



Dr. D. Y. PatilPratishthan's College of Engineering,  
SalokheNagar, Kolhapur.

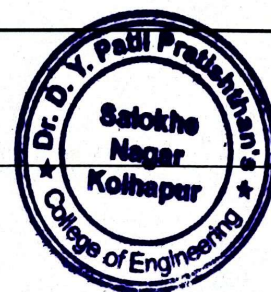
# Programme Outcomes



Dr. D. Y. Patil Pratishthan's College of Engineering,  
Salokhe Nagar, Kolhapur.

**Programme Outcomes (POs)**

<b>PO1:</b>	<b>Engineering Knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialisation to the solution of complex engineering problems.
<b>PO2:</b>	<b>Problem Analysis:</b> Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using the first principles of mathematics, natural sciences, and engineering sciences.
<b>PO3:</b>	<b>Design/Development of Solutions:</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.
<b>PO4:</b>	<b>Conduct Investigations of Complex Problems:</b> 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.
<b>PO5:</b>	<b>Modern Tool Usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
<b>PO6:</b>	<b>The Engineer and Society:</b> 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.
<b>PO7:</b>	<b>Environment and Sustainability:</b> Understand the impact of professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
<b>PO8:</b>	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO9:</b>	<b>Individual and Team Work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO10:</b>	<b>Communication:</b> 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.
<b>PO11:</b>	<b>Project Management and Finance:</b> 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.
<b>PO12:</b>	<b>Life-long Learning:</b> 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.





Dr. D. Y. PatilPratishthan's College of Engineering,  
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Department of Civil Engineering

**Program Educational Objective (PEOs)**

PEO1:	To make graduates of the Civil Engineering program capable to solve engineering problems, provide sustainable solutions applying engineering knowledge.
PEO2:	To develop technical and soft skills in graduates of civil engineering to succeed in their professional career.
PEO3:	To enable graduates of the Civil Engineering Program for adapting to dynamic changes in the technological scenarios and handle broader social challenges with a rational and flexible decision-making style.

**Program Specific Outcomes (PSO)**

PSO1:	To enhance employability and entrepreneurship skills through global engineering practices, soft skills and onsite training.
PSO2:	To develop technical skills and innovative research practices to provide solutions/procedures to societal and rural development problems.

**Head Dept. of Civil**  
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Salokhe Nagar, Kolhapur

**Dean Academics**  
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Salokhenagar, Kolhapur.

**PRINCIPAL**  
Dr. D. Y. Patil Pratishthan's  
College of Engineering  
Salokhe Nagar, Kolhapur.



Dr. D. Y. PatilPratishthan's College of Engineering,  
SalokheNagar, Kolhapur.

Department of Computer Science and Engineering

### Program Educational Objective (PEOs)

PEO1:	To enhance fundamental understanding of mathematics, science and computer science & engineering to students.To enhance fundamental understanding of mathematics, science and computer science & engineering to students.
PEO2:	To provide training & placement to students in IT and allied companies.
PEO3:	To train students to function and communicate effectively, both individually and with multidisciplinary teams.
PEO4:	To engage students in lifelong learning like postgraduate education, certification courses etc.
PEO5	To encourage students to participate and become successful in competitive examinations

### Program Specific Outcomes (PSO)

PSO1:	<b>Knowledge of recent technology:</b> Demonstrate the knowledge of recent technologies like web development, mobile computing, grid computing, cloud computing, big data analytic, mainframe etc.
PSO2:	<b>Knowledge of programming languages:</b> Demonstrate the knowledge of programming languages in computer based problem solving.
PSO3	<b>Software development::</b> Demonstrate the ability to analyze, design and implement software

**Head of Department**  
Computer Science and Engineering  
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Department of Electrical Engineering

**Program Educational Objective (PEOs)**

<b>PEO1:</b>	To apply the knowledge of Electrical engineering for career growth and organisational needs
<b>PEO2:</b>	To continue lifelong learning for self value addition
<b>PEO3:</b>	To contribute to society and help in nation building activity.
<b>PEO4:</b>	To work in team , work with sustainable concepts in ethical manner

**Program Specific Outcomes (PSO)**

<b>PSO1:</b>	Program Specific Outcomes Inculcate the learnt logical and technical skills to visualize the electrical components and systems.
<b>PSO2:</b>	Emulate socially acceptable technical solutions to real time electrical engineering Problems with the application of modern and appropriate techniques for sustainable development.

**Head of Department**  
Electrical Engineering  
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College of Engineering

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Dr. D. Y. PatilPratishthan's College of Engineering,  
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Department of Computer Science & Engineering (Data Science)

### Program Educational Objective (PEOs)

PEO1:	To enhance fundamental understanding of mathematics, science and computer science & engineering to students.
PEO2:	To prepare the students as per the industry needs.
PEO3:	To enhance Interpersonal Skills and exhibit high levels of professionalism and ethical responsibilities.
PEO4:	To engage students in postgraduate education & certification courses.

### Program Specific Outcomes (PSO)

PSO1:	<b>Professional Skills:</b> Apply the concepts and practical knowledge in analysis, design and development of Data systems and applications to multi-disciplinary problems.
PSO2:	<b>Competency:</b> To provide a concrete foundation and enrich their abilities to qualify for Employment, Higher studies and Research in Data science with ethical values.

**Head of Department**  
Computer Sci. & Engg.  
(Data Science)

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Department of First Year Engineering

### Program Educational Objective (PEOs)

PEO1:	To provide solid foundation in basic principles of core sciences in the respective disciplines so that the graduates would utilize this knowledge for lifelong learning.
PEO2:	To empower students with professional & ethical values, attitude, effective communication, leadership qualities & multidisciplinary approach so that the graduates would be a good individual as well as a team leader.

### Program Specific Outcomes (PSO)

PSO1:	<b>Professional Skills:</b> Apply the concepts and practical knowledge in analysis, design and development of electrical systems and applications to multi-disciplinary problems.
PSO2:	<b>Competency:</b> To provide foundation and enrich their abilities to qualify for Employment, Higher studies and Research in Electrical Engineering domain with ethical values.

**Head of Department**  
General Sci. & Engineering  
Dr. D. Y. Patil Pratishthan's  
College of Engineering

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**Department of  
Civil Engineering**

# **Course Outcomes**



### SEMESTER-III

SEMESTER-III		Subject Code
Sr. No.		BSC-CV301
B.Tech	<b>Course Outcomes</b>	<b>Subject: Engineering Mathematics - III</b>
	After completion of this course students will be able to:	
1	Solve Linear differential equations and problems related to applications of differential equation.	
2	Perform vector differentiation.	
3	Find probabilities by using probability distributions.	
4	Find Laplace transform, Inverse Laplace transform of various functions and applications.	
5	Find analytic function.	
B.Tech	<b>Course Outcomes</b>	<b>Subject: Surveying -I</b> <b>Subject Code</b>
	After successful completion of course student will be able to	
1	Determine linear and angular measurements.	
2	Record various measurements in the field book.	
3	Find areas of irregular figures.	
4	Prepare plans and sections required for civil engineering projects	
B.Tech	<b>Course Outcomes</b>	<b>Strength of Materials</b> <b>ESC-CV303</b>
	At the end of the course, the learners will be able to	
1	Evaluate the response of elastic body for external actions and compute design forces.	
2	Evaluate shear force and bending moment of statically determinate structure.	
3	Analyze the stress, strain and deformation of elastic bodies under bending and shear actions.	
4	Analyze the stress, strain and deformation of elastic bodies under external actions.	
B.Tech	<b>Course Outcomes</b>	<b>Subject: Fluid Mechanics -I</b> <b>ESC-CV304</b>
	After successful completion of course student will be able to	
1	Study the basic properties of fluids and their behavior under application of various force systems.	
2	Discuss the basic concepts and principles in fluid statics, fluid kinematics and fluid dynamics with their applications in fluid flow problems.	
3	Recognize the principles of continuity, momentum and energy as applied to fluid in motion.	
4	Apply the equations to analyze problems by making proper assumptions and learn systematic engineering methods to solve practical fluid mechanics problems.	
B.Tech	<b>Course Outcomes</b>	<b>Subject: Building Construction and Materials</b> <b>PCC-CV305</b>
1	Know the building Materials.	
2	Describe properties and suitability of various building materials.	
3	State the different building components.	
4	Demonstrate different bonds in brick masonry	
5	Produce drawings of different building components.	
6	Explain different types of roof coverings & types of flooring.	

