and technological trends and their significance for hrm practice.	Ii understanding

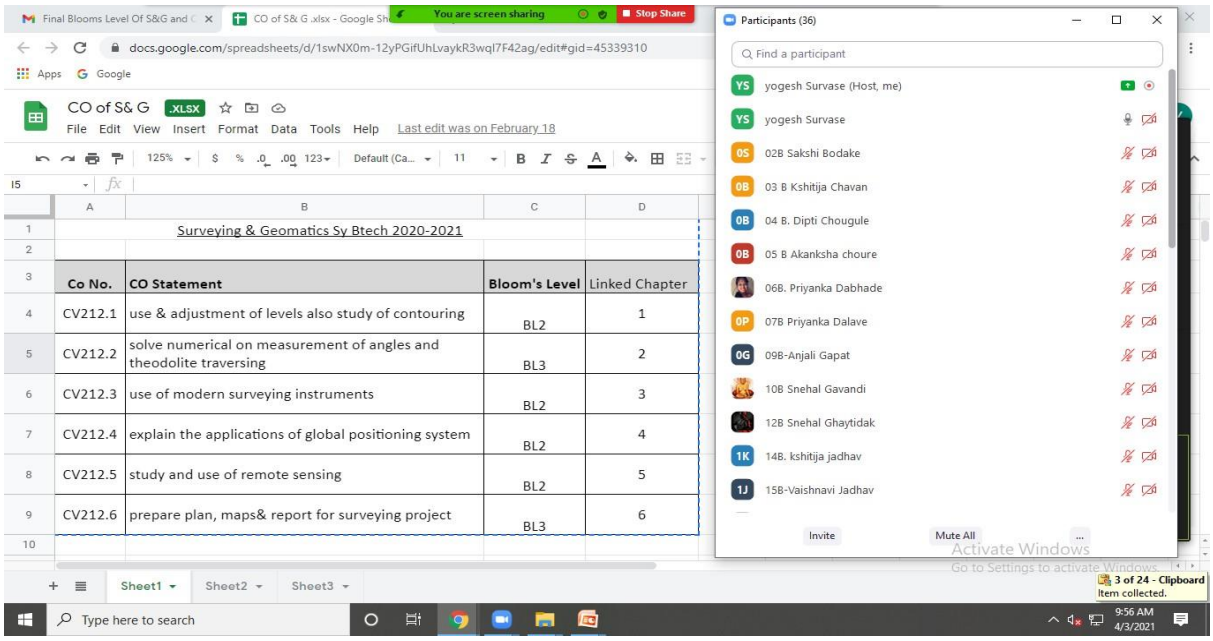
SEMESTER - IV		
Course Name & Code	**Course Outcomes**	**Bloom's Level**
Entrepreneurial development 407401	Comparative study of entrepreneurship and describe influences on entrepreneurship development	BL2 understand
	Understand importance of innovation and interpret role of innovation in entrepreneurship.	BL2 understand
	Develop women entrepreneurship and solve proBLem of social entrepreneurship for women	BL3 apply
	Build business plan and make a use of agencies in entrepreneurship development	BL3 apply
	Utilize the financial support for small enterprise and identifying financial schemes offered by various financial institutions	BL3 apply
Total quality management 407402.	Describe the concepts, types, principles, and fundamentals of quality and importance of the total quality management principles.	BL2 understand
	Articulate quality philosophies and quality circles	BL3 apply
	Explain the cost of quality and statistical quality control	BL4 analyze
	Relate the various applications of quality awards and models	BL2 understand
	Explain the iso quality management system and concept of audit	BL5 evaluate
International marketing 407405	Explain meaning, scope, importance, forces and environment of international marketing	BL2 understand
	Examine international product and pricing decisions	BL4 analyze
	Determine international distribution channels structure and decisions	BL5 evaluate
	Explain the various promotion strategies relevant to international marketing	BL2 understand
	Inspect the export procedures, documents, policies and issues in international marketing	BL4 analyze
Integrated marketing communications 407403.	Define various tools of imc.	BL1 remember
	Understand functions of ad agency.	BL2 understand
	Develop media plan	BL2 understand
	Define sales promotion Bicty and direct marketing and personal selling.	BL1 remember
	Relate international advertising and promotion.	BL2 understand
Services and retail marketing 407404	Define concepts related to services.	BL1 remember
	List 7ps of marketing mix of services and define 7 ps for different industry	BL4 analyze
	Demonstrate the retail sector.	BL2 understand
	Explain retail merchandising.	BL5 evaluate
	Define category management 7& private labels.	BL1 remember
Investment management 407407	Compare various investment avenues avilaBLe in india.	BL2 understand
	Measure risk	BL2 understand
	Compare various theories of investment.	BL4 analyze
	Determine value of bonds.	BL5 evaluate
	Build up portfolio and financial plan for various life cycle stages.	BL2 understand, BL6 create

International finance 407408	Demonstrate basic understanding of foreign exchange market and exchange rates	BL1. Understanding
	Demonstrate basic understanding of how to use foreign exchange derivatives and other techniques to manage foreign exchange exposures of firms.	BL1. Understanding
	Demonstrate basic understanding of the issues pertaining to multinational financing and investment decisions	BL1. Understanding
	Demonstrate critical and analytical skills wherein they should be aBLe to make sense out of a mass of information to address relevant issues pertaining to international finance theory.	BL1. Understanding
Project planning and management of financial services 407406	Know the concept of project planning	I. Remembering
	Explain the risk analysis in capital budgeting	V. Evaluating
	Know to financial services for helps in project planning	Remembering
Hrd and compensation management 407413	Understand various objectives of hrd	BL2 understand
	Analyze chanllenges of hrd	BL4 analyze
	Analyze training need analysis for employee	BL4 analyze
	Evaluate performance appraisal methods	BL5 evaluate
	Create various incentives plan	BL6 create
International human resource management 407414	Define concepts in ihrm	BL1 remember
	Explain process of international staffing	BL2 understand
	List training in human resourse management	BL1 remember
	Illustrate performance appraisal	BL1 remember
	Define concepts of international human resourse management	BL1 remember
Industrial relations and labor laws 407412.	Explain the concept of labour laws	BL2 understand
	Explain the importance of indutrial relationship	BL2 understand
	Evaluate the methods of industrial safety management	BL5 evaluate

