

Course Information	
Course title	Practices of Microsensors
Semester	114-2
Designated for	COLLEGE OF ENGINEERING GRADUATE INSTITUTE OF APPLIED MECHANICS
Instructor	WEI-CHANG LI
Curriculum Number	AM7187
Curriculum Identity Number	543EM5430
Class	
Credits	3.0
Full/Half Yr.	Half
Required/ Elective	Elective
Time	Tuesday 6,7,8(13:20~16:20)
Remarks	The upper limit of the number of students: 10.
Course introduction video	
Table of Core Capabilities and Curriculum Planning	Table of Core Capabilities and Curriculum Planning
Course Syllabus	
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Course Description	The course aims to cultivate the hands-on capability using several modules on sensors and data processing practical practices.
Course Objective	Based on learning by doing, to make students to quickly catch up the skills of basic electronics, devices, data analysis.
Course Requirement	This course requires funding to cover equipment and material cost. To ensure proper funding usage, email the lecture before select this course to identify your need for taking this course.
Student Workload (Expected weekly study	

hours before and/or after class)	
Office Hours	
Designated reading	
References	
Grading	1. NTU has not set an upper limit on the percentage of A+ grades. 2. NTU uses a letter grade system for assessment. The grade percentage ranges and the single-subject grade conversion table in the NATIONAL TAIWAN UNIVERSITY Regulations Governing Academic Grading are for reference only. Instructors may adjust the percentage ranges according to the grade definitions. For more information, see the Assessment for Learning Section.

Progress		
Week	Date	Topic
Week 1		MEMS Fabrication Process Overview
Week 2		Capacitive Transducers Modeling
Week 3		Nonlinearity in Capacitive Transducers
Week 4		Electrical Stiffness Modeling
Week 5		Stress Modeling in CMOS-MEMS Process
Week 6		Temperature Coefficient of Frequency
Week 7		Temperature Compensation Using Electrical Stiffness
Week 8		Midterm
Week 9		Nonlinearity in Resonators
Week 10		Internal Resonance Modeling
Week 11		FEA Simulation for Nonlinearity
Week 12		Mechanical Frequency Combs
Week 13		Applications of Mechanical Frequency Combs
Week 14		Impact Induced Nonlinearity
Week 15		Applications of Vibro-Impact Resonators
Week 16		Final Project Demo