SEMESTER-IV		
<b>Sr. No.</b>		
<b>B.Tech</b>	<b>Course Outcomes</b>	<b>Subject: Structural Mechanics</b>
	<b>At the end of the course, the learners will be able to</b>	<b>ESC-CV401</b>
1	Identify the response of elastic body for external actions.	
2	Distinguish engineering properties of the materials are understood.	
3	Compute the design forces in the structures.	
4	Analyze the stress, strain and deformation of elastic bodies under external forces	
<b>B.Tech</b>	<b>Course Outcomes</b>	<b>Subject: Surveying -II</b>
	<b>After successful completion of course student will be able to</b>	<b>Subject Code</b>
		<b>PCC-CV402</b>
1	Adopt the principals of advanced surveying instruments	
2	Formulate triangulation stations ,flight planning, ground control points	
3	Apply remote sensing concepts to civil engineering problems	
4	Apply GIS concepts to civil engineering problems	
5	Apply GPS concepts to civil engineering problems	
6	Design & set out curves by different methods	
<b>B.Tech</b>	<b>Course Outcomes</b>	<b>Concrete Technology</b>
	<b>At the end of the course, the learners will be able to</b>	<b>PCC-CV403</b>
1	Impart knowledge of physical properties of ingredients of concrete and their effect on strength and durability.	
2	Explain the fundamentals of process of making good quality concrete and its elastic properties.	
3	Understand the factors affecting properties of concrete.	
4	Design the concrete mix proportion as per Indian standard code of practice	
5	Demonstrate Non Destructive Testing (NDT) and evaluate quality of existing concrete.	
6	Understand different types of concrete and their applications.	
<b>B.Tech</b>		<b>Subject: Fluid Mechanics-II</b>
	<b>At the end of the course, the learners will be able to</b>	<b>ESC-CV404</b>
1	Provide students with basic knowledge of fluid properties and utilizing principles developed in fluid mechanics.	
2	Develop the principle and equation for pressure flow and momentum analysis.	
3	Provide the students with the analytical knowledge of pressure and velocity distribution in an open channel in order to solve practical problems	
4	Illustrate and develop the equations and design principles for open channel flows, including sanitary and storm sewer design and flood control hydraulics.	
<b>B.Tech</b>		<b>Building Design and Drawing</b>
	<b>At the end of the course, the learners will be able to</b>	<b>PCC – CV 405</b>
1	Know principals of building planning	
2	Describe building bye – laws and regulations.	
3	Plan and draw residential building considering principles of planning and building bye laws .	
4	Explain techniques of maintenance, repairs and rehabilitation of structures.	

## SEMESTER - V

		Subject Code
Sr. No.		
B.Tech	<b>Course Outcomes</b>	<b>Subject: Water Resource Engineering - I</b>
		<b>PCC CV- 501</b>
	<b>At the end of the course, the learners will be able to</b>	
1	apply the knowledge of estimation of hydro meteorological parameters	
2	Estimate direct runoff and peak discharge using hydrograph technique	
3	Apply different methods of efficient irrigation and water conservation	
4	Determine reservoir capacity based on crop water requirement	
B.Tech	<b>Course Outcomes</b>	<b>Design of steel structures</b>
		<b>PCC -CV502</b>
	<b>At the end of the course, the learners will be able to</b>	
1	Describe the design philosophy, advantages and disadvantages of steel structures.	
2	Analyze and design different types of bolted and welded connections.	
3	Asses the strength of structural members as per Indian standards.	
4	Analyze and design members subjected to tension, compression and flexure.	
B.Tech	<b>Course Outcomes</b>	<b>Subject: Environmental Engineering-I</b>
		<b>PCC-CV503</b>
	<b>At the end of the course, the learners will be able to</b>	
1	Describe the various sources of water with respect to quality and quantity of water.	
2	Design the various water treatment units.	
3	Illustrate the special water treatments and sequencing of treatment for various qualities of surface & ground water.	
4	Describe the various components related to transmission and design of distribution of water.	
5	Summarize the different water supply appurtenances.	
B.Tech	<b>Course Outcomes</b>	<b>Subject: Geotechnical Engineering - I</b>
		<b>PCC-CV504</b>
	<b>At the end of the course, the learners will be able to:</b>	
1	Able to evaluate the Index and Engineering properties of soil	
2	Understand the fundamental relationships in properties of soils	
3	Evaluate the stress calculations in soil under different soil conditions	
4	Understands the process and importance of compaction and consolidation	
5	Know the shear strength of soil and its determination	
6	Analyze the lateral pressure on vertical retaining walls.	
B.Tech	<b>Course Outcomes</b>	<b>Subject- Energy and Environment</b>
		<b>OEC - CV506</b>
	<b>At the end of the course, the learners will be able to</b>	
1	Compare conventional and renewable energy resources	
2	Identify scope and potential of renewable energy.	
3	Analyze suitability of renewable energy sources	
4	Explain energy management principals	

<b>SEMESTER - VI</b>		
<b>Sr. No.</b>		<b>Subject Code</b>
<b>B.Tech</b>	<b>Course Outcomes</b>	<b>Subject: Theory of Structures</b>
		<b>PCC - CV601</b>
	<b>At the end of the course, the learners will be able to</b>	
1	Understand the concept of determinacy and indeterminacy.	
2	Apply various techniques of structural members to solve indeterminate structures.	
3	Analyze indeterminate structures by using various approaches.	
4	Know the limitations of the methods of solution and their outcomes.	
<b>B.Tech</b>	<b>Course Outcomes</b>	<b>Engineering Management</b>
		<b>HM-CV602</b>
	<b>At the end of the course, the learners will be able to</b>	
1	Understand importance of management in construction.	
2	Use the Project planning and management tools in Construction.	
3	Evaluate and draw project network for estimating time and cost.	
4	Know the techniques of Material Management.	
5	Explore and understand the concepts of Economics in construction.	
6	Know the advance concepts in management.	
<b>B.Tech</b>	<b>Course Outcomes</b>	<b>Environmental Engineering-II</b>
		<b>PCC-CV603</b>
	<b>At the end of the course, the learners will be able to</b>	
1	Explain sources, characteristics and methods of wastewater collection.	
2	Design the primary and secondary wastewater treatment units and describe low cost wastewater treatment units.	
3	Understand various methods of wastewater disposal	
4	Explain the necessity and importance of solid waste management	
5	Describe air pollution, its effect and controlling techniques.	
<b>B.Tech</b>	<b>Course Outcomes</b>	<b>Subject: Geotechnical Engineering II</b>
		<b>PCC-CV604</b>
	<b>At the end of the course, the learners will be able to:</b>	
1	Use engineering science principals to develop foundation engineering knowledge	
2	Apply foundation Engineering knowledge in civil engineering projects	
3	Calculate bearing capacity theoretically as well as practically	
4	Calculate settlement and design shallow and deep foundation	
5	Apply basic concepts of slope stability on field	
6	Apply modern foundation techniques	
<b>B.Tech</b>	<b>Course Outcomes</b>	<b>Subject: Soil and Water Conservation Techniques</b>
		<b>OEC-CV605</b>
	<b>At the end of the course, the learners will be able to:</b>	
1	Understand methods of soil and water conservation	
2	Develop an integrated model for sustainable natural conservation.	
3	Explain the groundwater exploration techniques and its artificial recharge.	
4	Analyze the needs for protection of banks and preservation of soil	

## SEMESTER -VII

Sr. No.	Course Outcomes	Subject Code
	<b>Subject: Design of Concrete Structures-I</b>	<b>PCC-CV701</b>
<b>B.Tech</b>	<b>Course Outcomes</b>	
	<b>At the end of the course, the learners will be able to</b>	
1	Apply relevant IS provisions to ensure safety and serviceability of structures, understand the design philosophies and behavior of materials: steel & concrete.	
2	Recognize mode of failure as per LSM and evaluate moment of resistance for singly, doubly rectangular, and flanged sections.	
3	Illustrate the shear reinforcement and bond for different elements of a building	
4	Design & detailing of one way slab, two-way slab and staircase.	
5	Analyse and design the reinforced concrete column using limit state method.	
6	Perform analysis and design of reinforced concrete footing using limit state method.	
	<b>Subject: Earthquake Engineering</b>	<b>PCC-CV702</b>
<b>B.Tech</b>	<b>Course Outcomes</b>	
1	Prepare mathematical modeling of Single Degree of Freedom System.	
2	Design earthquake resistant structure by applying various codal provisions related to seismic design	
3	Know the concept of modern earthquake resistant techniques	
4	Know the dynamic behavior of structure.	
5	Illustrate the modern techniques of earthquake resistant method.	
	<b>Quantity Survey and Valuation</b>	<b>Subject Code</b>
<b>B.Tech</b>	<b>Course Outcomes</b>	<b>PCC-CV703</b>
	<b>At the end of the course, the learners will be able to</b>	
1	Explain the importance of estimation in civil engineering works	
2	Prepare rate analysis of various items.	
3	Prepare estimate for various construction projects	
4	Explain importance of valuation in civil engineering works	
5	Analyze depreciation, rent calculation etc	
6	Apply knowledge for finding quantities of materials required in every civil engineering work	
	<b>Subject: Transportation Engineering-I</b>	<b>PCC-CV704</b>
<b>B.Tech</b>	<b>Course Outcomes</b>	
	<b>At the end of the course, the learners will be able to:</b>	
1	Carry out surveys involved in planning and highway alignment.	
2	Analysis and Design the geometric elements of highways and expressways.	
3	Carry out traffic studies and implement traffic regulation and control measures and intersection design.	
4	Examine the materials of highway and its properties.	
5	Design the flexible and rigid pavements as per IRC.	
6	Study the methods of tunneling and its maintenance.	
	<b>Subject: Solid Waste Management</b>	<b>PCE-CV705</b>
<b>B.Tech</b>	<b>Course Outcomes</b>	
1	Learn basic concepts of solid waste management, beginning from source generation to waste disposal in a system of municipality organizational structure.	
2	To acquire a fair amount of knowledge on waste characterization and its management practices.	
3	Develop understanding on various technological applications for processing of waste.	
4	Acquire knowledge on waste to energy production in perspective of sustainable development.	
5	Apply basic concept in hazardous waste management.	

