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We are delighted that you have chosen to pursue an industrial engineering based career and welcome you to the ISE Department at Tennessee Tech University. Our program provides the academic foundation and real-world experience important to lifelong learning skills and success in the profession.

As a student in our program, you are responsible for all curriculum and University requirements in the official University publications. This handbook provides you with basic information about the Department and the BSIE degree requirements. It also indicates where important information on University regulations and procedures can be found in the Tennessee Tech [Student Handbook](http://www.tntech.edu/studenthandbook/) (<http://www.tntech.edu/studenthandbook/>), the [University Catalogue](http://www.tntech.edu/ugcat/), (<http://www.tntech.edu/ugcat/>) and other University publications. Related URL links are referenced for each section of the handbook.

If you have any questions or concerns, contact your advisor, the ISE office staff, or me.

Best wishes for a successful year!

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Scope of Industrial Engineering

The [Institute of Industrial Engineers](http://www.iienet.org) (<http://www.iienet.org>) (IIE) definition of IE is as follows:

"Industrial Engineering is concerned with the design, improvement, and installation of integrated systems of people, material, information, equipment, and energy. It draws upon specialized knowledge and skills in the mathematical, physical, and social sciences together with the principles and methods of engineering analysis and design to specify, predict, and evaluate the results to be obtained from such systems."

IEs help organizations combine people, materials, equipment, information, energy, and other resources in an effective manner to accomplish the organizations' objectives. Applications within the profession are diverse and include manufacturing, distribution and logistics, healthcare, banking, insurance, government, utilities, consulting, and many others.

Faculty	Interest Areas
Kenneth R. Currie BN 222 732-3362 kcurrie@tntech.edu	Multi-Disciplinary Optimization, Integrated Product and Process Development, Technology Planning/ Management, Lean Manufacturing Strategies, Process Simulation.
S. Deivanyagam CH 201 372-3172 deivy@tntech.edu	Ergonomics, Workplace Design, Evaluation and Control, Occupational Safety & Health, Human Systems Integration, Productivity Improvement
David Elizandro PH 323 372-3386 delizandro@tntech.edu	Simulation and Mathematical Models Engineering Leadership Strategic Planning
Jessica Matson PH 126 372-3260 jmatson@tntech.edu	Engineering Leadership Experiential Learning Production Systems Design
James Smith PH 106 372-3959 jrsmith@tntech.edu	Quality Control Statistics Design of Experiments
R. Meenakshi Sundaram PH 110 372-3790 msundaram@tntech.edu	Innovative Process and Product Design Design and Operation of Production Systems Lean and Competitive Manufacturing Strategies Manufacturing Cost Estimation

Adjunct Faculty

Larry Smith
PH 108 372-6256
lgsmith@tntech.edu

Staff

Diane P. Knight, Secretary
PH 117 372-3465
dknight@tntech.edu

Department Overview

The ISE Department vision is
*to be recognized for innovation and leadership in
industrial engineering education, research, and
service.*

The Department's mission is:

*to develop benchmark quality industrial engineers with
broad-based expertise in the design, development, and
management of integrated production and service
systems; and
to develop and transfer innovative technologies for
modeling and solving the problems of such integrated
systems.*

Bachelor of Science Degree in Industrial Engineering

The faculty adhere to a well-defined process prescribed by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology ([ABET](http://www.ABET.org)) (<http://www.ABET.org>) for administering the degree program. The process is based on the active involvement of program constituents. Constituents include faculty, currently enrolled students, program graduates, and external representatives who are familiar with the industrial engineering profession. To ensure continuous improvement, the BSIE program is periodically reviewed by program constituents. As a result of these efforts, the BSIE degree program is accredited by the Engineering Accreditation Commission of ABET.

Program Objectives

From the ABET definition, Program Educational Objectives are used to characterize industrial engineering program graduates within three to five years of graduation. The objectives for the BSIE degree program are:

Tennessee Tech industrial engineering graduates will:

Lead the planning, designing, developing, and controlling of integrated systems.

Apply industrial engineering concepts and tools to improve processes in service and manufacturing systems.

Use analytical techniques to model complex systems and make inferences for effective decisions.

Pursue graduate education in either a research or professional degree program.

Because Program Educational Objectives characterize graduates' performance three to five years after graduation, employer visits and alumni surveys are used to assess objectives.

Program Outcomes

ABET Criterion 3 specifies eleven required Program Outcomes which describe a student's capabilities on graduation day. In addition to the ABET specified Outcomes, the BSIE degree has four signature outcomes to ensure that our graduates are prepared to achieve the Program Educational Objectives. These Program Outcomes are detailed in the following table.

