

College of Engineering

College of Engineering Directory

Michele Marcolongo, Ph.D., P.E., Drosdick Endowed Dean

Garrett M. Clayton, Ph.D., Associate Dean for Graduate Studies

Noelle Comolli, Ph.D., Associate Dean for Undergraduate Affairs

David Jamison, Ph.D., Associate Dean for Undergraduate Affairs

Stephen Jones, Ph.D., Associate Dean for Student Success and Diversity, Equity & Inclusion

Sylvie Lorente, Ph.D., Associate Dean for Research and Innovation

Keith M. Argue, M.S., Associate Dean for External Relations

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History

The second degree-granting unit inaugurated at Villanova University was the College of Engineering, which began instruction in 1905 under the name of the School of Technology. It was the fourth engineering program to be established at a Catholic school of higher education in the United States. Dr. A.B. Carpenter, a graduate of Lehigh University, was hired in 1904 to organize and direct the school. He was ably assisted by the Rev. James J. Dean, a young faculty member in the sciences. It was their responsibility to develop the curricula, hire faculty and plan the facilities needed. Programs in Civil and Electrical Engineering were the first to be initiated, with a total of 12 students enrolled. In 1908, an undergraduate program in Mechanical Engineering was established, and in 1909, the first engineering bachelor's degrees were awarded. An undergraduate program in Chemical Engineering was established in 1919. In the years following World War II, the College expanded its degree offerings to the master's level, establishing graduate programs in each of its four engineering departments. A fifth undergraduate degree program in Computer Engineering was added in 1993. A combined bachelor's/master's degree is available in all programs. In 2003, a doctoral degree was instituted in all programs. The undergraduate programs of Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering and Mechanical Engineering are accredited by the Engineering Accreditation Commission of ABET, abet.org. All degree programs offer an Honors option.

The College of Engineering is dedicated to supporting the research activities of its faculty and students. This research is conducted through cooperation with government, industry and private foundations. The College also has extensive research programs in electronics, photonics and microelectromechanical systems devices; nanotechnology, materials and manufacturing; thermal and fluid sciences; sustainable energy systems; stormwater management; and structural engineering.

Academic Mission

Villanova University's College of Engineering is committed to an educational program that emphasizes technical excellence and a liberal education within the framework of the University's Augustinian and Catholic traditions. As a community of scholars, we seek to educate students to pursue both knowledge and wisdom, and to aspire to ethical and moral leadership within their chosen careers, their community and the world.

We value a spirit of community among all members of the College that respects academic freedom and inquiry, the discovery and cultivation of new knowledge, and continued innovation in all that we do.

Objectives

The College of Engineering strives to prepare its graduates to understand their roles in and make constructive contributions to a technological society, and to provide ethical and moral leadership in their profession and communities. These objectives are accomplished by various methods, but primarily by integrating into the curriculum the values and morality of Villanova University's Augustinian heritage. In addition to being professionally competent, graduates are expected to have an understanding of their professional and ethical responsibilities, the impact on engineering solutions in a global and societal context, knowledge of contemporary issues, and an appreciation of humanistic concepts in literature, the arts and philosophy.

The College pursues these objectives by:

- Valuing all members of the Villanova community and beyond.
- Supporting innovation and excellence in teaching.
- Supporting faculty development through research and professional activities.
- Emphasizing design and the design process so that students are exposed to real-world situations.
- Graduating students who:
 - Apply scientific and mathematical concepts and principles to identify, formulate and solve problems in a real-world context.
 - Plan and conduct experimental investigations, and analyze and interpret their results.
 - Function effectively on project teams.
 - Contribute to teams.
 - Communicate ideas and information.
 - Understand the role of the engineering profession and technology, including appreciating concepts drawn from the humanities and social sciences.
 - Embody high professional and ethical standards.
 - Have the motivation and capability to acquire, evaluate, and assimilate knowledge and continue the learning experience.
 - Appreciate the value of service and other cultures.

Central Office of Resources for Engineering (CORE)

CORE Directory

David Jamison, Ph.D., Associate Dean for Undergraduate Affairs

Stephen Jones, Ph.D., Associate Dean for Student Success and Diversity, Equity & Inclusion

Gayle Doyle, Associate Director, Undergraduate Student Services and Program Operations

Laura Matthews, MPA, Manager, Academic Policies and Procedures

Therese Wosczyzna, Coordinator, CORE Team

Academic Policies

Unless otherwise noted, the College of Engineering follows the general academic policies and regulations listed in the University section of this Catalog. It is the responsibility of the student to know and comply with all academic policies and regulations of Villanova University and of the College of Engineering. Such policies may change without prior notice.

Academic Standing

To remain in good academic standing, undergraduate engineering students must maintain a cumulative Grade Point Average (GPA), a cumulative Technical Grade Point Average (TGPA), and a semester GPA of at least 2.00. Technical courses are defined as all engineering, science and mathematics courses.

