Undergraduate Advising Manual

Updated 2014

This document is to be used as a guide for students. The Benjamin Statler College of Engineering and Mineral Resources takes great care to be accurate, **however it is the student's responsibility to ensure that all regulations for graduation are met as outlined in the University Bulletin.**

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Department Goals and Objectives

I. Mission of West Virginia University and the Statler College of Engineering and Mineral Resources

The Mission of West Virginia University

As a land-grant institution in the 21st century, West Virginia University will deliver high-quality education, excel in discovery and innovation, model a culture of diversity and inclusion, promote health and vitality, and build pathways for the exchange of knowledge and opportunity between the state, the nation, and the world.

Mission of CEMR

The Statler College mission is to prepare students for success in their professional careers; to contribute to the advancement of society through learning, discovery, extension, and service; and to stimulate economic well-being in West Virginia and the world through technical innovation, knowledge creation, and educational excellence.

II. Undergraduate Program Goals of the Statler College of Engineering and Mineral Resources

The StatlerCollege of Engineering and Mineral Resources is highly committed to providing high quality programs of engineering science education for all undergraduate students of the College in order to provide a foundation so that graduates of the college will meet the following objectives:

1. Engage undergraduate, graduate, and professional students in a challenging academic environment
2. Excel in research, creative activity, and innovation
3. Foster diversity and an inclusive culture
4. Advance international activity and global engagement
5. Enhance the well-being and the quality of life of the people of West Virginia.

III. Mission of the Industrial and Management Systems Engineering Department

To advance our profession through innovative and high quality academic programs, relevant research, and professional services that address the needs of West Virginia, the nation and the world.

IV. Educational Objectives for the Undergraduate Industrial Engineering Program

Drawing from the university's mission, the departmental mission, the needs of our constituents, and ABET Engineering Criteria 2000, the following educational objectives were developed:

A graduate of the Industrial Engineering baccalaureate program will be prepared to:

1. Practice Industrial Engineering and to initiate and develop leadership roles in business, industry and/or government.
2. Continue professional development and life-long learning.
3. Interact in society and business in a professional, ethical manner.
4. Be proficient in written and oral communication and to utilize people-oriented skills in individual and team environments.
5. Apply the skills from industrial engineering to be proficient in his/her chosen field or graduate studies.

These objectives have been published on the departmental web site and in the catalog.

V. Educational Outcomes for the Undergraduate Industrial Engineering Program

In order to meet the educational objectives, students of the Industrial Engineering program must be able to meet the following educational outcomes at the time of their graduation.

Students will have acquired:

1. the ability to use modern and classical Industrial Engineering methodologies such as operations research, manufacturing systems, computer programming and simulation, production systems, human factors and ergonomics, engineering statistics and quality control, and engineering economics.

2. the ability to apply knowledge of math, science, and general engineering.

3. the ability to design and conduct experiments, analyze and interpret data, develop implementation strategies, shape recommendations so that results will be achieved and findings will be communicated effectively.

4. the ability to work individually, on teams, and/or on multi-disciplinary teams to identify, formulate and solve problems using industrial engineering knowledge, skills and tools.

5. the ability to design and implement or improve integrated systems that include people, materials, information, equipment and energy using appropriate analytical, computational, and experimental practices.

6. the broad education necessary to develop and maintain professional ethics and understand the comprehensive impact of their solutions on individuals and the society.

7. a recognition of the need for and an ability to engage in life long learning.

8. the professional characteristics expected of a successful Industrial Engineer.

These outcomes have been published on the departmental web site in the catalog.

Admission Questions

1. What are the requirements to get into an engineering program?

Admission to the College of Engineering and Mineral Resources is based on a combination of high school grade-point average (un-weighted 4.0 scale) and ACT or SAT scores. The following table summarizes the admission requirements.

