

M UNIVERSITY OF MICHIGAN-DEARBORN

COLLEGE OF ENGINEERING AND COMPUTER SCIENCE



Established in 1959, the University of Michigan-Dearborn is one of the three campuses governed by the Board of Regents of the University of Michigan. The University of Michigan-Dearborn is a selective institution noted for its strong academic programs; small, faculty-taught classes; modern facilities; paid professional co-operative education placements; and successful alumni.

The University of Michigan-Dearborn campus is an attractive 200-acre green haven located in the heart of the state of Michigan's industrial, research, development, entrepreneurial, and service sectors. University of Michigan-Dearborn students draw upon the resources of a large multi-university, while benefiting from the social and educational advantages of attending a campus of moderate size.

U of M-Dearborn offers over eighty different degree programs through its four schools and colleges:

- The College of Arts, Sciences, and Letters
- The College of Engineering and Computer Science
- The College of Business
- The School of Education

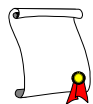
The College of Engineering and Computer Science

The Mission of the College of Engineering and Computer Science is to be the leader in providing quality undergraduate and graduate programs in an environment integrated with engineering practice, research, and continuing professional education, in close partnership with the industrial community.



The College of Engineering and Computer Science (CECS) offers ten undergraduate degree programs, thirteen masters programs, and two Ph.D. programs. The undergraduate programs prepare its graduates both for immediate professional employment and for advanced graduate studies, giving them a competitive edge in the growing globalized economy of rapid technological innovation and change. The Engineering Professional Development office provides graduate certificate, on-site, and organizational learning programs.

Three centers – the Henry Wilds Patton II Center for Continuing Engineering Education and Practice, the Institute for Advanced Vehicle Systems, and the Center for Lightweight Automotive Materials and Processing – bring together engineers and computer scientists from business and industry to work jointly with CECS faculty and students in applied research and consultation.



Ten Undergraduate Degree Programs

www.engin.umd.umich.edu/

(Eight daytime degree programs; two afternoon/evening)

Bachelor of Science in Engineering (B.S.E.)

- ♣ Bioengineering
- ♣ Electrical Engineering
- ♣ Computer Engineering
- ♣ Industrial and Systems Engineering (evening)
- ♣ Manufacturing Engineering (evening)
- ♣ Mechanical Engineering
- ♣ Engineering Mathematics -concurrent degree

Bachelor of Science (B.S.)

- ♣ Computer and Information Science
 - λ CS Concentration
 - λ IS Concentration
- ♣ Software Engineering
- ♣ CIS Mathematics – as concurrent degree

Three Concurrent (dual) Degrees combinations are also offered:

Degrees both in Bioengineering and in Mechanical Engineering

Degrees both in Electrical Engineering and in Computer Engineering

Degrees both in Industrial and Systems Engineering and in Manufacturing Engineering

COLLEGE OF ENGINEERING AND COMPUTER SCIENCE



Engineering freshmen make their group poster presentation using color slides and charts



Society of Automotive Engineering (SAE) prize-winning Mini-Baja student team

College of Engineering and Computer Science – Highlights

A solid reputation for excellence, grounded in the University of Michigan tradition

Ph.D. faculty who teach the undergraduate classes, conduct research, advise students, and are consultants to industry

Excellent student-to-faculty ratio – small and medium-sized classes and accessible faculty

A diversified cooperative education program

- Paid professional co-op internships are available in all engineering and computer science fields
- CECS has co-op contacts with dozens of companies – local, national, and international

A strong educational and career focus

- The educational approach combines theory and practice, emphasizing fundamentals and applications
- The curriculum content is practical and up-to-date, evolving in response to business and industrial needs
- CECS students take classes alongside students in Arts, Sciences, and Letters; Business; and Education
- Opportunities exist to study abroad and take part in international student exchange programs
- The College has chapters of national honor societies in every engineering and computer science major
- Group projects are assigned in many courses, including the capstone senior design course where students bring together the knowledge and skills learned in previous courses and apply them to a practical project
- Degree programs that prepare students for a range of careers in the private, government, and service sectors
- What our students learn has immediate professional value, giving our graduates an edge in the workplace

Strong links with engineering and computer science businesses and corporations

- Professional visiting committees and advisory boards provide industry advice and recommendations to create a close fit between what we teach and what business, industry, and the service sector need
- Business and industry offer co-op internships to our students and hire them when they graduate
- Undergraduate students can take part in joint industry/faculty/student research projects
- Some local industry professionals teach technical courses in their field of expertise
- Our corporate partners and alumni help fund new buildings, facilities, equipment, and student scholarships

Reasonable tuition; excellent job placements for our engineering and computer science graduates

Facilities of the College of Engineering and Computer Science

Modern computer and laboratory facilities are essential in preparing students for professional positions in computer science and engineering practice and research. As part of their program courses CECS students use dozens of different computer and engineering laboratories to test, apply, and practice what is taught in textbook and lecture.