Students who receive a grade of D, D-, F, N, NG, WX, W or Y, or whose overall or semester GPA or TGPA falls below 2.00, will be reviewed by the Academic Standing Committee. This review takes place at the end of each semester when grades are deemed final by the Registrar's Office.

Students who receive grades of D, D-, F or Y, but who have a semester, overall and technical GPA of at least 2.00, generally receive a letter of poor performance, emailed to the student.

Students with a semester, overall or technical GPA less than 2.00 may be placed on Academic Probation and will be notified by email from the Dean's Office. Normally, a student is not permitted to be on probation for more than one semester. Students on probation must meet with the Associate Dean for Student Success and Diversity, Equity & Inclusion at the beginning of the semester and at midterm to discuss how they will improve their grades. These students will formulate this improvement plan using the [Academic Improvement Plan](#).

Any student being reviewed may be dismissed from the College of Engineering. A letter informing the students will be sent overnight and by email. This letter will contain instructions for the student if they wish to transfer to a different College within the University, as well as deadlines for actions that the student must take.

Advising

Starting as a first-year student, each individual is assigned an academic advisor. The academic advisor is a full-time faculty member of the department of the student's major. If the individual continues with the major to which they were admitted as an incoming student, their faculty advisor will remain unchanged for the full term of the program, with a few exceptions. *Thus, it is incumbent upon students to get to know their academic advisor.* The academic advisor can help students adjust to university life or point them in the right direction for answers. Students must consult with their advisor at least once a semester during preregistration to ensure proper course selection and advancement in the academic program. The academic advisor can assist in helping students select minors and concentrations, and answer questions about career choices, internships, postgraduation employment and graduate school. It is important to note that while a student's academic advisor may be called upon for assistance in making decisions, *it is ultimately the student's responsibility to understand the requirements of the chosen degree program and to plan for the orderly fulfillment of graduation requirements.* To this end, at preregistration time each semester, academic advisors will provide students with up-to-date summaries of the courses they have taken and will be required to take in the future to obtain the target degree.

During their first year, students are especially encouraged to speak with their academic advisor to learn about the engineering profession. In addition to the academic advisor, who can provide career-planning advisement and referrals when appropriate, the College of Engineering provides information about the engineering profession through annual sponsorship of programs that inform students about career opportunities available in each major field of engineering.

Attendance

Class and laboratory attendance for first-year students is mandatory. A first-year student will receive a grade of “Y” (failure) whenever the number of unexcused absences in a course exceeds twice the number of weekly class meetings for the course. For students beyond the first year, attendance policies are determined by the instructors of the various courses. The full policy regarding attendance is available under the [Academic Policies](#) section of the Undergraduate Catalog.

Students reporting an excused absence should complete the appropriate form on the [Current Engineering Undergraduate Students Intranet site](#).

Appropriate Schedule

Students may only use their PIN for courses they have discussed and cleared with their academic advisor. Students who register for courses without their advisor’s permission are in violation of the student code of conduct.

By university rule, a student who uses their PIN to register for courses that do not count toward a degree in Engineering will be notified by the Associate Dean of an inappropriate schedule. The student in this case will be dismissed from the COE at the end of the semester in which the discovery is made. That is, there can be an unconventional “try out another major” semester for a student, but the student will need to apply and be accepted in another college at Villanova to remain at Villanova. The normal procedure for a student who wishes to change a major from Engineering is to speak to a representative from the college of interest, then, if truly interested, apply and be accepted in the other college.

Undergraduates Enrolling in Graduate-Level Courses

The College of Engineering allows undergraduate students to enroll in graduate courses [in compliance with the University’s policy](#). Students must meet the following requirements:

- Senior standing (in terms of credits, not in terms of years at Villanova)
- Minimum of 3.0 cumulative GPA
- Appropriate approvals (advisor, course instructor, chair and Associate Dean for Undergraduate Affairs)

Mechanical, Electrical and Computer Engineering students may “double-count” up to nine credits permitting some graduate courses completed as an undergraduate to be applied toward the completion of both the bachelor’s degree and the master’s degree.

Undergraduate students requesting permission to register for an Engineering graduate course should complete the appropriate form found on the [Current Engineering Undergraduate Students Intranet site](#).

In addition, students must complete the Confirm Graduate Course Credits for Degree form when they are in their senior year. This form can also be found on the [Current Engineering Undergraduate Students](#)

[Intranet site](#). The form is to be used by undergraduate students who have completed or are currently enrolled in graduate-level courses. It is used to determine which (if any) of the graduate-level courses taken as an undergraduate will be counted toward the undergraduate degree.

Transfers and Change of Major

Change Majors within the College of Engineering

[If you would like to change your major within the College of Engineering, you must complete the Request to Change Major/Transfer](#). There are two deadlines for major change applications: Dec. 1st and May 1st. Decisions will be made before the start of the following semester. The ability to change majors is dependent on merit and enrollment in each major.

