Undergraduate Student Handbook 2004-2005

College of Engineering and Engineering Technology

Electrical Engineering
Industrial Engineering
Mechanical Engineering Technology

http://www.ceet.niu.edu
Notice

After publication of this student handbook and the 2004-2005 Undergraduate Catalog, the university governance and administrative processes may create changes in the academic calendar, admission and graduation requirements, academic programs, course offerings, regulations, staff, and tuition and fee charges. Such changes take precedence over handbook and catalog statements. While reasonable efforts will be made to publicize such changes, a student is encouraged to seek current information from appropriate offices, because responsibility for complying with all applicable requirements ultimately rests with the student.

Although the university attempts to accommodate the course requests of students, course offerings may be limited by financial, space, and staffing considerations, or may otherwise be unavailable. Many undergraduate students in the College of Engineering and Engineering Technology choose to take less courses per semester than set forth in this handbook, or may not initially meet course prerequisites. Nothing in this handbook and the Undergraduate Catalog may be construed to promise or guarantee registration in any course or course of study (whether required or elective), nor may anything be construed to promise or guarantee the completion of an academic program within a specified length of time.

References

Northern Illinois University, 2004-2005 Undergraduate Catalog

Schedule of Classes available online every summer/fall (combined) and spring term during the 2004-2005 academic year

Northern Illinois University Articulation Handbook for Illinois Community Colleges, July 2004

Northern Illinois University, 2004-2005 Student Handbook

Northern Illinois University is an equal opportunity institution and does not discriminate on the basis of race, color, religion, sex, age, marital status, national origin, disability, or status as a disabled or Vietnam-Era Veteran. The Constitution and Bylaws of Northern Illinois University afford equal treatment regardless of political views or affiliation, and sexual orientation.
Welcome Majors

The College of Engineering and Engineering Technology welcomes you to the 2004-2005 academic year. We are sure that your academic stay at Northern Illinois University will provide some challenges and rewarding experiences to you.

This student handbook has been developed as a convenient reference for advising and therefore contains information on requirements for an undergraduate degree in a major in the College of Engineering and Engineering Technology. The primary reference for the material contained in this handbook is Northern Illinois University’s 2004-2005 Undergraduate Catalog. You are advised to read the pertinent areas of the Undergraduate Catalog to obtain an in-depth knowledge of the requirements for your undergraduate degree. You are ultimately responsible for reading the information in this booklet and the Undergraduate Catalog to fulfill all graduation requirements accordingly.

We feel that advising is an important component of the baccalaureate experience in the College of Engineering and Engineering Technology. Plan on meeting with your faculty adviser each semester in order to discuss the next semester’s enrollment and career plans.

The Office of the Associate Dean handles all undergraduate academic affairs. Please feel free to contact this office in room 331 of the Engineering Building, DeKalb campus or call (815) 753-1442 if you have any questions or need assistance.

Best wishes for a successful academic experience.

Sincerely,
Promod Vohra, Acting Dean
Mansour Tahernezhadi, Acting Associate Dean
Established in 1985, the College of Engineering and Engineering Technology is the newest college at NIU. The college shares the university’s commitment to the transmission, expansion, and application of knowledge through teaching, research, and public service. The college has strong commitments to students, the general public, community colleges, and industry, and offers undergraduate and graduate programs in engineering and technology fields applicable to the region’s current and potential industrial mix. To foster the professional growth of its students, the college supports and encourages social, cultural, and professional activities of the student chapters of national engineering and technology professional societies. The college has 48 faculty members and approximately 1,600 undergraduate and graduate students.

The college has four departments: Electrical Engineering, Industrial Engineering, Mechanical Engineering, and Technology (Electrical Engineering Technology, Manufacturing Engineering Technology, and Industrial Technology). All departments offer undergraduate Bachelor of Science (B.S.) and graduate Master of Science (M.S.) degrees. The undergraduate programs in electrical engineering, industrial engineering, and mechanical engineering are accredited by the Accreditation Board for Engineering and Technology (ABET). The Engineering Technology programs (Electrical Engineering Technology and Manufacturing Engineering Technology) are developed as appropriate according to ABET criteria and the Industrial Technology program is accredited by the National Association of Industrial Technology (NAIT).

Students intending to major in Electrical Engineering, Industrial Engineering, Mechanical Engineering, or Technology are directly admitted to these majors upon their admission to the university. The Nuclear Engineering Technology program is a restricted-admission program. The Nuclear Engineering Technology alternative is available only to employees of electric power companies who have, or are completing, the United States Nuclear Regulatory Commission’s Reactor Operator Licensure training.
Facilities

In addition to the main Engineering Building, the College of Engineering and Engineering Technology has two other locations on campus. The Office of the Dean, the Associate Dean, and the Departments of Electrical Engineering, Industrial Engineering, and Mechanical Engineering are located in the Engineering Building on Garden Road. The administrative and faculty offices, classrooms, and laboratories for the Department of Technology are housed in Still Hall and Still Gym (on the corner of Gilbert Drive and College Avenue).

Northern’s Engineering Building includes over 29 laboratories for electrical, industrial, and mechanical engineering students including a computer center; a “clean room” for a state-of-the-art microelectronics laboratory; a flexible manufacturing systems laboratory for “just-in-time” processing; a sub-sonic wind tunnel and advanced thermo fluids laboratories. The Engineering Building is located on the northeast corner of the DeKalb campus.

Several computer systems such as Hewlett-Packard, SUN Microsystems, and Pentium Personal Computer stations are available to students for coursework and research. In addition, the college has direct access to NIU’s Amdahl mainframe system and national supercomputer centers. The ongoing academic and research programs are supported by a number of modern laboratories within the college. Some of the labs are:

- Acoustic Signal Processing Lab (electrical engineering)
- Automated Manufacturing Lab (technology)
- CAD/CAM Lab (mechanical engineering)
- Communications Lab (electrical engineering)
- Computer Engineering Lab (electrical engineering)
- Computerized Data Acquisition & Lab View (mechanical engineering)
- Controls and Robotics Lab (electrical and mechanical engineering)
- Dynamic Systems and Controls Lab (mechanical engineering)
- Electrical Engineering Technology Lab (technology)
- Electrodynamics Lab (electrical engineering)
- Ergonomics Lab (industrial engineering)
- Fluids Dynamics Lab (mechanical engineering)
- Fluids and Hydraulics Lab (technology)
- Heat & Mass Transfer Lab (mechanical engineering)
- Integrated Circuit Design Lab (electrical engineering)
- Laser Measurement & Image Processing Lab (mechanical engineering)
- Logistic Lab (industrial engineering)
- Manufacturing Machining Lab (technology)
- Manufacturing Lab (industrial engineering)
- Materials Analysis Lab (mechanical engineering)
- Measurement and Control Lab (industrial engineering)
- Metrology Lab (technology)
- Microelectronics Fabrication & Characterization Lab (electrical engineering)
- Plastics Technology Lab (technology)
- RF Development Lab (electrical engineering)
- Robotics and Intelligent Systems Lab (electrical engineering)
- Senior Design Lab (electrical engineering)
- Solid Mechanics Lab (mechanical engineering)
- Undergrad Circuit Design/Analysis Lab (electrical engineering)
- Vibrations Lab (mechanical engineering)
- Welding Technology Lab (technology)
- W9NIU/amateur radio station (electrical engineering)

Visit our webpage at www.ceet.niu.edu for a detailed lab tour
The Department of Technology offers a baccalaureate degree completion program for students from Northern Illinois who hold an Associate of Applied Science (A.A.S.) Degree. The B.S. in Industrial Technology is offered at NIU’s Rockford Education Center and Elgin Community College. These programs are designed to broaden a student’s education into the field of industrial supervision, preparing them for management positions. Most students pursue this program part-time, thus classes are held during the evening and sometimes on Saturdays at various instructional centers. All off-campus courses in this program are taught by regular and adjunct faculty from the Department of Technology.

The box to the right contains the capstone courses offered at the off-campus sites. However, there are additional “selected” classes offered that are not listed here.

Prospective students must seek admission through NIU’s Admission’s Office in the same manner as all other prospective students. However in addition to the standard evaluation of credits, their transcripts will be reviewed by the Department of Technology for additional credit for courses in technology which do not match NIU courses directly. Once admitted, students can register via NIU’s telephone registration systems (TRACS) or WebCONNECT registration, their official academic records will be maintained by the NIU’s Office of Registration and Records, and their financial records will be maintained by NIU’s Bursar Office.
Distance Learning

Northern Illinois University students can take NIU courses at additional locations via the video conferencing system. These opportunities are made possible through NIU’s membership in the West Suburban Higher Education Consortium and the Fox Valley Educational Alliance. Classes are taught live from a video conferencing classroom and sent to other sites via the videoconferencing system. These interactive classes offer two-way video and audio instruction. Students can see their instructor, and classroom lectures and discussions take place as in any college class. A delivery system is in place to move course materials between the students and instructors. No additional fees are charged for videoconferencing classes.

In addition to video conferencing systems, online education is the latest medium for delivery of courses. Course offerings can be found online at NIU Course Finder. Additionally, listings of courses offered at NIU’s Regional Sites, including NIU-Rockford, NIU-Hoffman Estates, and NIU-Naperville, can be found online at www.outreach.niu.edu/rcc.

Community College Transfer Guidelines (2+2+)

The College of Engineering and Engineering Technology welcomes transfer students from Illinois community colleges. Students find it easy to continue their studies at NIU if they plan well. Therefore, following CEET transfer guidelines while completing an Associate’s Degree is highly recommended. However, students should always work closely with their community college advisor.

To date, 9 transfer guidelines have been developed. These guidelines are published on the college webpage at www.ceet.niu.edu.

