Online Test Series Details for GATE 2025 - 26
Branch : Mechanical Engineering

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Branch : Mechanical Engineering

Test Name
Chapter Wise Tests Total 106 tests
Subject Wise Tests (Basic Level) Total 12 tests
Subject Wise Test (Advance Level) Total 12 tests
Combine Subjects Tests Total 10 tests
Full Length Mock GATE Total 10 tests
Confidence Booster Test GATE Total 15 tests

Chapter-wise Tests (One Year Program)

Each test carries 15 marks and 30 minutes duration.

Test consists of 5 one mark questions and 5 two marks questions.

Test Name	Test Syllabus
Engineering Mechanics - CWT 1	System of Forces
Engineering Mechanics - CWT 2	Trusses
Engineering Mechanics - CWT 3	Friction
Engineering Mechanics - CWT 4	Centroid and Moment of Inertia
Engineering Mechanics - CWT 5	Kinetics and Kinematics of particles
Engineering Mechanics - CWT 6	Impulse momentum, lagrangian equation
Engineering Mechanics - CWT 7	Kinetic and kinematics of rigid bodies

Test Name	Test Syllabus
Fluid Mechanics - CWT 1	Fluid Properties
Fluid Mechanics - CWT 2	Pressure Measurement
Fluid Mechanics - CWT 3	Hydrostatic Forces
Fluid Mechanics - CWT 4	Buoyancy and Floatation
Fluid Mechanics - CWT 5	Liquids in Relative Equilibrium
Fluid Mechanics - CWT 6	Fluid Kinematics
Fluid Mechanics - CWT 7	Fluid Dynamics
Fluid Mechanics - CWT 8	Flow Through Pipes

Test Name	Test Syllabus
Fluid Mechanics - CWT 9	Momentum Equations & Application
Fluid Mechanics - CWT 10	Laminar & Turbulent Flow
Fluid Mechanics - CWT 11	Boundary Layer Theory
Fluid Mechanics - CWT 12	Hydraulic Machines
Mechanics of Materials - CWT 1	Introduction, Properties of Material & Axially Loaded Bar
Mechanics of Materials - CWT 2	Thermal Stress & Strain
Mechanics of Materials - CWT 3	Shear Force & Bending Moment Diagram

Test Name	Test Syllabus
Mechanics of Materials - CWT 4	Bending Stress in Beam
Mechanics of Materials - CWT 5	Shear Stress in Beam
Mechanics of Materials - CWT 6	Complex Stress & Strain
Mechanics of Materials - CWT 7	Torsion in Shaft
Mechanics of Materials - CWT 8	Thin Pressure Vessel
Mechanics of Materials - CWT 9	Deflection of Beam
Mechanics of Materials - CWT 10	Euler's Theory of Column
Mechanics of Materials - CWT 11	Spring, Impact Load & Combine Stresses

Test Name	Test Syllabus
Thermodynamics - CWT 1	Basic Concepts
Thermodynamics - CWT 2	Energy Interaction
Thermodynamics - CWT 3	First law of thermodynamics
Thermodynamics - CWT 4	Second law of thermodynamics
Thermodynamics - CWT 5	Entropy Concept
Thermodynamics - CWT 6	Available Energy & Unavailable Energy
Thermodynamics - CWT 7	Mixture of Gases
Thermodynamics - CWT 8	TDS Relations
Thermodynamics - CWT 9	Pure Substance
Thermodynamics - CWT 10	Vapour Power Cycle

Test Name	Test Syllabus
Thermodynamics - CWT 11	Gas Turbine Power Plant
Thermodynamics - CWT 12	Internal Combustion Engine
Thermodynamics - CWT 13	Refrigeration cycle
Thermodynamics - CWT 14	Air conditioning
Industrial Engineering - CWT 1	Break Even Analysis
Industrial Engineering - CWT 2	Inventory Control/Management
Industrial Engineering - CWT 3	Sequencing
Industrial Engineering - CWT 4	Forecasting

