



**ACE**  
Engineering Academy  
(Leading institute for ESE/GATE/PSUs)




**GATE - 2018**



**ONLINE TEST SERIES**

**MECHANICAL ENGINEERING (ME)**

**—≡ No. of Tests : 62 ≡—**

	Chapter / Topic wise Tests	22
	Subject Wise / Multi Subject Grand Tests	28
	Full Length Mock Tests	12

**TEST SERIES HIGHLIGHTS ≡—**

- ★ All India Rank will be given for each test.
- ★ Test wise and overall statistics.
- ★ Comparison with toppers.
- ★ Question wise and test wise time analysis & comparison with toppers on time management.

## Division of Subjects into Various Topics

Subject & Code	Topic Code	Topic/Chapter
<b>Engineering Mechanics</b>  <b>Subject code: GMC</b>	GMC	Free-body diagrams and equilibrium; trusses and frames; virtual work; kinematics and dynamics of particles and of rigid bodies in plane motion; impulse and momentum (linear and angular) and energy formulations, collisions.
<b>Strength of Materials</b>  <b>Subject code: GSM</b>	GSM-1	Simple stresses, Thermal Stresses, complex stresses and strains, SFD & BMD, Deflections & Slopes, Strain gauges & rosettes, Testing of hardness and impact strength
	GSM-2	Theory of Simple Bending, Centroids, Moment of Inertia, Shear Stress distribution in beams & Torsion, Thin cylinder & Strain Energy, Columns & struts
<b>Theory of Machines and vibrations</b>  <b>Subject code: GTM</b>	GTM-1	Analysis of planar mechanisms, Dynamic analysis of slider-crank mechanism, Fly wheels, Vibrations
	GTM-2	Gears & Gear Trains, Cams, Governors, Balancing of reciprocating and rotating masses, Gyroscope.
<b>Machine Design</b>  <b>Subject code: GMD</b>	GMD-1	Design for Static Loading, Failure Theories & Variable Loading, Riveted, Bolted & Welded Joints
	GMD-2	Shafts, Sliding and Rolling Contact Bearings, Clutches and Brakes Gears & springs.
<b>Fluid Mechanics</b>  <b>Subject code: GFM</b>	GFM-1	Properties of Fluids, Fluid Statics, (Manometry, Buoyancy, Forces on submerged bodies) Fluid Kinematics (Control volume analysis of mass & fluid acceleration) Fluid Dynamics (Control volume analysis of momentum & energy, differential equations of continuity and momentum, Bernoulli's equation)
	GFM-2	Laminar Flow, Turbulent Flow & Boundary Layer, Flow through pipes, Head losses in pipes, bends etc.
	GFM-3	Hydraulic Machines: (Turbo-machinery, Pelton-wheel, Francis and Kaplan turbines impulse and reaction principles, velocity diagrams), Dimensional analysis.

<b>Subject &amp; Code</b>	<b>Topic Code</b>	<b>Topic/Chapter</b>
<b>Heat Transfer</b>  <b>Subject code: GHT</b>	GHT-1	Conduction, Fins & Convection
	GHT-2	Unsteady heat conduction, Radiation & Heat Exchangers
<b>Thermodynamics</b>  <b>Subject code: GTH</b>	GTH-1	Basic Concepts, Zeroth Law, Work & Heat, First Law of Thermodynamics, Second Law of Thermodynamics and Entropy
	GTH-2	Availability, Properties of Pure Substances, vapour and gas power cycles, concepts of regeneration and reheat.
	GTH-3	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.
<b>Production</b>  <b>Subject code: GPI</b>	GPI-1	Metal Casting, Welding Metal Forming & Sheet Metal Operations
	GPI-2	Metal Cutting, Machining, Jigs & Fixtures
	GPI-3	Metrology and Inspection CNC M/C, NTM, CIM & Engineering Materials
<b>Industrial Management and Operational Research</b>  <b>Subject code: GIM</b>	GIM-1	Inventory Control, Production Planning & Control, Scheduling & Sequencing, Line balancing, Forecasting, Materials Requirement Planning.
	GIM-2	PERT & CPM, Linear Programming, Simplex Transportation & Assignment, Simple Queuing models, Network flow Models

Subject & Code	Topic Code	Topic/Chapter
<p align="center"><b>Engineering Mathematics</b></p> <p><b>Subject code:GEM</b></p>	<p align="center">GEM</p>	<p>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. 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.</p>
<p align="center"><b>General Aptitude</b></p> <p><b>Subject code: GGA</b></p>	<p align="center">GVA</p>	<p>English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning and verbal deduction</p>
	<p align="center">GNA</p>	<p>Numerical computation, numerical estimation, numerical reasoning and data interpretation.</p>

