

**FURTHER DETAILS REGARDING MAIN TOPICS OF
PROGRAMME NO.01/2010**

**MECHANIC
MEDICAL EDUCATION**

(CATEGORY NO.221/2007)

1. BASIC HAND TOOLS & MEASURING INSTRUMENTS

Basic hand tools-marking and measuring tools-precision and non precision tools-drills,taps, dies, pipe fitting tools-special purpose gauges-fundamentals of measurements

2. BASIC ELECTRICITY

Static and current electricity-fundamentals-magnetism-electro-magnetism-electrical components- Resistors, Capacitors, Inductors-DC&AC Circuits-methods of soldering

3. ELECTRICAL MEASUREMENT & MEASURING INSTRUMENTS

Indicating-Integrating and recording instruments-MI, MC, Hot wire, Induction Electro dynamometer and Electrostatic instruments-Wattmeter, Energy meter, PF meters, Ohm meters, Meggers.

4. INDUSTRIAL ELECTRONICS

Semiconductors,Transistors, PCBs, ICs, Recognise & Replace semiconductor packages- Rectifiers-Filters- Voltage regulators- Power supplies- Amplifiers- Oscilators and multi vibrators-Inverters and converters- Multi vibrators-

Logic circuits- Micro processors-computer hardware- CPU operation- ROM, RAM, I/P-O/P Peripheral devices-microprocessor applications.

5. PROCESS MEASUREMENT

Basic process measurement systems- principle of transducer operation- system standards and instrument calibration.

6. SPEED & RPM MEASUREMENT

Speedometers and tachometers

7. PRESSURE MEASUREMENT

Principle of liquid pressure —Units-Gauge, Absolute, Atmosphere pressures-Pressure measuring instruments-Pressure sensors-Pressure transducers-Pressure instrument installation and servicing.

8. FLOW MEASUREMENT

Properties of Flow-Primary measuring devices-Secondary measuring devices-Variable area Instruments- Open channel Flow devices-Positive displacement meters- Turbine and Magnetic Flow meters.

9. MEASUREMENT OF LEVEL

Surface sensing gauge- Store tank gauge-Sight glass- Magnetic gauges- Level switches- Pressure head instruments.

10. TEMPERATURE MEASUREMENTS

Temperature, Heat, Specific heat, Temperature scales-Bimetallic and Fluid filled temperature Instruments- Electrical temperature measuring instruments- Resistance thermometers- RTD Bridges-Thermister-Thermo couples- Pyrometry.

11. RECORDERS AND CONTROLLERS

Construction and working principle, various parts, installation and uses of Pneumatic and Electronic recorders. Types of Controllers and their operation-Process variables and set points- Analog controllers, Digital controllers- control ranges and limits- ON-OFF Controllers, Proportional controllers-Programmable controllers- PLCs- processing and programming functions. Final control elements in control loops- Actuators-Control valves.

12. ANALYTICAL INSTRUMENTS

PH-Indicators and Controllers- Gas Analyzers- conductivity meters.

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.