Wayne State University
College of Engineering
Handbook for Pre-Professional Students

Revised: February, 2005
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Preface

This Handbook is provided for students in the pre-professional programs in the College of Engineering. While many of the requirements of the pre-professional program are common among undergraduate degree programs, there are some minor differences. As a result, students are encouraged to declare their intended undergraduate major as early as possible. This will allow students to seek academic advising from the advisor assigned to their degree program and refer to the policies and program requirements outlined in the program’s Undergraduate Handbook.

All students are responsible for knowing and following the policies outlined in this Handbook, the Undergraduate Handbook of their degree program, and the Undergraduate Bulletin. The Undergraduate Bulletin is published every two years. Changes to College Policy that take effect between editions will be included in revisions to the Pre-Professional Handbook as well as the Undergraduate Handbooks published by each academic department. In some cases, program and policy changes will take effect for all students immediately or from a defined date. In other cases, students who entered the College prior to the enactment of a policy or program requirement will have the choice of following either the original or new policy. These grandfather provisions, if available, will be described in the various publications. Any questions about this Handbook or College policy can be directed to the Associate Dean for Academic Affairs, the undergraduate Academic Advisors, or the Director of Undergraduate Studies of a student’s major department.

Students who enroll in the Division of Engineering Technology do so after earning an Associates Degree in a technological field. As such, they are not subject to the same pre-professional requirements as are students in the Division of Engineering. Engineering Technology students should refer to the Engineering Technology Handbook and consult with advisors within the ET program.

Policies described in this Handbook pertain to students admitted to the College of Engineering during or after the Winter 2004 semester. Students admitted prior to this semester should consult with their advisor to determine the policies by which they are governed.

Note: Portions of this Handbook are taken directly or indirectly from the Undergraduate Bulletin of Wayne State University.
College of Engineering

Mission: The College of Engineering has three important missions: teaching, research, and outreach. The latter includes serving the region, state, and nation as part of an urban comprehensive research university. Graduates of the College of Engineering are prepared for professional practice, graduate study, and lifelong learning. Faculty members, with contributions from undergraduate and graduate students, develop the scientific and technological basis for the advancement of the engineering profession. They disseminate this advanced technical knowledge to engineers, other professionals, and the public. A balance among the three missions is sought through a partnership built among students, faculty, staff, alumni, government, and private industry. This can be achieved by maintaining an academic environment that is both intellectually stimulating and supportive of all of its constituents, regardless of race, gender, or ethnic background.

College Organization: The College is divided into two divisions: the Division of Engineering and the Division of Engineering Technology. The Division of Engineering includes six academic departments, five of which offer Bachelor of Science programs: Chemical Engineering and Materials Science, Civil and Environmental Engineering, Electrical and Computer Engineering, Industrial and Manufacturing Engineering, and Mechanical Engineering. These departments, along with the Department of Biomedical Engineering, also offer programs leading to Master of Science and Doctor of Philosophy degrees. The Division of Engineering Technology offers five programs leading to a Bachelor of Science in Engineering Technology as well as a graduate program leading to a Master of Science in Engineering Technology.

Accreditation: The Bachelor of Science programs of the Division of Engineering are accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET). The Electrical/Electronic Engineering Technology program and the Mechanical Engineering Technology programs of the Division of Engineering Technology are accredited through the Technology Accreditation Commission (TAC) of ABET. Curriculum accreditation is based on careful, periodic appraisal of the faculty, educational programs, and facilities of the College. Such accreditation is recognized by other universities, prospective employers, and state professional licensing agencies.
Undergraduate Programs

Each undergraduate program in the College of Engineering offers a strong program designed to prepare students for the profession of engineering as well as graduate and professional education. The opportunities for students who graduate from each of the degree programs are broad. Below is a brief description of each field of undergraduate study in the College of Engineering. This should only be used as an introduction to the field – further discussion of opportunities should be held with department faculty, other students, alumni, and industrial contacts.

Chemical Engineering – The field of the chemical engineer embraces those industries in which matter is treated to affect a change of state, energy content, or composition; and in these industries, the chemical engineer may be concerned with either the processes or the process equipment used for them. The chemical engineer may enter the fields of petroleum processing, pharmaceuticals, food processing, natural and synthetic rubbers and plastics, electronic materials, surface coatings, atomic energy processing, environmental control, and biotechnology. The undergraduate program in chemical engineering includes a thorough study of chemistry, mathematics, and physics, as well as an understanding of physical, biological, and chemical operations and processes. Engineering courses cover material and energy balances, transport phenomena, reaction kinetics, and process and equipment design. In addition, electives may be chosen from topics such as polymers, biochemical engineering, pollution control, materials science, biomaterials, and other special topics.

Civil Engineering – Civil engineers apply the principles and techniques of engineering to the design and integration of complex systems. They have traditionally been leaders in many aspects of urban development, including such diverse areas of concern as: the design and control of structural systems, including tall buildings, bridges, and transportation systems necessary for urban development, commerce and industry; water resources planning and management; containment and treatment of hazardous wastes; design of collection and treatment systems for sanitary and storm sewage; water treatment and distribution systems; construction management; and the integration and management of public works projects designed to improve the urban infrastructure. The responsibilities of the civil engineer directly involve the health, safety, and welfare of the public. The civil engineering curriculum has been designed to provide a broad education in the basic sciences, mathematics, and engineering sciences, civil engineering analysis and design, and their applications to civil engineering practice.

Electrical Engineering – In the field of electrical and computer engineering, basic physical and mathematical principles are utilized to develop new devices, technologies, and techniques of constantly broadening application. Examples are the development, stemming from advances in solid-state and integrated circuit technology, or smaller, cheaper, and more powerful computers, microprocessors, and other data processors, and their utilization in a growing range of systems applications; the growing use of data communications and sophisticated communication networks; the use of lasers, and the development of fiber optic and integrated optical devices for various applications, ranging from optical data professing to communication; development of sophisticated control techniques, smart sensors, and transducers for advanced automation and electric power systems; the application of electronics to health care and diagnostics (such as noninvasive measurements and ultrasound imaging); and energy conversion devices. In the
freshman and sophomore years, students acquire a foundation in the principles of science and mathematics required for the study of engineering. Basic concepts of electrical circuits, electronics, computers, and electromagnetic fields are studied after prerequisite mathematics and science backgrounds are mastered. In the senior year, a choice of electrical and computer engineering electives permit the student to specialize in one or more areas. All graduates in the department earn a Bachelor of Science in Electrical Engineering, and may elect a concentration in either electrical or computer engineering.

**Industrial Engineering** – The industrial engineer is a broadly-trained engineer, concerned with enabling complex systems to function effectively. Managing the inventory of a production facility, for example, involves issues of production and stocking policy, manufacturing equipment, human resources, customer demand, and supplier relationships. The industrial engineer must understand the interaction of the components of a system and coordinate the flow of materials and information to effectively manage the operation. The industrial engineer plays an important role in defining information needs and developing strategies for decision making based on incomplete knowledge. However, the skills of the industrial engineer have much greater application than to traditional production environments. In a growing service sector of the economy including health care delivery, public safety, air transportation, and banking, for example, issues of resource management, scheduling, quality of service, and systems design are important. Traditionally, the manufacturing engineer was responsible for developing the process capability to realize the output of design engineering. Today, however, the boundary between design and manufacturing engineering is becoming blurred. Both groups work together in teams to assure the soundness of design and producibility of products. The manufacturing engineer must have an understanding of the design process, but the special expertise that is brought by the manufacturing engineer is the knowledge and understanding of the production process. All students work towards a Bachelor of Science degree in industrial engineering, with a manufacturing engineering option available for interested students. The common core curriculum includes a strong foundation in mathematics, science, engineering theory, data analysis and statistics, engineering economics and the work environment. This background is enhanced with advanced and elective courses in industrial processes, manufacturing engineering, and quality and production control.