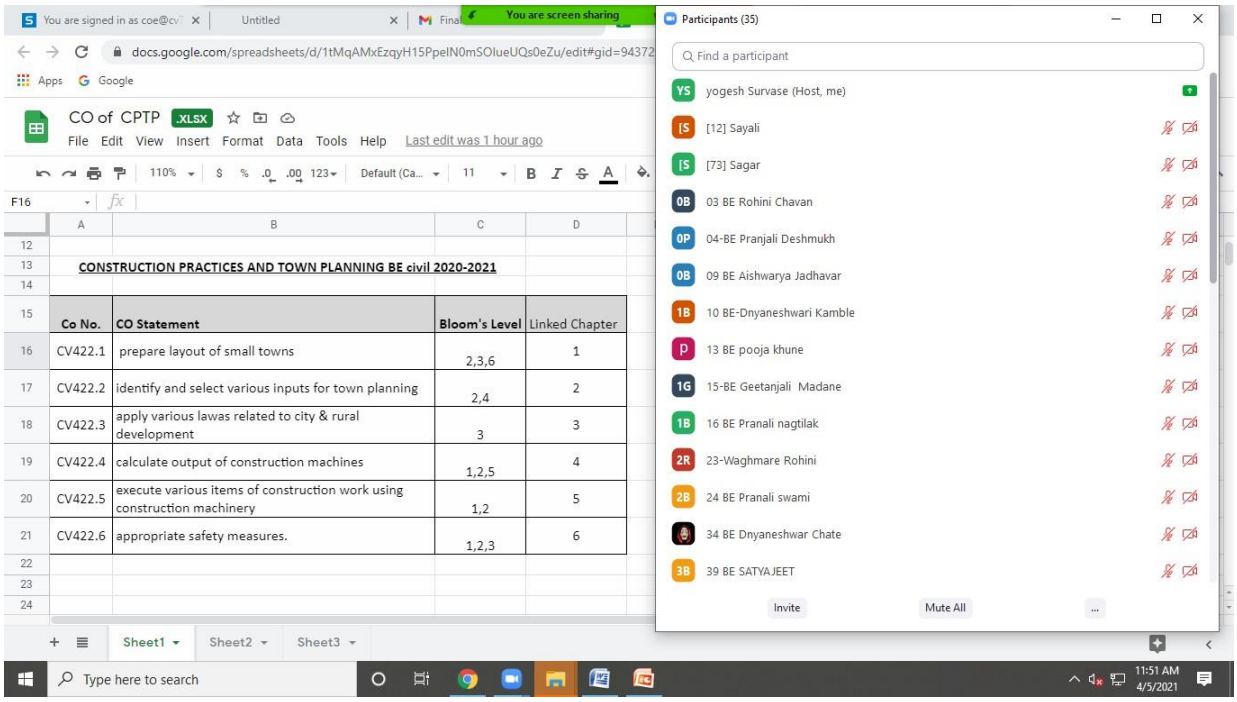
Dissemination of Programmes Outcomesand Course Outcomes to Teachers and Students

Discussion with Students

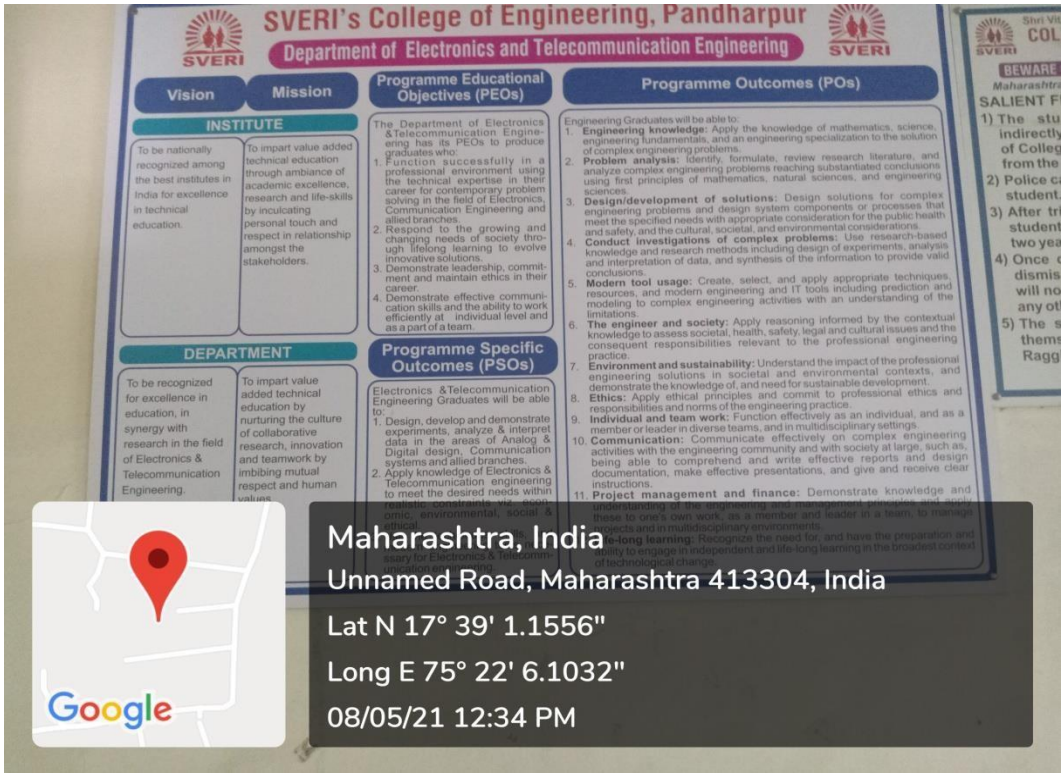
Subject: Surveying & Geometrics



Subject: Construction Practices & Town Planning



Display of PO's and PSO's at the Entrance of the Department Department of Electronics and Telecommunication Engineering.



