UNDERGRADUATE STUDENT HANDBOOK

2023-2024

COLLEGE OF ENGINEERING
Systems & Industrial Engineering

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1. Introduction

Welcome to the Department of Systems and Industrial Engineering (SIE) at the University of the Arizona! Founded in 1961 as the nation's first systems engineering academic program, the SIE department is committed to providing a welcoming learning and research environment and a comprehensive undergraduate curriculum leading to bachelor of science degrees in systems engineering, industrial engineering, and engineering management. The Bachelor of Science in Systems Engineering program, Bachelor of Science in Industrial Engineering program, and Bachelor of Science in Engineering Management program are accredited by the Engineering Accreditation Commission of ABET, www.abet.org. The department offers three MS degrees: Systems Engineering, Industrial Engineering, and Engineering Management. At the doctoral level, the department offers a research-intensive PhD in Systems and Industrial Engineering.

The **purpose** of this handbook is to serve as a guide for current undergraduate students on requirements for completing SIE undergraduate programs.

2. SIE Undergraduate Studies Administration

The following are key contacts of individuals who will support students in their SIE undergraduate studies.

Major Academic Advisor

Email correspondence can be sent to advisor@sie.arizona.edu. Students are responsible for checking their Catmail daily for important updates, announcements, deadlines, and opportunities. This can be supplemented by joining UArizonaSIE Discord server and following our SIE Instagram and LinkedIn. During fall/spring semesters, newsletters will be sent at least 1-2 times with any other necessary emails in between.

Academic Advising is a collaborative relationship between the student and academic advisor. The intent of the collaboration is to assist the student in developing educational and career goals. Academic advisors assist and support the student in progressing toward the appropriate degree. Academic advisors provide academic assistance and individualized attention to promote each student's success at the University of Arizona. An academic advisor can share knowledge, experience and insight that is beneficial to the student. The advisor's role is to help the student evaluate and realize educational and career options. This requires the advisor to:

- approve the student's academic program of study
- provide accurate and consistent information
- clarify program requirements, policies and procedures
- assist the student in identifying appropriate institutional resources
- facilitate relationships between the student and other individuals on campus who may provide assistance
- uphold the academic standards of the institution

A key tenet of academic advising is that the student is responsible for his or her own decisions. Academic advisors exist because students require information and assistance to navigate the university system and to make appropriate decisions. The student's role is to explore academic, career and personal goals. This requires the student to:

- seek advising from appropriate advisors at appropriate times
- learn academic program requirements
- utilize available resources, including those that are web-based, to monitor academic progress
- take responsibility for actions and decisions that affect academic progress
- be engaged

Required Meetings with Major Academic Advisor:
Students can schedule Zoom or in-person advising appointments through *Trellis Advise*, UAccess>Advising>Trellis Advise. The meetings listed here are required:

- Once admitted into SIE major to remove advising hold in UAccess
- Semester before enrollment in upper division courses/applying for advanced standing
- Semester before you are ready to graduate to complete your final degree audit
- Each semester prior to Priority Registration (strongly recommended)

Director of BS Programs

Director, Industrial Engineering, Dr. Pavlo Krokhmal (email: krokhmal@arizona.edu)
Director, Systems Engineering, Dr. Alejandro Salado (email: alejandrosalado@arizona.edu)
Director, Engineering Management, Dr. Michael Kwinn (email: kwinnm@arizona.edu)
Director of Undergraduate Studies, Dr. Jianqiang Cheng (email: jqcheng@arizona.edu)

Faculty Advisor

Upon arriving at the University of Arizona, students are assigned a faculty advisor based on their major. Your faculty advisor is there to offer you their perspective and expertise regarding careers, graduate school, research, and approval of directed research or internships. A list of current SIE faculty, their research areas, and contact information can be found here: https://sie.engineering.arizona.edu/faculty-staff/faculty.

3. BS Degree Requirements

SIE programs offer unique combinations of technical knowledge, communication skills, teamwork and leadership experience. SIE programs focus on the skills needed in every industry to design and refine complex systems and to prepare individuals for professional work in systems, industrial, and engineering management.

The following general degree requirement applies to undergraduate programs in systems engineering, industrial engineering, and engineering management. It is the student's responsibility to review their Advisement Report in UAccess with their academic advisor to ensure satisfaction of graduation requirements.

