On November 9, 2018, NJIT launched its newest school, the School of Applied Engineering and Technology (SAET), within the university’s Newark College of Engineering (NCE). SAET encompasses NCE’s engineering technology programs in two divisions (Electrical and Mechanical Engineering Technology Division and the Built Environment Division); the baccalaureate degree General Engineering program; and a division focused on Engineering Education practice and research. SAET serves about 1,000 NJIT students. The SAET offers Bachelor of Science in Engineering Technology (BSET) degrees in nine different options, as well as, Bachelor of Science (BS) degrees in Concrete Industry Management (CIM), and General Engineering.

The Engineering Education Division (SEED) consists of the Technology Education Program (TEED) and the General Engineering Program (GEN).

Many students choose to complete their freshman and sophomore years at a community college or a technical institute, and obtain an associate's degree in applied science from these institutions. It is strongly recommended that students talk to an academic advisor at NJIT while they are still pursuing their associate's degree. The academic advisor will explain the transfer process in detail as well as suggest elective courses that may be beneficial. Contact an advisor by calling the School of Applied Engineering and Technology at (973) 596-3228, or by email at EngineeringTechnology@njit.edu.

After being admitted to NJIT, students must meet with an academic advisor to discuss the curriculum and any special interests the student might have. Students who lack necessary courses will be assigned bridge courses to make up the required prerequisites. Generally, courses taken at the freshman and sophomore level at the community colleges cannot substitute for junior or senior NJIT engineering technology courses. Engineering technology is that part of the technological field which requires the application of scientific and engineering knowledge and methods, combined with technical skills, for the implementation and extension of existing technologies. Engineering technology education focuses on preparing engineering technologists for positions that involve product development and improvement, system development, management, manufacturing and engineering operational functions. Graduates also enter the technical sales and customer services field, or continue in graduate work in engineering or management. Placement of graduates has been excellent.

NJIT Faculty

B
Barnes, William, Associate Professor
Brateris, Daniel J., University Lecturer

E
English, Robert, Professor Emeritus

J
Juliano, Thomas, Associate Professor

K
Khader, Michael, Associate Professor

L
Lieber, Samuel C., University Lecturer

M
Mahgoub, Mohamed A., Assistant Professor
Miima, John B., Assistant Professor

P
Potts, Laramie, Associate Professor

R
Rabie, Mohammad A., University Lecturer
Rahman, Sahidur, University Lecturer
Rockland, Ronald H., Professor
Prerequisites: Junior or Senior standing and approval of instructor and NCE Associate Dean for Academic Affairs. Students design, document, and build a project or portion of a larger system as part of a multidisciplinary project under the supervision of a faculty member. Deliverables include written engineering design requirements, standards and specifications, bill of materials, detailed drawings suitable for fabrication, and a demonstration of a fabricated, assembled, tested, and functional project. Additional requirements may be added by the instructor with approval of the NCE Associate Dean for Academic Affairs.
ENGR 410. Co-op Work Experience II. 12 credits, 12 contact hours (0;0;12).
Prerequisites: ENGR 310; Completed at least 9 credits after ENGR 310; Cumulative GPA 2.5; Approval of department; Approval of CDS. Cooperative Education and Internships. Students gain major-related work experience and reinforcement of their academic program. Mandatory participation in seminars and completion of a report.

ENGR 423. Drone Science Fundamentals. 3 credits, 4 contact hours (3;1;0).
Restrictions: NCE students with senior standing and with instructor permission. This course will cover the fundamentals of quadrotor drone kinematics and dynamics, quadrotor sensor data analysis, linear and non-linear flight control, and motion planning for a single quadrotor. Students will be guided through the process of building a quadrotor drone, setting up the required flight control parameters and associated Hardware-In-The-Loop simulators, and using Python/C programming for basic single quadrotor motion planning algorithms. Students will also be guided through the preparation for the Federal Aviation Authority (FAA) Part 107 Certified Drone Pilot knowledge test.