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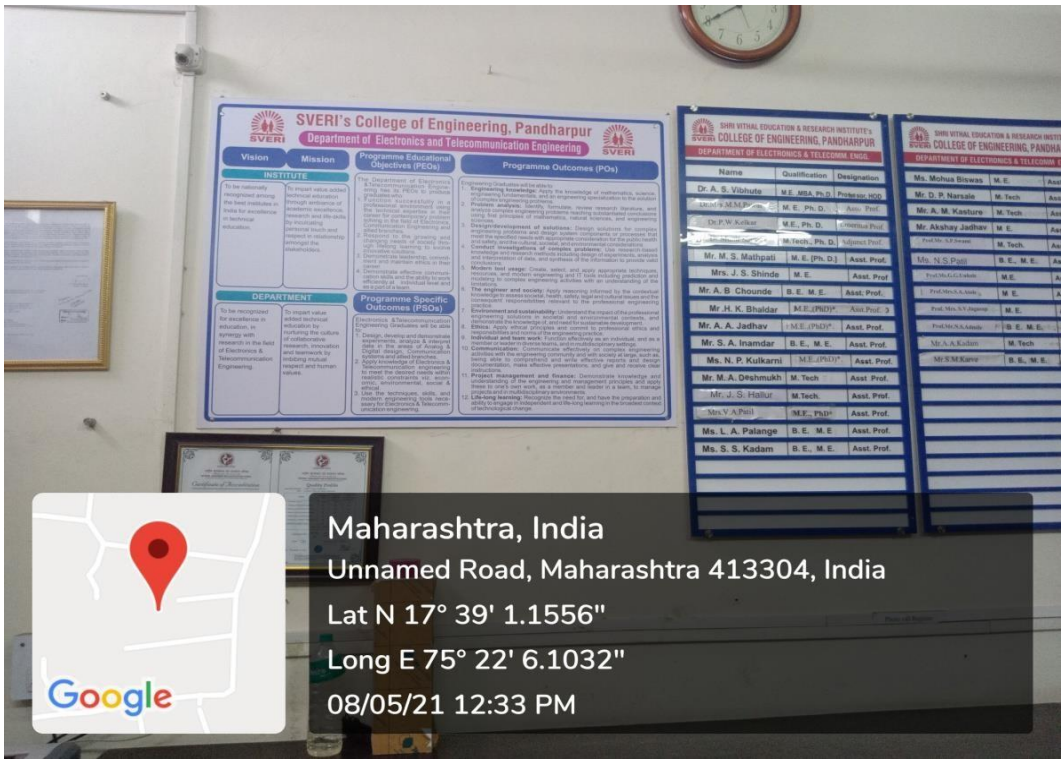
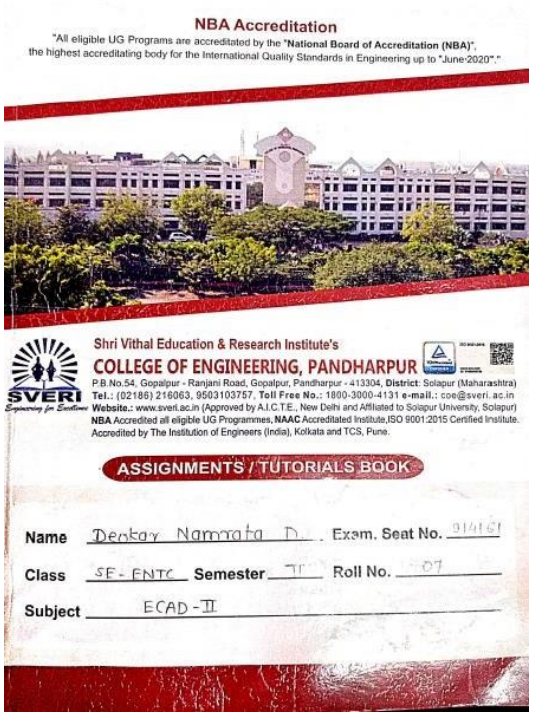


Assignment Booklet
PO's and PEO's



NBA Accreditation

"All eligible UG Programs are accreditated by the "National Board of Accreditation (NBA)", the highest accreditating body for the International Quality Standards in Engineering up to "June-2020"."

Shri Vithal Education & Research Institute's

COLLEGE OF ENGINEERING, PANDHARPUR

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NBA Accredited all eligible UG Programmes, NAAC Accreditated Institute,ISO 9001:2015 Certified Institute.
Accredited by The Institution of Engineers (India), Kolkata and TCS, Pune.

ASSIGNMENTS / TUTORIALS BOOK

Name Devkar Namrata D. Exam. Seat No. 314161

Class SE - ENTC Semester II Roll No. 07

Subject ECAD - II

SVERI
Engineering for Excellence

SVERI's COLLEGE OF ENGINEERING
PANDHARPUR

OUR VISION

To be nationally recognized among the best institutes in India for excellence in technical education.

OUR MISSION

To impart value added technical education through ambiance of academic excellence, research and life - skills by inculcating personal touch and respect in relationship amongst the stakeholders.

OBJECTIVES

- To achieve a status of premier technological institute.
- To achieve excellence on Academic, Administrative and Personality Development fronts through our own channelized pattern of teaching learning process.
- To develop the State of the Art, Research, Development and Consultancy Cell.
- To strengthen Industry Institute Interaction to provide industrial exposure to the students and upgradation of faculty knowledge about advanced trends.

QUALITY POLICY

We are committed for academic and overall development of our student -
- By effective implementation of teaching learning process.
- By establishing respectful and pleasant behavior with the students and inculcation of culture of patience and co-operation.
- By providing ample opportunities for personality development.
- By creating environment conducive to learning.

Department of Electronics & Telecommunication Engineering

Vision

To be recognized for excellence in education, in synergy with research in the field of Electronics & Telecommunication Engineering.

Mission

To impart value added technical education by nurturing the culture of collaborative research, innovation and teamwork by imbibing mutual respect and human values.

Programme Educational Objectives (PEOs)

The Department of Electronics &Telecommunication Engineering has its PEOs to produce graduates who:

1. Function successfully in a professional environment using the technical expertise in their career for contemporary problem solving in the field of Electronics, Communication Engineering and allied branches.
2. Respond to the growing and changing needs of society through lifelong learning to evolve innovative solutions.
3. Demonstrate leadership, commitment and maintain ethics in their career.
4. Demonstrate effective communication skills and the ability to work efficiently at individual level and as a part of a team.

Programme Specific Outcomes(PSOs)

Electronics &Telecommunication Engineering Graduates will be able to:

1. Design, develop and demonstrate experiments, analyze & interpret data in the areas of Analog & Digital design, Communication systems and allied branches.
2. Apply knowledge of Electronics & Telecommunication engineering to meet the desired needs within realistic constraints viz. economic, environmental, social & ethical.
3. Use the techniques, skills, and modern engineering tools necessary for Electronics & Telecommunication engineering.

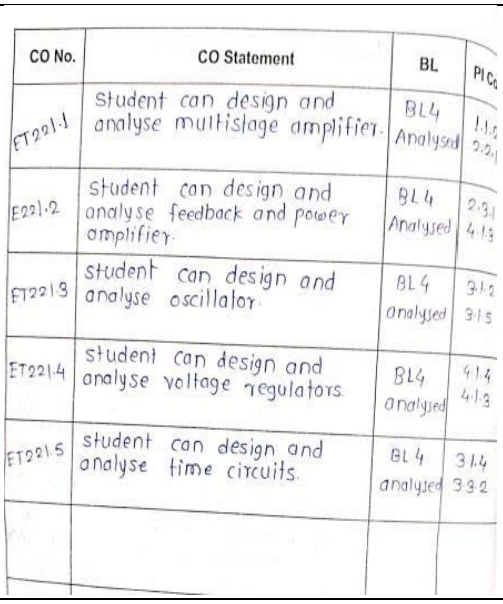
SVERI's College of Engineering, Pandharpur

PROGRAMME OUTCOMES (POs)
(As per New SAR Format of NBA)

Engineering Graduates will be able to:

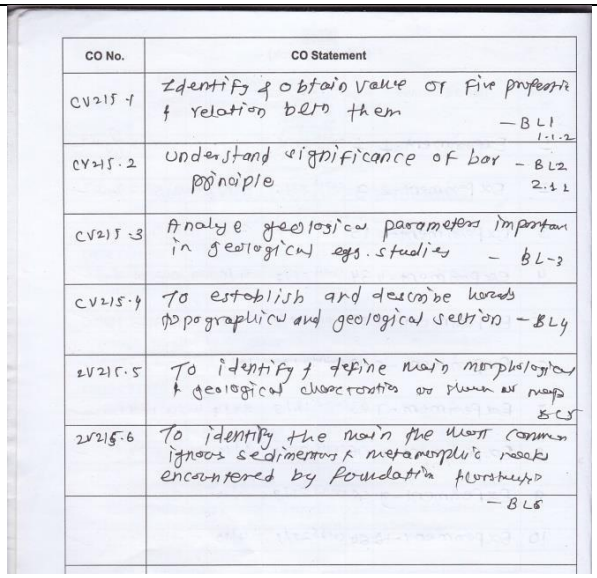
Engineering knowledge	Apply the knowledge of mathematics, science, engineering fundamentals,and an engineering specialization to the solution of complex engineering problems.
Problem analysis	Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
Design/development of solutions	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
Conduct investigations of complex problems	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data ,and synthesis of the information to provide valid conclusions.
Modern tool usage	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
The engineer and society	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice..
Environment and sustainability	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
Ethics	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
Individual and team work	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
Communication	Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
Project management and finance	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
Life-long learning	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Assignment Booklet
Co's