Test Name	Test Syllabus
Industrial Engineering - CWT 5	Queuing Theory
Industrial Engineering - CWT 6	CPM & PERT
Industrial Engineering - CWT 7	Line Balancing or Assembly Line
Industrial Engineering - CWT 8	Work Study
Industrial Engineering - CWT 9	MRP
Industrial Engineering - CWT 10	Linear Programming & Problem
Industrial Engineering - CWT 11	Transportation & Assignment Models
Industrial Engineering - CWT 12	Production Planning & Control

Test Name	Test Syllabus
Heat Transfer - CWT 1	Conduction
Heat Transfer - CWT 2	Heat Generation and Fins
Heat Transfer - CWT 3	Unsteady State Heat Conduction
Heat Transfer - CWT 4	Convection
Heat Transfer - CWT 5	Heat Exchanger
Heat Transfer - CWT 6	Radiation Heat Transfer

Test Name	Test Syllabus
Engineering mathematics - CWT 1	Linear Algebra
Engineering mathematics - CWT 2	Differential Equation
Engineering mathematics - CWT 3	Integral & Differential Calculus
Engineering mathematics - CWT 4	Vector Calculus
Engineering mathematics - CWT 5	Maxima & Minima
Engineering mathematics - CWT 6	Basics of Calculus & Mean Value Theorem
Engineering mathematics - CWT 7	Complex Variable
Engineering mathematics - CWT 8	Limit & Series Expansion
Engineering mathematics - CWT 9	Probability & Statistics
Engineering mathematics - CWT 10	Numerical Methods

Test Name	Test Syllabus
Machine Design - CWT 1	Design Against Static Load (Theory of Failure)
Machine Design - CWT 2	Design Against Dynamic Load (Failure Strength & S-N diagram)
Machine Design - CWT 3	Design of Welded Joint
Machine Design - CWT 4	Design of Bolted & Riveted Joint
Machine Design - CWT 5	Design of Clutch
Machine Design - CWT 6	Design of Brake
Machine Design - CWT 7	Design of Bearing
Machine Design - CWT 8	Design of Gear
Machine Design - CWT 9	Design of Spring

Test Name	Test Syllabus
Theory of Machines - CWT 1	Simple Mechanism
Theory of Machines - CWT 2	Velocity Analysis of Mechanism
Theory of Machines - CWT 3	Acceleration Analysis of Mechanism
Theory of Machines - CWT 4	Gear
Theory of Machines - CWT 5	Gear Train
Theory of Machines - CWT 6	Dynamic Force Analysis of Slider Crank Mechanism
Theory of Machines - CWT 7	Turning Moment Diagram & Flywheel
Theory of Machines - CWT 8	Gyroscope

Test Name	Test Syllabus
Theory of Machines - CWT 9	Balancing
Theory of Machines - CWT 10	Governor
Theory of Machines - CWT 11	Vibration
Theory of Machines - CWT 12	Cams
Manufacturing Engineering - CWT 1	Casting
Manufacturing Engineering - CWT 2	Welding
Manufacturing Engineering - CWT 3	Machining
Manufacturing Engineering - CWT 4	Forming

Test Name	Test Syllabus
Manufacturing Engineering - CWT 5	Sheet Metal Working
Manufacturing Engineering - CWT 6	Metrology & Inspection
Manufacturing Engineering - CWT 7	Computer Integrated Manufacturing
Manufacturing Engineering - CWT 8	Unconventional Machining
Manufacturing Engineering - CWT 9	Material Science
General Aptitude - CWT 1	Number System, Permutation & Combination and Probability
General Aptitude - CWT 2	Time & Work, Percentage & It's Applications and Time, Speed & Distance
General Aptitude - CWT 3	Average & Ratio, Geometry & Mensuration, Data Interpretation
General Aptitude - CWT 4	Analytical Aptitude, Spatial Aptitude and Verbal Ability & Verbal Grammar (VA VG)

Subject-wise Tests (SWT)

(Each test carries 50 marks and 90 minutes duration.