The guidelines cover the following subjects:
• General description of the engineering discipline
• Description of the degree program at CEET
• Suggested classes to take at the community college
• (There is a limit of 66 semester hours of transfer credit)
• Explanation of general education sequence requirements to satisfy ABET requirements
• Remaining classes to take for 2+ years at CEET
• Contact information at CEET and the community college

College of DuPage
(Glen Ellyn, IL)
Elgin Community College
(Elgin, IL)
William Rainey Harper College
(Palatine, IL)
Kishwaukee Community College
(Malta, IL)
McHenry County College
(Crystal Lake, IL)
Moraine Valley Community College
(Palos Hills, IL)
Oakton Community College
(Des Plaines, IL)
Rock Valley College
(Rockford, IL)
Waubonsee Community College
(Sugar Grove, IL)
College Administration

Acting Dean
Dr. Promod Vohra
321 Engineering Building
(815) 753-2256
FAX (815) 753-1310

Acting Associate Dean
Dr. M. Tahernezhadi
331 Engineering Building
(815) 753-1442
FAX (815) 753-0362

Dean Emeritus
Dr. Romualdus Kasuba
31 Engineering Building
(815) 753-753-1310

Engineering & Technology Outreach Director
Dr. Deborah Brue
318 Engineering Building
(815) 753-6902
FAX (815) 753-4203

Chairman Mechanical Engineering
Dr. Shin-Min Song
226 Engineering Building
(815) 753-9979
FAX (815) 753-0416

Chairman Technology
Dr. Clifford Mirman
203 Still Gym
(815) 753-1349
FAX (815) 753-3702

Chairman Electrical Engineering
Dr. Sen-Maw Kuo
330 Engineering Building
(815) 753-9974
FAX (815) 753-1289

Interim Chairman Industrial Engineering
Prof. Dennis Stoia
230 Engineering Building
(815) 753-1269
FAX (815) 753-0823
Office of the Associate Dean

The Office of the Associate Dean is responsible for undergraduate academic matters including curriculum, student records, admissions, orientation, and special advising needs. All academic forms requiring college approval must be submitted to this office. All important dates and events are posted on the college’s electronic message board. Students also are advised to consult the Schedule of Classes to obtain more information on important dates, final exams, class schedules etc. Some of the forms/requests which may be obtained from the Associate Dean’s Office are the following:

- Course/University Withdrawal forms
- Overload Petition
- Approval for Late Schedule Update (late add/drop)
- Concurrent Registration (enrollment) Request at another university or community college
- Senior Transfer Credit Request
- Petition to Waive University Graduation Requirements
- Permission for Third Enrollment/repeat of a course
- Petition to Change Credit Type (regular grading/pass fail)
- Adjustment or Substitution of Transfer Course Work (e.g., substitution of a transfer course for a NIU course)
- Substitution/Waiver of Major/Minor Requirements (e.g., substitution of a NIU course for a required NIU course)
- Trade Off of Transfer Credit

Student Advising and Faculty Advisers

Each student in the College of Engineering and Engineering Technology is assigned a faculty adviser upon enrollment in the university. The faculty adviser helps the student select the appropriate courses for registration every semester and guides the student’s overall academic goals. During the fall and spring semesters, advising periods are concurrent with TRACS Registration Timetables.

Engineering and technology majors must make appointments directly with their assigned faculty adviser during the advising periods to discuss future enrollment and career plans.

Each semester, all engineering majors are required to have their next semester schedule reviewed, approved, and signed by their faculty adviser. In addition, all general education courses in the humanities, arts, and social sciences must be approved by a faculty adviser. Any deviation from an approved course schedule may delay graduation. Engineering majors are required to obtain adviser approval on appropriate advising forms each semester. The student keeps one copy of each approved form and one copy remains in the student file.
Pass/Fail Option

Students are advised to consult the Undergraduate Catalog for specific requirements regarding the pass/fail option. The pass/fail option cannot be used for the following courses:

- Courses taken to satisfy a university or ABET general education requirement.
- Courses required for the major program, both from within the major department and from outside the major department.
- Courses required for the minor, both from within the minor department and from outside the minor department.

Dean’s List

At the end of each semester, the Office of Registration and Records ranks all students in the College of Engineering and Engineering Technology by class. All students who have a term and cumulative GPA of 3.5 or higher will be placed on the Dean’s List for the college and receive a certificate in recognition of their scholastic achievement for that semester.

Tutors

Each semester, the College of Engineering and Engineering Technology provides, at no cost to the student, tutors for mathematics (MATH 110, MATH 155, MATH 229, MATH 230, MATH 232, MATH 336), physics (PHYS 250, PHYS 251, PHYS 250A, PHYS 251A), computer science (CSCI 240), and English courses (ENGL 103, ENGL 104) plus technical writing projects required in upper division engineering and technology courses. Enrolled students interested in tutorial help are advised to contact the Associate Dean’s Office in 331, Engineering Building for further information. The tutoring hours are also posted on the college’s web page & the electronic message board.

SET House

The College of Engineering and Engineering Technology sponsors an academic residential program which is a special housing option in Douglas Hall, on floors D-3 and D-4. This residential program, on a co-ed quiet lifestyle floor, is designed for freshman, sophomore, junior, and senior students in electrical engineering, industrial engineering, mechanical engineering, and technology.

The program brings together students with a common interest in engineering and technology in order to provide camaraderie, interaction of ideas, and support for academic achievement and retention. Program activities include formal and informal student/faculty interaction, career-building activities such as industrial speakers and field trips, and organized social events. Assignment to this floor is competitive and applications are available at the main housing office in Neptune East. Currently enrolled students must maintain a minimum cumulative grade point average of 2.30 to return to the floor in subsequent years. Exceptions to this rule may be made by the Associate Dean in unusual circumstances.

For further information about this special housing option for the 2004-2005 academic year, please contact Student Housing and Dining Services for a brochure.
Course Add/Drop

New courses may be added to a student’s schedule during the first week of classes of the fall or spring semester. After the first week of classes, students may add a class using the “Approval for Late Schedule Update” form only with the approval of the course department. Courses may only be dropped from a student’s schedule during the first week of classes of the fall or spring semester. (The drop period is shorter during the summer term and the summer Schedule of Classes booklet should be consulted.) The Schedule of Classes booklet specifies the exact day which is the last day for students to add and drop courses. Courses which are dropped by the published drop deadline do not appear on the student’s transcript. After the published drop deadline, course drops require approval of the college (Associate Dean’s Office) and are approved only in exceptional cases.

Course Withdrawal

After the published drop deadline in the Schedule of Classes booklet, all course load reductions become course withdrawals subject to the deadlines discussed in the Undergraduate Catalog and posted in the Schedule of Classes booklet. All course withdrawals do not appear on a student’s transcript. The College of Engineering and Engineering Technology enforces all published deadlines. Course withdrawals are processed in the Associate Dean’s Office in room 331 of the Engineering Building. A student may withdraw from a course after the established deadlines only in exceptional cases supported by acceptable evidence of serious illness or other major non-academic personal difficulty. If such approval is given, a “W” will be recorded for the course if the student is passing at the time of withdrawal; if the student is not passing at that time a grade of “F” will be recorded and included in both the term and cumulative GPA. Students who cease to attend a course in which they are enrolled without officially withdrawing will receive an “F” for that course.

The maximum number of hours from which a transfer student may withdraw during pursuit of a baccalaureate degree at NIU is determined by the number of hours of transfer credit accepted at the time of enrollment at Northern Illinois University plus all hours earned at NIU prior to enrollment, see withdrawal hour table.

University Withdrawal

An undergraduate student who desires to withdraw from the university must obtain a withdrawal form and permission to withdraw from the Associate Dean’s Office in room 331 of the Engineering Building. With such approval, a withdrawal may be made without penalty up to the end of the eighth week of the semester. When students officially withdraw from the university after the eighth week of the semester, their grades are recorded as “W” in the courses in which they are passing and as “F” in the courses they are failing at the time they leave the university. Students who withdraw from the university without permission will receive a grade of “F” at the end of the semester in each of the courses for which they are registered.

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<th>Withdrawal Hour Table</th>
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<tr>
<td>Transfer Plus Pre-enrollment NIU Hours</td>
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<tr>
<td>1-6</td>
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<td>7-5</td>
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<tr>
<td>16-30</td>
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<td>31-45</td>
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<td>46 or more</td>
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Academic Probation and Dismissal

The procedure and regulations for academic probation and dismissal are stated in the 2004-2005 Undergraduate Catalog. The Academic Policies Committee of the College of Engineering and Engineering Technology reviews the academic records of all students who are eligible for academic dismissal at the end of each fall, spring, and summer term. This committee is chaired by the Associate Dean and its members are the four department chairs or their designees. The committee usually meets on the Thursday following the commencement weekend. All students who are placed on academic probation or who are dismissed from the university for academic reasons at the end of the fall, spring, or summer term are notified by mail by the Associate Dean. Students placed on academic probation are expected to meet with their faculty adviser before their next enrollment to discuss steps to improve their academic performance. Additionally, students on academic probation must attend a group advising meeting held by the Associate Dean’s Office. Documentation of attendance at advising sessions is considered by the college in the review of students eligibility for academic dismissal.

PATAL: Peer-Assisted Tutoring, Advising and Learning

Project PATAL’s main purpose is to positively influence the retention of freshmen and sophomores (students who have yet to take engineering and technology courses). Typically, engineering and technology students take foundation courses for the first two years and then in the third year apply that foundation knowledge to engineering and technology courses.

PATAL is designed to simultaneously address the peer advising, learning and tutoring concerns of engineering and technology students. The project utilizes the existing network of student professional associations. Participating peer-students, representing a minimum of six student associations from all 4 departments within the college, provide 20 hours per week of assistance to freshmen and sophomores in foundation and beginning engineering courses. The project covers areas of advising, learning-skills, and tutoring. The peer-students are juniors and seniors that are capable of providing assistance to students at all levels. Additionally, there is a faculty member coordinating and assessing the project.

