

Industrial Engineering Undergraduate Program Advising Manual



Department of Industrial and Manufacturing Engineering
Florida A&M University (FAMU) – Florida State University (FSU)
College of Engineering

July 8, 2026

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1. Introduction

This document guides students through the curriculum for the Bachelor of Science in Industrial Engineering (BSIE) degree. It discusses the entire curriculum and presents departmental advising procedures and related forms. This document is intended to provide students with an understanding of the requirements and courses related to the BSIE degree and to help ensure the accuracy and efficiency of advising. Note that this manual refers to the most recent curriculum (R1) that has been in effect since fall 2025 and should cover any student who entered the major (i.e. advanced from pre-engineering) after summer 2025. If you have not met with your IME advisor then you will be on this curriculum. If you have met with your IME advisor then follow the plan that they worked out for you.

2. Mission Statement

The mission of the Department of Industrial and Manufacturing Engineering is to provide for students a solid industrial engineering curriculum coupled with a strong research program driven by the economic and technologic development needs of society.

3. Program Educational Objectives

Consistent with the Departmental mission, the curriculum for the baccalaureate degree program in industrial engineering is especially designed for the attainment of the following educational objectives. Within the first few years following graduation, our graduates are expected to have:

- Been employed in industrial, service, or governmental organizations applying the industrial engineering skills in developing, designing, analyzing, implementing, or improving integrated systems that include people, materials, information, equipment, and energy
- Completed or enrolled in a graduate program
- Participated in a multicultural and diverse workplace
- Utilized teamwork, communication and engineering management skills.

4. Curriculum

Each student earns the BSIE degree by meeting all Florida A&M University (FAMU) / Florida State University (FSU) general university requirements, all College of Engineering requirements, and all Industrial and Manufacturing Engineering Departmental requirements. These requirements reflect the engineering accreditation standards of ABET, the accreditation body for engineering programs. A student may earn the BSIE degree in four academic years and one summer of study if the pre-requisites for Calculus I and General Chemistry have been met prior to the freshman year. The curriculum may be divided into categories as shown in Table 1. Each category will be discussed in turn.

Table 1. Distribution of BSIE Program Credit Hours

Type of Course	Credit Hour Requirements
Liberal Studies (Humanities, Social Sciences and English)	21
Basic Science & Mathematics	33
Core and General Engineering	14
IME Department Coursework	60
Total Hours	128

a. Oral Competency

Oral Competency requirement is satisfied through the successful completion of EIN 3010: Industrial and Manufacturing Engineering Tools. This is a mandatory course for both FAMU and FSU Industrial Engineering students.

b. Basic Sciences and Mathematics

Students must complete the required number of credit hours of basic science, including a two-semester sequence in Physics and Mathematics. This requirement meets the minimum ABET standard. The courses shown in Table 2 are required.

Table 2. Required Basic Science and Mathematics Courses

Area	Course Number	Course Name	Credit Hours
Basic Science	CHM 1045	General Chemistry I	3
Basic Science	CHM 1045L	General Chemistry I Lab	1
Basic Science	PHY 2048C	General Physics I w/ Lab	5
Basic Science	PHY 2049C	General Physics II w/ Lab	5
Mathematics	MAC 2311	Calculus I	4
Mathematics	MAC 2312	Calculus II	4
Mathematics	MAC 2313	Calculus III	5
Mathematics	MAS 3105	Linear Algebra	3
Mathematics	MAP 2302	Differential Equations	3
	N/A	Total Hours	33

c. Core and General Engineering Requirements

Core and general engineering requirements provide the student with a broad knowledge of basic engineering concepts and problem-solving approaches. Moreover, core and general engineering requirements prepare students to effectively participate on project teams with engineers from other disciplines. The core and general engineering requirements are listed in Table 3 below.

