FREQUENTLY ASKED QUESTIONS
Department of Electrical and Computer Engineering

1. What is Electrical and Computer Engineering?

The application of engineering skills to solving problems, designing, prototyping, and doing R&D in:

- Computer hardware and software
- Telecommunications
- Control systems
- Embedded systems
- Signal and image processing
- Antennas and radar
- Electro-optics
- Electronic circuits, devices
- Nanotechnology
- Biomedical/ bioengineering

2. What are the differences between Electrical Engineering and Computer Engineering?

Electrical engineers often work in teams and perform a variety of tasks such as designing components and systems, planning and organizing engineering tasks, prototyping electrical/electronic/computer/communication systems, and directing groups of engineers and technicians. Computer engineers develop the technological possibilities inherent in the design, construction and operation of computer systems. The computer engineer performs a wide variety of tasks involving hardware, software, peripherals, computer-controlled systems and hardware-software integration.

3. What is the difference between Computer Engineering and Computer Science?

Computer Science (CPS) is concerned with the study of algorithms and their implementation in the environment of computer hardware and system software. Computer scientists design the hardware and systems software used by other computing professionals. Computer Engineering (CPE) is concerned with the application or embedding of computer hardware and software in engineered products for industry and consumers. This is an engineering discipline much like civil, industrial, or mechanical engineering.

4. How long does it take to get a double major in ELE and CPE? How about a minor?

It takes an extra 16 credits to double major in ELE and CPE which would take an extra semester to complete.

The minor requirements are determined by the individual departments, typically range from between 15 and 21 hours, and may include specific course requirements. Minors are typically monitored by the student and the advisor until graduation time. At this time, an assistant dean certifies completion of the minor and records this on the final transcript.

5. Is there a difference between double major and double degree in ELE and CPE?

Yes, the main difference is that at graduation you will receive two degrees when you double degree compared to double majoring. Also, to double degree, it requires an additional 30 credit hours to be completed.

6. How is Electrical and Computer Engineering relevant to everyday life?

In a modern technological society, Electrical and Computer Engineers have a hand in almost all daily lives. Their work can be seen in cell phones, medical equipment as well as daily desktop computers. It is currently the fastest growing segment of engineering, with over half

of American engineering projects including either Electrical or Computer engineering. Electrical and Computer engineers enjoy nearly top salaries in engineering at all educational levels.

7. What are the typical jobs Electrical and Computer Engineers do?

Recent graduates are now employed with such firms as Altera Corporation, B.F. Goodrich, GE Aircraft Engines, Honda Corporation, Intel Corporation, Sprint/Nextel and Wright Patterson Air Force Base. Possible careers include:

- Aerospace electronics
- Antenna design
- Audio systems
- Automated manufacturing
- Automotive electronics
- Biomedical engineering
- Communication systems
- Computer design
- Computer engineering
- Education
- Electromagnetics
- Electronics and microelectronics
- Electro-optics
- Engineering management
- Industrial electronics and control Instrumentation
- Medical electronics
- Microwave systems
- Music Synthesis
- Patent law
- Photonics
- Power generation and systems
- Process control
- Quantum electronics
- Radio and television systems
- Robotics
- Signal, image and video processing
- Technical writing
- Ultrasonics

8. What kind of things do our graduates say about our program?

- "The professors in ECE are amazing people with an intense enthusiasm to convey their knowledge and experience; while students benefit from their willingness to take time out to aid individuals."
- "The ECE department offers a unique blend of hands-on activities, mathematical theory, and computer programming."
- "I would encourage anyone willing to tackle the rigors of undergraduate engineering to enter the Department of Electrical and Computer Engineering at UD; as it is bound to be one of the best decisions of your life. It was for me."
  ~Rebecca Ossio, B.S. in ELE 2006
- "Over the past few years the Electrical and Computer Engineering Department at UD has become my home. Small class sizes and friendly professors have created an environment where the students get to know their professors on a personal as well as professional level."
- "This academic atmosphere allows for collective learning with other students and friendships that will last for the rest of my life. I have nothing but praise for the department that has molded me into the engineer I am today."
  ~David Krivonak, B.S. ELE & CPE 2007 (Now with Sprint Nextel: Network Engineer I)

- "The ECE faculty strive to teach the importance of developing talents in a number of areas. In this pursuit, they expect more from their students and work hard themselves to present the material in a manner conducive to learning."
  ~Joseph Meola, B.S. CPE 2004, M.S. ELE 2006 (Now a Research Scientist with the Air Force Research Labs working on advanced imaging systems)
- "The faculty members that make up the ECE program are a rare breed of college engineering professors. Their attentiveness to students' interests and their eagerness to give a guiding hand has had a significant impact on the quality of my educational experience at The University of Dayton."
- "In all manners of professional teaching and personal interactions, the ECE faculty have time and again demonstrated their passion for engineering, and, more importantly, a desire to show the next generation of engineers why they love what they do."
  ~Jon K. Engelsman, B.S. ELE & B.S. MEE 2007

9. I hear that Electrical or Computer Engineering Programs have a lot of Math requirements. Is that true?
Students take five math courses (18 credits). Most of the engineering disciplines require four to five math courses.