Transfer into the College of Engineering from another College within Villanova

[If you would like to transfer into the College of Engineering from another college within Villanova, you must complete the Request to Change Major/Transfer](#). There are two deadlines for transfer applications: Dec. 1st and May 1st. Decisions on transfer applicants will be made before the start of the following semester.

Note to incoming first-year students: To be fair to those who have applied to Engineering as high school students and were not accepted, we regret that we cannot accept a student who was accepted by another college and wants to transfer immediately to Engineering upon entering campus in August. Since the acceptance criteria for each college differ, all of us recognize a possible unfair advantage to this. Most importantly, there is not enough time for Engineering to consider the application and work through the acceptance process without rushing to judgment. Students in this situation can apply to Engineering as an internal transfer student before Dec. 1st.

Please note: The ability to change majors is dependent on merit and enrollment in each major.

Grade Point Average (GPA)/Technical Grade Point Average (TGPA)

The cumulative Grade Point Average (GPA) calculation includes grades for all courses taken at Villanova. Transfer credits do not affect the student's GPA. The Technical Grade Point Average (TGPA) calculation includes grades for courses from the following subject areas: Engineering (EGR), Chemical Engineering (CHE), Civil and Environmental Engineering (CEE), Electrical and Computer Engineering (ECE), Mechanical Engineering (ME), Chemistry (CHM), Mathematics (MAT) and Physics (PHY).

Repeated Course Effect on GPA and TGPA

If a student repeats a course, both grades remain in the GPA calculation, while only the second grade remains in the TGPA calculation. In both cases, course credits can be earned only once. Transfer credit may not be used to replace a grade in the TGPA.

Academic Bankruptcy

The Academic Standing Committee may allow a first-year student to declare academic bankruptcy by repeating the fall or spring semester, or the entire first year. The grades from the bankrupted semester or year will not be included in the cumulative average (though a record of the semester's or year's work will remain on the transcript). Application must be made within 10 days of the end of the semester or year for which bankruptcy is sought. All repeated courses must be taken at Villanova. Interested students must complete the [Repeat First-Year Request Form](#).

Satisfactory/Unsatisfactory Grades

All non-first-year undergraduate engineering students may elect to take, on a Satisfactory/Unsatisfactory basis, one course per semester that meets all of the following criteria:

1. It is not specifically designated by course number in the curriculum of the student's major.
2. It is not being given by the department in which the student is majoring.
3. It is not designated as a Technical Elective in the curriculum of the student's major.
4. It is not being used to meet requirements for any minor offered by the College of Engineering.
5. Permission to take the course has been specifically granted by the chair of the department in which the student is majoring. Students must check with minors outside the College as to their acceptance of Satisfactory/Unsatisfactory credit.

To take a course on a Satisfactory/Unsatisfactory basis, the student must first register for the course by the normal procedure. After registration has been completed, the student must complete a Satisfactory/Unsatisfactory form.

Course Elsewhere

With recommendation of their Department Chair, and approval of the Associate Dean for Undergraduate Affairs, active engineering students are permitted to earn course credit at other schools. To initiate a request to do this, the student must complete the Permission to Take Courses Elsewhere form. The form can be found on the [Current Engineering Undergraduate Students Intranet site](#). A complete description of the substitute course content in the form of a copy of the other institution's official course catalog or a copy of the other institution's web description must be attached to this form. This information must be researched and compiled by the student before it is attached to the form. The student should allow 7-10 days for final action to be taken on the request. Questions concerning courses taken elsewhere should be directed toward the student's academic advisor or Department Chair.

Students who have completed approved courses elsewhere must request that institution to forward an official transcript to their Department Chair. Select "*Undergraduate Engineering—Course Elsewhere*" as the Villanova address when sending an electronic transcript.

Please note: Credit will only be awarded for courses in which a grade of "C" (or the equivalent) or better is earned.

Course Overload

The individual engineering majors are composed of appropriately sequenced course groupings referred to as "regular semester course loads." Each semester can have a different credit and course load. Students may not take more than 19.5 credits in a semester without approval. More than 19.5 credits is considered a course or credit overload. An overload is generally approved for a maximum of one course or four credits provided that:

1. A first-year student has permission from the office of the Associate Dean for Academic Affairs. Normally, only second-semester first-year students with a GPA of at least 3.5 are permitted to overload, or
2. An upperclassman has approval from their advisor and Department Chair. A GPA of at least 3.0 is required in this case.

In addition to the requirements above, an overload is generally only approved for the pursuing of a minor or second major, ROTC purposes, and for adjusting schedules to accommodate study abroad, if needed.

Students wishing to request permission to overload must complete the [Course Overload Form](#).

Course Withdrawal

Engineering student requests for authorized withdrawal from a course without penalty (WX) will be granted until approximately three-and-a-half weeks after midterm break. ([View the Academic Calendar](#) for official date.)

Any student wishing to withdraw (WX) during the appropriate time period, is personally responsible for completing the [Course Withdrawal Form](#).