Table 3. Core and General Engineering Requirements

Course Number	Course Name	Credit Hours
EGN 1004L	First Year Engineering Lab	1
EGN 2123	Graphics for Engineers	2
EGN 3613	Principles of Engineering Economy	2
EML 3100	Thermodynamics	2
EGM 3512	Engineering Mechanics	4
CGS 3014 / COP 2221	Intro. To Programming	3
	Total Hours	14

d. IME Department Coursework

The Industrial and Manufacturing Engineering (IME) Department requires the completion of courses in two principal areas: manufacturing systems and industrial systems. In the Fall and Spring semesters of the sophomore year, students are required to complete introductory IME courses. A two-semester capstone senior design project course sequence is taken in the Fall and Spring semesters of the senior year. Department requirements are presented in Table 4.

Table 4. Department Requirements

Area	FAMU Course Number	FSU Course Number	Course Name	Credit Hours
Introductory Courses	EGN 3443	EGN 3443	Statistical Topics in IE	3
Introductory Courses	EIN 3010	EIN 3010	Industrial and Manufacturing Engineering Tools	3
Introductory Courses	EIN 3104	EIN 3104	Introduction to Engineering Management	3
Manufacturing	EIN 3390C	EIN 3390C	Manufacturing Processes and Materials Engineering I	3
Manufacturing	EIN 4333	EIN 4333	Design of Integrated Prod. Syst. and Facilities Layout	3
Manufacturing	EIN 4394C	EIN 4394C	Manufacturing Processes and Materials Engineering II	3
Manufacturing	EIN 4621	EIN 4621	Manufacturing Systems Engineering	3
Industrial Systems	ESI 3312	ESI 3312	Operations Research I: Deterministic	3
Industrial Systems	EIN 4936	ESI 3608	Introduction to Data Engineering	3
Industrial Systems	EIN 4936	ESI 3610	Essential Data Analytics for IEs	3
Industrial Systems	ESI 3628	ESI 3628	Computing Topics in IE	3
Industrial Systems	ESI 4234	ESI 4234	Quality Control and Reliability Engineering	3
Industrial Systems	ESI 4313	ESI 4313	Operations Research II: Non-deterministic	3
Industrial Systems	ESI 4523	ESI 4523	Simulation of IE Systems	3
Industrial Systems	EIN 4243	EIN 4243	Human Factors, Work Meas., and Methods Engr.	3
Design Projects	EIN 4890	EIN 4890	IE Senior Design Project I Fall	3
Design Projects	EIN 4892	EIN 4892	IE Senior Design Project II Spring	3
IME Electives	3 courses	3 courses	EIN 4936/4172: ISO 9000	3
IME Electives	3 courses	3 courses	EIN 4314/4214: Occup. Safety and Hazard Control	3
IME Electives	3 courses	3 courses	EIN 4936/EIN 4395: Materials By Design	3
IME Electives	3 courses	3 courses	EIN 4445: Technology and Entrepreneurship	3
IME Electives	3 courses	3 courses	EIN 4936: Selected Topics in IE (multiple, see advisor)	3
IME Electives	3 courses	3 courses	EIN 3905: Directed Independent Study	3
IME Electives	3 courses	3 courses	EIN 4936: EGN 4060: Big Data Analytics	3
IME Electives	3 courses	3 courses	EIN 4936/ESI 4686: Deep Learning: Neural Networks	3
IME Electives	3 required	3 required	EIN 4936/ESI 4682: Introduction to Machine Learning	3
N/A	N/A	N/A	Total Hours	60

e. Prerequisites and Course Offerings

It is the policy of the IME Department that a student must receive passing grades in *all* prerequisite courses prior to enrolling in an IME course. Concurrent registration in a course and its prerequisite is *not* allowed. Further, all prerequisites to prerequisites must be completed. Failure to abide in this policy can result in the cancellation of your enrollment in the course at any time during the semester and with no refund of fees. Co-requisite courses may be taken concurrently or prior to enrolling in the course. During the first week of classes, the instructor will notify students of the prerequisites and co-requisites of the course. IME course offerings and their prerequisites are presented in Tables 5a and 5b.