Since the college already provides tutoring assistance in physics, mathematics and English, project PATAL addresses tutoring needs in engineering and technology courses specifically. As part of project PATAL, exam files, preparational guides, home work examples, and examination/quiz samples are available for 200 level classes, which are often considered difficult by most engineering students. The college has provided for an office for PATAL and has reserved a section in the college library to keep the examination files along with other materials.
A number of student chapters of professional engineering and technology societies are available on campus for students to join. These student-run chapters often interact with regional chapters of the professional societies. Activities of these organizations include guest speakers from industry, career days, industrial field trips, social get-togethers, and participation in national competition projects. Students are encouraged to join these chapters in order to become more involved with their engineering or technology discipline. The College of Engineering and Engineering Technology student organizations work very closely with the associate dean’s office in fulfilling the mission of the college. These organizations are very active in mentoring “new entering” students and providing an environment in which they can succeed. Some specific activities of the professional societies include: developing binders for tests and quizzes, recruitment efforts, community service projects, peer tutoring, advising, mentoring, improving industrial relations, enhancing college recognition with the community, and lab renovation.
The University Honors Program provides a challenging educational experience for students of high academic promise and achievement who have a commitment to excellence. The program permits such students to participate actively in the plan and design of their own educational directions within the overall university and department curricula. Honors courses differ from other courses in that they encourage more open exchange between the student and the professor, both inside and outside the classroom. Students are encouraged to pursue a subject in depth and to develop their own interests through independent study.

The program welcomes not only freshmen but students who wish to enroll in the University Honors Program during or after the freshman year, either from within NIU, as a transfer student, or as graduates of a community college with an associate’s degree (A.A. or A.S.) in a baccalaureate-oriented program.

Honors students enroll in at least one honors course each semester. The freshman and sophomore years include small-enrollment general education courses. Junior and senior honor students can develop their own interests through seminars, independent study, and selected courses. Since all honors credit applies toward graduation requirements, honors students can complete the program without spending additional time working on their degrees. Students who successfully complete the requirements of the Honors Program graduate with special designation on their transcript and diploma.

The departments in the College of Engineering and Engineering Technology offer an honors section of one or more courses each semester which can be used to fulfill the requirements for the Honors Program. Students should consult their department and the Schedule of Classes booklet each term for available honors courses. The “H” suffix after a course number denotes the “Honors” section of that course.

For further information about the University Honors Program, please contact:

University Honors
Campus Life Bldg 110
Northern Illinois University
DeKalb, IL 60115
(815) 753-0694

Center for Access-Ability Resources (CAAR)

A wide range of services at NIU can be obtained by students with disabilities including, but not limited to, housing, transportation, adaptation of printed materials, testing accommodations, sign language interpreters, and advocacy with faculty and staff. Students needing such service or who want more information should contact the CAAR Office directly.

Center for Access-Ability Resources
University Health Services
Northern Illinois University
DeKalb, IL 60115-2879
(815) 753-1303
Career Planning and Placement Center

The Career Planning and Placement Center (CPPC) assists students in securing professional employment upon graduation also part-time employment and summer employment while enrolled. These cost-free CPPC services are available to all NIU students and alumni.

- Review the Career Planning and Placement Center homepage at www.niu.edu/cppc.
- Career counselors to help students and alumni with career related and job search concerns. Call 815-753-1641 to make an appointment.
- Victor eRecruiting – an online job search program for current students, available at www.niu.edu/cppc. Use your z number to access the system.
- Resume Critiques – walk-in and quick questions: Tuesday & Wednesday 12:00-4:00 Critiques via e-mail at resumes@niu.edu. Your resume will also be reviewed in a career counseling session.
- University-wide job fair during the fall and spring semesters, see who is coming by going to www.niu.edu/cppc.
- Part-time, temporary, and seasonal employment for current students.
- Explore major and career options at www.niu.edu/crc/major/Weblink.htm.
- Workshops on resume writing, interviewing skills, business dining etiquette & job search strategies.
- Job search workshops specific to engineering and technology needs.
- Campus interviews with employers offering varied career opportunities.

For additional information:
Bob Norwood
Placement Counselor,
Career Planning and Placement Center,
Campus Life Bldg.,
Room 220
Northern Illinois University
DeKalb, IL 60115-7200
Office: (815) 753-8335
Fax: (815) 753-7200
rnorwood@niu.edu
Cooperative Education/Internships

What is the Cooperative Education/Internship Program?
The Cooperative Education/Internship Program is a centralized office that provides students with assistance in obtaining career related experience. All major areas of study are covered and divided among the Coordinators, or career counselors, as called in some schools. Services provided include assisting students with creating resumes and cover letters, job search techniques, interviewing skills, and any other career related issues. Assisting students is only one aspect of the Coordinator’s job. We are also responsible for employer relations including job development, off campus events, site visits, and internal career fairs. Coordinators have direct contact with employers via telephone and site visits.

Who can participate?
Requirements for participation include enrollment in an undergraduate or graduate program at Northern Illinois University, a minimum GPA of 2.0 for undergraduate students, and a minimum GPA of 3.0 for graduate students. You may apply any time beginning with the freshman year and prior to the last semester of the graduation year.

Why should I register with the Cooperative Education/Internship Program?
Engineering and Technology students have the opportunity of gaining career related work experience through cooperative education positions (co-op) and/or internships. You can obtain hands-on experience in engineering and technology through paid work experiences, which assists in defining areas of interest and testing career choices. The work experience helps you in the selection of technical electives and provides a smooth transition from the academic environment to the work environment.

What is the difference between an internship and a cooperative education position?
Internships are one time experiences and usually take place in the summer. They can be full time or part time, but they must be career related to be considered an internship.

Cooperative education positions can be alternating or parallel. Alternating co-ops provide the student the opportunity to gain more intense work experience related to the major by alternating multiple school semesters with multiple work semesters. A student will work a minimum of two semesters, however most students work three or more semesters. Alternating co-ops require a student to spend an additional year in school while gaining a whole year of work experience to add to the resume. The work experience often proves to be of great value in developing after graduation job opportunities. Students also benefit from the full time wages while participating in alternating co-ops.

Parallel co-ops involve working for the same employer for two or more semesters on a part time basis, while attending school at the same time.

Can I earn academic credit through an internship or co-op position?
The Cooperative Education/Internship Program does not offer academic credit for work experience.
Students who are seeking academic credit for cooperative education or internships must make arrangements with their professors and departments before the work experience begins. The Technology department offers academic credit with the TECH 409 course.

What are the services in the Cooperative Education/Internship Program?

The Cooperative Education/Internship Program provides an automated system via the Internet for students to refer resumes to employers. Co-op and internship opportunities are posted on line and can be sorted by location, major, company name, co-op or internship title, and keywords. Employers have access to viewing resumes on line, posting new opportunities, and participating in on campus interviewing. The Cooperative Education/Internship Program hosts two co-op/internship fairs per year; February and October.

How can I participate?

Register on line at www.recruitinterns.net. Contact the Cooperative Education/Internship office at 815-753-7138 to make an appointment with Angela Cline to have your account activated so that you may use the web services.

Benefits to Students:

- Earn career related experience to put on your resume
- Earn money to help pay for tuition expenses
- Gain knowledge and experience in your field of study

Reporting Placements: Why should I report the placement to the Co-op Office?

- Recognition on your transcript for having participated in a career related experience
- Opportunity to participate in the Co-op Student of the Month Award contest (the winner of the month receives a monetary reward and the chance to win Co-op Student of the Year Award Scholarship)
- To provide for your department with the necessary data which will enable them to maintain academic accreditation which, in turn, enhances your course transferability and after graduation employability.
- To help in establishing and continuing the NIU College of Engineering’s good reputation

For further information about the Cooperative Education/Internship Program at NIU, please contact:

Angela Cline, Cooperative Education/Internship Program
Campus Life Bldg 240 or Engineering Bldg 116
Northern Illinois University
DeKalb, IL 60115-2875
(815) 753-7201

Campus Life Building
The College of Engineering and Engineering Technology offers the scholarships listed below. Most scholarships have specific application criteria and deadlines. Recipients are selected by the college or department designated.

- AG Communication Systems Scholarship (full-time undergraduate EE majors, EE office)
- American Society of Safety Engineers Scholarship (technology majors, TECH Office)
- Association of Old Crows Scholarship (junior and senior engineering and hard science majors, EE, ME, IE, Physics, Math and Chemistry, EE office)
- Dean’s Diversity Scholarship for Freshmen and Transfers (all majors, Associate Dean’s Office)
- Energy Systems Group Scholarship Award in Engineering (incoming seniors in electrical engineering or mechanical engineering, Associate Dean’s Office)
- Ideal Industries Foundation Engineering Scholarship (junior and senior electrical engineering and mechanical engineering majors, Dean’s Office)
- Leadership Tuition Waiver for Women and Minorities (all majors, Associate Dean’s Office)
- Michael Marsden Memorial Scholarship (junior and senior mechanical majors, Dean’s Office)
- Northeastern Illinois Chapter NECA Scholarship (sophomore, junior, senior electrical engineering majors or engineering technology majors, Associate Dean’s Office)
- Omron Foundation Electronic Engineering Endowed Scholarship (junior and senior electrical engineering majors, EE Office)
- Shure Brothers Electrical Engineering Scholarship (junior and senior electrical engineering majors, EE Office)
- Society of Manufacturing Engineers (all majors, TECH Office)
- Society of Plastic Engineers (technology majors, TECH Office)

During the fall and spring semesters, the college occasionally receives information about scholarships sponsored by industry, professional organizations, or national agencies. This information is posted on bulletin boards outside the Associate Dean’s office and department offices. For further information on scholarships offered by a specific department or office, please contact that department office directly.
The College of Engineering and Engineering Technology encourages students and graduates of public community colleges to apply to Northern Illinois University to complete their engineering degree. Northern Illinois University permits students to transfer up to a maximum of 66 semester hours of community college credit.

Illinois public community college students are encouraged to complete as many of the required engineering courses listed below at the community college before transferring to NIU based on course availability at the community college. The Northern Illinois University Articulation Handbook for Illinois Community Colleges should be consulted for the equivalent course offered at the community college. For consideration for admission to an engineering major, the College of Engineering and Engineering Technology will only accept in transfer course work equivalent to the NIU calculus-based physics sequence PHYS 250A and PHYS 251A.

