

MICRO-ELECTROMECHANICAL SYSTEMS (MEMS)

MEMS 122, INTRODUCTION TO MICRO-ELECTROMECHANICAL SYSTEMS (MEMS) 4 (6)

The course presents the theory construction methods, terminology and application of this emerging field. Micro-Electro-Mechanical Systems (MEMS) is the integration of mechanical elements, sensors, actuators, and electronics on a very small scale. Topics include: MEMS applications in sensing physical phenomena, applications to biological processes, and DMDS-Digital Mirror Devices used in communications and internet applications. Lab required. (A special fee will be assessed.)

General Education: IN1

Course Entry Requirement(s): None

Typically Offered: Summer, Fall and Spring Semesters

MEMS 132, MEMS PACKAGING 3 (4)

The course focuses on microelectronic mechanical systems (MEMS) packaging including micro-enabled systems and how these devices are integrated with electronic circuits and product interfaces. The student will be introduced to common packaging techniques used in the industry such as die attach, wirebonding and reliability testing. Lab required. (A special fee will be assessed.)

General Education: IN1

Course Entry Requirement(s): Prerequisite: MEMS 122

Typically Offered: Spring Semester

MEMS 211, MICRO-FABRICATION PROCESSING 3 (4)

The course focuses on microelectronic mechanical systems (MEMS) surface and bulk fabrication processes including photolithography, wet and dry anisotropic and isotropic etch, thin film deposition methods, and process interaction with materials. An introduction to fabrication process control, characterization and development principles with design of experiments and metrology theory will also be covered. Lab required. (A special fee will be assessed.)

General Education: IN1, IN5

Course Entry Requirement(s): Prerequisite: MTHM 121 and MEMS 132

Typically Offered: Fall Semester

MEMS 221, MICRO-SYSTEM CAPSTONE PROJECT 3 (4)

This course is a capstone project built upon the previous MEMS classes. The student will design a device which will then be packaged and reproduced within the MEMS cleanroom demonstrating the student's ability to manufacture two identical fully functional circuits with starting components, devices, and final circuit requirements chosen by the instructor. Lab required. (A special fee will be assessed.)

General Education: IN1

Course Entry Requirement(s): Prerequisite: MEMS 211 and ELCT 111

Typically Offered: Spring Semester

MEMS 287, WORK-BASED LEARNING I - MEMS 1-3 (1)

This course provides supervised work experience with approved employer(s) in an area related to the student's program. Emphasis is placed on integrating classroom learning with work experience. Students will be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Activities are coordinated and evaluated by college personnel. Course will be graded on S/U basis. Prerequisites: A student must be pursuing an approved program at LCCC; have completed 15 semester hours with a minimum of six semester hours in the discipline and a 2.0 overall GPA; and have divisional approval.

General Education: IN1

Course Entry Requirement(s): A student must be pursuing an approved program at LCCC; have completed 15 semester hours with a minimum of six semester hours in the discipline of placement; have a minimum GPA of 2.5 in the discipline and a 2.0 overall GPA; have divisional approval

Typically Offered: Offer as required

MEMS 288, WORK-BASED LEARNING II - MEMS 1-3 (1)

This course provides supervised work experience building on experience in Work-Based Learning I with approved employer(s) in an area related to the student's program. Emphasis is placed on integrating classroom learning with work experience. Students will be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Activities are coordinated and evaluated by college personnel. Course will be graded on S/U basis. Prerequisite: MEMS 287

Course Entry Requirement(s): Prerequisite: MEMS 287

Typically Offered: Offer as required

MEMS 289, WORK BASED LEARNING III - MEMS 1-3 (1)

This course provides supervised work experience in work-based learning II with approved employer(s) in an area related to Micro-Electromechanical Systems. Emphasis is placed on integrating classroom learning with work experience. Students will be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Activities are coordinated and evaluated by college personnel. Course will be graded on the S/U basis.

Course Entry Requirement(s): Prerequisite: MEMS 288

Typically Offered: Offer as required

MEMS 299, INDIVIDUALIZED STUDIES IN MICRO-ELECTROMECHANICAL SYSTEMS 1-2 (1)

An in-depth study in areas of micro-electromechanical systems presented by discussions and/or individual research and reading. Topics will vary. Repeatable up to a total of four (4) credit hours. Prerequisites: Second-year standing and divisional approval.

Course Entry Requirement(s): Prerequisite: Second year standing and divisional approval

Typically Offered: Offer as required