Notice

After publication of this student handbook and the 2005-2006 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, 2005-2006 Undergraduate Catalog

Schedule of Classes available online every summer/fall (combined) and spring term during the 2005-2006 academic year

Northern Illinois University Articulation Handbook for Illinois Community Colleges, July 2005

Northern Illinois University, 2005-2006 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.
The College of Engineering and Engineering Technology welcomes you to the 2005-2006 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 2005-2006 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, Dean
Mansour Tahernezhadi, Acting Associate Dean
Established in 1985, the College of Engineering and Engineering Technology is the youngest 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 56 faculty members and approximately 1,400 undergraduate and graduate students.

The college has four departments: Electrical Engineering, Industrial and Systems 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 and systems engineering, mechanical engineering and engineering technology are accredited by the Accreditation Board for Engineering and Technology (ABET). The Industrial Technology program is accredited by the National Association of Industrial Technology (NAIT).

Students intending to major in Electrical Engineering, Industrial and Systems 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 and Systems 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 engineering and technology 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 thermofluids 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 course work and research. In addition, the college has direct access to NIU’s Amdahl mainframe system and national supercomputer centers. The on-going 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
Off-Campus Degree Completion Program

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 Rock Valley 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.

NIU Rockford
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/tpt_colleges/index.html.

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)
- 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

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

Engineering & Technology Outreach Director

Dr. Deborah Brue
318 Engineering Building
(815) 753-6902
FAX (815) 753-4203

Chair Technology

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

Chair Mechanical Engineering

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

Chair Electrical Engineering

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

Interim Chair Industrial and Systems 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 and technology majors are required to have their next semester schedule reviewed, approved, and signed by their faculty adviser. Any deviation from an approved course schedule may delay graduation. All 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 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.

The college’s engineering and technology student organizations volunteer a large amount of time towards free tutoring relating to engineering and technology courses.

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 210, PHYS 211, PHYS 253, PHYS 273). 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 www.ceet.niu.edu/tutor/main.htm and the college’s 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 and systems 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 2005-2006 academic year, please contact Housing and Dining for a brochure.

Housing and Dining
Northern Illinois University
DeKalb, IL 60115-2857
Telephone: (815) 753-1525
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.) The office of Registration and Records’ website under Schedule of Classes & Registration Information 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 & Registration Information website, all course load reductions become course withdrawals subject to the deadlines discussed in the Undergraduate Catalog and posted on the Schedule of Classes & Registration Information website. All course withdrawals do 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.

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<thead>
<tr>
<th>Transfer Plus Pre-enrollment NIU Hours</th>
<th>Maximum Withdrawal Hours</th>
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<tbody>
<tr>
<td>1-6</td>
<td>17</td>
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<tr>
<td>7-5</td>
<td>15</td>
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<tr>
<td>16-30</td>
<td>12</td>
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<tr>
<td>31-45</td>
<td>9</td>
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<td>46 or more</td>
<td>6</td>
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Academic Probation and Dismissal

The procedure and regulations for academic probation and dismissal are stated in the 2005-2006 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. Documentation of attendance at advising sessions is considered by the college in the review of students eligibility for academic dismissal.
Student Chapters of Professional Engineering and Technology Societies

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.

**APM**—Alpha Pi Mu (Honor society in industrial engineering)

**ASHRAE**—American Society of Heating, Refrigerating and Air-Conditioning Engineers

**ASEE**—American Society for Engineering Education

**ASME**—American Society of Mechanical Engineers

**ASQC**—American Society of Quality Control

**ASSE**—American Society of Safety Engineers

**EPT**—Epsilon Pi Tau (honor society in technology)

**IEEE**—Institute of Electrical and Electronic Engineers

**IIE**—Institute of Industrial Engineers

**IMAPS**—International Microelectronics & Packaging Society

**ISA**—Instrumentation, Automation & Systems Society

**NSBE**—National Society of Black Engineers

**SAE**—Society of Automotive and Aerospace Engineers

**SHPE**—Society of Hispanic Professional Engineers

**SME**—Society of Manufacturing Engineers

**SWE**—Society of Women Engineers

**Triangle** Fraternity

**SAE Formula Team**
University Honors Program

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 students, 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 website at www.courselistsings.niu.edu/SchedBook/servlet/Search each term for available honors courses. The “H” suffix after a course number denotes the “Honors” section of that course.

