



SRI VASAVI ENGINEERING COLLEGE (AUTONOMOUS)

(Sponsored by Sri Vasavi Educational Society)

(Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada)

(Accredited by NAAC with 'A' Grade, Recognized by UGC under section 2(f) & 12(B))

Pedatadepalli, **TADEPALLIGUDEM – 534 101. W.G.Dist. (A.P)**

Date: 31/12/2020

Minutes of the 4th Meeting of Board of Studies in Mathematics held on 31-12-2020 at 10:30 AM through online zoom meeting in the Srinivasa Ramanujan Hall of Learning (E-block) BS&H Department.

Members present:

S.No	Name of the Member	Designation & Address	Designation on BOS
1	Sri. N Raja Sekhar	Assoc. Professor & HOD	Chairman
2	Prof. G.V.S.R.Deekshitulu	Professor, Department of Mathematics, UCEK, JNTUK, Kakinada	University Nominee
3	Dr. K.K.M. Sarma	Professor, Department of Mathematics, Andhra University, Visakhapatnam	Council Nominee
4	Prof. Y.N.Reddy	Professor, Department of Mathematics, NIT Warangal	Council Nominee
5	Dr. T.S.R Murthy	Professor of Mathematics, Sri Vishnu Engineering College for Women, Bhimavaram	Academician
6	Smt.B.Adi Lakshmi	Assistant.Professor of Mathematics	Member
7	Smt.G S Prasanthi	Assistant.Professor of Mathematics	Member
8	Sri S K Dhana Prasad	Assistant.Professor of Mathematics	Member
9	Sri.A Kiran Kumar	Assistant.Professor of Mathematics	Member
10	Sri.D.N.V.Rama Krishna	Assistant.Professor of Mathematics	Member
11	Smt.B.V.D. Santhi Lakshmi	Assistant.Professor of Mathematics	Member
12	Sri.V.Srinivas Rao	Assistant.Professor of Mathematics	Member
13	Sri.T.D.Rama Krishna	Assistant.Professor of Mathematics	Member

The following items are discussed in the meeting:

Item No-1: Introducing the members of BOS by Chairman.

The chairman of BOS extended a formal welcome and introduced the members.

Item No.2: Syllabi for the courses offered in I and II semesters of B.Tech Programme.

The detailed syllabi for the courses Mathematics-I and Mathematics-II along with prescribed text books have been presented. With minor changes, the syllabi for the courses mentioned above have been approved. The approved syllabi for the courses are given in annexure-I and annexure-II

**Chairman
Board of Studies, Mathematics**



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ANNEXURE - I

Semester	B.Tech I SEM	L	T	P	C	COURSE CODE
Regulation	V20	3	-	-	3	V20MAT01
Name of the Course	MATHEMATICS-I Linear Algebra and Differential Equations					
Branches	Common to All Branches					

Course Outcomes: At the end of the course student will be able to

CO1: apply matrix technique to solve system of linear equations (K3)

CO2: find Eigenvalues and Eigen vectors (K3)

CO3: solve the ordinary differential equations of first order & first degree (K3)

CO4: solve the linear differential equations of higher order with constant coefficients (K3)

CO5: apply Laplace Transformation to given function. (K3)

CO6: find maxima and minima of functions of two variables (K3)

UNIT I: System of linear equations:

Rank-Echelon form-Normal form – Solution of linear systems – Gauss elimination – Gauss Jordan- Gauss Jacobi and Gauss Seidal methods.

UNIT II: Eigenvalues, Eigen vectors and Cayley-Hamilton theorem:

Eigenvalues - Eigen vectors– Properties – Cayley-Hamilton theorem (without proof) - Inverse and powers of a matrix by using Cayley-Hamilton theorem.

UNIT-III: Differential equations of first order and first degree:

Linear-Bernoulli-Exact-Reducible to exact differential equations -Newton's Law of cooling-Law of natural growth and decay-Orthogonal Trajectories.

UNIT IV: Linear differential equations of higher order:

Linear non homogeneous differential equations of higher order with constant coefficients involving RHS term of the type e^{ax} , $\sin ax$, $\cos ax$, polynomials in x , $e^{ax} V(x)$, $xV(x)$ - method of variation of parameters.

