



VIGNAN'S INSTITUTE OF MANAGEMENT AND TECHNOLOGY FOR WOMEN

(An Autonomous Institution)

[Sponsored by Lavu Educational Society, Affiliated to JNTUH & Approved by AICTE, New Delhi]
Kondapur (V), Ghatkesar (M), Medchal - Malkajgiri (D) - 501 301. Phone: 96529 10002/3



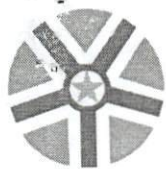
Department of Mathematics

2nd BoS Meeting on 18th August 2025

AGENDA

Item No.	Agenda Item
1.0	Review and Confirmation of Items
1.1	Review and conformation of the Minutes of Meeting of the 1 st BOS Meeting held on 20 th December 2024.
1.2	Review of the VR 25 regulations.
1.3	Review and conformation of I B.Tech I & II Semester Course Structure.
2.0	Approval Items
2.2	Approval of Syllabus for I B.Tech I & II Semester.
3.0	Any other items with permission of Chair


Chairman - BOS
(Dr. T.Srinivasulu)



VIGNAN'S INSTITUTE OF MANAGEMENT AND TECHNOLOGY FOR WOMEN

(An Autonomous Institution)

[Sponsored by Lavu Educational Society, Affiliated to JNTUH & Approved by AICTE, New Delhi]
Kondapur (V), Ghatkesar (M), Medchal - Malkajgiri (D) - 501 301. Phone: 96529 10002/3



Department of Mathematics

2nd BoS Meeting on 18th August 2025

Members Present:

S. No	Name of the Member	Designation	Organization	Role	Sign
1	Dr. T. Srinivasulu	Associate Professor	VMTW, Hyderabad.	BOS Chairman	
2	Dr. B. Ravindra Reddy	Professor & Chairman BOS	UCE, JNTUH Hyderabad	Member (JNTUH Nominee)	
3	Dr P. Suresh	Assistant Professor (Sr. Grade)	CBIT, Hyderabad	Member (Academician)	
4	Dr. T. Yugandhar	Associate Professor	Anurag University, Hyderabad	Member (Academician)	
5	Mr. P. Bhaskar Reddy	Data Scientist.	TCS, Hyderabad	Member (Industry)	
6	Dr. D. Chenna Kesavaiah	Associate Professor	VMTW, Hyderabad.	Member	
7	Mr. K. Santhosh Kumar	Assistant Professor	VMTW, Hyderabad.	Member	
8	Mrs. R. Manjula	Assistant Professor	VMTW, Hyderabad.	Member	
9	Mrs. J. Rajitha	Assistant Professor	VMTW, Hyderabad.	Member	
10	Mr. V. Madhukar	Assistant Professor	VMTW, Hyderabad.	Member	
11	Mr. Md. Jahangir Pasha	Assistant Professor	VMTW, Hyderabad.	Member	
12	Mr.B.Vidya Sagar	Assistant Professor	VMTW, Hyderabad.	Member	
13	Mr.S.Siva Kumar	Assistant Professor	VMTW, Hyderabad.	Member	
14	Dr. R. Sridhar	Associate Professor & HOD-BSH	VMTW, Hyderabad.	Special Invitee	

MINUTES BOOK

Vignan's Institute of Management & Technology for Women (An Autonomous Institutions & Accredited by NBA & NAAC)

Minutes of the 2nd Board of Studies (BoS) meeting held on 18th August 2025, 3.00PM at
HOD'S Chamber, VMTW

The Quorum (minimum 40%) was satisfied.

The following members were present:

1. Dr. T. Srinivasulu
2. Dr. B. Ravindra Reddy
3. Dr P. Suresh
4. Dr. T. Yugandhar
5. Mr. P. Bhaskar Reddy
6. Dr. D. Chenna Kesavaiah
7. Mr. K. Santhosh Kumar
8. Mrs. R. Manjula
9. Mrs. J. Rajitha
10. Mr.V. Madukar
11. Mr. Md. Jahangir Pasha
12. Mr. B.Vidya sagar
13. Mr. S.Siva Kumar
14. Dr. R. Sridhar

The Chairman welcomed all the members to the meeting of the Board of Studies.