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.

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
University Health Services
Northern Illinois University
DeKalb, IL 60115-2879
(815) 753-1303
Career Services

Career Services assists students in securing professional employment upon graduation also part-time employment and summer employment while enrolled. These cost-free services are available to all NIU students and alumni.

• Review the Career Services homepage at www.niu.edu/CareerServices.
• Career counselors are available 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 the Career Services website.
• Resume Reviews – Monday-Friday, 8:30 a.m. to 4:30 p.m. in CLB 235, Career Services interns and staff are available to perform resume reviews.
• University-wide job fair during the fall and spring semesters, see who is coming by going to the career services website.
• Part-time, temporary, and seasonal employment for current students.
• Explore major and career options at the career services website.
• 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
Career Counselor,
Career Services,
Campus Life Bldg.,
Room 220
Northern Illinois University
DeKalb, IL 60115-7200
Office: (815) 753-8335
Fax: (815) 753-7200
rnorwood@niu.edu
What are the benefits of an Internship or Co-op?

An internship or co-op experience gives you the “competitive edge” by providing real-world experiences while you’re taking classes toward a degree. These days more employers are looking for graduates who already have experience in their field, so to compete for jobs you’ll need the competitive edge that an internship or co-op offers.

According to a recent independent poll, nearly half (47 percent) of executives rated professional experience as the most important quality in hiring new graduates - more than the type of degree earned (18 percent) and grade point average (17 percent).

Internships and co-ops are described as win-win situations in which both students and employers benefit. Students having an internship or co-op are able to explore career options and test their classroom skills in real-life learning situations. Participating employers build a pool of tested and proven job candidates for when new positions open.

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.

Can I earn academic credit through an internship or co-op position?

Co-ops and internships do 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.

For further information about internships or co-op experiences at NIU, please contact:

Angela Cline,
Career Counselor
Career Services
Campus Life Bldg 220 or Engineering Bldg 116
Northern Illinois University
DeKalb, IL 60115-2875
(815) 753-7201
acline@niu.edu
Student Financial Aid

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.

- American Society of Safety Engineers Foundation Scholarship Program (technology majors, TECH Office)
- Association of Old Crows Scholarship (junior and senior engineering and hard science majors, EE, ME, IE, Physics, Math and Computer Science, 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, industrial and systems engineering or mechanical engineering, Associate Dean’s Office)
- Leadership Tuition Program for Women and Minorities (all majors, Associate Dean’s Office)

Omron Foundation Electronic Engineering Scholarship (junior and senior electrical engineering majors, EE Office)
- ETAS Endowed Scholarship (all majors, Alumni Relations Office, EB312)
- The Carter-Roriguez Endowed Scholarship in Engineering (all majors, Associate Dean’s Office)
- The “Doc” and Betty Newell Expndable Scholarship Fund (EE and EET majors, Associate Dean’s Office)
- The Arthur D. and Florence S. Graffam Engineering Technology Scholarship Fund (Tech major, Associate Dean’s Office)
- The Romualdas and Nijole Kasuba Scholarship Fund (ME majors, Associate Dean’s Office)
- The Max Zar Endowed Scholarship in Engineering (EE, IE, and ME majors, Associate Dean’s 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 or website at www.reg.niu.edu/regrec/com_coll/handbook.htm 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 253 and PHYS 273.

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, and online at www.reg.niu.edu/regrec/com_coll/handbook.htm.) 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.