COLLEGE OF ENGINEERING AND COMPUTER SCIENCE



Undergraduate Scholarships

www.engin.umd.umich.edu/scholarships/

U of M-Dearborn offers student scholarships, loans, and other financial aid programs. CECS also provides its own scholarships funded from business, industry, and private sources: over \$750,000 in 2011.

Student and Professional Organizations

www.engin.umd.umich.edu/cur_students/studorg.php

U of M-Dearborn students take part in numerous campus activities, which include over 100 student organizations. The College of Engineering and Computer Science sponsors many student chapters of engineering and computer science professional and honor societies, providing students with a connection to the wider world of their profession. Organizations help students to meet socially with their peers; to have fun; to learn collaborative and leadership skills; to develop professionally; and to provide service to their fellow students, the College, the campus, and the community.



Members of Alpha Omega Epsilon, the engineering, computer science, and natural science professional sorority, on the U of M-Dearborn campus grounds



Student members of the Institute of Industrial Engineers, while attending the IIE Region IV conference in Indiana



Cooperative Education (Co-op)

www.engin.umd.umich.edu/COOP/

There is no better teacher than experience and no better qualification for a career than actually having worked in it. The CECS Cooperative Education Program enables juniors or seniors to alternate semesters of full-time study with semesters of full-time paid employment in their field. The College's national ranking added to its location in the heart of Michigan's industrial, research, entrepreneurial, and service sectors provides students with a wide choice of local and national co-op opportunities in the private, government, and service sectors.

Benefits of the Cooperative Education Program:

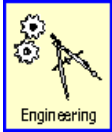
- Co-op students gain valuable practical, hands-on, professional-level, on-the-job experience in their chosen field
- Students apply in their co-op jobs what they learn in the classroom and the laboratory
- Co-op experience helps students to develop leadership, confidence, responsibility, independence, and maturity
- Average co-op salaries range from \$10,000 to \$12,000 per semester and help students pay for their education
- The combined co-op salaries earned by CECS students have averaged from \$1.3 to \$1.7 million dollars each year
- Many co-op participants receive a job offer from their sponsoring company or organization upon graduation



CECS Academic Services

www.engin.umd.umich.edu/SRA/

U of M-Dearborn faculty and staff provide students with information, advice, and assistance to enhance their academic and career success as well as their educational and on-campus social experience. CECS Student Records and Advising is the central undergraduate academic office of the College and provides academic advising and engineering and computer science degree program information.



Engineering Career Information: Engineers are the link between scientific knowledge and practical applications and combine various roles and functions in their job. What do engineers do?

- *Engineers are science-knowledgeable men and women who use mathematics, chemistry, and physics for an applied and innovative purpose*
- *Engineers do work that makes a difference: they use their imagination and creative talents to invent, design, or improve products that make life better*
- *Engineers are business people who design, test, manufacture, or sell a technical product or service, taking into consideration safety, quality, reliability, cost, societal impact, aesthetics, and ease of use*
- *Engineers are integrators who bring together skills and knowledge from different disciplines and fields for some technical purpose or application*
- *Engineers are creative problem solvers and doers; they make decisions and get things done in a combined science/technical/business/applied profession*
- *Engineers usually work in groups; they work with and travel to interact with a wide variety of people, including clients, scientists, other engineers, technicians, managers, and government officials*
- *Engineers are interested in how and why things work and like practical challenges*
- *Successful engineers are known for their analytical, imaginative, and creative skills, for their common sense, for being team players, and for continuing to improve and learn*



Computer Science Career Information: Computer and information science includes: operating systems, compilers, computer graphics and animation, computer networks, network administration, network security, information and database systems and database administration, artificial intelligence, digital forensics, computer game design, programming languages, software engineering, web technology, and robotics.

Engineering and CIS Career Information Web Sites: www.engin.umd.umich.edu/SRA/links



Employment Opportunities: Engineers and computer scientists are in demand in every segment of society affected by technology and computers. Engineers follow careers in research, design, testing, development, and manufacturing, as well as in management of technical projects or of industrial and business enterprises. Computer scientists and software engineers follow careers in virtually any company or organization that uses computers. Typical employment is found in:

- aerospace, bioengineering, defense and automotive industries
- any organization which employs database managers, computer systems administrators, or information technology specialists
- architectural, manufacturing, and commercial organizations
- companies that manufacture home appliances and industrial machinery
- government and commercial research laboratories
- the communications and semiconductor industry
- hospital systems
- electrical power generation and distribution utilities
- hospital and medical equipment companies
- digital forensics
- network and cyber security
- companies that design and build computers or their components
- software companies
- cell phone, cable, satellite, and consumer electronics
- the theme park industry
- careers in law, medicine, or homeland security
- mechanical toys industry



Admission Requirements for the College of Engineering and Computer Science

For freshman admission: 3.0 recalculated GPA or higher and composite score of 22 or higher on ACT
For undergraduate transfer admission from other colleges:
2.75 recalculated cumulative GPA; 2.75 separate mathematics and separate science GPAs

The University of Michigan-Dearborn: Office of Admissions and Orientation



(313) 593-5100



admissions@umd.umich.edu



www.umd.umich.edu

College of Engineering and Computer Science



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