

Discipline: Mechanical

Semester: 6th

Name of the faculty: Eo. Ramakanta Nayak

Subject: Advance

No. of days / week classes: 5

Semester ~~6th~~:

Manufacturing process

to:

Week	Class day	Theory Topics
10 th March to 12 th March	1 st	Introduction of modern machining process and comparison with traditional machining
	2 nd	principle of Ultrasonic machining
	3 rd	Description of equipment of USM
14 th March to	1 st	Advantages, Disadvantages and application of USM
19 th March	2 nd	principle and description of equipment of electric discharge machining (EDM)
	3 rd	Dielectric fluid, tools (electrodes) of EDM.
	4 th	DOLA, PURNIMA
	5 th	HOLI
21 st March to	1 st	process parameters, output characteristics of EDM
26 th March	2 nd	Advantages, disadvantages and applications of EDM.
	3 rd	principle and description of equipment of wire cut EDM.
	4 th	controlling parameters and application of wire cut EDM.
	5 th	principle and description of equipment of Abrasive jet machining (AJM)
28 th March to	1 st	Material removal rate (MRR) and application of AJM.
2 nd April	2 nd	principle and description of equipment

Week	Class day	Theory Topics
	2 nd	of Laser beam machining (LAM) Material removal rate (MRR) and application of LAM.
	4 th 5 th	UTRAL. DIYAK principle and description of equipment of electro chemical machining (ECM).
4 th April to 9 th April	1 st 2 nd	material removal rate (MRR) and applications of ECM. principle and description of equipment of plasma arc machining (PAM).
	3 rd 4 th	material removal rate (MRR) and process parameters of PAM performance characterization and application of PAM.
	5 th	principle and description of equipment of electron beam machining (EBM).
11 th April to 16 th April	1 st 2 nd	Material removal rate (MRR) and process parameters of EBM. performance characterization and application of EBM.
	3 rd 4 th	MAHAVISUBA SANKRANTI GOOD FRIDAY
	5 th	Introduction of plastic processing

Week	Class day	Theory Topics
18 th April to 23 rd April	1 st 2 nd 3 rd 4 th 5 th	Moulding processes; Injection moulding compressions moulding Transfer moulding Extruding; casting Calendering
25 th April to 30 th April	1 st 2 nd 3 rd 4 th 5 th	Fabrication methods - sheet forming Blow moulding; Laminating plastics (sheet, rod and tubes) Reinforcing Application of plastics Introduction of Additive manu- facturing process
2 nd May to 7 th May	1 st 2 nd 3 rd	Need for additive manufacturing Fundamentals of AM - UL-FITRE Fundamentals of additive manu- facturing
	4 th 5 th	AM process chain Advantages and Limitations of AM
9 th May to 14 th May	1 st 2 nd 3 rd 4 th 5 th	classification of AM process Fundamental automated processes Distinction between AM and CNC and other related technologies Applications of AM in design and aerospace industry Applications of AM in automotive industry, Jewellery industry and in art and architecture.

Week	Class day	Theory Topic
16 th May to	1 st 2 nd	BUDAYA PURNIMA
21 st May	3 rd	Application of AM in RP medical and Bioengineering Web based Rapid prototyping system.
	4 th	concept of flexible manufacturing system.
	5 th	Document Engineering
23 rd May to	1 st	production tool like capstan and turner lathe
28 th May	2 nd	Rapid prototyping process.
	3 rd	special purpose machine (SPM)
	4 th	General elements of SPM
	5 th	productivity improvement by SPM.
30 th May to	1 st 2 nd	SABITRI AMABASYA
4 th June	3 rd	principles of SPM design
	4 th	Maintenance of machine tools Type of maintenance, Repair cycle analysis, Repair complexity
	5 th	Maintenance Manual, maintenance record.
6 th June to	1 st	House keeping, Introduction to total productive maintenance (TPM)
10 th June	2 nd	Repairing
	3 rd	Repairing
	4 th	Repairing