



**Mody Institute of Technology & Science**  
Deemed University under Sec. 3, of UGC Act, 1956  
(ISO 14001:2004 Certified)

## **Faculty of Engineering & Technology (FET)**

### **1. Entrance Test & Interview Center:**

Faculty of Engineering and Technology, Mody Institute of Technology and Science (Deemed University), Lakshmangarh, District Sikar, Rajasthan.

### **2. Syllabi:**

The duration of examination of each programme will be of **one hour** and the paper will be of **Multiple Choice Questions**. There will not be any negative marking.

#### **M.Tech in Computer Science & Engineering**

There will be 50 objective questions of graduate level on Digital Electronics, Mathematics & Computer Science.

**Digital Electronics:** Basic Logic Gate, Number System, Combinational Circuits, Sequential Circuit, Memory Devices.

**Mathematics:** Matrices, Differential Equations, Complex Numbers, Differentiation, Integration, Probability.

**Computer Science:** Computer Architecture, Data Structure, Operating Systems, Computer Network, C, C++ & Java.

#### **M.Tech in Nano Science & Technology**

**Crystal structures:** Imperfections in crystalline solids and their role in influencing various properties.

**Diffusion:** Fick's laws and its applications.

**Metals and Alloys:** Structures, properties and applications.

**Ceramics, Polymers, and Composites:** Properties, structures and applications.

**Electrochemistry.**

**Advanced materials and tools:** Ferroelectric, piezoelectric, optoelectric, semiconducting behavior, superconductivity, mechanical properties, thermal properties, electronic properties and magnetic properties.

**Optical properties:** Reflection, refraction, absorption and transmission of electromagnetic radiation in solids.

**Thermodynamics:** Basic concepts, zeroth law of thermodynamics; concept of temperature, heat, first law of thermodynamics, second law of thermodynamics, thermodynamic relations and thermodynamic cycles.

Calculus, complex variables, and vector calculus.

### **M.Tech in Signal Processing / VLSI Design**

Fundamentals of semiconductors, Diodes, BJTs, MOSFETs, heterojunction, Digital Electronics and logic families, Fundamentals of communication, Analog and Digital communication techniques, Transmission lines, Mobile and LAN standards, Basics of Microprocessors and Microcontrollers, Op-Amp and its applications.

### **M. Tech in Nuclear Science & Technology Programs**

M. Tech. (Nuclear science and Technology) programs are interdisciplinary, there will be objective type questions of graduate level on fundamentals related to mathematics, science and engineering.

#### **Nuclear Science and Technology – 2 year program**

Vector analysis, Matrices, First and second order differential equation, Fourier and Laplace Transform, Atomic structure, Nuclear Size and Shape, Radioactivity, Nuclear Fission and Fusion, Wave function and Schrödinger's equation, Crystal structure, Inter atomic bonding, Bond strength, Reduction-Oxidation reactions, Modes of heat transfer, Thermodynamic cycles, Circuit analysis, Operational Amplifiers

#### **Integrated M. Tech. in Nuclear Science and Technology - 3 year program**

Vector Calculus, Algebra of Complex numbers, Taylor expansion, Linear differential equation, Matrices and determinants, Conservative and non-conservative forces, Motion in center of mass frame, Conservation Laws of

linear momentum, angular momentum and energy, Wave equation, Phenomena of Interference, Electrostatics and magneto-statics, Kinetic theory of gases, Laws of thermodynamics, p-n junction diode