**Engineering Building Manufacturing Lab**
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 and Systems 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
  - Electrical Engineering Technology: 99-100 hours (126 hours for B.S. Degree)
  - Manufacturing Engineering Technology: 100-102 hours (124 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 Systems, and Mechanical Engineering

All candidates for the B.S. degree in electrical, industrial and systems, and mechanical engineering must keep 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 2005-2006 Undergraduate Catalog for complete degree requirements.
FRESHMAN YEAR
FIRST SEMESTER: Total 15 hours
ENGL 103  Rhetoric and Composition I  3  
MATH 229¹  Calculus I  4  
CHEM 210T+212  General Chemistry & Lab  4  
UEET 101  Introduction to Engineering  1  
GEN-ED²  Humanities from LA&S  3

SECOND SEMESTER: Total 18 hours
ENGL 104  Rhetoric and Composition II  3  
MATH 230  Calculus II  4  
PHYS 253+253S  Fund of Physics I & Lab  4  
ELE 250  Computer Engineering I  4

SOPHOMORE YEAR
FIRST SEMESTER: Total 18 hours
MATH 232  Calculus III  4  
PHYS 273+273S  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
CSCI 240  Computer Programming in C  4  
MATH 336  Ordinary Diff. Equations  3  
ELE 340  Electrical Power Systems  4  
PHYS 283  General Physics III  3  
GEN-ED²  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 ELE³  Technical Elective  3  
TECH ELE³  Technical Elective  3  
TECH ELE³  Technical Elective  3  
GEN-ED²  Social Science  3  
GEN-ED²  Interdisciplinary  3

SECOND SEMESTER: Total 15 hours
ELE 492  Electrical Engr Dsgn Project  3  
TECH ELE³  Technical Elective  3  
TECH ELE³  Technical Elective  3  
TECH ELE³  Technical Elective  3  
GEN-ED²  Social Science  3

Total hours: 133

¹Need Placement Examination.

²Your adviser must approve your general education courses.

³Electives 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.
**Mission Statement:** The Department of Industrial and Systems 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 and Systems 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 and Systems Engineering offers a B.S., as well as, a M.S. in industrial and systems 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 and systems engineering is shown on the next page. Students should consult the 2005-2006 Undergraduate Catalog for complete university and department degree requirements.
## Northern Illinois University

### Department of Industrial and Systems Engineering

#### Suggested Four-Year Degree Plan

(Ref: 2005-2006 Undergraduate Catalog)

### FRESHMAN YEAR

**FIRST SEMESTER:** Total 15 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL 103</td>
<td>Rhetoric and Composition I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 229</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>
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**SECOND SEMESTER:** Total 17 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</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 253 &amp; 253S</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>
</tr>
</tbody>
</table>

### SOPHOMORE YEAR

**FIRST SEMESTER:** Total 17 hours

<table>
<thead>
<tr>
<th>Course</th>
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<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 232</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 273+273S</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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**SECOND SEMESTER:** Total 16 hours

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CSCI 240</td>
<td>Computer Programming in C++</td>
<td>4</td>
</tr>
<tr>
<td>IENG 210</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>
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</table>

### JUNIOR YEAR

**FIRST SEMESTER:** Total 15 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</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</th>
<th>Title</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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</table>

### SENIOR YEAR

**FIRST SEMESTER:** Total 15 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</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>
<tr>
<td>TECH ELE³</td>
<td>Technical Elective</td>
<td>3</td>
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</tbody>
</table>

**SECOND SEMESTER:** Total 16 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</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 Department of Mechanical Engineering 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 25). 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 2005-2006 Undergraduate Catalog for complete university and department requirements or our webpage at http://www.ceet.niu.edu/depts/me/.
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 advisor each semester. Any deviation from the approved course schedule may delay graduation.