SEMESTER-VIII		
Sr. No.	Subjects	Subject Code
B.Tech	<b>Design Of Concrete Structures-II</b>	PCC-CV801
	<b>After successful completion of course student will be able to:</b>	
1	Design of Beam Sections subjected to torsion.	
2	Design of Continuous beams.	
3	Design of Water tanks resting on ground.	
4	Design of Pre-stressed concrete sections.	
B.Tech	<b>Water resources engineering-II</b>	PCC-CV802
1	Identify and understand various issues related	
2	Understand the role of dams and reservoirs in controlling the floods. 3.	
3	Plan and design different types of hydraulic structures.	
4	Plan, design and monitor an efficient canal network system.	
5	Understand the role of rivers in the development of nation.	
B.Tech	<b>Course Outcomes</b> <b>Subject: Transportation Engineering- II</b>	PCC- CV803
	<b>Upon completion of this course, students will be able to</b>	
1	Plan the layout of different types of air terminals.	
2	Design the various elements of runways at airport.	
3	Carry out the surveys for layout and planning of railways, airports and harbors.	
4	Perform geometric design for the railway tracks.	
5	Planning and Design of various bridge components.	
B.Tech	<b>Course Outcomes</b> <b>Subject: Design of Bridges</b>	PCE-CV-804
	<b>At the end of the course, the learners will be able to</b>	
1	Identify the various components of bridges and Classify the types of bridges	
2	Assess the different kinds of loading on the bridge.	
3	Comprehend general design considerations for R.C.C. & P.S.C. bridges.	
4	Articulate about the bridge construction and bridge maintenance.	
5	Analyze & Design the substructures of the bridges.	
6	Design the unreinforced elastomeric bearings.	
B.Tech	<b>Course Outcomes</b> <b>Subject: Advanced Construction Techniques</b>	Subject Code
	<b>At the end of the course, the learners will be able to</b>	
		PCC-CV805
1	Know about composite construction	
2	Design formwork, design elements of formwork	
3	Know about new materials in civil engineering	
4	Know about ground improvement techniques, got knowledge about coffer dam construction	
5	Got knowledge about Rehabilitation of bridges	
6	Got knowledge about Retaining structures, new concrete techniques	

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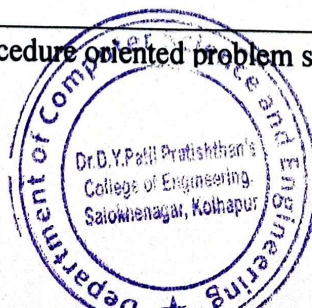
**Department of  
Computer Science & Engineering**

**Course Outcomes**

Department of Computer Science & Engineering

SEMESTER - III

Sr. No.	Subjects	Subject Code
<b>S.Y</b>	<b>Applied Mathematics</b>	<b>BSC - CS301</b>
1	Describe the statistical data numerically by using Lines of regression and Curve fittings.	
2	Illustrate basic problems in probability theory, including problems involving the binomial, Poisson, and normal distributions.	
3	Calculate numerical Integration.	
4	Solve fuzzy sets using linguistic words and represent these sets by membership functions, convexity, Normality, support, etc.	
5	Solve examples on the principle in performing fuzzy number arithmetic operations such as Addition, Multiplication & fuzzy equation.	
<b>S.Y</b>	<b>Discrete Mathematics &amp; Structures</b>	<b>PCC-CS302</b>
1	Understand the Basic concept of Discrete Mathematics	
2	Illustrate mathematical knowledge in programming	
3	Identify the basic set concepts & operations onset.	
4	Identify data structures using graph concepts.	
5	Apply basic concepts of probability to solve real world problem.	
<b>S.Y</b>	<b>Data Structures</b>	<b>PCC- CS303</b>
1	Explain the basic concepts of data structures	
2	Interpret appropriate data structure for specific application.	
3	Analyze programming problem statements.	
4	Choose appropriate sorting and searching algorithms.	
5	Design the solution to the given software problem with appropriate data structure.	
<b>S.Y</b>	<b>Computer Networks – I</b>	<b>PCC- CS304</b>
1	Demonstrate concepts of Computer Networks.	
2	Explain OSI and TCP/IP layered architecture	
3	Identify network and data link layer.	
4	Analyze the protocol structure using network analyzing tools.	
5	Apply the principals of socket programming in the networks.	
<b>S.Y</b>	<b>Microprocessors</b>	<b>PCC- CS305</b>
1	Explain architecture of 8085 microprocessor and microcontroller.	
2	Describe Programming models of 8086 microprocessor.	
3	Explore the higher processor architecture.	
4	Apply the concept of assembly instructions and use in assembly language problem.	
<b>S.Y</b>	<b>C programming</b>	<b>PCC- CS306</b>
	Understand the principles of procedure oriented problem solving and programming.	





2	Explain programming fundamentals including statements, control flow and recursion
3	Formulate problems and implement algorithms in C
4	Analyze and use data structures to solve the complex problem statements.
5	Apply file operations using file handling concepts through developing applications.
<b>S.Y</b>	<b>Soft Skills</b> <span style="float: right;"><b>HM- CS307</b></span>
1	Communicate effectively through verbal/oral communication and improve the listening skills
2	Participate actively in group discussion / meetings / interviews and prepare & deliver Presentations.
3	Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter-personal relationships, conflict management and leadership quality.
4	Develop and nurture the soft skills of the students through individual and group activities.



## SEMESTER - IV

Sr. No.	Subjects	Subject Code
<b>S.Y</b>	<b>Automata Theory</b>	<b>PCC-CS401</b>
1	Understand basic concepts of Regular Language and Regular Expressions	
2	Select appropriate abstract machine to recognize a given formal language	
3	Generate complex languages by applying Union, Intersection, Complement, Concatenation and Kleene * operations on simple languages.	
4	Apply parsing concepts for syntax analysis.	
5	Solve problems in related areas of theory in computer science.	
<b>S.Y</b>	<b>Computer Networks – II</b>	<b>PCC- CS402</b>
1	Understand and apply next generation protocol and addressing model	
2	Elaborate the fundamentals of Domain Name Systems	
3	Apply the concepts of Remote login and FTP in network applications	
4	Identify fundamentals of web, HTTP and e-mail communication protocols.	
5	Develop the client server model using sockets	
<b>S.Y</b>	<b>Computer Organization and Architecture</b>	<b>PCC- CS403</b>
1	Explain the history of computer system and the basic concepts of computer architecture and organization	
2	Understand the concept of I/O organization.	
3	Identify the concept of instruction level parallelism	
4	Identify the concept of memory techniques.	
5	Apply the different algorithms to perform arithmetic operations	
<b>S.Y</b>	<b>Operating Systems – I</b>	<b>PCC- CS404</b>
1	Explain Concept of Operating System	
2	Describe various functions of the operating system and their usage	
3	Explore the Linux Commands	
4	Apply the concept of System Calls	
<b>S.Y</b>	<b>Software Engineering</b>	<b>PCC- CS405</b>
1	Understand the basic concepts of SDLC.	
2	Describe methodologies of Software Development Life Cycle in real time projects	
3	Infer knowledge to write SRS	
4	Develop software design and development techniques	
5	Evaluate testing methods at each phase of SDLC	
<b>S.Y</b>	<b>Object Oriented Programming</b>	<b>PCC- CS406</b>
1	Explain the characteristics of an object-oriented programming language in a program.	
2	Describe basic object-oriented design principles in computer problem solving.	
3	Identify basic principles of software engineering in managing complex software project.	
4	Construct advanced features of the C++ programming language.	
5	Develop programs in the LINUX programming environment.	

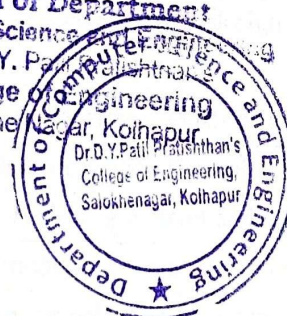
<b>S.Y</b>	<b>Mini Project</b>	<b>PW- CS407</b>
1	Demonstrate programs in the LINUX programming environment.	
2	Organize detailed project activities.	
3	Construct Flowchart, System Architecture based on the project description	
4	Implement the solution for their problem.	
<b>S.Y</b>	<b>Environmental Studies</b>	<b>PCC- CS408</b>
1	Understand the significance of various natural resources and its management.	
2	Demonstrate a comprehensive understanding of the world's biodiversity and the importance of its conservation.	
3	Categorize different types of pollutions and their control measures.	
4	Discover effective methods of waste Management.	
5	Analyze global environmental problems and come out with best possible solutions.	

  
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## Department of Computer Science &amp; Engineering

## SEMESTER - V

Sr. No.	Subjects	Subject Code
T.Y	<b>Information Security</b>	<b>PCC-CS501</b>
1	Understand principles of Crypto-systems.	
2	Compare various security services and mechanisms.	
3	Apply features of PGP, S/MIME, DSA, IPsec, SSL in their profession.	
4	Choose precautionary steps of their personal computing system from possible threats and attacks.	
5	Discover newer vulnerabilities by providing the solutions to them.	
T.Y	<b>System Programming</b>	<b>PCC- CS502</b>
1	Understand the role of system programs and application programs.	
2	Explain the basics of system programs like editors, compiler, assembler, linker, loader, interpreter and debugger	
3	Recognize the various concepts of assemblers and macro - processors.	
4	Design the various phases of compiler and compare its working with assembler.	
T.Y	<b>Object-Oriented Modeling &amp; Design</b>	<b>PCC- CS503</b>
1	Remember the software engineering and object-oriented concepts.	
2	Recognize the Object based software systems	
3	Identify UML notations and compare with OMT.	
4	Construct Object Oriented view of the system	
5	Design a Software System using OMT& UML design techniques.	
T.Y	<b>Computer Algorithms</b>	<b>PCC- CS504</b>
1	Understand the basic concept of algorithm, Types of algorithms and performance analysis.	
2	Demonstrate different algorithm methods with analysis.	
3	Build an algorithm for given problem statement and analyze its space and time complexity.	
4	Apply different algorithm methods to solve complex computational problems.	
5	Examine the problem to determine polynomial and non- polynomial based on its nature	
T.Y	<b>Internet of Things</b>	<b>OEC-CS506</b>
1	Understand basic concepts of IoT	
2	Apply RFID technology in various applications.	
3	Build programs for basic applications	
4	Implement different communication technologies in IoT systems.	
T.Y	<b>Java Programming</b>	<b>PCC- CS507</b>
1	Explain the principles of object-oriented problem solving & programming.	
2	Illustrate code reusability, security and abstraction using inheritance, package and interface.	
3	Develop reliable and user-friendly applications using exception handling and file handling.	
4	Create desktop apps using SWING and event handling and also illustrate multithreading concepts.	