- Students must earn a minimum of 128 credits for degree. Minimum 64 credits must be acquired at UA for transfer students.
- The advised sequence of courses serves as a guide and is available for all engineering majors.
- The majority of course work must be taken within the SIE Department, unless instructor approval is acquired for an SIE equivalent course.
- Mid-Career Writing Assessment (MCWA): Every undergraduate degree requires satisfaction. Based on performance in ENGL 102, or ENGL 108, or ENGL 109H. Students earning less than a B grade will need a B grade or higher in required technical writing course.
- Advanced Standing: This indicates that students are ready to enroll into junior/senior level engineering courses by completing lower division courses and meeting GPA requirements. Eligible students must meet with their major academic advisor to apply.
- Engineering Minor and Technical Elective Requirements: In addition to core courses and prerequisites, systems engineering and engineering management students complete an engineering or thematic minor, consisting of 18 unique units of primarily technical electives. Industrial engineering students do not have a minor requirement but must complete 12 units of technical electives from upper-division coursework. The SIE department has prepared the guidelines for required minors and technical electives and double-dipping policy:
  - Minor Course Guide for Systems Engineering
  - Technical Elective Guide for Industrial Engineering
  - Minor Course Guide for Engineering Management

[Thematic minors](#) will need form/course approval from major faculty advisor. Students must declare their engineering minor here: https://engr.arizona.edu/academic-policies/declare-minor
Students are able to use either SIE 492, Directed Research or SIE 493, or Internship credit towards their SIE minor or technical elective, after major faculty advisor approval.

- [Senior Capstone Requirements](#) (ENGR 498A/B) - now offered both fall and spring semesters. Must be UA seniors with advanced standing, met GPA and prerequisite/corequisite major requirements in order to enroll. Students cannot have any lower division deficiencies or incomplete grades. Fall ENGR 498A enrollment is for students with expected graduation in spring semester. Spring ENGR 498A enrollment is for students with expected graduation in fall semester.

Students need to work with their academic advisor regarding their study plan to ensure they are prepared by having met the requirements for this interdisciplinary capstone.

Systems Engineering Majors: Prerequisites: SIE 370, SIE 454A. Co-Requisites: SIE 410A, SIE 330R
Engineering Management Majors: Prerequisites: SIE 457. Co-Requisite: SIE 406
Industrial Engineering Majors: Prerequisites: SIE 370, 383. Co-Requisites: SIE 410A, SIE 330R

SIE Undergraduate Degree Options		
Degree	Requirements	Min. Units
Systems Engineering	- Earn C grades or higher in all 200-level SIE courses - Require completion of lower division courses to be eligible to apply advanced standing - Maintain minimum 2.0 cum/major GPA - Engineering minor required, no double-dipping between major and minor courses, 2.0 minor GPA	128
Industrial Engineering	- Earn C grades or higher in all 200-level SIE courses - Require completion of lower division courses to be eligible to apply advanced standing - Maintain minimum 2.0 cum/major GPA - Upper division technical electives- 12 units	128
Engineering Management	- Require completion of lower division courses to be eligible to apply advanced standing - Maintain minimum 2.0 cum/major GPA - Engineering minor required, no double-dipping allowed between major and minor courses, 2.0 minor GPA	128

4. Accelerated MS Programs

The SIE Accelerated Master's Program (AMP) is designed to allow exceptional undergraduate seniors at the University of Arizona to work concurrently toward an MS degree. Up to 12 units of approved graduate coursework taken in their undergraduate career may count towards both BS and MS degrees, allowing students to earn their MS degree quicker.

When can undergraduate students apply to the AMP program? Students interested in the program may apply after completion of a minimum of 75 eligible undergraduate credits. The minimum GPA of 3.3 is required at the time of application as per the Graduate College.

AMP Admission Requirements:
- Cumulative GPA at the time of admission is 3.3
- A minimum of 90 undergraduate credit hours is required at the time of **entry** into the AMP
- Completion of at least 12 earned undergraduate credits in their SIE major at the University of Arizona. Units still graded Incomplete, units graded Pass/Fail or units taken as audit will **not** count toward the requirement of the 12 undergraduate units
- Students should have taken the following MS prerequisite courses. Courses equivalent to these prerequisites taken at other departments or institutions will be allowed.
    - SIE 305: Introduction to Probability and Statistics
    - SIE 321: Probabilistic Models in Operations Research (optional for MS in EMG students)
    - SIE 340: Deterministic Operations Research
- Additional application materials: Three letters of recommendation, a statement of purpose and a CV/Resume. GRE is not required for AMP admission.