10. Are the courses in Electrical Engineering and Computer Engineering mostly theoretical?
No, the department offers a blend of mathematical theory, computer programming, and hands-on activities.

11. How does the curriculum in Electrical Engineering or Computer Engineering compare with other majors in Engineering?
The Electrical and Computer Engineering department prides itself on our world-class curriculum, which is flexible and updated regularly to meet the changing needs of government, industry, and academia. We offer more technical electives and lab classes (with hands-on activities) than any other engineering majors.

12. Why should I consider University of Dayton's Electrical Engineering or Computer Engineering Programs?
UD's Electrical and Computer Engineering Department offers state of the art courses in Electrical Engineering and Computer Engineering, taught by highly qualified faculty. Our department is one of the few in UD to have professors who have won top awards in teaching and scholarship at the University of Dayton. Our department faculty includes world renowned teachers and researchers who have authored several text books, published extensively in national and international journals. We pride ourselves on our world class curriculum updated periodically to meet the changing needs of government, industry and academia. We offer more technical electives and hands-on-laboratory classes than other engineering majors. ECE department offers a multidisciplinary concentration of electro-optics to enable students to pursue new careers in photonics, an important technology that impacts computers, communications and electronics. The department also provides an accelerated program that allows students to complete their master's degree within a year after completion of their bachelor's degree. Graduate education leading to masters and doctoral

degrees provides students with enhanced career opportunities and allows them to excel professionally. Graduates of the Electrical and Computer Engineering program are consistently well placed in government and industry. Our department is completing 100 years at the University of Dayton in August 2010!

13. What's unique about UD's Electrical Engineering or Computer Engineering programs?
The electrical engineering program at the University of Dayton is accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET). The mission of the department, as well as the University of Dayton, is to develop students' skills and knowledge in order to learn, lead, and serve in their profession and community.

14. Can students do Co-op programs as part of their curriculum?
All students majoring in engineering and engineering technology may participate in the cooperative education program. Students alternate semesters of full-time study with full-time work experience in positions related to their major. Generally, students remain with the same employer during alternating terms. Most students are eligible to interview for their first work term during their third semester of full-time study. Before beginning the co-op program, the interested student is required to have a Work/Study Calendar form signed and approved by the Electrical and Computer Engineering chairperson and the director of Cooperative Education.

15. Whom should I contact regarding co-op opportunities in Electrical and Computer Engineering?
For information on co-op opportunities, contact the Cooperative Education program office (KL 261); http://careers.udayton.edu.

16. What are the typical companies UD Electrical and Computer Engineering students co-op at?
Opportunities regularly exist at the University of Dayton Research Institute (UDRI) and Wright Patterson Air Force Base (WPAFB). Students in the past have co-oped with companies such as:

- AK steel Corporation
- Anheuser-Busch, Inc.
- A.O Smith Electrical
- Avery Dennison
- Barco Simulation, LLC
- Cooper Tire & Rubber Company
- CISCO
- DRS Intelligence and Avionic Solutions
- Eaton Corporations
- FirstEnergy Corp.
- GE Aviation
- GE Consumer and Industry
- Honda Engineering North America, Inc
- Honda Transmission Mfg. of America Inc.
- INTEL Corp.
- Lafarge North America
- Marathon Petroleum Company LLC
- Miller Brewing Company
- Mound Laser & Photonics Center, Inc.
- PC Krause and Associates
- Premier System Integrators, Inc.
- Products Company

- UDRI Structural Integrity Div., IMMC
- Wright-Patterson Air Force Base
- YSI Inc.

17. What companies come to UD to recruit Electrical and Computer Engineering students?
There are a variety of companies that come to UD to recruit Electrical and Computer Engineering students.   Many of the companies are listed in 16.

18. Are there part-time jobs on campus that Electrical and Computer Engineering students can do?
The University has a wide range of part-time employment available for all students. Electrical and Computer Engineering students may find work either through the Office of Student Employment, or limited jobs through the Department of Electrical and Computer Engineering.

19. Are there opportunities to work on research projects at UD, as Electrical and Computer Engineering students?
Yes, we have opportunities for students to work with our professors and, with University of Dayton Research Institute (UDRI) researchers on engineering research projects. These are "for-pay" projects where the students gain valuable experiences and financial support.