Program	Residents	HS GPA	ACT		SAT	
			Composite	Math	Total	Math
Engineering	West Virginia	3.00	24	28	1110	630
	Out-of-State	3.00	24	28	1110	630
General Engineering	West Virginia	2.50	22	25	1030	570
	Out-of-State	2.50	22	25	1030	570
Pre-Engineering	West Virginia	2.50	19	18	910	480
	Out-of State	2.50	21	18	990	480

In addition, you must have high school credits for:

- Four units of English (including grammar, composition, and literature)
- Three units of social studies (including US history).
- Four units of college preparatory mathematics (algebra I and II and geometry).
- Three units of laboratory sciences (including physics, chemistry, biology, or other laboratory courses.

Students with these credentials typically have the academic ability to be successful in engineering.

2. How do I get accepted into the Industrial Engineering program?

During your freshman year, you are asked to choose an engineering major. Only those students who have an overall GPA of at least 2.25 and have completed the core classes of ENGR 101, 102, 199, MATH 155 (or math 153/154) (with a grade of C or better), CHEM 115, and ENGL 101 will be admitted into the IMSE program. Students must have a 2.25 in these core classes to be admitted into the IE program. If you have completed all of the above courses except ENGR 102, you may take IE courses if you are enrolled in ENGR 102 when you take the IE classes.

3. If I am not in the College of Engineering and Mineral Resources, how can I transfer to the IE program?

Students wishing to transfer into engineering from other programs must have a GPA of at least 2.25 in all college work attempted and at least a grade of C in Calculus I. Students who meet the freshman admission requirements (shown in question 1) are

eligible to transfer into the College at any time. Others must have completed at least one semester of college work and meet the prerequisites to enroll in MATH 155. Students wishing to transfer into the IE major must have a GPA of at least 2.25 and have completed ENGR 101, 102, ENGR 199, MATH 155 (C or better)(or Math 153/154), CHEM 115, and ENGL 101.

4. When can I get accepted into the IE program?

If you have outstanding academic performance during your first semester you may elect to move into your major at the end of the first semester. Early advancement is based on the following prior credit and academic performance:

- Have 7 credit hours or more of AP or prior college credit including at least 4 credit of MATH 155, Chem 115-116, PHYS 111, or PHYS 112; and
- Pass all first semester MATH (≥155) and science courses (CHEM 115 or 116; PHYS 111 or 112; or GEOL 101, 102) plus ENGR 199 and ENGR 101 with a C or better, and
- Achieve an overall GPA ≥ 3.0.

Or advancement can be based on the following exceptional performance:

- Pass all first semester MATH (≥155) and science course (CHEM 115 or 116; PHYS 111 or 112; or GEOL 101, 102) plus ENGR 199 and ENGR 101 with a C or better; and
- Achieve an overall GPA ≥ 3.5.

If you do not meet the above criteria, you will be accepted into the IE program upon the completion of Engineering 101, 102, 199, Math 155(Math 153/154), Chem 115, and English 101. You must have an overall GPA of 2.25 or better. You must also have a 2.25 GPA in the core engineering classes listed above. If you have completed all of the above courses except Eng'r 102, you may enroll in IE 200 and IE 220 concurrently with ENGR 102.

5. How does early advancement affect my second semester schedule?

You will most likely take the following courses

- Math 156 (or the next Math course)
- Physics 111
- Engineering 102
- Industrial Engineering 200
- Industrial Engineering 220

Curriculum Questions

6. What classes do I need to take to graduate with a Bachelor's Degree in Industrial Engineering?

The course requirements for the IMSE program are shown in Attachment A. You can track your course completion using the form shown in Attachment B.

7. What are the General Education Curriculum (GE) requirements?

All undergraduate students must fulfill the requirements of the General Education Curriculum (GEC).

WVU aims to provide students with a foundation of skills and knowledge necessary to reason clearly, communicate effectively, and contribute to society. The General Education Curriculum is designed to ensure the students meet these goals through inquiry-based learning across the disciplines. In conjunction with a major field, and in consultation with their advisors, students will design programs of study that satisfy the GEC's Objectives. The Learning Objectives reflect the fact that, in an increasingly interdependent world, it is crucial that students learn to interact constructively with people from different cultures, to understand viewpoints different from their own, and to identify and resolve issues of personal and professional ethics. The GEC strives to help students to become thoughtful participants in a democratic society, and to achieve the intellectual integration and awareness they will need to meet changes and challenges in their personal, social, and professional lives.