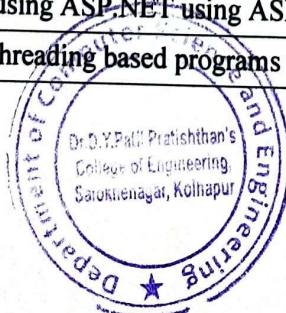


5	Apply network programming concept & develop web applications using servlet and jsp.	
T.Y	<b>Business English</b>	
1	Recognize basic skills to deal with people in business situations	HM- CS508
2	Develop knowledge of key business concepts worldwide	
3	Construct basic business reports, letters, e-mails etc	
4	Expand vocabulary related to general business situations	
5	Develop confidence to deal with people and basic issues in the business world	



## SEMESTER - VI

Sr. No.	Subjects	Subject Code
<b>T.Y</b>	<b>Compiler Construction</b>	<b>PCC-CS601</b>
1	Recall the compiler phases and compiler construction tools like LEX and YACC.	
2	Identify appropriate code optimizing transformation for the given code	
3	Design and implement Lexical Analyser for a simple language.	
4	Apply Syntax directed translations and Syntax Directed definitions to generate intermediate code	
<b>T.Y</b>	<b>Operating System-II</b>	<b>PCC- CS602</b>
1	Understand UNIX kernel, its architectural components like file subsystem, process control subsystem, memory management	
2	Illustrate a concrete way (UNIX i-nodes) of organizing a file system on a physical storage medium. using recurrence relation	
3	Identify UNIX directories, files, manage processes, manipulate data with proper use of pipes and file redirection, UNIX filters.	
4	Implement various UNIX system calls	
5	Analyze the principles of paging, virtual memory (VM) and describe the data structures and components (both hardware and software) that are	
6	Apply shell programming involving decision control, looping and control flow statements on UNIX based machines.	
<b>T.Y</b>	<b>Database Engineering</b>	<b>PCC- CS603</b>
1	Understand fundamentals of database management systems.	
2	Represent logical design of database using E-R Diagram.	
3	Analyze & construct good database design.	
4	Identify failures in database and appropriate recovery techniques.	
5	Apply SQL queries to design & manage the database.	
<b>T.Y</b>	<b>Machine Learning</b>	<b>PCC- CS604</b>
1	Explain Machine Learning concepts.	
2	Analyze the Machine Learning model.	
3	Design solution using Machine Learning techniques.	
4	Tackle real world problems in domain of data mining, information retrieval, computer vision, linguistics and bioinformatics, etc.	
<b>T.Y</b>	<b>Cyber Security</b>	<b>OEC - CS606</b>
1	Explain the cyber security concepts.	
2	Describe the cyber security vulnerabilities and prevention techniques.	
3	Identify different rules and regulations under I.T. ACT	
4	Analyze the concepts of digital forensics & incident management	
<b>T.Y</b>	<b>C# Programming</b>	<b>PCC- CS607</b>
1	Demonstrate object-oriented programs using C# classes and objects	
2	Construct web applications using ASP.NET using ASP.NET controls in web applications.	
3	Build networking and multithreading based programs using C#	



4	Deploy ASP.NET web applications and create database driven ASP.NET web applications.	
<b>T.Y</b>	<b>Domain Specific Mini Project</b>	<b>PW- CS608</b>
1	Identify specific problem statement from a selected domain.	
2	Analyze the problem and prepare SRS and design document.	
3	Implement code and carry out testing.	
4	Construct a report covering details of the project and give presentation on a project.	

  
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Department of Computer Science & Engineering

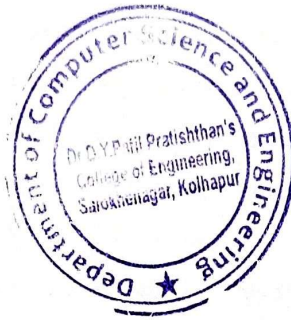
**SEMESTER - VII**

Sr. No.	Subjects	Subject Code
<b>B.Tech</b>	<b>Advanced Computer Architecture</b>	<b>PCC-CS701</b>
1	Demonstrate concepts of parallelism in hardware/software.	
2	Explain memory organization and mapping techniques	
3	Identify architectural features of advanced processors.	
4	Analyze data flow in arithmetic algorithms.	
5	Develop software to solve computationally intensive problems	
<b>B.Tech</b>	<b>Cloud Computing</b>	<b>PCC- CS702</b>
1	Explain basic concepts, key technologies, strengths, and limitations of cloud computing	
2	Differentiate several deployment models and services of cloud	
3	Identify the virtualization concepts	
4	Analyze the various security issues in cloud computing	
5	Discover appropriate algorithms and approaches for real time issues	
<b>B.Tech</b>	<b>Advanced Database Systems</b>	<b>PCC- CS703</b>
1	Understand and identify issues arising from parallel and distributed processing of data.	
2	Identify appropriate database and construct solution to real world problems of storing large data.	
3	Compare NoSQL databases with each other and Relational Database Systems.	
4	Utilize SQL cursors, triggers, stored procedures, and procedural SQL to write complex SQL scripts.	
5	Build database administration tasks and security measures.	
<b>B.Tech</b>	<b>Elective-I Artificial Intelligence</b>	<b>PCE- CS704</b>
1	Explain Artificial Intelligence (AI) methods and describe their foundations.	
2	Discuss current scope and limitations of AI and societal implications.	
3	Illustrate knowledge of reasoning and knowledge representation for solving real world problems.	
4	Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation and learning.	
5	Analyze how search algorithms play vital role in problem solving.	
<b>B.Tech</b>	<b>Web Technologies</b>	<b>PCC- CS705</b>
1	Demonstrate the use of client side scripting	
2	Demonstrate web application using PHP.	
3	Construct web application using MVC and Angular JS.	
4	Construct use of server side technologies	
5	Apply the use of server side technologies	





<b>B.Tech</b>	<b>Project-I</b>	<b>PW- CS706</b>
1	Explain the need of a software project for the society	
2	Identify requirement analysis like functional and technical requirements for the project	
3	Design documents for the project consisting of Architecture and diagrams with analysis.	
5	Construct technical report consisting of Requirement specification, Analysis and Design of Project	



## SEMESTER - VIII

Sr. No.	Subjects	Subject Code
<b>B.Tech</b>	<b>Big Data Analytics</b>	<b>PCC- CS801</b>
1	Explain several key technologies used in manipulating, storing, and analyzing big data.	
2	Demonstrate understanding of R & Hadoop.	
3	Illustrate Integrating R & Hadoop with clear understanding of Hadoop Streaming and its importance.	
4	Analyze Big Data and manage it..	
5	Apply tools and techniques to analyze Big Data	
<b>B.Tech</b>	<b>Deep Learning</b>	<b>PCC- CS802</b>
1	Describe basic concepts of artificial intelligence and deep learning.	
2	Compare different models of deep learning to work with various types of inputs.	
3	Develop different deep learning models for given tasks.	
4	Construct correct parameters and hyper-parameters of developed model for getting improved results.	
<b>B.Tech</b>	<b>Elective-II PROJECT MANAGEMENT</b>	<b>PCE- CS803</b>
1	Understand project characteristics and various stages of a project.	
2	Explain the conceptual clarity about project organization and feasibility analyses	
3	Analyze the learning and understand techniques for Project planning, project risk, scheduling and Execution	
4	Resolve IT related crises using project management	
5	Manage the phases and infrastructure of IT projects	
6	Describe fundamental concepts of agile methodology and agile development practices	
<b>B.Tech</b>	<b>Elective-III Human Computer Interaction</b>	<b>PCE- CS804</b>
1	Explain principles of User Interface	
2	Demonstrate HCI design process & screen designing techniques	
4	Apply windows based UI interfaces	
5	Develop Mobile Applications	
<b>B.Tech</b>	<b>Mobile Application Development</b>	<b>PCC- CS805</b>
1	Illustrate installation and configuration of Android application development tools.	
2	Design user Interfaces for the Android platform.	
3	Develop database based android application.	
4	Apply Java programming concepts to Android app development	



B.Tech	Project-II	PW- CS806
1	Demonstrate the usability of User Interface	
2	Analyze emerging technologies in development of a project	
3	Construct technical report consisting of Requirement specification, Analysis and Design of Project	
3	Test the modules in Project by demonstrating working of project	

  
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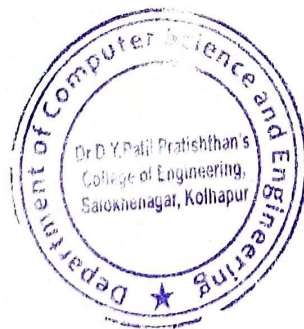
  
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**Department of  
Electrical Engineering**

