College of Engineering

William H. Sanders, Dr. William D. and Nancy W. Strecker Dean of the College of Engineering &
Professor, Electrical and Computer Engineering

Conrad Zapanta Ph.D, Associate Dean for Undergraduate Studies and Teaching Professor in Biomedical Engineering

Kurt Larsen, Assistant Dean for Undergraduate Studies

Treci Bonime, Assistant Dean for Undergraduate Studies

Location: ANSYS Hall, 2nd floor
https://engineering.cmu.edu

Carnegie Institute of Technology (CIT), the engineering college of the university, has three main activities - undergraduate education, graduate education, and research. Its continuing goal has been to maintain excellence in all these activities. The degree to which this goal has been achieved is attested to by the demand for its graduates, the success of its alumni, the quality of its students and faculty, the adoption elsewhere of its innovations, and the national and international recognition it receives in educational and research activities.

The college offers the degree of bachelor of science in chemical engineering, civil engineering, electrical and computer engineering, environmental engineering, mechanical engineering, and materials science and engineering.

An engineering student may also choose to pursue a minor in one of the CIT designated minor programs, or an additional major in engineering and public policy, biomedical engineering or engineering design, innovation & entrepreneurship. Engineering students can also design a minor, additional major or dual-degree programs with other non-engineering departments.

Educational Objectives

The overarching objective of our engineering curriculum is to provide our students an education that enables them to be productive and fulfilled professionals throughout their careers. Our more specific, measurable objectives for graduates of our engineering curriculum are the following:

- Graduates recognize that they acquired a high quality, rigorous technical education from the College of Engineering at Carnegie Mellon.
- Graduates, in addition to their technical knowledge, recognize that they have acquired a broader body of knowledge that allows them to understand the larger context of the problems that they must address during their career.
- Graduates use their technical foundation and their broader base of knowledge to be successful in a diverse collection of individual careers inside and outside of the engineering profession.

From its earliest days, Carnegie Institute of Technology (CIT) has considered undergraduate education to be the key element in the development of future leaders. In this regard, CIT has adopted a plan for education that is designed to equip students with the capacity to learn and to continue the process of self-education throughout their lives. The present curriculum incorporates this philosophy by providing the opportunity for both breadth in a number of engineering, science, humanities and fine arts areas as well as depth in a major area of concentration. To achieve these goals, our flexible curriculum has been designed to allow students to customize their program to suit their needs and to help each student acquire:

- A thorough and integrated understanding of fundamental knowledge in fields of a students' major interest and the ability to use this knowledge;
- Competence in the orderly way of thinking, which professionals and scientists have always used in reaching sound, creative conclusions, with the goal that after graduation the student can, by such thinking, reach decisions both as a professional and as a citizen;
- An ability to learn independently with scholarly orderliness, so that after graduation the student will be able to grow in wisdom and keep abreast of the changing knowledge and problems of the profession and the society in which he or she participates;
- The philosophical outlook, breadth of knowledge, and sense of values which will increase the student's understanding and enjoyment of life and enable each student to recognize and deal effectively with the human, economic, ethical and social aspects of professional problems; and
- The ability to communicate ideas to others in a comprehensive and understandable manner.

The curriculum encourages students to confront professional problems, accomplished through team and problem-oriented courses, as well as courses which emphasize design or individual projects. These classes stress creativity and independent thought and require the student to define the problem, propose a solution or a design in the presence of technical and socioeconomic constraints, to make judgments among alternative solutions, and to explore innovative alternatives to more conventional solutions.

First Year for Engineering Students

The Carnegie Mellon engineering education is based on engineering and science fundamentals that give students the skills to face new and challenging situations. The first year in engineering provides a broad foundation upon which students build a curriculum in their eventual major. Since students in CIT do not select a major until the end of the first year, all first year students share a common experience consisting of introductory courses in the engineering majors (one each semester), calculus, physics, other science courses which complements specific introductory engineering courses, and courses in the liberal arts, fine arts, business, and social sciences. This curriculum helps make an informed decision about a final major. Below is an examples of a standard schedule for a first-year engineering student.