Note that withdrawals without permission will receive a "W" grade, which is calculated as an "F" in computing one's Quality Point Average.

Advanced Placement (AP) Credit

All Advanced Placement (AP) credit must be accepted and approved before the completion of two semesters at Villanova.

If you have taken advanced placement (AP) exams and listed Villanova as a recipient of the scores, your scores will be sent directly to the Office of the Registrar. It is your responsibility to provide the College Board with full information, such as personal identification and Villanova's college code, 2959, so that the AP credit administration process can be accomplished efficiently.

Credit will be added to your academic record based on the below equivalency.

Advanced Placement (AP) Credit Equivalencies 2022-2023

Test #	Subject	Score	Villanova Course(s)	Credits
7	United States History	4 or 5	HIS 1002 The United States to 1877	3
13	History of Art	4 or 5	AAH 1101 His West Art: Ancient-Med	3
20	Biology	4 or 5	BIO 2105 General Biology I BIO 2106 General Biology II	4 4
25	Chemistry	4 or 5	CHM 1151 General Chemistry I	4
			CHM 1152 General Chemistry II	4
			CHM 1103 General Chemistry Lab I	1
			CHM 1104 General Chemistry Lab II	1
28	Chinese Language & Culture	4 or 5	CHI 1111 Basic Chinese I	6
			CHI 1112 Basic Chinese II	6
31	Computer Science A	4 or 5	CSC 1051 Algorithms & Data Struc I	4
32	Computer Science Principles	4 or 5	CSC 1020 Computing and the Web	3
34	Economics: Microeconomics	4 or 5	ECO 1001 Intro to Micro	3
35	Economics: Macroeconomics	4 or 5	ECO 1002 Intro to Macro	3
36	English Language & Composition	4 or 5	ENG 1050 The Literary Experience	3
37	English Literature & Composition	4 or 5	ENG 1050 The Literary Experience	3
40	Environmental Science	4 or 5	GEV 1052 Environmental Studies	3
43	European History	4 or 5	HIS 1021 History of Western Civilization II	3
48	French Language and Culture	4 or 5	FFS 1121 Intermediate French I	3
			FFS 1122 Intermediate French II	3
53	Human Geography	4 or 5	GEV 1002 Geography of a Globalizing World	3
57	Government & Politics: US	4 or 5	PSC 1100 Intro to American Government	3
58	Government & Politics: Comp	4 or 5	PSC 1300 Comparable Politics	3
60	Latin	4 or 5	LAT 1121 Intermediate Latin I	3
			LAT 1122 Intermediate Latin II	3
62	Italian Language & Culture	4 or 5	ITA 1121 Intermediate Italian I	3
			ITA 1122 Intermediate Italian II	3
64	Japanese Language & Culture	4 or 5	JPN 1111 Introductory Japanese I	6
			JPN 1112 Introductory Japanese II	6
66	Calculus AB	4 or 5	MAT 1500 Calculus I	4
68	Calculus BC	4 or 5	MAT 1500 Calculus I	4
			MAT 1505 Calculus II	4
69	Calculus AB Subscore Grade	4 or 5	MAT 1500 Calculus I	4
80	Physics C - Mechanics	4 or 5	PHY 2400 Physics I Mechanics	3
82	Physics C - Electricity & Magnetism	4 or 5	PHY 2402 Physics II Elec & Magnet	3
			PHY 2403 Physics Lab for Engineering	1
85	Psychology	4 or 5	PSY 1000 General Psychology	3
87	Spanish Language	4 or 5	SPA 1121 Intermediate Spanish I	3
			SPA 1122 Intermediate Spanish II	3
89	Spanish Literature	4 or 5	SPA 1121 Intermediate Spanish I	3
			SPA 1122 Intermediate Spanish II	3
90	Statistics	4 or 5	STAT 1230 Intro Statistics I	3
93	World History	4 or 5	HIS 1040 Themes Pre-Mod World History	3

International Baccalaureate (IB) Credit

All International Baccalaureate (IB) credit must be accepted and approved before the completion of two semesters at Villanova.

If you have taken International Baccalaureate (IB) exams and Villanova has received your official scores, you may receive Villanova credit. Villanova only awards credit for Higher Level exams. It is your responsibility to ensure your scores have been received.

Credit will be added to your academic record based on the below credit equivalency.