**Course Outcomes**

# Department of Electrical Engineering

## Course Outcomes

<b>SEMESTER - III</b>		
<b>Sr. No.</b>	<b>Subjects</b>	<b>Subject Code</b>
<b>S.Y</b>	<b>ENGINEERING MATHEMATICS-III</b>	<b>BSC - EE301</b>
1.	Understand linear differential equations and problems related to applications of differential equation	
2.	Illustrate vector differentiation and integration	
3.	Illustrate Laplace transform and Inverse Laplace transform of various functions	
4.	Apply Laplace transform to solve Linear differential equations	
5.	Find Z-Transform and inverse Z-transform by using different properties	
6.	Find Expansions of function by using Fourier series	
<b>S.Y</b>	<b>ELECTRICAL ENGINEERING MATERIALS AND ENERGY CONVERSION</b>	<b>PCC-EE302</b>
1	Understand the types of engineering materials	
2	Understand the principles of Electro-mechanical Energy Conversion	
3	Apply knowledge of materials for energy conversion	
4	Analyze knowledge of Materials for direct Energy conversion devices	
<b>S.Y</b>	<b>ANALOG ELECTRONICS ENGINEERING</b>	<b>PCC- EE303</b>
1	Explain various semiconductor devices and its applications	
2	Illustrate & Compare BJT and JFET	
3	Classify feedback amplifiers & analyze various oscillators	
4	List op-amp characteristics and distinguish its configurations	
5	Explain applications of op-amp	
6	Interpret applications of IC 555 timers	
<b>S.Y</b>	<b>BASIC CIRCUIT THEORY</b>	<b>PCC- EE304</b>
1	Analyze the A. C and D.C. Circuit	
2	Apply network theorems to solve problems	
3	Solve problem on coupled circuit	
4	Solve problem on two port network	
5	Solve problem on Laplace Transformation	
<b>S.Y</b>	<b>ELECTRICAL MEASUREMENT</b>	<b>PCC- EE305</b>
1	Explain various concepts of measuring instruments	
2	Explain different types of secondary instruments	
3	Determine different methods for measurement of resistance, inductance & Capacitance	
4	Describe various methods for measurement of Power & energy	
5	Illustrate & Explain concept of displacement measurement	
6	Describe various modern techniques used in measurement	

# Department of Electrical Engineering

## Course Outcomes

S.Y	C PROGRAMMING	PCC- EE306
1	Illustrate flowchart and algorithm to the given problem	
2	Understand basic Structure of the C-PROGRAMMING, declaration and usage of variables	
3	Write C programs using operators	
4	Exercise conditional and iterative statements to Write C programs	
5	Demonstrate C programs using Pointers to access arrays, strings and functions	
6	Demonstrate C programs using pointers and allocate memory using dynamic memory	

<b>SEMESTER - IV</b>		
Sr. No.	Subjects	Subject Code
<b>S.Y</b>	<b>D.C. MOTORS &amp; TRANSFORMER</b>	<b>PCC-EE401</b>
1	Explain the construction and working principle of DC Machines	
2	What are the speed control methods of DC motor & how find the losses	
3	Explain the construction and working principle of Universal motor	
4	Explain the construction and working principle of single phase transformer	
5	Explain the construction and working principle of poly phase transformer	
6	Testing & the application of poly phase transformer	
<b>S.Y</b>	<b>POWER ELECTRONICS</b>	<b>PCC- EE402</b>
1	Understand different power semiconductor switches, diode rectifiers	
2	Analyze controlled converters & choppers (DC-DC converters)	
3	Understand Switch mode DC to AC converters	
4	Understand Cyclo-converters & Matrix Converters	
<b>S.Y</b>	<b>POWER SYSTEM - I</b>	<b>PCC- EE403</b>
1	Illustrate the knowledge to typical A.C. and D.C. Power Supply Scheme	
2	Understand line constants for power systems	
3	Analyze sending end voltage, receiving end voltage, transmission efficiency and regulation in case of transmission line and cables	
4	Recognize the common cause of voltages drops and faults in power system	
<b>S.Y</b>	<b>ELECTROMAGNETIC ENGINEERING</b>	<b>PCC- EE404</b>
1	Classify different types of coordinate systems and use them for solving the problems of electromagnetic field theory	
2	Describe static electric and magnetic fields, their behavior in different media, associated laws, boundary conditions and electromagnetic potentials	
3	Demonstrate integral and point form of Maxwell's equations for solving the problems of electromagnetic field theory	

# Department of Electrical Engineering

## Course Outcomes

4	Describe time varying fields, propagation of electromagnetic waves in different media, Poynting theorem, their sources & effects and to apply the theory of electromagnetic waves in practical problems	
<b>S.Y</b>	<b>CONTROL SYSTEM -I</b>	<b>PCC- EE405</b>
1	Apply knowledge of mathematics, science, and engineering to design, analyze and control the different systems	
2	Explain time & frequency domain analysis for different control systems	
3	Demonstrate & compare different control systems	
4	Describe state variables 5 Design model for control system	
<b>S.Y</b>	<b>Environmental Studies</b>	<b>PCC- EE406</b>
1	Understand the significance of various natural resources and its management.	
2	Demonstrate a comprehensive understanding of the world's biodiversity and the importance of its conservation.	
3	Categorize different types of pollutions and their control measures.	
4	Discover effective methods of waste Management.	
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# Department of Electrical Engineering

## Course Outcomes

<b>SEMESTER - V</b>		
Sr. No.	Subjects	Subject Code
<b>T.Y</b>	<b>DIGITAL ELECTRONICS AND MICROCONTROLLER</b>	<b>PCC- EE501</b>
1	Understand basic binary math operations Number System, Logic Gates, Theorems, Properties of Boolean Algebra	
2	Analyze 2, 3 and 4 variable K-Map	
3	Design different types Adders, Substractors, Flip-Flops and Counters	
4	Apply knowledge to demonstrate various addressing modes and data transfer instructions	
5	Analyze assembly language programs select appropriate assemble into machine a cross assembler utility of a microcontroller	
6	Design different types of Interfacing	
<b>T.Y</b>	<b>AC MACHINES</b>	<b>PCC- EE502</b>
1	Analyze the performance of 3-phase induction motors	
2	Determine and analyze the Losses and efficiency and performance of alternators	
3	Demonstrate principle of operation and application of 1 -phase induction motors	
4	Analyze performance of special purpose motors and Make use of special designed motors for different applications	
5	Evaluate performance of different types of alternators	
6	Analyze the performance of 3-phase induction motors	
<b>T.Y</b>	<b>POWER SYSTEM-II</b>	<b>PCC- EE503</b>
1	Understand the need of power factor improvement and substation layout	
2	Identify sequence components and to draw sequence network of different Power System component	
3	Analyze power system in P.U and will be able to represent power system with its components	
4	Evaluate system fault Analysis	
<b>T.Y</b>	<b>ADVANCED CONTROL SYSTEM</b>	<b>PCC- EE504</b>
1	Design a compensation techniques like Lag, Lead and Lead-Lag Controllers in frequencydomain, design of PID controller	
2	Derive and Design a Lead, Lag, and Lead-Lag Compensation using Root Locus	
3	Derive and Design a Lead, Lag, and Lead-Lag Compensation using Bode Plot	
4	Analyze the state space representation of digital control system, derive state space equation, and its Transfer function	
5	Design a state space using controllability, Observability, Pole Placement techniques for controller, Pole placement technique by Transformation method, Direct Substitution Method and by Ackermann's formula	
6	Understand the digital control system of Z-Transform and sampling, mapping between S-Plane & Z-Plane, stability analysis, transient & steady state analysis	
<b>T.Y</b>	<b>SIGNALS AND SYSTEMS</b>	<b>PCC-EE505</b>



# Department of Electrical Engineering

## Course Outcomes

1	Define CT and DT signals mathematically and Classify systems based on their properties
2	Explain concept of LTI system and Evaluate convolution
3	Analyze CT signals and systems using Laplace Transform
4	Analyze DT signals and systems using Z Transform
5	Determine Fourier transforms for CT & DT
6	Explain sampling theorem in time domain and frequency domain
<b>T.Y</b>	<b>MATLAB</b> <span style="float: right;"><b>PCC- EE506</b></span>
1	Articulate the basics MATLAB programming.
2	Solve electrical engineering problems using any available software tools such as MATLAB/Simulink
3	Understand loops, functions in MATLAB
4	Apply MATLAB basics to solve engineering problems
<b>T.Y</b>	<b>ELECTRICAL APPLIANCES AND LUMINORIES</b> <span style="float: right;"><b>OE- EE507</b></span>
1	Apply Knowledge to maintain the different electrical appliances
2	Construct And repair domestic appliances
3	Design and troubleshoot UPS and Inverters
4	Illustrate basic concepts of illumination
5	Designing of lighting for domestic purpose
6	Designing of lighting for special purpose

### SEMESTER - VI

Sr. No.	Subjects	Subject Code
<b>T.Y</b>	<b>DIGITAL SIGNAL PROCESSING</b>	<b>PCC- EE601</b>
1	Explain concept of convolution, DFT & FFT	
2	Design DSP filters	
3	Analyze DSP filters	
4	Illustrate & Distinguish DSP processors	
5	Define & Explain various modulation techniques	
<b>T.Y</b>	<b>ELECTRICAL MACHINE DESIGN</b>	<b>PCC- EE602</b>
1	Recognize the fundamentals and essential standards to design electrical machine	
2	Design of entire transformer in detail	
3	Design of armature, field winding and Commutator of DC machines	
4	Design of stator core ,stator winding and rotor bars of three phase induction motor	
5	Design of different parts of synchronous machine	
6	Design of transformer, induction motor, DC machines and synchronous machines using Computer application	
<b>T.Y</b>	<b>POWER SYSTEM STABILITY AND CONTROL</b>	<b>PCC- EE603</b>
1	Understand Power System Dynamics Problems, Current Status & Recent Trends	

