

Phaltan Education Society's
College of Engineering, Phaltan
Science and Humanity Department

VISION

To impart the skills to the students and prepare them to meet the growing challenges of the industry.

MISSION

To clear basic concepts of Science, develop the communication skills of the students and establish the department as a research Centre.

Programme Educational Objectives (PEOs):

PEO 1. Provide socially responsible, environment friendly solutions to Engineering related broad-based problems adapting professional ethics.

PEO 2. Adapt state-of-the-art Engineering broad-based technologies to work in multidisciplinary work environments.

PEO 3. Solve broad-based problems individually and as a team member communicating effectively in the world of work.

Program Outcomes (POs):

PO 1. Basic knowledge: Apply knowledge of basic mathematics, sciences and basic Engineering to solve the broad-based Engineering problems.

PO 2. Discipline knowledge: Apply Engineering knowledge to solve broad-based Engineering related problems.

PO 3. Experiments and practice: Plan to perform experiments and practices to use the results to solve broad-based Engineering problems.

PO 4. Engineering tools: Apply relevant Engineering technologies and tools with an understanding of the limitations.

PO 5. The engineer and society: Assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to practice in field of Engineering.

PO 6. Environment and sustainability: Apply Engineering solutions also for sustainable development practices in societal and environmental contexts.

PO 7. Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of the practice also in the field of Engineering.

PO 8. Individual and team work: Function effectively as a leader and team member in diverse/ Multidisciplinary teams.

PO 9. Communication: Communicate effectively in oral and written form.

PO 10. Life-long learning: Engage in independent and life-long learning activities in the context of technological changes also in the Engineering and allied industry.

Program Specific Outcomes (PSOs)

PSO 1. Modern Software Usage: Use latest Engineering related softwares for simple design, drafting, manufacturing, maintenance and documentation of Engineering components and processes.

PSO 2. Equipment and Instruments: Maintain equipment and instruments related to Engineering.

PSO 3. Engineering Processes: Manage Engineering processes by selecting and scheduling relevant equipment, substrates, quality control techniques, and operational parameters.

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	1	1	1	1	1			1	1	
CO2	1	1	1	1	1			1	1	1
CO3		1	1	1	1	1		1	1	
CO4	1	1	1	1	1			1	1	1
CO5		1	1	1	1			1	1	

Course Objectives: Subject: Chemistry

1. To acquire knowledge about hard water and treatment of hard water.
2. To know the basics of phase rule, recognize single component system, two component system, and multicomponent system.
3. To know the basics of metal extraction processes
4. To know basics of analysis and purification of fuels
5. To know basic properties of lubricants
6. To know about synthesis methods of Naphthalene, pyridine and anthracene.
7. To understand mechanism of corrosion and preventive methods.
8. To understand concept electrochemistry
9. To acquire the knowledge of types and applications of Fuel, battery, different types of environmental pollution and its consequences.

Course Outcomes:

After studying this course, students will be able to:

CO1: Understand and explain the basic concepts of Water treatment and capable to explain softening processes and water Characteristics

CO2: Understand and explain the basic concepts of Phase rule and capable to explain Phase diagram of One and Two Component system and their applications.

CO3: Classify and explain various types of coals and lubricants, its physical and chemical properties and industrial importance.

CO4: Recognize the concept of Metallurgy and concepts of Electrochemistry and its importance.

CO5 Understand fundamentals of aromatic and heterocyclic compounds, physical, chemical properties and their industrial uses.

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CO1	1	1	1	1	1			1	1	
CO2	1	1	1	1	1			1	1	1
CO3		1	1	1	1	1		1	1	
CO4	1	1	1	1	1			1	1	1
CO5		1	1	1	1			1	1	

Course Objectives: Engineering Mathematics-I

1. To teach Mathematical methodologies and models.
2. To develop mathematical skills and enhance logical thinking power of students.
3. To provide students with skills in integral calculus, differential Calculus & Linear Algebra which would enable them to devise engineering solutions for given situations they may encounter in their profession.
4. To produce graduates with mathematical knowledge, computational skills and the ability to deploy these skills effectively in the solution of problems, principally in the area of engineering
5. To study Partial Differentiation, Application of Partial Differential and methods to solve them.
6. Apply integral calculus to solve different engineering problems.

Course Outcomes:

Upon successful completion of this course, the student will be able to:

1. Understand basic concepts of Matrices, Differential calculus, integral calculus and infinite series.
2. Apply basic mathematical tools for solving engineering problems.
3. Understand application of Differential Calculus and Integral Calculus which are related to engineering Systems.
4. Develop logical and critical thinking and the ability to reflect critically upon their work.
5. Deploy skills effectively in the solution of problems, principally in the area of engineering.

