Welcome

Engineering at UMass Dartmouth

The College aims to produce the best prepared workforce necessary to meet the challenges of the 21st century – clean energy and environment, health care and security – and to enhance economic prosperity and quality of life.
What is Engineering?

Transforming the ideas of today into the realities of tomorrow...and having FUN while doing it.

Engineers apply the principles of science and mathematics to develop economical solutions to technical problems. Their work is the link between perceived social needs and commercial applications.

Engineers are problem solvers!
Greatest Engineering Achievements of the 20th Century*

1. Electrification
2. Automobile
3. Airplane
4. Water Supply & Distribution
5. Electronics
6. Radio and Television
7. Agricultural Mechanization
8. Computers
9. Telephone
10. Air Conditioning & Refrigeration
11. Highways
12. Spacecraft
13. Internet
14. Imaging
15. Household Appliances
16. Health Technologies
17. Petroleum & Petrochemical Tech’n
18. Laser and Fiber Optics
19. Nuclear Technologies
20. High-performance Materials

*NAE  http://www.nae.edu/nae/naehome.nsf
21st Century Innovation Challenges

• Make solar energy affordable
• Provide energy from fusion
• Develop carbon sequestration methods
• Manage the nitrogen cycle
• Provide access to clean water
• Restore and improve urban infrastructure
• Advance health informatics
• Engineer better medicines
• Reverse-engineer the brain
• Prevent nuclear terror
• Secure cyberspace
• Enhance virtual reality
• Advance personalized learning
• Engineer the tools for scientific discovery

http://www.engineeringchallenges.org/
Potential Careers

- Device- and system-level design
- Manufacturing
- Marketing and sales
- Research and development
- Technology management
- Hardware and software design
- Entrepreneurship
- Education
- Medicine and Law
Educational Objectives

The overarching objective of our college curriculum is to provide our graduates with a solid foundation of knowledge and a level of skill that enables them to be productive and fulfilled professionals throughout their careers.

1. **Successful Careers**: Graduates of the program are pursuing successful technical or professional careers.

2. **Lifelong Learning**: Graduates of the program are continuing to learn and to adapt in a world of constantly evolving technology.

3. **Service**: Graduates of the program are performing service to society and the engineering profession through participation in professional societies, government, civic organizations, and humanitarian endeavors.
Undergraduate Majors

- Bioengineering
- Civil Engineering
- Computer Engineering
- Computer Science
- Electrical Engineering
- Mechanical Engineering
- Physics
Bioengineering is a broad interdisciplinary field working at the intersection of engineering, life sciences, and medicine to improve human health and well being. It is used in the design of medical devices, diagnostic equipment, biocompatible materials, renewable bioenergy, ecological engineering, and other areas that improve the living standards of societies.
Civil & Environmental Engineering

Civil & Environmental Engineers plan, design, construct and operate resilient infrastructure and develop solutions to environmental problems

www.umassd.edu/engineering/cen
Computer & Information Science

Computer Scientists solve complex problems numerically, design systems & software tools, and manage information & data base systems securely and effectively.
Electrical engineers design, develop and test electrical and electronic components and systems

Communications

Automotive

Medicine

Space

Aerospace

www.umassd.edu/engineering/ece
Computer engineers design, develop and test software and hardware for computer systems.
Mechanical Engineering

Mechanical Engineers develop, design, manufacture, test, and control the tools, devices, machines, engines, processes and systems that are the mainstay of modern society.

www.umassd.edu/engineering/mne
Physics

Physics is the most fundamental and all-inclusive of the sciences; its goal is to understand nature’s processes through experiment and theoretical analysis. Physicists explore earth and space; probe the structure of matter, and apply scientific knowledge to problems in energy, electronics, optics, materials, communications, environment, and medicine.

- Geophysics
- Astrophysics
- Nuclear Physics
- Theoretical Physics

[www.umassd.edu/engineering/phy]
Enrichment Opportunities

- Student Projects
- Minors
- UG Research
- Honors program
- COOP – Internships
- Study Abroad
- Entrepreneurship
- Service learning
IMPULSE Program
Integrated Math, Physics, Undergraduate Laboratory Science & Engineering

Features

• Studio-style learning
• Cross-disciplinary assignments
• Active, collaborative learning
• Teamwork, cooperation & accountability
• Technology-supported learning studios
• Communication skills development
• Science & Engineering Center with tutors
• Students need to be Calculus-ready (as determined by AccuPlacer entrance exam)
Freshman Summer Institute
1-week voluntary residential program for COE students intending to enroll

Activities

• Engineering Math

• Workshops on Teamwork, Leadership, Study Skills, Time Management, Test Anxiety

• Week-long, hands-on Design Project

• Career Speakers

• Poster presentation

• Get to know each other & campus

www.umassd.edu/engineering
Why Attend UMass Dartmouth College of Engineering?

- Engineering is a profession that is in demand
- We offer highly-respected, comprehensive, accredited degree programs
- Expert and dedicated faculty
- Individual attention; small class sizes
- Collaborative learning and professionalism
- First-rate labs and facilities for hands-on learning
- Co-curricular opportunities (Internships, Co-Op, international, research, service)
- Engaged and diverse student body (e.g., IEEE, ASCE, ASME Student Chapters)
- Support programs (Academic Resource Center; Career Services)
- A strong advising/mentoring system
- Access and affordability
- A friendly, supportive community in a great location
Websites:  http://www.umassd.edu
            http://www.umassd.edu/engineering
            http://mobile.umassd.edu/#_main

E-mail:  coe@umassd.edu
         admissions@umassd.edu

Main Campus:  (508) 999-8000
College of Engineering:  (508) 999-8539
Admissions:  (508) 999-8605
<table>
<thead>
<tr>
<th>Department</th>
<th>Chair/Representative</th>
<th>Office Location</th>
<th>Telephone/URL</th>
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</table>
| College of Engineering           | Dr. Robert Peck, Dean                  | Dion Building, Room 326       | 508.999.8539  
|                                  | Dr. Tesfay Meressi, Associate Dean    |                               | coe@umassd.edu  
|                                  |                                       |                               | http://www.umassd.edu/engineering/   |
| Bioengineering:                  | Prof. Kenneth Langley, Chair          | Textiles Building, Room 217   | 508.999.8448  
|                                  |                                       |                               | http://www.umassd.edu/engineering/bng/   |
| Civil & Environmental Engineering| Dr. Suku Sengupta, Chair              | Violette Building, Room 108   | 508.999.8464  
|                                  |                                       |                               | http://www.umassd.edu/engineering/cen/   |
| Computer & Information Science:   | Dr. Jan Bergandy, Chair               | Dion Building, Room 302       | 508.999.8265  
|                                  |                                       |                               | http://www.umassd.edu/engineering/cis/   |
| Electrical & Computer Engineering| Dr. Dayalan Kasilingam, Chair         | Science and Engineering       | 508.910.6619  
|                                  |                                       | Building, Room 213            | ece@umassd.edu  
|                                  |                                       |                               | http://www1.umassd.edu/engineering/ece/welcome.cfm |
| Mechanical Engineering:          | Dr. Sherif El Wakil, Chair            | Science and Engineering       | 508.999.8492  
|                                  |                                       | Building, Room 116            | http://www.umassd.edu/engineering/mne/   |
| Physics:                         | Dr. JP. Hsu, Chair                    | Science and Engineering       | 508.999.8354  
|                                  |                                       | Building, Room 203            | http://www.umassd.edu/engineering/phy/   |