ME 338 Manufacturing Processes – II

Course Instructor	:	**Prof. Ramesh Singh (Lead Instructor)/Prof. S. S. Pande (Metrology)**
Office	:	Machine Tools Lab
Phone	:	7507 (O) / 8507 (R)
Office Hours	:	Fridays 4:00 pm -5:00 pm
Website	:	http://www.me.iitb.ac.in/~ramesh/ME338/
Teaching Assistant	:	**Mr. Rinku Kumar Mittal/ Mr. Chaitanya Vundru/ Mr. Sachin Alya**
Office	:	Machine Tools Lab
	:	4518
	:	Thursdays 3:00 pm – 5:00 pm

Course Objectives:

- Learn the fundamentals of machining, optimization, non-conventional machining, fixturing and metrology
- Develop first order mathematical descriptions for selected processes
- Understand the advantages and limitations of various processes in terms of quality productivity
- Apply this knowledge to manufacturing process selection, design and part quality

Scheme of assessment

Group Assignments	10%
Quiz	10%
Midterm	25%
Project	15%
End semester examination	40 %
Total	100 %

Please note:

1. Lecture notes and home works will be posted on the course website
2. Homeworks will be submitted in self-selected group of four and are **due in class on the day of submission**. **No late homeworks accepted**.
3. Any form of uncanny similarity or copying on the homework **will be severely penalized**.
4. Students could opt for an **analysis project** either using Deform/commercial finite element code or analytical techniques. **Hands on projects** which involves experimental analysis will also be considered. Alternatively, a **research paper** on recent work in manufacturing could also be considered under certain conditions.
5. Surprise quizzes will be an in-class test for 15-20 minutes.
6. **No cellphones on the desk. Cell phones should be either in your bag or pocket.**

Text Book:

- *Manufacturing Processes for Engineering Materials, S. Kalpakjian and S. R. Schmid, 5th edition; Prentice Hall, 2003.*

References:

- *Introduction to Manufacturing Processes, J.A. Schey, 3nd edition. McGraw Hill Co., 2000.*
- *Fundamentals of Machining and Machine Tools, G. Boothroyd and W.A. Knight. 2nd edition, Marcel Dekker, Inc., 1989.*
- *Advanced Fisture Design for FMS, A.Y.C. Nee, K. Whybrew, and N. Senthil Kumar, Springer Verlag*
- *Metrology for Engineers, J. F. W.Galyer, and C. R. Shotbolt, ELBS*

Schedule of Lectures, Assignments and quizzes

Lecture No.	Date	Schedule of Assignments & quizzes	Lecture No.	Date	Schedule of Assignments & quizzes
1.	18.07.18 Wed	Introduction	17.	03.10.18 Wed	Non-Conventional III
2.	20.07.18 Fri	Machining I	18.	05.10.18 Fri	Non-Conventional IV
3.	25.07.18 Wed	Machining II	19.	10.10.18 Wed	Non-conventional V HW 4 assigned
4.	27.07.18 Fri	Machining Mechanics	20.	12.10.18 Fri	Metrology I
5.	01.08.18 Wed	Machining Mechanics HW1 assigned	21.	17.10.18 Wed	Quiz 2
6.	03.08.18 Fri	Single point cutting tool geometry	22.	24.10.18 Wed	Metrology II
7.	08.08.18 Wed	Drilling process and Tool geometry	23.	26.10.18 Fri	Metrology III
8.	10.08.18 Fri	Tool wear	24.	31.10.18 Wed	Metrology IV
9.	17.08.18 Fri	Machining optimization & Chatter and Lubrication	25.	02.11.18 Fri	Metrology V
10.	24.08.18 Fri	Grinding and finishing HW2 assigned	26.	07.11.18 Wed	Metrology VI
11.	29.08.18 Wed	Fixturing 1	27.	09.11.18 Fri	Quiz 3, Project Presentation
12.	31.08.18 Fri	Fixturing 2			
13.	05.09.18 Wed	Fixturing 3 HW 3 assigned			
14.	07.09.18 Fri	Composite Manufacturing			
--	10.09.18 – 16.09.18	Mid-Sem Exam Break			
15.	26.09.18 Wed	Non-conventional 1			
16.	28.09.18 Fri	Non-conventional II			