

Course Code	Course Title	L	T	P	C
1156EC403	MOOC - MEMS AND MICROSYSTEMS	0	0	0	2

a) Course Category

Independent Learning – Self Learning Course

b) Preamble

To give an exposure about the basics of MEMS ,sensors , accelerometers and to give an idea of fabrication process of micro machined or micro structure devices and the materials involved in MEMS

c) Prerequisite

Nil

d) Related Courses

Nil

e) Course Outcomes

CO Nos.	Course Outcomes	Knowledge Level (Based on Revised Bloom's Taxonomy)
CO1	Students will be able to know about the basics of MEMS	K2
CO2	Explain about various materials and technology of MEMS	K2
CO3	Study about micro machine processing and fabrication techniques	K2
CO4	Explore about MEMS sensors	K2
CO5	Explore about MEMS accelerometers	K2

f) Course Content

UNIT I INTRODUCTION TO MEMS

Introduction to MEMS & Microsystems, Introduction to Microsensors, Evaluation of MEMS, Microsensors, Market Survey, Application of MEMS

UNIT II MEMS MATERIALS & TECHNOLOGY FOR MEMS

MEMS Materials, MEMS Materials Properties, Microelectronic Technology for MEMS, Micromachining Technology

UNIT III MICROMACHINING PROCESS

Micromachining Process, Etch Stop Techniques and Microstructure, Surface and Quartz Micromachining, Fabrication of Micromachined Microstructure

UNIT IV MEMS SENSORS

MEMS Microsensors Thermal, MEMS Pressure and Flow Sensor, Micromachined Flow Sensors, MEMS Inertial Sensors

UNIT V MEMS ACCELEROMETERS

MEMS Accelerometers for Avionics, Piezoresistive Accelerometer Technology, MEMS Capacitive Accelerometer, MEMS Capacitive Accelerometer Process

g) Learning Resources

Online Resources

1. <http://nptel.ac.in/syllabus/117105082/>