Academic Policies related to the AMP:
- Once students are admitted to the AMP, they are strongly encouraged to see the Graduate Program Coordinator and the SIE Undergraduate Advisor to discuss their plan of study. Students pursuing MS thesis or report plan must select a faculty advisor and submit a preliminary thesis/report proposal and plan of study before the end of the first semester after being admitted to the AMP.
- SIE 500 level courses that are convened with 400 level courses and their 400 level courses are required for a BS degree cannot be counted toward an MS degree. For example, if a student is enrolled in the BS in Industrial Engineering (INE) program, SIE 531 cannot be counted toward the student's MS INE degree as SIE 431 is required for the BS INE program. However, if a student is enrolled in the BS in Systems Engineering (SYE) program, SIE 530 can be counted toward both the BS SYE and MS SYE as SIE 430 is not required for the BS SYE.

    AMP academic policies and tuition policies are defined by the Graduate College and are described in the General Catalog at https://catalog.arizona.edu/policy/accelerated-masters-program-amp#policies.

Performance Requirements: A cumulative GPA of 3.0 or higher must be maintained on all coursework taken for graduate credit. A grade of C or higher is required for a course to be used to satisfy the degree requirements (A or B for transfer credits).

5. Resources and Academic Policies for SIE Undergraduate Students

Requesting Documents

ROTC study plans, sponsor letters, sponsor study plans, and other documents:
It is the student's responsibility to give academic advisor advance notice when requesting creation of a study plan or specific sponsor letter not offered by ISS, My Global. A minimum of 5-7 business days (M-F) turnaround or more are needed if requested during peak advising periods.

ENGR 102: Introduction to Engineering

Students who did not begin as a first-year student in the College of Engineering and who do not have advanced past the introductory state of an engineering curriculum and will not be able to enroll into ENGR 102. Work with your major advisor for an approved course substitution to satisfy your graduation requirements.

Transfer Credit and Articulation

The Transfer Credit Guide will list courses that have already been evaluated for direct equivalency. A course equivalency request must be submitted to the appropriate department if the transfer course has not been evaluated, in which a syllabus is required. If the transfer coursework is an engineering course, the syllabus will have to be sent to the specific engineering department for evaluation. If planning on taking a lower division course within Arizona, then check AZTransfer to confirm course equivalency prior to enrollment.

SIE 493: Internship

Juniors and seniors who intern with private or public employers outside the University to work on substantially technical projects related to their academic work are eligible for internship credits through SIE 493 (Internship). A maximum of 3 units of SIE 493 may be applied toward 1) technical elective requirements in curricula leading to a Bachelor of Science (BS) in Industrial Engineering, 2) thematic minor or industrial engineering/engineering management minor requirements in curricula leading to a BS in Systems Engineering, or 3) thematic minor or industrial engineering/systems engineering requirements in curricula leading to a BS in Engineering Management. See here for more details on the guidelines: https://sie.engineering.arizona.edu/sites/sie.engineering.arizona.edu/files/syllabus/SIE493-Internship-Guidelines.pdf

Honors College

Students in the Honors College are only required to complete 23 honors units for engineering students. The College's senior capstone, ENGR 498A/498B are included as part of the 30 required honors units. SIE has three courses that offer honors sections (002): SIE 265 (fall/spring), SIE 340 (fall), and SIE 432 (summer). Honors students should meet with their Honors advisor regarding honors-specific questions.

Grievance Procedures

A student with any type of grievance should first communicate with their faculty, then academic advisor. Should the issue not be properly addressed by faculty, the student may bring the matter to the attention of the SIE Department head.

If a student believes they have been subject to discrimination or harassment based on race, religion, color, sex, age, national origin, disability, veteran status, sexual orientation, gender identity or genetic information, they can report such issues to the Office of Institutional Equity: https://equity.arizona.edu/

International Student Services (ISS) advisor and MyGlobal

International student advisors are available on Zoom for quick advising or through scheduled appointments. ISS advisors can answer questions related to academic changes, work authorizations, change of status to F-1, full-time enrollment requirements, leave of absence, travel and reentry, cultural, social, and academic adjustment. The ISS advisors can also answer questions related to immigration, orientation, financial guarantees, letter requests, concurrent enrollment, enrollment verification, and sponsorship requirements.

6. Satisfactory Academic Progress

Undergraduate students are required to maintain a minimum 2.00 cumulative/major/minor GPA and make satisfactory academic progress in degree requirements. Students should consult with their SIE academic advisor to discuss issues pertaining to unsatisfactory progress that may result in academic probation.