ENGR 424. Robotics Science Fundamentals. 3 credits, 4 contact hours (3;1;0).
Prerequisites: BME 210 or CS 101 or CS 106 or CS 113 or CS 115. This hands-on course will cover experiments that elucidate the fundamentals of ground robots and robotic manipulators, sensor data analysis, linear and non-linear motion control, and motion planning for a ground robots and robotic manipulators. Student will be guided through the process of building such robots, setting up the required motion control parameters and associated Hardware-In-The-Loop simulators, and programming of sensor-based single and multi-robot motion planning algorithms.

ENGR 491. Research and Independent Study I. 3 credits, 3 contact hours (3;0;0).
Prerequisites: Approval of the Instructor (Faculty Mentor) and the Grand Challenges Program Director Junior or higher standing. Restrictions: Junior or higher standing. Provides the student with an opportunity to work on a research project under the individual guidance of a faculty mentor associated with the Grand Challenges Scholars Program. A written report, or a research paper, or a final presentation is required for course completion.

ENGR 492. Research and Independent Study II. 3 credits, 3 contact hours (3;0;0).
Prerequisites: ENGR 491. Restrictions: Junior or higher standing, and Approval of the Instructor (Faculty Mentor) and the Grand Challenges Program Director. Provides the student with an opportunity to continue to work on a research project under the individual guidance of a faculty mentor associated with the Grand Challenges Scholars Program. Students may continue the work they started in ENGR 491 or can work on a different grand challenge with the same or different faculty mentor. A written report, or a research paper or a final presentation is required for course completion.

ENGR 493. Service Learning Experience for Engineers. 3 credits, 3 contact hours (3;0;0).
Prerequisites: ENGR 290. Restrictions: Junior or higher standing, and Approval of the Grand Challenges Program Director. Through service experiential learning, students will engage in acquiring a multi-cultural competency. A host of opportunities are available for fulfilling this competency: an experience will require prior approval of the GCSP Faculty Advisor and the Program Director. Students will be required to develop a plan in carrying out the experience. Potential opportunities include but are not limited to 1. An Engineers without Borders project, 2. An EPICS project, 3. A global internship or cooperative education experience that is voluntary (unpaid), and 4. A study abroad experience.

ESC 310. Work Experience I. 3 credits, 3 contact hours (0;0;3).

ET 101. Introduction to Engineering Technology. 0 credits, 2 contact hours (2;0;0).
This course introduces the student to engineering technology. Also included is an introduction to the various engineering technology options: Construction, Electrical and Computer, and Mechanical Engineering Technologies as well as Concrete Industry Management.

GEN 301. Applications of Microcontrollers and IoT devices. 3 credits, 4 contact hours (2;2;0).
Prerequisites: FED 101, CS 101 or CS 106 or CS 113 or CS 115 or BME 210. Microcontrollers are an integral part of many modern technological devices. This course will familiarize students to microcontrollers and its exciting applications in the fields of Internet of Things (IoT) and Robotics using a project-based hands-on approach. The microcontroller will be used as a component part of a broader design activity to introduce students to coding, logic, and automation in the wider context of product design. Students will work on multiple mini-projects to integrate a programmable system into a prototype such as a heart monitor, step counter, electronic scoreboard or a food temperature probe. Overall, this course will provide a basic understanding of software design and coding, microcontroller interfacing with sensors, actuators, motors etc., and robotics. Students will also develop modeling and prototyping skills and will be inspired towards making and service-learning.

GEN 491. Research Independent Study I. 3 credits, 3 contact hours (3;0;0).
Restriction: senior standing in general engineering. Provides the student with an opportunity to work on a research project under the individual guidance of a program faculty member.

GEN 492. Research Independent Study II. 3 credits, 3 contact hours (3;0;0).
Prerequisite: GEN 491. A continuation of GEN 491.