**Mechanical Engineering** – The opportunities and challenges in the field of mechanical engineering are many and diverse. The broad variety of career possibilities includes research and development, design analysis and synthesis, manufacturing and production engineering, testing, sales engineering, maintenance and administration. The challenge of a mechanical engineer may lie in the perfection of a device that will duplicated a million-fold or in the control optimization of a single complex system of unique design. To prepare students for these opportunities, the undergraduate mechanical engineering curriculum is designed to give a basic core education in the humanities, mathematics, natural sciences, basic applied sciences, and engineering fundamentals as well as to provide advanced electives in many applied fields.
Admission to the College of Engineering

**Recommended Background:** Degree programs in Engineering require substantial work in mathematics, physics, chemistry, and other sciences, in addition to a strong ability to communicate both in written and oral forms. In order for students to have sufficient background to make adequate progress in the scientific, engineering, and communications requirements of the degree program, the following program of high school preparation is recommended:

- English: 4 years
- Algebra: 2 years
- Plane and Solid Geometry: 1.5 years
- Trigonometry: 0.5 years
- Physics: 1 year
- Chemistry: 1 year
- Social Sciences or Foreign Language: 2 years
- Electives: 3 years

An incoming freshman with this background may enter the regular, scheduled program in Engineering if he/she earns satisfactory scores on the qualifying examinations in mathematics, chemistry, and English (see below). Students who have only two years of the above mathematics along with only one year of physics, chemistry, or biology may be admitted to the College of Engineering. However, proficiency in the above subjects must be obtained through supplementary course work before entering the normal, freshman-engineering schedule. Students also have the option of completing courses at a community college to provide this required background before applying to the College of Engineering and Wayne State.

**Entering Freshmen:** Admission of students to the College of Engineering directly from high school is dependent on high school g.p.a. and ACT or SAT scores. Students may be admitted to either the professional engineering program, the pre-professional program, or the Engineering Bridge program depending on their educational background and placement examination results.

**Transfer Students:** Applicants to the College of Engineering who have completed college-level studies at a community college or 4-year university are evaluated based on gpa and the level of curriculum completion at the previous institution(s).
**Admission Requirements:** The following table outlines the requirements for admission into each program:

<table>
<thead>
<tr>
<th>Program</th>
<th>Admitted From</th>
<th>Minimum gpa</th>
<th>Minimum Test Scores</th>
<th>Required Course Background/Placement</th>
</tr>
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<tr>
<td><strong>Professional Program in Major of Choice</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td></td>
<td>3.5 overall and in science/math</td>
<td>Math ACT: 26, Math SAT: 650</td>
<td>Placement into MAT 2010, CHM 1225/1230, and ENG 1020</td>
</tr>
<tr>
<td>Community College or 4-Year University</td>
<td></td>
<td>3.0 overall and in science/math</td>
<td>NA</td>
<td>Equiv to MAT 2010, 2020, 2030, 2150; PHY 2175, 2185; CHM 1225/1230 with no grade lower than a C</td>
</tr>
<tr>
<td>Pre-Professional Program (at WSU)</td>
<td></td>
<td>2.5 in pre-professional courses</td>
<td>NA</td>
<td>Completion of pre-professional program with no grade lower than a C</td>
</tr>
<tr>
<td><strong>Pre-Professional Program</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td></td>
<td>2.5 overall, 3.0 in math and science</td>
<td>Math ACT: 22, Math SAT: 550</td>
<td>Completion of courses in pre-calculus, physics, and chemistry; Placement into MAT 1800 and CHM 1225/1230</td>
</tr>
<tr>
<td>Community College or WSU Program</td>
<td></td>
<td>2.5 overall, 3.0 in math and science</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Bridge Program</td>
<td></td>
<td>3.0 in Bridge courses</td>
<td>NA</td>
<td>Completion of Bridge courses</td>
</tr>
<tr>
<td><strong>Engineering Bridge Program</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td></td>
<td>2.0 overall (w/ ACT) or 2.75 overall (no ACT)</td>
<td>Comp ACT: 21, Comp SAT: 950</td>
<td>University requirements</td>
</tr>
<tr>
<td>Community College</td>
<td>Minimum of 12 credits with 2.0 or greater</td>
<td>NA</td>
<td></td>
<td>University requirements</td>
</tr>
</tbody>
</table>
Advising

Advising for undergraduate students enrolled in the professional and pre-professional programs within the College of Engineering comes from four sources:

- **Academic Advising Staff:** Responsible for assisting students with development of a plan of work, selection of general education and elective courses, and maintaining academic progress. Enforce College of Engineering and University academic policy. Can assist students with paperwork required to transfer between pre-professional and professional programs as well as between departments within the College.

- **Departmental Directors of Undergraduate Studies:** Responsible for enforcing Departmental academic policy. Requests for waivers of Departmental policy should be addressed in writing to the Director of Undergraduate Studies of your home department. In the case of policy regarding courses offered by other departments (for instance Mechanical Engineering students taking ECE 3300), requests for waivers may be referred to the Director of Undergraduate Studies of the offering department. These faculty are also a valuable resource for information on selecting technical elective courses and may provide links to potential academic and industrial mentors.

- **Associate Dean for Student Affairs:** Responsible for student recruiting and retention programs. The Associate Dean is the point of contact for academic support services (including tutoring), career resources, and student organizations. The Associate Dean for Student Affairs also serves as the Judicial Officer for the College of Engineering.

- **Associate Dean for Academic Affairs:** Responsible for oversight of all academic programs within the College and enforcement of College academic policy. Requests for waivers of College policy should be submitted in writing to the Associate Dean for Academic Affairs. This includes matters concerning the Basic Engineering courses of the core curriculum.

Students are encouraged to meet with their Academic Advisor at least on an annual basis. Meetings every semester can provide a student with up-to-date feedback on their academic progress. This meeting should include developing a detailed plan of work for the next four semesters of a student’s curriculum. This plan of work is not unchangeable, but will provide a student with a road map towards their educational goal.
Placement and Qualifying Examinations

Many of the subjects in the undergraduate engineering curriculum require students to take placement or qualifying examinations before their first class at Wayne State. In order to prevent a delay in registering for courses in the undergraduate curriculum, students must take these examinations before their first semester of courses at Wayne State.

Chemistry Qualifying Examination: The sequence of chemistry courses for an undergraduate degree in engineering begins with CHM 1225 and CHM 1230. Qualification for these courses requires students to obtain a satisfactory score on the Chemistry Qualification Examination. Students without adequate background in Chemistry to obtain the necessary score on the Qualification Examination should enroll in CHM 1040.

English Placement Examination: All entering freshmen and transfer students shall determine their aptitude in English composition by taking the English placement examination. Students whose score on the English placement examination indicates need for additional instruction and practice in writing must elect and pass ENG 1010 before they can enroll in ENG 1020 or ENG 1050. Students may not enroll in ENG 1010 instead of taking the English Placement Examination.

Mathematics Qualifying Examination: The sequence of mathematics courses for the engineering student normally begins with MAT 2010. For admission to MAT 2010, a qualifying examination must be passed. Failure to qualify for MAT 2010 may result in the student being placed in a lower level course, such as MAT 0993, MAT 1050, or MAT 1800, depending on the student’s performance. Engineering students should not take MAT 0995, as it does not prepare them for their additional required mathematics courses. Students may apply to take the Qualifying Examination for either MAT 1800 or MAT 2010 depending upon their preparation in mathematics. The MAT 1800 Qualifying Examination is based on 1.5 years of high school algebra and 1 year of high school geometry. The MAT 2010 Qualifying Examination is based on 3.5 years of college-preparatory mathematics, including algebra, plane and solid geometry, and trigonometry.