Table 5a. IE Course Offerings and Prerequisites

FAMU	FSU	COURSE	CREDIT	PREREQUISITES / CO-REQUISITES
EGN 3613	EGN 3613	Principles of Engineering Economy	2	MAC 2313
EGN 2123	EGN 2123	Computer Graphics for Engineers	2	Co-requisite: MAC 2311
EGN 3443	EGN 3443	Statistical Topics in IE	3	MAC 2312
EIN 3010	EIN 3010	Industrial and Manufacturing Engineering Tools	3	Major only
ESI 3628	ESI 3628	Computing Topics in IE	3	COP 3014
EIN 3104	EIN 3104	Intro. to Engineering Management	3	EGN 3613 ; EGN 2123
EIN 3390C	EIN 3390C	Manufacturing Processes and Materials Engineering I	3	CHM 1045 and 1045L; Co-requisite: EGN 2123
EIN 4394C	EIN 4394C	Manufacturing Processes and Materials Engineering II	3	EIN 3390C
EIN 4621	EIN 4621	Manufacturing Systems Engineering	3	EIN 4394C
ESI 4234	ESI 4234	Quality Control and Reliability Engineering	3	EGN 3443
EIN 4333	EIN 4333	Design of Integrated Production Systems (IPS) and Facilities Layout	3	EGN 2123; EGN 3613; ESI 3312
ESI 3312	ESI 3312	Operations Research I: Deterministic	3	MAS 3105
EIN 4936	ESI 3608	Introduction to Data Engineering	3	COP 3014
EIN 4936	ESI 3610	Essential Data Analytics for IEs	3	MAC 2312
ESI 4313	ESI 4313	Operations Research II: Non - Deterministic	3	EGN 3443; MAS 3105
ESI 4523	ESI 4523	Simulation of IE Systems	3	ESI 4234
EIN 4243	EIN 4243	Human Factors, Work Measurements, and Methods Engineering	3	EGN 3443; EGM 3512; EIN 3390C
EIN 4890	EIN 4890	IME Senior Design Project I	3	Final Year Fall Term
EIN 4892	EIN 4892	IME Senior Design Project II	3	Final Year Spring Term

Table 5b. Advanced Industrial Engineering Electives

FAMU Course Number	FSU Course Number	Course Name	Credit Hours	Prerequisites / Co-requisites
EIN 4314	EIN 4214	Occupational Safety and Hazard Control	3	In the major
EIN 4936	EIN 4936	Selected Topics in IE	3	Consent of the Instructor
EIN 3905	EIN 3905	Directed Independent Study	3	Consent of the Department Chairperson
EIN 4936	EIN 4172	ISO 9000	3	EIN 3390C Corequisite: ESI 4234
EIN 4936	EIN 4395	Materials By Design	3	MAC 2313, PHY 2048C, MAS 3105
EIN 4445	EIN 4445	Technology, Entrepreneurship, & Commercialization	3	Consent of the Instructor
EIN 4936	ESI 4686	Deep Learning: Neural Networks	3	ESI 3312C, EGN 3443, MAS 3105
EIN 4936	ESI 4682	Introduction to Machine Learning	3	ESI 3312C, EGN 3443, MAS 3105
EIN 4936	EGN 4060	Big Data Analytics	3	EGN 3443

f. Schedule of classes

The schedule of classes attached to this document indicates the semester in which each course required for the BSIE degree is generally offered. However, the schedule of classes should always be consulted each semester for specific course offerings.

g. Graduation Checklist

To ensure that each student graduates on time, the following steps should be taken:

- i. Students are encouraged to request a graduation check from the University Registrar's Office no later than the end of the Spring term of the sophomore year. This check will serve as an overview of university requirements needed for graduation.
- ii. Students should register to take the Fundamentals of Engineering (FE) Examination during the semester in which they intend to graduate. It is required for professional engineering registration. Registration takes place several months before the examination date. Thus, it is the student's responsibility to be aware of registration deadlines and exam administration dates.
- iii. During each advising session, students should update their graduation checklists and develop a semester-by-semester schedule of all remaining classes needed to satisfy graduation requirements.