International Baccalaureate (IB) Credit Equivalencies 2022-2023

Note: Credit is only given for Higher Level (HL) exams

Subject	Score	Villanova Course(s)	Credits
Anthropology	6 or 7	SOC 2100 Cultural Anthropology	3
Biology	6 or 7	BIO 2105 General Biology I	4
		BIO 2106 General Biology II	4
Chemistry	6 or 7	CHM 1151 General Chemistry I	4
		CHM 1152 General Chemistry II	4
		CHM 1103 General Chemistry Lab I	1
		CHM 1104 General Chemistry Lab II	1
Computer Science HL	5, 6, or 7	CSC 1051 Algorithms & Data Structure I	4
Information Technology	5, 6, or 7	SC 1930 Explorations in Computing	3
Economics	5, 6, or 7	ECO 1001 Intro to Micro	3
		ECO 1002 Intro to Macro	3
English	5, 6, or 7	ENG 1050 The Literary Experience	3
French A2 or B	6 or 7	FFS 1121 Intermediate French I	3
		FFS 1122 Intermediate French II	3
Geography	5, 6, or 7	GEV 1002 Geography of a Globalizing World	3
History Americas	6 or 7	HIS 4495 Topics in Latin American History	3
History Europe	6 or 7	HIS 1021 History of Western Civil II	3
Italian A2 or B	6 or 7	ITA 1121 Intermediate Italian I	3
		ITA 1122 Intermediate Italian II	3
Latin	6 or 7	LAT 1121 Intermediate Latin I	3
		LAT 1122 Intermediate Latin II	3
Mathematics	6 or 7	MAT 1500 Calculus I	4
Mathematics Further	5	MAT 1500 Calculus I	4
	6 or 7	MAT 1505 Calculus II	4
Music	6 or 7	SAR 3030 Special Topics in Music	3
Philosophy	6 or 7	PHI 2990 Topics in Philosophy	3
Physics	6 or 7	PHY 2400 Physics I Mechanics	3
		PHY 2402 Physics II Elec and Magnet	1
		PHY 2403 Physics Lab for Egr	1
Psychology	6 or 7	PSY 1000 General Psychology	3
Spanish A2 or B	6 or 7	SPA 1121 Intermediate Spanish I	3
		SPA 1122 Intermediate Spanish II	3

Pre-Matriculated Credit

All Pre-Matriculated credit must be accepted and approved before the completion of two semesters at Villanova.

College-level work completed prior to high school graduation may be awarded transfer credits upon receipt and review of the following: (1) an official letter from the high school principal, secondary school

counselor or other educational professional describing the college-level program of study; (2) an official letter from the college/university stating that the courses were taught by members of the regular faculty, open to enrollment by and graded in competition with regularly matriculated undergraduates at the college and a regular part of the normal curriculum published in the college catalog; (3) a course syllabus; and (4) an official, seal-bearing transcript from the college/university showing a grade of C or better. **Credit or advanced standing for courses taught at the high school will not be accepted. Credit or advanced standing for courses in which the class is composed of only high school students will not be accepted.** With respect to courses taught in a distance-learning format, and for other requirements, each academic program will review on a case-by-case basis. Each supporting document is to be sent to [Laura Matthews](#), Villanova University, Aldwyn One, Second Floor, 800 Lancaster Ave., Villanova, PA 19085.

Audit a Course

A student may elect to audit a course to reinforce and strengthen their current knowledge or to explore new areas without the pressure of tests and grades. No academic credit is earned for auditing a course; however, the audited course is noted on the student's official record. Students must complete the Audit Request form accessible via the Forms Directory on the Office of Enrollment Management webpage. Permission to audit a course must be obtained from the student's advisor.

Exam Administration

Integrity is central to the mission of Villanova University. The Faculty of the College of Engineering is committed to creating an environment of academic integrity and ethical decision-making. To encourage an atmosphere of honesty, integrity and fairness for all students, the following exam procedures are in place:

- Students must arrive before the start of the exam. Under exceptional circumstances, at the discretion of the professor, a student may need to arrive late, but can enter the exam no later than 5 minutes after the start of the exam.
- All communication devices (cellphones, smartwatches, etc.) must be turned off and stored away until the student exits the exam room.
- The official Villanova class attendance policy must be followed when requesting excuses for absences or lateness to an exam.
- Each student must *write and sign* the following statement, "*I have neither given nor received any unauthorized assistance in the completion of this exam.*"

Double Major and Dual Degree

Double Major: A double major is a program of study that meets the requirements of two distinct majors in a single bachelor's degree. Engineering students interested in pursuing more than one major should discuss the possibility with their academic advisor in Engineering before applying to the other program. Because of prerequisites and course scheduling, the College of Engineering makes no guarantee that students pursuing more than one major will be able to take any engineering course during any semester of their choosing. Students should not expect to complete more than one major in four years. Multiple majors, regardless of college, will appear on the student's transcript.

Engineering must be the primary major for all double-major students. Admission is based upon merit and space available in the intended second major. Applications are due Dec. 1 (for the following Spring Term) and May 1 (for the following Fall Term).

Dual Degree: Normally, a student may receive only one degree, regardless of how many majors the student earns. A Dual Degree is a second degree that is completed at the same time as a first degree. A Dual Engineering Degree option is available to College of Engineering students only. In order to receive two degrees and two diplomas, the student must complete 43 or more additional credits beyond the greater of the two program credit requirements.