# Department of Electrical Engineering

## Course Outcomes

2	Develop ability to analyze and use various methods to improve stability of power systems	
3	Evaluate Methods of Improving Stability	
4	Illustrate the automatic frequency and voltage control strategies for single and two are a case	
5	Understand formulation of unit commitment and economic load dispatch tasks and solve it using optimization techniques	
6	Explicate need of System State Classification, Security Analysis and Factors Affecting Power System Security	PCC- EE604
<b>T.Y</b>	<b>ELECTRICAL DRIVES-I</b>	
1	Understand the concept, classification, Parts and advantages of electrical drives with types of loads and conditions of dynamic and stability considerations	
2	Understand basics of DC motor and the speed control methods of D.C. motor by Single & Three-Phase Converters	
3	Understand outline of Chopper operation, configuration and control techniques to control the DC Motor	
4	Understand the Voltage and frequency control method of Induction motor drive in Stator side control	
5	Understand the rotor resistance control method of Induction motor drive in Rotor side control	
6	Understand the speed and frequency control method of synchronous motor	PCC- EE605
<b>T.Y</b>	<b>ELECTRICAL INSTALLATIONS TESTING AND MAINTENANCE</b>	
1	Understand & interpret electrical installation drawings	
2	Understand and apply IE rules	
3	Understand testing methods of various electrical equipment	
4	Describe corrective and preventive maintenance of electrical equipments	
<b>T.Y</b>	<b>ELECTRICAL ENERGY AUDIT AND CONSERVATION</b>	OE- EE606
1	Demonstrate energy flow diagrams and energy audit report	
2	Explain energy audit for Mechanical Systems	
3	Understand relevant tariff for reducing losses in facilities	
4	Interpret energy conservation policies in India	
5	Evaluate the energy conservation opportunities in different electric system	
6	Evaluate energy conservation opportunities in thermal system	

  
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# Department of Electrical Engineering

## Course Outcomes

<b>SEMESTER - VII</b>		
Sr. No.	Subjects	Subject Code
<b>B.Tech</b>	<b>FLEXIBLE AC TRANSMISSION SYSTEM</b>	<b>PCC- EE701</b>
1	Understand the interconnection system, Power flow systems, loading effects and important of FACTS and basics of types of FACTS controller	
2	Understand the Statics shunt compensators	
3	Understand the Static Synchronous compensator STATCOM	
4	Understand the Static Series compensators	
5	Understand the Static voltage and phase angle regulation TCVR and TCPAR	
6	Understand the combined compensator: UPFC and IPFC	<b>PCC- EE702</b>
<b>B.Tech</b>	<b>POWER QUALITY AND HARMONICS</b>	
1	Explain various methods of power quality monitoring	
2	Explain the production of voltages sags	
3	Illustrate the interruptions types and its influence in various components	
4	Understand the Effects of harmonics on various equipments	
5	Understand power quality monitoring and classification techniques	<b>PCC- EE703</b>
<b>B.Tech</b>	<b>COMPUTER METHODS IN POWER SYSTEM</b>	
1	Calculate impedance and admittance matrices	
2	Understand load flow studies	
3	Interpret fault current using 2 component theory	
4	Understand fault analysis in power system using software tools	<b>PCE- CS704</b>
<b>B.Tech</b>	<b>SWITCHGEAR AND PROTECTION</b>	
1	Understand the types of Circuit breakers and choice of Relays for appropriate protection of power system equipment	
2	Understand various types of Protective devices in Electrical Power Systems	
3	Interpret the existing transmission voltage levels and various means to protect the system against over voltages	
4	Understand the importance of Neutral Grounding, Effects of Ungrounded Neutral grounding on system performance, Methods and Practices	<b>PCC- EE705</b>
<b>B.Tech</b>	<b>INDUSTRIAL TRAINING &amp; PRESENTATION</b>	
1	Exhibit the corporate culture/ethics in their work-space/career	
2	Identify the size and scale of operations in Industry	
3	Accomplish allotted tasks within deadlines	
4	Demonstrate an understanding of various constraints in industry	
5	Learn problem solving techniques and also work as a team	
6	Apply the knowledge learnt in their own career	<b>PW- EE706</b>
<b>B.Tech</b>	<b>PROJECT-I</b>	

# Department of Electrical Engineering

## Course Outcomes

1	Demonstrate a wide range of the skills learned at the College of Engineering during their course of study by asking them to deliver a product that has passed through the design, analysis, testing and evaluation	
2	Develop multidisciplinary research through the integration learned in a number of courses	
3	Develop problem solving, analysis, synthesis and evaluation skills	
4	Demonstrate teamwork through project work	
5	Improve students' communication skills by asking them to produce both a professional report and a professional poster and to give an oral presentation	
<b>B.Tech</b>	<b>ELECTRIC VEHICLE</b>	<b>PCE - EE707</b>
1	Understand working of different configurations of electric vehicles	
2	Understand hybrid vehicle configuration and its components, performance analysis	
3	Understand of electric vehicle drive systems	
4	Discuss about the different types of energy storage system	
5	Describe about the battery characteristic & parameters	
6	Explain about the battery testing, disposal and recycling	


### SEMESTER - VIII


Sr. No.	Subjects	Subject Code
<b>B.Tech</b>	<b>MANAGEMENT &amp; ENTREPRENEURSHIP DEVELOPMENT</b>	<b>PCC- EE801</b>
1	Understand the concept and significance of project	
2	Understand management of functional dimensions of Project	
3	Analyze risk and opportunities involved in project management	
4	Prepare feasibility report for a project	
<b>B.Tech</b>	<b>H.V.D.C. SYSTEMS</b>	<b>PCC- EE802</b>
1	Explain about HVDC	
2	Explain the analysis of HVDC converters	
3	Explain The Multi Terminal HVDC Systems	
4	Apply the knowledge of reactive power and design the filters	
5	Explain HVDC Cables and simulation of systems	
<b>B.Tech</b>	<b>EXTRA HIGH VOLTAGE AC TRANSMISSION</b>	<b>PCC- EE803</b>
1	Calculate EHVAC line parameters	
2	Study voltage gradients and corona effects	
3	Find over-voltages and methods of protection	
<b>B.Tech</b>	<b>ELECTRICAL GENERATION &amp; UTILIZATION</b>	<b>PCC- EE804</b>
1	Explain about Electrical Utilization application	
2	Explain the Non-Conventional energy	
3	Explain about Electric traction & its usage	

# Department of Electrical Engineering

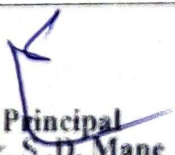
## Course Outcomes

<b>B.Tech</b>	<b>SEMINAR</b>	<b>PCC- EE805</b>
1	Create awareness about latest technological aspects	
2	Improve presentation and communication skills	
3	Improve skills related to search on the internet	
4	Motivate for research in respective area	
5	Provide platform for interaction amongst students on advanced and/or emerging topics of technology	<b>PW- EE806</b>
<b>B.Tech</b>	<b>PROJECT PHASE-II</b>	
1	Demonstrate a wide range of the skills learned at the College of Engineering during their course of study by asking them to deliver a product that has passed through the design, analysis, testing and evaluation	
2	Develop multidisciplinary research through the integration learned in a number of courses	
3	Develop problem solving, analysis, synthesis and evaluation skills	
4	Demonstrate teamwork through project work	
5	Improve students' communication skills by asking them to produce both a professional report and a professional poster and to give an oral presentation	<b>PCE - EE807</b>
<b>B.Tech</b>	<b>PLC &amp; SCADA APPLICATIONS</b>	
1	Understand synthesis of automatic control, real time systems and instrumentation engineering	
2	Understand automation concentrates on the structural problems in manufacturing systems, processing industries or power industries	
3	Analyze the coordination of and interaction between many different components such as machines or processes, rather than control of individual components	
4	Demonstrate knowledge about SCADA system components: remote terminal units, PLCs, intelligent electronic devices, HMI systems, SCADA server	
5	Illustrate about SCADA communication, various industrial communication technologies, open standard communication protocol	
6	Understand about SCADA applications in transmission and distribution sector, industries etc	
<b>B.Tech</b>	<b>ELECTRICAL MAINTENANCE AND ELECTRICAL ENERGY AUDIT</b>	<b>PCE - EE808</b>
1	Comply with published electrical codes and safety standards	
2	Install electrical systems/equipment in new construction under supervision of a journey person	
3	Troubleshoot, repair, and conduct routine maintenance of electrical systems/equipment	
4	Conceptual knowledge of the technology, economics and regulation related issues associated with energy conservation and energy auditing	
5	Identify and evaluate the common energy conservation opportunities in different energy intensive industrial equipment's	
6	Understand the need for energy audit and examine the evaluation of energy conservation solutions adopted	

  
 HoD, EE  
 Prof. Mrs. Vidya N.A.  
**Head of Department**  
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 Dr. D. Y. Patil Pratishthan's  
 College of Engineering

  
 Dean Academics  
 Prof. J. M. Ware



  
 Principal  
 Dr. S. D. Mane  
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Dr. D. Y. PatilPratishthan's College of Engineering,  
SalokheNagar, Kolhapur.

