

Engineering Mathematics

S.E. Sem. III [ETRX]

EVALUATION SYSTEM

	Time	Marks
Theory Exam	3 Hrs.	100
Practical Exam	–	–
Oral Exam	–	–
Term Work	–	25

SYLLABUS

1. Laplace Transform

- Existence of Laplace Transform, Properties of Laplace Transform, 1st and 2nd shifting theorem, Change of scale properties, Unit step function, Heavi side, Dirac delta and Periodic function and their Laplace Transform.
- Inverse Laplace Transform with partial fraction and Convolution theorem.
- Applications to solve initial and boundary value problems involving ordinary differential equations.

2. Fourier Series

Dirichlet's conditions, Fourier series of periodic function with period 2π and $2l$. F.S. for even and odd functions. Half range sine and cosine and Parseval's identity.

- ### 3.
- Complex form of Fourier Series.
 - Fourier Integral and Fourier Transform with properties in detail.

4. Matrices

- Types of matrices, Adjoint, inverse and rank of a matrix. Normal form of a matrix.
- System of Homogeneous and non-homogeneous equations and their consistency.

5. Complex Variables

- Analytic function – R equation in Cartesian and polar form. Analytic function by Milne – Thompson method, Harmonic function.
- Conformal mapping, Bilinear mapping and standard transforms.

6. Z-Transform and Vector analysis

- Properties, change of scale, shifting, inverse of Z transform.
- Initial value and final value.
- Vector integration, scalar potential work down Greens Theorem, Divergence theorem, strokes theorem (without proof).

Reference :

1. Text book Applied Mathematics, Vol. I&II (*P. N. Wartikar, J. N. Wartikar*) – Pune Vidyarthi Griha Prakashan.
2. Matrices (*Shantinakaran*)
3. Vector Analysis (*Murray R. Stiegel*) – Schaum series.
4. Higher Engg. Mathematics (*Dr. B. S. Grewal*) – Khanna Publication.
5. Higher Engg. Mathematics (*B. V. Ramana*) – Tata McGraw–Hill Publishing company Limited.
6. Advanced Engg. Mathematics (*C. Ray wylie & Louis C. Barrott*) Tata McGraw-Hill Publishing Co. Ltd.
7. Advanced Engg. Mathematics, 8th Ed. (*Erwin kreysizg*) – John Wiley & Sons, Inc.

