

BLOW UP SYLLABUS

Additional Mathematics-II (18MATDIP41) (Common to all Branches) (Effective from the academic year 2019-20)

Topics	Topics To be Covered	Hours
MODULE - I		
LINEAR ALGEBRA		
1. Introduction - rank of matrix by elementary row operations - Echelon form. Consistency of system of linear equations - Gauss elimination method.	Discussion restricted to problems as suggested in Articles No. 2.7(1, 2), 2.10(1, 3) and 28.6 of Text Book 1	5L
2. Eigen values and eigen vectors of a square matrix.	Discussion restricted to problems as suggested in Article No.2.13(1, 2) of Text Book 1.	2L
3. Tutorials	Involvement of faculty and students in identifying the solutions to the problems; PPT presentations of Engg. Applications by the faculty, about the module.	2T
(RBT Levels: L1 & L2)	Total	09
MODULE - II		
NUMERICAL METHODS		
1. Finite Differences. Interpolation/ Extrapolation using Newton's forward and backward difference formulae(Statement only)-Problems.	Discussion restricted to problems on Article No. 29.19 (1, 2) & 29.6 Text Book 1.	3L
2. Solution of polynomial and Transcendental equations- Newton-Raphson and Regula- Falsi methods (only formulae)-problems.	Discussion restricted to problems on Article No.28.1 and 28.2(2 & 3) of Text book 1	2L
3. Numerical Integration: Simpson's (1/3 rd) rule and Weddle's Rule (Without proof) Problems.	Discussion and problems restricted to article No.30.4,30.7, 30.10 of Text Book 1.	2L
Tutorials	Involvement of faculty and students in identifying the solutions to the problems; PPT presentations of Engg. Applications by the faculty, about the module.	2T
(RBT Levels: L1, L2 & L3)	Total	09
MODULE - III		
HIGHER ORDER ODE'S		
1. Linear differential equations of second and higher order equations with constant coefficients. Homogeneous /non-homogeneous equations.	Discussion and Problems as suggested in Article No.22.1 to 22.4 of Text Book 1	3L
2 Linear differential equations of second and higher order equations with constant coefficients. Homogeneous / non-	Discussion and Problems as suggested in Article No.23.1 to 23.3, 23.5, 23.7 & 23.9 of Text Book 1.	4L

homogeneous equations. Inverse differential operators.[Particular Integral restricted to $R(x) = e^{ax}$, $\sin ax/\cos ax$ for $f(D)y = R(x)$]		
Tutorials	Involvement of faculty and students in identifying the solutions to the problems; PPT presentations of Engg. Applications by the faculty, about the module.	2T
(RBT Levels: L1 & L2)	Total	09
MODULE - IV		
PARTIAL DIFFERENTIAL EQUATIONS (PDE'S)		
1. Formation of PDE's by elimination of arbitrary constants and functions.	Discussion and problems restricted to Article No.17.1 & 17.2 of Text Book 1.	3L
2. Solution of non homogeneous PDE by direct integration. Homogeneous PDEs involving derivative with respect to one independent variable only.	Discussion and problems restricted to Article No.17.3 and 17.4 of Text Book 1.	4L
Tutorials	Involvement of faculty and students in identifying the solutions to the problems; PPT presentations of Engg. Applications by the faculty, about the module.	2T
(RBT Levels: L1 & L2)	Total	09
MODULE - V		
PROBABILITY		
1. Introduction. Sample space and events. Axioms of probability. Addition and multiplication theorems.	Discussion restricted to problems on Article No. 26.1, 26.2, 26.3, 26.4 of Text book 1	4L
2. Conditional probability – illustrative examples. Bayes's theorem-examples	Discussion and problems as suggested in Article No. 26.5 and 26.6 of Text Book 1.	3L
Tutorials	Involvement of faculty and students in identifying the solutions to the problems; PPT presentations of Engg. Applications by the faculty, about the module.	2T
(RBT Levels: L1 & L2)	Total	09

Text Books:

1. **B.S.Grewal:** Higher Engineering Mathematics, Khanna Publishers, New Delhi, 43rd Ed., 2015.

Reference Books:

1. **E. Kreyszig:** Advanced Engineering Mathematics, John Wiley & Sons, 10th Ed.(Reprint), 2015.
 2. **N.P.Bali and Manish Goyal:** Engineering Mathematics, Laxmi Publishers, 7th Ed., 2007.