VANI INSTITUTE
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India's 1st Coaching Institute for GATE & ESE
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GATE-2024

ONLINE TEST SERIES

SCHEDULE - MECHANICAL ENGINEERING

Number of Tests

Topic Wise	Subject Wise	Mock Test	MSQ	Total
42	25	12	1	80

TOPIC WISE TESTS

- Each test carries 25 marks and 45 minutes duration.
- Each test consists of 5 one mark questions and 10 two marks questions.

TEST NO	TEST NAME : SYLLABUS	DATE OF ACTIVATION
ME-01	**Basic Level Engg. Mechanics :** Free-body diagrams and equilibrium; friction and its application 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.	Available Now
ME-02	**Basic Level Strength of Material - 1**: Simple stresses, Thermal stresses, complex stresses and strains, SFD &BMD, Deflections & slopes , strain gauges & rosettes, testing of hardness and impact strength	Available Now
ME-03	**Basic Level Fluid Mechanics - 1** : 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.	Available Now
ME-04	**Basic Level Thermodynamics - 1**: Thermodynamic systems and processes; behaviour of ideal and real gases; zeroth and first laws of thermodynamics, calculation of work and heat in various processes; second law of thermodynamics; Properties of pure substances, Thermodynamic property charts and tables, availability and irreversibility; thermodynamic relations. vapour and gas power cycles, concepts of regeneration and reheat.	Available Now
ME-05	**Basic Level Machine Design - 1**: Design for static and dynamic loading; failure theories; fatigue strength and the S-N diagram; principles of the design of machine elements such as bolted, riveted and welded joints.	Available Now
ME-06	**Basic Level Heat Transfer - 1 :** Conduction, Fins & convection	Available Now
ME-07	**Basic Level Theory of Machines and Vibrations - 1** : Analysis of planar mechanisms, dynamic analysis of slider – crank mechanism, fly wheels, vibrations	Available Now

TEST NO	TEST NAME : SYLLABUS	DATE OF ACTIVATION
ME-08	**Basic Level Production - 1 :** Metal casting, welding, metal forming & sheet metal operations, Metal cutting, Machining, powder metallurgy.	Available Now
ME-09	**Basic Level Industrial Management and Operation Research - 1:** Forecasting models, aggregate production planning, scheduling, materials requirement planning; lean manufacturing; Inventory Control: Deterministic models; safety stock inventory control systems.	Available Now
ME-10	**Basic Level Strength of Material - 2 :** Theory of simple bending, Centroids, moment of Inertia, shear stress distribution in beams & Torsion, Thin cylinder & strain energy, columns & struts, concept of shear centre	Available Now
ME-11	**Basic Level Fluid Mechanics - 2 :** 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 .Dimensional analysis. Turbo machinery: Impulse and reaction principles, velocity diagrams, Pelton-wheel, Francis and Kaplan turbines, Steam and gas turbines	Available Now
ME-12	**Basic Level Thermodynamics - 2 :** Air and gas compressors; 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, psychrometric chart, basic psychrometric processes.	Available Now
ME-13	**Basic Level Machine Design - 2 :** Shafts, sliding and rolling contact bearings, clutches and brakes gears & springs	Available Now
ME-14	**Basic Level Heat Transfer - 2 :** Unsteadyheatconduction, radiation & heat exchangers	Available Now
ME-15	**Basic Level Theory of Machines and Vibrations - 2 :** Gears & gear trains, cams, governors, balancing of reciprocating and rotating masses, Gyroscope	Available Now
ME-16	**Basic Level Production - 2 :** Abrasive machining processes; NC/CNC machines and CNC programming. Computer Integrated Manufacturing: Basic concepts of CAD/CAM and their integration tools; additive manufacturing. 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) ,jigs & Fixtures. Engineering Materials: Structure and properties of engineering materials, phase diagrams, heat treatment, stress-strain diagrams for engineering materials	Available Now

