

## IIT Madras Trainee Syllabi

### Chemistry Topics

- General Chemistry
- Structure of Atom
- Thermodynamics
- Processes of Isolation of Elements
- Periodicity
- Solid State
- Solutions
- P, D, F Block Elements
- Electrochemistry
- Surface Chemistry
- Redox Reactions
- Chemical Kinetics
- States of Matter
- Equilibrium
- Hydrogen
- Classification of Elements
- Molecular Structure
- Chemical Bonding
- Coordination Compounds
- Carboxylic Acids
- Biomolecules
- Hydrocarbons
- Environmental Chemistry
- Amines
- Chemistry in Everyday Life
- D Block Elements
- Alkali and Alkaline earth metals (S Block)
- Haloarenes
- Alcohols
- Haloalkanes
- Aldehydes
- Phenols
- Ketones
- Ethers
- General Organic Chemistry

## **General Engineering Topics**

### **(i) Civil Engineering**

- Surveying and Geology
- Fluid Mechanics
- Planning and Management
- Waste Water Engineering
- Solid Mechanics
- Transportation Engineering
- Highways
- Open Channel Flow
- Flow of Fluids, Hydraulic Machines and Hydro Power
- Design of Steel Structures
- Air, Noise pollution, and Ecology
- Geotechnical Engineering and Foundation Engineering
- Pipe Flow
- Hydraulic Machines and Hydropower
- Design of Concrete and Masonry structures
- Construction Practice
- Tunneling
- Railways Systems
- Harbours
- Solid Waste Management
- Hydrology and Water Resources Engineering
- Environmental Engineering
- Water Supply Engineering
- Building Materials
- Structural Analysis
- Airports

### **(ii) Mechanical Engineering**

- Engineering Mechanics
- Engineering Materials
- Mechanisms and Machines
- Fluid Mechanics
- Thermodynamics and Heat transfer
- IC Engines, Refrigeration and Air conditioning
- Turbo Machinery
- Power Plant Engineering
- Renewable Sources of Energy
- Design of Machine Elements

- Manufacturing
- Industrial and Maintenance Engineering
- Mechatronics and Robotics

### **(iii)Electrical Engineering**

- Analog and Digital Electronics
- Power Systems
- Power Electronics and Drives
- Electrical Machines
- Basic Electronics Engineering
- Electrical Materials
- Engineering Mathematics
- Systems and Signal Processing
- Electric Circuits and Fields
- Electrical and Electronic Measurements
- Control Systems
- Computer Fundamentals

### **(iv)Electronics and Telecommunication Engineering**

- Computer Organization and Architecture
- Electro Magnetics
- Advanced Electronics Topics
- Analog and Digital Circuits
- Advanced Communication Topics
- Basic Electronics Engineering
- Electronic Measurements and Instrumentation
- Network Theory
- Basic Electrical Engineering
- Materials Science
- Analog and Digital Communication Systems
- Control Systems

### **Nursing**

- Health Education & Communication Skills
- Nutrition
- Medical Surgical Nursing
- Anatomy & Physiology
- Midwifery & Gynaecological Nursing
- Paediatric Nursing
- Community Health Nursing

- Microbiology
- First Aid
- Personal Hygiene
- Psychology
- Psychiatric Nursing
- Computers in Nursing
- Environmental Hygiene
- Sociology
- Fundamentals of Nursing
- Nursing Management
- Mental Health