Fall Semester	
Introductory Engineering Elective	12
Restricted Technical Elective	9-12
Differential and Integral Calculus	10
General Education	9
Computing @ Carnegie Mellon	3
Spring semester	
Introductory Engineering Elective	12
Restricted Technical Elective	10
Integration, Differential Equations, Approximation	10
General Education Course	9

Notes:

1. Each semester every CIT department offers its Introductory Engineering Elective. Every first year CIT student must select one such course each semester.

2. Each Introductory Engineering Elective requires a specific Restricted Technical Elective as given below. Restricted Technical Electives are foundational science courses relevant to engineering degrees.

Introductory Engineering Course	Restricted Technical Elective
Biomedical Engineering	**03-121**
Chemical Engineering	**09-105**
Civil & Environmental Engineering	**33-141**
Electrical & Computer Engineering	**15-110 or 15-112**
Engineering & Public Policy	**33-141**
Mechanical Engineering	**33-141**
Materials Science & Engineering	**33-141**

3. All students must complete 33-141 Physics I for Engineering Students by the end of the first year. Therefore, if a student chooses to take Introduction to Chemical Engineering (with 09-105 as a co-requisite) during one semester and Introduction to Electrical and Computer Engineering (with 15-110 as a co-requisite), the student must take 33-141 in place of the General Education requirement in the Spring semester of the first year and take the General Education course in a subsequent semester. Alternatively, a student entering the university with AP credit in a required first year course may substitute 33-141 in its place.

4. CIT students must complete the First-Year Writing requirement in their freshman year. View more information (p. 2).

General Education Programs

The environment in which today's engineering graduates will find themselves working is evolving rapidly. Technical innovation is becoming ever more critical to retaining a competitive edge. This is true for individuals, for firms and for nations. Start-ups, as well as established companies, have significant international opportunities but also face more competition in a global economy. Seizing these opportunities and dealing with the associated challenges requires an understanding of the global context in which engineers work, as well as understanding multi-disciplinary approaches to technological innovation across cultures.

The College of Engineering has developed General Education Requirements designed to ensure that our students are ready to work effectively in the global economy, and become the innovators and leaders of tomorrow.

CIT General Education Requirements

All undergraduate students must complete the First-Year Writing requirement — **the Department of English does not accept any Advanced Placement exemptions.** This requirement can be completed in two different ways:

Option 1: Enroll in one of two full-semester courses (9 units each)
76-101 Interpretation and Argument (Students for whom English is a second language may need to take 76-100 Reading and Writing in an Academic Context first. The English department will contact those students.)
76-102 Advanced First Year Writing: Special Topics: (by invitation only)

Option 2: Enroll in two of three half-semester "mini" courses* (4.5 units each)
76-106 Writing about Literature, Art and Culture:
76-107 Writing about Data
76-108 Writing about Public Problems

*Minis should be completed back-to-back within a single semester.

General Education Electives (3 total)

At least 27 units from any non-technical academic courses from the Dietrich College, College of Fine Arts, and the Tepper School of Business excluding those listed on the General Education Exclusions page (https://engineering.cmu.edu/education/undergraduate-programs/curriculum/general-education/exclusions.html). Courses from this list of non-technical courses outside of the Dietrich College or the College of Fine Arts (https://engineering.cmu.edu/education/undergraduate-programs/curriculum/general-education/non-dietrich-cfa-courses.html#undefined) may also be counted. **A maximum of 18 units of these units may be fulfilled via AP/IB/Cambridge exam credit.**

For category course lists reference the CIT General Education website (https://engineering.cmu.edu/education/undergraduate-programs/curriculum/general-education/).