Test consists of 10 one mark questions and 20 two marks questions)

Test Name	Test Syllabus
Engineering Mechanics SWT 1 (Basic)	Free-body diagrams and equilibrium; friction and its applications including rolling friction, belt-pulley, brakes, clutches, screw jack, wedge, vehicles, etc.; trusses and frames; virtual work; kinematics and dynamics of rigid bodies in plane motion; impulse and momentum (linear and angular) and energy formulations; Lagrange's equation.

Test Name	Test Syllabus
Strength of Material SWT 1 (Basic)	Stress and strain, elastic constants, Poisson's ratio; Mohr's circle for plane stress and plane strain; thin cylinders; shear force and bending moment diagrams; bending and shear stresses; concept of shear centre; deflection of beams; torsion of circular shafts; Euler's theory of columns; energy methods; thermal stresses; strain gauges and rosettes; testing of materials with universal testing machine; testing of hardness and impact strength.

Test Name	Test Syllabus
Fluid Mechanics SWT 1 (Basic)	Fluid properties; fluid statics, forces on submerged bodies, stability of floating bodies; control-volume analysis of mass, momentum and energy; fluid acceleration; differential equations of continuity and momentum; Bernoulli's equation; dimensional analysis; viscous flow of incompressible fluids, boundary layer, elementary turbulent flow, flow through pipes, head losses in pipes, bends and fittings; basics of compressible fluid flow.

Test Name	Test Syllabus
Basic Thermodynamics SWT 1 (Basic)	Thermodynamic systems and processes; properties of pure substances, behavior of ideal and real gases; zeroth and first laws of thermodynamics, calculation of work and heat in various processes; second law of thermodynamics; thermodynamic property charts and tables, availability and irreversibility; thermodynamic relations.

Test Name	Test Syllabus
Applied Thermodynamics SWT 1 (Basic)	Power Engineering: Air and gas compressors; vapour and gas power cycles, concepts of regeneration and reheat. I.C. Engines: Air standard , Diesel and dual cycles. Refrigeration and air conditioning: Vapour and gas refrigeration and heat pump cycles; properties of moist air, psychrometric chart, basic psychrometric processes. Turbomachinery: Impulse and reaction principles, velocity diagrams, Pelton-wheel, Francis and Kaplan turbines; steam and gas turbines.

Test Name	Test Syllabus
Engineering Mathematics SWT 1 (Basic)	Linear Algebra: Matrix algebra, systems of linear equations, eigenvalues and eigenvectors. Calculus: Functions of single variable, limit, continuity and differentiability, mean value theorems, indeterminate forms; evaluation of definite and improper integrals; double and triple integrals; partial derivatives, total derivative, Taylor series (in one and two variables), maxima and minima, Fourier series; gradient, divergence and curl, vector identities, directional derivatives, line, surface and volume integrals, applications of Gauss, Stokes and Green's theorems.

Test Name	Test Syllabus
Engineering Mathematics SWT 1 (Basic)	Differential equations: First order equations (linear and nonlinear); higher order linear differential equations with constant coefficients; Euler-Cauchy equation; initial and boundary value problems; Laplace transforms; solutions of heat, wave and Laplace's equations. Complex variables: Analytic functions; Cauchy-Riemann equations; Cauchy's integral theorem and integral formula; Taylor and Laurent series. Probability and Statistics: Definitions of probability, sampling theorems, conditional probability; mean, median, mode and standard deviation; random variables, binomial, Poisson and normal distributions. Numerical Methods: Numerical solutions of linear and non-linear algebraic equations; integration by trapezoidal and Simpson's rules; single and multi-step methods for differential equations.

Test Name	Test Syllabus
Theory of Machines SWT 1 (Basic)	Displacement, velocity and acceleration analysis of plane mechanisms; dynamic analysis of linkages; cams; gears and gear trains; flywheels and governors; balancing of reciprocating and rotating masses; gyroscope.
Industrial Engineering SWT 1 (Basic)	Production Planning and Control: Forecasting models, aggregate production planning, scheduling, materials requirement planning; lean manufacturing. Inventory Control: Deterministic models; safety stock inventory control systems. Operations Research: Linear programming, simplex method, transportation, assignment, network flow models, simple queuing models, PERT and CPM.