Proceedings of the meeting of the Board of Studies

1.0 Review and Confirmation of Items.

1.1 Review and confirmation of the Minutes of Meeting of the 1st BOS Meeting held on 20th December 2024.

The Chairman-BOS present the Minutes of Meeting of the 1st BOS Meeting held on 20th December 2024.

The Board reviewed and confirmed the Minutes of the Meeting of the 1st BOS Meeting held on 20th December 2024.

1.2 Review of the VR 25 regulations.

The Chairman-BOS present the VR 25 regulations.

The Board reviewed and noted.

Minutes of the Board of Studies (BOS) meeting held on Friday, 18th August 2025

1.3 Review and conformation of I B.Tech I & II Semester Course Structure.

The Chairman-BOS present the proposed Course Structure (Annexure -I) to the members.

The Board has reviewed and confirmed the Course Structure.

2.0 Approval Items

2.1 Approval of Syllabus for I B.Tech I & II Semester.

The Chairperson presented the Syllabus (Annexure – II & III) to the members.

Theory Subject - **Matrices and Calculus (M&C)**– I. B.Tech – I Semester –
Common to ECE, CSE, CSE (AIML), CSE (DS) & IT

Theory Subject – **Ordinary Differential Equations and Vector Calculus (ODEV)** –
I. B.Tech – II Semester –
Common to ECE, CSE, CSE (AIML), CSE (DS) & IT

The Board has approved the above syllabi (Annexure – II & III).

3.0 Any other item with the permission of the Chair

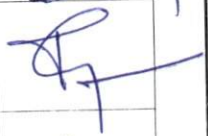
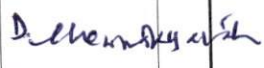
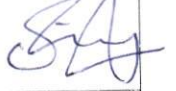
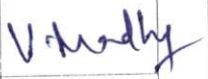
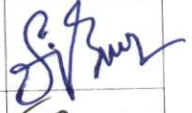
Members are suggested incorporating statistics topics relevant to Data Science and Machine Learning, as they will be valuable for students in the future.

The Board suggested the Chairperson, maintain the Academic Quality, Update the syllabus to maintain the Standards of Institution.


Chairman BOS
(Dr. T. Srinivasulu)

Department of Mathematics

Minutes of the 2nd Board of Studies (BoS) meeting held on 18th August 2025, 3.00PM at
HOD'S Chamber, VMTW

S.N o.	Name	Designation	Organization	Position in BoS	Signature
1	Dr. T. Srinivasulu	Associate Professor	VMTW, Hyderabad.	BOS Chairman	
2	Dr. B. Ravindra Reddy	Professor & Chairman BOS	UCE, JNTUH Hyderabad	Member (JNTUH Nominee)	
3	Dr P. Suresh	Assistant Professor (Sr. Grade)	CBIT, Hyderabad	Member (Academician)	
4	Dr. T. Yugandhar	Associate Professor	Anurag University, Hyderabad	Member (Academician)	
5	Mr. P. Bhaskar Reddy	Data Scientist.	TCS, Hyderabad	Member (Industry)	
6	Dr. D. Chenna Kesavaiah	Associate Professor	VMTW, Hyderabad.	Member	
7	Mr. K. Santhosh Kumar	Assistant Professor	VMTW, Hyderabad.	Member	
8	Mrs. R. Manjula	Assistant Professor	VMTW, Hyderabad.	Member	
9	Mrs. J. Rajitha	Assistant Professor	VMTW, Hyderabad.	Member	
10	Mr. V. Madhukar	Assistant Professor	VMTW, Hyderabad.	Member	
11	Mr. Md. Jahangir Pasha	Assistant Professor	VMTW, Hyderabad.	Member	
12	Mr.B.Vidya Sagar	Assistant Professor	VMTW, Hyderabad.	Member	
13	Mr.S.Siva Kumar	Assistant Professor	VMTW, Hyderabad.	Member	
14	Dr. R. Sridhar	Associate Professor & HOD-BSH	VMTW, Hyderabad.	Special Invitee	

Minutes of the Board of Studies (BOS) meeting held on Friday, 18th August 2025

B.Tech.