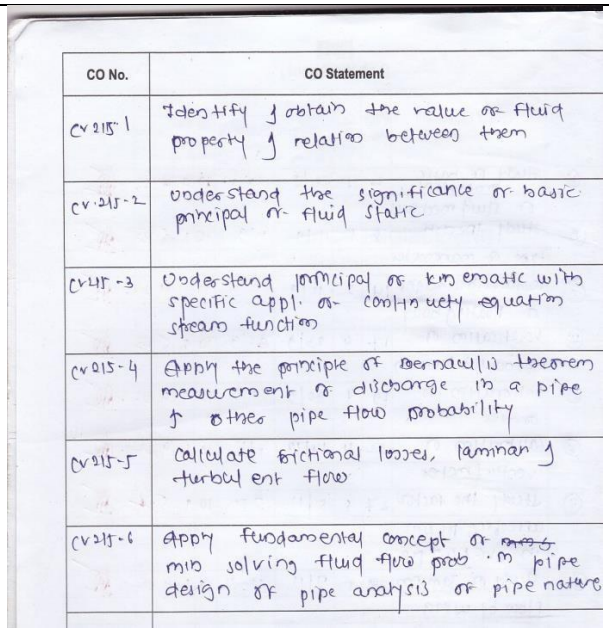
CO No.	CO Statement	BL	PI Co
ET221.1	Student can design and analyse multistage amplifier.	BL4 Analysed	1.1.2 2.2.1
E221.2	Student can design and analyse feedback and power amplifier.	BL4 Analysed	2.3.1 4.1.3
ET221.3	student can design and analyse oscillator.	BL4 Analysed	3.1.2 3.1.5
ET221.4	student can design and analyse voltage regulators.	BL4 analysed	4.1.4 4.1.3
ET221.5	student can design and analyse time circuits.	BL4 analysed	3.1.4 3.3.2

SY SEM1 SP



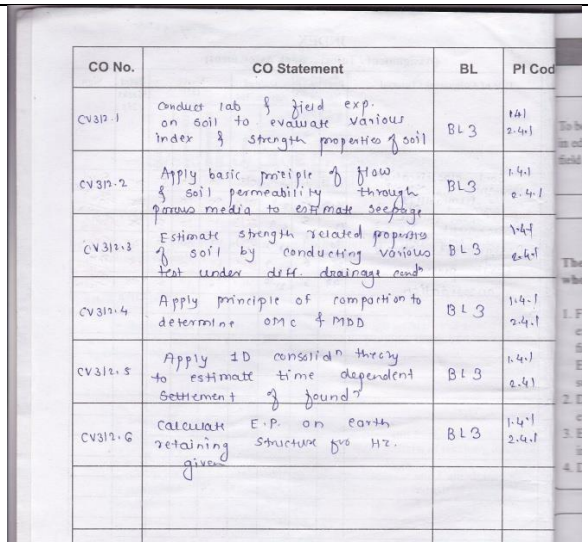
CO No.	CO Statement
CV215.1	Identify & obtain value of five properties & relation betn them — BL1 1.1.2
CV215.2	understand significance of bar principle — BL2 2.1.2
CV215.3	Analyse geological parameters important in geological egs. studies — BL3
CV215.4	To establish and describe boreds topographical and geological section — BL4
CV215.5	To identify & define main morphological & geological characteristics on plans or maps BCS
CV215.6	To identify the main the most common igneous sedimentary & metamorphic rocks encountered by foundation structures — BL6

SY SEM1 EG



CO No.	CO Statement
CV215.1	Identify & obtain the value of fluid property & relation between them
CV215.2	understand the significance of basic principal of fluid static
CV215.3	Understand principal of isentropic with specific appl. of continuity equation stream function
CV215.4	Apply the principle of Bernoulli's theorem measurement of discharge in a pipe & other pipe flow probability
CV215.5	Calculate frictional losses, laminar & turbulent flow
CV215.6	Apply fundamental concept of ~~mom~~ mtm solving fluid flow prob. in pipe design of pipe analysis of pipe nature

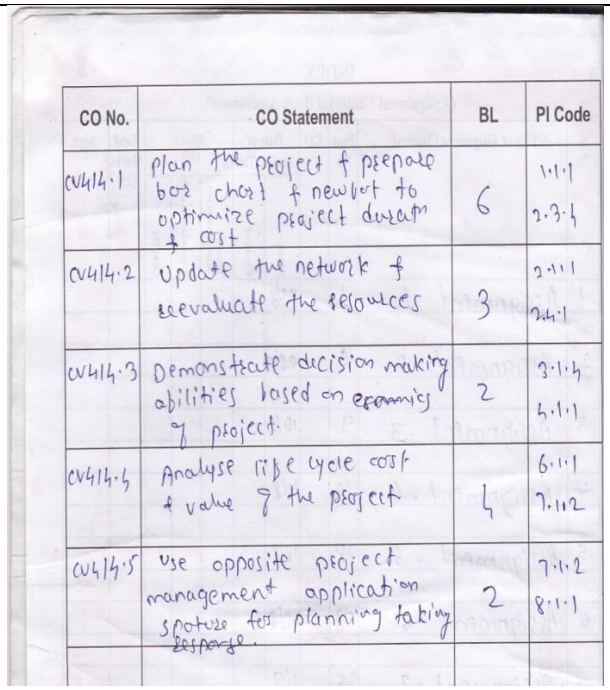
SY SEM1 FM



CO No.	CO Statement	BL	PI Cod
CV312.1	Conduct lab & field exp. on soil to evaluate various index & strength properties of soil	BL3	1.4.1 2.4.1
CV312.2	Apply basic principle of flow & soil permeability through porous media to estimate seepage	BL3	1.4.1 2.4.1
CV312.3	Estimate strength related properties of soil by conducting various test under diff. drainage cond°	BL3	1.4.1 2.4.1
CV312.4	Apply principle of compaction to determine OMC & MDD	BL3	1.4.1 2.4.1
CV312.5	Apply 1D consolidation theory to estimate time dependent Settlement of foundn	BL3	1.4.1 2.4.1
CV312.6	Calculate E.P. on earth retaining structure for Hz. given	BL3	1.4.1 2.4.1