Recommended courses to complete at the community college (based on course availability): (Note: The articulation of these courses is listed in the Northern Illinois University Articulation Handbook for Illinois Community Colleges, which is available in the academic departments and the Office of the Associate Dean.) Also, NIU fully participates in Phase I and Phase II of the Illinois Articulation Initiative (IAI).

The College of Engineering and Engineering Technology honors the Illinois Articulation Initiative and recognizes the General Education Core Competency completion requirements for transfer students.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 210T &amp; 212, General Chemistry</td>
<td></td>
</tr>
<tr>
<td>COMS 100, Fundamentals of Oral Communications</td>
<td></td>
</tr>
<tr>
<td>CSCI 230, Computer Programming in FORTRAN (ME majors only)</td>
<td></td>
</tr>
<tr>
<td>CSCI 240, Computer Programming in C</td>
<td></td>
</tr>
<tr>
<td>ELE 210, Engineering Circuit Analysis</td>
<td></td>
</tr>
<tr>
<td>ELE 210U, Engineering Circuit Analysis Project (EE majors only)</td>
<td></td>
</tr>
<tr>
<td>ENGL 103, Rhetoric and Composition I</td>
<td></td>
</tr>
<tr>
<td>ENGL 104, Rhetoric and Composition II</td>
<td></td>
</tr>
<tr>
<td>MATH 229, Calculus I</td>
<td></td>
</tr>
<tr>
<td>MATH 230, Calculus II</td>
<td></td>
</tr>
<tr>
<td>MATH 232, Calculus III</td>
<td></td>
</tr>
<tr>
<td>MATH 336, Differential Equations</td>
<td></td>
</tr>
<tr>
<td>MEE 210, Engineering Mechanics I</td>
<td></td>
</tr>
<tr>
<td>MEE 211, Engineering Mechanics II</td>
<td></td>
</tr>
<tr>
<td>MEE 212, Strength of Materials (ME majors only)</td>
<td></td>
</tr>
<tr>
<td>MEE 270, Engineering Graphics (not required for EE majors)</td>
<td></td>
</tr>
<tr>
<td>PHYS 250A, Fundamentals of Physics I, calculus-based</td>
<td></td>
</tr>
<tr>
<td>PHYS 251A, Fundamentals of Physics II, calculus-based</td>
<td></td>
</tr>
<tr>
<td>PHYS 260, General Physics III (EE majors only)</td>
<td></td>
</tr>
<tr>
<td>UEET 101, Introduction to Engineering</td>
<td></td>
</tr>
</tbody>
</table>
University Requirements

The university requires a minimum of 120 semester hours for the baccalaureate degree. In fulfilling the 120 semester hour graduation requirement, no more than 8 semester hours may be counted in elective physical education activity courses, or more than 6 semester hours in workshop or special/multiple topic courses taken outside the student’s major or minor. These limitations include all transfer hours as well as NIU semester hours earned.

A minimum of 40 semester hours of the total semester hours required for graduation must be in courses numbered 300 and/or 400. These must include at least 12 semester hours of major departmental courses taken at NIU.

General education courses are courses required for all majors by the university for the completion of a baccalaureate degree. The required 29-41 semester hours in the general education program are divided into two groups. Some of the courses required for a major in the College of Engineering and Engineering Technology may also count as general education credit.

- Core Competency Requirements (0-12 semester hours). The core competencies cover reading, writing, listening, speaking, and mathematical skills.
- Distributive Studies Area Requirements (a minimum of 29 semester hours)
  - Humanities and the Arts (9-12 hours)
  - Science and Mathematics (7-11 hours)
  - Social Sciences (6-9 hours)
  - Interdisciplinary Studies (3-6 hours)

Major Requirements

The requirements for completion of a major in the College of Engineering and Engineering Technology are listed in the Undergraduate Catalog as follows. Some hours required for the major may also fulfill general education requirements.

- Major in Electrical Engineering: 106 hours (Total of 133 hours for B.S. Degree)
- Major in Industrial Engineering: 108 hours (Total of 129 hours for B.S. Degree)
- Major in Mechanical Engineering: 108/109 hours (135/136 hours for B.S. Degree)
- Major in Technology
  - Engineering Technology: 86-102 hours (124/125 hours for B.S. Degree)
  - Industrial Technology: 87-92 hours (120 hours for B.S. Degree)

Special Requirements for the B.S. Degree in Electrical, Industrial, and Mechanical Engineering

Candidates for the B.S. degree in electrical, industrial, and mechanical engineering must earn a minimum of 18 semester hours of course work in humanities, arts, social sciences, and interdisciplinary areas. Students must consult with their faculty advisers to determine appropriate courses. All engineering students must have their schedule reviewed, approved, and signed by their faculty advisers each semester. Any deviation from an approved course schedule may delay graduation.
The Department of Electrical Engineering

Mission Statement: The Electrical Engineering Department of the College of Engineering and Engineering Technology joins the university in its commitment to the transmission, expansion, and application of knowledge through teaching, research, and public service. In this commitment, the department features close interaction with area industries and foster an ongoing exchange of ideas to benefit its students, alumni, and the community at large.

The Department of Electrical Engineering offers a B.S., as well as, a M.S. degree program in electrical engineering. The undergraduate program is accredited by the Accreditation Board for Engineering and Technology (ABET). Students are directly admitted to this major upon their admission to the university.

The electrical engineering discipline involves design, development, and operation of systems that generate and use electronic signals. In the electrical engineering curriculum, students acquire both a fundamental and practical knowledge of electronic devices and circuits, electromagnetic fields, electronic materials, digital signals and systems, computers, and many forms of electronic design.

Educational Objectives

As an individual and as a member of a team, our graduates will be able to:

1. Demonstrate the ability to formulate, analyze and solve electrical engineering problems and ensures the ability to handle current, as well as, future engineering issues.
2. Demonstrate the ability to apply the design process to engineering problems.
3. Communicate effectively with those inside and outside of electrical engineering.
4. Exhibit social and professional responsibility in a global context.

Major industrial areas for electrical engineering employment are:

- Communication systems (two-way, cellular telephone)
- Digital systems (digital design, digital signal processing, image processing, computers, computer architecture)
- Control systems (analog and digital servomechanisms, nonlinear control systems)
- Electromagnetic fields, microwave systems (power electronics, radio frequency systems, microwave systems)
- Semiconductors (large-scale semiconductor integrated circuits, microelectronic devices and integrated circuits, thick and thin film hybrid circuits)
- Electronic circuit design (filters, special circuitry)

The suggested degree plan for the B.S. with a major in electrical engineering is shown on the next page. During the senior year, electrical engineering majors complete a two-semester senior design project which is the capstone of the electrical engineering curriculum. Students should consult the 2004-2005 Undergraduate Catalog for complete degree requirements.

Department of Electrical Engineering
Engineering Building Room 330
Northern Illinois University
DeKalb IL 60115
(815)753-9974
FAX (815)753-1289
Northern Illinois University  
Department of Electrical Engineering  
Suggested Four-Year Degree Plan  
(Ref: 2004-2005 Undergraduate Catalog)

FRESHMAN YEAR  
**FIRST SEMESTER: Total 15 hours**  
ENGL 103  Rhetoric and Composition I  3  
MATH 229\(^1\)  Calculus I  4  
CHEM 210T+212  General Chemistry & Lab  4  
UEET 101  Introduction to Engineering  1  
GEN-ED\(^2\)  Humanities from LA&S  3  

**SECOND SEMESTER: Total 18 hours**  
ENGL 104  Rhetoric and Composition II  3  
MATH 230  Calculus II  4  
PHYS 250A+250U  Fund of Physics I & Lab  4  
ELE 250  Computer Engineering I  4  
GEN-ED\(^2\)  Humanities from V&PA  3  

SOPHOMORE YEAR  
**FIRST SEMESTER: Total 18 hours**  
MATH 232  Calculus III  4  
PHYS 251A+251U  Fund of Physics II & Lab  4  
ELE 210+210U  Engr Circuit Analysis & Lab  4  
STAT 350  Intro to Probability and Statistics  3  
**or IENG 335**  Statistics for Engineering (3)  
COMS 100  Fund. of Oral Communication  3  

**SECOND SEMESTER: Total 17 hours**  
MATH 336  Ordinary Diff. Equations  3  
ELE 340  Electrical Power Systems  4  
PHYS 260  General Physics III  3  
**or IENG 335**  Statistics for Engineering (3)  
GEN-ED\(^2\)  Humanities LA&S or V&PA  3  

JUNIOR YEAR  
**FIRST SEMESTER: Total 17 hours**  
ELE 315  Signals and Systems  3  
ELE 330  Electronic Circuits  4  
ELE 335  Theory of Semiconductor Dev. I  3  
ELE 356  Computer Engineering II  4  
MEE 210  Engineering Mechanics I  3  

**SECOND SEMESTER: Total 17 hours**  
ELE 360  Communications Systems  4  
IENG 220  Engineering Economy  3  
ELE 370  Engineering Electromagnetics  3  
ELE 380  Control Systems I  4  
**or MEE 322**  Dynamic Systems and Control  
MEE 211  Engineering Mechanics II  3  

SENIOR YEAR  
**FIRST SEMESTER: Total 16 hours**  
ELE 491  Electrical Engr Dsgn Proposal  1  
TECH ELE\(^3\)  Technical Elective  3  
TECH ELE\(^3\)  Technical Elective  3  
TECH ELE\(^3\)  Technical Elective  3  
GEN-ED\(^2\)  Social Science  3  
GEN-ED\(^2\)  Interdisciplinary  3  

**SECOND SEMESTER: Total 15 hours**  
ELE 492  Electrical Engr Dsgn Project  3  
TECH ELE\(^3\)  Technical Elective  3  
TECH ELE\(^3\)  Technical Elective  3  
TECH ELE\(^3\)  Technical Elective  3  
GEN-ED\(^2\)  Social Science  3  

Total hours : 133

\(^1\)Need Placement Examination.

\(^2\)Your adviser must approve your general education courses.