Students must request to pursue a second degree prior to completing their second semester sophomore year. Admission is based upon merit and space available in the intended major of the second degree. Applications are due Dec. 1 (for the following Spring Term) and May 1 (for the following Fall Term).

Graduation

May Graduation Procedure

Following the below instructions will assist both the College and the student in a timely diploma distribution. The detailed process below is to ensure students' names are included on the graduation list.

1. After students have completed registration for the Spring semester, they should review a copy of their CAPP compliance (degree audit) to be sure that every requirement is showing "met" either with a completed course or course registration; review all majors, minors, and concentrations.
 - Special attention should be paid to the use of graduate-level courses. If a student is planning to continue in a master's program at Villanova and they have taken courses as an undergrad, a [Confirm Graduate Course Credits for Degree form](#) should be used to verify proper use of courses.
 - Senior year is the time for the student to update their field of study and add or remove any majors, minors or concentrations. When requesting the removal of a minor or concentration, please add in the notes field on the form that the student wants the minor or concentration removed.
[Request to Pursue a Minor](#)
[Request to Pursue a Concentration](#)
2. Review the CAPP compliance with your advisor. Both the student and advisor sign and date the CAPP compliance.
3. The Degree Verification Representative in the student's department will review all CAPPs before the add/drop period is over verifying all curriculum requirements are fulfilled. The Degree Verification Representative will notify the student of any discrepancies.

Degree Verification Department Representatives:

CHE - [Dr. Dorothy Skaf](#)

CEE - [Dr. Eric Musselman](#)

CPE - [Mr. Edward Char](#)

EE - [Mr. Edward Char](#)

ME - [Dr. Ani Ural](#)

An Engineering student who has not attained the required credits for degree completion may apply for permission to “walk” in May graduation ceremonies if the student is an undergraduate who has no more than three courses left to complete the requirements for their degree and is registered to complete all of these requirements by the end of the next fall semester.

The student must complete the [Request to Participate in Graduation Ceremonies Form](#).

The student’s name will appear in the May program following degree conferral. A diploma will be mailed to the student at their address of record after all requirements have been completed.

Withdrawal from University

Students who wish to leave and who do not plan to return to the University should request a withdrawal. Official withdrawal from the University must be authorized by the Associate Dean for Academic Affairs. Students should complete the [Withdrawal Request form](#).

Please Note: Students who request an official withdrawal during the semester may be eligible for refund of some or all of the tuition paid for that semester. A student who has withdrawn from the University who wishes to return, must apply directly to the college the student wishes to attend. (Admission is granted at the sole discretion of the Dean of that college.)

General Information

Grand Challenge Scholars Program

The Grand Challenges are an aspirational vision of what engineering needs to deliver in the 21st century. Its 14 corresponding goals are focused on “continuation of life on the planet, making our world more sustainable, secure, healthy and joyful.” The Grand Challenges Scholars Program is an engineering education supplement that broadens the reach of undergraduate study and is open to all engineering majors. Students must fulfill five competencies related to their selected challenge.

Student Organizations

To encourage close contact between our engineering students and practicing professional engineers, and to assist students in establishing their engineering identity, the College of Engineering maintains student chapters of many engineering professional societies. These groups, with the cooperation and support of the faculty and practicing professional engineers, organize and sponsor meetings, guest speakers and field trips of interest to engineering students.

Honor Societies:

- Eta Kappa Nu - International Honor Society of the Institute of Electrical and Electronics Engineers
- Pi Tau Sigma - International Honor Society for Mechanical Engineers
- Omega Chi Epsilon - Chemical Engineering Honor Society
- Tau Beta Pi - The Engineering Honor Society (representing the entire engineering profession)

Professional Organizations:

- American Institute of Aeronautics and Astronautics
- American Institute of Chemical Engineers
- American Society of Civil Engineers
- American Society of Mechanical Engineers
- Institute of Electrical and Electronics Engineers
- Institute of Transportation Engineers
- National Society of Black Engineers
- National Society of Professional Engineers
- Society of Asian Scientists and Engineers
- Society of Hispanic Professional Engineers
- Society of Women Engineers

Engineering Student Council - A student organization that serves as the liaison between the students and the College administration. The broader professional and social interests of all engineering students are served by the Villanova University Engineering Student Council. Membership in this organization is open to all undergraduate engineering students.

Engineering Support:

Peers Enhancing Educational Resources for Students (PEERS) - A Villanova Engineering student organization providing peer mentoring to all students, with the emphasis on first-year and transitional students.

More information on the many student organizations can be found on the engineering website.

Laboratory Facilities

Dedication of the 88,400-square-foot Center for Engineering Education and Research (CEER) took place in June 1998. The multimillion-dollar facility provides leading-edge technological support for teaching and research in the College of Engineering. Construction is underway on a \$125 million, 150,000-square-foot addition to the facility that will usher in a new era for the College, furthering its commitment to igniting change through interdisciplinary research and innovative teaching and learning. The CEER expansion project will be completed in Fall 2024.

