

Indian Institute of Information Technology,
Design and Manufacturing, Kancheepuram

Ref: Advt No: IITDM/NT/R/01/2023 dated 16.06.2023

21.10.2023

SYLLABUS FOR THE POST OF TECHNICAL OFFICER (ECE)

Levels	Details	Remarks
Level 1	Screening Test (Objective Type)	All Shortlisted Candidates notified
Level 2	Written Test (Descriptive Type)	Only for the Shortlisted Candidates of Level 1 Examination
Level 3	Interview	

• **Level-1**

Circuit Analysis: Node and mesh analysis, superposition, Thevenin's theorem, Norton's theorem, reciprocity. Sinusoidal steady state analysis: phasors, complex power, maximum power transfer. Time and frequency domain analysis of linear circuits: RL, RC circuits, solution of network equations using Laplace transform. 2-port network parameters, wye-delta transformation.

Signals & Systems

Continuous-time Signals: Fourier series and Fourier transform, Discrete-time Signals: DTFT, DFT, z-transform, discrete-time processing of continuous-time signals, sampling theorem.

LTI systems: definition and properties, causality, stability, impulse response, convolution, poles and zeroes, frequency response.

Electronic Devices

Energy bands in intrinsic and extrinsic semiconductors, equilibrium carrier concentration, direct and indirect band-gap semiconductors.

Carrier Transport: diffusion current, drift current, mobility and resistivity, generation and recombination of carriers.

P-N junction, Zener diode, BJT, MOS capacitor, MOSFET, LED, photo diode and solar cell.

Analog Circuits

Diode Circuits: clipping, clamping and rectifiers.

BJT and MOSFET Amplifiers: biasing, ac coupling, small signal analysis, frequency response.

Op-amp Circuits: Amplifiers, summers, differentiators, integrators, active filters, Schmitt triggers and oscillators

Digital Circuits

Combinatorial circuits: Boolean algebra, minimization of functions using Boolean identities and Karnaugh map, logic gates, arithmetic circuits, code converters, multiplexers, decoders.

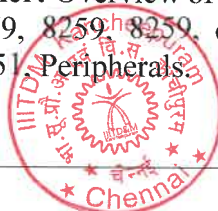
Sequential Circuits: latches and flip-flops, counters, shift-registers, finite state machines. Data Converters: ADCs and DACs.

Analog Communications: amplitude modulation and demodulation, angle modulation and demodulation, spectra of AM and FM.

Digital Communications: PCM, digital modulation schemes (ASK, PSK, FSK), Fundamentals of error correction, Hamming codes, CRC.

Electronics Measurement and Instrumentation: Test instruments, multimeter, function generator, Digital storage Oscilloscope, Measurement of different quantiles, Transducers and sensors

Microprocessors and Microcontroller: Overview of 8085 microprocessors, Interfacing with peripherals: 8155, 8255, 8254, 8279, 8259, 8250, etc. Interfacing with keyboards, 8086 microprocessors, Microcontroller 8051 Peripherals



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• **Level-2**

1. Hardware Assembling of PC, Installation of Systems and troubleshooting, BIOS settings, Installation and testing of a printer, Printer Maintenance, Scanner Installation, Webcam Installation, making various types of cables for networking, Installation and Maintenance of UPS Systems, Installation and maintenance of various networking devices like Router, Switches, Laying out Structured cabling, Installation of Firewalls and Connectivity of LAN & WAN, Installation of Wireless network devices.
2. Embedded C Programs, TM4C123 boards, Installation of various variants of operating systems like Windows and Linux, Application & Troubleshooting, Upgrading OS, Backup, format & restore OS, Installation of Software like Visual Studio, UML, Cisco Packet tracer, Working of MS-Office components like Word, Excel & PowerPoint, Configuring and sharing internet in PCs and other devices, configuring firewalls & usage of access lists, Working with Wireless Networks (Installation, Configuration & troubleshooting). Design of circuits using lab view/multi-sim simulators.
3. Sensors and Industrial Instrumentation: Resistive Capacity, Inductive, piezo metric, Half effect sensors and associated signal conditioning circuits, Transducers for industrial instrumentation, Displacement (Linear and Angular).

• **Level-3**

Interview.

Note: The list of shortlisted candidates, schedule and instructions to the candidates will be uploaded in the website shortly. The candidates are advised to check the website regularly.



AdP
Registrar
26/10/23