KCT`s
Sapkal Knowledge Hub
Late G. N. Sapkal College of Engineering Nashik
Department of Applied Science
Course Outcomes

Year	Course Name	Course Outcome No.	Course Outcome
FE (Sem-I) (Sem-II)	Engineering Physics	CO107002.1	Develop the understanding of working principle of lasers, optical fibers and extend it to holography and fiber optic communication.
		CO107002.2	Deduce Schrödinger's wave equations and apply it to problems on the bound states by summarizing fundamentals of quantum physics.
		CO107002.3	Explain phenomena of interference in thin films, polarization, double refraction and connect to the Anti-Reflection Coating, LCD.
		CO107002.4	Develop understanding of Fermi level and Fermi energy in semiconductors on the basis of results of Fermi Dirac statistics and relate them with the working of semiconducting devices. Extend the understanding of Ultrasonic to thickness measurement, flaw detection.
		CO107002.5	Explain properties of nanoparticles and estimate engineering applications; Explain phenomenon of Superconductivity and estimate engineering applications.
FE (Sem-I) (Sem-II)	Engineering Chemistry	CO107009.1	Understand the practical approaches and techniques required to effectively monitor water quality.
		CO107009.2	Select appropriate electro analytical techniques for understanding the materials.
		CO107009.3	Demonstrate the structure and properties of advanced engineering materials for various technological applications.
		CO107009.4	Analyze different types of conventional and alternative fuels.
		CO107009.5	Explain causes of corrosion and methods for minimizing corrosion.
FE (Sem-I)	Engineering Mathematics - I	CO107001.1	Apply mean value theorems and its generalizations leading to Taylors and Maclaurin's series useful in the analysis of engineering problems. Determine the Fourier series representation and harmonic analysis of periodic functions in engineering applications.
		CO107001.2	Evaluate derivative functions of several variables that are essential in various engineering problems.
		CO107001.3	Apply the concept of Jacobian to find partial derivatives of implicit function and functional dependence. Use of partial derivatives in estimating errors & approximations and finding extreme values of the function.
		CO107001.4	Apply the essential tool of matrices and linear algebra in a comprehensive manner for analysis of system of linear equations, Linear dependence & Independence, finding linear and orthogonal transformations.
		CO107001.5	Determine Eigen values & Eigen vectors. Use it to diagonalize matrix and to reduce quadratic form to canonical form, applicable to engineering problems.

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Year	Course Name	Course Outcome No.	Course Outcome
FE (Sem-II)	Engineering Mathematics - II	CO107008.1	Apply advanced integration techniques such as Reduction formulae, Beta functions, Gamma functions, Differentiation under integral sign and Error functions useful in evaluating multiple integrals and their applications.
		CO107008.2	Trace the curve for a given equation and measure arc length of various curves. Apply the concepts of solid geometry to solve problems on sphere, cone and cylinder in a comprehensive manner.
		CO107008.3	Evaluate multiple integrals and its application to find area bounded by curves, volume bounded by surfaces, Centre of gravity and Moment of inertia.
		CO107008.4	Apply the effective mathematical tools for solving first order ordinary differential equations such as Exact and Reducible to exact Linear and reducible to Linear.
		CO107008.5	Model physical systems using ordinary differential equations, solve and analyze the solutions apply to Newton's law of cooling, electrical circuit, rectilinear motion, mass spring systems, heat transfer etc.
SE (Sem-I)	Engineering Mathematics-III (Mechanical)	CO207002.1	Solve higher order linear differential equations and its applications to model and analyze mass spring systems.
		CO207002.2	Apply Statistical methods like correlation, regression in analyzing and interpreting experimental data applicable to reliability engineering and probability theory in testing and quality control.
		CO207002.3	Solve Algebraic & Transcendental equations and System of linear equations using numerical techniques.
		CO207002.4	Obtain Interpolating polynomials, numerical differentiation and integration, numerical solutions of ordinary differential equations used in modern scientific computing applicable to Mechanical Engineering.
		CO207002.5	Perform Vector differentiation & integration, ANALYZE the vector fields and APPLY to fluid flow problems.
SE (Sem-I)	Engineering Mathematics-III (Civil)	CO207001.1	Solve higher order linear differential equations and its applications to model and analyze bending of beams and whirling of shafts.
		CO207001.2	Apply Statistical methods like correlation, regression in analyzing and interpreting experimental data applicable to reliability engineering and probability theory in testing and quality control.
		CO207001.3	Solve Algebraic & Transcendental equations and System of linear equations using numerical techniques.
		CO207001.4	Obtain Interpolating polynomials, numerical differentiation and integration, numerical solutions of ordinary differential equations used in modern scientific computing applicable to Civil engineering.
		CO207001.5	Perform Vector differentiation & integration, ANALYZE the vector fields and APPLY to fluid flow problems.

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SE (Sem-I)	Engineering Mathematics-III (Electrical)	CO207006.1	Solve higher order linear differential equation using appropriate techniques for modelling, analyzing of electrical circuits and control systems.
		CO207006.2	Apply Integral transforms such as Laplace transform, Fourier transform and Z-Transform to solve problems related to signal processing and control systems.
		CO207006.3	Apply Statistical methods like Correlation, Regression and Probability theory as applicable to analyze and interpret experimental data related to energy management, power systems, testing and quality control.
		CO207006.4	Perform Vector differentiation & integration, analyze the vector fields and apply to electro-magnetic fields & wave theory.
SE (Sem-II)	Engineering Mathematics-III (AIDS)	CO207003.1	Utilize key probability theorems to solve practical problems in decision-making and risk analysis.
		CO207003.2	Apply fundamentals of Statistics for Artificial Intelligence and Data Science
		CO207003.3	Apply statistical techniques to examine relationships between variables and make predictions.
		CO207003.4	Use the basic principles of random variables and random processes needed in applications to model and interpret real-world scenarios.
		CO207003.5	Use probability and statistical models to analyze data and support decision-making in fields like finance, engineering, healthcare, and machine learning.
SE (Sem-II)	Engineering Mathematics-III (E & TC)	CO207005.1	Solve higher order linear differential equations using appropriate techniques for modelling and analyzing of electrical circuits and control systems.
		CO207005.2	Apply concept of Fourier Transform and Z-Transform and its applications to continuous and discrete systems, signal & image processing and communication systems.
		CO207005.3	Obtain interpolating polynomials, numerically differentiate and integrate functions, numerical solutions of differential equations using single-step and multi-step iterative methods used in modern scientific computing.
		CO207005.4	Perform vector differentiation and integration, analyze vector fields and apply to electromagnetic fields and wave theory.
		CO207005.5	Apply statistical methods like correlation, regression and probability theory as applicable to analyze and interpret experimental data related to signal, communication and information theory.