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: 2005-2006 Undergraduate Catalog)*

## Freshman Year

**First Semester: Total 18 hours**
- ENGL 103 Rhetoric and Composition I 3
- MATH 229 Calculus I 4
- PHYS 253+253S Fund of Physics I & Lab 4
- UEET 101 Introduction to Engineering 1
- GEN-ED\(^2\) 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 273+273S Fund of Physics II & Lab 4
- MEE 210 Engineering Mechanics I 3
- GEN-ED\(^2\) 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\(^2\) Humanities and Arts 3
- GEN-ED\(^2\) 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\(^2\) 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.l Eng. Dsgn Project 3
- TECH ELE\(^3\) Engr Dsgn Technical Elective 3
- TECH ELE\(^3\) Engr Dsgn Technical Elective 3
- TECH ELE\(^4\) Engr Science Technical Elec. 3
- GEN-ED\(^2\) Interdisciplinary 3

Total hours: 135

1. Need Placement Examination.
2. Your adviser must approve your general education courses.
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
- Plastics Processing
- PLC Integration
- Process Planning

**Industrial Technology**

Industrial Technology offers alternatives in Computer-Aided Design, Manufacturing Technology, Plastics Technology, Environmental Safety and Health 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 2005-2006 Undergraduate Catalog for complete degree requirements. Additional information may be found online at: www.ceet.niu.edu/depts/tech/.
FRESHMAN YEAR
FIRST SEMESTER: Total 16 hours
CHEM 110 General Chemistry I 3
CHEM 111 General Chemistry I Lab 1
or CHEM 210T+212 General Chemistry I & Lab (4)
COMS 100 Fund. of Oral Communication 3
ENGL 103 Rhetoric and Composition I 3
MATH 155 Trigonometry & Elem Functions 3
GEN-ED General Ed Requirement #1 3
SECOND SEMESTER: Total 15 hours
ENGL 104 Rhetoric and Composition II 3
MATH 229 Calculus I 4
PHYS 210 General Physics I 4
or PHYS 253 Basic Physics
TECH 175 Elec. & Electronics Fundamentals 3
TECH 175A Lab 1
SOPHOMORE YEAR
FIRST SEMESTER: Total 17 hours
MATH 230 Calculus II 4
TECH 211 CAD 3
TECH 265 Basic Manuf. Processes 3
TECH 270 Elec. Fund & Circuit Analysis I 3
TECH 270A Lab 1
GEN-ED General Ed Requirement #2 3
SECOND SEMESTER: Total 16 hours
CSCI 240 Computer Programming in C++ 4
TECH 271 Elec. Fund & Circuit Analysis II 3
TECH 271A Lab 1
TECH 276 Electronics I 3
TECH 276A Lab 1
TECH 277 Digital and Logic Design 3
TECH 277A Lab 1
JUNIOR YEAR
FIRST SEMESTER: Total 16 hours
TECH 375 Control Systems 3
TECH 376 Electronics II 3
TECH 376A Lab 1
STAT 208 Basic Statistics 3
or STAT 301 Elementary Statistics (4)
EET Elective EET Elective #1 3
GEN-ED General Ed Requirement #3 3
SECOND SEMESTER: Total 15 hours
ENGL 308 Technical Writing 3
TECH 377 Microprocessors and Interfacing 3
TECH 377A Lab 1
TECH 378 Communication Systems Design I 3
TECH 378A Lab 1
TECH 379 Electric Machines and Transformers 3
TECH 379A Lab 1
SENIOR YEAR
FIRST SEMESTER: Total 16 hours
TECH 443 Engineering Economy 3
TECH 476 Industrial Control Electronics 3
TECH 477 Eng Tech Senior Dsgn Project I 1
GEN-ED General Ed Requirement #4 3
EET Elective EET Elective #2 3
EET Elective EET Elective #3 3
SECOND SEMESTER: Total 15 hours
TECH 478 Eng Tech Senior Design Project II 3
GEN-ED General Ed Requirement #5 3
GEN-ED General Ed Requirement #6 3
EET Elective EET Elective #4 3
EET Elective EET Elective #5 3
EET Elective EET Elective #6 3
Total hours: 126
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: 2005-2006 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  
  *or CHEM 210T+212 General Chemistry I & Lab (4)*  
- GEN-ED General Ed Requirement #1 3

