

## **M.Tech(PE)**

### **Syllabus for 1<sup>st</sup> MST, Metal Forming (M.Tech)**

Metal Forming as a system, Classification of metal Forming processes, True Stress and true strains, Yield Criteria, Heat generation and heat transfer, Examination of metals, Forging of rectangular slab under different conditions.

### **Syllabus for 1<sup>st</sup> MST, Production Planning & Control, (M.Tech)**

Introduction; Pre-planning, market survey, machine and process capacity, capacity analysis; Effects of cyclic and random variations; Routing route sheets, common charts; Scheduling; various techniques of scheduling; Production order, dispatching of production orders.

### **Syllabus for 1<sup>st</sup> MST, Metal Casting, (M.Tech)**

Characteristics, Ingredients and additives of moulding sand, core sands, Solidifications of Metals, nucleation, free energy concept, critical radius of nucleus, Nucleation and growth in metals and alloys. constitutional super cooling. Columnar, equiaxed and dendritic structures. Freezing of alloys centreline feeding resistance. Rate of solidification, time of solidification, mould constant. Analysis of the process.

### **Syllabus for 1<sup>st</sup> MST, PRODUCT DESIGN & DEVELOPMENT (M.Tech)**

Introduction to product design, Principal requirements of good Product design, Factors affecting Product design, Product design methodology and techniques Visual design, their basic elements & principal.

### **Syllabus for 1<sup>st</sup> MST, Materials Technology (Open Elective) (M.Tech)**

Classification of materials, Properties of materials, Non Destructive Testing of materials, Failure Mechanisms, Fatigue and Creep failure, Phase Diagrams, Gibbs phase Rule, Lever Rule. Composites and its types.

### **Syllabus for 1<sup>st</sup> MST, RESEARCH METHODOLOGY & IPR, (M.Tech)**

Introduction to research and its types, Research problem and its types. Research Proposal, Characteristics of Good Research, Errors in Research Problem, Research method and Methodology. Report Writing, Characteristics of good report, parts of report. Plagiarism.

### **Syllabus for 1<sup>st</sup> MST, Jig Fixture & Die Design, (M.Tech)**

Introduction, Locating Elements, Clamping Elements, Elements of Jig & Fixtures

### **Syllabus for 1<sup>st</sup> MST, Constitution of India, (M.Tech)**

History of Making of Indian Constitution, Philosophy of Indian Constitution

## **B.Tech (PE)**

### **Syllabus for 1<sup>st</sup> MST, Operation Research, B.Tech**

Introduction, Linear Programming, Transportation Model, Assignment Model

### **Syllabus for 1<sup>st</sup> MST, Metal Forming B.Tech**

Introduction, Forging and Introduction to Rolling, Geometry, Classification of Rolling Products and Rolling Analysis.

### **Syllabus for 1<sup>st</sup> MST, Engineering Metrology, B.Tech**

Limits, Fits and Tolerances, Measuring And Gauging Instruments, Geometrical Metrology and Surface Finish.

### **Syllabus for 1<sup>st</sup> MST, Inspection & Quality Control, B.Tech**

Quality, Quality Costs, Inspection, Quality Assurance

### **Syllabus for 1<sup>st</sup> MST, Machining Science, B.Tech**

**Mechanics of Metal Cutting:** Chip formation process, type of chips, orthogonal cutting, oblique cutting, Merchant Theory, calculations of shear angle, shear stress, shear strain, strain rate, kinetic coefficient of friction; velocity relations, calculation of various forces. **Tool Wear And Tool Life:** Introduction, types of tool wear, wear mechanism, tool life, variables affecting the tool life, determination of tool life exponents, machinability.

### **Syllabus for 1<sup>st</sup> MST, Strength of Material, B.Tech**

Simple Stress and strain, Thermal stress and strain, Elastic constants, Thin cylinder and spherical shells, Shear force and bending moment diagram of cantilever beams subjected to different types of loads.

### **Syllabus for 1<sup>st</sup> MST, Thermal Engineering, B.Tech**

Heat Transfer, I.C Engines, Gas Turbines & Boilers

### **Syllabus for 1<sup>st</sup> MST, Machine Drawing, B.Tech**

**Introduction:** Requirements of machine drawing, Sectioning and conventional representation, Dimensioning, concept of limits, fits & tolerances and their representation, Machining Symbols, introduction and Familiarization of Code SP 46:2003. **Fasteners:** Various types of screw threads, types of nuts and bolts, screwed fasteners, welding joints and riveted joints. **Knuckle and cotter joints, keys, spline shafts.**

### **Syllabus for 1<sup>st</sup> MST, Industrial Engineering, B.Tech**

Introduction, Plant Layout & Material Handling, Work Study-Method Study, Work Study-Work Measurement

**Syllabus for 1st MST, Material Science, B.Tech**

Crystal Structure, Alloying of steel, Alloys

**Syllabus for 1st MST, Operations Mangament, B.Tech**

Introduction, Product Design and Development, Forecasting, Production Planning, Production Control