5. Advising Procedures

Each student must meet with the IME Department's Undergraduate Advisor to guide the student's progress through the BSIE program. The relationship between advisor and student is a crucial factor in ensuring the successful completion of the BSIE program.

a. Initial Advising Session

A student enters the BSIE program or the pre-BSIE program through either (1) FAMU-FSU College of Engineering Pre-Engineering Program, or (2) transfer from another engineering program at the FAMU-FSU College of Engineering. Upon admission into the BSIE program, an initial advising session will take place between the **IME Department's Undergraduate Advisor and the student**. The results of the initial advising session will include:

- i. A determination of the credits toward the BSIE degree earned through previous coursework.
- ii. A semester-by-semester schedule of the classes needed to complete the BSIE degree.

The graduation plan form similar to that shown in Figure 1 will be completed to satisfy items i and ii listed above. A curriculum flowchart, and schedule of planned offerings similar to those shown in Figures 2 - 4 in conjunction with the student transcript will aid in this process.

Fall		Spring		Summer	
	Prefix	Number		Prefix	Number
Y	Course 1		Course 1		Course 1
E	Course 2		Course 2		Course 2
A	Course 3		Course 3		Course 3
R	Course 4		Course 4		Course 4
i	Course 5		Course 5		Course 5
	Course 6		Course 6		Course 6
	Course 7		Course 7		Course 7

Fall		Spring		Summer	
	Prefix	Number		Prefix	Number
Y	Course 1		Course 1		Course 1
E	Course 2		Course 2		Course 2
A	Course 3		Course 3		Course 3
R	Course 4		Course 4		Course 4
j	Course 5		Course 5		Course 5
	Course 6		Course 6		Course 6
	Course 7		Course 7		Course 7

Fall		Spring		Summer	
	Prefix	Number		Prefix	Number
Y	Course 1		Course 1		Course 1
E	Course 2		Course 2		Course 2
A	Course 3		Course 3		Course 3
R	Course 4		Course 4		Course 4
k	Course 5		Course 5		Course 5
	Course 6		Course 6		Course 6
	Course 7		Course 7		Course 7

Student	
SN	
Revision #	

Figure 1 Graduation Plan Form

I&ME

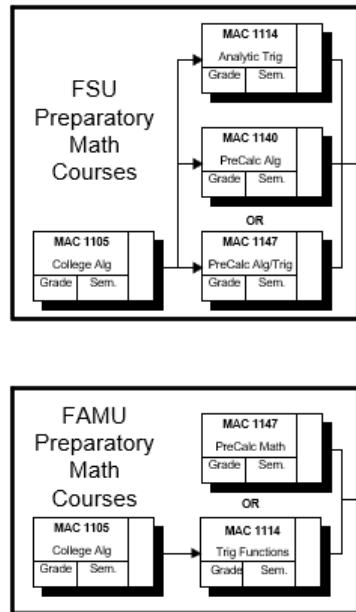
Name: _____

Advisor: _____

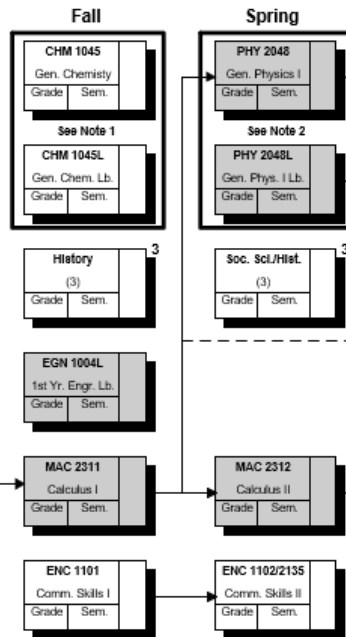
Engineering Industrial and Manufacturing Engineering 2026-2027