**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 #2 3

### Sophomore Year

**First Semester:** Total 15 hours  
- MATH 230 Calculus II 4  
- PHYS 210 General Physics I 4  
  *or PHYS 253 Basic Physics* 3  
- COMS 100 Fund. Of Oral Communications 3  
- TECH 175 Elec. & Electricity Fundamentals 1  
- TECH 175A Lab

**Second Semester:** Total 16 hours  
- STAT 208 Basic Statistics 3  
  *or STAT 301 Elementary Statistics (4)*  
- TECH 210 Engineering Mechanics 2  
- TECH 212T Engineering Dynamics 2  
- TECH 295 Manufacturing Computer Apps. 3  
- MET Elective Manuf Process Elective 3  
- GEN-ED General Ed Requirement #3 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  
- TECH 342 Manuf. Component Design 3  
- TECH 425 Prog.Electronic Controllers 3  
- TECH 443 Engineering Economy 3  
- MET Elective Manufacturing Process 3  
- GEN-ED General Ed Requirement #4 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 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.
Northern Illinois University  
Department of Technology - Industrial Technology  
Suggested Four-Year Degree Plan  
(Ref: 2005-2006 Undergraduate Catalog)

### FRESHMAN YEAR
**FIRST SEMESTER:** Total 16 hours  
- COMS 100 Fund. Of Oral Communications 3  
- CHEM 110+111 Chemistry & Lab 4  
- ENGL 103 Rhetoric and Composition I 3  
- MATH 155 Trigonometry & Elem Functions 3  
- GEN-ED General Ed Requirement #1 3  
- PHYS 150A General Physics 4  
- ENGL 104 Rhetoric and Composition II 3  
- TECH 211 Computer-Aided Design 3  
- GEN-ED General Ed Requirement #2 3  
- GEN-ED General Ed Requirement #3 3  

**SECOND SEMESTER:** Total 16 hours  
- CHEM 110+111 Chemistry & Lab 4  
- ENGL 103 Rhetoric and Composition I 3  
- MATH 155 Trigonometry & Elem Functions 3  
- PHYS 150A General Physics 4  
- GEN-ED General Ed Requirement #1 3  
- 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  
- TECH 175 Elec. & Electricity Fundamentals 3  
- TECH 175A Lab 1  
- TECH 176 Basic Manufacturing Processes 3  
- GEN-ED General Ed Requirement #4 3  
- Area of Study IT Area #1(See page 33) 3  
- ACCY 206 Intro Financial Accounting 3  
- TECH 302 Graphic Presentation and Comm. 3  
- GEN-ED General Ed Requirement #5 3  
- Area of Study IT Area #2 (See page 33) 3  

**SECOND SEMESTER:** Total 15 hours  
- TECH 175 Elec. & Electricity Fundamentals 3  
- TECH 175A Lab 1  
- TECH 265 Basic Manufacturing Processes 3  
- TECH 434 Human Factors in Industrial Accident Prevention 3  
- GEN-ED General Ed Requirement #6 3  
- Area of Study IT Area #3 (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  
- TECH 391 Industrial Quality Control 3  
- TECH 391 Industrial Quality Control 3  
- TECH 391 Industrial Quality Control 3  

**SECOND SEMESTER:** Total 15 hours  
- IT Management Elective 3  
- TECH 429 Plant Location, Layout, and Materials 3  
- GED-ED General Ed Requirement #7 3  
- Area of Study IT Area #7 (See page 33) 3  

### SENIOR YEAR
**FIRST SEMESTER:** Total 15 hours  
- TECH Elective #1 (See below.) 3  
- TECH Elective #2 (See below.) 3  
- GEN-ED General Elective #1 3  
- Area of Study IT Area #7 (See page 33) 3  
- TECH 391 Industrial Quality Control 3  
- TECH 496 Industrial Project Management 3  
- TECH Elective #3 (See below) 3  
- GEN-ED General Elective #2 3  