The Chemical and Biological Engineering Department's laboratories provide opportunities for students to integrate fundamental principles in thermodynamics, fluid mechanics, heat transfer, mass transfer and reaction kinetics with hands-on experimental planning, performance and analysis. Students use state-of-the-art facilities to participate in biotechnology, materials science and catalysis research. Computer clusters support research, and a computer-equipped classroom enhances laboratory, process-control and process-simulation experiences.

The Civil and Environmental Engineering Department is committed to hands-on education in its experimental, computational and design laboratories. Facilities are dedicated to instruction and research capabilities in environmental engineering, geology, soils, structures, transportation and hydraulics. Facilities support undergraduate instruction as well as both undergraduate and graduate research. The department's Faris Structural Engineering Teaching and Research Lab provides 5,000 square feet of useable floor space to test full-scale structural members up to 90 feet in length and includes two smaller laboratories for testing construction materials under various environmental conditions. The University campus is also used as a working laboratory for education and research on stormwater management, through a vast network of interconnected sensors.

The Electrical and Computer Engineering Department laboratory facilities are available to serve as important components of study in specialized areas as well as for core studies. Laboratories are in place for instruction and research in control systems, digital systems and microprocessors, electronics, signal processing, solid state devices, microwaves, microcontrollers, advanced electronics, advanced computer systems, antenna anechoic chamber, antenna research, communications and student projects.

The Mechanical Engineering Department laboratories provide an environment for students to reinforce their understanding of the fundamental principles of mechanical engineering and apply that knowledge in experimental analysis and problem-solving. Facilities include a wind tunnel as well as laboratories for manufacturing processes, thermodynamics, engine testing, materials testing and material science, control, vibration, stress, heat transfer and fluid mechanics.

Computing

All students are required to own or purchase a Microsoft Windows-based laptop computer. Students must bring their laptops to class as course work often requires the use of a computer.

Apple computers are not compatible with all engineering application software that is required for engineering course work.

College and University Computing

The entire campus is linked via a high-speed network and is connected to the internet. The College also provides a virtual desktop that allows students to run engineering software remotely. Information technology support is provided by University Information Technology (UNIT), the University's IT group, as well as by the College's IT group with a walk-in, online and telephone help desk system.

Software and Departmental Computing

The analysis and simulation software MATLAB and Mathcad, spreadsheet package Excel, drawing packages SolidWorks and AutoCAD, and data-acquisition software LabVIEW are available for use. In addition, some departments have their own computers and workstations in classrooms and laboratories. Besides computers for data acquisition and control in the laboratories, special-purpose computer software is installed on computers throughout the College. For example, the Chemical and Biological Engineering Department uses Aspen Plus for simulation of its chemical process systems and makes the software available in computer classrooms. The Civil and Environmental Engineering Department has industry-specific software packages installed on its computers, including STAAD and SimTraffic. Simulink and PSpice are used among many other packages in the Electrical and Computer Engineering Department. In the Mechanical Engineering Department, students use Ansys and Fluent for finite element analysis and computational fluid dynamic simulations.

Awards and Honors

Dean's List: An individual who has earned a semester GPA of 3.50 or above, is a full-time student, has completed 12 or more credits with final grades in the semester, and has no "N" or unreported grades is placed on the Dean's List. Approximately two months after the end of the semester, an appropriate letter of acknowledgement is sent to the student at the permanent address on file with the University.

Dean's Award for Academic Achievement: This award was established to recognize the outstanding academic performance of senior undergraduate engineering students who will graduate within the current academic year. To be a recipient of the Academic Achievement Award, students must have a cumulative grade point average within the top 10 percent of their major at the end of the fall term.

Dean's Award for Meritorious Service: This award was established to recognize exceptional service to the College of Engineering by senior undergraduate engineering students who will graduate within the current academic year. To be eligible, nominees must be involved in extracurricular and/or service activities within the College for a sustained period. Preference is given to students who demonstrate noteworthy leadership in one or more activities.

Career Compass Professionalism: This award was established in 2016 to recognize students who exemplify professionalism and embrace the core values of the Career Compass program. To be eligible, nominees must attain a satisfactory grade in all six Career Compass courses and must exemplify a strong and vibrant work ethic and commitment to ethical behavior and innovation. Recipients are selected by the Director of Professional Development, College of Engineering.

National Honorary Engineering Societies: To recognize and encourage excellence in scholarship, chapters of the following national honorary engineering societies are maintained by the College: Tau Beta Pi, for all engineers; Chi Epsilon, for civil engineers; Eta Kappa Nu, for electrical engineers and computer engineers; and Pi Tau Sigma, for mechanical engineers.

Departmental Medallions: At graduation, each department awards a departmental medallion to an exceptional graduate selected by the department.