ABET Program Outcomes (Criterion 3 a-k)	
a.	Ability to apply knowledge of mathematics, science, and engineering
b.	Ability to design and conduct experiments, as well as to analyze and interpret data
c.	Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
d.	Ability to function on multi-disciplinary teams
e.	Ability to identify, formulate, and solve engineering problems
f.	Understanding of professional and ethical responsibility
g.	Ability to communicate effectively
h.	Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
i.	Recognition of need for and ability to engage in life-long learning
j.	Knowledge of contemporary issues
k.	Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
Signature Program Outcomes	
l.	Ability to specify data requirements to assess and improve system performance
m.	Ability to develop and evaluate abstract models of system performance
n.	Ability to utilize analytical techniques for decision-making
o.	Demonstrated leadership capabilities in individual and team situations

Table 1. BSIE Program Outcomes

Figure 1 shows the relationship between the curriculum, Program Outcomes, and Program Objectives. Notice that each course has associated Course Outcomes that are linked to one or more Program Outcome(s) and each Program Outcome is associated with one or more Program Objective(s).

As suggested by Figure 1, the basis for assessing Program Outcomes is primarily student success on course outcomes. Other Program Outcome metrics include:

- Annual survey of juniors and seniors
- Annual student interviews by the Industrial Advisory Board
- Senior exit interviews by the department chair
- Evaluation of capstone design projects by panel of practicing engineers

You will notice that in each of your industrial engineering courses, the course syllabus includes the course outcomes. As an example, course outcomes for ISE 3200 are shown in Table 2.

Describe data sets. Computation of descriptive statistics such as sample mean, median, mode, range, and variance. Use of the MINITAB software to construct graphical descriptions of data such as histograms, time series plots, boxplots, and stem and leaf plots.

Use probability distributions to determine probabilities. Included are empirical, binomial, negative binomial, poisson, hypergeometric, normal, exponential, lognormal, and Weibull distributions. Event probability.

Make decisions using hypothesis testing and confidence intervals. Included are decisions about one population mean, variance, and proportion. Also, decisions regarding two population means, variances, proportions, and tests of independence. Determination of sample sizes.

Fit simple linear regression models, construct confidence intervals on model parameters and predictions. Correlation.

Table 2. ISE 3200 Course Outcomes

[Curriculum](http://www.tntech.edu/ugcat/html/industrial_engineering.asp)

http://www.tntech.edu/ugcat/html/industrial_engineering.asp

The curriculum is designed to comply with requirements of the Accrediting Board for Engineering and Technology (ABET), the state of Tennessee, and the Tennessee Board of Regents, the governing body for the university. The 2007 BSIE program requires 129 semester-hours of coursework. The recommended schedule enables the student to complete degree requirements in eight (8) semesters.