Test Name	Test Syllabus
Manufacturing Engineering SWT 1 (Basic)	Engineering Materials: Structure and properties of engineering materials, phase diagrams, heat treatment, stress-strain diagrams for engineering materials. Casting, Forming and Joining Processes: Different types of castings, design of patterns, moulds and cores; solidification and cooling; riser and gating design. Plastic deformation and yield criteria; fundamentals of hot and cold working processes; load estimation for bulk (forging, rolling, extrusion, drawing) and sheet (shearing, deep drawing, bending) metal forming processes; principles of powder metallurgy. Principles of welding, brazing, soldering and adhesive bonding. Machining and Machine Tool.

Test Name	Test Syllabus
Manufacturing Engineering SWT 1 (Basic)	Operations: Mechanics of machining; basic machine tools; single and multi-point cutting tools, tool geometry and materials, tool life and wear; economics of machining; principles of non-traditional machining processes; principles of work holding, jigs and fixtures; abrasive machining processes; NC/CNC machines and CNC programming. Metrology and Inspection: Limits, fits and tolerances; linear and angular measurements; comparators; interferometry; form and finish measurement; alignment and testing methods; tolerance analysis in manufacturing and assembly; concepts of coordinate measuring machine (CMM). Computer Integrated Manufacturing: Basic concepts of CAD/CAM and their integration tools; additive manufacturing.

Test Name	Test Syllabus
Machine Design SWT 1 (Basic)	Design for static and dynamic loading; failure theories; failure strength and the SN diagram; principles of the design of machine elements such as bolted, riveted and welded joints; shafts, gears, rolling and sliding contact bearings, brakes and clutches, springs.
Heat Transfer SWT 1 (Basic)	Modes of heat transfer; one dimensional heat conduction, resistance concept and electrical analogy, heat transfer through fins; unsteady heat conduction, lumped parameter system, Heisler's charts; thermal boundary layer, dimensionless parameters in free and forced convective heat transfer, heat transfer correlations for flow over flat plates and through pipes, effect of turbulence; heat exchanger performance, LMTD and NTU methods; radiative heat transfer, Stefan-Boltzmann law, Wien's displacement law, black and grey surfaces, view factors, radiation network analysis.

Test Name	Test Syllabus
General Aptitude SWT 1 (Basic)	Verbal Aptitude Basic English grammar: tenses, articles, adjectives, prepositions, conjunctions, verb-noun agreement, and other parts of speech Basic vocabulary: words, idioms, and phrases in context Reading and comprehension Narrative sequencing Quantitative Aptitude Data interpretation: data graphs (bar graphs, pie charts, and other graphs representing data), 2- and 3-dimensional plots, maps, and tables Numerical computation and estimation: ratios, percentages, powers, exponents and logarithms, permutations and combinations, and series Mensuration and geometry Elementary statistics and probability Analytical Aptitude Logic: deduction and induction, Analogy, Numerical relations and reasoning Spatial Aptitude Transformation of shapes: translation, rotation, scaling, Aptitude mirroring, assembling, and grouping Paper folding, cutting, and patterns in 2 and 3 dimensions

Test Name	Test Syllabus
Engineering Mechanics SWT 2 (Advance)	Free-body diagrams and equilibrium; friction and its applications including rolling friction, belt-pulley, brakes, clutches, screw jack, wedge, vehicles, etc.; trusses and frames; virtual work; kinematics and dynamics of rigid bodies in plane motion; impulse and momentum (linear and angular) and energy formulations; Lagrange's equation.
Strength of Material SWT 2 (Advance)	Stress and strain, elastic constants, Poisson's ratio; Mohr's circle for plane stress and plane strain; thin cylinders; shear force and bending moment diagrams; bending and shear stresses; concept of shear centre; deflection of beams; torsion of circular shafts; Euler's theory of columns; energy methods; thermal stresses; strain gauges and rosettes; testing of materials with universal testing machine; testing of hardness and impact strength.