Engineering students who do not take the Mathematics Qualifying Examination prior to registration for the first semester of the freshman year must enroll in MAT 0993. Transfer students who do not transfer in credit equivalent to MAT 2010 must take the Mathematics Qualifying Examination, even if they are transferring in credit equivalent to a lower-level math course. Transfer students who have received a grade of C- or lower in Calculus I must also take the Mathematics Qualifying Examination in order to retake MAT 2010. (NOTE: The College of Engineering does not accept a transfer grade lower than a C for technical courses, including mathematics. Thus, transfer courses that do not meet this criteria must be repeated.) Students who have received Advanced Placement credit equivalent of MAT 2010 may enroll in MAT 2020 without taking the Mathematics Qualifying Examination. If students wish to take MAT 2010 for personal reasons even after receiving credit from an outside source (AP or transfer) (e.g. to refresh their knowledge in the subject), they must take the Mathematics Qualifying Examination before registering for the course.
Results from the Mathematics Qualifying Examination are good for two semesters – the semester immediately following the date when the exam is taken and the subsequent semester. This includes Fall, Winter, and Spring/Summer semesters. If a student does not enroll in the appropriate mathematics course within two semesters, they must retake the examination.

Once the mathematics sequence is entered, progression is governed by the policies of the Mathematics Department. A grade of S (MAT 0993 or MAT 0995) or of at least C- (MAT 1050 or MAT 1800) within the past two semesters (at Wayne State) is required for progression to the next course in the sequence. Students who have delayed their progression in this early sequence may re-enter it by taking the Mathematics Qualifying Examination a second time. Once students satisfactorily complete MAT 2010, there is no time limit on progressing to the next course. However, students are encouraged to complete their math sequence as early as possible.
Engineering Bridge Program

The Engineering Bridge program is designed for students who have an interest in engineering but do not have the science or mathematics background required in order to start the outlined four-year curriculum in Engineering. The Bridge program will provide students with the necessary background in mathematics, physics, chemistry, and English to succeed in the College of Engineering program of their choice. The Bridge curriculum is designed as a 2-semester sequence requiring full-time study. (Students who are unable to attend the University full-time during the Bridge program are encouraged to complete their prerequisite courses at a local community college and then transfer to Wayne State.)

The Bridge Program is divided into two components: Boot Camp and Basic Training. All Bridge students must complete the Basic Training Program. Students who place into MAT 0993 must also complete the Boot Camp Program prior to their first semester of full-time enrollment.

Boot Camp

Engineering Boot Camp is an 8-week summer program designed for students who place into MAT 0993. Students will take an accelerated version of MAT 0993 using the Mathematics Department’s computer-based instruction. In addition, all students will register for BE 0990 – Skills for Success in Engineering I. This course will acquaint students with the skills needed and services available for them to succeed in the College of Engineering at Wayne State. Students must complete both courses with a Satisfactory (S) grade in order to move into the Basic Training phase of the Bridge Program.

Basic Training

This is the standard Engineering Bridge Program, and occupies two consecutive academic semesters.

Fall Semester:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 1050 (PREP version)</td>
<td>7 cr</td>
</tr>
<tr>
<td>PHY 1020</td>
<td>4 cr</td>
</tr>
<tr>
<td>UGE 1000</td>
<td>1 cr</td>
</tr>
<tr>
<td>BE 1050</td>
<td>2 cr</td>
</tr>
<tr>
<td>BE 0991(^1)</td>
<td>1 cr</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15 cr</strong></td>
</tr>
</tbody>
</table>

Winter Semester:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 1040</td>
<td>4 cr</td>
</tr>
<tr>
<td>MAT 1800</td>
<td>4 cr</td>
</tr>
<tr>
<td>MAT 1900 (ESP)</td>
<td>2 cr</td>
</tr>
<tr>
<td>ENG 1010</td>
<td>4 cr</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14 cr</strong></td>
</tr>
</tbody>
</table>

\(^1\) Students who entered the Bridge Program in Fall 2004 or Winter 2005 are not required to take this additional 1 credit course.
Students who complete the Bridge program with a GPA of 3.0 or above, and no grade lower than a C-, are eligible for transfer into the pre-professional program of their choice. Students who do not meet this standard have two options:

1. Transfer out of the College of Engineering – either to another unit within Wayne State or a local community college – to complete the prerequisites for entry into the pre-professional program.
2. Meet with an advisor at the University Advising Center to consider career options outside of Engineering.

For those students who elect to pursue a major outside of the College of Engineering, the following courses will satisfy General Education requirements for the University:

- PS – Physical Science: PHY 1020 (w/ Lab)
- MC – Math Competency: MAT 1800
- IP – Information Power: UGE 1000

Students will also be eligible to register for ENG 1020, which is required of all undergraduates. Thus, the majority of the credits earned during the Bridge program can be applied towards another undergraduate program if a student makes such a decision.

The Basic Training program is designed for students who enter in the Fall semester. Those entering in the Winter should consult with their advisor to determine how the program will be modified. Students who are also enrolled in the Chicano-Boricua Studies (CBS) Program will work with the CBS advisor to develop an extended program contract that will allow completion of the requirements in both the Bridge Program and the CBS Program.
Pre-Professional Program

The purpose of the pre-professional program is to provide students who are not qualified for entry into a professional engineering program with the opportunity to enroll in a restricted set of courses that can be applied to the Bachelor of Science degree in their chosen major. The general pre-professional program in engineering consists of the following required courses:

- **Mathematics**: MAT 2010, MAT 2020, MAT 2030
- **Physics**: PHY 2175, PHY 2185
  (NOTE: students interested in ECE should take PHY 2170/2171 instead of PHY 2175)
- **Chemistry**: CHM 1225, CHM 1230
- **Core Engineering**: BE 1200, BE 1300, BE 1310
- **English**: ENG 1020

Each department has also identified courses that must be completed by pre-professional students before applying for transfer to the professional engineering program in their discipline.

**Chemical Engineering**:
- Chemistry: CHM 1240/1250, CHM 2220, CHM 2280
- Chemical Engineering: CHE 2800

**Civil Engineering**:
- Civil Engineering: CE 2400

**Electrical Engineering**:
- Physics: PHY 2170/2171 (in place of PHY 2175)
- Electrical Engineering: ECE 2620

**Industrial Engineering**:
- No additional courses

**Mechanical Engineering**:
- Mechanical Engineering; ME 2050, ME 2060, ME 2210, ME 2400

In addition to the pre-professional courses, *students must satisfactorily complete the English Proficiency Exam and the Critical Thinking Exam* before applying for transfer to the professional programs. Details regarding these exams are available in the section on General Education Requirements.

Students can choose to apply to the professional engineering program of their choice before or after completing MAT 2150, BE 2100, and BE 2550. However, these courses must be completed successfully before any course is taken for which they are a pre-requisite. Students may not register for any 3000-, 4000-, or 5000-level engineering course until they have successfully completed the pre-professional program and transferred to the professional program.
It is imperative that students realize that they are not allowed to register for engineering courses not on the above list before being granted admission to the professional engineering program of their major department. Students who inappropriately register for these courses will be administratively withdrawn.

**Transfer to the Professional Program**

In order to transfer from the pre-professional program to a professional engineering program, a student must have a minimum gpa of 2.5 in the courses designated as part of the pre-professional program (see above). This gpa is calculated based on these courses alone and **DOES NOT** include performance in non-technical General Education requirements, prerequisite courses, or other courses elected by the student. Students who transfer in a portion of the pre-professional requirements must complete a minimum of 16 credits of technical courses, including the remaining pre-professional courses, with a gpa of 2.5 or higher.

Students who complete the pre-professional curriculum but do not meet the necessary gpa requirement should meet with the Associate Dean for Academic Affairs to determine if a Plan of Work can be developed that will allow the student to demonstrate greater academic mastery of the technical subjects and also elevate his/her gpa. This Plan of Work may include repeating courses, according to the College’s course repeat policy (see Academic Progress and Probation), or taking additional courses in mathematics, science, engineering, or English that may not count towards the degree requirements. Students who do not complete the Plan of Work so as to raise their gpa to the required level within a stipulated period of time will be excluded from the College.
Honors Program

Students in the College of Engineering have the option of pursuing their degree through the Honors College. Admission to the Honors College is by application only – both freshmen and continuing students are eligible to apply. Students may begin to pursue Honors while in either the professional or pre-professional program.

