Course Title : ADDITIONAL MATHEMATICS-II			
Course Code : P18MADIP41	**Semester: IV**	**L - T – P : H : 0-0–3: 3**	**Credits :0**
Contact Period: Lecture: 52 Hrs	**Exam Hours :04 Hrs**	**Weight age: CIE:50; SEE:50**	
Prerequisites :NIL			

(Mandatory Learning Course: **Common to All Branches)**
(A Bridge course for Diploma qualified students of IV Sem. B. E.)

UNIT –Is

Linear Algebra: Introduction - Rank of matrix by elementary row operations - Echelon form of a matrix. Consistency of system of linear equations - Gauss elimination method. Gauss-Jordan and LU decomposition methods. Eigen values and eigen vectors of a square matrix..
Self-study Components: Application of Cayley-Hamilton theorem (without proof) to compute the inverse of a matrix-Examples

10 Hours

UNIT –II

Higher order ODE's: Linear differential equations of second and higher order equations with constant coefficients. Homogeneous /non-homogeneous equations. Inverse differential operators. and variation of parameters. Solution of Cauchy's homogeneous linear equation and Legendre's linear differential equation.
Self-study Components: Method of undetermined coefficients

14 Hours

UNIT –III

Multiple Integrals: Double and triple integrals-region of integration. Evaluation of double integrals by change of order of integration.
Vector Integration: Vector Integration: Integration of vector functions. Concept of a line integrals, surface and volume integrals. Green's, Stokes's and Gauss theorems (without proof) problems.
Self-study Components: Orthogonal curvilinear coordinates.

10 Hours

UNIT –IV

Laplace transforms: Laplace transforms of elementary functions. Transforms of derivatives and integrals**,** transforms of periodic function and unit step function-Problems only. Inverse Laplace transforms: Definition of inverse Laplace transforms. Evaluation of Inverse transforms by standard methods.
Self-study Components: Application to solutions of linear differential equations and simultaneous differential equations.

12 Hours

UNIT –V

Probability: Introduction. Sample space and events. Axioms of probability. Addition and multiplication theorems. Conditional probability – illustrative examples.
Self-study Components: State and prove Bayes's theorem.

06 Hours

Text Book:

1. B.S. Grewal: Higher Engineering Mathematics, Khanna Publishers, New Delhi,42nd Ed. 2012.

References:

1.E. Kreyszig: Advanced Engineering Mathematics, John Wiley & Sons, 6th Ed., 2007
2.N.P.Bali and Manish Goyal: Engineering Mathematics, Laxmi Publishers,7th Ed., 2007.