General Education Categories

Students must complete each of the categories (descriptions of categories follow below). This is a 9-unit requirement. Any course taken on this list that is below 9 units must be combined with an additional course to total at least 9 units in order to complete this requirement.

Note that the units from one course cannot be split to count for two General Education categories (eg PPC and General Education Elective).

- **Innovation & Internationalization (I&I)**
  - 9 units from the I&I list of courses (which could be two 4.5 unit courses);
- **Peoples, Places, and Cultures (PPC)** [1]
  - 9 units from the PPC list; (Students can receive exemption through an approved study abroad program. These students would have three General Education Electives to complete instead of two.)
- **Social Analysis and Decision Making (SDM)**
  - 9 units from the SDM list of courses (which could be two 4.5 unit courses)
- **Writing and Expression (W&E)**
  - 9 units from the W&E list of courses (in addition to 76-101)

Experiential Learning (EL)

- 6 EL points by participating in a variety of approved activities in the following timeframe:
  - 2 points sophomore fall semester (39-210)
  - 2 points sophomore spring semester (39-220)
  - 2 points junior fall semester (39-310)

Category Descriptions

People, Places and Cultures (PPC)

PPC courses are designed to help you gain better understanding of the diversity of the world in which we live, and the way in which societal factors interact to shape that world.

Social Analysis and Decision Making (SDM)

SDM courses are focused on helping you to gain an understanding of different ways in which individuals and societies approach and make decisions.

Innovation and Internationalization (I&I)

I&I courses are intended to provide a broad perspective regarding the creation of pioneering ideas and their outcomes in a global context.

Experiential Learning (EL)

Being curious and constantly looking for inspiration are critical parts of lifelong learning. To be successful as an engineer and as a citizen, your education must not stop when you graduate from Carnegie Mellon. The EL requirement aims to encourage a habit of lifelong learning about innovation and the growing internationalization in engineering and, indeed of many other aspects of the modern world. The goal of this requirement is to help inspire the habits of being open to new ideas as successful, innovative engineers.

To do that, during both semesters of your sophomore year, and the first semester of your junior year, we require you to choose a few related activities that are not part of your formal course work. Examples could include:

- Attending approved seminars and then submitting a one page write up of your thoughts on what you heard;
- Holding an official leadership position (i.e., President, Vice President, Secretary, Treasurer) in a Carnegie Mellon sponsored organization

Additional Majors, Dual Degrees & Minors

A major is defined as a program that must be completed for the granting of a degree. Additional majors comprise a single degree with majors in two separate areas; for example, the degree of Bachelor of Science in Chemical Engineering and an additional major in English. Although the additional major requires the completion of two designated programs, they may have overlapping requirements that can be met simultaneously. The general principle used to measure eligibility for a College of Engineering additional major is that the major (core) requirements of both departments must be completed. Finally, although the student is formally enrolled as an undergraduate in one of the departments (the parent department, which is responsible for scheduling and other administrative actions for the student), the student should apply for the additional major through the second department and coordinate requirements with both departments.

The additional major is to be distinguished from a dual degree program, which results in two separate bachelor's degrees; for example, Bachelor of Science in Chemical Engineering and a Bachelor of Arts in English. The dual degree, though, requires a minimum of 90 units of work in addition to the units required for the first degree. The second degree may be earned in Bachelor of Science or Bachelor of Arts degree programs.

Requirements for students wishing to complete Additional Majors in CIT

*Note: This applies to **all** students.*

The student must satisfactorily pass all requirements of the regular and complete program (with the permissible exceptions) leading to a degree in

CIT. The minimum number of units required for the additional major is the number required by the parent department or major.

The student takes and satisfactorily completes the courses specified by a second department, usually using elective space available in the first program.

The second department, on the basis of the specified number of courses plus the courses comprising the parent department's regular degree requirements, then certifies that the student has completed the requirements for a major in the second department.

Equivalent technical electives may be substituted at the discretion of the departments/colleges.