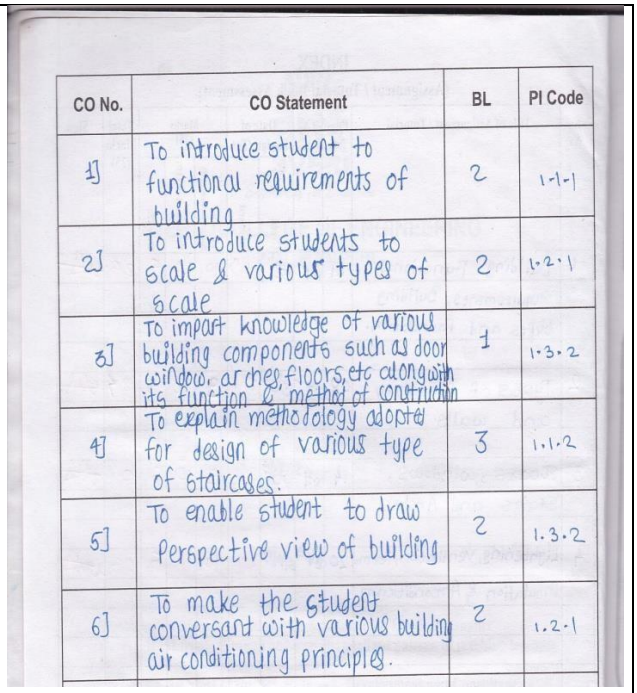
TE SEM1 GT-I

Lab Book



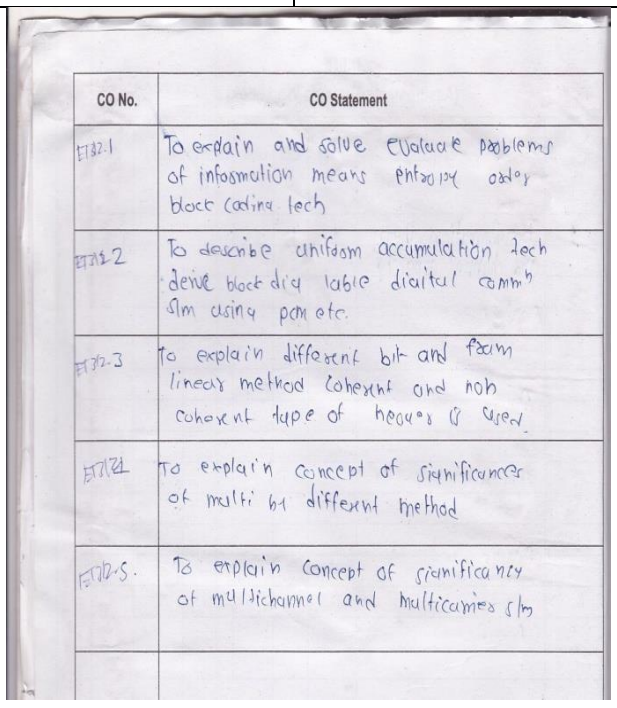
CO No.	CO Statement	BL	PI Code
CV414.1	Plan the project & prepare bar chart & network to optimize project duration & cost	6	1.1.1 2.3.4
CV414.2	Update the network & reevaluate the resources	3	2.1.1 2.4.1
CV414.3	Demonstrate decision making abilities based on economics of project.	2	3.1.4 4.1.1
CV414.4	Analyse life cycle cost & value of the project	4	6.1.1 7.1.2
CV414.5	Use opposite project management application softwares for planning taking ~~Design~~.	2	7.1.2 8.1.1

SEM1 BE EM-II



CO No.	CO Statement	BL	PI Code
1]	To introduce student to functional requirements of building	2	1.1.1
2]	To introduce students to scale & various types of scale	2	1.2.1
3]	To impart knowledge of various building components such as door window, arches, floors, etc along with its function & method of construction	1	1.3.2
4]	To explain methodology adopted for design of various type of staircases.	3	1.1.2
5]	To enable student to draw Perspective view of building	2	1.3.2
6]	To make the student conversant with various building air conditioning principles.	2	1.2.1

SY SEM I BCD



CO No.	CO Statement
ET332.1	To explain and solve Evaluate problems of information means entropy odey block coding tech
ET332.2	To describe uniform accumulation tech derive block diy table digital comm sim using pcm etc.
ET332.3	To explain different bit and frame linear method coherent and non coherent type of heques is used
ET332.4	To explain concept of significances of multi by different method
ET332.5	To explain concept of significancy of multichannel and multicarriers sim

TE SEM II PAVEMENT DESIGN

Student Notebook

Vision :-
To be recognized among the best institutes in india for excellence in technical education.

Mission :-
To import value based technical education by incalculating personal touch & respect in relationship amongst the stake holder.

Department of Electronics & Telecomm

Vision :-
To be nationally recognized for excellence in edu. synergized with research in the field of E&TC engg.

Mission :-
To impart value based technical edu. by maintaining mutual respect & imbibing culture of research, innovation & team work.

Programme Educational objective (PEO)
The department of E&TC engg has its PEO's to produce graduates who
① Apply technical expertise in their professional career for contemporary problem solving in the field of E&T
② Respond to the growing & changing needs of society through life long learning.

③ Demonstrate leadership, commitment & maintain ethics in professional career.

④ Demonstrate effective communicati skills & the ability to work efficien tly at individual level & as part of a team.

Programme Outcomes (PO's)

Students graduating from E&TC engg must demonstrate:

a. an ability to apply knowledge of ma science & engg.

b. an ability to design & conduct exp ments as well as to analyze & interpret data in the areas of D µP, VLSI, Comm^n System & DSP.

c. an ability to design electronic ckt VLSI comp to meet desired needs within realistic constraints such a economic, environmental, political health & safety.

d. an ability to function on multid -plinary action.

e. an ability to identify, formulate solve engg. problems.

f. an ability to understand the Prof ional & ethical responsibility.

g. an ability to communicate effecti

h. an ability to understand the imp of engg. solutions in a global, eco mic, & societal context.

i. a recognition of the need for & a ability to engage in life-long lea

j. an ability to solve contemporary issues.

k. an ability to use techniques, skills & modern engg tools necessary for Electronics & Telecomm^n Engg.

Subject Objectives :-
1) Understand the advantages & disadvantages of DSP.
2) Know how to classify signals in terms of their independant & dependant variables.
3) Understand the concept of convolution, co-relation, DFT, FFT operation.
4) Know how to design FIR & IIR Filter with diff. techniques.
5) Understand realization of structures for FIR & IIR filters.

Subject Outcomes :-
After complision of this course students will be able to.
1) Solve problems based on convolution, DFT & FFT.
2) Design FIR & IIR Filter using diff. transfor -mation methods.
3) Apply knowledge of DSP in various app^n.
4) Realize FIR & IIR Filters using diff methods.

* Vision -

To be recognized among the institutes in India for excellence in technical education.

* Mission -

To impart value based technical education by inculcating personal trust and respect in relationship amongst stakeholders.

* Vision of Department -

To be recognized for excellence education in sinurgy with research in field of ENTC engg.

* Mission of Department -

To impart value based technical education by maintaining mutual respect & imbibing culture of research innovation & team work.