Policies governing this Curriculum:

1. Students will take between 41 and 43 credits in this Curriculum.
2. Student may take up to 9 credits of designated courses in their majors to satisfy Objectives 2-9
3. Students may take only two courses in one discipline (outside of the major) to fulfill GEC Objectives.
4. Most courses fulfill two GEC Objectives. The student will choose which one of those Objectives a particular course will fulfill.
5. Courses satisfying Learning Objectives 2-9 may also satisfy a course requirement for the major.

The specific course requirements for each objective are shown in Attachment C. You will also find specific courses most frequently taken by engineering students.

8. What are some of the other things that I need to know about the GEC courses?

- You must take Econ 201 and Econ 202. These fill objectives 4 and 8. Try to avoid other courses that fall into these objectives.
- Try to limit the GEC courses you take in your freshman year. GEC courses are useful courses to take in your sophomore through senior years when you have a heavy load of engineering courses.
- MIL SC 101/102/201/202 or USAF 131, 132 can count for objective 6. (You can only count 4 hours of these courses.)

9. If I took English 103, do I fulfill the GEC requirements?

Yes you do. Since English 103, is a three-hour course, you will need to take another course to fulfill the overall curriculum hours of 129 hours. You can use any course to meet this requirement. Many students have credit for courses they don't otherwise need. These can be used to complete the 129 hour requirement.

10. What are the requirements for the Industrial Engineering technical electives?

In general, any IENG course that has a number in the 400-499 range that is not required can be used for an elective. The electives that are typically offered are:

- IENG 405 Design for Manufacturability (Spring semester)
- IENG 417 Total Quality Management (Fall semester)
- IENG 423 Designing Decision Support Systems (Spring semester)
- IENG 431 Expert Systems (Spring Semester)
- IENG 432 Decision Support Systems (Spring semester)
- IENG 461 System Safety Engineering (Fall semester)
- IENG 473 Team Facilitation (Spring semester)
- IENG 474 Technology Entrepreneurship (Summer) (On-line course)
- IENG 493 Project Management (Summer) (On-line course)

11. Can I take graduate courses for an undergraduate technical level?

Yes, you can take courses that have a number in the 500-599 range if you have above a 3.0 GPA. You must obtain approval from your advisor and the course instructor before you enroll in a graduate course. Fill out an Enroll in a 500-Level Course form: http://www.cemr.wvu.edu/studentservices/forms/

12. Can I take courses in another discipline as a technical elective?

Yes if this course is approved by the IMSE Department. The courses listed below have been approved.

Dynamics (Fall/Spring) MAE 242	Construction Engineering (Spring Only) CE 414	Geographic Info Systems/ Science (Fall/Spring) GEOG 350	Managing Construction Safety (Spring Only) SAFM 470
Thermodynamics (Fall/Spring) MAE 320	Advanced Software Engineering (Spring Only) CS 430	Introduction to linear Algebra (Fall/Spring) Math 343	Statistical Analysis System (Fall Only) STAT 421
Fluid Mechanics (Fall/Spring) MAE 331	Database Design and Theory (Spring Only) CS 440	Numerical Analysis (Spring Only) Math 420	
Heating/Ventilating/Air Cond (Fall Only) MAE 427	Bioengineering (Fall Only) EE 425	Applied Linear Algebra (Spring Only) MATH 441	
Intro-Environmental Engineering (Fall/Spring) CE 347	Biometric Systems (Fall Only) EE 426		

13. Are there any required courses that are only offered in one semester?

Fall	**Spring**
IENG 301	IENG 472 *
IENG 305	
IENG 471	

* Students who plan to graduate in December can receive permission to take IE 472 prior to IE 471

14. Are any IENG required courses taught in the summer?

Generally IENG 213, IENG 377, and IENG 331 are taught in the summer. Two IENG Technical Electives, IENG 474 and IENG 493 are also taught on-line in the summer

15. Is there a minimum grade that I must achieve in required or elective IENG courses?

The minimum grade for other IENG courses is a D, but you must have an overall GPA of at least a 2.00 GPA in IENG courses to graduate. Only the highest grade counts in the calculation of your IENG GPA. Note the IENG GPA on Degree Works is not accurate.

