

--	--	--	--	--	--	--	--	--	--



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Sixth Semester, B.E. - Mechanical Engineering

Semester End Examination; July / Aug. - 2022

Non-Traditional Machining

Time: 3 hrs

Max. Marks: 100

Course Outcomes

The Students will be able to:

CO1: Explain the concept of nontraditional machining process and ultrasonic machining process.

CO2: Describe the process of electric discharge machining and jet machining process.

CO3: Explain the working principle of chemical and electrochemical machining process.

CO4: Describe the working principle of laser beam and Ion beam machining process.

CO5: Analyze the effect of parameters and process characteristics of plasma arc and electron beam machining process.

Note: I) PART - A is compulsory. Two marks for each question.

II) PART - B: Answer any **Two** sub questions (from a, b, c) for a Maximum of **18 marks** from each unit.

Q. No.	Questions	Marks	BLs	COs	POs
I : PART - A		10			
I a.	What is the need for nontraditional machining process?	2	L2	CO1	PO1
b.	Explain the basic principles of abrasive jet machining.	2	L2	CO2	PO1
c.	What are the factors to be considered in the selection of Etchants?	2	L1	CO3	PO1
d.	Explain the basic principle of laser beam machining.	2	L1	CO4	PO1
e.	List the various plasma torch used in plasma arc machining.	2	L2	CO5	PO1
II : PART - B		90			
UNIT - I		18			
1 a.	Classify the nontraditional machining process on the basis of different energies.	9	L2	CO1	PO3
b.	List the various advantages, disadvantages of nontraditional machining process.	9	L2	CO1	PO1
c.	With the help of a sketch explain the working principle of ultrasonic machining	9	L2	CO1	PO3
UNIT - II		18			
2 a.	With the help of a sketch explain the working principle of abrasive jet machining.	9	L2	CO2	PO1
b.	With the help of a sketch explain the mechanism of metal removal in Electrical discharge machining.	9	L2	CO2	PO2
c.	List the various dielectric fluids used in electric discharge machining. Also mention one various essential requirements or desirable properties of dielectric fluid.	9	L2	CO2	PO1

UNIT - III**18**

- 3 a. List the advantages, disadvantages and application of Chemical Machining. 9 L2 CO3 PO2
- b. With the help of a sketch explain electrochemical grinding and electrochemical honing process. 9 L2 CO3 PO1
- c. With the help of a sketch explain the principle operation of electrochemical machining process. 9 L2 CO3 PO1

UNIT - IV**18**

- 4 a. With the help of a sketch explain the working principle of laser beam machining. 9 L2 CO4 PO2
- b. With the help of a sketch explain the working principle of Ion beam machining. 9 L2 CO4 PO3
- c. With the help of a sketch explain the principle operation of Electro hydraulic forming process. 9 L2 CO4 PO2

UNIT - V**18**

- 5 a. With the help of a sketch explain the working principle of plasma arc machining. 9 L4 CO5 PO2
- b. With the help of a sketch explain the principle operation of electron beam machining. 9 L4 CO5 PO2
- c. List the advantages, disadvantages and application of electron beam machining. 9 L4 CO5 PO2

* * * *