Engineering Honors
Students interested in earning Honors in Engineering in conjunction with their Bachelor of Science in Engineering must complete 24 credits of honors courses, including 11 credits of honors coursework in Engineering. The Honors Program is designed so that students may concurrently earn both Engineering and University Honors.

To be eligible for the Engineering Honors Program, students must meet the following criteria:

- Have achieved high academic standards for admission:
  - Enter the University with a 3.5 overall grade point average from High School and be admitted to one of the Pre-Professional Programs in Engineering; OR
  - Have earned a minimum of a 3.5 grade point average after at least 24 credits of University coursework and be admitted to one of the Pre-Professional Programs in Engineering
  - Maintain a cumulative grade point average of 3.5 or higher, with at least a 3.3 in the Honors-designated courses, throughout the course of undergraduate study.

The following are the required courses for students to earn Honors in Engineering:

- **HON 42XX – Honors Seminar (3 – 4 cr)**
  Students should select an Honors Seminar that satisfies VP, HS, AI, or FC requirements. This will then meet the student’s general education requirement in this area.  (NOTE: Students should not select HON 42XX sections that satisfies SS or PL credit, as these must be satisfied through specific courses specified by their department. Students who wish to consider an HON 42XX section that satisfies LS credit should contact the Associate Dean for Academic Affairs for evaluation of the course.)

- **BE 5998 – Engineering Honors Thesis (4 cr)**
  Engineering students must conduct their thesis with a full-time faculty member in Engineering. This course may be substituted for a four-credit technical elective in the student’s home department, similar to a directed study course, based on Departmental policy. This course counts towards the 11 required honors credits in Engineering.

- **BE 2550 – Basic Engineering IV: Computer and Numerical Applications in Engineering (Honors Section) (3 cr)**
  Students must elect the Honors Section of BE 2550 to satisfy this College-wide requirement. The Honors Section will include more challenging problems and projects. This course counts towards the 11 required honors credits in Engineering.
Departmental Honors Design Course

Each department has adopted an honors course in Design, which satisfies both Honors and AGRADE requirements. Students pursuing Honors should select the Honors-designated section. Students must complete the course specified by their major department:

- Chemical Engineering
  - CHE 6810 – Chemical Process Integration (WI) (4 cr)

- Civil Engineering
  - CE 4995 – Senior Design Project (WI) (4 cr) [5000-level version to be developed]

- Electrical Engineering
  - ECE 5001 – Advanced Design in Electrical and Computer Engineering (4 cr) OR
  - ECE 5002 – Research Projects in Electrical and Computer Engineering (4 cr)

- Industrial Engineering
  - IE 4800 and 4880 – Engineering Design Project 1 and 2 (4 cr) [5000-level version to be developed]

- Mechanical Engineering
  - ME 5330 – Advanced Thermofluid Design (4 cr) OR
  - ME 5500 – Advanced Engineering Design (WI) (4 cr)

These courses will count towards the 11 required honors credits in Engineering.

The required courses listed above, which satisfy Engineering and University Honors Requirements, cover 14 to 15 credits of the overall requirement of 24. The remaining 9 to 10 credits can be taken in any Honors-designated or Honors-option courses offered by the University. In order to apply the classes to both the Honors requirements and the Engineering program requirements, the following courses are recommended:

- BIO 1510
- CHM 1410 (in place of CHM 1225/1230)
- CHM 1420 (for Chemical Engineering students)
- ECO 2010 or ECO 2020
- ENG 1050 (in place of ENG 1020)
- MAT 2010
- MAT 2020
- The second, available departmental-designated Honors Design course (if available)
- Designated honors sections of Engineering courses
- Honors option courses in Engineering (see below)

Students are encouraged to elect Honors sections for all of their courses for which it is available – especially in the technical and engineering areas. There is no limit to the number of honors courses that can be taken while an undergraduate, and the additional challenge and accomplishment in these classes will set an Honors student apart from other Wayne State graduates.
Freshmen who are accepted directly into the University Honors Program will be required to complete a two semester sequence of courses in their first year that integrate traditional general education topics with the concept of the urban environment as a laboratory and service learning. The College of Engineering is working directly with the Director of the Honors Program, Dr. Jerry Herron, to ensure that this course sequence also satisfies Engineering program requirements. Students in the Freshman Honors Program should consult with the Associate Dean for Academic Affairs for assistance in determining how these courses fit into their undergraduate curriculum.

If appropriate courses are selected, completion of the Engineering Honors Program will not require any additional credit hours over the standard Engineering degree requirements. Students should consult regularly with an Engineering advisor in order to make the most effective selection of courses.

**Honors and AGRADE**

Honors students retain the option of entering the AGRADE program at the end of their junior year. Students must meet with their advisor to establish an AGRADE Plan of Work, to include 16 credits from their BS program and 16 additional credits towards their MS. Among the Honors courses that can be applied to the AGRADE Plan of Work are:

- BE 5998 – Engineering Honors Thesis (4 cr)
- Departmental Honors Design Course (4 – 8 cr)

**Application Procedure**

Students interested in entering the Engineering Honors Program should submit a completed Engineering Honors Application to the Associate Dean for Academic Affairs. The application will be reviewed by both the College of Engineering and the University Honors Program to confirm that all eligibility requirements have been met. Students are encouraged to apply as early as possible to the Honors Program – both to be eligible to take Honors sections of courses and to receive the added benefits of being a member of the University and Engineering Honors Programs. However, students may apply to the Honors Program as long as they have at least one semester of coursework remaining at Wayne State and meet the listed qualifications.

**NOTE:** Students may pursue University and College Honors simultaneously – counting Honors credits towards both.

**University Honors Requirements**

To graduate with University Honors, students must complete a minimum of 24 credits of honors-designated courses. Honors-designated courses can be found in the following groups:

- Honors program courses
- Honors sections of departmental courses
- Departmental courses open only to honors students
- Honors thesis, essay, or project courses
- Honors option courses
The 24 credits must include the following components:

- A senior thesis, essay, or project in a field of the student’s choice
- One HON 42xx -level seminar offered by the Honors Program

Honors credits are often available in courses that satisfy the University’s General Education requirements. HON 42xx generally will satisfy General Education requirements, although the sections offered vary between semesters. In addition, students in the Honors Program may replace ENG 1020 with ENG 1050. If the senior project is conducted in the major field, the associated coursework can typically be counted as one of the department’s technical electives. These features allow Engineering students to complete a degree with University Honors without a significant increase in the number of credits required for graduation.

In order to graduate with University Honors designated on the transcript, students must complete their overall undergraduate program with a minimum gpa of 3.3 as well as earning at least a 3.3 gpa in the honors designated courses. Final designation of honors-status at graduation, and subsequent documentation on the transcript and diploma, requires the approval of the Director of the Honors Program.

Eligibility

Freshmen: Students admitted to the University with a grade point average of 3.5 are eligible to apply for admission to the Honors College in their first year. Qualified students who are not selected for the limited positions in the Freshman Honors Program may still be eligible to register for honors sections of courses, such as MAT 2010. Interested students should consult with the Honors Advisor.

Transfer Students: Students who transfer into the University from another institution may be immediately admitted to the Honors College if their record includes a cumulative gpa of 3.3 or higher.

Continuing Students: Students who have begun their studies at Wayne State may elect to apply to the Honors College after they have completed a minimum of 24 credits of coursework. The minimum cumulative (University) gpa for continuing students for entry into the Honors College is a 3.3.

NOTE: Entrance and continuation requirements for the Engineering Honors Program are slightly higher than for the University Honors Program. Students may be eligible for University Honors but still not eligible for Engineering Honors.