Non-technical courses in the curricula can be used to meet the requirements of the second major. But if the second major is not a Dietrich College department, the program must include a minimum of 72 units of General Education courses to meet CIT requirements for graduation.

Bachelor of Engineering Studies and Arts (BESA Program)

The Bachelor of Engineering Studies and Arts (BE (http://coursecatalog.web.cmu.edu/intercollegeprograms/bxaintercollege/)SA) intercollege degree program (http://coursecatalog.web.cmu.edu/intercollegeprograms/bxaintercollege/) combines the strengths of the College of Fine Arts (CFA) and the College of Engineering (ENG). This degree is tailored for students seeking to apply knowledge from duel fields to advance maker culture in novel and creative ways. Students choose their arts concentration from the following schools in CFA: Architecture, Art, Design, Drama or Music. Students choose their engineering studies concentration established by the College of Engineering. Options within the concentration include: biomedical engineering, chemical engineering, civil & environmental engineering, electrical & computer engineering, materials science & engineering or mechanical engineering.

The BESA curriculum has three main components: general education requirements, fine arts concentration requirements and engineering studies concentration requirements. Each student's course of study is structured so they can complete this rigorous program in four years.

Students receive extensive advising support. The academic advisors in the BXA Intercollege Degree Programs are the primary advisors and liaisons between CFA and ENG. Each student has two additional academic advisors: an advisor in the admitting school of CFA to guide their focus in the arts and an advisor in ENG to guide their focus in engineering studies. Please reference the Internal Transfer (https://www.cmu.edu/interdisciplinary/apply/internal-transfer.html) process.

Biomedical Engineering

The Biomedical Engineering additional major program (http://coursecatalog.web.cmu.edu/schools-colleges/collegeofengineering/departmentofbiomedicalengineering/#coursestext) takes advantage of curricular overlaps between Biomedical Engineering and traditional engineering majors, such that the additional major can be completed in four years with only a modest increase in course requirements. The requirements for Biomedical Engineering consist of the core, the tracks, and the capstone design course. The core exposes students to basic facets of biomedical engineering to lay a foundation. The tracks allow students to build depth in a specific aspect of biomedical engineering. The capstone design (https://www.cmu.edu/bme/Academics/undergraduate-programs/Resources/undergrad_design.html) engages students in teamwork to develop real-world applications. The additional major in Biomedical Engineering should be declared at the same time when declaring a traditional engineering major.

Student majoring in Biomedical Engineering must meet three sets of requirements: 1) Biomedical Engineering 2) Traditional engineering discipline 3) CIT General Education (http://www.cit.cmu.edu/current_students/services/general_education.html) sequence. The Quality Point Average (QPA) for courses that count toward the additional major must be 2.00 or higher. No course taken on a pass/fail or audit basis may be counted toward the additional major.

Engineering and Arts Additional Major

The Engineering and Arts (EA) additional major (http://coursecatalog.web.cmu.edu/intercollegeprograms/bxaintercollege/) is intended for College of Engineering students who also have interest and talent in an arts concentration (architecture, art, drama or music) and goals that can only be accomplished at the intersection of those disciplines.

EA applications are considered every semester, with a deadline of mid-semester break for admission in the following semester. (See below for exceptions.) Along with the application, our additional major committee also considers prior semester grades and mid-semester grades for the semester of application. Decisions are sent out in advance of registration for the following semester.

The application includes an Essay of Interdisciplinary Intent, in which a student explains why they're interested in the two areas and why they want to combine them. This essay should be brief—500 words or fewer—and specific about both a student's background in the concentration areas and what their goals are for bringing them together.

Completing an additional major demands advanced planning and preparation to determine the most appropriate semester to take requirements. All students applying for EA must meet with their current Engineering advisor, the BXA director and an advisor in their target CFA area, as well as take preliminary coursework in their target area before submitting the application (https://www.cmu.edu/interdisciplinary/apply/additional-major.html).