Grade Replacement Opportunity (GRO): offers students the ability to replace grades of C or lower by repeating the course and filing a GRO in UAccess by the deadline. GRO's may be used for a maximum of 3 courses.

University Repeat Policy: Students may attempt the same course at the University no more than twice. Students who fail to meet the GPA requirement will be placed on academic probation for one semester. Students on academic probation, under the advisement of their major advisor, will meet to develop a success plan to raise the semester/major/cumulative GPA. If after one semester the GPA has not been raised, the College can move a student out of the College to the A-Center.

Incomplete Grades:

The grade of "I" may be awarded only at the end of a term, when all but a minor portion of the coursework has been satisfactorily completed. It is not to be awarded in place of a failing grade.

Students earning a grade of Incomplete, "I", will work with instructor to complete a required Report of Incomplete form: https://registrar.arizona.edu/faculty-staff-resources/grading/grading-policies/incomplete

Incomplete grades should be completed in a timely manner and are submitted at the discretion of the course instructor. Any incomplete grade must be completed no later than one year from the last day of the term for the course for which the student received the incomplete or will receive an "E," failing grade.

Links to Undergraduate College Resources	
Four-Year Plans: advised sequence of courses based on year you started at University of Arizona	https://engr.arizona.edu/current/4-year-degree
Overview of Degree Requirements: In addition to SIE degree requirements, students must meet university requirements described in the link on the right.	https://catalog.arizona.edu/undergraduate-programs
Important dates and deadlines related to undergraduate degree: It is student's responsibility to check deadlines.	https://www.registrar.arizona.edu/dates-and-deadlines
Convocation & Commencement Information	https://commencement.arizona.edu/
Student Forms	https://registrar.arizona.edu/student-forms

7. Resources for Healthy and Student Life

The following are curated set of resources for healthy, happy, and productive student life at the University of Arizona. https://www.arizona.edu/students

- **Student Engagement & Career Development:** resources including Handshake for internships and on-campus jobs, career exploration, resume and cover letter assistance, career fairs, workshops and seminars, industry Info Sessions, and other resources.
- **Health and well-being** (CAPS): resources and tools including self-care hub, pathways to wellness, Togetherall, and short-term counseling and psychiatry services.
- **Disability-related support** (DRC): ensures disability access for our campus.
- **SALT Center:** fee-based academic support program that inspires students with mild to moderate learning and attention challenges to succeed in higher education through support services.
- **Safety**: Link to sign-up for campus emergency alerts: https://cirt.arizona.edu/ualert
- **SIE Departmental Events:** check your UA emails and SIE Discord for upcoming events to engage in!

Student Support Groups and Organizations

- College of Engineering Study Groups and Tau Beta Pi tutoring
- Think Tank: offers drop-in tutoring, academic skills workshops, and supplemental instruction
- Student Clubs and Professional Societies: get involved with special interest clubs and career-oriented or professional groups
- Engineering Clubs and Organizations: provides opportunities for interests, camaraderie, leadership and practical skills
- SIE-specific organizations: foster teamwork and leadership and strengthen career networks
- Cultural and Resource Centers: spaces on campus that highlight students' various identities and serve as a home-away-from-home. Some centers also provide free CAPS embedded counselors and drop-in tutoring for certain courses.
- International Student Services (ISS): assists with I-20 requests, travel documents, employment, verification enrollment and concurrent enrollment requests through MyGlobal and sponsored student advising. The Buddy Program also connects students to other international students and Global Ambassadors to make friends and explore campus together. ISS now offers an embedded CAPS counselor.

8. Scholarships

[Scholarship Universe](#) is the university scholarship matching tool. Your profile must be updated and answer questions to connect with internal and external scholarships. The College of Engineering General Scholarship Application usually opens in February, requires full-time enrollment, minimum 3.0 GPA, and meet donor specifications to match with eligible scholarships.

- [UArizona Merit Scholarships](#) (Tuition Awards): must be able to maintain required units and GPA to renew scholarship for specific award every year.
- [Arizona Community Foundation Scholarships](#) are awarded annually to help students achieve their education goals, based on their eligibility.
- [Women in Science & Engineering (WISE) Scholarships](#) annually administers three scholarship competitions, normally due end of February.
- [Hispanic Association of Colleges and Universities (HACU) Scholarship Program:](#) can apply if applicants meet scholarship program criteria.