## Topic/Chapter-wise Tests

Each test carries 25 marks and 45 minutes duration

Test consists of 5 one mark questions and 10 two marks questions

Commences from 10<sup>th</sup> June, 2017 onwards, the detailed test schedule is as follows:

**Tests will be activated at 2:00 pm on scheduled day**

Test No	Topic codes	Date of Activation
ME-01	GMC- 1	10.06.2017
ME-02	GSM – 1	15.06.2017
ME-03	GSM – 2	18.06.2017
ME-04	GFM – 1	21.06.2017
ME-05	GFM – 2	24.06.2017
ME-06	GFM – 3	27.06.2017
ME-07	GTH – 1	30.06.2017
ME-08	GTH – 2	03.07.2017
ME-09	GTH – 3	06.07.2017
ME-10	GMD – 1	09.07.2017
ME-11	GMD – 2	13.07.2017
ME-12	GHT – 1	16.07.2017
ME-13	GHT – 2	19.07.2017
ME-14	GTM – 1	22.07.2017
ME-15	GTM – 2	25.07.2017
ME-16	GPI – 1	28.07.2017
ME-17	GPI – 2	31.07.2017
ME-18	GPI – 3	03.08.2017
ME-19	GIM – 1	05.08.2017
ME-20	GIM – 2	07.08.2017
ME-21	GEM	08.08.2017
ME-22	GVA & GNA	09.08.2017

## Subject-wise Grand Tests- 1<sup>st</sup> Series

Each test carries 50 marks and 90 minutes duration.

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

*Commences from 12<sup>th</sup> August, 2017 onwards, the detailed test schedule is as follows:*

Test No	Subject codes	Date of Activation
ME-23	GMC	12.08.2017
ME-24	GSM	16.08.2017
ME-25	GTH	19.08.2017
ME-26	GFM	22.08.2017
ME-27	GHT	26.08.2017
ME-28	GTM	29.08.2017
ME-29	GMD	01.09.2017
ME-30	GPI	05.09.2017
ME-31	GIM	08.09.2017
ME-32	GEM	11.09.2017
ME-33	GGA	12.09.2017

## Full Length Mock GATE -1<sup>st</sup> Series

As per GATE Pattern

Each test carries 100 marks and 3 hours duration.

*Commences from 15<sup>th</sup> September, 2017 onwards, the detailed test schedule is as follows:*

Test No	Mock GATE codes	Date of Activation
ME-34	Mock – 1	15.09.2017
ME-35	Mock – 2	18.09.2017
ME-36	Mock – 3	21.09.2017

## Subject-wise Grand Tests- 2<sup>nd</sup> Series

Each test carries 50 marks and 90 minutes duration.

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

*Commences from 24<sup>th</sup> September, 2017 onwards, the detailed test schedule is as follows:*

Test No	Subject codes	Date of Activation
ME-37	GMC	24.09.2017
ME-38	GSM	27.09.2017
ME-39	GTH	04.10.2017
ME-40	GFM	07.10.2017
ME-41	GHT	10.10.2017
ME-42	GTM	13.10.2017
ME-43	GMD	16.10.2017
ME-44	GPI	20.10.2017
ME-45	GIM	23.10.2017
ME-46	GEM	26.10.2017
ME-47	GGA	27.10.2017

## Full Length Mock GATE - 2<sup>nd</sup> Series

As per GATE Pattern

Each test carries 100 marks and 3 hours duration.

*Commences from 31<sup>st</sup> October, 2017 onwards, the detailed test schedule is as follows:*

Test No	Mock GATE codes	Date of Activation
ME-48	Mock – 4	31.10.2017
ME-49	Mock – 5	09.11.2017
ME-50	Mock – 6	16.11.2017

## Multi Subject Grand Tests

Each test carries 50 marks and 90 minutes duration.

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

*Commences from 20<sup>th</sup> November , 2017 onwards, the detailed test schedule is as follows:*

Test No	Subjects Codes	Date of Activation
ME-51	GSM ,GMC	20.11.2017
ME-52	GFM , GHT	25.11.2017
ME-53	GTH	29.11.2017
ME-54	GMD , GTM	04.12.2017
ME-55	GPI , GIM	08.12.2017
ME-56	GEM , GGA	13.12.2017

## Full Length Mock GATE -3<sup>rd</sup> Series

As per GATE Pattern

Each test carries 100 marks and 3 hours duration.

*Commences from 22<sup>nd</sup> December, 2017 onwards, the detailed test schedule is as follows:*

Test No	Mock GATE codes	Date of Activation
ME-57	Mock – 7	22.12.2017
ME-58	Mock – 8	29.12.2017
ME-59	Mock – 9	05.01.2018
ME-60	Mock – 10	13.01.2018
ME-61	Mock – 11	21.01.2018
ME-62	Mock – 12	27.01.2018

**NOTE:** The Dates of above MOCK GATE Exams may Change according to the GATE – 2018 Exam schedule.