

Syllabus for Entrance Exam
For ME Mechanical (Design), ME Mechanical (Production) and
ME (CAD/CAM/CAE)

1. Manufacturing Processes – Casting, Moulding, Rolling, Forging etc
2. Fluid Mechanics – Kinematics & Dynamics of Fluid Flow, Laminar and turbulent Flow.
3. Thermodynamics – laws of thermodynamics, entropy, vapour power cycles, steam condensers, steam turbines, steam nozzles,
4. Analysis of Mechanical Elements – Stress, Strain, Torsion, Stresses in beams, Deflection of beams, Columns
5. Metallurgy – Metals & Alloy Systems, Phase diagrams, Heat treatment
6. Machine tools – Metal cutting, Lathes, Various machine tools, CNC machines
7. Theory of Machines – Velocity & Acceleration in mechanisms, Kinetics & synthesis of mechanisms, Cams, Gears, Gyroscope, Vibrations
8. Fluid & Turbo Machinery – Water turbines, Pumps & Compressors
9. Heat & Mass Transfer – Conduction, Convection, Radiation, Mass transfer
10. Machine Design – Bolted Joints, Welded Joints, Shafts, Springs, Power Screws, Sliding & Rolling Contact bearings, Various types of Gears
11. Metrology & Quality Control – Tolerances, Surface Finish, Measuring, magnification, measurement of angles, tapers and radius, straightness and flatness, measurements of threads and gears. Instruments, Quality Control, acceptance sampling, statistical quality control
12. Manufacturing Engineering – theory of metal cutting, Jigs & Fixtures, Press tools, Form Tools, automat, economic aspects of tooling.
13. Control Engineering – Automatic Control, Block Diagram Algebra, Transient Response
14. CAD/CAM – Solid Models, Surface Models, C programming
15. IC Engines – SI Engines, CI Engines, Fuel Systems, Performance Testing of Engines, Emission Control, alternative fuels, engine emission control.

16. Computer Integrated Manufacturing – Manufacturing automation, , flexible manufacturing systems, group technology, Computer integrated manufacturing.
17. Finite Element Method – FEM procedure, Types of Elements, Analysis types
18. Power Plant Engineering – Types of Power Plants, Environmental aspects
19. Mechatronics – Programmable Logic Controllers, PLC programming
20. Robotics – Anatomy, common configurations, Technical specifications, sensors, programming and applications.
21. Industrial Engineering – production planning & control, inventory control, facility planning, productivity, material handling, method study, work study, human factors in engineering.