



RAJASTHAN TECHNICAL UNIVERSITY, KOTA

SYLLABUS

III Year - VI Semester: B.Tech. (Electronics & Communication Engineering)

6EC5-11: Introduction to MEMS

Credit: 3
3L+0T+0P

Max. Marks: 150(IA:30, ETE:120)

End Term Exam: 3 Hours

SN	Contents	Hours
1	Introduction: Objective, scope and outcome of the course.	1
2	Introduction and Historical Background.	1
3	Mechanics of solids in MEMS/NEMS: Stresses, Strain, Hookes's law, Poisson effect, Linear Thermal Expansion, Bending; Energy methods, Overview of Finite Element Method, Modeling of Coupled Electromechanical Systems.	14
4	Scaling Effects. Micro/Nano Sensors, Actuators and Systems overview: Case studies. Review of Basic MEMS fabrication modules: Oxidation, Deposition Techniques, Lithography (LIGA), and Etching.	14
5	Micromachining: Surface Micromachining, sacrificial layer processes, Stiction; Bulk Micromachining, Isotropic Etching and Anisotropic Etching, Wafer Bonding.	10
	Total	40