Honors-Option Coursework

The Honors Option allows a student in any course at the 2000-level or above, and taught by a regular faculty member, to elect honors type work. This requires that the instructor agree to furnish extra instructional material commensurate with expectations for an Honors course. If a grade of `B’ or above is earned in the course and in the additional work, the student will receive honors credit for the course on the transcript. Application forms for the Honors Option are available in the Honors Program Office. The application form must be signed by the instructor and departmental honors adviser, after which it should be returned to the Honors Program Office.
by the end of the third week of classes. After the Honors Option request is approved by the Honors Program, the form will be returned to the student until a grade is assigned by the instructor. The completed form, including the final grade, must then be returned to the Honors Program Office at the end of the semester.
Transferring Courses towards an Engineering Degree

Students who have been accepted to the College of Engineering after completing college-level coursework at another institution may apply for the courses to be transferred into the University and applied to the degree program. Requests for an evaluation of transfer credit must be made through the Transfer Credit Evaluation Office. Courses with known equivalencies (which are noted in the Transfer Equivalency Tables at www.transfercredit.wayne.edu) will be assessed by the central University office. The Transfer Credit Evaluation Office will forward to the appropriate department any courses for which there is not an established equivalent so that they may be evaluated.

When examining the Transfer Equivalency Tables, please make note of any date limitations regarding the equivalency of a course. This is particularly important for courses that may satisfy General Education requirements. The General Education category of courses is noted, if applicable, in the Table. The University conducts periodic reviews of courses at other universities to determine if they continue to meet Wayne State General Education objectives, and changes to these assessments will be noted. The applicability of these changes to a student’s transfer record is based on the semester in which he/she took a course, not the semester during which he/she entered Wayne State.

A minimum of 34 credits of a student’s undergraduate program must be earned at Wayne State. Most of the engineering degree programs have additional restrictions regarding the transfer of upper-level (4000-level and 5000-level) engineering courses towards an undergraduate degree. Please consult your department’s Undergraduate Handbook for more information.

NOTE: In order for transfer credit in a technical or required science and mathematics course to be applied towards an engineering degree at Wayne State, a grade of C or higher must have been earned. A grade of C- will not be accepted for transfer of these courses.

Any request for reconsideration of the evaluation of transfer credits accepted by the College of Engineering should be made in writing within one year of the date of the student’s first enrollment in the College of Engineering. A College of Engineering Academic Petition should be provided first to the Director of Undergraduate Studies in a student’s major department. Additional appeals may be made to the Associate Dean for Academic Affairs.

After a student enrolls at Wayne State, all technical courses and prerequisites to technical courses must be taken at the University. Any exceptions to this policy must receive approval from the Director of Undergraduate Studies in the student’s major department. Enrolled students must receive prior approval for all courses to be transferred in and applied towards a Wayne State degree. This approval may be obtained through a Michigan Uniform Guest Permit, which must be signed by the Associate Dean for Academic Affairs.

Occasionally, errors have been found in the Transfer Equivalency Tables. The College reserves the right to correct such errors and make appropriate adjustments to a student’s transfer record. The decision of the College of Engineering concerning course equivalency will be final for Engineering courses.
General Education Requirements

The University has established General Education Requirements that must be met by all students who are working towards their first undergraduate degree at Wayne State. (Students who have been awarded a previous bachelor’s degree from an accredited institution are exempt from the University General Education requirements, but must satisfy all other Department and College requirements.)

Two classifications of general education requirements have been established: competency requirements and group requirements.

Competency Requirements
Students must satisfy 8 competency requirements before graduating. These can be satisfied either through satisfactory completion of a designated course (including through transfer credit) or examination. In some cases, the course used to satisfy a competency requirement is dictated by the required curriculum in the College of Engineering.

Written Communication: The Written Communication Competency is satisfied in four stages, each of which must be completed for graduation.

Basic Composition (BC): Can be satisfied through one of the following means:
- Earning an appropriate score on the University’s English Qualifying Examination
- Earning credit for basic composition through Advanced Placement or CLEP tests
- Completing (with a C- or better) ENG 1020 or ENG 1050 (Honors students only)
- Transferring credit received for successful completion of a composition course taken at another college or university (with a grade of C or better)

Intermediate Composition (IC): Can be satisfied through the successful completion (C- or better) of ENG 3050 or through transfer of an equivalent course in technical writing (with a grade of C or better). Students who transfer in a course in intermediate composition that is deemed to meet the IC requirement, but does not cover the topics of technical writing included in ENG 3050, are still required to successfully complete ENG 3050. Second degree students who do not have previous course-work in technical writing must also successfully complete ENG 3050. Students who have not completed a pre-determined equivalent course may petition for a waiver of the ENG 3050 requirement. This petition must be filed with the College of Engineering, and procedures can be obtained from an academic advisor.

English Proficiency (EP): The English Proficiency Examination, described in more detail below, must be successfully completed before students earn 60 credits of coursework towards their undergraduate degree or during the first semester after transferring into Wayne State, whichever is later.

Writing Intensive Course in Major (WI): All students must satisfactorily complete the course designated by their major department to satisfy the WI requirement. This is typically the Capstone Design Project.
**Oral Communication (OC):** For all Engineering students, the OC requirement must be met by successfully completing (with a grade of C- or better) ENG 3060. Transfer students and second degree students may apply a Technical Communication course that covers similar material if a grade of C or greater was earned.

**Mathematics (MC):** The MC requirement is met at Wayne State by satisfactory completion of MAT 0993, placement into MAT 1050 or higher through the Math Placement Examination (see above), or transfer in of the equivalent of MAT 1800 or MAT 2100. All Engineering students satisfy this requirement through their required mathematics courses.

**Computer Literacy (CL):** Before completing 60 credits of coursework, all students must demonstrate basic computer literacy. Engineering students satisfy this requirement through BE 1200. Transfer students for whom BE 1200 is waived without CL equivalency can satisfy this requirement in one of the following ways:
- Completing successfully a suitable high school course in computing (see University Advising for evaluation of high school record)
- Passing the Advanced Placement exam in Computer Science
- Passing the Computer Literacy Competency Examination
- Successfully completing another approved computer applications course (BE 1010, COM 2050, COM 3210, CSC 1000, CSC 1050, CSC 1100, CSC 1140, CSC 1500, CSC 2110, or higher CSC course, IST 2710, ISM 2630, MED 5590, MUA 5610, or NUR 1110)
- Transfer of a comparable course (with a grade of C or higher)

**Critical Thinking (CT):** Engineering students are encouraged to satisfy the CT requirement through the CT examination (described below).

**Competency Examinations:** The English Proficiency and Critical Thinking Competency portions of the University General Education requirements must be met by all students prior to being transferred into a professional engineering program. The English Proficiency Examination and Critical Thinking Examination are designed to be taken by students before they earn 60 credits of course work. Engineering students are encouraged to take the exams before completing the program requirements listed in the fall semester, sophomore year of their major curriculum. This will allow students to transfer to the appropriate professional program before they are scheduled to register for professional courses.

The CT competency requirement may be satisfied through examination (recommended) or through satisfactory completion of a designated course. The Critical Thinking examination may be attempted once per semester. Students who transfer into the University may apply a transferred course to the CT requirement if it is approved as such by the Transfer Credit Evaluation Office. Students who fail the Critical Thinking Competency Examination should register for one of the courses identified by the University as satisfying the CT requirement (BA 1010, COM 2110, ISP 3260, or PHI 1050).

All students must take the English Proficiency examination – this cannot be satisfied through transfer credit. (Transfer students should take the EP exam during their first semester at Wayne State.) Students who fail the English Proficiency exam may repeat the examination once after
taking advantage of self-study and tutoring opportunities provided by the English Composition Clinic. Students who fail the exam a second time must satisfactorily complete ENG 1080. The EP exam may be scheduled no more frequently than alternating months (i.e., February and April).