**Department of  
Computer Science & Engineering  
(Data Science)**

**Course Outcomes**

SEMESTER - III		
Sr. No.	Subject	Subject Code
<b>B.Tech</b>	<b>Applied Mathematics</b>	<b>BSC-DS301</b>
1	Describe the statistical data numerically by using Lines of regression and Curve fitting	
2	Solve basic problems in probability theory, including problems involving the binomial, Poisson, and normal distributions.	
3	Analyze problems using mathematics	
4	Define fuzzy sets using linguistic words and represent these sets by membership functions, convexity, Normality, support, etc.	
5	Solve examples on the principle in performing fuzzy number arithmetic operations such as Addition, Multiplication & fuzzy equation.	
6	Solve assignment problems by using different techniques of operation research.	
<b>B. Tech</b>	<b>Discrete Mathematics &amp; Structures</b>	<b>PCC-CS303</b>
1	Apply logic concepts in designing a program.	
2	Illustrate basic set concepts & apply operations on set.	
3	Minimize the Boolean Function.	
4	Apply basic concepts of probability to solve real world problem.	
5	Represent data structures using graph concepts.	
6	Design abstract machine, detect deadlocks.	
<b>B. Tech</b>	<b>Data Structures</b>	<b>PCC-CS303</b>
1	Identify the appropriate data structure for specific application.	
2	Design and analyze programming problem statements.	
3	Chose appropriate sorting and searching algorithms.	
4	Outline the solution to the given software problem with appropriate data structure.	
<b>B. Tech</b>	<b>Computer Networks</b>	<b>PCC-CS304</b>
1	Student will understand the fundamental concepts of Computer Networks.	
2	Student will able to differentiate OSI and TCP/IP layered architecture	
3	Student will apply practical knowledge of network and will able to form network,	
4	Student will apply the principals of socket programming in the networks.	
<b>B. Tech</b>	<b>Microprocessors &amp; Microcontrollers</b>	<b>PCC-DS305</b>
1	Describe the Architecture of 8085 microprocessors and microcontroller	
2	Write simple assembly language programs	
3	Implement simple interfacing experiments on Arduino	
4	Programs Arduino platforms	
5	Understand ADC and interfacing mechanism	
6	Develop simple applications using microcontrollers	
<b>B. Tech</b>	<b>C Programming</b>	<b>PCC-CS306</b>

1	Articulate the principles of procedure-oriented problem solving and programming.	
2	Explain programming fundamentals including statements, control flow and recursion	
3	Able to formulate problems and implement algorithms in C	
4	Analyze and use data structures to solve the complex problem statements.	
5	Demonstrate file operations using file handling concepts through developing applications.	
<b>B. Tech</b>	<b>SOFT SKILLS</b>	<b>HM-DS307</b>
1	Effectively communicate through verbal/oral communication and improve the listening skills	
2	Actively participate in group discussion / meetings / interviews and prepare & deliver presentations.	
3	Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter-personal relationships, conflict management and leadership quality.	

SEMESTER - IV		
Sr. No.	Subjects	Subject Code
<b>B.Tech</b>	<b>Automata Theory</b>	<b>PCC-DS-401</b>
1	Understand basic concepts of Regular Language and Regular Expressions	
2	Select appropriate abstract machine to recognize a given formal language.	
3	Generate complex languages by applying Union, Intersection, Complement, Concatenation and Kleene * operations on simple languages.	
4	Apply parsing concepts for syntax analysis.	
5	Be familiar with thinking analytically and intuitively for problem solving situations in related areas of theory in computer science.	
<b>B. Tech</b>	<b>Computer Networks Protocols</b>	<b>PCC-CS-402</b>
1	Program the client server model using sockets	
2	Apply next generation protocol and addressing model	
3	Elaborate the fundamentals of Domain Name Systems	
4	Apply the concepts of Remote login and FTP in network applications	
5	Learn fundamentals of web, HTTP and e-mail communication protocols.	
6	Understand multimedia streaming and relevant protocols.	
<b>B. Tech</b>	<b>Statistic for Data Science</b>	<b>BSC-DS403</b>
1	Apply the number theory concepts to cryptography domain	
2	Apply the concepts of probability and distributions to some case studies	
3	Correlate the material of one unit to the material in other units	
4	Resolve the potential misconceptions and hazards in each topic of study.	
<b>B. Tech</b>	<b>Operating System</b>	<b>PCC-CS-404</b>
1	Understand operating systems functions	
2	Write simple systems calls using fork()	



3	Understand synchronization and critical section problems
4	Remember Concept of dead locks
5	Understand memory management concepts

<b>B. Tech</b>	<b>Software Engineering</b>	<b>PCC-DS-405</b>
1	Comprehend systematic methodologies of SDLC (Software Development Life Cycle)	
2	Discriminate competing and feasible system requirements indicating correct real world problem scope and prepare stepwise system conceptual model using stakeholder analysis and requirement validation.	
3	Prepare SRS document for a project	
4	Apply software design and development techniques	
5	Develop a quality software project through effective team-building, planning, scheduling and risk	
6	Understand testing methods at each phase of SDLC	

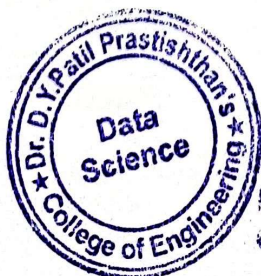
<b>B. Tech</b>	<b>Python for Data Science</b>	<b>PCC-DS-406</b>
1	Identify the need for data science and solve basic problems using Python built-in data types and their methods.	
2	Design an application with user-defined modules and packages using OOP concept	
3	Employ efficient storage and data operations using NumPy arrays.	
4	Apply powerful data manipulations using Pandas.	
5	Do data preprocessing and visualization using Pandas	

<b>B. Tech</b>	<b>Mini Project</b>	<b>PW-DS407</b>
1	Define the problem statement.	
2	Organize, Plan and prepare the detailed project activities.	
3	Construct Flowchart, System Architecture based on the project description	
4	Implement the solution for their problem.	

<b>Semester V</b>		
<b>Sr. No.</b>	<b>Subjects</b>	<b>Subject Code</b>
<b>B Tech</b>	<b>Fundamentals of Data Science</b>	<b>PCC - DS501</b>
1	Summarize the basics of data science and its process	
2	Construct solution to a given problem using knowledge of tools for Data Science	
3	Build a solution to a given problem using NumPy package	
4	Illustrate functions of Python libraries	<b>PCC - DS502</b>
<b>B Tech</b>	<b>Feature Engineering</b>	
1	Explain basics of feature engineering used for representing and generating process	
2	Describe features of different types of data with feature selection process	
3	Describe feature transformations process for converting high dimensional features to low dimensional features.	
4	Explain feature learning process from the given input	<b>PCC - DS503</b>
<b>B Tech</b>	<b>Data Mining and Data Warehousing</b>	
1	Demonstrate Storing voluminous data for online processing, Preprocess the data for mining applications	
2	Apply the association rules for mining the data	
3	Design and deploy appropriate classification techniques	
4	Cluster the high dimensional data for better organization of the data	
5	Discover the knowledge imbibed in the high dimensional system	<b>PCC - DS504</b>
<b>B Tech</b>	<b>Internet of Things</b>	
1	Understand basic concepts of IoT	
2	Illustrate RFID technology in various applications	
3	Develop programs for basic applications	
4	Design different communication technologies in IoT systems.	<b>OEC - DS505</b>
<b>B Tech</b>	<b>Information Security</b>	
1	Understand principles of Crypto-systems	
2	Compare and analyze various security services and mechanisms.	
3	Apply and use the features of PGP, S/MIME, DSA, IPSec, SSL in their profession.	
4	Apply principles of security to their personal computing system from possible threats and attacks	
5	Explore newer vulnerabilities and provide the solutions to them.	<b>OEC-DS506</b>
<b>B Tech</b>	<b>Object-Oriented Modeling &amp; Design</b>	
1	Ability to analyze software systems	
2	Construct OO view of the system	
3	Design a Software System using OMT design techniques	
4	Design a Software System using UML design techniques	
<b>B Tech</b>	<b>Object Oriented Programming</b>	<b>PCC - DS507</b>
1	Understand the characteristics of an object-oriented programming language in a program.	
2	Explain the basic object-oriented design principles in computer problem solving.	
3	Illustrate the basic principles of software engineering in managing complex software project.	
4	Develop Program with advanced features of the C++ programming language.	
5	Develop programs in the LINUX programming environment	
<b>B Tech</b>	<b>Business English</b>	<b>HM - DS508</b>
1	Develop basic skills to deal with people in business situations	
2	Increase their knowledge of key business concepts worldwide	
3	Write and read basic business reports, letters, e-mails etc	
4	Expand vocabulary related to general business situations	
5	Develop confidence to deal with people and basic issues in the business world	