**SECOND SEMESTER:** Total 12 hours  
- IT Management Elective 3  
- TECH 391 Industrial Quality Control 3  
- TECH Elective #1 (See below.) 3  
- TECH Elective #2 (See below.) 3  
- GEN-ED General Elective #1 3  
- Area of Study IT Area #7 (See page 33) 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) (24-25)**
- TECH 262 Machine Production Processes (3)
- TECH 311 Computer-Aided Modeling (3)
- TECH 312 Design Dimensioning & Toler. (3)
- TECH 313 Product Design and Dev. for Manuf. (3)
- TECH 314 Tool and Die Design (3)
- TECH 414 Computer-Aided Machine Design (3)

*Two of the following (6-7):*
- TECH 260 Metal Fabrication Processes (3)
- TECH 344 Materials and Processes in the Plastics Ind. (3)
- TECH 345 Plastic Molding Processes (4)
- TECH 365 Metrology (3)
- TECH 409 Internship (3)

**Manufacturing Technology (24-25)**
- TECH 260 Metal Fabrication Processes (3)
- TECH 262 Machine Production Processes (3)
- TECH 311 Computer-Aided Modeling (3)
- TECH 313 Product Design and Dev. for Manuf. (3)
- TECH 365 Metrology (3)
- TECH 420 Computer-Integrated Manufact. (3)

*Two of the following (6-17):*
- TECH 312 Design Dimensioning & Toler. (3)
- TECH 344 Materials and Processes in the Plastics Ind. (3)
- TECH 345 Plastic Molding Processes (4)
- TECH 409 Internship (3)
- TECH 427 Testing Methods, Procedures, and Selection of Industrial Plastics (3)
- TECH 441 Hazard Control in Distrial Operations (3)

**Environmental Safety and Health (24)**
- TECH 231 Safety Programs (3)
- TECH 245 Pollution, Pestilence, Prevention, and the Cost of Doing Business (3)
- TECH 432 Disaster Preparedness (3)
- TECH 436 Design and Administration of Industrial Safety Programs (3)
- TECH 437 Industrial Hygiene (3)
- TECH 441 Hazard Control in Industrial Operations (3)

**Plastics Technology (25)**
- TECH 262 Machine Production Processes (3)
- TECH 311 Computer-Aided Modeling (3)
- TECH 344 Materials and Processes in the Plastics Industry (3)
- TECH 345 Plastic Molding Processes (4)
- TECH 393 Structure and Properties of Mtrls (3)
- TECH 427 Testing Methods, Procedures, and Selection of Industrial Plastics (3)

*Two of the following (6):*
- TECH 312 Design Dimensioning and Toler. (3)
- TECH 313 Product Design and Dev. for Manuf. (3)
- TECH 314 Tool and Die Design (3)
- TECH 365 Metrology (3)
- TECH 409 Internship (3)

**Special Technical Area (23)**
This area is 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.
Graduation Information

The best way to insure a smooth degree audit is to be certain that your file in Registration and Records is complete and accurate with all documents (transcripts, grade changes, substitutions, adviser approval letters) and information necessary for graduation. Please carefully review your DARS report for accuracy. It is your responsibility to contact your adviser with any questions of discrepancies that appear on these reports. You may view your DARS report through WebConnect at www.reg.niu.edu/regrec/connect.

The deadlines for applying for graduation and commencement are listed below. You must have at least 90 total semester hours to apply for graduation and your $29.00 graduation fee is due when you apply. The fee can be paid with a check, money order or credit card. The application and fee payment must arrive in Registration and Records by 3 p.m. the day of the deadline. If the deadline falls on a Saturday or Sunday, the deadline will default to the following Monday at 3 p.m. Postmarks will not be accepted.

Graduation Application and Fee Deadline:
- For December Graduation - November 1
- For May Graduation - April 1
- For August Graduation - July 1

*Note: There is no commencement ceremony in August. August graduates who would like to attend the May ceremony must apply by April 1st. Otherwise, August graduates will be invited to the December ceremony.

