**ELECTRICAL ENGINEERING**

**Program Objectives**

Electrical engineering is a challenging profession concerned with the design, development, fabrication, and control of electrical and electronic devices and systems. Students with a particular interest in the design and application of computer hardware and software systems should elect the computer engineering concentration. An electrical engineering minor is also available.

The undergraduate program is built on a foundation of physics, chemistry, and mathematics. It is broad-based but there are opportunities to specialize, particularly in digital systems, signal and image processing, robotics and controls, and in microelectronics including VLSI and semiconductor technology. Computer usage is integrated throughout the curriculum. The goal of the program is that students will be technically competent, will have good communications skills, be able to work as part of a team or independently, function well in a multi-skills setting, and be prepared for a lifetime of learning and professional growth.

**Degrees & Concentrations Offered**

- **Graduation Planner:** usm.maine.edu/advising/degreeplanning
- **Degree Offered:** Bachelor of Science
- **Majors Offered:** Electrical Engineering, Mechanical Engineering
- **Concentrations Offered:** Computer Engineering
- **Minors Offered:** Electrical Engineering, Mechanical Engineering

**Department of Engineering**

Gorham Campus, 149 John Mitchell Center
(207) 780-5287

Web Address: usm.maine.edu/engineering
Department News: usm.maine.edu/engineering/news

**Career Possibilities**

- Associate Engineer
- Broadcast Engineer
- Circuits Engineer
- Design Engineer
- E&I Maintenance Supervisor
- Electrical Controls Engineer
- Electrical Design Engineer
- Electrical Engineer
- Electrical Project Engineer
- Hardware Design Engineer
- Integrated Systems Engineer
- Power Systems Engineer
- Project Engineer
- Test Engineer

*Additional education, training or experience may be required.

**Acquired Transferable Skills**

- Active Listening
- Complex Problem Solving
- Critical Thinking
- Judgment & Decision Making
- Mathematics
- Monitoring
- Operations Analysis
- Reading Comprehension
- Speaking
- Time Management
- Writing

For more information on transferable skills go to:
usm.maine.edu/community-engagement-career-development/career-tools
### What can I do with this major?

<table>
<thead>
<tr>
<th>AREA</th>
<th>EMPLOYERS</th>
<th>INFORMATION/STRATEGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic Controls</td>
<td>Industries including: Aerospace, automotive, computer &amp; electronics manufacturers, transportation, telecommunications, guidance &amp; control systems, defense, electric power &amp; energy, semiconductor, electronics, environmental, medical equipment, chemical, pharmaceutical, computer, pulp, paper, textile, metal</td>
<td>• Broad discipline applies engineering principles to the design and production of electronic systems and electrical devices.</td>
</tr>
<tr>
<td>Bioelectronics</td>
<td></td>
<td>• Prepare for a course load including engineering fundamentals, math, science and electrical engineering.</td>
</tr>
<tr>
<td>Digital Systems</td>
<td></td>
<td>• Pursue design projects and laboratory experience throughout college career.</td>
</tr>
<tr>
<td>Electromagnetics</td>
<td>Scientific service companies</td>
<td></td>
</tr>
<tr>
<td>Analog Electronics</td>
<td>Technical service companies (intelligence, information systems, defense)</td>
<td>• Seek related experience through research, internships, co-ops or part-time employment.</td>
</tr>
<tr>
<td>Power &amp; Energy Systems</td>
<td>Federal government: Armed forces National Institute of Standards &amp; Technology</td>
<td>• Join student chapters of industry organizations such as Institute for Electrical and Electronics Engineers (IEEE) to develop communication and leadership skills, to participate in competitions and to take advantage of professional networking opportunities.</td>
</tr>
<tr>
<td>Communications &amp; Signal Processing</td>
<td>Dept. of Defense, Energy, &amp; Transportation National Institutes of Health</td>
<td></td>
</tr>
</tbody>
</table>

*To learn about these areas and much more visit: whatcanidowiththismajor.com/major  © 2011 What Can I Do With This Major

### Enrichment Opportunities

**Internships**
For more information contact the Department of Engineering.
[usm.maine.edu/cecd](usm.maine.edu/cecd)

**Study Abroad**
For more information contact the USM Office of International Programs.
[usm.maine.edu/international/study-abroad](usm.maine.edu/international/study-abroad)

**Clubs & Organizations**
Leadership Development Board Student Senate. For a complete list of student organizations:
[webapp.usm.maine.edu/pathways/list](webapp.usm.maine.edu/pathways/list)

**USM Corporate Partners**
The USM Corporate Partners are over 350 business people, from nearly 100 companies. [usm.maine.edu/corporatepartners](usm.maine.edu/corporatepartners)

### Helpful Career Links

**USMCareerConnections:**
USM’s career network for job and internship searches. [usm.maine.edu/community-engagement-career-development/usmcareerconnections](usm.maine.edu/community-engagement-career-development/usmcareerconnections)

**O*NET OnLine:**
Learn more about a career opportunity by researching it with O*NET. [onetonline.org](onetonline.org)

**Occupational Outlook Handbook:**
Learn more about a career opportunity by researching it with OOH. [bls.gov/ooh](bls.gov/ooh)

**PROFESSIONAL ASSOCIATIONS To name a few...**
- TSA – Technology Student Association
- ASME – American Society of Mechanical Engineers
- NSPE – National Society of Professional Engineers
- NAE – National Academy of Engineering
- EWB-USA – Engineers Without Borders USA