

ME 688 Advanced Machining Processes (3-0-0-6)

General classification of unconventional machining processes; Abrasive jet machining, water jet and abrasive water jet machining, ultrasonic machining; Electric discharge machining and allied processes, laser beam machining, ion beam machining, plasma arc machining; Electrochemical machining (ECM) and allied processes, ECM tool design, chemical machining, photochemical machining; Elastic emission machining; Advanced finishing processes, abrasive flow finishing, magnetic abrasive finishing, magnetorheological finishing, chemo-mechanical polishing; Comparative evaluation of different unconventional machining processes; Analytical modeling of mechanical, thermal and electrochemical type non-traditional machining processes; Numerical modeling and simulation of unconventional machining processes; Computer aided process planning of non-traditional machining processes.

Textbooks:

- [1] V. K. Jain, Advanced Machining Processes, Allied Publishers, 2009.
- [2] Gary F. Benedict, Nontraditional Manufacturing Processes, Taylor & Francis, 1987.
- [3] J. A. McGeough, Advanced Methods of Machining, Springer, 1988.

References:

- [1] P K Mishra, Non Conventional Machining, Narosa India Publication, 1997.
- [2] Hassan El-Hofy, Advanced Machining Processes: Nontraditional and Hybrid Machining Processes, McGraw-Hill Prof Med/Tech, 2005.
- [3] P. C. Pandey and H. S. Shan, Modern Machining Processes, Tata McGraw-Hill Education, 1980.
- [4] James A. Brown, Modern Manufacturing Processes, Industrial Press, 1991.
- [5] V. K. Jain, Introduction to Micromachining, Alpha Science International Limited, 2010.
- [6] J. A. McGeough, Micromachining of Engineering Materials, Taylor & Francis, 2001.