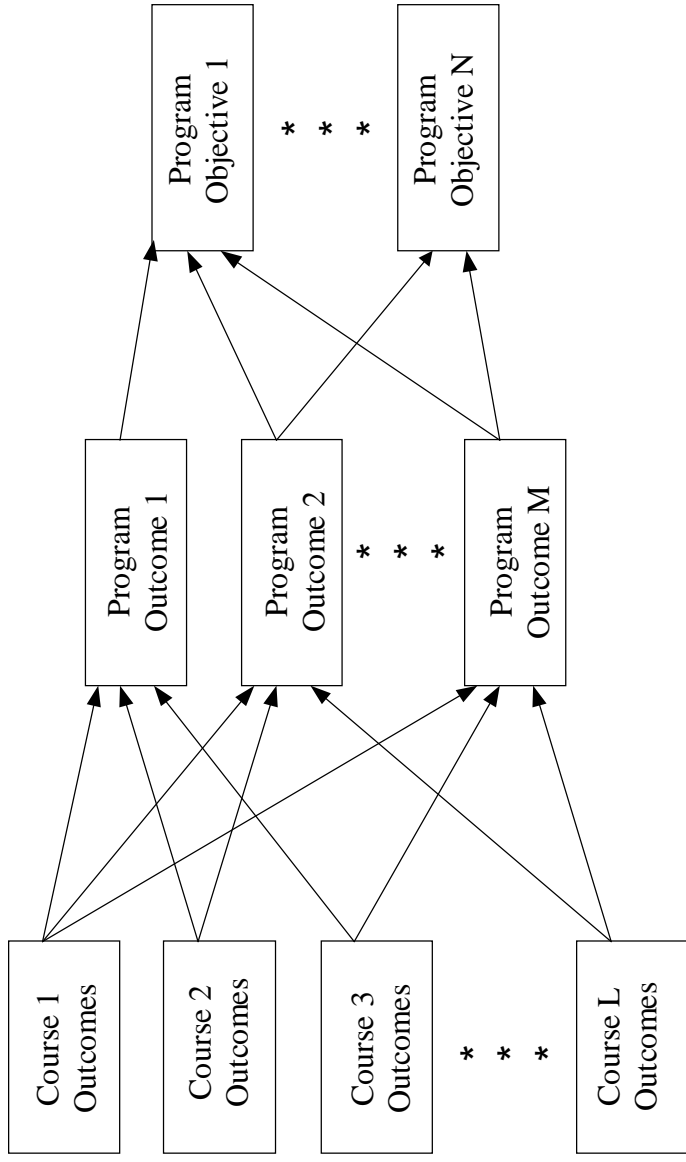


Figure 1. Program Educational Objectives and Curriculum Relationship

Freshman Year

In the 2007 curriculum, the BSIE freshman curriculum will be the same as the curriculum for undecided students in Basic Engineering. The emphasis is on the fundamental tools of mathematics, chemistry, a higher-level computer language, engineering graphics, and expository writing. Students are introduced to the various fields of engineering and the concept of design. This fundamental pre-engineering knowledge is the foundation for advanced studies in engineering design, engineering science, and topics unique to industrial engineering. To provide an understanding of the global and societal issues associated with engineering decisions, a Humanities/Fine Arts elective is required in each semester. An approved list of these electives is in the Appendix.

Sophomore Year

Students continue with required mathematics and physics courses. For flexibility, students may choose to take either the second physics course or a survey course in anatomy and physiology. The first two of four business courses, micro and macro economics, satisfy the required social science sequence for industrial engineering majors. Students begin the engineering mechanics sequence with CEE 2110 Engineering Mechanics. A one-credit programming course reinforces programming skills learned in the freshman year. ISE 2000 Introduction to Industrial Engineering and Computers introduces the student to engineering analysis and design and the concept of evaluating alternatives and reporting on recommendations. Teamwork and ethics in engineering are also stressed. General Education courses in the sophomore year include a literature (humanities) course, a speech course, and the economics courses.

Junior Year

ISE 3100 Engineering Economy, ISE 3200 Engineering Statistics, ISE 3220 Design of Experiments, ISE 3400 Operations Research, ISE 3410 Simulation of Industrial Systems, and ISE 3800 Information Systems are preparation for more complex problems in the senior year courses. ISE 3310 Process Improvement Techniques includes tools and techniques for design and analysis of open-ended problems. Other courses are accounting courses, ME 2330 Engineering Mechanics-Dynamics, and MATH 2120 Differential Equations. ISE 3900 Industrial Engineering Seminar focuses on current topics, ethics, technical report writing, and the importance of lifelong learning.

Senior Year

ISE 4000 Engineering Leadership and Project Management students apply project management techniques on a small scale in an industrial project. ISE 4230 Quality Control extends the knowledge and skills developed in the statistics and experimental design courses. ISE 4500 Facilities and Material Handling System Design requires an open-ended design project, that includes problem identification, data collection and reduction, development and evaluation of alternatives, and documentation of results in a written report. ISE 4600 Production Control provides additional tools in forecasting, inventory planning, lean production, and production scheduling. Students also have an approved ISE elective in an interest area. Other courses are CEE 3110 Mechanics of Materials, ME 3210 Thermodynamics, and ECE 3810 (and 3860) Fundamentals of Electrical Engineering (and laboratory).

In the last term, your previous academic experience is applied to a team-based real world project in ISE 4510 Engineering Design Internship. Projects are submitted by participating companies or organizations. In addition to midterm and final presentations to the client, a formal presentation is conducted at the end of the project for a panel composed of faculty and/or practicing industrial engineers. All ISE students are also invited to attend. Finally, students must take ISE 4910, a review course for the Fundamentals of Engineering examination

Minors

The requirements for a minor are specified by the program offering the minor. As of the 2005 curriculum, the requirements for a Business minor include four additional courses beyond the BSIE requirements: BMGT 3510, FIN 3210, LAW 3810, and MKT 3400.

Degree Elective

A three-credit ISE Elective is required for the 2007 curriculum. A course substitution form must be submitted to indicate which of the following courses will satisfy the ISE Elective requirement. The following courses are approved electives.

