

**AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER**

DEPARTMENT OF ENGINEERING SCIENCE

Course: Engineering Mathematics-I

Code: 107001

CO No.	<b>Description of Course Outcome (Cos):</b> <i>On completion of the course, learner will be able to -</i>
C101.1	Learn to solve systems of linear equations and application problems requiring them. & also learn to compute determinants and know their properties
C101.2	Perform algebra with complex numbers, Identify complex-differentiable functions. Compute complex line integrals
C101.3	Learn to work with infinite sequences and series.
C101.4	Perform calculations and algebraic manipulations, particularly differentiation and integration
C101.5	Find and interpret differentials for functions of two variables. Use chain rules to determine derivatives and partial derivatives for functions of several variables.
C101.6	Computation of Jacobian matrix and determinant, critical point of a function.

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DEPARTMENT OF ENGINEERING SCIENCE

Course: Engineering Physics

Code: 107002

CO No.	<b>Description of Course Outcome (Cos):</b> <i>On completion of the course, learner will be able to -</i>
C102.1	The concepts of interference and diffraction used to examine & tackled with the day-to-day life problems.
C102.2	Discussed the sound waves and its basic concepts to survey and implement in daily life for grooming the society.
C102.3	Apply the basic knowledge regarding of LASER and its technology helps to identify and distinguish easily the ordinary light, UPL, PPL, CPL, EPL, Par PL and its polarization.
C102.4	Apply the basic knowledge of Semiconductors and semiconductor devices such as pn-junction, Solar cells, Hall voltage required in the field of engineering to examine the present technology & link it to curriculum to ongoing research.
C102.5	Quantum physics to provide the basic ideas of atomic physics, tunnelling, LED, uncertainty and calculate and find the solution with higher precision and illustrations.
C102.6	Recent trends and advances in technology like as Superconductivity & physics of Nanoparticles, this requires precise control over dynamic of microscopic examine engineering systems and required to propose the new inventions.

AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER

DEPARTMENT OF FIRST YEAR ENGINEERING

Course: Fundamentals of Programming Languages I Code: 110003

CO No.	<b>Description of Course Outcome (Cos):</b> <i>On completion of the course, learner will be able to -</i>
C103.1	Students will be able to apply knowledge of computer programming appropriate to solutions in a global, economics, environment and social context.
C103.2	Students will be effective technical communicators, orally and in writing, and effective team members capable of working effectively in groups to analyze a problem, identify and define computing requirements appropriate to its solution by using current techniques and skills and use computer-based-system for evaluation.
C103.3	Students will be attempting algorithmic solution, designing and coding moderate size programs the few hundred lines of code using C.
C103.4	Explain various types of mechanism and its application in domestic appliances.

AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER

DEPARTMENT OF FIRST YEAR ENGINEERING

Course: Basic Electrical Engineering

Code:103004

CO No.	<b>Description of Course Outcome (Cos):</b> <i>On completion of the course, learner will be able to -</i>
C104.1	Student will be able to understand basic concepts of Electrical Engineering which help for various competitive examination.
C104.2	Student will able to get basic knowledge about Electric & Magnetic circuit and working principle of AC and DC machine.
C104.3:	Student will able to understand working of Transformer and basics of Electrostatic field.
C104.4	Student will able to understand AC fundamentals and various types of Electric Loads.
C104.5	Student will able to understand three phase system, AC Machine, Power Transmission.
C104.6	Student will be able to apply knowledge for solving basic circuit of various machines and apparatus.

AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER

DEPARTMENT OF FIRST YEAR ENGINEERING

Course: BASIC CIVIL AND ENVIRONMENTAL ENGINEERING

Code: 110005

CO No.	<b>Description of Course Outcome (Cos):</b> <i>On completion of the course, learner will be able to -</i>
C105.1	To draw plan and or map with appropriate scale and introduction to graphical methods.
C105.2	To make aware the building material specifications, properties and market price.
C105.3:	To be aware latest construction techniques safer, faster and economical.
C105.4	Able to understand biotic, abiotic, ecology, ecosystem and environmental inter relationship
C105.5	Aware of various forms of pollution and methods to reduce it and concept of carbon footprint.
C105.6	To understand the different forms of energy, conventional and non-conventional energy and other.

AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER

DEPARTMENT OF FIRST YEAR ENGINEERING

Course: Engineering Graphics I

Code:102006

CO No.	<b>Description of Course Outcome (Cos):</b> <i>On completion of the course, learner will be able to -</i>
C106.1	Identify the basic requirements of engineering drawing as per standard.
C106.2	Recognize the significance of engineering drawing for effective communication.
C106.3	Apply the concept of orthographic projection of a line, plane and solids.
C106.4	Construct the various engineering curve using drawing instruments.
C106.5	Apply the concept of orthographic projection of an object to draw several 2D views and sectional views for visualizing the physical state of the object.
C106.6	Apply the visualization skill to draw simple isometric projection from given orthographic views precisely using drawing equipment.

**AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER**

DEPARTMENT OF FIRST YEAR ENGINEERING

**Course: Workshop Practice**

**Code: 111007**

CO No.	<b>Description of Course Outcome (Cos):</b> <i>On completion of the course, learner will be able to -</i>
C107.1	Able to understand safety norms to prevent any mishap in workshop.
C107.2	Able to understand the construction, working and functions of machine tools and their parts.
C107.3:	Able to memories simple operations on a different machine tools like center lathe, drilling, milling, shaper, and grinding.
C107.4	Able to implement appropriate hand tool, cutting tool and machine tools to manufacture a job.

**AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER**

DEPARTMENT OF ENGINEERING SCIENCE

**Course: Engineering Mathematics – II**

**Code: 107008**

CO No.	<b>Description of Course Outcome (Cos):</b> <i>On completion of the course, learner will be able to -</i>
C108.1	Able to find solutions of linear, nonlinear, partial and ordinary differential equations & also able to Solve basic application problems described by first order differential equations.
C108.2	Able to apply the differential equations in various fields of engineering and also in chemical problems
C108.3:	Able to define half range, full range series and also can able to apply Fourier series in engineering applications.
C108.4	Students can able to sketch the curves and rectification of curves.
C108.5	Able to define the coordinate systems. geometry of three-dimensional Euclidean space & deals with the measurements of volumes of various solid figures or Polyhedrons) including cylinders, cones.
C108.6	Able to find the surface area, volume of solids, Compute double integrals over a sector of an annulus using polar coordinates

**AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER**

DEPARTMENT OF ENGINEERING SCIENCE

**Course:** Engineering Chemistry

**Code:** 107009

CO No.	<b>Description of Course Outcome (Cos):</b> <i>On completion of the course, learner will be able to -</i>
C109.1	Use of different methodologies for the analysis of water and techniques involved in softening of water.
C109.2	Able to examine the material by using electro analytical techniques.
C109.3:	Demonstrate the knowledge of advanced engineering materials.
C109.4	Analyse the fuel and suggest the use of alternative fuels.
C109.5	Identify the chemical compounds based on their structure.
C109.6	Illustrate the causes of corrosion and method for the minimizing corrosion.

**AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER**

DEPARTMENT OF FIRST YEAR ENGINEERING

**Course:** Fundamentals of Programming Languages II

**Code:** 110010

CO No.	<b>Description of Course Outcome (Cos):</b> <i>On completion of the course, learner will be able to -</i>
C110.1	Students will be able to apply knowledge of computer programming appropriate to solutions in a global, economics, environment and social context.
C110.2	Students will be effective technical communicators, orally and in writing, and effective team members capable of working effectively in groups to analyze a problem, identify and define computing requirements appropriate to its solution by using current techniques and skills and use computer-based-system for evaluation.
C110.3:	Students will be able to learn fundamental embedded C and advanced Programming.

**AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER**

DEPARTMENT OF FIRST YEAR ENGINEERING

**Course: Engineering Mechanics**

**Code: 101011**

CO No.	<b>Description of Course Outcome (Cos):</b> <i>On completion of the course, learner will be able to -</i>
C111.1	Determination of resultant of various force systems and introduction to graphical methods.
C111.2	Determination of centroid, moment of inertia and to solve the problems related to friction.
C111.3:	Determination of reaction of beams, forces in cable members using the principle of equilibrium.
C111.4	Analysing the truss reaction and forces in truss members and space forces using equilibrium principle, Varignon's theorem, Lam is theorem and Maxwell diagrams.
C111.5	Calculating position, velocity and acceleration of particle using principles of kinematics,
C111.6	Calculating position, velocity, acceleration and or time of particle by using Newton II law, work energy principle and impulse momentum principle.

**AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER**

DEPARTMENT OF FIRST YEAR ENGINEERING

**Course: Basic Electronics Engineering**

**Code: 102012**

CO No.	<b>Description of Course Outcome (Cos):</b> <i>On completion of the course, learner will be able to -</i>
C112.1	Explain the fundamentals of diodes and rectifier circuits.
C112.2	Examine the basics of transistors configurations and its applications.
C112.3:	Translate the basics of OP-AMP and its applications in various area.
C112.4	Classify the various Logic gates and its use in digital circuits.
C112.5	Evaluate the power electronics devices, transducers and its application.
C112.6	Adapt the basic aspect of electronic communication systems.

AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER

DEPARTMENT OF FIRST YEAR ENGINEERING

Course: Basic Mechanical Engineering

Code: 102013

CO No.	<b>Description of Course Outcome (Cos):</b> <i>On completion of the course, learner will be able to -</i>
C113.1	Identify different machine elements and power transmitting devices.
C113.2	Describe basic procedure of designing components, various material properties and their applications
C113.3:	Discuss several manufacturing processes and identify the suitable process for particular engineering application.
C113.4	Identify different machine tools and operations perform on it.
C113.5	Apply principles of Thermodynamics and their applications
C113.6	Classify and Explain Conventional and Nonconventional Energy resources, Power producing and Power absorbing devices.

AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER

DEPARTMENT OF FIRST YEAR ENGINEERING

Course: Engineering Graphics II Code: 102014

CO No.	<b>Description of Course Outcome (Cos):</b> <i>On completion of the course, learner will be able to -</i>
C114.1	Identify the various toolbars and commands for drawing, dimensioning, editing and modifying in the drafting software.
C114.2	Use different commands and tool bars in drafting software.
C114.3:	Draw the different views of projection drawing through drafting software
C114.4	Develop the significance of engineering drawing for effective communication.