* PO's -

Engg Graduates will be able to,

1) Apply knowledge of mathematics, science engg fundamentals & engg specialization to sol^n of complex engg problems.

2) Identify, formulate, review research litrature and analyse complex engg problems reaching substantiated conclusions using 1st principles of maths, natural sciences and engg sciences.

3) Design sol^n for CEP & design system components or processes that meet the specified needs with appropreate consideration for public health and safety & cultural, societal and envir. consideration.

4) Use research based knowledge & research methods including design of expt, analysis and interpretation of data & synthesis of information to provide valid conclusions.

5) Create, select, apply appropreate techniques & resources & modern engg & IT tools into prediction & modelling to complex engg activities with understanding limitations.

6) Apply resuming informed by the contexual knowledge to access, societal, health, safety, legal & cultural issues & the consequent responsibilities relavent to engg. practice.

7) Understand impact of proff. engg solutions in societal & envir. context & demonstrate the knowledge of & need for sustainable developement.

8) Apply ethical principles & committ to proff. ethics & responsibilities & norms of engg practice.

9) Fu^n effectively as an indivisual & as a member or ly done in diverse team & in multidesciplinary settings.

10) Communicate effectives on complex engg activities with engg community & with society at ~~fast~~ large such as being able to comprehent & write effective reports.

11) Demonstrate knowledge & understanding of engg & manufacting & apply these to one's own work, as a member & leader in a team to manage projects & multidesciplinary envir.

12) Recognize the need for & have preparation & ability to engage in life long ~~cont~~ change.

* PSO's -

1) design, develope & demonstrate expt, analyse & interprete data in the areas of analog & digital design, tect communication system & alide branches.

2) Apply knowledge of electronics & telecommunication engg to meet the design needs viz economical, societal & ethical.

3) Use the techniques, skills & modern engg tools neccessary for electronics & tele. engg.

* PEO's -

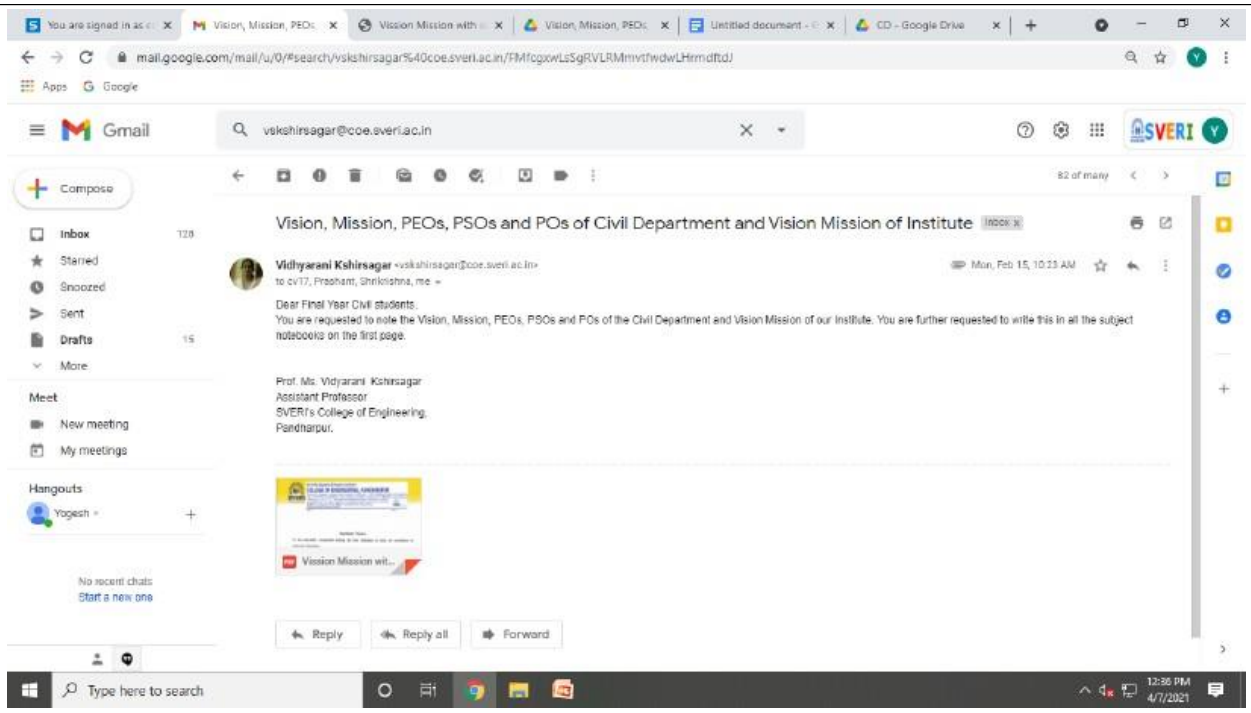
1) Function successfully in proff environment using technical expertness in their career ~~or~~ on in the field of electronics, communication & alied branches.

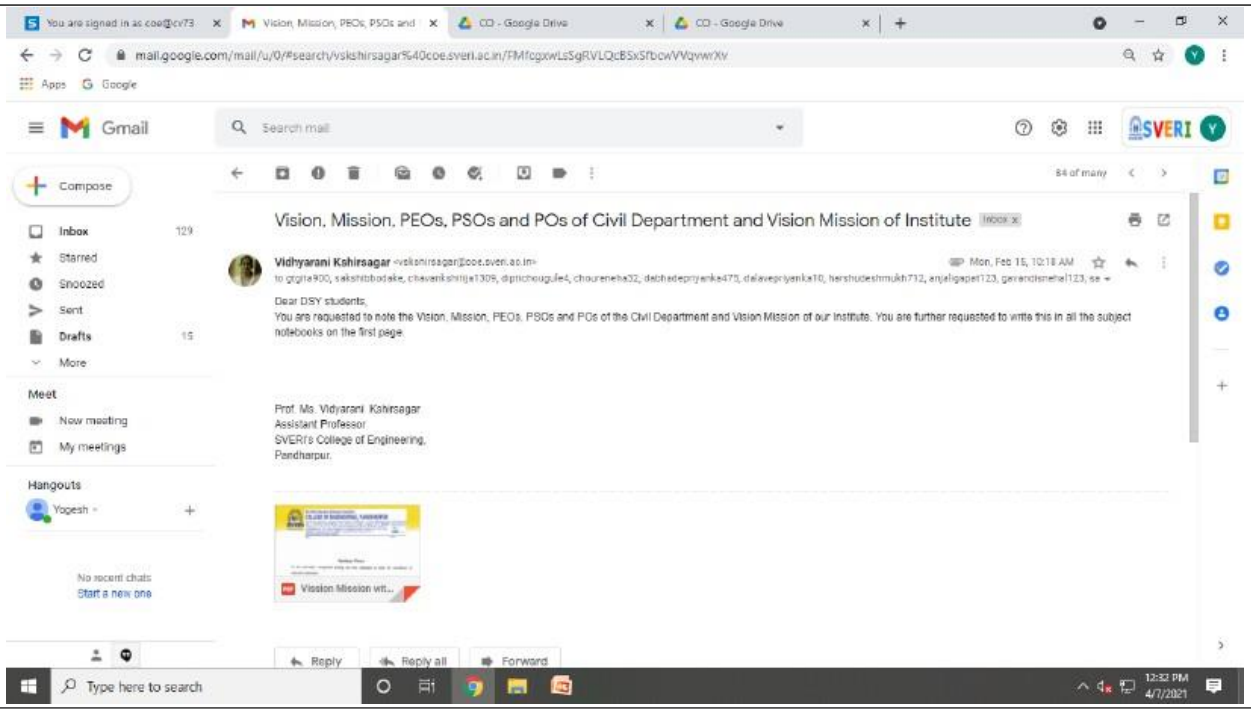
2) respond to the growing & changing needs of society through lifelong learning to involve innovative sol^n