FAMU-FSU College of Engineering

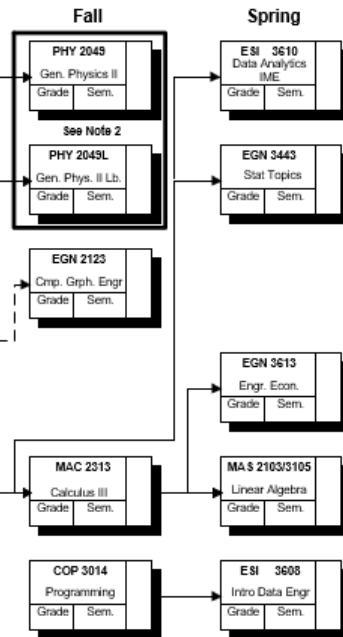
Preparatory Courses



YEAR 1



YEAR 2



Admission Requirements for Industrial and Manufacturing Engineering

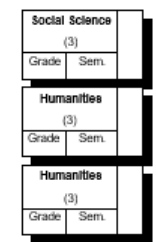
To be admitted into I&ME and to be eligible to take upper level I&ME courses, the student must meet the Pre-Engineering Program requirements.

Students must have an overall GPA of 2.0 or better and achieve a grade of 'C' or better, from any institution attended, in First Year Engineering Laboratory, Calculus I, Calculus II, General Chemistry I and General Physics I (shaded areas on flowchart) to be admitted to an engineering major.

A single repeated attempt in only one of the five (5) courses listed above with no more than one grade of "C-" is allowed.

Summer School Requirement

Every Student is required to undertake nine (9) credit hours of summer course work. It is recommended that this be done in the summer following the first two semesters. The courses shown below are required for graduation and are suggested as a possible summer schedule.



1. FSU CHM 1045C contains both a classroom and a laboratory component.
2. FSU PHYS 2048C, and PHYS 2049C contain both a classroom and a laboratory component.
3. **FAMU and FSU:** History/Humanities/Social Science courses on flowchart are illustrative only. [See University-Specific requirements for liberal studies.](#)
FAMU: https://catalog.famu.edu/preview_program.php?catoid=16&poiid=5705
FSU: <https://core.fsu.edu/advisors-and-students>
4. ESI 3610 (Data Analytics IME) prerequisites: MAC 2312

Legend: Prerequisite ● → Co Requisite ● →

Figure 2. Curriculum Flowchart (Y1 & Y2)