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Basic Thermodynamics SWT 2 (Advance)	Thermodynamic systems and processes; properties of pure substances, behavior of ideal and real gases; zeroth and first laws of thermodynamics, calculation of work and heat in various processes; second law of thermodynamics; thermodynamic property charts and tables, availability and irreversibility; thermodynamic relations.

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Applied Thermodynamics SWT 2 (Advance)	Power Engineering: Air and gas compressors; vapour and gas power cycles, concepts of regeneration and reheat. I.C. Engines: Air-standard Otto, Diesel and dual cycles. Refrigeration and air-conditioning: Vapour and gas refrigeration and heat pump cycles; properties of moist air, psychometric chart, basic psychrometric processes. Turbomachinery: Impulse and reaction principles, velocity diagrams, Pelton-wheel, Francis and Kaplan turbines; steam and gas turbines.

Test Name	Test Syllabus
Engineering Mathematics SWT 2 (Advance)	Linear Algebra: Matrix algebra, systems of linear equations, eigenvalues and eigenvectors. Calculus: Functions of single variable, limit, continuity and differentiability, mean value theorems, indeterminate forms; evaluation of definite and improper integrals; double and triple integrals; partial derivatives, total derivative, Taylor series (in one and two variables), maxima and minima, Fourier series; gradient, divergence and curl, vector identities, directional derivatives, line, surface and volume integrals, applications of Gauss, Stokes and Green's theorems.

Test Name	Test Syllabus
Engineering Mathematics SWT 2 (Advance)	Differential equations: First order equations (linear and nonlinear); higher order linear differential equations with constant coefficients; Euler-Cauchy equation; initial and boundary value problems; Laplace transforms; solutions of heat, wave and Laplace's equations. Complex variables: Analytic functions; Cauchy-Riemann equations; Cauchy's integral theorem and integral formula; Taylor and Laurent series. Probability and Statistics: Definitions of probability, sampling theorems, conditional probability; mean, median, mode and standard deviation; random variables, binomial, Poisson and normal distributions. Numerical Methods: Numerical solutions of linear and non-linear algebraic equations; integration by trapezoidal and Simpson's rules; single and multi-step methods for differential equations.

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Industrial Engineering SWT 2 (Advance)	Production Planning and Control: Forecasting models, aggregate production planning, scheduling, materials requirement planning; lean manufacturing. Inventory Control: Deterministic models; safety stock inventory control systems. Operations Research: Linear programming, simplex method, transportation, assignment, network flow models, simple queuing models, PERT and CPM.

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Test Name	Test Syllabus
Manufacturing Engineering SWT 2 (Advance)	principles of work holding, jigs and fixtures; abrasive machining processes; NC/CNC machines and CNC programming. Metrology and Inspection: Limits, fits and tolerances; linear and angular measurements; comparators; interferometry; form and finish measurement; alignment and testing methods; tolerance analysis in manufacturing and assembly; concepts of coordinate-measuring machine (CMM). Computer Integrated Manufacturing: Basic concepts of CAD/CAM and their integration tools; additive manufacturing.
Machine Design SWT 2 (Advance)	Design for static and dynamic loading; failure theories; failure strength and the SN diagram; principles of the design of machine elements such as bolted, riveted and welded joints; shafts, gears, rolling and sliding contact bearings, brakes and clutches, springs.

Test Name	Test Syllabus
Heat Transfer SWT 2 (Advance)	Modes of heat transfer; one dimensional heat conduction, resistance concept and electrical analogy, heat transfer through fins; unsteady heat conduction, lumped parameter system, Heisler's charts; thermal boundary layer, dimensionless parameters in free and forced convective heat transfer, heat transfer correlations for flow over flat plates and through pipes, effect of turbulence; heat exchanger performance, LMTD and NTU methods; radiative heat transfer, Stefan-Boltzmann law, Wien's displacement law, black and grey surfaces, view factors, radiation network analysis.