20. What is the Innovation Center? What do students do in the Innovation Center?
It is a transformational space on the first floor of Kettering Labs where all disciplines within our School and throughout the University come together to encounter, debate, address, investigate and solve multi-faceted questions.
It has five major areas:
- Design, simulation and product realization center
- Conference and multimedia center
- Collaborative learning studio
- Demonstration and display center including resource library
- Administrative and faculty offices

The facilities encourage increased cross-campus collaborations, building on the University's strengths in business entrepreneurship, science research, and law and technology.   The center is also a location for onsite and online undergraduate courses such as engineering law, engineering project management, finance for engineers, product development and entrepreneurial ventures. ECE students will be part of multi-disciplinary teams in the Multi-disciplinary engineering design courses. State of the art projects sponsored by industry will be undertaken by student teams, mentored by faculty members in the innovation center. Some of the research projects have resulted in patents for the university with students as inventors. Also, student teams have developed prototypes for startup companies with innovative solutions. Students working in the multi-disciplinary design projects have also competed and won top prizes in the School of Business Administration's business plan competition.

21. How is academic advising done in Electrical and Computer Engineering?

All first year Electrical and Computer Engineering students will be advised by a team of advisors out of the Dean's office. By the end of first semester of attendance, students will be assigned a specific academic advisor from within the Electrical and Computer Engineering department faculty.   Students and faculty advisors are expected to meet at least once a semester to check progress and provide assistance in scheduling. All course registration, drop/add, minor/concentration selection, thematic cluster registration, and other such activities require approve of the academic advisor. In case an advisor is unavailable and the matter cannot be delayed, the students should make an appointment to consult the Electrical and Computer Engineering chairperson.

22. How do I select classes and register classes every term?

All class selection occurs via https://porches.udayton.edu/ . Students will be able to select courses they are interested in via that site approximately one month before their registration date. These classes must then be approved by their advisor. Once approved, students will be able to schedule online at their assigned registration time.

23. Are faculty members easily accessible?

Faculty members are very accessible as the can be reached through email, office hours, and/or by phone. Each term, the faculty's syllabus will give his or her availability.

24. Will I have access to all of the software tools necessary for my classes all the time?

Computer facilities are readily accessible to all engineering students, and students receive early training in the use of industry-standard engineering design tools. Students can access the software tools from anywhere.

25. Are there any departmental scholarships available?

Yes, they include the Dean of Engineering Scholarship, Department Chairman's Scholarship, and the Department Scholarship. There are additional undergraduate student scholarships being established for Electrical and Computer Engineering students.

26. How do I apply for departmental scholarships?

Students do not apply for these. A student's admittance to the school and application is what qualifies them. ACT/SAT scores are taken into account when awarding these scholarships.

27. Are there opportunities to participate in professional organizations related to Electrical and Computer Engineering?

Electrical and Computer Engineering students may participate in student chapters of national organizations such as the Institute of Electrical and Electronic Engineers (IEEE) and the Association for Computer Machinery (ACM). These organizations provide an outlet for networking and provide sources for involvement in academic, social and competitive activities. The University of Dayton is one of only a few universities in the nation offering service clubs in engineering including ETHOS (Engineers in Technical Humanitarian Opportunities for Service-learning).

28. How can I become a student member of a Professional Organization?
Students interested in joining can attend any of the meetings held by the organizations.

29. Are there other extra-curricular activities that students can participate in?
The University of Dayton is one of only a few universities in the nation offering service clubs in engineering including ETHOS (Engineers in Technical Humanitarian Opportunities for Service-learning). Many students also participate in service organizations such as Big Brothers Big Sisters of America and Habitat for Humanity. In addition, students can join a wide variety of club and intramural sports offered by the University.

30. What is the 5-year BS/MS program?
The 5-year BS/MS program is an accelerated program which allows undergraduate students to take two graduate level courses in place of undergraduate non-design Tech electives. Following completion of their undergraduate degree, they then will take an additional 24 graduate credit hours to complete the M.S. degree requirements.

31. When is a student eligible to apply for the 5 year BS/MS program?
Students with a GPA of 3.25 or better are eligible to apply as early as second semester of the junior year.

32. What specializations are available at the MS level for a 5 year BS/MS student?
Students may choose a specialization in Telecommunication Engineering, Signals and Systems or Digital Systems.

33. Can I get my BS degree after fulfilling the course requirements for BS, if I signed up for 5 year BS/MS program?
Yes, students will receive their B.S. degree upon successful completion of their undergraduate requirements

34. Is a 5 year BS/MS student eligible for Graduate Assistantships?
For qualified students, Graduate tuition scholarships and Teaching/Research Assistantships are available, upon completion of their undergraduate requirements. Students with Graduate Assistantships will need to complete a thesis as part of their MS degree program.