

GANPAT UNIVERSITY									
FACULTY OF ENGINEERING & TECHNOLOGY									
Programme		Bachelor of Technology			Branch/Spec.		ALL		
Semester		II			Version		2.0.0.0		
Effective from Academic Year			2018-19		Effective for the batch Admitted in			July 2018	
Subject code		2BS102		Subject Name		Mathematics-II			
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	03	01	--	--	04	Theory	40	60	100
Hours	03	01	--	--	04	Practical	--	--	--
Pre-requisites:									
Basic knowledge of Matrix operations and Vectors									
Learning Outcome:									
After successful completion of the course, student will be able to									
<ul style="list-style-type: none"> • Understand mathematical basic preliminaries. • Express physical phenomenon in mathematical formulation. • Apply Matrix algebra in formal representation of various computing constructs. • Recognize the importance of vector space & linear transformation for analysis in engineering problems. 									
Theory syllabus									
Unit	Content								Hrs
1.	Matrix Algebra: Review of algebra of matrices & elementary transformations Rank of a matrix, inverse of a matrix by Gauss-Jordan method, normal form of a matrix, Solution of system of algebraic simultaneous equations, Linear dependent and Linear independent vectors. Eigen values and Eigen vectors, Eigen values and Eigen vectors of : Symmetric, Skew symmetric, Hermitian, Skew Hermitian, Unitary and Normal matrix, Algebraic and Geometric multiplicity, Diagonalization ,Spectral theorem for real symmetric matrices, Application of Quadratic forms.								22
2.	Vector Space : Vectors in R^n and its properties ,Dot product ,Norm and Distance properties in R^n , Pythagorean theorem in R^n , Definition and Examples of vector spaces, Vector subspace, Linear Independence and dependence, Linear span of set of vectors, Basis of subspaces, Extension to basis.								10
3.	Linear Transformation : Definition and basic properties, Types of linear transformation (Rotation, reflection, expansion, contraction, shear, projection), Matrix of linear transformations, Change of basis and similarity, Rank nullity theorem								09
4.	Infinite Series : Definition, Comparison test, Cauchy's integral test, ratio test, root test, Leibniz's rule for alternating series, power series, range of convergence, uniform convergence.								05
								TOTAL	46
Practical content									
Text Books									
1.	B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 35th Edition, 2000.								
2.	D. Poole, Linear Algebra: A Modern Introduction, 2nd Edition, Brooks/Cole, 2005.								
Reference Books									
1.	V. Krishnamurthy, V.P. Mainra and J.L. Arora, An introduction to Linear Algebra, Affiliated East-West press, Reprint 2005.								
2.	Erwin Kreyszig, Advanced Engineering Mathematics, 9th Edition, John Wiley & Sons, 2006.								
3.	N.P. Bali and Manish Goyal, A text book of Engineering Mathematics, Laxmi Publications, Reprint, 2010.								