L T P C

I Year - II Semester

3 0 0 3

ORDINARY DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS

(Common for CSE, CSE(AI&ML), ECE, IT, CSE(DS))

Course Objectives: To learn

- Methods of solving the differential equations of first and higher order.
- Concept, properties of Laplace transform.
- Solving ordinary differential equations using Laplace transforms techniques.
- The physical quantities involved in engineering field related to vector valued functions.
- The basic properties of vector valued functions and their applications to line, surface and volume integrals.

Course outcomes: After learning the contents of this paper the student must be able to

- CO1** Solve first-order ordinary differential equations using exact, linear, and Bernoulli methods and model physical phenomena like cooling and growth.
- CO2** Solve higher-order linear differential equations with constant coefficients and non-homogeneous terms using appropriate techniques including variation of parameters.
- CO3** Use Laplace Transforms to simplify and solve initial value problems, including handling periodic functions and evaluating integrals.
- CO4** Compute and interpret gradient, divergence, and curl of vector fields, and verify vector identities and properties of scalar potential functions.
- CO5** Evaluate line, surface, and volume integrals and apply Green's, Gauss's, and Stokes' theorems to solve problems in vector calculus.

UNIT-I: First Order ODE

Exact differential equations – Equations reducible to exact differential equations – linear and Bernoulli's equations – Orthogonal Trajectories (only in Cartesian Coordinates). Applications: Newton's law of cooling – Law of natural growth and decay.

UNIT-II: Ordinary Differential Equations of Higher Order

Higher order linear differential equations with constant coefficients: Non-Homogeneous terms of the type e^{ax} , $\sin ax$, $\cos ax$, polynomials in x , $e^{ax}V(x)$ and $x V(x)$ – Method of variation of parameters

UNIT-III: Laplace transforms

Laplace Transforms: Laplace Transform of standard functions – First shifting theorem – Laplace transforms of functions multiplied by 't' and divided by 't' – Laplace transforms of derivatives and integrals of function – Evaluation of integrals by Laplace transforms – Laplace transform of periodic functions – Inverse Laplace transform by different methods, convolution theorem (without proof). Applications: solving Initial value problems by Laplace Transform method.

UNIT-IV: Vector Differentiation

Vector point functions and scalar point functions – Gradient – Divergence and Curl – Directional derivatives – Vector Identities – Scalar potential functions – Solenoidal and Irrotational vectors.

UNIT-V: Vector Integration

Line, Surface and Volume Integrals. Theorems of Green, Gauss and Stokes (without proofs) and their applications

TEXT BOOKS:

1. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36th Edition, 2010
2. R.K. Jain and S.R.K. Iyengar, Advanced Engineering Mathematics, Narosa Publications, 5th Edition, 2016.

①

Grewal

②

Jain & Iyengar

③

Problems

④ 

⑤ 

⑥ D. chemoresarhu

⑦ ~~~~

⑧ leany

⑨ 

⑩ v. modhy

⑪ 

⑫ lu

⑬ 

⑭ 

REFERENCE BOOKS:

1. Erwin Kreyszig, Advanced Engineering Mathematics, 9th Edition, John Wiley & Sons, 2006.
2. G.B. Thomas and R.L. Finney, Calculus and Analytic geometry, 9th Edition, Pearson, Reprint, 2002.
3. H. K. Dass and Er. Rajnish Verma, Higher Engineering Mathematics, S Chand and Company Limited, New Delhi
4. N.P.Bali and Manish Goyal, A text book of Engineering Mathematics, Laxmi Publications, Reprint, 2008.

① Group

2 Anno

③ ~~_____~~

④



6 D. Chomkheswar

⑧ Jerry

9 July

10) V. Madhy



12

13 *[Signature]*

14

B.Tech.