\(^3\)Electives may be any ELE course numbered 400 or higher with the exception of ELE 491, ELE 492, and ELE 497. With the approval of the Department of Electrical Engineering, other mathematics, sciences, or engineering courses maybe used as electives. At least 12 of these 18 semester hours must be from the Department of Electrical Engineering.
The Department of Industrial Engineering

Mission Statement: The Department of Industrial Engineering is committed to achieving excellence in teaching, conducting research and preparing engineering professionals.

Educational Objectives: The department’s undergraduate program provides students with the knowledge, skills, and tools to model people-technology systems using the techniques of mathematics, science, and engineering; to design potential solutions to problems and evaluate the consequences of their solutions in the broader context of the organization, society, and the environment; to communicate effectively the benefits of their proposed solutions using written, oral, and electronic media; to function effectively and provide leadership within an organization as a professional and ethical member of society, including the ability to facilitate and participate in multi-disciplinary teams; and to initiate and complete self-directed learning for professional and personal development especially with respect to contemporary issues.

Industrial Engineering is a system-oriented discipline, which involves the design, installation, management, operation, and improvement of systems that produce goods and services. This discipline follows an integrated approach throughout the entire life cycle of a product or service, from design to production, delivery, and consumer support. Industrial engineers are employed by a broad variety of organizations, including manufacturing industries, utilities, transportation, health care systems, financial institutions, and all levels of government agencies.

The Department of Industrial Engineering offers a B.S., as well as, a M.S. in industrial engineering. Our undergraduate program will provide students with the knowledge, skills, and tools:

♦ To model people-technology systems using the techniques of mathematics, science, and engineering
♦ To design potential solutions to problems and evaluate the consequences of their solution in the broader context of the organization, society, and the environment
♦ To effectively communicate the benefits of their proposed solutions using written, oral and electronic media
♦ To function effectively and provide leadership within an organization as a professional and ethical member of society, including the ability to facilitate and participate in multi-disciplinary teams
♦ To initiate and complete self-directed learning for professional and personal development especially with respect to contemporary issues

The department also offers an integrated B.S./M.S. Sequence. The undergraduate program is accredited by the Accreditation Board for Engineering and Technology (ABET).

A degree plan for the B.S. with a major in industrial engineering is shown on the next page. Students should consult the 2004-2005 Undergraduate Catalog for complete university and department degree requirements.
Northern Illinois University  
Department of Industrial Engineering  
Suggested Four-Year Degree Plan  
(Ref: 2004-2005 Undergraduate Catalog) 

### FRESHMAN YEAR

**FIRST SEMESTER: Total 15 hours**  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 103</td>
<td>Rhetoric and Composition I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 229¹</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 210T+212</td>
<td>General Chemistry &amp; Lab</td>
<td>4</td>
</tr>
<tr>
<td>UEET 101</td>
<td>Introduction to Engineering</td>
<td>1</td>
</tr>
<tr>
<td>GEN-ED²</td>
<td>Humanities from LA&amp;S</td>
<td>3</td>
</tr>
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</table>

**SECOND SEMESTER: Total 17 hours**  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 104</td>
<td>Rhetoric and Composition II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 230</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 250A</td>
<td>Fund of Physics I &amp; Lab</td>
<td>4</td>
</tr>
<tr>
<td>MEE 270</td>
<td>Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>COMS 100</td>
<td>Fund. of Oral Communication</td>
<td>3</td>
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</table>

### SOPHOMORE YEAR

**FIRST SEMESTER: Total 17 hours**  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 232</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 251A+251U</td>
<td>Fund of Physics II &amp; Lab</td>
<td>4</td>
</tr>
<tr>
<td>MEE 210</td>
<td>Engineering Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>IENG 334</td>
<td>Probability for Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ECON 260</td>
<td>Principles of Microeconomics</td>
<td>3</td>
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</tbody>
</table>

**SECOND SEMESTER: Total 16 hours**  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 240</td>
<td>Computer Programming in C++</td>
<td>4</td>
</tr>
<tr>
<td>IENG 220</td>
<td>Engineering Economy</td>
<td>3</td>
</tr>
<tr>
<td>MEE 211</td>
<td>Engineering Mechanics II</td>
<td>3</td>
</tr>
<tr>
<td>IENG 335</td>
<td>Statistics for Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ELE 210</td>
<td>Engineering Circuit Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

### JUNIOR YEAR

**FIRST SEMESTER: Total 15 hours**  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IENG 370</td>
<td>Ops Research: Deterministic Models</td>
<td>3</td>
</tr>
<tr>
<td>IENG 410</td>
<td>Human Factors Engineering</td>
<td>3</td>
</tr>
<tr>
<td>IENG 350</td>
<td>Principles of Manuf. Processes</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 102</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>TECH ELE³</td>
<td>Technical Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

**SECOND SEMESTER: Total 18 hours**  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IENG 310</td>
<td>Work Measure. &amp; Work Design</td>
<td>3</td>
</tr>
<tr>
<td>IENG 430T</td>
<td>Quality Control</td>
<td>3</td>
</tr>
<tr>
<td>IENG 371</td>
<td>Ops Research: Prob. Models</td>
<td>3</td>
</tr>
<tr>
<td>MATH 336</td>
<td>Ordinary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>GEN-ED²</td>
<td>Humanities from V&amp;PA</td>
<td>3</td>
</tr>
<tr>
<td>GEN-ED²</td>
<td>Interdisciplinary</td>
<td>3</td>
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</tbody>
</table>

### SENIOR YEAR

**FIRST SEMESTER: Total 15 hours**  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IENG 440</td>
<td>Production Planning &amp; Control</td>
<td>3</td>
</tr>
<tr>
<td>IENG 460</td>
<td>Facilities Planning &amp; Design</td>
<td>3</td>
</tr>
<tr>
<td>IENG 480</td>
<td>Simulation Modeling &amp; Analysis</td>
<td>3</td>
</tr>
<tr>
<td>TECH ELE³</td>
<td>Technical Elective</td>
<td>3</td>
</tr>
<tr>
<td>TECH ELE³</td>
<td>Technical Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

**SECOND SEMESTER: Total 16 hours**  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IENG 450</td>
<td>Integrated Manuf. Systems</td>
<td>3</td>
</tr>
<tr>
<td>IENG 495</td>
<td>Senior Design Project</td>
<td>4</td>
</tr>
<tr>
<td>TECH ELE³</td>
<td>Technical Elective</td>
<td>3</td>
</tr>
<tr>
<td>TECH ELE³</td>
<td>Technical Elective</td>
<td>3</td>
</tr>
<tr>
<td>GEN-ED²</td>
<td>Humanities LA&amp;S or V&amp;PA</td>
<td>3</td>
</tr>
</tbody>
</table>

Total hours: 129

¹Need Placement Examination.

²Your adviser must approve your general education courses.

³Choose five of the following, including at least 9 semester hours of industrial engineering course work: ACCY 206, ACCY 207, ACCY 288, BIOS 311, ELE 215, MATH 240, MATH 339, MATH 360, MATH 380, MATH 434, MATH 435, MGMT 333, OMIS 351, OMIS 442, OMIS 477, PSYC 345, STAT 470, STAT 473, STAT 473A, STAT 474, STAT 478, any 300 or 400 level course in electrical, industrial or mechanical engineering except MEE 330, MEE 331, and required courses.
The Department of Mechanical Engineering

Mission Statement: The mission of the Mechanical Engineering Department is to provide an up-to-date, high-quality engineering education that meets current professional engineering standards and prepares competent engineers for local and global industry; to develop and/or apply engineering knowledge to address societal needs; and to provide quality professional and public services.

Educational Objectives: The program leading to the B.S. in mechanical engineering is designed to prepare students for successful careers in engineering and related fields by providing a balanced education in mechanical engineering that prepares students to apply analytical, computational, experimental, and methodological tools to solve engineering problems; a strong foundation in mathematics and physical sciences; a broad and balanced general education in the humanities, arts, social sciences, and interdisciplinary studies; sufficient training and development of skills for effective communication and teamwork; a proper understanding of an engineer’s professional and ethical responsibilities in relation to engineering fields and society; and recognition of the need for lifelong learning.

The Department of Mechanical Engineering offers a B.S. as well as M.S. degree program in mechanical engineering. In addition, all mechanical engineering majors with at least 90 semester hours and a 3.0 GPA may apply for early admission to the M.S. program through the Integrated B.S./M.S. sequence. This sequence allows mechanical engineering majors to complete both degrees in five years if a strict program is followed (see additional details on page 28). The undergraduate program is accredited by the Accreditation Board for Engineering and Technology (ABET).

The mechanical engineering curriculum is based on a strong foundation of fundamental courses in the pure sciences and engineering and professional courses in mechanical engineering. The curriculum also provides a background in the design, development, and applications of both complete systems and a wide variety of individual system components in many different fields.

The program encompasses many areas, such as solid mechanics, dynamics, controls, fluid mechanics, thermodynamics, heat and mass transfer, energy conversion, manufacturing, and tribology. This background is strengthened and integrated through application in a sequence of broad engineering design and laboratory courses. Computers are used extensively throughout the curriculum, with special emphasis on interactive computer design/computer-aided manufacturing. The department also has a significant amount of equipment for experimental investigations and has access to the university’s digital and analog computer systems.

A suggested degree plan for the B.S. with a major in mechanical engineering is shown on the next page. In the senior year, mechanical engineering majors complete a two-semester senior design project which is the capstone of the mechanical engineering curriculum. Students should consult the 2004-2005 Undergraduate Catalog for complete university and department requirements or our webpage at http://www.ceet.niu.edu/depts/me/index.html.
Mechanical engineers work in a wide spectrum of technical settings in engineering and design, research and development, manufacturing, and management. Major industrial areas employing mechanical engineers are:

- Engineering-architectural firms
- Automotive
- Nuclear industries
- Aerospace
- Electric, gas, and water utilities
- Petrochemicals
- Petroleum production & refining
- Manufacturing
- Waste management
- Environmental protection
- Pharmaceuticals/Food processes
- Defense industries

**Integrated B.S./M.S. Sequence:** This integrated sequence leads to both the B.S. and M.S. degrees in mechanical engineering and is available to all undergraduate mechanical engineering majors who have finished at least 90 semester hours of undergraduate work with a GPA of at least 3.00. A minimum GPA of 3.00 must be maintained during the course of study. Failure to meet the requirements of the integrated sequence may lead to a B.S. degree only, but only after all the requirements for that degree have been met.