ISE 4240 Quality Engineering
ISE 4330 Ergonomics in Manufacturing Systems
ISE 4400 Advanced Topics in Operations Research
ISE 4550 Product Development and Engineering
ISE 4610 Computer Aided Manufacturing
ISE 4650 Lean Production Systems
ISE 4990 Special Problems in Industrial Engineering
(with department chair approval)
ISE xxxx*Other ISE upper-division courses (with department chair approval)

*ISE 3920 is not an elective for the BSIE program.

Other Graduation Requirements

Fundamentals of Engineering Exam (<http://www.state.tn.us/commerce/boards/ae/engInfTestInfo.html>)

Before graduation, all BSIE students are required to take the Fundamentals of Engineering (FE) Examination administered by the Tennessee State Board of Architectural and Engineering Examiners. The morning session of the eight-hour exam focuses on mathematics, science, and general engineering fundamentals. The afternoon session of the exam focuses on topics specific to the discipline. Approximately two months after the exam, students are notified of their exam scores. Those who pass the exam are designated as Engineering Interns.

The FE exam is administered on campus in October and April. Students who plan to graduate in December should register for the October test date. The application deadline for the October exam is usually in August. Students who plan to graduate in May or August should register for the April examination. The application deadline for the April exam is usually in January. Registration deadlines will be posted on the student information board outside the ISE office. FE applications are available in the ISE office. Applications must be accompanied by a money order, cashier's check, or personal check for the application fee (currently \$50.00).

Upcoming examination dates are:

2007 October 27
2008 April 12 and October 25
2009 April 25 and October 24

Students who pass the FE Examination are reimbursed for their exam application fees by the Industrial Advisory Board. These students are also recognized at the annual ISE Awards Banquet in April.

To help students prepare for the exam, the department requires the ISE 4910 Industrial Engineering Seminar, which focuses on industrial engineering concepts expected on the exam.

Senior Exit Exam (<http://www.tntech.edu/records/cbe.html>)

Tennessee Tech also requires students obtaining their first TTU undergraduate degree to take the Senior Exit Exam offered in the fall and spring semesters. Students are expected to take the exam one semester prior to their anticipated graduation date, with summer graduates taking the exam during the preceding spring. The Office of Academic Affairs notifies students to sign up for a specific date to take the test. If you have questions, contact the Office of Academic Affairs, Derryberry Hall 204, 372-3463.

Substitution Forms

Substitution forms for the ISE Elective and other approved substituted courses must be signed by your advisor, and returned to the ISE office. A request approved by the Department Chair is signed and forwarded to the Associate Dean for Basic Engineering, Recruitment, and Retention. Copies of all substitution forms are in your permanent file. Substitution Forms are available in the ISE Department office, room 117, or downloaded from: (<http://www.tntech.edu/records/pdf/SUB.pdf>).

Application for Graduation (<http://www.tntech.edu/records/pdf/gradapp.pdf>)

Degree candidates must file a written application for graduation with the Office of Records and Registration at least two semesters before the expected graduation date. The ISE Department will receive a copy of your TTU Worksheet on Graduation Requirements. This is your opportunity to ensure that you have completed courses required for graduation and to complete the required Substitution Forms.

Selected Academic Regulations

Attendance Policy (http://www.tntech.edu/ugcat/html/attendance_and_withdrawal.asp)

You are expected to attend every class. At the beginning of each course the instructor is responsible for providing in writing the attendance policy. When, in the opinion of the instructor, the attendance record of a student becomes unsatisfactory, the Office of Student Affairs will be notified. Unsatisfactory class attendance may result in the student being dropped from a course with a grade of F. A student who is unable to attend classes due to an emergency or serious accident should notify the Office of Student Affairs.

Students may consider a class dismissed and leave the classroom without penalty if the instructor fails to appear within fifteen minutes of the scheduled start time.

Tests and Examinations Policy (http://www.tntech.edu/studenthandbook/ASP/academic_regulations.asp)

The University policy is as follows:

Students should have feedback on their work in courses so that they can make progress and informed academic decisions, including decisions about continued enrollment in the class. Chairpersons should urge faculty in their departments to provide this feedback as an aid to their students. Specifically,

- 1. Faculty should return exams, projects, quizzes and assignments in a timely fashion.*
- 2. Faculty should structure their courses so that graded material sufficient to gauge progress be given and returned in advance of the date by which a student can drop a courses with a W, and, in the case of students for which freshman progress reports are issued, in advance of the deadline for determining those grades.*
- 3. Faculty should always be willing to discuss grading policies and academic progress with their students.*

Academic Standards

The minimum level of achievement to remain in good academic standing is shown in Table 3. A student who fails to satisfy the minimum semester QPA shown in the Retention Table will be placed on Academic Warning. A student who received an Academic Warning and fails to achieve the minimum semester QPA standard the next semester enrolled is placed on Academic Probation. When the semester QPA indicates Academic Warning and the cumulative QPA dictates Academic Probation, the student is placed on probation. A student on Probation is in danger of suspension from the University unless the required improvement shown in the Retention Table is achieved.