Engineering Design, Innovation, and Entrepreneurship Additional Major (EDIE Program)

Overview

As humanity grapples with dilemmas of extraordinary complexity throughout the globe, our world needs engineers who are leaders and change makers. Our world needs engineers who seek to push the boundaries in their education, and carry their passion for technological innovation forward.

The Engineering Design, Innovation, and Entrepreneurship (EDIE) additional major will provide students the know-how to innovate products around that technology and deliver product solutions to the people who need them.

EDIE students will have expertise in technology and the ability to design, develop, and deliver economically viable solutions to the real-world challenges of today and tomorrow.

Curriculum Details

The EDIE additional major isn't just for students who want to create a startup—it will help to prepare hands-on, get-it-done leaders who are in demand in all sectors of society and industry, for-profit and not-for-profit. Given the applied focus of our curriculum, courses will equip our students with mindsets, skills, and capabilities to identify and shape opportunities and develop economically sustainable solutions.

Students in the EDIE additional major must also satisfy the core requirements of their primary major typically following the standard schedule of courses each semester. EDIE core requirements are fulfilled in addition to the course requirements of their primary major, mainly using various elective units. The side-by-side curriculum charts for each primary major show how the requirements for the stand-alone majors and the primary major plus EDIE additional major compare.

Course Requirements

Introductory Course
49-101 Engineering Design, Innovation and Entrepreneurship (12 units)

Engineering Design and Innovation Courses
49-305 Customer Discovery for Tech Innovation (4.5 units)
49-306 Engineering Design Methods & Tools (4.5 units)
49-405 Leading Engineering Innovation Teams (4.5 units)

Engineering Entrepreneurship Courses
49-205 Tech Venture Marketing for Engineers (4.5 units)
49-206 Tech Business Planning (4.5 units)
49-406 Tech Venture Formation (4.5 units)

Foundation Skills Courses
73-102 Principles of Microeconomics (9 units)
70-345 Business Presentations (9 units)

Home Department Engineering Design Capstone (12 units)

Please consult with your home engineering department to confirm the specific Engineering Design Capstone course(s) that apply to your primary engineering degree. 12 units will count towards your EDIE degree requirements.

49-420 EDIE Innovation Capstone Course (9 units)
49-421 EDIE Entrepreneurship Capstone Course (9 units)

Engineering and Public Policy

The EPP department (http://coursecatalog.web.cmu.edu/schools-colleges/collegeofengineering/departmentofengineeringandpublicpolicy/courses/) offers additional major B.S. degree programs with each of the five traditional engineering departments in the engineering college. The engineering additional major leads to a fully accredited engineering degree that prepares students for traditional technical career. EPP additional major engineers are not educated to be a different kind of engineer. Rather their education is intended to enable them to be better, more socially responsible engineers in the traditional technical fields.

Students who earn an additional major in Engineering and Public Policy at the undergraduate level do so in conjunction with a traditional engineering major. The elements of the EPP undergraduate program broaden the traditional scope of technical analysis to encompass an engineering solution's potential impact on society. Thus, our graduates have the same skills as their peers in traditional engineering majors, but with a broader societal perspective and additional analysis skills. This enables our graduates to understand the interface between technology and society and to help solve the complex, interdisciplinary systems problems facing our world, in their careers. Students will be able to work in a variety of career fields, including technical and non-technical, in industry, government, or elsewhere where these broad skills are needed.

Designated Minors for Engineering Students

Undergraduate students in the College of Engineering can elect to complete an interdisciplinary Designated Minor in addition to their primary major. Designated minors have been added to the curriculum to provide the student with technical elective content in areas related to the research expertise of our faculty. Students may select a designated minor from the following list:

- Audio Engineering
- Biomedical Engineering*
- Colloids, Polymers and Surfaces
- Electronic Materials
- Global Engineering
- Information Security, Privacy, and Policy*
- Material Science and Engineering
- Mechanical Behavior of Materials

* Also available for non-CIT students

Complete descriptions of the designated minors can be found at CIT Designated Minors (http://coursecatalog.web.cmu.edu/schools-colleges/collegeofengineering/undergraduatedesignatedminors/.html).