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CO1	1	1	1	1	1			1	1	
CO2	1	1	1	1	1			1	1	1
CO3		1	1	1	1	1		1	1	
CO4	1	1	1	1	1			1	1	1
CO5		1	1	1	1			1	1	

Subject-Energy and Environmental Engineering

Course Objectives:-

- 1. To Understand and Analyze Conventional & Renewable Power Generation Sources.**
- 2. To Understand Energy Conservation & its Scope.**
- 3. To Understand & Measure different types of Pollutions.**
- 4. To Understand the Importance of different Environmental Law's.**

Course Outcomes:-

1. Student will know Present status of Conventional & Renewable Power Generation Sources.
2. Student will be able to describe the challenges and problems associated with the use of various energy sources.
3. Student will be Select appropriate Energy Conservation method to reduce wastage of energy.
4. Student can able to apply different methods of controlling Air and Water Pollution.
5. Student will able to explain fundamental concepts in Environmental Law and Policy.

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CO3		1	1	1	1	1		1	1	
CO4	1	1	1	1	1			1	1	1
CO5		1	1	1	1			1	1	

Subject- Engineering Mechanics

Objectives:

1. To understand the various force systems and its effect on static bodies and moving bodies.
2. To understand the concept of equilibrium.
3. To understand geometric properties of plain laminae.
4. To understand dynamics of rigid bodies.

Outcomes:

1. Apply basic knowledge of Math's and Physics to solve real-world problems.
2. Use scalar and vector analytical technique for analyzing forces in statically determinate structures.
3. Learn to solve dynamic problems and choose appropriate solution strategy.
4. Understand basic dynamic concepts, force momentum, work and energy.

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CO1	1	1	1	1	1			1	1	
CO2	1	1	1	1	1			1	1	1
CO3		1	1	1	1	1		1	1	
CO4	1	1	1	1	1			1	1	1

Class: FE**Subject: Basic Civil Engineering**

Objectives:

- 1) To know about different role of civil engineer in any construction activity.
- 2) To know about various building material and component.
- 3) To know about different principles adopted for building planning.
- 4) Student should able to handle different equipment used for surveying.
- 5) To know about water management importance.

Outcomes:

- 1) Students should apply their knowledge while working on construction site.
- 2) Students should apply the proper material for construction of building by considering economy and strength.

- 3) Students should use the different principles of building planning while drawing the building plans.
- 4) Students should use the modern equipment effectively while carrying out survey of any site.
- 5) Students should be able to find out new techniques to conserve the water.

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CO4	1	1	1	1	1			1	1	1
CO5		1	1	1	1			1	1	

Class: F.Y.B.Tech

Subject: Engineering PHYSICS

Objectives:

- 1) Prosper in graduate studies, technical careers, or engineering practices using broad based scientific knowledge.
- 2) To develop the ability to recognize and apply the appropriate Physics introduced in the lecture course to actual experimental situation.
- 3) To learn how to analyse data and then reach scientific conclusion based on analysis.
- 4) Sketch the reflection of incident radiation off **atomic planes**, and derive **Braggs' law** ..
- 5) To learn how to effectively communicate your results in scientific ways.
- 6) To understand and experience the basics of physics.

Outcomes:

- 1) An ability to apply knowledge of mathematics, science, and engineering. an ability to identify, formulate, and solve engineering problems.
- 2) Analyse the intensity variation of light due to Polarization, interference and diffraction.
- 3) To formulate and solve the engineering problems on Electromagnetism
- 4) To analyse various types of crystal structure encountered in metallic materials.
- 5) To solve the classical and wave mechanics problems
- 6) Classify solids on the basis of band theory and to calculate conductivity of semiconductors Determine gradient, divergence and curl of scalar and vector fields To formulate and solve the engineering problems on electromagnetism.

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CO3		1	1	1	1	1		1	1	
CO4	1	1	1	1	1			1	1	1
CO5		1	1	1	1			1	1	
CO6		1	1	1	1	1		1	1	

Subject Engineering Graphics

Course Objectives:

- 1) Learn about types of lines used in engineering drawing, dimensioning, SP 46
- 2) Learn about various geometric constructions.
- 3) Learn about projection of points, lines, planes.
- 4) Learn about orthographic projection and isometric drawing.
- 5) Learn about projection of solids.
- 6) Learn about sectioning of solids.
- 7) Learn about development of surfaces.
- 8) Introduction to Computer Aided Drafting.