A student placed on Academic Probation should immediately refer to the TTU catalogue link <http://www.tntech.edu/records/retention.html> which details the policy and procedures of Academic Probation, Suspension and Dismissal.

Cumulative Hours Attempted Minus First Repeats	Required Minimum Cumulative Quality Point Average** (Column 1)	Required Minimum Semester Quality Point Average (Column 2)
00.00 - 14.09	No minimum	No minimum
14.10 - 29.09	1.50**	1.50*
29.10 - 50.09	1.75**	1.75*
50.10 and above	2.00**	2.00*

Table 3. Retention Table

Dead Week (http://www.tntech.edu/studenthandbook/ASP/academic_regulations.asp#Week_Prior)

No examination or extensive assignments should be given during the week prior to final examinations except (1) quizzes covering no more than a week's worth of new material, (2) major tests unanimously requested by the class, (3) approved final examinations, and (4) evaluation in laboratories, independent study, or self-paced courses.

Cheating

Engineers and those aspiring to be engineers are expected to conduct themselves in a manner consistent with the [NSPE Code of Ethics](http://www.nspe.org/ethics/eh1-code.asp). (<http://www.nspe.org/ethics/eh1-code.asp>). (see page 23)

Plagiarism, cheating, and other forms of academic dishonesty, either directly or indirectly through participation or assistance, are prohibited. In addition to disciplinary sanctions that may be imposed through regular institutional procedures, the instructor has the authority to assign an “F” or a zero for the exercise or examination, or to assign an “F” in the course.

Facilities

Laboratories and Classrooms

All ISE Department offices, classrooms, and laboratories are in Prescott Hall. There are over twenty general computer labs on campus for student use, including PH 204.

PH 111, the Senior Design Lab, is dedicated to team-based senior design projects. Access is limited to students who are enrolled in or have completed fall ISE senior courses. The Integrated Systems Lab in PH 123 supports several ISE courses, beginning with ISE 2000. PH 203 is a computer-based laboratory and an instructional classroom. PH 208 is a classroom equipped by a “Classroom with Class” campaign to create a state-of-the-art classroom. PH 128, the ISE Conference Room, may be used by students when it is not reserved for other activities.

ISE majors may have access to PH 203 and PH 128 by contacting the departmental secretary and signing an agreement on room usage. If you have a problem in an ISE Department laboratory, please notify the departmental secretary in PH 117.

Food and drinks (other than water) are not permitted in IE classrooms or laboratories with the exception of the Senior Design Lab. Students may submit requests to the department chair for exceptions.

The student chapter of the Institute of Industrial Engineers and the Alpha Pi Mu honor society have an office in PH 113.

Equipment

Miscellaneous equipment such as videocamera, digital camera, laptop, multimedia projector, and tools may be checked out in the ISE office during regular office hours for use on projects or other course assignments.

Student Organizations

Institute of Industrial Engineers

The [Institute of Industrial Engineers](http://www.iienet.org) (IIE) (<http://www.iienet.org>) is a professional organization devoted to the interests and development of the industrial engineer. Our student chapter offers opportunities for students to participate in professional and social activities outside the classroom with other IE students, faculty, and staff. Student chapter activities include plant tours, conferences, banquets, technical programs with guest speakers, picnics, and other social functions.

The student chapter meets on Tuesday or Thursday at 11:00 a.m. usually in Prescott Hall 208. Meetings are held at least once per month during the academic year. Applications for membership are in the ISE office. Current student membership dues, including a subscription to the IIE monthly magazine, *Industrial Engineer*, are \$30 per year.

Alpha Pi Mu (<http://www.alphapimu.net>)

Tennessee Tech is home to a chapter of Alpha Pi Mu, the national honor society for ISE students. Membership provides recognition for outstanding academic achievement for juniors, seniors, and graduate students. Requirements for induction into Alpha Pi Mu are that a junior be in the top 20% of the junior class; senior students must be in the top 30% of the senior class.

Order of the Engineer (<http://www.order-of-the-engineer.org>)

Order of the Engineer is not an organization but is a “fellowship of engineers trained in science and technology and dedicated to the teaching, administration or practice of their profession.” Initiation into the Order includes adherence to a Creed and acceptance of a stainless steel ring. Approximately two weeks before graduation, the Dean’s office will send out letters inviting prospective graduates to accept the “obligation of an engineer.” However, If you have requested that directory information not be released, you may not receive an invitation. The ceremony takes place before or after commencement

activities. Families are invited to the presentation of the ring and the Certificate. There is a one-time fee of \$15.00.