Robert D. Lynch Award: This award was instituted in 2003 in honor of Robert D. Lynch, the Dean of the College of Engineering from 1975 to 2000. Given on behalf of the Engineering Alumni Society, this prestigious award acknowledges a graduating senior for outstanding academic achievements and exemplary dedication to serving the community, thus representing the highest values of Villanova University and the College of Engineering.

Curriculum

Degrees Offered

The College of Engineering offers full-time (day) academic programs leading to the following degrees:

- Bachelor of Science in Chemical Engineering
- Bachelor of Science in Chemical Engineering, Honors
- Bachelor of Science in Civil Engineering
- Bachelor of Science in Civil Engineering, Honors
- Bachelor of Science in Computer Engineering
- Bachelor of Science in Computer Engineering, Honors
- Bachelor of Science in Electrical Engineering

- Bachelor of Science in Electrical Engineering, Honors
- Bachelor of Science in Mechanical Engineering
- Bachelor of Science in Mechanical Engineering, Honors

The undergraduate programs in Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering and Mechanical Engineering are accredited by the Engineering Accreditation Commission of ABET, abet.org.

Minors Offered

The College of Engineering offers the following minors:

- Aerospace Engineering
- Biochemical Engineering
- Biomedical Engineering
- Computer Engineering
- Cybersecurity
- Electrical Engineering
- Engineering Entrepreneurship & Engineering Entrepreneurship Summer Institute
- Mechatronics
- Humanitarian Engineering
- Sustainability Studies (joint offering between the College of Engineering and the College of Liberal Arts and Sciences)
- Sustainable Engineering
- Real Estate Development (joint offering between the College of Engineering and Villanova School of Business)

Degree Requirements

The undergraduate engineering curriculum provides the foundation for careers in engineering as well as the basis for further study in engineering and other professions such as law, medicine, business and management. Courses of study concentrate on mathematics, physics, chemistry, engineering science, and engineering analysis and design within a particular engineering discipline.

The curriculum places special emphasis upon developing oral and written communication skills, and it offers opportunities to develop an appreciation of the social sciences and humanities, and the flexibility to pursue minors. Courses in the humanities are included in each curriculum to make the student engineer more fully aware of social responsibilities and better able to consider non-technical factors in the engineering decision-making process. Extensive hands-on laboratory experience and required projects for all seniors ensure professional preparation in the fundamentals of the design process within the real constraints of problem solving. To qualify for a bachelor's degree in the College of Engineering, undergraduate engineering students must successfully complete all of the first-year core curriculum courses, those major courses required for the particular engineering degree sought, and a series of electives. They must also achieve cumulative overall and technical grade point averages of at least 2.00 in their course work.

At least half of all the engineering courses and, normally, the final 30 credits of an engineering bachelor's degree program, must be taken at Villanova University. All undergraduate degree requirements should be completed within a six-year period.

NOTE: It is the responsibility of each student to know and to fulfill all degree requirements. To keep the curriculum abreast of the latest engineering developments, Villanova University reserves the right to change the program requirements without prior notice.

Core Curriculum

All engineering students have a common first semester consisting of the following courses:

Course	Title	Credits
ACS 1000	Ancients	3
THL 1000	Faith, Reason, and Culture	3
MAT 1500	Calculus I	4
CHM 1103	General Chemistry Lab I	1
CHM 1151	General Chemistry I	4
EGR 1200	Egr. Interdisciplinary Proj. I	3
EGR 1001	Career Compass First Yr A	0.5

Engineering Curriculum Requirements in Humanities and Social Science:

Course	Title	Credits
ACS 1000	Ancients	3
ACS 1001	Moderns	3
THL 1000	Faith, Reason, and Culture	3
	Theology (THL) course at the 2000 level or above	3
	Department approved Ethics course	3
	One 3-credit course from:	3

Category Descriptions

Theology (THL) course at the 2000 level or above

Credits: 3

Or course with Core Theology (CTHL) attribute.

Department approved Ethics course

Credits: 3

One 3-credit course from:

Credits: 3

Course	Title	Credits
	Theology (THL) course at the 2000 level or above	3
	Philosophy (PHI)	3
	Peace and Justice (PJ)	3
ETH 2050	The Good Life:Eth & Cont Prob	3
EGR 2930	Catholic Soc Teaching for EGRS	3

Honors Degrees

All degree programs have an Honors option. Students pursuing the Honors degree are accepted into the Honors program at admission. These students have additional degree requirements. Honors students are advised by an academic advisor in their department, and the Honors Program provides additional advising support.

Career Compass

Developed in consultation with engineering alumni, faculty and students, Career Compass is a one-of-a-kind professional development curriculum unique to Villanova's College of Engineering. As part of our comprehensive undergraduate engineering program, students will learn not only the scientific, mathematical and engineering principles expected of every engineer, but also the professional skills needed to succeed in any career.

A graduation requirement that will appear on your transcript, Career Compass is a combination of self-directed online modules, in-person class sessions for first-semester students, and required activities, such as attending professional events on campus.

Academic Programs

College of Engineering