To declare a CIT Designated Minor, please contact the director listed for each minor.

Minors for Non-Engineering Students

Students in a non-engineering discipline can also declare certain CIT minors:

- Biomedical Engineering
- Engineering Studies
- Technology and Policy

A full listing of curriculum for these minors when taken by non-engineering students can be found at CIT Minors for Non-Engineering Students (http://coursecatalog.web.cmu.edu/schools-colleges/collegeofengineering/minorsfornonengineeringstudents/).

Academic Standards

Grading Practices

For undergraduate grading regulations, please see Undergraduate Academic Regulations (http://coursecatalog.web.cmu.edu/aboutcmu/undergraduateacademicregulations/).

CIT Dean's Honor List

Each semester, Carnegie Institute of Technology recognizes students who have earned outstanding academic records by naming them on the dean's honor list. The criterion for such recognition is a semester quality point average of at least 3.75 while completing at least 36 factorable units and earning no incomplete grades.

Transfer into CIT Departments

Undergraduate students admitted to colleges other than CIT who wish to transfer into a CIT department during their first year should consult with an advisor in the Undergraduate Studies Office in the CIT Dean's Office.

First-year students can apply for transfer after mid-semester grades for the spring semester have been posted. At that time, a decision will be based on availability of space and the student's academic performance.

CIT undergraduate students beyond the first year wishing to transfer into another CIT department may apply if they are in good academic standing and if there is room in the department of their choice. If the demand for any department exceeds the space available, then the department will admit students based on a comparative evaluation of all applicants at the end of each semester, up to the limit of available space.

Undergraduate students not in CIT who wish to transfer into a CIT department beyond the first year will be considered for transfer on a rolling space available/academic performance basis.

Criteria for all applicants include space in the department, good academic standing, and successful completion of or being currently enrolled in at least one introductory to engineering course (minimally the one of the target major), the appropriate science co-requisite, math (21-120, 21-122) and Physics 1 (33-141, 33-121, or 33-151).

Procedure for transfer of students from another university into CIT departments: A student first applies through the Office of Admission. If the Office of Admission believes the applicant is acceptable, the student's record is sent to the CIT Undergraduate Studies Office for evaluation and a decision on acceptance/rejection is made in consultation with the target department.

Academic Actions

In order to maintain good academic standing, CIT students must attain at least minimum quality point averages for each semester (as well as cumulatively) and also maintain adequate progress toward completing graduation requirements. Minimum QPA (quality point average) for good academic standing is 2.00. "Adequate academic progress towards graduation" generally means that students are successfully completing approximately 45-55 units per semester so that at the end of eight semesters they will have accumulated the minimum units required for graduation, have a cumulative QPA of at least 2.00, and have completed all degree requirements.

In addition to academic actions based on QPA, CIT students may be placed on warning, subsequent suspension or drop, if they do not demonstrate reasonable progress through the core curriculum of their major (e.g., not completing a core class after three attempts). Students are encouraged to consult with their academic advisor about any concerns with regard to lack of progress in their chosen major to determine if any course drop or withdrawal will lead to an action.

When a student fails to meet minimum performance criteria, it results in an academic action. Depending on the circumstances, one of the following actions is taken: academic warning, warning continued, suspension, or drop. These academic actions are recommended by the college's departments, based on the guidelines described below, and adjudicated by the CIT Undergraduate Studies Office. However, the sequence of the academic actions is not automatic in all cases. Decisions may be based on unique individual student performance and circumstances, and are not determined solely on the basis of grades and quality point averages.