Test Name	Test Syllabus
General Aptitude SWT 2 (Advance)	Verbal Aptitude Basic English grammar: tenses, articles, adjectives, prepositions, conjunctions, verb-noun agreement, and other parts of speech Basic vocabulary: words, idioms, and phrases in context. Reading and comprehension Narrative sequencing Quantitative Aptitude Data interpretation: data graphs (bar graphs, pie charts, and other graphs representing data), 2 and 3-dimensional plots, maps, and tables Numerical computation and estimation: ratios, percentages, powers, exponents and logarithms, permutations and combinations, and series Mensuration and geometry Elementary statistics and probability Analytical Aptitude. Logic: deduction and induction, Analogy, Numerical relations and reasoning Spatial Aptitude Transformation of shapes: translation, rotation, scaling, mirroring, assembling, and grouping Paper folding, cutting, and patterns in 2 and 3 dimensions.

Combine subject Tests (As per GATE Pattern)

(Each test carries 100 marks and 180 minutes duration.

Test consists of 30 one mark questions and 35 two marks questions)

Test Name
Mechanics of Materials + Machine Design + Engineering Mathematics + General Aptitude - 1
Engineering Mechanics + Theory of Machines + Engineering Mathematics + General Aptitude - 1
Manufacturing Engineering + Industrial Engineering + Engineering Mathematics + General Aptitude - 1
Basic Thermodynamics + Applied Thermodynamics + Engineering Mathematics + General Aptitude – 1
Fluid Mechanics + Heat Transfer + Engineering mathematics + General Aptitude - 1

Test Name
Mechanics of Materials + Machine Design + Engineering Mathematics + General Aptitude - 2
Engineering Mechanics + Theory of Machines + Engineering Mathematics + General Aptitude - 2
Manufacturing Engineering + Industrial Engineering + Engineering Mathematics + General Aptitude - 2
Basic Thermodynamics + Applied Thermodynamics + Engineering Mathematics + General Aptitude - 2
Fluid Mechanics + Heat Transfer + Engineering mathematics + General Aptitude - 2

Mock Tests (As per GATE Pattern)

(Each test carries 100 marks and 180 minutes duration.

Test consists of 30 one mark questions and 35 two marks questions)

Test Name	Test Syllabus
Gate Mock Test - 1	Full GATE syllabus
Gate Mock Test - 2	Full GATE syllabus
Gate Mock Test - 3	Full GATE syllabus
Gate Mock Test - 4	Full GATE syllabus
Gate Mock Test - 5	Full GATE syllabus
Gate Mock Test - 6	Full GATE syllabus

Test Name	Test Syllabus
Gate Mock Test - 7	Full GATE syllabus
Gate Mock Test - 8	Full GATE syllabus
Gate Mock Test - 9	Full GATE syllabus
Gate Mock Test - 10	Full GATE syllabus

Confidence Booster Mock Tests of GATE PYQ from (2016 to 2023)

(Each test carries 100 marks and 180 minutes duration.

Test consists of 30 one mark questions and 35 two marks questions)

Test Name	Test Syllabus
ME 2016 - SET I	Full GATE syllabus
ME 2016 - SET II	Full GATE syllabus
ME 2016 - SET III	Full GATE syllabus
ME 2017 - SET I	Full GATE syllabus
ME 2017 - SET II	Full GATE syllabus
ME 2018 - SET I	Full GATE syllabus

Test Name	Test Syllabus
ME 2018 - SET II	Full GATE syllabus
ME 2019 - SET I	Full GATE syllabus
ME 2019 - SET II	Full GATE syllabus
ME 2020 - SET I	Full GATE syllabus
ME 2020 - SET II	Full GATE syllabus
ME 2021 - SET I	Full GATE syllabus
ME 2021 - SET II	Full GATE syllabus
ME 2022 - SET I	Full GATE syllabus
ME 2022 - SET II	Full GATE syllabus