

TA 202A (Introduction to Manufacturing Processes)

Course content: Introduction to manufacturing; Conventional material removal processes: chip formation, tool dynamics, practical machining and finishing operations; CNC machining; Unconventional machining; Introduction to microfabrication, Layered manufacturing; Metrology.

Lecture-wise breakup:

S. No.	Titles	Suggested number of lectures
1.	Introduction to manufacturing and its evolution	2
2.	Conventional material removal processes	3
3.	Unconventional material removal processes	4
4.	Layered / generative manufacturing processes	2
5.	Computer numerical control and programming	1
6.	Engineering metrology	1
	Total number of lectures	13

Laboratory session:

Session	Name of Experiment
1	Turning
2	Milling + CNC demonstration
3	Drilling and fitting
4 & 5	CNC class room training system usage and exercise
6 – 12	Project
	Project evaluation

Suggested text and reference material:

1. Fundamental of Modern Manufacturing: Materials, Processes and Systems: M.P. Groover (John Wiley).
2. Manufacturing Science: A. Ghosh and A.K. Malik (East-West Press).
3. Manufacturing Processes for Engineering Materials: S. Kalpakliam and S.R. Schmid (Prentice Hall).
4. Fundamental of Manufacturing Processes: G.K. Lal and S.K. Choudhuary (Narosa).
5. Advanced Machining Processes: V.K. Jain (Allied Publishers).
6. Introduction to Micromachining: Ed. V.K. Jain (Narosa).
7. Micromanufacturing Processes: Ed. V.K. Jain (CRC Press)