Special Programs

Undergraduate Research Assistantships

The ISE Department sponsors part-time summer assistantships for undergraduates interested in learning about graduate study in industrial engineering. An assistantship may require collection and/or analysis of data for a research project, or some approved activity supervised by an ISE faculty member. The objective of the undergraduate assistantship program is to help students learn about research and graduate study. Many other universities sponsor summer assistantships for undergraduates interested in research, and the ISE Department maintains information on these opportunities.

[Cooperative Education Program](http://www.tntech.edu/career/student_coop_info.html) (http://www.tntech.edu/career/student_coop_info.html)

The Cooperative Education Program (Co-op) is a voluntary, independent educational program coordinated through the Office of Career Services. The program integrates formal classroom study and off-campus work experience. There are two co-op study/work plans: Plan A (alternating one-year cycles), or Plan B (alternating semesters). A student must register for a co-op course each semester.

Industrial Engineering co-op students are required to complete the same academic program for graduation as non-co-op students. Our students have worked at such companies and organizations as Mitsubishi, Nissan, Milliken, NASA, John Deere, Denso, Johnson Controls, MasterCraft and General Motors.

Notices on co-op and other work opportunities are posted on the bulletin board outside the ISE office. Questions may be directed to Co-op Director, RUC 328, 372-3296.

General Information

Advising

Upon admission to the department, each IE student is assigned an advisor and normally keeps the same advisor until graduation. Each semester, during the registration period, a student schedules an advising session to obtain student advising form approval and the authorization code to register.

Student Information Form

At the beginning of fall semester, each student will receive a Student Information Form. Please return the completed form to the ISE office as soon as possible. The completed form becomes part of your permanent file. This information is helpful for several reasons including recommendations for scholarships and nominations for awards such as *Who's Who*.

Scholarships and Financial Aid (<http://www.tntech.edu/financialaid/>)

The Financial Aid office (RUC Room 214) is the best source of information about financial aid and scholarships. There are some scholarships with preference given to ISE students.

For current students, the ISE Department awards scholarships from the Sid Gilbreath Endowment. Applications for this scholarship must be submitted via [ScholarWeb](https://wserve.tntech.edu/mis/scholarshipdb/default.asp) (<https://wserve.tntech.edu/mis/scholarshipdb/default.asp>) by December 15 for the academic year beginning the following August. Recipients are announced at the annual ISE Awards Banquet. The scholarship amount is dependent upon number of applications and the availability of funds.

Information about other scholarship opportunities is posted on the ISE bulletin board as notices are received and also is e-mailed to IE-Majors@tntech.edu.

Student Awards

Academic awards will be presented to the sophomore, junior, and senior with the highest overall QPA in their class. Class standing will be defined in terms of the ISE courses taken by the student, rather than the number of hours completed. Only the QPA earned at TTU will be considered. For the sophomore award, a student who has not taken ISE 2000 will be considered if registered for the junior ISE courses fall semester. Several awards may be given if students' QPA's are within 1/100 of each other (e.g., 3.824 and 3.832). The department chair designates the awardees.

One Service Award is given each year. Service to the department, to the profession, and to the community will be considered in that order of importance. Only the service during the current academic year is considered. The recipient will be determined by a faculty vote; ties are broken by the department chair.

One Leadership Award is given each year. Leadership within the department, the university, and the community are the order of importance. The Leadership Award is determined by a student vote; ties are broken by the faculty, then the chair.

The Leadership Award recognizes a student who mobilized and unified fellow students through volunteer service. As a result of these efforts, the department is better able to achieve highest aspirations. Apart from noteworthy personal feats, award recipients help raise the capacity of others to improve personally and professionally.*

Nominations for the service and leadership awards are sought from faculty and students. All nominees are given an opportunity to provide information supporting their nomination. Any work done as part of a class or for which remuneration/scholarship is received will not be considered for this award.

The department secretary initiates the award process for identifying the Service and Leadership award recipients four weeks prior to the Awards banquet. Awards are presented at the spring ISE Awards Banquet. Award recipients receive a plaque and their names are engraved on a permanent plaque in the display case outside the ISE department office.