**Group Requirements**

All students must take a single course (minimum of 3 credits) in each of eight group areas. The selection of those courses is governed by the following principles:

1. Courses that satisfy the Group Requirements must be selected from lists of approved courses.
2. Students who place out of a course or coursers that satisfy one or more of the Group Requirements will be considered to have fulfilled those portions of the group requirements represented by such courses.
3. For the purpose of satisfying these Group Requirements, students may elect no more than one course from a single subject area as defined by the University system of subject area codes (the letter designations which precede course numbers). For example, a student who takes a HIS (History) course to fulfill their HS requirement cannot take another HIS course to fulfill the FC requirement. (So, students who take HIS xxxx to satisfy the HS requirement cannot elect HIS xxx to satisfy the FC requirement or HIS xxx to satisfy the AI requirement.)
4. Where designated, a Group Requirement may be satisfied by approved course sequences.

The College of Engineering specifies in some cases a reduced list of courses from which Group Requirement classes may be selected.

**Natural Sciences (PS and LS):** Students must elect one course each from the PS and LS course lists. A laboratory must be associated with at least one of these courses. For Engineering students, the following courses satisfy this requirement:

- **Physical Sciences (PS):** CHM 1225/1230
- **Life Sciences (LS):** BIO 1510, BIO 2220

If students wish to apply another listed LS course towards their LS requirement, they must take another, approved science course (physics, chemistry, or biology) of three credits or more in order to satisfy the ABET requirement of 16 credits of science coursework. This course should be approved in advance by the Director of Undergraduate Studies of the student’s major department and should relate to the objectives of the undergraduate major (e.g., geology for civil engineering students.) Students in Industrial Engineering may elect a psychology course that satisfies the LS requirement; however, this will not satisfy the requirements of any other major within Engineering if a change of program is made later. All students wishing to select a course other than BIO 1510 or BIO 2220 should first seek advice from their academic advisor or Director of Undergraduate Studies.

**Historical Studies (HS):** Students may elect any course from the HS list.
Social Science (SS): Most departments in the College require students to take ECO 2010 or ECO 2020 to satisfy this requirement, as the course satisfies the ABET requirement for education in economics. Students in Industrial Engineering may elect any SS course, as they complete their economics requirement through other course requirements. Transfer students into Civil Engineering should consult with their academic advisor regarding their options.

American Society and Institutions (AI): Students may elect any course from the AI list.

Foreign Culture (FC): Students may elect any course from the FC list.

Visual and Performing Arts (VP): Students may elect any course from the VP list.

Philosophy and Letters (PL): The College of Engineering limits the selection of courses for this subject area, as the course satisfies the ABET requirement for education in ethics. Students should take PHI 1100 (a section designated for engineers) to satisfy their PL requirement. Students who have completed substantial work in engineering ethics at another institution may petition to their Department to be allowed to take a different course to satisfy their PL requirement. (Generally this is applicable if another transfer course meets the PL requirement but is not considered equivalent to PHI 1100.) Students wishing to file this petition should include a portfolio outlining their coursework in engineering ethics in support of their request.

Information Power: The University and Its Libraries (IP): All students must satisfactorily complete UGE 1000 prior to completing 30 credits in residence at Wayne State and no later than the second semester of enrollment at the University. It is recommended that students take the course during their first semester at Wayne State in order to provide them with a strong knowledge base regarding the University and the library system. Students who transfer in more than twelve credits of college-level credit are exempt from this requirement.
Registration for Courses

During Priority Registration and Open Registration (through the second week of class), students should register either via the web (through the WSU Pipeline interface) or via the telephone. The following procedures should be followed:

1. Consult the on-line Schedule of Classes for the available times and days for the desired class. (NOTE: There are printed versions of the Class Schedule. However, the web-based schedule available at www.classschedule.wayne.edu is the most up-to-date version of the Class Schedule at any point in time.)

2. Verify the listed prerequisite courses for the desired class from the Schedule of Classes.

3. Check your academic record using the material available via Pipeline for satisfactory completion of the listed prerequisites. Determine if any of the courses were taken at another institution or prior to Fall 1998. If the answer to this is yes, please refer to the procedures in Prerequisite and Co-Requisite Policies, below.

4. Register for your courses following the standard procedure. If you receive an error message, please make note of the message. Potential errors include:
   - **Time Conflict** — Two of the courses that you are attempting to register for overlap in scheduled time. You must obtain an Add/Drop form signed by both instructors and submit this to your advisor in order to have an override processed. Indicate on the Add/Drop form that the reason for the signature is a time conflict (code = TIME).
   - **Prerequisite Violation** — The system does not have a record of you completing one or more of the listed courses with a grade of C- or higher. Please contact your advisor to review your record. If you have met the prerequisites, an override will be processed to allow you to register. (Refer to Prerequisite and Co-Requisite Policy, below)
   - **Co-Requisite Violation** — The system expects you to register for two courses concurrently. At the current time, the computer does not refer to your academic record to determine if you have completed the course previously — this has been a long-standing problem. If you have completed the course previously, please contact your advisor to process an override that will allow you to register.
   - **Course Closed** — Contact the course instructor. If permission is granted for entry into the class, have the instructor sign an Add/Drop form. Indicate on the Add/Drop form that the reason for the signature is a closed class (code = CLOSE). Provide the signed Add/Drop form to an academic advisor so that appropriate permissions can be set.
   - **Instructor/Departmental Permission Required** — Contact the course instructor or the Director of Undergraduate Studies, as appropriate. If permission is granted for entry into the class, have the instructor or Director of Undergraduate Studies sign an Add/Drop form. Indicate on the Add/Drop form that the reason for the signature is permission required (code = DEPT). Provide the signed Add/Drop form to an academic advisor so that appropriate permissions can be set.
   - **Registration Hold** — Holds may be placed on a student’s record for academic reasons (academic probation) or through other University mechanisms (admissions documentation, tuition balance, insurance requirements, etc.). If the Hold is academic
in nature, you should contact your academic advisor to investigate the nature of the hold and determine what steps might be taken to allow for the release of the hold. In the case of other holds, the department that placed the hold must be contacted (Admissions, Office of International Students and Scholars, Cashier, etc.) so that the reason for the hold can be determined and resolved. The College has no ability to remove holds set by other units in the University.

- Program Violation — Certain courses within the University require students to be enrolled in specific programs in order to register. This includes the 3 credit version of BIO 1510 (Engineering students only) as well as professional engineering courses (3000- and 4000-level, see Pre-Professional Program, above). If a Program Violation notice is received, you should contact your academic advisor to determine what the conflict might be. If you are qualified, the advisor can assist with completing the necessary paperwork to transfer you to the desired program.

5. If any overrides were required, you will be able to go back into the web or phone-based registration system after they are processed in order to complete your registration. EACH STUDENT MUST REGISTER FOR THEMSELVES USING THE PHONE OR THE WEB. ADVISORS ARE NOT ABLE TO PROCESS REGISTRATIONS.

6. The system will not allow students to register for courses in which a prerequisite exists for which they are currently enrolled and have not received a grade. If a student receives a prerequisite error for a course in which he/she is currently enrolled, please choose one of the following options:

- Contact your advisor to obtain a provisional override. This will allow you to register for the course. However, if you receive a grade below a C-, you must withdraw from the new course. This withdrawal will be your responsibility and should be done before the end of the add/drop period (10th class day of the semester). Forced withdrawals after this point will not receive a tuition refund.
- Defer your registration for the course in question until your grade has posted. In order to take advantage of Priority Registration (and reduced fees) you can register for those courses for which you have already completed the prerequisites and add the other courses at a later date. Students should follow the University guidelines and calendars for registration for courses.

Students are advised to register for courses as early in the registration process as possible. Early registration should be completed based on reasonable assumptions regarding the satisfactory completion of courses in which a student is currently enrolled. However, once grades are received, necessary changes to the list of courses should be made.

All students are expected to satisfy the listed and implied prerequisites for every course in which they enroll. See Prerequisite Requirements below.

