



RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Teaching & Examination Scheme B.Tech. : Civil Engineering 2nd Year - III Semester

| THEORY | | | | | | | | | | | |
|-----------------------|------------|---------------------|--|------------------|---|----|---------|-----|-----|-------|------|
| SN | Category | Course | | Contact hrs/week | | | Marks | | | | Cr |
| | | Code | Title | L | T | P | Exm Hrs | IA | ETE | Total | |
| 1 | BSC | 3CE2-01 | Advance Engineering Mathematics -I | 3 | 0 | 0 | 3 | 30 | 120 | 150 | 3 |
| 2 | HSMC | 3CE1-02/ 3CE1-03 | Technical Communication /Managerial Economics & Financial Accounting | 2 | 0 | 0 | 2 | 20 | 80 | 100 | 2 |
| 3 | ESC | 3CE3-04 | Engineering Mechanics | 2 | 0 | 0 | 2 | 20 | 80 | 100 | 2 |
| 4 | PCC | 3CE4-05 | Surveying | 3 | 0 | 0 | 3 | 30 | 120 | 150 | 3 |
| 5 | | 3CE4-06 | Fluid Mechanics | 2 | 0 | 0 | 2 | 20 | 80 | 100 | 2 |
| 6 | | 3CE4-07 | Building Materials and Construction | 3 | 0 | 0 | 3 | 30 | 120 | 150 | 3 |
| 7 | | 3CE4-08 | Engineering Geology | 2 | 0 | 0 | 2 | 20 | 80 | 100 | 2 |
| | | | Sub Total | 17 | 0 | 0 | | 170 | 680 | 850 | 17 |
| PRACTICAL & SESSIONAL | | | | | | | | | | | |
| 8 | PCC | 3CE4-21 | Surveying Lab | 0 | 0 | 3 | | 45 | 30 | 75 | 1.5 |
| 9 | | 3CE4-22 | Fluid Mechanics Lab | 0 | 0 | 2 | | 30 | 20 | 50 | 1 |
| 10 | | 3CE4-23 | Computer Aided Civil Engineering Drawing | 0 | 0 | 3 | | 45 | 30 | 75 | 1.5 |
| 11 | | 3CE4-24 | Civil Engineering Materials Lab | 0 | 0 | 2 | | 30 | 20 | 50 | 1 |
| 12 | | 3CE4-25 | Geology Lab | 0 | 0 | 2 | | 30 | 20 | 50 | 1 |
| 13 | PSIT | 3CE7-30 | Industrial Training | 0 | 0 | 1 | | 30 | 20 | 50 | 1 |
| 14 | SODE CA | 3CE8-00 | Social Outreach, Discipline & Extra Curricular Activities | 0 | 0 | 0 | | 0 | 25 | 25 | 0.5 |
| | | | Sub- Total | 0 | 0 | 13 | | 210 | 165 | 375 | 7.5 |
| | | | TOTAL OF III SEMESTER | 17 | 0 | 13 | | 380 | 845 | 1225 | 24.5 |

L: Lecture, **T:** Tutorial, **P:** Practical, **Cr:** Credits

ETE: End Term Exam, **IA:** Internal Assessment

Office of Dean Academic Affairs
Rajasthan Technical University, Kota



RAJASTHAN TECHNICAL UNIVERSITY, KOTA

SYLLABUS

II Year - III Semester: B.Tech. (Civil Engineering)

3CE2-01: ADVANCE ENGINEERING MATHEMATICS-I

Credit: 3
3L+0T+0P

Max. Marks: 150 (IA:30, ETE:120)
End Term Exam: 3 Hours

| SN | Contents | Hrs. |
|--------------|---|-----------|
| 1 | Numerical Methods – 1: Finite differences, Relation between operators, Interpolation using Newton's forward and backward difference formulae. Gauss's forward and backward interpolation formulae. Stirling's Formulae. Interpolation with unequal intervals: Newton's divided difference and Lagrange's formulae. Numerical Differentiation, Numerical integration: Trapezoidal rule and Simpson's 1/3rd and 3/8 rules. | 10 |
| 2 | Numerical Methods – 2: Numerical solution of ordinary differential equations: Taylor's series, Euler and modified Euler's methods. Runge-Kutta method of fourth order for solving first and second order equations. Milne's and Adam's predictor-corrector methods. Solution of polynomial and transcendental equations-Bisection method, Newton-Raphson method and Regula-Falsi method. | 8 |
| 3 | Laplace Transform: Definition and existence of Laplace transform, Properties of Laplace Transform and formulae, Unit Step function, Dirac Delta function, Heaviside function, Laplace transform of periodic functions. Finding inverse Laplace transform by different methods, convolution theorem. Evaluation of integrals by Laplace transform, solving ODEs by Laplace transforms method. | 10 |
| 4 | Fourier Transform: Fourier Complex, Sine and Cosine transform, properties and formulae, inverse Fourier transforms, Convolution theorem, application of Fourier transforms to partial ordinary differential equation (One dimensional heat and wave equations only). | 7 |
| 5 | Z-Transform: Definition, properties and formulae, Convolution theorem, inverse Z-transform, application of Z-transform to difference equation. | 5 |
| Total | | 40 |

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