DIGITAL FABRICATION (DFAB)

DFAB 111, INTRODUCTION TO PERSONAL FABRICATION 1 (2)
This course is an introduction to personal fabrication in LCCC's Fab Lab. Students will learn to use commercially available technologies to: conceptualize, design, develop, fabricate and test objects. The Lab features advanced computer software and contemporary tools for cutting, milling, electronics, engraving, and other processes of rapid and automated prototyping. Products and processes are typically individualized but can be developed entrepreneurially for commercial production. LCCC's Fab Lab is modeled on Neil Gershenfeld's Fab Labs at MIT and around the world. Its tools are easy to use by anyone with basic computer skills, imagination, and a desire to invent and make new objects using modern technology and cutting-edge processes. The Lab is designed to explore interests in graphic design, visual arts, business, computer-assisted design, physical and natural science, and mathematics, as well as well as engineering and other advanced technologies. General computer skills highly recommended. Laboratory required. (A special fee will be assessed.)
General Education: IN2
Typically Offered: Fall and Spring Semesters

DFAB 121, DIGITAL FABRICATION I 3 (5)
This course covers programming, setup, and operation of digital fabrication equipment such as computer controlled lasers, routers, and waterjet cutters. Students will apply these digital tools to create items such as prototypes, furniture, and 3D molds. Laboratory required. (A special fee will be assessed.)
General Education: IN1, IN2
Course Entry Requirement(s): Prerequisite: DFAB 111
Typically Offered: Spring Semester

DFAB 211, ADDITIVE MANUFACTURING AND 3D SCANNING 3 (5)
An application oriented course on designing and printing 3D models using additive manufacturing technologies for applications such as prototyping, rapid tooling, and rapid manufacturing. Topics include 3D scanning, designing for additive processes and material limitations, equipment operation, and process troubleshooting. Laboratory required. (A special fee will be assessed.)
General Education: IN1, IN2
Course Entry Requirement(s): Prerequisite: CADD 213
Typically Offered: Fall Semester

DFAB 221, DIGITAL FABRICATION OF ELECTROMECHANICAL SYSTEMS 3 (5)
This course focuses on designing, constructing, and programing embedded circuits. Students will build a variety of microcontroller based systems including a prototype machine. Topics include embedded programming, input and output devices, circuit board design, and networking. Laboratory required. (A special fee will be assessed.)
General Education: IN1
Course Entry Requirement(s): Prerequisite: ELCT 111 and ELCT 115; Concurrent: ELCT 221
Typically Offered: Fall Semester

DFAB 231, DIGITAL FABRICATION CAPSTONE 4 (6)
This course integrates the major topics covered in the previous Digital Fabrication related courses. The student will use a variety of digital fabrication tools to plan, design, produce, and program a microcontroller-based device. Laboratory required. (A special fee will be assessed.)
General Education: IN1, IN2
Course Entry Requirement(s): Prerequisite: DFAB 121, DFAB 211, DFAB 221 and ELCT 221
Typically Offered: Offer as required

DFAB 287, WORK-BASED LEARNING I - DFAB 1-3 (1)
This course provides supervised, paid work experience with approved employer(s) in an area related to the student's program. Emphasis is placed on integrating prior or concurrent classroom learning with work experience through career readiness competencies. Students will be able to evaluate career selection and satisfactorily demonstrate work-related competencies.
General Education: IN1, IN2, IN3, IN4
Course Entry Requirement(s): Prerequisite: A student must be pursuing a degree seeking program at LCCC; completed 12 credit hours with a minimum of 6 credit hours in the discipline of placement; have a min GPA of 2.5 in the discipline a 2.0 overall GPA; have division approval.
Typically Offered: Offer as required

DFAB 288, WORK BASED LEARNING II – DFAB 1-3 (1)
Building on experiences from Work Based Learning I, this course provides supervised, paid work experience with approved employer(s) in an area related to the student's program. Emphasis is placed on integrating prior or concurrent classroom learning with work experience through career readiness competencies. Students will be able to evaluate career selection and satisfactorily demonstrate work-related competencies.
General Education: IN1, IN2, IN3, IN4
Course Entry Requirement(s): Prerequisite: DFAB 287
Typically Offered: Offer as required