Students must be aware of the University Registration Calendar and associated deadlines. Specific dates change for each semester – the following descriptions are provided as general guidelines.

- Courses can only be added to the student’s registration through the first two weeks of the semester.
Students may withdraw from (drop) a course during the first two weeks of the semester and receive a full-tuition refund.

Adding a class after the end of the second week requires approval from both the instructor and the Associate Dean for Academic Affairs. Late Adds will only be approved in cases in which registration was not possible due to reasons beyond the student’s control and only if the student has been attending and fully participating in class. A Drop/Add form signed by the instructor must be provided to the Associate Dean for consideration. If the request is approved, the appropriate override will be set and the student must take the signed and stamped form to the Registration Office for processing.

During the third and fourth week of the semester, students may withdraw from a course using the on-line or telephone system, but no tuition refund will be granted.

During the fifth week of the semester, students must obtain the instructor’s signature to drop a course and must take the signed Drop/Add form to the Registration Office in order to be withdrawn from the course.

**Withdrawal Policy**

Engineering students are not allowed to withdraw from their courses after the fifth week of the semester except due to extenuating circumstances beyond a student’s control (e.g. change in work schedule, prolonged illness). Failing a class is not grounds for late withdrawal from a course. Thus, students are advised to evaluate their performance in each course within the first five weeks and withdraw if necessary prior to this deadline.

Withdrawals after the fifth week require approval from the Associate Dean for Academic Affairs. A personal appointment should be made to discuss the request for withdrawal, and any documents that support the extenuating circumstances should be brought to the meeting. If approved, the signed Drop/Add form must be taken to the Registrar’s Office by the student for processing.
Course Prerequisites and Co-Requisites

The College of Engineering and its departments have spent considerable time determining the appropriate course prerequisites and co-requisites. These are designed to provide students with the academic background necessary to succeed in their engineering studies. For undergraduate engineering courses, prerequisites are checked at the time of registration. The following are the policies and procedures relating to the College prerequisite policy.

1. If a student attempts to register for an Engineering course numbered between 1000 and 4999, an automatic check of the student’s record for satisfaction of the prerequisites will be made. Students must have completed a prerequisite course with a grade of C- or higher in order for the system to note the course as satisfactorily completed. The prerequisites to each course are those that are listed in the schedule of classes at www.classschedule.wayne.edu.

2. The registration system is only able to review the portion of a student’s record completed at Wayne State. Students who have completed one or more of the listed prerequisites at another institution MUST meet with an academic advisor to have their record reviewed. Students should bring a copy of the Transfer Credit Evaluation or, if that has not yet been completed, a copy of their transcripts from previous institutions. A manual override will be performed for their registration (see procedure outlined above). NOTE: Transferred courses must have been completed with a grade of C or higher (not C-) to be considered as satisfactorily completed.

3. The registration system is only able to review courses completed during or after the Fall 1998 semester. Students who have completed one or more of the listed prerequisites prior to Fall 1998 MUST meet with an academic advisor to have their record reviewed. A manual override performed will be for their registration (see procedure outlined above).

4. This checking system HAS NOT been implemented for courses offered by the Division of Engineering Technology or courses at the 5000-level or above. However, all students are still required to meet the stated prerequisites for these courses. Students who do not meet the listed prerequisites will be withdrawn from these courses unless an Academic Petition for an exception has been approved.

5. This checking system HAS NOT been implemented for courses outside of the College of Engineering. However, we strongly recommend that you comply with the listed prerequisites in your courses offered by other schools in order to provide yourself with the best opportunity for academic success.

6. In some cases, implied prerequisites (courses that are prereqs or co-reqs of a listed prerequisite course) have been included in the list that will be verified by the computer at registration. This is generally when the implied course was listed as a potential corequisite to the listed prereq. This is done to ensure that you obtained a satisfactory grade in this implied prerequisite course before you move on to more advanced courses.
**Example:** MAT 1800 (or a higher math class) is a co-requisite to BE1200. BE 1200 is a prerequisite of ME 2050. In order to assure that students who took MAT 1800 as a co-req to BE 1200 passed both courses, an implied prerequisite of ME 2050 is MAT 1800 (or a higher math class). In this case, the system will check for satisfactory completion of MAT 1800 OR MAT 2010.

7. A course is an implied prerequisite to a course if it meets one of the following conditions:

   a. The course can be traced back through the prerequisite list of courses as a prerequisite to a previous prerequisite or co-requisite.

      **Example:** MAT 2030 is a listed prerequisite of ME 3400. As MAT 2020 is a prereq to MAT 2030, and MAT 2010 is a prereq to MAT 2020, this indicates that MAT 2010 is an implied prerequisite of ME 3400 and must have been completed with a grade of C- or higher before registering for ME 3400.

   b. The course is a co-requisite to a listed or implied prerequisite.

      **Example:** ME 4210 is a prereq to ME 4500. ME 3450 and ME 4410 are co-requisites to ME 4210. Students must satisfactorily complete ME 3450, ME 4210, AND ME 4410 before moving on to ME 4500.

8. **It is the responsibility of students** to make certain that they satisfy all listed and implied prerequisites for courses. If you are allowed to register for a course (by the computer or an advisor) and it is later discovered that you are missing a prerequisite and that you do not have an approved waiver, you will be administratively withdrawn from the course. If you have any concerns about prerequisites, please meet with your advisor.

9. If an override has been given based on a student’s current registration for a course, **it is the student’s responsibility** to make certain that they complete the prerequisite courses (stated or implied) with a satisfactory grade or that they drop the course for which the override was provided. If they have been found at any point to not be appropriately registered for a course, they will be administratively withdrawn from the affected course.
Grade Point Average

The grade point average is calculated both on a semester basis and as a cumulative average. In order to calculate the grade point average, use the following formula:

\[
gpa = \frac{\sum (\text{credits} \cdot \text{earned}) \times (\text{grade} \cdot \text{earned})}{\sum \text{credits} \cdot \text{earned}}
\]

The grade earned is converted to a numerical value using the following equivalencies:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Numerical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
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<td>A-</td>
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<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
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</tr>
<tr>
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</tr>
<tr>
<td>D</td>
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</tr>
<tr>
<td>E</td>
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</tbody>
</table>

There are four relevant grade point averages for students in the College of Engineering.

*Engineering Bridge gpa:* Applies only to students in the Engineering Bridge program. Calculated based on the defined set of Engineering Bridge courses.

*Pre-Professional gpa:* Calculated based on performance in the pre-professional courses only (both general and department-specific). Does not include performance in MAT 2150, BE 2100, or BE 2500 – even if these courses are taken before professional status is reached. Does not include Engineering Bridge courses or any other prerequisite courses.

*College gpa:* Calculated based on all engineering and technical courses, as well as required English courses. Does not include Engineering Bridge courses or any other prerequisite courses.

*University gpa:* Calculated based on all attempted credits (courses for which a letter grade was received). Does not include courses taken for S/U credit or for which an X, W, or I grade is received.

The table on the next page summarizes which courses are included in each of the grade point average calculations.

Dean’s List

Students who have registered for at least 12 credits of courses during a semester and have earned a semester grade point average of at least 3.5 will be named to the Engineering Dean’s List for that semester. This is a tremendous accomplishment. Dean’s List status will be noted on the official University transcript, and students will receive a recognition letter. In addition, all Dean’s List students will be recognized in the program for the Honors Convocation, which is held at the end of each Winter semester.
Grade Point Average – Included Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Bridge</th>
<th>Pre-Professional</th>
<th>College</th>
<th>University</th>
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The above table indicates (by X and shading) which courses are used in the calculation of each of the four grade point averages that pertain to Engineering students.