L T P C

I Year - I Semester

3 1 0 4

MATRICES AND CALCULUS

(Common for CSE, CSE(AI&ML), ECE, IT, CSE(DS))

Objectives: To learn

- Applying basic operations on matrices and their properties.
- Concept of a rank of the matrix and applying this concept to know the consistency and solving the system of linear equations.
- Concept of eigen values and eigen vectors and to reduce the quadratic form to canonical form
- Geometrical approach to the mean value theorems and their application to the mathematical problems
- Finding maxima and minima of functions of two and three variables.
- Evaluation of multiple integrals and their applications.

Course Outcomes: After learning the contents of this paper the student must be able to

- CO1** Apply matrix operations to solve systems of linear equations using Echelon form, Gauss-Jordan method, and iterative techniques like Gauss-Seidel.
- CO2** Analyze and interpret eigenvalues, eigenvectors, and quadratic forms to perform matrix diagonalization and transformations using Cayley-Hamilton Theorem.
- CO3** Demonstrate understanding of single-variable calculus concepts including limits, continuity, mean value theorems, and Taylor's series, and apply them to curve tracing.
- CO4** Use partial differentiation techniques including Euler's theorem, Jacobians, and Lagrange multipliers to solve multivariable optimization problems.
- CO5** Evaluate double and triple integrals in various coordinate systems and apply them to compute areas and volumes in engineering contexts.

UNIT-I: Matrices

Rank of a matrix by Echelon form and Normal form – Inverse of Non-singular matrices by Gauss-Jordan method. System of linear equations: Solving system of Homogeneous and Non-Homogeneous equations. Gauss Seidel Iteration Method.

UNIT-II: Eigen values and Eigen vectors

Linear Transformation and Orthogonal Transformation: Eigen values – Eigen vectors and their properties – Diagonalization of a matrix – Cayley-Hamilton Theorem (without proof) – Finding inverse and power of a matrix by Cayley-Hamilton Theorem. Quadratic forms and Nature of the Quadratic Forms – Reduction of Quadratic form to canonical form by Orthogonal Transformation.

UNIT-III: Calculus

Limit and Continuous of functions and its properties. Mean value theorems: Rolle's theorem – Lagrange's Mean value theorem with their Geometrical Interpretation and applications – Cauchy's Mean value Theorem – Taylor's Series (All the theorems without proof). Curve Tracing: Curve tracing in cartesian coordinates.

UNIT-IV: Multivariable Calculus (Partial Differentiation and applications)

Definitions of Limit and continuity – Partial Differentiation: Euler's Theorem – Total derivative – Jacobian – Functional dependence & independence. Applications: Maxima and minima of functions of two variables and three variables using Lagrange multipliers.

①

Sivapathy

②

Anurag

③

Sivapathy

④ 

⑤ 

⑥ D. Monmthesanich

⑦ ~~~~

⑧ 

⑨ 

⑩ V. Medly

⑪ 

⑫ 

⑬ 

⑭ 

UNIT-V: Multivariable Calculus (Integration)

Evaluation of Double Integrals (Cartesian and polar coordinates) – change of order of integration (only Cartesian form) – Change of variables for double integrals (Cartesian to polar). Evaluation of Triple Integrals – Change of variables for triple integrals (Cartesian to Spherical and Cylindrical polar coordinates). Applications: Areas by double integrals and volumes by triple integrals.

Text Books:

1. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36th Edition, 2010.
2. R.K. Jain and S.R.K. Iyengar, Advanced Engineering Mathematics, Narosa Publications, 5th Edition, 2016.

Reference Books:

1. Erwin Kreyszig, Advanced Engineering Mathematics, 9th Edition, John Wiley & Sons, 2006.
2. G.B. Thomas and R.L. Finney, Calculus and Analytic geometry, 9th Edition, Pearson, Reprint, 2002.
3. N.P. Bali and Manish Goyal, A text book of Engineering Mathematics, Laxmi Publications, Reprint, 2008.
4. H. K. Dass and Er. Rajnish Verma, Higher Engineering Mathematics, S Chand and Company Limited, New Delhi.

- ① 
- ② 
- ③ 
- ④ 
- ⑤ 
- ⑥ 
- ⑦ 

- ⑧ 
- ⑨ 
- ⑩ 
- ⑪ 
- ⑫ 
- ⑬ 
- ⑭ 