Test No	Test Name : Syllabus	Date of Activation
ME-17	**Basic Level Industrial Management and Operation Research - 2 :** Linear programming, simplex method, transportation, assignment, network flow models, simple queuing models, PERT and CPM.	Available Now
ME-18	**Basic Level Engineering Mathematics - 1 :** **Linear Algebra**: Matrix Algebra, Systems of linear equations, Eigenvalues, Eigenvectors. **Calculus**: Mean value theorems, Theorems of integral calculus, Evaluation of definite and improper integrals, Partial Derivatives, Maxima and minima, Multiple integrals, Fourier series, Vector identities, Directional derivatives, Line integral, Surface integral, Volume integral, Stokes's theorem, Gauss's theorem, Green's theorem. **Differential equations**: First order equations (linear and nonlinear), Higher order linear differential equations with constant coefficients, Method of variation of parameters, Cauchy's equation, Euler's equation, Initial and boundary value problems, Partial Differential Equations, Method of separation of variables.	Available Now
ME-19	**Basic Level Engineering Mathematics - 2 :** **Complex variables**: Analytic functions, Cauchy's integral theorem, Cauchy's integral formula, Taylor series, Laurent series, Residue theorem, Solution integrals. **Probability and Statistics**: Sampling theorems, Conditional probability, Mean, Median, Mode, Standard Deviation, Random variables, Discrete and Continuous distributions, Poisson distribution, Normal distribution, Binomial distribution, Correlation analysis, Regression analysis. **Numerical Methods**: Solutions of nonlinear algebraic equations, Single and Multi-step methods for differential equations. **Transform Theory**: Fourier Transform, Laplace Transform, z-Transform.	Available Now
ME-20	**Basic Level Verbal Ability :** 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	Available Now
ME-21	**Basic Level Numerical Ability**: 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.	Available Now

TEST NO	TEST NAME : SYLLABUS	DATE OF ACTIVATION
ME-22	**Advanced Level Engineering Mechanics :** Free-body diagrams and equilibrium; friction and its application 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.	Available Now
ME-23	**Advanced Level Strength of Material - 1 :** Simple stresses, Thermal stresses, complex stresses and strains, SFD &BMD, Deflections & slopes , strain gauges & rosettes, testing of hardness and impact strength	Available Now
ME-24	**Advanced Level Strength of Material - 2 :** Theory of simple bending, Centroids, moment of Inertia, shear stress distribution in beams & Torsion, Thin cylinder & strain energy, columns & struts, concept of shear centre	Available Now
ME-25	**Advanced Level Fluid Mechanics - 1** 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.	Available Now
ME-26	**Advanced Level Fluid Mechanics - 2 :** 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.Dimensional analysis. Turbo machinery: Impulse and reaction principles, velocity diagrams, Pelton-wheel, Francis and Kaplan turbines, Steam and gas turbine	Available Now
ME-27	**Advanced Level Thermodynamics - 1**: Thermodynamic systems and processes; behaviour of ideal and real gases; zeroth and first laws of thermodynamics, calculation of work and heat in various processes; second law of thermodynamics; Properties of pure substances,Thermodynamic property charts and tables, availability and irreversibility; thermodynamic relations. vapour and gas power cycles, concepts of regeneration and reheat.	Available Now
ME-28	**Advanced Level Thermodynamics - 2 :** Air and gas compressors; I.C. Engines: Air-standard Otto, Diesel and dual cycles. Refrigeration and airconditioning: Vapour and gas refrigeration and heat pump cycles; properties of moist air, psychrometric chart, basic psychrometric processes.	Available Now
ME-29	**Advanced Level Machine Design - 1 :** Design for static loading, failure theories & variable loading, riveted, bolted & welded joints	Available Now
ME-30	**Advanced Level Machine Design - 2 :** Shafts, sliding and rolling contact bearings, clutches and brakes gears & springs	Available Now
ME-31	**Advanced Level Heat Transfer - 1 :** Conduction, Fins & convection	Available Now

TEST NO	TEST NAME : SYLLABUS	DATE OF ACTIVATION
ME-32	**Advanced Level Heat Transfer - 2 :** Unsteady heat conduction, radiation & heat exchangers	Available Now
ME-33	**Advanced Level Theory of Machines and Vibrations - 1 :** Analysis of planar mechanisms, dynamic analysis of slider – crank mechanism, fly wheels, vibrations	Available Now
ME-34	**Advanced Level Theory of Machines and Vibrations - 2 :** Gears & gear trains, cams, governors, balancing of reciprocating and rotating masses, Gyroscope	Available Now
ME-35	**Advanced Level Production - 1 :** Metal casting, welding metal forming & sheet metal operations, Metal cutting, machining	Available Now
ME-36	**Advanced Level Production - 2 :** Abrasive machining processes; NC/CNC machines and CNC programming. Computer Integrated Manufacturing: Basic concepts of CAD/CAM and their integration tools; additive manufacturing. 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) ,jigs & Fixtures. Engineering Materials: Structure and properties of engineering materials, phase diagrams, heat treatment, stress-strain diagrams for engineering materials	Available Now
ME-37	**Advanced Level Industrial Management and Operation Research - 1 :** Forecasting models, aggregate production planning, scheduling, materials requirement planning; lean manufacturing; Inventory Control: Deterministic models; safety stock inventory control systems.	Available Now
ME-38	**Advanced Level Industrial Management and Operation Research - 2 :** Linear programming, simplex method, transportation, assignment, network flow models, simple queuing models, PERT and CPM.	Available Now
ME-39	**Advanced Level Engineering Mathematics - 1 :** **Linear Algebra:** Matrix Algebra, Systems of linear equations, Eigenvalues, Eigenvectors. **Calculus**: Mean value theorems, Theorems of integral calculus, Evaluation of definite and improper integrals, Partial Derivatives, Maxima and minima, Multiple integrals, Fourier series, Vector identities, Directional derivatives, Line integral, Surface integral, Volume integral, Stokes's theorem, Gauss's theorem, Green's theorem. **Differential equations:** First order equations (linear and nonlinear), Higher order linear differential equations with constant coefficients, Method of variation of parameters, Cauchy's equation, Euler's equation, Initial and boundary value problems, Partial Differential Equations, Methodofseparation ofvariables.	Available Now