UNIT V: Laplace Transformation:

Laplace transforms of standard functions, properties(without proof), transforms of $tf(t)$, $f(t)/t$, transforms of derivatives and integrals, transforms of unit step function, Dirac delta function, Inverse Laplace transforms, convolution theorem (without proof)

Application: Solving ordinary differential equations with initial conditions using Laplace transforms.

UNIT VI: Partial differentiation:

Introduction to partial differentiation -Total derivative - Functional dependence - Jacobian.- maxima and minima of functions of two variables (without constraints) and Lagrange's method (with constraints).

Text Books:

1. B.S.Grewal, Higher Engineering Mathematics, 43rd Edition, Khanna Publishers.
2. N.P.Bali, Engineering Mathematics, Lakshmi Publications.

Reference Books:

1. Erwin Kreyszig, Advanced Engineering Mathematics, 10th Edition, Wiley-India
2. Dean G. Duffy, Advanced engineering mathematics with MATLAB, CRC Press
3. Srimanta Pal, Subodh C.Bhunia, Engineering Mathematics, Oxford University Press.
4. Dass H.K., Rajnish Verma. Er., Higher Engineering Mathematics, S. Chand Co. Pvt. Ltd, Delhi.



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ANNEXURE – II

Semester	B.Tech II SEM	L	T	P	C	COURSE CODE
Regulation	V20	3	-	-	3	V20MAT02
Name of the Course	MATHEMATICS-II Numerical Methods and Vector Calculus					
Branches	Common to All Branches					

Course Outcomes: At the end of the Course student will be able to

CO1: compute approximate roots of algebraic and transcendental equations and interpolating polynomial for the given data (K3)

CO2: solve ordinary differential equations with initial conditions using numerical methods (K3)

CO3: find multiple integrals and improper integrals (K3)

CO4: calculate gradient of a scalar function, divergence and curl of a vector function.(K3)

CO5: apply the knowledge of vector integral concepts to find characteristics of vector fields (K3)

CO6: find Fourier series of a periodic functions (K3)

UNIT I: Solution of Algebraic and Transcendental Equations and Interpolation:

Introduction- Bisection method – Method of false position– Newton-Raphson method (One variable) - finite differences- forward differences, backward differences – simple relations on forward, backward, central, average and shifting operators - Newton's formulae for interpolation - Lagrange's interpolation formula.

UNIT II: Numerical Integration and solution of Ordinary Differential equations:

Trapezoidal rule- Simpson's 1/3rd and 3/8th rule-Solution of ordinary differential equations by Taylor's series- Picard's Method - Euler's method- Euler's modified Method – Runge-Kutta method (fourth order).

UNIT III: Multiple Integrals:

Definition of Improper integrals - Double and triple integrals – Change of variables – Change of order of integration.

UNIT IV: Vector Differentiation:

Vector differential operator - Gradient- Divergence- Curl - Laplacian and second order operators -Vector identities.

UNIT V: Vector Integration:

Line integral: Work done – Potential function – Surface and volume integrals - Vector integral theorems: Greens, Stokes and Gauss Divergence theorems (without proof) and related problems.

UNIT VI: Fourier series:

Fourier series -Introduction, Periodic functions, Fourier series of a periodic function, Dirichlet's conditions, Even and odd functions, Change of interval, Half-range sine and cosine series.

Text Books:

1. B.S.Grewal, Higher Engineering Mathematics, 43rd Edition, Khanna Publishers.
2. N.P.Bali, Engineering Mathematics, Lakshmi Publications.

Reference Books:

1. Erwin Kreyszig, Advanced Engineering Mathematics, 10th Edition, Wiley-
2. Dean G. Duffy, Advanced engineering mathematics with MATLAB, CRC Press
3. V.Ravindranath and P.Vijayalakshmi, Mathematical Methods, Himalaya Publishing House. India
4. Srimanta Pal, Subodh C.Bhunia, Engineering Mathematics, Oxford University Press.
5. Dass H.K., Rajnish Verma. Er., Higher Engineering Mathematics, S. Chand Co. Pvt. Ltd, Delhi.