

Gujarat PG CET 2025 Biomedical Engineering (BM) Syllabus PDF

ENGINEERING MATHEMATICS

Linear Algebra: Matrix algebra, Systems of linear equations, Eigen values and eigenvectors.

Calculus: Functions of single variable, Limit, continuity and differentiability, Mean value theorems, Evaluation of definite and improper integrals, Partial derivatives, Total derivative, Maxima and minima, Gradient, Divergence and Curl, Vector identities, Directional derivatives, Line, Surface and Volume integrals, Stokes, Gauss and Green's theorems.

Differential equations: First order equations (linear and nonlinear), Higher order linear differential equations with constant coefficients, Cauchy's and Euler's equations, Initial and boundary value problems, Laplace transforms, Solutions of one dimensional heat and wave equations and Laplace equation.

Complex variables: Analytic functions, Cauchy's integral theorem, Taylor and Laurent series.

Probability and Statistics: Definitions of probability and sampling theorems, Conditional probability, Mean, median, mode and standard deviation, Random variables, Poisson, Normal and Binomial distributions.

Numerical Methods: Numerical solutions of linear and non-linear algebraic equations
Integration by trapezoidal and Simpson's rule, single and multi-step methods for differential equations.

BIO-MEDICAL ENGINEERING

1. Analog , Digital and Power Electronics
2. Basics of Modelling and Control Theory
3. Microprocessor (8085) and Microcontroller (8051)
4. Basics of communication and networking
5. Digital Signal Processing
6. Human Anatomy & Physiology

7. Biomedical Transducers, Materials and implants
8. Biomechanics
9. Therapeutic, Diagnostic, Analytical and Optical Instrumentation
10. Medical Imaging and Image processing
11. Bioinformatics and advanced medical techniques like telemedicine, remote surgery etc.
