

GATE-2016 SYLLABUS ANALYSIS

CIVIL ENGINEERING

ENGINEERING MATHEMATICS

Topics Removed From GATE-2016		Topics Added in GATE-2016	
1	Differential Equations: Solutions of one dimensional heat and wave equations and Laplace equation	1	Calculus: Taylor and Maclaurin series, Application of definite integral to obtain area and volume
2	Complex Variables: Analytic functions, Cauchy's Integrated theorem, Taylor and Laurent Series. (Complete Topic Removed)	2	Probability and Statistics: Exponential distributions, Hypothesis testing
		3	Numerical Method: Accuracy and precision, Error analysis, Least square approximation, Newton's and Lagrange Polynomials, Numerical differentiation

SOLID MECHANICS

Topics Removed From GATE-2016		Topics Added in GATE-2016	
1	Thin walled pressure vessels	1	Theories of failures

CONCRETE STRUCTURES

Topics Removed From GATE-2016		Topics Added in GATE-2016	
		1	Ultimate Load Design concepts

STEEL STRUCTURES

Topics Removed From GATE-2016		Topics Added in GATE-2016	
		1	Working Stress and Limit State design concepts

GEOTECHNICAL ENGINEERING

Topics Removed From GATE-2016		Topics Added in GATE-2016	
1	All shallow foundation methods except Terzaghi's and Meyerhoff's	1	Soil Mechanics: Soil structure and fabric
		2	Foundation Engineering: Combined footing and Raft foundation, Contact pressure, Pile load test

ENGINEERING HYDROLOGY

Topics Removed From GATE-2016

Topics Added in GATE-2016

- 1 Flood routing, Surface run-off models, Application of Darcy's Law

IRRIGATION ENGINEERING

Topics Removed From GATE-2016

Topics Added in GATE-2016

- 1 Waterways, Sodic soils
- 1 Canal Regulatory works, Cross-drainage structures, outlets and escapes

TRANSPORTATION ENGINEERING

Topics Removed From GATE-2016

Topics Added in GATE-2016

- 1 All methods of signal design except Webster's method
- 1 Transportation Infrastructure: Highway Alignment and Engineering Surveys, Geometric Design of Railway Track, Airport Runway Length, Taxiway and Exit Taxiway Design

GEOMATICS ENGINEERING

Topics Removed From GATE-2016

Topics Added in GATE-2016

- 1 Plane Table Surveying
- 1 Total Station, Photogrammetry - scale, flying height, Remote Sensing - basics, platform and sensors, visual image interpretation, Basics of GIS and GPS

NEW SUBJECTS INTRODUCED

- 1 Engineering Mechanics
- 1 System of forces, free-body diagrams, equilibrium equations; Internal forces in structures; Friction and its applications; Kinematics of point mass and rigid body; Centre of mass; Euler's equations of motion; Impulse-momentum; Energy methods; Principles of virtual work
- 2 Construction, Materials and Management
- 2 **Construction Materials:** Structural steel-composition, material properties and behaviour; Concrete-constituents, mix design, short-term and long-term properties; Bricks and mortar; Timber; Bitumen. **Construction Management:** Types of construction projects; Tendering and construction contracts; Rate analysis and standard specifications; Cost estimation; Project planning and network analysis - PERT and CPM

MECHANICAL ENGINEERING

MATHEMATICS

Topics Removed From GATE-2016	Topics Added in GATE-2016
	1 Double and Triple Integrals
	2 Taylor Series (in one and two variables)
	3 Fourier Series
	4 Cauchy- Riemann Equations

ENGINEERING MECHANICS

Topics Removed From GATE-2016	Topics Added in GATE-2016
1 Impact, Mechanics of Materials	1 Collisions
2 Strain-Stress Relationship	2 Poisson's Ratio, Strain Gauges and Rosettes, Testing of Materials with Universal Testing Machine, Testing of Hardness and Impact Strength

THEORY OF MACHINES

Topics Removed From GATE-2016	Topics Added in GATE-2016
	1 CAMS
	2 Governors
	3 Balancing of Reciprocating and Rotating Mass
	4 Gyroscope

MACHINE DESIGN

Topics Removed From GATE-2016	Topics Added in GATE-2016
	1 Springs

HEAT AND MASS TRANSFER

Topics Removed From GATE-2016	Topics Added in GATE-2016
	1 Heisliers charts
	2 View Factors
	3 Radiation Network Analysis

THERMODYNAMICS

Topics Removed From GATE-2016

1 Carnot Cycle

Topics Added in GATE-2016

1 Thermodynamics Properties Charts and Tables

2 Thermodynamics Relations

3 Air and Gas Compressor

ENGINEERING MATERIALS

Topics Removed From GATE-2016

Topics Added in GATE-2016

1 Phase Diagram