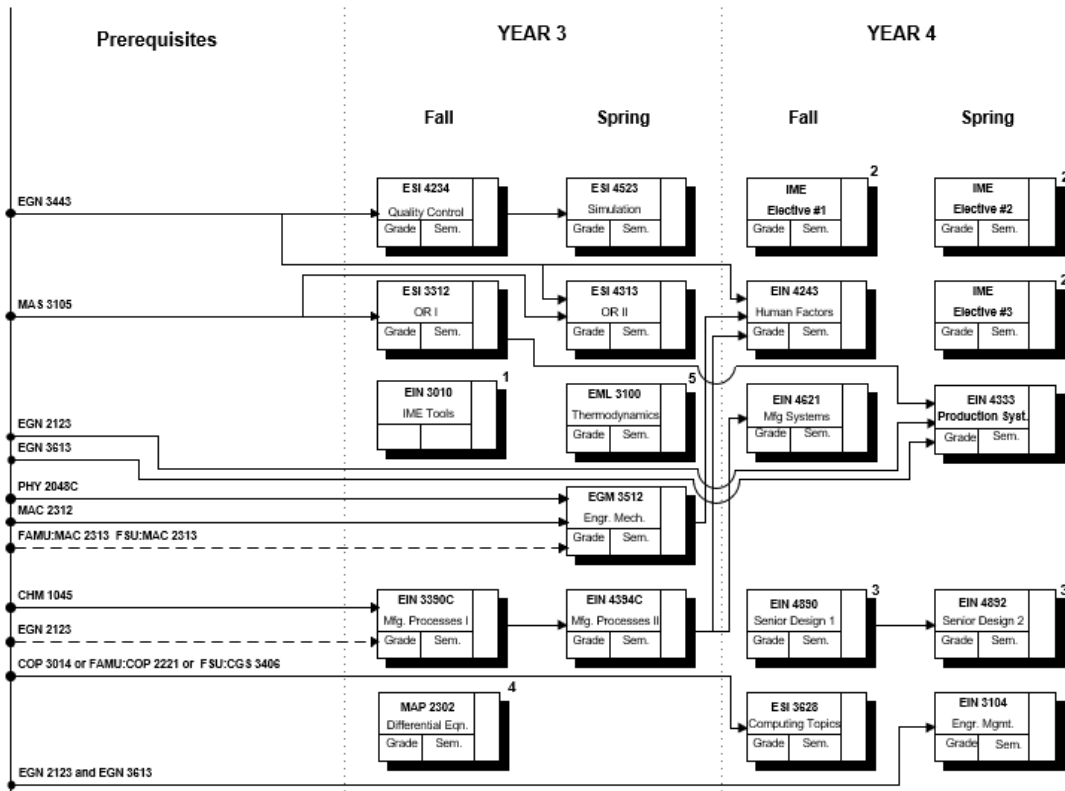
I&ME

Name: _____

Advisor: _____

PROFESSIONAL SCHOOL OF INDUSTRIAL AND MANUFACTURING ENGINEERING 2026-2027

FAMU-FSU College of Engineering



1. Satisfies Oral Competency Requirement. Students who have previously earned credit in Public Speaking and Cost Accounting may receive a waiver of this requirement.
2. See IME Advisor for current offerings.
3. Prerequisites: Sequence must be taken during the students final two semesters of work towards the Bachelor of Science degree.
4. MAP 2302 prerequisites: MAC2313
5. EML 3100 prerequisites: CHM1045, MAC2312; PHY2048

Legend: Prerequisite ———> Co Requisite - - - ->

MASTER'S PROGRAM

Admission Requirements for the
Graduate Program in Industrial
and Manufacturing Engineering

- A B.S. degree in Industrial Engineering, science or mathematics, with GPA at least 3.0/4.0.
- Good standing in the institution last attended.
- A quantitative portion score on the GRE of at least 151 and at least 146 on the verbal.
- TOEFL score of at least 80.
- Three favorable recommendations.

For further information contact the
Director of Graduate Studies of the
Department of Industrial and
Manufacturing Engineering
(850-410-8354)

Figure 3 Curriculum Flowchart (Y3 & Y4)

Planned Course Offerings

Course Name	Course Number	Fall 25	Spring 26	Summer 26	Fall 26	Spring 27	Summer 27	Fall 27	Spring 28	Summer 28	Fall 28	Spring 29	Summer 29	Fall 29	Spring 30	Summer 30
Eng. Graphics	EGN 2123	X	X		X	X		X	X		X	X		X	X	
Eng. Econ.	EGN 3613	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Stat. Topics	EGN 3443	X	X		X	X		X	X		X	X		X	X	
O. R. I	ESI 3312	X			X			X			X			X		
JME Tools	EIN 3010	X			X			X			X			X		
Engineering Mgmt.	EIN3104	X		X	X		X	X		X	X		X	X		X
Mfg. Processes I	EIN 3390C	X			X			X			X			X		
O.R.II	ESI 4313		X			X			X			X			X	
I. P. S.	EIN 4333		X			X			X			X			X	
Mfg. Processes II	EIN 4394C		X			X			X			X			X	
Q.C.	ESI 4234	X			X			X			X			X		
Human Factors	EIN 4243	X			X			X			X			X		
Mfg. Syst.	EIN 4621	X			X			X			X			X		
Intro. Data Engr.	ESI 3608	X	X		X	X		X *1	X		X *1	X		X *1	X	
Data Analytics for IEs	ESI 3610	X	X		X	X		X *1	X		X *1	X		X *1	X	
Comp.Topics	ESI 3628	X			X			X			X			X		
Senior Design I	EIN 4890	X			X			X			X			X		
Senior Design II	EIN 4892		X			X			X			X			X	
JME Practicum	EIN 4940		X			X			X *2			X *2			X *2	
Simulation	ESI 4523		X			X			X			X			X	
Thermodynamics	EML 3100	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Engr. Mechanics	EGM 3512	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Note 1: This course may become a spring-only offering after Fall 2026

Note 2: This course will be discontinued some time after spring 2027

Note 3: Timings for all courses are subject to change

Figure 4. Planned Course Offerings

Since the BSIE program is **not a lock-step program**, it is highly likely that an individual student will have a schedule that looks different from the one suggested, however, the prerequisite structure will be maintained.