*Adapted from the John W. Gardner Leadership Award (<http://www.independentsector.org/about/aboutawrd.htm>)

Sexual Harassment Awareness Training (http://www.tntech.edu/studenthandbook/ASP/harassment_policy.asp)

Tennessee Tech requires all entering freshmen to complete the Sexual Harassment Awareness Training as part of the UNIV 1020 (First Year Connections) or equivalent course.

Harassment Policy (http://www.tntech.edu/studenthandbook/ASP/harassment_policy.asp)

Tennessee Technological University will not tolerate sexual or racial harassment in the academic, residential, or work environment. TTU recognizes that all individuals have the right to study, reside, and work in an environment free from sexual or racial harassment. All faculty members, students, and staff are subject to this policy. Any faculty member, student, or staff member found to have engaged in behavior

constituting sexual or racial harassment will be subject to disciplinary action which may include dismissal, expulsion or termination, or other appropriate sanction. TTU's complete policy is at http://www.tntech.edu/studenthandbook/ASP/harassment_policy.asp in the Student Handbook.

[Use of Tobacco](http://www.tntech.edu/adminpandp/misc/misc7.html) (<http://www.tntech.edu/adminpandp/misc/misc7.html>)

The University policy on tobacco usage is: *Tennessee Technological University prohibits smoking and use of all forms of tobacco products in all university buildings and university-owned vehicles. Smoking and other tobacco usage is prohibited within twenty-five (25) feet of any point of entry of any campus building. This policy is in effect at all times. Smoking and other tobacco usage is prohibited in any and all residential facilities or within fifty (50) feet of any point of entry of a residential facility on campus. This policy is in effect at all times.*

[Inclement Weather Policy](http://www.tntech.edu/studenthandbook/ASP/inclement_weather.asp) (http://www.tntech.edu/studenthandbook/ASP/inclement_weather.asp)

Students may call **372-NEWS** for information about class cancellations caused by inclement weather.

Telephone and E-Mail List

The ISE Department office maintains a distribution list of telephone numbers and e-mail addresses for IE majors who wish to be on the list. To include your telephone number and e-mail address, stop by the ISE Department office with that information.

Informational messages related to job opportunities and curriculum issues are sent to IE-Majors@tntech.edu, which contains a list of the official e-mail addresses of all students listed as IE majors in the Student Information System. It is important to keep your Tennessee Tech mail account cleared so that you can receive information from the College of Engineering and the ISE Department.

Safety Considerations

At the beginning of each semester each instructor responsible for laboratory experience will review the general safety procedures to be followed and sign a copy of the procedures affirming that the safety procedures have been received.

Drop/Add (<http://www.tntech.edu/records/dropadd.html>)

A student may drop any course, except required English composition and Academic Development Program (if required) courses, during the first four weeks of the fall or spring semesters without receiving a grade for the course. A student may drop any course(s), excluding the aforementioned courses, with a grade of “W” between the fourth week and the week after midterm. However, dropping a course may result in the loss of financial aid such as scholarships.

Changes to the schedule changes may be made using [Eagle Online](http://www.wserve.tntech.edu/ahomepg1.htm) (<http://www.wserve.tntech.edu/ahomepg1.htm>). If Eagle Online is not available, drop/add slips may be processed through the Registration Center. Check the calendar for drop/add dates published on the Tennessee Tech website at <http://calendar.tntech.edu>.

A student who is officially registered in a course and fails to attend a class will receive a grade of NF. One who discontinues attendance without official withdrawal will receive a grade of F in the course.

Courses From Other Universities

A student currently enrolled who wishes to obtain credit toward a TTU degree by taking courses at another institution should first check with their advisor to ensure that the credit will transfer. Courses taken at in-state institutions with which the university has articulation agreements are easily transferable.

Transfer Students (https://www.tntech.edu/admissions/apply_transfer.html)

Students who have completed one or two years of a pre-engineering or science program at a community or liberal arts college can easily transfer into engineering at Tennessee Tech. Transfer students should, consult the department chair and establish a schedule for required ISE courses not offered at the other institution.

Withdrawal from TTU (<http://www.tntech.edu/records/withdraw.html>)

Students who withdraw from school before the end of a semester must make formal written application for withdrawal in the Office of Student Affairs. The last date by which students must withdraw in order to receive a grade of “W” can be found at <http://calendar.tntech.edu/>.

Ethics

Code of Ethics of Engineers

Engineers uphold and advance the integrity, honor, and dignity of the engineering profession by

- I. Using their knowledge and skill for the enhancement of human welfare;
- II. Being honest and impartial, and serving with fidelity the public, their employers and clients;
- III. Striving to increase the competence and prestige of the engineering profession; and
- IV. Supporting the professional and technical societies of their disciplines.