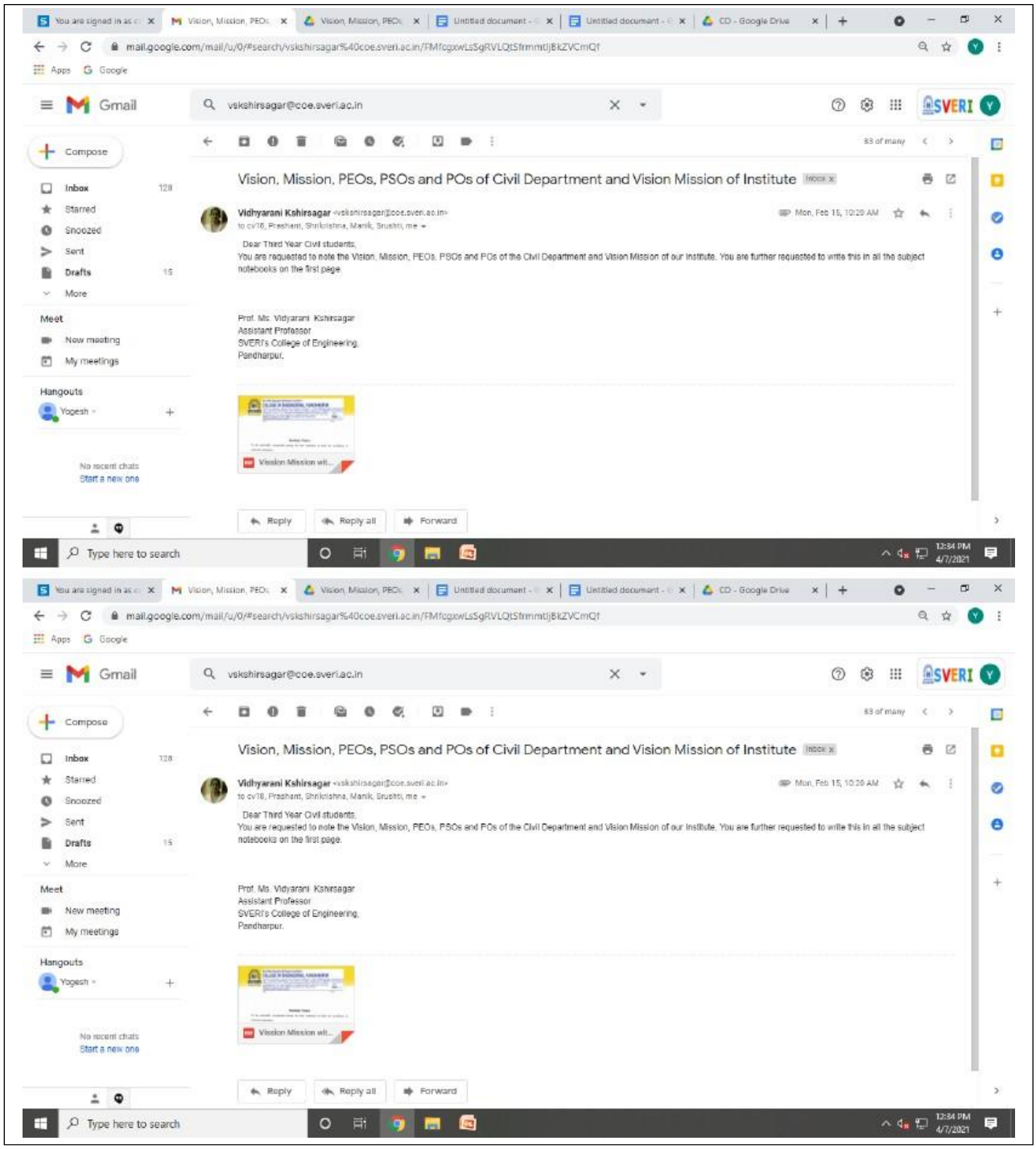
3) demonstrate leadership, committement & maintain ethics in their career.

4) demonstrate effective comm skills & idea abilit to work at individual level & part of team.

Vision, Mission, PEOs, PSOs and POs of Civil Department and Vision Mission of Institute Sharing to Students



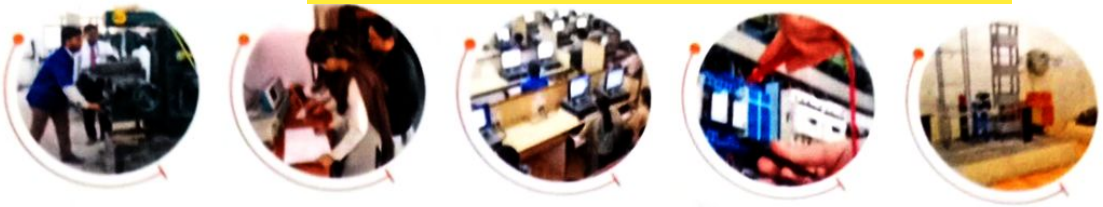




Sample Teaching Diary 2021-22

https://docs.google.com/spreadsheets/d/e/2PACX-1vQ1eAK4vqhNIGOlTcc4gwy5LTZC8zcj2e9nydenDUpYaZD-ztHVnoWhLcCLlKdMi5XqxUMnIt_Oo09U/pubhtml

PSO's on College Diary



SVERI
"Engineering for Excellence"

Shri Vithal Education & Research Institute's

COLLEGE OF ENGINEERING, PANDHARPUR

Approved by A.I.C.T.E., New Delhi NBA Accredited all Eligible UG Programmas
Accredited by NAAC, The Institution of Engineers, Kolkata,
TCS Pune An ISO 9001 : 2015 Certified Institute
Affiliated to Punyashlok Ahilyadevi Holkar Solapur University, Solapur

ISO 9001:2015

Vision & Mission Statements

Our Vision

To be nationally recognized among the best institutes in India for excellence in technical education.

Our Mission

To impart value added technical education through ambiance of academic excellence, research and life - skills by inculcating personal touch and respect in relationship amongst the stake-holders.

Objectives

- To achieve a status of premier technological inst-itute.
- To achieve excellence on Academic, Administrative and Personality Develo-pment fronts through our own channelized pattern of teaching learning process.
- To develop the State of the Art, Research, Development and Consultancy Cell.
- To strengthen Industry Institute Interaction to provide industrial exposure to the students and upgradation of faculty knowledge about advanced trends.