All students enrolled in the integrated B.S./M.S. sequence must have their schedule approved by their faculty adviser each semester. Any deviation from the approved course schedule may delay graduation; all students enrolled in the integrated B.S./M.S. sequence are required to take the state Fundamental of Engineering (FE/EIT) examination before graduation from the B.S. program.

Students must complete all undergraduate required courses, including 9 semester hours of technical electives, all of which must be taken for graduate credit during the student’s final undergraduate term; students must also complete 21 (thesis option) or 24 (non-thesis option) additional graduate semester hours.

Additional 500-level course work with department approval (3) MEE 599, Master’s Thesis (6) OR MEE 597, Independent Study for a master’s project (3), and additional 500-level MEE course work with department approval (6).
Northern Illinois University  
Department of Mechanical Engineering  
Suggested Four-Year Degree Plan  
(Ref: 2004-2005 Undergraduate Catalog)

**FRESHMAN YEAR**  
**FIRST SEMESTER:** Total 18 hours  
- ENGL 103 Rhetoric and Composition I 3  
- MATH 229 Calculus I 4  
- PHYS 250A+250U Fund of Physics I & Lab 4  
- UEET 101 Introduction to Engineering 1  
- GEN-ED Humanities and Arts 3  
- MEE 270 Engineering Graphics 3  

**SECOND SEMESTER:** Total 17 hours  
- ENGL 104 Rhetoric and Composition II 3  
- MATH 230 Calculus II 4  
- PHYS 251A+251U Fund of Physics II & Lab 4  
- MEE 210 Engineering Mechanics I 3  
- GEN-ED Humanities and Arts 3  

**SOPHOMORE YEAR**  
**FIRST SEMESTER:** Total 18 hours  
- CHEM 210T+212 General Chemistry I & Lab 4  
- COMS 100 Fund. Of Oral Communications 3  
- CSCI 230 Computer Prog. in FORTRAN 4  
- or CSCI 240 Computer Programming in C (4)  
- MATH 232 Calculus III 4  
- MEE 211 Engineering Mechanics II 3  

**SECOND SEMESTER:** Total 16 hours  
- ELE 210 Engineering Circuit Analysis 3  
- IENG 220 Engineering Economy 3  
- MATH 336 Ordinary Differential Equations 3  
- MEE 212 Strength of Materials 3  
- MEE 330 Materials Science 4  

**JUNIOR YEAR**  
**FIRST SEMESTER:** Total 18 hours  
- MEE 321 Mechanical Vibrations I 3  
- MEE 340 Fluid Mechanics 3  
- MEE 350 Engineering Thermodynamics 3  
- STAT 350 Intro to Probability & Statistics 3  
- or IENG 335 Statistics for Engineering (3)  
- GEN-ED Humanities and Arts 3  
- GEN-ED Social Science 3  

**SECOND SEMESTER:** Total 18 hours  
- MEE 220 Mechanism Design 3  
- MEE 331 Manufacturing Processes 3  
- MEE 352 Heat Transfer 3  
- MEE 380 Comp Methods in Eng. Design 3  
- ELE 215 Electronic Instrumentation 3  
- GEN-ED Social Science 3  

**SENIOR YEAR**  
**FIRST SEMESTER:** Total 15 hours  
- MEE 322 Dynamic Systems & Control I 4  
- or ELE 380 Control Systems I (4)  
- MEE 390 Exp Methods in Mechanical Eng I 3  
- MEE 430 Computer Aided Design & Mfg 3  
- MEE 470 Design of Machine Elements 3  
- MEE 481 Engineering Design Seminar 1  
- MEE 494 Mechanical Eng. Competency 1  

**SECOND SEMESTER:** Total 15 hours  
- MEE 482 Senior Mech.I Eng. Dsgn Project 3  
- TECH ELE Engr Dsgn Technical Elective 3  
- TECH ELE Engr Dsgn Technical Elective 3  
- TECH ELE Engr Science Technical Elec. 3  
- GEN-ED Interdisciplinary 3  

Total hours: 135

1 Need Placement Examination.

2 Your adviser must approve your general education courses.

3 Choose two of the following: IENG 431, IENG 450, IENG 451, MEE 410, MEE 422, MEE 424, MEE 425, MEE 431, MEE 451, MEE 452, MEE 453, MEE 490, TECH 345.  
4 Choose one of the following: IENG 430T, MEE 351, MEE 421, MEE 423, MEE 480, TECH 344.
The Department of Technology

Mission Statement: The mission of the Department of Technology encompasses the transmission, expansion, and application of technological knowledge through teaching, research, and public service. The department prepares technically oriented professionals for leadership, management, and service positions in business, industry, education, and government. Major emphases included are engineering technology and industrial technology. Instruction in these emphases seeks to improve productivity, safety, and the well being of society through combining scientific, engineering, and management knowledge with technical skills.

Abilities such as leadership, practical applications, problem solving, creativity, intellectual curiosity, and a positive attitude toward lifelong learning are fundamental to the modern industrial community served by the Department of Technology. These needs are met in harmony with the university, educating traditional and non-traditional students through career preparation and enhancement programs. The faculty accomplish these tasks using a variety of flexible, innovative, interesting, and creative course delivery systems.

The Bachelor of Science (B.S.) degree with a major in technology offers two emphases described below: engineering technology and industrial technology.

Engineering Technology

Electrical Engineering Technology (EET) emphasis:
A well-rounded degree with studies in areas such as digital logic, communications, controls, and microprocessors. Most of the EET courses include a laboratory component, which augments and enhances the science principles taught. Students make extensive usage of state of the art computers, using software like P-Spice and Matlab. Students in the EET program learn experimental techniques in well-equipped electronics, microprocessor, communications, machines, and controls laboratories. Career opportunities for electrical engineering technology graduates include:

- Communications
- Testing
- Measurement & Inspection
- Analysis
- Industrial Control
- Electrical Design
- Maintenance/Service
- Digital Electronic Design
- Control Systems
- CAE

Manufacturing Engineering Technology (MET) emphasis:
Covers the diverse hands-on field of manufacturing systems and processes. Many of the manufacturing courses have experimental components which are taught concurrently with theoretical aspects. Students are taught to utilize current concepts and equipment within the manufacturing curriculum. MET
students work with PLC’s, CNC machines, and automation components. Career opportunities for manufacturing engineering technology graduates include:

- Quality Assurance
- Design Analysis
- Plant Management
- Materials Handling
- Computer Integrated Manuf.
- Automation
- Computer Controller Machining
- Industrial Safety
- Work Measurement
- Manufacturing Processes
- Technical Sales
- Industrial Training
- Production Planning
- Project Engineering
- Industrial Sales
- Quality Control
- Computer Aided Design
- Manufacturing Technology
- Plastics Technology
- Occupational Safety

**Industrial Technology**

Industrial Technology offers alternatives in Computer-Aided Design, Manufacturing Technology, Plastics Technology, Occupational Safety and other technical fields. It prepares students for careers in industrial management in their selected field. The student becomes familiar with various industrial processes during hands-on laboratory experience. The B.S. degree program in Industrial Technology is accredited by the National Association of Industrial Technology (NAIT). Career opportunities for industrial technology graduates include:

- Industrial Training
- Production Control
- Engineering Graphics
- Manuf. Supervision
- Industrial Design
- Production Planning
- Project Engineering
- Industrial Sales
- Quality Control
- Industrial Safety
- Work Measurement
- Manufacturing Processes
- Technical Sales

The suggested degree plans for a major in the technology department are listed on the next 4 pages. Because of the diverse demands challenging today’s technologists, the technology majors provide broad educational programs integrating in-depth technology courses with additionally required general education courses. Majors are advised to consult the 2004-2005 Undergraduate Catalog for complete degree requirements. Additional information may be found online at: www.ceet.niu.edu/depts/tech/home.html.
Northern Illinois University  
Department of Technology-Electrical Engineering Technology Emphasis  
Suggested Four-Year Degree Plan  
(Ref: 2004-2005 Undergraduate Catalog)

**FRESHMAN YEAR**  
**FIRST SEMESTER:** Total 16 hours  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>CHEM 110</td>
<td>General Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>or CHEM 210T+212</td>
<td>General Chemistry I &amp; Lab (4)</td>
<td></td>
</tr>
<tr>
<td>COMS 100</td>
<td>Fund. of Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 103</td>
<td>Rhetoric and Composition I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 155</td>
<td>Trigonometry &amp; Elem Functions</td>
<td>3</td>
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**SECOND SEMESTER:** Total 15 hours  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit</th>
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<tbody>
<tr>
<td>CHEM 111</td>
<td>General Chemistry I Lab</td>
<td>1</td>
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<tr>
<td>PHYS 250</td>
<td>General Physics I</td>
<td>4</td>
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<tr>
<td>ENGL 104</td>
<td>Rhetoric and Composition II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 229</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>TECH 175</td>
<td>Elec. &amp; Electronics Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>TECH 175A</td>
<td>Lab</td>
<td>1</td>
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**SOPHOMORE YEAR**  
**FIRST SEMESTER:** Total 17 hours  
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>MATH 230</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>TECH 211</td>
<td>CAD</td>
<td>3</td>
</tr>
<tr>
<td>TECH 265</td>
<td>Basic Manuf. Processes</td>
<td>3</td>
</tr>
<tr>
<td>TECH 270</td>
<td>Elec. Fund &amp; Circuit Analysis I</td>
<td>4</td>
</tr>
<tr>
<td>TECH 270A</td>
<td>Lab</td>
<td>1</td>
</tr>
<tr>
<td>GEN-ED</td>
<td>General Ed Requirement #2</td>
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**SECOND SEMESTER:** Total 16 hours  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 230</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>CSCI 240</td>
<td>Computer Programming in C++</td>
<td>4</td>
</tr>
<tr>
<td>TECH 271</td>
<td>Elec. Fund &amp; Circuit Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>TECH 271A</td>
<td>Lab</td>
<td>1</td>
</tr>
<tr>
<td>TECH 276</td>
<td>Electronics I</td>
<td>3</td>
</tr>
<tr>
<td>TECH 276A</td>
<td>Lab</td>
<td>1</td>
</tr>
<tr>
<td>TECH 277</td>
<td>Digital and Logic Design</td>
<td>3</td>
</tr>
<tr>
<td>TECH 277A</td>
<td>Lab</td>
<td>1</td>
</tr>
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</table>