Once you apply for graduation for the current term, Registration and Records will review your record, including the courses for which you are registered, and send you a PRE-CHECK LETTER showing your latest standing toward graduation. Please carefully check this information and contact your adviser if you have any questions. The FINAL GRADUATION CHECK determines if you have met the requirements for your degree and if you are eligible for a degree with distinction. This process begins as soon as grades are processed and is generally completed within 14 days after the official graduation date. During those 14 days, your file must be completed with all documents required to complete your degree. If you are unable to resolve a deficiency within this 14 day period, please advise the Office of Registration and Records immediately of your new graduation date. It is the student’s responsibility to notify the Graduation Evaluations Office in writing of their next intended graduation date. Upon such notification, the Graduation Evaluations Office will review the student’s academic record again at that time. An additional fee is not required.

Your diploma will be sent to the permanent address Registration and Records has on file if you are currently enrolled at NIU. If you need to change your address, please go to Web Connect at http://www.reg.niu.edu/regrec/connect. If you are not currently enrolled at NIU, contact Registration and Records at (815) 753-0680 to change your address. Diplomas are sent to your permanent address four to six weeks after the end of the term. You may verify the date your diploma was mailed at: http://www.reg.niu.edu/regrec/menus/gradinf.htm

Students who wish to walk in a ceremony must get permission from the Associate Dean’s Office, EB 331.
University Libraries

The Northern Illinois University Libraries system consists of Founders Memorial Library, branch libraries which include Faraday Library, the Map Library, the Music Library, NIU Hoffman Estates Library, NIU Naperville Resource Center, and NIU Rockford Library, and the Regional History Center/University Archives.

The University Libraries contain over 2 million volumes as well as periodicals, government publications, microforms, maps, recordings, audiovisual materials, and electronic databases.

NIU Libraries are participants in the Illinet Online (I/O) System, a network involving 65 academic institutions throughout Illinois. Using computer workstations in the libraries, via dial-up, or the World Wide Web, users may immediately determine which libraries own desired research materials. Materials not owned by NIU can be obtained quickly from other I/O member libraries.

Founders Memorial Library, the main library, has six levels with 314,000 square feet of space and seating capacity for 1600 students. The first floor houses key library services including the circulation desk, the reference desk, services to students with disabilities, library instruction, the information desk, document delivery services, the reserves collection, periodicals collection, and the newspaper reading room. Microforms and government publications are located on the second floor; rare books and special collections and the Southeast Asia collection are on the fourth floor. The upper three floors house circulating books and nonprint materials.

Faraday Library serves faculty and students in the disciplines of chemistry and physics. Similarly, the Music Library serves the music curriculum, and the Map Library contains maps and atlases for research in geography. NIU Hoffman Estates Library, NIU Naperville Resource Center, and NIU Rockford Library service the needs of library users at those sites. Regular, interim, and holiday hours are posted near the entrance to each library.

NIU libraries provide a variety of guides to collections and services. These materials are available at the information desk and at service sites throughout Founders Memorial Library. Instruction in the use of the library is given to classes by librarians as part of the University Libraries library instruction program. Library instruction covers both basic library orientation and, for upper level classes, in-depth instruction related to materials in particular subject areas.
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)
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Faculty Teaching and Research Interests
Department of Industrial and Systems Engineering

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Faculty Teaching and Research Interests
Department of Mechanical Engineering

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Brianno Coller, Ph.D., Cornell University, associate professor (nonlinear dynamics, control of fluid flows, aeroelasticity)
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Abhijit Gupta, Ph.D., P.E., Pennsylvania State University, associate professor (analytical and experimental stress and vibration analysis, finite element techniques, random vibrations and fatigue, failure analysis of electronic, automotive and rotating components)
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Meung Jung Kim, Ph.D., Virginia Polytechnic Institute and State University, associate professor (evaporative laser cutting, composite materials, viscoelastic materials, CAD/CAM with FEM and BEM)
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Faculty Teaching and Research Interests

Department of Technology

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