Warning

A student is on academic warning when performance either for the semester or cumulatively fails to meet the minimum standard. The term of academic warning is one semester, and signifies to the student the college's insistence that academic performance return to at least the minimum acceptable level.

Students are removed from warning when adequate academic progress* toward completing graduation requirements is being made, and:

- First year students: if the second semester's QPA and fall/spring combined QPA is 2.00 or above
- Students in the third or subsequent semester of study: if the semester QPA and cumulative QPA (excluding the first year) are 2.00 or above

Warning Continued

A student on warning in their third or subsequent semester who earns at least a 2.00 semester QPA is continued on academic warning when cumulative performance (exclusive of first year) is below 2.00.

A first-year student on warning, who earns a semester grade point average above 2.00 but cumulative QPA is below 2.00 will be continued on warning.

Suspension

A first year student on warning, who earns a semester QPA below 2.00 will be suspended.

A student on warning in the third or subsequent semester, who earns a semester QPA below 2.00 will be suspended.

The typical period of academic suspension is two semesters (excluding summer), during which a student on academic suspension is expected to reflect on the circumstances leading up to the suspension, identify the issues that prevented achieving academic success, take actions that address these issues, demonstrate sufficient readiness to return to the university and successfully resume their studies.

Two months prior to the end of that suspension period, a student may petition to return to school (on final warning) by completing the following steps:

- Writing a formal petition, requesting to return and receiving permission in writing from the CIT associate dean for undergraduate studies.
- If approved for return, completing a Return from Leave of Absence form from Enrollment Services; and
- Providing transcripts if the student has been in a program at another college or university even though academic credit earned may not transfer back to Carnegie Mellon University unless prior approval from the associate/assistant dean is given. A maximum of two approved courses may be transferred.

Drop

Students who have been suspended and who fail to meet minimum standards in the subsequent semester(s) after they return to school on warning will be dropped from the College of Engineering.

Students who have been suspended or dropped and are not admitted to another program at the university are required to absent themselves from the campus (including residence halls, office labs, libraries, and Greek houses).

Graduation Requirements and degree certification

To be eligible to graduate, undergraduate students must complete all course requirements for their department with a cumulative Quality Point Average of at least 2.0 for all courses taken. For undergraduate students who enrolled at Carnegie Mellon as freshman and whose freshman grades cause the cumulative QPA to fall below 2.0, this requirement is modified to be a cumulative QPA of at least 2.0 for all courses taken after the freshman year. Note, however, the cumulative QPA that appears on the student's final transcript will be calculated based on all grades in all courses taken, including freshman year. Some departments may have additional QPA requirements in order to graduate. Students are encouraged to confirm all graduation requirements with their academic advisor.

1. All mathematics (21-xxx) courses **required*** for the engineering degree taken at Carnegie Mellon must have a minimum grade of C in order to be counted toward the graduation requirement for the BS engineering degree.

2. A minimum grade of C must be achieved in any required mathematics (21-xxx) course that is a pre-requisite for the next higher level required mathematics (21-xxx) course.

***Elective mathematics courses are not included in this policy**

Students must be recommended for a degree by the faculty of CIT.

A candidate must meet the residence requirement of having completed at least 180 units at Carnegie Mellon University.

Students must meet all financial obligations to the university before being awarded a degree.

Modification of Graduation Requirements: A student may seek permission to modify graduation requirements by petition to the CIT College Council.

Please reference the University's Degree Certification policy (http://coursecatalog.web.cmu.edu/aboutcmu/undergraduateacademicregulations/#degreecertificationtextcontainer). **For engineering students:**

All BS students are expected to complete the BS degree within the standard 8-semester timeline. Units cannot be double counted between BS and MS. Courses taken within the first 8 semesters will first be counted toward completing the BS requirements.

Students who plan to enter an MS program but are unable to complete the BS degree within the 8-semester timeframe can petition to extend their time as an undergraduate. This petition should be addressed to their undergraduate academic advisor and the CIT Undergraduate Dean's Office.