**JUNIOR YEAR**  
**FIRST SEMESTER:** Total 16 hours  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>TECH 375</td>
<td>Control Systems</td>
<td>3</td>
</tr>
<tr>
<td>TECH 376</td>
<td>Electronics II</td>
<td>3</td>
</tr>
<tr>
<td>TECH 376A</td>
<td>Lab</td>
<td>1</td>
</tr>
<tr>
<td>STAT 208</td>
<td>Basic Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Or STAT 301</td>
<td>Elementary Statistics (4)</td>
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<tr>
<td>EET Elective</td>
<td>EET Elective #1</td>
<td>3</td>
</tr>
<tr>
<td>GEN-ED</td>
<td>General Ed Requirement #3</td>
<td>3</td>
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**SECOND SEMESTER:** Total 15 hours  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit</th>
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<tbody>
<tr>
<td>ENGL 308</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>TECH 377</td>
<td>Microprocessors and Interfacing</td>
<td>3</td>
</tr>
<tr>
<td>TECH 377A</td>
<td>Lab</td>
<td>1</td>
</tr>
<tr>
<td>TECH 378</td>
<td>Communication Systems Design I</td>
<td>3</td>
</tr>
<tr>
<td>TECH 378A</td>
<td>Lab</td>
<td>1</td>
</tr>
<tr>
<td>TECH 379</td>
<td>Electric Machines and Transformers</td>
<td>3</td>
</tr>
<tr>
<td>TECH 379A</td>
<td>Lab</td>
<td>1</td>
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</table>

**SENIOR YEAR**  
**FIRST SEMESTER:** Total 16 hours  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit</th>
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<tbody>
<tr>
<td>TECH 443</td>
<td>Engineering Economy</td>
<td>3</td>
</tr>
<tr>
<td>TECH 476</td>
<td>Industrial Control Electronics</td>
<td>3</td>
</tr>
<tr>
<td>TECH 477</td>
<td>Eng Tech Senior Dsgn Project I</td>
<td>4</td>
</tr>
<tr>
<td>GEN-ED</td>
<td>General Ed Requirement #4</td>
<td>3</td>
</tr>
<tr>
<td>EET Elective</td>
<td>EET Elective #2</td>
<td>3</td>
</tr>
<tr>
<td>EET Elective</td>
<td>EET Elective #3</td>
<td>3</td>
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**SECOND SEMESTER:** Total 15 hours  
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>TECH 478</td>
<td>Eng Tech Senior Design Project II</td>
<td>3</td>
</tr>
<tr>
<td>GEN-ED</td>
<td>General Ed Requirement #5</td>
<td>3</td>
</tr>
<tr>
<td>GEN-ED</td>
<td>General Ed Requirement #6</td>
<td>3</td>
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<tr>
<td>EET Elective</td>
<td>EET Elective #4</td>
<td>3</td>
</tr>
<tr>
<td>EET Elective</td>
<td>EET Elective #5</td>
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</table>

Total hours : 125

Choose 6 courses out of the following with advice and consent of your adviser: TECH 295, TECH 425, TECH 430, TECH 470, TECH 471, TECH 472&472A, TECH 473, TECH 479.
**Northern Illinois University**  
**Department of Technology-Manuf. Engineering Technology Emphasis**  
**Suggested Four-Year Degree Plan**  
*(Ref: 2004-2005 Undergraduate Catalog)*

### FRESHMAN YEAR
**FIRST SEMESTER: Total 16 hours**  
- ENGL 103 Rhetoric and Composition I 3  
- MATH 155 Trigonometry & Elem Functions 3  
- TECH 211 Computer-Aided Design 3  
- CHEM 110+111 Chemistry & Lab 4  
- **GEN-ED General Ed Requirement #2 3**  
  or CHEM 210T+212 General Chemistry I & Lab (4)  
**SECOND SEMESTER: Total 16 hours**  
- ENGL 104 Rhetoric and Composition II 3  
- MATH 229 Calculus I 4  
- TECH 262 Machine Production Processes 3  
- TECH 265 Basic Manufacturing Processes 3  
- **GEN-ED General Ed Requirement #1 3**  
  GEN-ED General Ed Requirement #2 3

### SOPHOMORE YEAR
**FIRST SEMESTER: Total 15 hours**  
- MATH 230 Calculus II 4  
- PHYS 250 General Physics I 4  
- COMS 100 Fund. Of Oral Communications 3  
- TECH 175 Elec. & Electricity Fundamentals 3  
- TECH 175A Lab 1  
- MET Elective Manufacturing Process Elective 3  
**SECOND SEMESTER: Total 16 hours**  
- MATH 230 Calculus II 4  
- PHYS 250 General Physics I 4  
- COMS 100 Fund. Of Oral Communications 3  
- TECH 175 Elec. & Electricity Fundamentals 3  
- TECH 175A Lab 1  
- TECH 295 Manufacturing Computer Apps. 3  
- MET Elective Manufacturing Process Elective 3  
- **GEN-ED General Ed Requirement #3 3**  
  GEN-ED General Ed Requirement #4 3

### JUNIOR YEAR
**FIRST SEMESTER: Total 15 hours**  
- ENGL 308 Technical Writing 3  
- TECH 312 Geometric design and Tolerancing 3  
- TECH 326 Fluid Power Technology 3  
- TECH 369 Strength of Materials 3  
- TECH 393 Properties of Materials 3  
**SECOND SEMESTER: Total 15 hours**  
- ENGL 308 Technical Writing 3  
- TECH 312 Geometric design and Tolerancing 3  
- TECH 326 Fluid Power Technology 3  
- TECH 369 Strength of Materials 3  
- TECH 393 Properties of Materials 3  
- TECH 342 Manuf. Component Design 3  
- TECH 425 Prog.Electronic Controllers 3  
- TECH 443 Engineering Economy 3  
- MET Elective Manufacturing Process 3  
- MET Elective Manufacturing Systems 3

### SENIOR YEAR
**FIRST SEMESTER: Total 16 hours**  
- TECH 391 Industrial Quality Control 3  
- TECH 420 Computer-Integrated Manufacturing 3  
- TECH 477 Eng Tech Senior Dsgn Proj I 1  
- GEN-ED General Ed Requirement #4 3  
- MET Elective Manufacturing Process 3  
- MET Elective Manufacturing System 3  
**SECOND SEMESTER: Total 15 hours**  
- TECH 391 Industrial Quality Control 3  
- TECH 420 Computer-Integrated Manufacturing 3  
- TECH 477 Eng Tech Senior Dsgn Proj I 1  
- GEN-ED General Ed Requirement #4 3  
- MET Elective Manufacturing Process 3  
- MET Elective Manufacturing System 3  
- TECH 362 Numerical Control Systems 3  
- TECH 423 Automated Manufacturing Systems 3  
- TECH 478 Eng Tech Senior Dsgn Proj II 3  
- **GEN-ED General Ed Requirement #5 3**  
  GEN-ED General Ed Requirement #6 3

**Total hours: 124**

**Manufacturing Process Elective**, choose 4 courses out of the following with advice and consent of your adviser: TECH 260, TECH 312, TECH 314, TECH 344, TECH 345, TECH 364, TECH 365, TECH 479.

**Manufacturing Systems Elective**, choose 3 of the following with advice and consent of your adviser: TECH 334, TECH 401, TECH 402, TECH 404, TECH 409, TECH 429, TECH 434, TECH 442, TECH 444, TECH 482, TECH 496.
FRESHMAN YEAR
FIRST SEMESTER: Total 16 hours
CHEM 110+111 Chemistry & Lab 4
ENGL 103 Rhetoric and Composition I 3
MATH 155 Trigonometry & Elem Functions 3
TECH 211 Computer-Aided Design 3
GEN-ED General Ed Requirement #1 3
SECOND SEMESTER: Total 16 hours
COMS 100 Fund. Of Oral Communications 3
ENGL 104 Rhetoric and Composition II 3
PHYS 150A Physics 4
or PHYS 250 General Physics I (4)
GEN-ED General Ed Requirement #2 3
GEN-ED General Ed Requirement #3 3

SOPHOMORE YEAR
FIRST SEMESTER: Total 16 hours
STAT 208 Basic Statistics 3
or STAT 301 Elementary Statistics (4)
TECH 175 Elec. & Electricity Fundamentals 3
TECH 175A Lab 1
TECH 265 Basic Manufacturing Processes 3
GEN-ED General Ed Requirement #4 3
Area of Study IT Area #1 (See page 33) 3
SECOND SEMESTER: Total 15 hours
ACCY 206 Intro Financial Accounting 3
or ACCY 288 Fundamentals of Accounting (3)
TECH 302 Graphic Presentation and Comm. 3
GEN-ED General Ed Requirement #5 3
GEN-ED General Ed Requirement #6 3
Area of Study IT Area #2 (See page 33) 3

JUNIOR YEAR
FIRST SEMESTER: Total 15 hours
MGMT 346 Business Communication 3
TECH 395 Industrial Data Processing 3
TECH 404 Supervision in Industry 3
Area of Study IT Area #3 (See page 33) 3
Area of Study IT Area #4 (See page 33) 3
SECOND SEMESTER: Total 15 hours
TECH 402 Industrial Trng and Evaluation 3
TECH 429 Plant Location, Layout, and Materials 3
TECH 434 Human Factors in Accident Prev. 3
Area of Study IT Area #5 (See page 33) 3
Area of Study IT Area #6 (See page 33) 3

SENIOR YEAR
FIRST SEMESTER: Total 15 hours
TECH 391 Industrial Quality Control 3
TECH 442 Work Simplification and Measure 3
Elective General Elective #1 3
Area of Study IT Area #7 (See page 33) 3
TECH Elective 1 (See Below) 3
SECOND SEMESTER: Total 12 hours
TECH 496 Industrial Project Management 3
Elective General Elective #2 3
TECH Elective 2 (See Below) 3
TECH Elective 3 (See Below) 3
Total hours: 120

Technical Electives: A Technical elective course may be any course offered within the Department of Technology, as determined with consent of the faculty advisor.

