

ME 688 Advanced Machining Process
(Jan 2022- May 2022)

Course Instructor : **Prof. R K Mittal**
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Class Timings : Tuesdays 3:00 pm – 3:55 pm
Wednesdays 2:00 pm – 2:55 pm
Thursdays 3:00 pm – 3:55 pm

Course Objectives:

- Basics of non-conventional machining as well as hybrid machining processes
- Learn the principles of material removal mechanisms of non-conventional machining as well as hybrid machining processes
- Develop first-order mathematical descriptions for selected processes
- Understand the advantages and limitations of various processes in terms of quality and productivity
- Apply this knowledge to manufacturing process selection, design, and part quality

Scheme of assessment

Assignments & Quizzes	15%
Midterm	25%
Project	20%
End semester examination	40 %

Total	100 %

Please note:

1. Lecture notes and home works will be posted on the course website
2. Home assignments will be submitted in a self-selected group of four and are due in class on **the submission date. No late submission will be 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. Alternatively, a **research paper** on recent work in advanced machining processes could also be considered.
5. Surprise quizzes may be there in classes.
6. It would be good if we all learn together – the more two-way interactions, the better for all of us. I will make mistakes, which you will be expected to correct, and vice versa!

Text and Reference Book:

- V. K. Jain, Advanced Machining Processes, Allied Publishers, 2009
- Hassan El-Hofy, Advanced Machining Processes, McGraw-Hill Prof Med/Tech, 2005
- Helmi Youssef, Non-Traditional and Advanced Machining Technologies, CRC Press, 2020
- Gary F. Benedict, Nontraditional Manufacturing Processes, Taylor & Francis, 1987
- Bijoy Bhattacharyya and Biswanath Doloi, Modern Machining Technology, Academic Press, 2019
- V. K. Jain, Introduction to Micromachining, Alpha Science International Limited, 2010
- J. A. McGeough, Micromachining of Engineering Materials, Taylor & Francis, 2001.
- P K Mishra, Non-Conventional Machining, Narosa India Publication, 1997.
- P. C. Pandey and H. S. Shan, Modern Machining Processes, Tata McGraw-Hill Education, 1980.
- James A. Brown, Modern Manufacturing Processes, Industrial Press, 1991.