

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
IV B. Tech I Semester Regular/Supplementary Examinations OCT/NOV 2025
UNCONVENTIONAL MACHINING PROCESSES
(ME)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions. **ONE** Question from **Each unit**

All Questions Carry Equal Marks

UNIT-I

1. a) Explain the need for non-traditional machining methods and classify modern machining processes. [7M]
- b) Explain the working principle of Magnetic Abrasive Finishing method with neat sketch. [7M]

(OR)

2. a) Describe the working principle, and equipment of Abrasive Jet Machining with neat sketch. [7M]
- b) Discuss the applications, advantages, and limitations of Abrasive Jet Machining. [7M]

UNIT-II

3. a) Explain the working of ultrasonic machining with neat sketch. [7M]
- b) Discuss the applications and limitations of ultrasonic machining. [7M]

(OR)

4. a) Discuss and derive grain hammering model of material removal in ultrasonic machining. [7M]
- b) Discuss tool feed mechanisms in ultrasonic machining. [7M]

UNIT-III

5. a) Explain construction and working of Electrochemical machining with neat sketch. [7M]
- b) Derive an expression for material removal rate in ECM process. [7M]

(OR)

6. a) Explain the construction and working of Electrochemical grinding with neat sketch. [7M]
- b) Discuss the advantages, limitations, and applications of electrochemical machining. [7M]

UNIT-IV

7. a) Explain the principle and working of Electric Discharge Machining with a neat sketch. [7M]
- b) Discuss the power circuits used in EDM process with circuit diagrams. [7M]

(OR)

8. a) Explain the principle and working of wire EDM process with a neat sketch. [7M]
- b) Explain the role of dielectric fluid in EDM and discuss its functions, and properties. [7M]

UNIT-V

9. a) Explain the working of Electron beam machining with neat sketch. [7M]
- b) Discuss the advantages, limitations, and applications of electron beam machining. [7M]

(OR)

10. a) Explain the working of Laser beam machining with neat sketch. [7M]
- b) Discuss Industrial applications of Plasma machining. [7M]