General Elective: A General elective course may be any course offered from any department on campus.
# Areas of Concentration within the Industrial Technology Program

## Computer Aided Design (CAD) (21)
- TECH 311  Computer-Aided Modeling (3)
- TECH 312  Design Dimensioning & Toler. (3)
- TECH 314  Tool and Die Design (3)

*Two of the following (6):*
- TECH 260  Metal Fabrication Processes (3)
- TECH 262  Machine Production Processes (3)
- TECH 365  Metrology (3)
- TECH 409  Internship (3)
- TECH 412  Technical Illustration (3)
- TECH 414  Computer-Aided Machine Design (3)

## Manufacturing Technology (21-22)
- TECH 260  Metal Fabrication Processes (3)
- TECH 262  Machine Production Processes (3)
- TECH 365  Metrology (3)
- TECH 420  Computer-Integrated Manufact. (3)

*Three of the following (9-10):*
- TECH 311  Computer-Aided Modeling (3)
- TECH 312  Design Dimensioning & Toler. (3)
- TECH 334  Hazard Control in Industrial Ops (3)
- TECH 344  Materials and Processes in the Plastics Industry (3)
- TECH 345  Plastic Molding Processes (3)
- TECH 409  Internship (3)
- TECH 427  Testing Methods, Procedures, and Selection of Industrial Plastics (3)

## Occupational Safety (21)
- TECH 334  Hazard Control in Industrial Ops (3)
- TECH 432  Disaster Preparedness (3)

## Special Technical Area (23)
This area of study is limited to transfer students with an Associate of Applied Science degree with a major in a recognized field of industrial technology. Up to 23 semester hours of credit from the A.A.S. degree may be applied to this area of study with the consent of the departmental adviser and department chair.

## View of Still Gym from the Courtyard.
Graduation Information

Applying for Graduation (at the Office of Registration and Records in Williston Hall). Degrees are granted in December, May and August.

Students completing 90 or more semester hours following their admission to NIU will be sent a graduation information sheet to complete and return. This form must be returned so that the Office of Registration and Records in Williston Hall can monitor student progress toward graduation and prepare a *graduation progress report* which lists all of the requirements which must still be met. Students who fail to return this form may not be informed of graduation deficiencies in time to make adjustments to their program of study.

The progress report will be based on the formally declared major, minor, degree, and catalog year the student indicates. Included with the *graduation progress report* is a sheet of detailed information about graduation requirements.

A graduation fee payment form and teacher certification application (if applicable) will be mailed to students several months prior to the deadline for paying the graduation fee at the Bursar’s Office. Payment and application deadlines are:

- December graduation: October 1
- May graduation: March 1
- August graduation: July 1

Students who wish to change graduation dates after the first application must file a “Change of Graduation Information” form in the Office of Registration and Records. Students completing degree requirements between degree dates may request that a statement of completion be noted on their academic records.

Students who wish to walk in a ceremony must get permission from the Dean’s Office, EB 321.
For majors in the College of Engineering and Engineering Technology, the NIU libraries which contain a number of technical references are the following:

Founders Memorial Library, the main library on the DeKalb campus, has five levels with 290,000 square feet of space and seating capacity for 2,200 students. Dial (815) 753-1670 for the most current building hours. The building closes at 5 p.m. the day before a holiday, recess, or interim session. Key library services including the circulation desk, the first floor reference desk, computer reference services, library instruction, the information desk, interlibrary loans, the reserve reading room, the newspaper reading room, Founders Copier Service, and an area continuing specialized equipment and research collections for the visually impaired.

The Faraday Library contains the major portion of the university’s science collections, especially for Chemistry and Physics. Faraday Library houses complete sets of Chemical Abstracts and Physics Abstracts, as well as the most important scholarly journals in science. Faraday Library is a valuable resource for engineering and technology students. The library is located in Faraday Hall 212 on the DeKalb campus. Service Hours (regular semester) are:

- Monday-Thursday 8:00 a.m.-10:00 p.m.
- Friday 8:00 a.m.-5:00 p.m.
- Saturday & Sunday CLOSED

For information on the Faraday Library, call (815) 753-1257.

The Engineering Student Reference Library/Study Area, located at 354 Engineering Building, is operated by the College of Engineering and Engineering Technology. This library has about 4,000 technical volumes donated by industry and individuals. Many of the references are pertinent to the senior-year engineering design projects. Most of the volumes are current reference materials dealing with interdisciplinary design, manufacturing, TQM, planning and standards. The books are classified according to the Library of Congress system. Other materials include supplementary text books, student design projects, case studies, video tapes, catalogs, software manuals and a limited collection of professional magazines. A computer link to the on-line catalog system of Founders Library and other state universities is also available. The engineering library is maintained by a librarian and student workers. Students may check out materials for three weeks. For more information call 815-753-0215.

- Engineering Library Hours for Fall and Spring Semesters
  - Monday - Friday  8:00 a.m.-noon and 1:00 p.m.-8:00 p.m.
  - Saturday & Sunday CLOSED

- Engineering Library Hours for other times
  - Monday - Friday  8:00 a.m.-noon and 1:00 p.m.-4:30 p.m.
  - Saturday & Sunday CLOSED
Faculty Teaching and Research Interests
Department of Electrical Engineering

Ibrahim Abdel-Motaleb, Ph.D., P.E., University of British Columbia, professor (material growth for optical and microelectronic devices, design, fabrication, and modeling of high speed devices and integrated circuits)
ibrahim@ceet.niu.edu

Alan Genis, Ph.D., Colorado State University, professor (hybrid circuit design and fabrication, sensor fabrication, thin film processing, semiconductor device fabrication)
genis@ceet.niu.edu

Michael Haji-Sheikh, Ph.D., University of Texas, Arlington, assistant professor (thin film metallization, anisotropic magnetoresistive concepts, LSI, VLSI, integration and metallization)
mhsheikh@ceet.niu.edu

Reza Hashemian, Ph.D., P.E., University of Wisconsin, professor (digital analog integrated circuit design, computer arithmetic, computer-aided circuit design, device modeling and characterization)
reza@ceet.niu.edu

Sen-Maw Kuo, Ph.D., University of New Mexico, chair and professor (digital communications and signal processing, adaptive filtering and active noise control, adaptive and acoustic echo cancellation, applications of digital signal processors)
kuo@ceet.niu.edu

Vincent P. McGinn, Ph.D., P.E., The Pennsylvania State University, professor (microelectronics, microwaves, electro-optics, photo electronics)
mcg@ceet.niu.edu

Laura L. McPheters, Ph.D., Georgia Institute of Technology, assistant professor (signal processing, digital communication, channel coding, iterative decoding)
mcphter@ceet.niu.edu

Gerald Miller, Ph.D., Northwestern University, professor (parallel processing, software engineering, real-time microprocessor based designs, digital/analog hardware)
miller@ceet.niu.edu

Mansour Tahernezhadi, Ph.D., University of Oklahoma, acting associate dean & professor (digital communication systems, digital signal processing, adaptive equalization)
tahernez@ceet.niu.edu

Peng-Yung Woo, Ph.D., University of Pennsylvania, professor (digital and analog control systems, robotics and manufacturing automation, digital signal processing, large dynamic system design)
woo@ceet.niu.edu
Faculty Teaching and Research Interests  
Department of Industrial Engineering

Ehsan Asoudegi, Ph.D., West Virginia University, assistant professor (human factors/ergonomics, automated visual inspection, statistical quality control)  
asoudegi@ceet.niu.edu

Nouurredine Boubekri, Ph.D., University of Nebraska, professor (metal removal processes, product design, product development)  
boubekri@ceet.niu.edu

Omar Ghrayeb, Ph.D., New Mexico State University, assistant professor (manufacturing systems, production planning, soft computing)  
ghrayeb@ceet.niu.edu

Murali Krishnamurthi, Ph.D., Texas A&M University, associate professor (simulation, optimization, manufacturing systems, information systems, artificial intelligence and expert systems applications, engineering education, web-based learning systems)  
murali@ceet.niu.edu

Nipa Phojanamongkolkij, Ph.D., Arizona State University, assistant professor (simulation, experimental design, stochastic process)  
nipa@ceet.niu.edu

Richard Marcellus, Ph.D., University of Michigan, associate professor (stochastic systems, decision processes, statistical quality control processes, operations research)  
marcelus@ceet.niu.edu

Regina DeMers Rahn, Ph.D., University of Illinois-Urbana, visiting assistant professor (advanced optimization techniques, quality control, advanced mathematical technologies, simulated annealing, genetic algorithm, neural networks)  
rahn@ceet.niu.edu

Dennis Stoia, M.B.A., P.E., University of Chicago, interim chair (supervision, labor/management relations)  
stoia@ceet.niu.edu
Faculty Teaching and Research Interests
Department of Mechanical Engineering

Anima Bose, Ph.D., Kent State University, visiting associate professor (synthesis, characterization and application of inorganic-organic nanostructured hybrid materials)
bose@ceet.niu.edu

Brianno Coller, Ph.D., Cornell University, assistant professor (nonlinear dynamics, control of fluid flows, aeroelasticity)
coller@ceet.niu.edu

Behrooz Fallahi, Ph.D., P.E., Purdue University, associate professor (smart material applications, design of high speed machines and micro mechanical systems, integrated design and manufacturing)
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