

Course Title:				Engineering Mathematics-II				
Course Code:				MLT BS102				
Course Coordinator				Dr. Abhishek Singh				
Credits				3-1-0=4				
Evaluation Scheme Total 100 Marks								
Quiz (Total 20 Marks)				Assignment/Project (Total 20 marks) (Minimum Two Assignments or one Project)		Mid-Term	Major Examination	Total
Quiz I (5 marks)	Quiz II (5 marks)	Quiz III (5 marks)	Quiz IV (5 marks)	Assignme nt I (10 marks)	Assignment II(10 marks)	20 marks) (1 ½ Hour Duration)	(40 marks) (3 Hour Duration)	100 Marks
WEEKS				TOPICS TO BE COVERED				
Week 1				Scalar and Vector Product, Properties of vector and scalar product				
Week 2				Vector Functions, Differentiation of vector functions of scalar variables				
Week 3				Gradient of a scalar field, Divergence and curl of a vector field and their properties				
Week 4				Line and surface integral, Greens theorem				
Week 5				Stokes theorem and Gauss theorem with applications				
Week 6				Formation of ODE, Definition of order and degree of ODE and solution				
Week 7				ODE's of first order, method of separation of variables				
Week 8				Homogenous and non-homogeneous differential equations and their solution				
Week 9				Exactness and integrating factor, Bernoulli equation				
Week 10				Operation method, method of undetermined coefficient				
Week 11 (17th -21st March, 2025)				Mid-Term				
2nd May, 2025				Showing of Mid-Term Answer Sheets				
Week 13				Method of variation of parameters, simultaneous differential equations				
Week 14				Formation of PDE, Solution of PDE by direct integration, Lagrange's linear equation				
Week 15				Non-linear PDE of first order, Method of separation of variables				

Week 16	Wave and Laplace equations
Week 17 (5th -9th May, 2025)	Revision Week
Week 18 (13th – 22nd May, 2025)	Major Examinations
29th May, 2025	Showing of Major Exams Answer Sheets

Course Outcomes: This course will enable the students to

CO1: Understand the concepts of vector calculus like directional derivative, gradient, divergence and curl and their applications.

CO2: Learn and apply the concepts of vector integral calculus for the computation of work done, circulation and flux.

CO3: Formulate the differential equations concerning physical phenomena like electric circuits, wave motion, heat equation etc.

CO4: Learn various methods of solution of ordinary and partial differential equations.

CO5: Solve various PDE arising in heat conduction problems and wave propagation problems.

Recommended Books:

1. E. Kreyszig, Advanced Engineering Mathematics, 10th ed., Wiley Eastern, 2011.
2. T. Marsden and W.H. freeman, Vector calculus, Freeman, 6th edition, 2011
3. R. Zalman, A course in Ordinary and PDEs, Academic Press, 1st edition, 2014.

Calendar of Quizzes/Assignment etc. to be provided as per below details and exact dates to be fixed in consultation with other course coordinators to avoid overlap of Quizzes of different courses.

Component	Date
Quiz-I	27th -31st, January 2025
Quiz-II	24th -28th February, 2025
Assignment-I	10th -12th February, 2025
Mid-Term	17-21st March, 2025
Assignment-II/ Project Submission	21st – 24th April, 2025
Quiz-III	7th – 11th April, 2025

Quiz-IV	28th April-2nd, May, 2025
Major Exam	13th – 22nd May, 2025

Note:

- 1. One surprise Quiz may be fixed out of Quiz-II, Quiz-III or Quiz-IV.**
- 2. In case of any deviation in evaluation methodology for courses such as AEC/VAC/SEC shall be mentioned accordingly. Thus, same shall be approved by the next BOS of school if not done earlier.**

Signature of Course Coordinator : Abhishek Singh