		Semester VI
<b>B Tech</b>	<b>Machine Learning</b>	<b>PCC - DS601</b>
1	Explain Machine Learning concepts.	
2	Analyze the Machine Learning model.	
3	Design solution using Machine Learning techniques.	
4	To solve real world problems in domain of data mining, information retrieval, computer vision, linguistics and bioinformatics, etc.	
<b>B Tech</b>	<b>UNIX Shell Programming</b>	<b>PCC - DS602</b>
1	Illustrate the basics of Unix concepts and commands.	
2	Evaluate the UNIX file system.	
3	Apply Changes in file system.	
4	Develop scripts and programs.	
5	Analyze Facility with UNIX system process	
<b>B Tech</b>	<b>Database Engineering</b>	<b>PCC - DS603</b>
1	Illustrate fundamentals of database management systems.	
2	Represent logical design of database using E-R Diagram.	
3	Analyze & construct good database design	
4	Apply SQL queries to design & manage the database.	
5	Illustrate transactions, concurrency control and apply to database system.	
6	Illustrate failures in database and appropriate recovery techniques.	
<b>B Tech</b>	<b>Computer Algorithms</b>	<b>PCC - DS604</b>
1	Illustrate and demonstrate algorithm design methods with analysis	
2	Devise algorithm for given problem statement and analyze its space and time complexity by using recurrence relation	
3	Categorize the problem to determine polynomial and non-polynomial based on its nature	
4	Illustrate and demonstrate basic concepts of parallel algorithms	
<b>B Tech</b>	<b>E- Commerce &amp; Digital Marketing</b>	<b>OEC - DS605</b>
1	Identify the importance of the e-commerce and digital marketing for business success	
2	Create a digital marketing plan, starting from the SWOT analysis and defining a target group	
3	Identifying digital channels, business tools used in social networking	
4	Demonstrate the optimization of web site using business tools	
<b>B Tech</b>	<b>Cyber Security</b>	<b>OEC - DS606</b>
1	Explain the cyber security concepts.	
2	Describe the cyber security vulnerabilities and prevention techniques.	
3	Explain the different rules and regulations under I.T. ACT.	
4	Explain the concepts of digital forensics & incident management	
<b>B Tech</b>	<b>Java Programming</b>	<b>PCC - DS507</b>
1	Articulate the principle of object-oriented problem solving & programming.	
2	Illustrate code reusability, security and abstraction using inheritance, package and interface.	
3	Develop reliable and user-friendly applications using exception handling and file handling.	
4	Create desktop apps using SWING and event handling and also illustrate multithreading concepts.	
5	Use JDBC & collection framework.	
6	Apply network programming concept & develop web applications using servlet and jsp.	
<b>B Tech</b>	<b>Domain Specific Mini-project</b>	<b>PW - DS608</b>
1	Identify specific problem statement from a selected domain.	
2	Analyze the problem and prepare SRS and design document.	
3	Write code and carry out testing.	
4	Write a report covering details of the project and give presentation on a project.	

*Chief*  
**Head of Department**  
 Computer Sci. & Engg.  
 (Data Science)



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**Department of  
First Year Engineering**

**Course Outcomes**

## First Year Engineering Department

<b>SEMESTER - I</b>		
Sr. No.	Subjects	Subject Code
<b>F.Y. B.Tech</b>	<b>Engineering Physics</b>	<b>BSC 101</b>
1	Understand the concepts of diffraction, polarization, and apply the knowledge gained for practicals.	
2	Study the basics of laser and fibre optics and to understand its technological importance in engineering field.	
3	Students will gain the knowledge about the construction of acoustically good hall where the quality of sound can be maintained through optimizing different parameters.	
4	To differentiate different crystal systems, to identify Miller indices for different planes, and to study the X-ray diffraction by crystals.	
5	Students will understand the importance of nanomaterials, different tools used for nanotechnology and get basic knowledge about the fabrication of nanomaterials.	
6	Students will get familiar with different aspects of quantum mechanics and solve the numerical related to Compton effect.	
<b>F.Y. B.Tech</b>	<b>Engineering Mathematics 1</b>	<b>BSC 102</b>
1	Able to calculate rank of matrix and apply the knowledge of matrices to solve the problems	
2	Able to calculate characteristic equation & characteristic roots & use the applicability of Cayley Hamilton Theorem to find inverse of matrix which is very important in many engineering application	
3	Ability to interpret the mathematical results in physical or practical terms for complex numbers.	
4	Know and to understand various types of numerical methods	
5	Inculcate the Habit of Mathematical Thinking through Indeterminate forms and Taylor series expansion	
6	Able to solve the problems of differentiation of functions of two variables and know about the maximization and minimization of functions of several variables.	
<b>F.Y. B.Tech</b>	<b>Basic Electric Engineering</b>	<b>ESC 103</b>
1	To understand the basic concepts of electrical circuits & networks and their analysis which is the foundation for all the subjects in the electrical engineering discipline.	
2	To emphasize on the basic elements in magnetic circuits.	
3	To analyze Single-Phase AC Circuits	
4	To analyze Three-Phase AC Circuits	
5	To understand Earthing in electrical systems, Single line diagram of electrical systems.	
6	To illustrate Single-Phase Transformers.	
<b>F.Y. B.Tech</b>	<b>Basic Civil Engineering</b>	<b>ESC 104</b>
1	Understand relevance of civil engineering and building planning principles.	
2	Define different building components.	
3	Understand significance of building system.	
4	Demonstrate the use of different survey instruments for the field work.	
5	Illustrate introductory surveying & leveling problems.	
6	Recognize some sub branches of civil engineering such as transportation, environmental and irrigation.	
<b>F.Y. B.Tech</b>	<b>Engineering Graphics</b>	<b>ESC 105</b>

## First Year Engineering Department


1	Discuss and demonstrate the importance of Engineering Graphics in engineering & draw the different curves.	
2	Draw horizontal line, vertical line, and oblique line & solve problems on regular polygon using change in position method.	
3	Solve problem on projections of Solid.	
4	Draw FV, SV, and TV of the object.	
5	Draw isometric object from FV, SV, and TV.	
6	Understanding of construct the objects by developing surfaces of solids and knowledge of cutting planes.	
<b>F.Y. B.Tech</b>	<b>Professional Communication I</b>	<b>HM 106</b>
1	Understand the process, nature, types, barriers and filters and effective ways of communication.	
2	Study the forms of tenses, LSRW skills and techniques of developing vocabulary.	
3	To understand the aspects of language, Phonetics, Phonetic Transcription.	
4	To acquire oral skills like Speech, Meetings, Elocution, Extempore etc.	
5	Use different language styles, British and American Format.	
<b>F.Y. B.Tech</b>	<b>Workshop Practice - I</b>	<b>ESC - 107</b>
1	Take different precautions to avoid accidents in workshops.	
2	Use different measuring instruments without any errors in readings with them.	
3	Perform different smithy operations with required tools for them.	
4	Perform different fitting operations with required tools for them.	

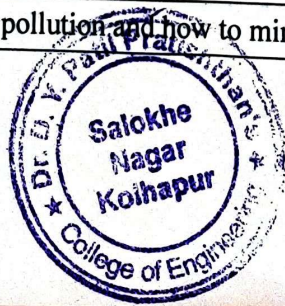
### SEMESTER - II


Sr. No.	Subjects	Subject Code
<b>F.Y. B.Tech</b>	<b>Engineering Chemistry</b>	<b>BSC 109</b>
1	Apply the different methodologies for analysis of water and techniques involved in softening of water as commodity.	
2	Select appropriate method of material analysis.	
3	Demonstrate the knowledge of advanced engineering materials for various engineering applications.	
4	Analyze fuel and suggest use of alternative fuels.	
5	Explain causes of corrosion and methods for minimizing corrosion.	
6	Understand properties and application of metallic materials and concept of green principles.	
<b>F.Y. B.Tech</b>	<b>Engineering Mathematics II</b>	<b>BSC 114</b>
1	Identify different types of ordinary differential equations and use analytical methods to solve them.	
2	Make use of differential equations for finding orthogonal trajectories, to solve simple electrical problems and Newton's law of cooling.	
3	Solve examples on Numerical Solution of First order and First degree Differential equation.	
4	Know and to understand various types of numerical methods.	
5	Apply the concept of beta function, gamma function to solve improper integrals.	
6	Solve multiple integration and make use of it to find area and mass.	

## First Year Engineering Department

<b>F.Y. B.Tech</b>	<b>Fundamental and Electronics and Computers</b>	<b>ESC 110</b>
1	Describe testing and measurement techniques of electronic component.	
2	Explain logic gates and their application.	
3	Explain concepts of computer and networking.	
4	Demonstrate understanding of basic blocks of computer programming.	
5	Describe testing and measurement techniques of electronic component.	
6	Explain logic gates and their application.	
<b>F.Y. B.Tech</b>	<b>Applied Mechanics</b>	<b>ESC - 111</b>
1	Acquire the knowledge of basic concepts and fundamental laws of mechanics, as well as analyze force systems.	
2	Analyze and solve the engineering problems for different types of forces acting on rigid bodies in equilibrium conditions.	
3	Locate centroid and determine moment of inertia for composite sections.	
4	Solve the numericals on kinetics of linear motion.	
5	Solve the numericals on kinetics of circular motions.	
6	Explain the effect of impact & collision on various bodies.	
<b>F.Y. B.Tech</b>	<b>Basic Mechanical Engineering</b>	<b>ESC - 111</b>
1	Students should have understanding about basic concepts of engineering thermodynamics as applied to industry.	
2	Students should understand the real life application of IC engines and the various components and technologies of IC engines.	
3	To learn about VCRS, VARS its real life application and Psychometric processes.	
4	To understand the various methods of electricity generation in India using renewable and non renewable sources.	
5	To understand and identify power transmission devices with their functions in the system	
6	To understand the various mechanical manufacturing and metal joining processes used in real life.	
<b>F.Y. B.Tech</b>	<b>Professional Communication II</b>	<b>ESC - 111</b>
1	Write formal and technical reports and understand Methods of Data Collection.	
2	Make SWOT analysis, take firm decision.	
3	Manage stress and time effectively.	
4	Work effectively in a team.	
5	Participate in Group Discussion and Debate.	
<b>F.Y. B.Tech</b>	<b>Workshop Practice - II</b>	<b>ESC - 113</b>
1	Perform different welding operations with proper equipments.	
2	Perform different carpentry operations with proper tools.	
3	Perform different sheet metal operations with required tools for them.	
4	Have awareness of side effects of air pollution and how to minimize air pollution.	

  
**Head of Department**  
 General Sci. & Engineering  
 Dr. D. Y. Patil Pratishthan's  
 College of Engineering



  
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