The Fundamental Canons

1. Engineers shall hold paramount the safety, health, and welfare of the public in the performance of their professional duties.
2. Engineers shall perform services only in the areas of their competence.
3. Engineers shall issue public statements only in an objective and truthful manner.
4. Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.
5. Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the profession.
6. Engineers shall continue their professional development throughout their careers and shall provide opportunities for the professional development of those engineers under their supervision.

Humanities/Fine Arts Electives

ART 1030	Art Appreciation	3
ENGL 2130*	American Literature	3
ENGL 2230*	British Literature (combines 2210-2220)	3
ENGL 2330*	World Literature	3
FREN2510	French Culture and Civilization	3
GERM 2520	German Culture and Civilization	3
HIST 1010	Survey of European Civilization I	3
HIST 1020	Survey of European Civilization II	3
HIST 1110	World Civilization I	3
HIST 1120	World Civilization II	3
MUS 1030	Music Appreciation	3
MUAR 2500	Arts and Ideas	3
PHIL 1030	Introduction to Philosophy	3
SPAN 2510	Spanish Culture and Civilization	3
SPAN 2550	Latin American Culture and Civilization	3
THEA 1030	Introduction to Theater	3

Selected Reference Numbers

Barnes & Noble Bookstore	3131
Business Office	3311
Campus Information	0
Career Services	3232
College of Engineering	3172
Counseling Center	3331
Disability Services	6119
Financial Aid	3073
Fitness Center	6212
ISE Department Office	3465
Information Technology Services	3387
International Student Affairs	3634
Library	3326
Records	3317
Registration	3966
University Police	3234
SGA	3417
Student Affairs	3411

Industrial Engineering Curriculum (129 hours)
Fall 2007 Bachelor of Science in Industrial Engineering Degree)

Fall 1			Spring 1		
CHEM 1110	General Chemistry	4	CHEM 1120	General Chemistry II	4
ENGL 1010	Writing I	3	E NGL 1020	Writing II	3
ENGR 1110	Engineering Graphics	2	ENGR 1120	Program. for Engr	2
ENGR 1210	Intro to Engineering	1		Humanities/Fine Arts Elective	3
	Humanities/Fine Arts Elective	3	MATH 1920	Calculus II	<u>4</u>
MATH 1910	Calculus I	4			16
ENGR 1020	First Year Connections	<u>1</u>			
		18			
Fall 2			Spring 2		
ECON 2010	Microeconomics ¹	3	CEE 2110	Engr. Mech.-Statics	3
ENGL 2130/ 2230/2330	American, British, or World Literature	3	ECON 2020	Macroeconomics	3
ISE 2000	Intro/IE and Computers	2	ENGR 2121	Engr. Applications in C	1
MATH 2110	Calculus III	4	MATH 2010	Elem. Matrix Algebra	2
PHYS 2110	Calc.-Based Physics	3	SPCH 2410	Intro to Communications	
PHYS 2111	Calc.-Based Phys. I Lab	<u>1</u>	or PC 2500	Communicating in Prof.	3
		16	Approved Science Option ²		<u>4</u>
					16
Fall 3			Spring 3		
ACCT 2110	Prin. of Financial Acct.	3	ACCT 2120	Prin. of Managerial Acct.	3
ISE 3100	Engineering Economy	3	ISE 3220	Design of Experiments	3
ISE 3200	Engineering Statistics	3	ISE 3310	Process Improvement	4
ISE 3400	Operations Research	3	ISE 3410	Simulation of Ind. Sys.	3
ISE 3800	Info. Systems for IE	3	ISE 3900	ISE Seminar	1
MATH 2120	Differential Equations	<u>3</u>	ME 2330	Engr Mech. Dynamics	<u>3</u>
		18			17
Fall 4			Spring 4		
CEE 3110	Mechanics of Materials	3	ECE 3810	Fund. of EE I	3
ISE 4230	Quality Control	3	ECE 3860	Fund. of EE Lab	1
ISE 4500	Fac. and MH Sys. Des.	3	ISE 4510	Engr. Design Internship	3
ISE 4600	Production Control	3	ISE Elective		3
ISE 4000	Engr. Ldr. & Proj. Mgmt	<u>3</u>	ISE 4910	Fund. Of IE Review	0
		15	ME 3210	Thermodynamics I	<u>3</u>
					13

¹These courses satisfy the General Education requirement for Social Science.

²Approved Science Option: Either
 BIOL 2350 Anatomy and Physiology (4)
 Or PHYS 2120 Calc.-Based Physics II (3) and
 PHYS 2121 Calc.-Based Physics II Lab (1)