Quality Policy

We are committed for academic and overall development of our student –

- By effective implementation of teaching learning process.
- By establishing respectful and pleasant behavior with the students and inculcation of culture of patience and co-operation.
- By providing ample opportunities for personality development.
- By creating environment conducive to learning.

Department of Mechanical Engineering

Vision

To be nationally recognized for excellence in education, geared with research, in the field of Mechanical Engineering.

Mission

To impart value added education by creating ambiance of academic excellence and research along with participation in product development by inculcating personal touch and mutual respect.

Programme Educational Objectives (PEOs)

The Department of Mechanical Engineering has its PEOs to produce graduates who:

1. Function successfully in a professional environment by demonstrating technical expertise to provide holistic solutions for complex and emerging problems in the field of Design Engineering, Heat Power, Renewable Energy, Automation, Industrial Engineering, Manufacturing and related Management with consideration of safety, sustainability, economical feasibility and environmental impact related issues.
2. Demonstrate strong leadership and communication skills and ability to function effectively as an individual as well as part of a team.
3. Engage in enrichment of knowledge and skills through lifelong learning to evolve innovative solutions in Mechanical Engineering.
4. Demonstrate a sense of moral and ethical values in their career.

Programme Specific Outcomes (PSOs)

Mechanical Engineering Graduates will be able to:

1. Design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, regulatory, ethical, health and safety, manufacturability and sustainability.
2. Design and conduct experiments, as well as to analyze and interpret data, in different areas of Design Engineering, Heat Power, Renewable Energy, Automation, Industrial Engineering, Manufacturing and related Management.
3. Use techniques, skills and upcoming software, machine tools and processes necessary in the practice of Mechanical Engineering profession.

Department of E & TC Engineering

Vision

To be recognized for excellence in education, in synergy with research in the field of Electronics & Telecommunication Engineering.

Mission

To impart value added technical education by nurturing the culture of collaborative research, innovation and teamwork by imbibing mutual respect and human values.

Programme Educational Objectives (PEOs)

The Department of Electronics and Telecom-munication Engineering has its PEOs to produce graduates who :

1. Function successfully in a professional environment using the technical expertise in their career for contemporary problem solving in the field of Electronics, Communication Engineering and allied branches.
2. Respond to the growing and changing needs of society through lifelong learning to evolve innovative solutions.
3. Demonstrate leadership, commitment and maintain ethics in their career.
4. Demonstrate effective communication skills and the ability to work efficiently at individual level and as a part of a team.

Programme Specific Outcomes (PSOs)

Electronics and Telecommunication Engineering Graduates will be able to:

1. Design, develop and demonstrate experiments, analyze & interpret data in the areas of Analog & Digital design, Communication systems and allied branches.
2. Apply knowledge of Electronics & Telecommunication engineering to meet th desired needs within realistic constraints viz. economic, environmental, social & ethical.
3. Use the techniques, skills, and modern engineering tools necessary for Electronics & Telecommunication engineering.

Department of Computer Science & Engineering

Vision

To be nationally recognized for excellence in education augmented by research in the field of Computer Science and Engineering.

Mission

To impart value added technical and applied research oriented education by inculcating life skills oriented to industries with emphasis on human values.

Programme Educational Objectives (PEOs)

The Department of Computer Science and Engineering has its PEOs to produce graduates who :

1. Apply the Computer Science domain specific knowledge and skills in the growing software and related industries.
2. Demonstrate leadership, professional ethics, project management and finance related attributes as employees or employers.
3. Engage in life-long learning for professional advancement to develop innovative solutions for individual or societal problems.
4. Demonstrate strong communication skills and ability to function effectively as an individual and part of a team.

Programme Specific Outcomes (PSOs)

Computer Science and Engineering Graduates will be able to:

1. Understand & design computer system using knowledge of Digital Techniques, Micro-Processor, Computer Organization, Advanced Computer Architecture, Operating System, System Programming, Compiler Construction, Application Softwares, etc.
2. Interpret, analyze and design software system programming knowledge using Algorithmic Skills, Web Technology, Big Data Analytics, Networking Fundamentals, Machine Learning and Internet of Things.
3. Adopt applications in emerging fields of Computer Science & Engineering.

Department of Civil Engineering

Vision

To be nationally recognized for excellence in education strengthened with innovation, research and industry-institute interaction in the field of Civil Engineering.

Mission

To impart value added technical education through ambiance of academic excellence, applied research and consultancy by inculcating personal touch and mutual respect.

Programme Educational Objectives (PEOs)

The Department of Civil Engineering has as its PEOs to produce graduates who :

1. Function successfully in a professional environment through use of appropriate technology towards holistic development of urban and rural amenities and infra- structure with consideration of safety, sustainability, economical feasibility and environmental impact related issues.
2. Demonstrate leadership, professional ethics, project management and finance related attributes as employees or employers.
3. Demonstrate strong communication in the society and leadership skills and contribute at individual as well as multidisciplinary team levels.
4. Engage in enrichment of knowledge and skills through life-long learning to evolve innovative solutions in Civil Engineering.
5. Demonstrate a sense of ethical and societal responsibility in various sectors such as water supply, sanitation, transportation, irrigation, flood control etc.

Programme Specific Outcomes (PSOs)

Civil Engineering Graduates will be able to:

1. Design various Civil Engineering structures, components or processes to meet desired needs within the realistic constraints such as economic, environmental, social, regulatory, ethical, health, safety, manufacturability and sustainability.
2. Conduct laboratory experiments and critically analyze to interpret data related to soil mechanics, fluid mechanics, environmental and civil engineering materials.
3. Use the techniques, skills, and modern software tools necessa profession particularly in the areas of environmental / water resources, geotechnical, structural and trans ation engineering.

Department of Electrical Engineering

Vision

To be nationally recognized for excellence in education, powered with research, in the field of Electrical Engineering

Mission

To impart value added education through promoting research, innovation, and entrepreneurship by emphasizing on the culture of respect and social awareness amongst the stakeholders.

Programme Educational Objectives (PEOs)

The Department of Electrical Engineering has its PEOs to produce graduates who:

1. Function successfully in professional environment by synthesizing and providing economically feasible and socially acceptable solution in the field of Electrical Engineering and allied branches.
2. Demonstrate strong leadership, communication skills and ability to work effectively as an individual in multidisciplinary teams.
3. Engage in enrichment of knowledge and skills through lifelong learning to evolve innovative solutions in electrical engineering.
4. Demonstrate a sense of ethical and societal responsibilities in professional career.

Programme Specific Outcomes (PSOs)

Electrical Engineering Graduates will be able to:

1. Design a system, develop models and conduct experiments to analyze and interpret the data in the area of power sector, renewable energy, drives, control etc.
2. Apply knowledge of electrical engineering to meet the desired needs within realistic constraints viz. economical, societal, ethical, environmental, health and safety.
3. Use the techniques and skills in modern engineering tools for Electrical Engineering.