Course Outcomes:

- 1) Students should be able to draw and read drawings as per standard procedure.
- 2) Students should be able to draw various geometric constructions.
- 3) Students should be able to draw and read projections of points, lines, planes, solids.
- 4) Students should be able to draw and read orthographic and isometric projections.
- 5) Students should be able to draw and read sections of solids.

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CO4	1	1	1	1	1			1	1	1
CO5		1	1	1	1			1	1	

Basic Electronics Engineering [EXE105/EXE205]

Course Objectives:

1. To understand the evolution of electronics and application in different areas
2. To deliver the knowledge about physics of basic semiconductor devices
3. To enhance comprehension capabilities of students through understanding of electronic components.
4. Understanding design aspects and working principal of Electronics measuring instruments.
5. Understanding the sensors and transducers and also their applications
6. To teach students to analyze, understand the concept of Digital electronics.

Course Outcome

1. Ability to understand basic concepts like atomic structure, atomic number, bonding in solids, classification of solids.
2. Ability to understand semiconductor devices through energy band diagrams
3. Ability to analyze characteristics of semiconductor junctions
4. Ability to appreciate the role of semiconductor devices in various applications
5. Ability to understand Diode application and transistors

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CO1	1	1	1	1	1			1	1	
CO2	1	1	1	1	1			1	1	1
CO3		1	1	1	1	1		1	1	
CO4	1	1	1	1	1			1	1	1
CO5		1	1	1	1			1	1	

Basic Electrical Engineering [EE104/EE204]

Course Objectives:

1. To learn basic ideas and principles of Electrical Engineering.
2. To inculcate the understanding about the AC fundamentals.
3. Impart a basic knowledge of electrical quantities such as current, voltage, power, energy and frequency
4. Provide knowledge for the analysis of basic DC circuits used in electrical using theorems
5. Impart knowledge of Single Phase supply and three phase supply

6. Understanding of details of electrical power systems, transformers, generators and motors.
7. To impart the basic knowledge about the Electromagnetism with various laws.
8. To inculcate the understanding about the Single Phase transformer.
9. Practical implementation of fundamental theory concepts.

Course Outcome

1. Practice Electrical Safety Rules & standards.
2. Ability to understand basic concepts like Current, Voltage, Resistance, effect of temperature on RTC
3. Understand basics of R, L, C circuit elements and voltage and current sources
4. Realize the requirement of transformers in transmission and distribution of electric power and other applications
5. To predict the behaviour of any electrical and magnetic circuits.

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CO4	1	1	1	1	1			1	1	1
CO5		1	1	1	1			1	1	

COMMUNICATION SKILLS

FIRST YEAR B.TEC

MARKS –THEORY-100

PRACTICAL -100

Course Objectives-

1. To avoid communication barriers for effective communication
2. To make aware of oral communication aspects for better performance
3. To pronounce the words properly and use dictionary as a guide for correct pronunciation
4. To formulate grammatically correct sentences
5. To draft different documents using correct format

6. To develop reading and listening skills

Outcomes of Course (Communication Skill)

The theory, practical experiences and relevant soft skills associated with this course will be

taught and implemented, so that the student demonstrates the following **COs**

1. Students will understand the communication process & will try to overcome the barriers in communication.
2. Students will be ready to face interviews, group discussions, telephonic conversations and public speech.
3. Students will be able to search the correct pronunciation of any word in a dictionary and pronounce it.
4. Students will be able to formulate error free sentences.
5. Students will be able to draft different documents using correct format.

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CO3		1	1	1	1	1		1	1	
CO4	1	1	1	1	1			1	1	1
CO5		1	1	1	1			1	1	

Objectives:

- 1) To describe the algorithm and flowchart to solve the problem.
- 2) To describe the process of programming.
- 3) To describe fundamentals of programming such as variables, data types and different operators in C.
- 4) To describe different types of decision control loops in C
- 5) To describe the basic of function, structure of function and different methods to call function in C.
- 6) To describe basics of array, initialization of array and basic of structure in C.

Outcomes:

- 1) Students will able to write algorithm and flowchart of different problems.
- 2) Students will able to understand the different steps of programming.
- 3) Students will able to implement the basic C programs using variable and operators in C.
- 4) Students will able to implement the programs using different loops in C.
- 5) Students will able to implement the C programs using different functions in C.

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CO3		1	1	1	1	1		1	1	
CO4	1	1	1	1	1			1	1	1
CO5		1	1	1	1			1	1	