Contents: (Numbers within parentheses give number of lectures for each topic)

Part-1: Introduction [3 Lectures]
1. Introduction to the Course & Classification of Micromanufacturing Processes [2 lectures]
2. Challenges in Meso-, Micro-, and Nanomanufacturing [1 lecture]

Part-2: Introduction to Traditional and Advanced Micromachining Processes [9 Lectures]
3. Microturning [1 lecture]
4. Micromilling [1 lecture]
5. Microgrinding [1 lecture]
6. Biomachining [1 lecture]
7. Micro- and Nano-manufacturing by Focused Ion Beam [2 lectures]
8. Electric discharge micromachining [1 lecture]
9. Electrochemical micromachining [1 lecture]
10. Abrasive water jet micromachining [1 lecture]

Part-3: Nanofinishing [7 Lectures]
11. Magnetorheological and Allied Finishing Processes and their theoretical analysis [3 lectures]
12. Theoretical Analysis of Abrasive Flow Finishing (AFF) for Micromanufacturing [2 lectures]
13. An Integrated Wafer Surface Evolution Model for Chemical Mechanical Planarization (CMP) [2 Lectures]

Part-4: Microjoining [5 Lectures]
14. Introduction to microjoining [1 lecture]
15. Laser Microwelding [2 lectures]
16. Electron Beams Microwelding and Applications [2 lectures]

Part-5: Microforming [6 Lectures]
17. Introduction to Microforming [1 lecture]
19. Microextrusion [2 lectures]
20. Microbending with Laser [1 lecture]

Part-6: Microcasting and Micromolding [8 Lectures]
21. Microcasting [4 lectures]
22. Micromolding – A soft Lithography Technique [2 lectures]
23. Fabrication of Microelectronic Devices [2 lectures]

Part-7: Miscellaneous topics [5 Lectures]
24. Dimensional Metrology for Micro/Mesoscale Manufacturing [4 lectures]
25. Generalised applications [1 lecture]

**Total Lecture = 43**

**Reference texts:**
5. Related Research papers