1 – Pre-professional and College for Chemical Engineering students only; 2 – Pre-professional for Civil Engineering students only; 3 – Pre-professional for Electrical Engineering students only; 4 – Pre-professional for Mechanical Engineering students only.
Academic Probation

Students whose University or College cumulative grade point average falls below 2.0 will be placed on academic probation. Registration holds for University academic probation are placed automatically by the student records system. Registration holds for College academic probation (when the College gpa falls below 2.0, while the University gpa remains above 2.0) are placed by the College academic advisors.

When a student is placed on academic probation, they must meet with their academic advisor in order to determine what requirements they must meet to raise their gpa and come off of probation. This meeting is encouraged as early as possible once a student is notified that they are on academic probation. The registration hold will not be released (to allow a student to register for their next semester’s courses) until this meeting takes place.

If students are not able to raise their grade point average above 2.0 after one semester on academic probation, they are eligible for exclusion from the College of Engineering. For part-time students, the one semester deadline will be identified as 12 consecutive credit hours.

NOTE: A student will be classified as being on academic probation if their grade meets the probationary minimum, even if a registration hold is not placed on their record.
Repeating Courses

Students must earn a grade of C- or higher in all engineering courses or prerequisites to engineering courses. This includes all courses listed under the category of “College gpa” on page 28. If a substandard grade is earned in any required course within this category, the student MUST repeat the course in the next regular semester that it is offered.

The grade earned in a repeated course will replace the original grade in the calculation of the grade point average, but the original grade will remain on the transcript. In order to ensure that the new grade replaces the old grade, students must file a “Repeat of Course” form with the Registrar’s Office at the beginning of the semester in which they will be repeating the course. If this form is not filed, it is not guaranteed that the old grade will be removed from the calculation of the grade point average.

Students who have studied only at Wayne State will be allowed only five repeats in their pre-professional and professional programs. If a sixth repeat is required to complete the required curriculum, exclusion proceedings will be initiated (see Exclusion from the College). Transfer students will earn one allowed repeat for every 24 credits earned at Wayne State.

This policy on repeats will apply to courses in which grades of D+, D, E, or X is received or in which a W is awarded after the end of the 5th week of class and without permission from the Office of Academic Affairs (see Withdrawal Policy). Students who elect to repeat a course in which they received a satisfactory grade (C- or above) in order to improve their gpa and/or improve their background in a subject will not have this counted as one of their allowed repeats.

Courses that might be repeated in the Engineering Bridge program will not be counted towards the allowed repeats.
Exclusion from the College

Conditions for exclusion from the College of Engineering include the following:

- Students who are on academic probation for more than a single consecutive semester and who have not met the conditions set by the Associate Dean for Academic Affairs for improvement of their academic record, if any.
- Students who must repeat a sixth course in order to complete their academic program. (Please refer to policies regarding repeating courses.) For transfer students, the allowed number of repeats is earned at one per 24 credits taken at Wayne State.
- Students who receive three substandard grades (including X and late W) in a single class.

Proceedings for Exclusion from the College may be initiated either by the student’s home department or the Office of Academic Affairs. The student will be notified of the Exclusion and its effective date in writing. Students may appeal the initial Exclusion to the Academic Standards Committee by submitting a written petition through the Office of Academic Affairs. This appeal must detail why, in the student’s mind, the exclusion is not warranted.

An Exclusion Hold will be placed on a student’s record to prohibit them registering for courses in the University. If a student elects to transfer to a program outside of Engineering, and is eligible for such a transfer, then the Exclusion Hold can be released by the University Advising Center. Students who have been excluded are encouraged to meet with an advisor at the University Advising Center to discuss options for future study.

An Exclusion from the College of Engineering is for a minimum of one year. However, readmission to the College after the one-year period is not guaranteed. In order to be considered for readmission, students must submit a written request to the Academic Standards Committee. This request must detail what has changed in the student’s academic record or life circumstances that allow him/her to perform at a higher academic level than before. Substantial evidence of expected performance improvements must be presented in order for a student to be readmitted to the College.

During the period of Exclusion from the College, courses taken at Wayne or at other institutions may not counted towards an engineering degree in the event that readmission is granted.
Programs and Options to Consider as You Pursue Your Degree
AGRADE Program

The Accelerated Graduate Enrollment Program (AGRADE) allows top Wayne State students to complete a Master’s degree in their chosen field of engineering with only 16 credits in addition to the undergraduate degree. This is accomplished by counting 16 credits from the BS program towards the MS degree. In addition to the time savings, students pay undergraduate tuition for the first 16 credits of their Master’s degree – which results in a substantial monetary savings.

In order to be eligible for the AGRADE program, students must satisfy the following criteria:

- Have completed approximately 90 credits of coursework towards the BS degree (be completing the junior year)
- Have earned at least a 3.4 College gpa in completed coursework
- Have earned at least a 3.6 gpa in courses offered by the department of specialization

Students interested in entering the AGRADE program should consult with their advisor during their junior year to discuss their eligibility. All students desiring to pursue the AGRADE option must submit and have approved an AGRADE plan of work, which outlines the 32 credits of the planned MS degree. This includes the 16 credits that will be applied to the undergraduate degree and the 16 credits that will be completed AFTER completion of the bachelor’s degree. The student then completes the work for the BS degree and applies to the graduate school following the standard schedule. Once admitted to the graduate school, a graduate transcript is constructed that includes the 16 credits completed as an undergraduate.

Students typically pursue the AGRADE master’s degree in the same department as their undergraduate degree. However, students interested in Biomedical Engineering as an MS program may choose to this option for their AGRADE program. In this case, advisors in both the undergraduate department and the Department of Biomedical Engineering must be consulted and approve the AGRADE plan of work.
Senior Rule

Students who complete their undergraduate degree at Wayne State are encouraged to remain at the University for a graduate degree. As an added bonus for students who are in the last semester of their undergraduate program, the University has developed a program called Senior Rule. In this program, graduate-level courses beyond the requirements for the bachelor’s degree may be taken in the last undergraduate semester and then applied to a graduate degree program. All courses taken in the final semester will have upper division tuition rates applied, rather than graduate tuition rates.

Students interested in Senior Rule should meet with their academic advisor during the last semester of their junior year. *Interested students must have at least a 3.0 gpa in their upper division courses in order to be eligible for the program.* The general guidelines for applying for Senior Rule are:

1. Request a complete degree audit from your academic advisor to ascertain what semester will be the last of the undergraduate program.
2. Develop a plan of work for the remaining undergraduate degree requirements.
3. If the final semester will include less than 16 credits of undergraduate coursework, you may be eligible for Senior Rule.
4. Meet with the graduate advisor of the program that you are interested in to determine a graduate plan of work. Determine which courses on the Plan of Work would be appropriate to take during the final semester of your undergraduate program.
5. Apply to the graduate program of your choice. NOTE: To be eligible for Senior Rule, you MUST be eligible for admission to the graduate program in which you plan to take courses.
6. If admitted to the Graduate Program, you will be granted a Temporary Admit during your final undergraduate semester.
7. At the time of registration for the graduate course, you must file a Concurrent Registration form with the registrar. This will notify the University Records Office of the need to put the graduate courses on your graduate transcript.
National Design Projects

The College has fielded teams for many different National Design Competitions over the years. These events are generally sponsored by one of the professional societies (Society of Automotive Engineers, American Society of Civil Engineers, etc.) or through a partnership between the federal government and industry. These projects are student-centered and take place over several months, with students working on design and manufacturing of a specified system before competing against other universities.

Students of all class-levels are encouraged to become involved with the National Design teams sponsored by the College. These projects provide a hands-on learning experience that can greatly supplement classroom learning. Students who are interested in participating should contact the student chapter of the professional society that sponsors the competition. National Design Projects can often require a significant time involvement from participating students. Students must determine what time commitment is appropriate based on their academic program requirements and other responsibilities. Class performance should always take a higher priority than student design project participation.

Students who are interested in participating in National Design competitions, but are concerned about time commitments, should schedule an appointment with the Associate Dean for Academic Affairs or the Associate Dean for Student Affairs to discuss what combination of courses and design activities will best meet the student’s goals.