TEST NO	TEST NAME : SYLLABUS	DATE OF ACTIVATION
ME-40	**Advanced Level Engineering Mathematics - 2 :** **Complex variables**: Analytic functions, Cauchy's integral theorem, Cauchy's integral formula, Taylor series, Laurent series, Residue theorem, Solution integrals. **Probability and Statistics**: Sampling theorems, Conditional probability, Mean, Median, Mode, Standard Deviation, Random variables, Discrete and Continuous distributions, Poisson distribution, Normal distribution, Binomial distribution, Correlation analysis, Regression analysis. **Numerical Methods**: Solutions of nonlinear algebraic equations, Single and Multi-step methods for differential equations. **Transform Theory**: Fourier Transform, Laplace Transform, z-Transform.	Available Now
ME-41	**Advanced Level Verbal Ability :** 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	Available Now
ME-42	**Advanced Level Numerical Ability**: 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.	Available Now

SUBJECT WISE TESTS

- Each test carries 50 marks and 90 minutes duration.
- Test consists of 10 one mark questions and 20 two marks questions

TEST NO	TEST NAME : SYLLABUS	DATE OF ACTIVATION
ME-43	**Basic Level Engg. Mechanics**	Available Now
ME-44	**Basic Level Strength of Material**	Available Now
ME-45	**Basic Level Thermo**	Available Now
ME-46	**Basic Level Fluid Mechanics**	Available Now
ME-47	**Basic Level Heat Transfer**	Available Now
ME-48	**Basic Level Theory of Machines and Vibrations**	Available Now
ME-49	**Basic Level Machine Design**	Available Now
ME-50	**Basic Level Production**	Available Now
ME-51	**Basic Level Industrial Management and Operation Research**	Available Now
ME-52	**Basic Level Engineering Mathematics**	Available Now
ME-53	**Basic Level General Aptitude**	Available Now
ME-54	**Advance Level Engg. Mechanics & Strength of Material**	Available Now
ME-55	**Advanced Level Production & Industrial Management and Operation**	Available Now
ME-56	**Advanced Level Thermo Dynamics**	Available Now
ME-57	**Advanced Level Machine Design & Theory of Machines and Vibrations**	Available Now
ME-58	**Advanced Level Heat Transfer & Fluid Mechanics**	Available Now
ME-59	**Advanced Level Engineering Mathematics**	Available Now
ME-60	**Advanced Level General Aptitude**	Available Now
ME-61	**Heat Transfer & Fluid**	Available Now
ME-62	**Machine Design & Theory of Machines and Vibrations**	Available Now
ME-63	**Production & Industrial Management and Operation Research**	Available Now
ME-64	**Engg. Mechanics & Strength of Material**	Available Now
ME-65	**Thermodynamics**	Available Now
ME-66	**Engineering Mathematics**	Available Now
ME-67	**Verbal Ability and Numerical**	Available Now

MOCK TESTS

- Each test carries 100 marks and 3 hours duration

TEST NO	TEST NAME : SYLLABUS	DATE OF ACTIVATION
ME-68	Full Syllabus Test -1 (Basic Level)	Available Now
ME-69	Full Syllabus Test -2 (Basic Level)	Available Now
ME-70	Full Syllabus Test -3 (Basic Level)	Available Now
ME-71	Full Syllabus Test -1 (Advance Level)	Available Now
ME-72	Full Syllabus Test -2 (Advance Level)	Available Now
ME-73	Full Syllabus Test -3 (Advance Level)	Available Now
ME-74	GATE MOCK TEST - 1	Available Now
ME-75	GATE MOCK TEST - 2	Available Now
ME-76	GATE MOCK TEST - 3	Available Now
ME-77	GATE MOCK TEST - 4	Available Now
ME-78	GATE MOCK TEST - 5	Available Now
ME-79	GATE MOCK TEST - 6	Available Now

MSQ TYPE TESTS (Subject Wise)

- Each test carries 40 marks and 60 Minutes duration

TEST NO	TEST NAME	DATE OF ACTIVATION
ME-80	General Aptitude	Available Now