The graduation plan form, the flowchart, and the individual student transcript, are filed in the student's academic file in the IME office. Students should retain copies of each form for future reference and schedule planning. Forms, flowcharts and planned schedule of course offerings are available on the Industrial and Manufacturing Engineering Advising tile on Canvas. If a student is not able to access the advising link on Canvas, they should contact their advisor.

b. Semester-by-Semester Advising Session

Students are encouraged but not required to be individually advised each semester by the IME Undergraduate Advisor as long as they have set forth a graduation plan and are adhering to it. Semester-by-semester advising sessions will produce the following:

- c. The graduation plan will be updated with any changes to the plan that have occurred since the last plan was developed. The updated graduation plan form, the flowchart, and the individual student transcript, are filed in the student's academic file in the IME office.
- d. IME elective options will be discussed in more detail as the student nears the time to take them.
- e. The advisor will point out any impending dates that are of importance to the student (e.g. apply for graduation) and discuss any career or academic issues that affecting the student.

The suggested schedule/graduation checklist form, the academic advisement form, and the individual student schedule form, if used, are filed in the student's academic file in the IME office. Students should retain copies of each form for future reference and schedule planning.

6. Miscellaneous Policies

- a. *Minimum GPA:* In accordance with College of Engineering policy, students must earn a "C-" or better in the following courses: EGN 1004L, PHY 2048C, MAC 2311, and MAC 2312 before being admitted into the Industrial Engineering program. No more than one repeat is permitted for these five class attempts.
- b. *Course Credit:* Only those basic science, mathematics, core and general engineering, and department courses completed with a grade of C or better will be counted toward satisfying the BSIE degree requirements.
- c. In accordance with College of Engineering policy, a student may request that a course completed with a grade of D+, D, D- be counted toward the BSIE degree. Recommendation by the IME Department's Undergraduate Advisor and approval by the Department Chairperson and the Associate Dean are required for the course to be counted towards graduation credit.
- d. *Substitution of Courses:* Any substitution for a course required by number must be approved by the IME Department's Academic Advisor or the IME Department Chairperson.

7. Accreditation Requirements

The BSIE degree program is accredited by the ABET, the accreditation body for engineering programs. The program also meets the requirements set forth by the state of Florida. These are designated by FAMU as Academic Learning Compacts (ALC) and by FSU as State Mandated Learning Compacts (SMALC). ABET requires setting program outcomes to measure our students' performance above and beyond course grades.

To meet these requirements, certain courses require students to complete "artifacts," which demonstrate that the students meet certain designated student outcomes. Table 6 illustrates the lead courses that collect artifacts to meet these outcomes.

Table 6. Lead Courses for Collecting and Assessing Artifacts

Courses (Semesters)	FAMU-FSU IE Student Outcomes	ABET Criteria
Operations Research I (F*)	1a. Ability to apply knowledge of mathematics and computing to complex problems	1
Manufacturing Processes & Materials Eng. I (F)	1b. Ability to apply knowledge of science and engineering to complex problems	
Senior Design Projects – I (F) and II (S)	1c. Ability to identify, formulate and solve complex engineering problems	
Senior Design Projects – I (F) and II (S)	2. Ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	2
Senior Design Projects – I (F) and II (S)	3. Ability to communicate effectively with a range of audiences	3
Engineering Management (F)	4a. An ability to recognize and understand professional and ethical responsibility in engineering situations	4
Manufacturing Processes & Materials Eng II (S) Human Factors (F)	4b. Broad education necessary to recognize and understand the impact of engineering solutions in a global, economic, environmental and societal context	
Engineering Management(F)	4c. Knowledge of contemporary issues leading to informed judgements	
Senior Design Projects – I (F) and II (S)	5. Ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	5
Quality Control & Reliability Eng. (F)	6. Ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	6
Quality Control & Reliability Eng. (F)	7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	7