16. What is the requirement to take IENG 471/ 472 the senior internship courses?

You must have completed 21 credit hours of IENG courses.

17. Can I take IENG 472 prior to taking IENG 471?

In some specific cases. You must have a strong likelihood of obtaining an internship in the summer after you take IENG 472. You will receive an I in IENG 472 until you complete the internship. You need to have the permission of the IENG 472 instructor to do this.

18. What is the FE exam? Do I have to take it?

FE stands for Fundamentals of Engineering exam. This exam is the first step toward becoming a professional engineer. You can take this exam during the first or second semester of your senior year. The department encourages you to take the exam during the first semester so you can retake the exam if you don't pass it the first time.

University Requirements

19. How is my GPA calculated?

See the table below

	Credit Hours	Grade *	Quality Points **
Math 155	4	D =(1 pt)	4
Chem 115	4	C = (2pts)	8
Eng'r 101	2	B= (3 pts)	6
Eng'r 199	1	A = (4 pts)	4
Hist 153	3	B = (3 pts)	9
Eng'l 101	3	B = (3 pts)	9
Totals	17		40

** Quality Pts= Credit Hrs X Grade

* A = 4 pts, B = 3 pts, C = 2 Pts, D = 1 Pt, F = 0 pts

GPA = 40/17 = 2.35

20. What does it mean when I am put on probation?

This means your overall GPA is below 2.00. If your GPA in the IENG courses is below 2.00 you will also be on probation. You will need to meet with your advisor and sign a contract concerning your grades and your recovery plan. You may also have a limit on the number of credit hours you can take. The department has a special advisor for probation students.

21. What does it mean if I have been suspended?

When you are suspended, you are not allowed to return to WVU for a semester. The Academic Standards Committee in the College will decide on the terms of your suspension. You are suspended when your GPA falls below a given level. The table below shows the GPA levels that trigger suspension.

Total Hours Attempted	Minimum Cumulative GPA*
1 – 28	1.4
29 – 58	1.7
59 - 88	1.9
89 or above	2.00

* Includes all hours attempted. Grades of P are excluded and the D/F repeat policy is applied.

22. How does the D/F repeat rule work?

If you receive a "D" or an "F" in a course taken at WVU and you have not attempted more than 60 hours of credit when the course was taken, then the course may be repeated. The initial grade will be dropped from your GPA and your new grade will be used in calculating your GPA even if the new grade is worse than the original one. You need to fill out a D/F repeat form
http://www.cemr.wvu.edu/studentservices/forms/

Courses must be completed at WVU or at one of its regional campuses. (WVU Tech or Potomac State)

Special Things to Note:

- If a course is no longer offered or the course has been changed, a substitution can only be made by approval of the Dean's office.
- The first course and grade will be kept on your record, but the hours and credit points for this course will not be used in calculation of your current GPA. This grade will have the letter E by it (excluded). The repeated course grade and hours will be used for calculation of your current GPA. They will also be entered on your record with a "I" (included).
- Each course can be repeated under the D/F repeat rule only once.
- You only count the credit hours one time
- You can repeat a course any time prior to graduation, but you can only repeat courses that you took in your first 60 hours of course work.
- If you receive an F for disciplinary reasons (e.g. cheating), you cannot use the D/F repeat policy.

See the example below for the calculation of your grade with the D/F repeat rule.

Suppose you D/F repeat Math 155 from the example used in Question 19 above and you get a B in Math 155

The quality points for Math 155 will go from 4 pts to 12 pts. The credit hours will not change as a result, your GPA will be:

GPA = 46/17 = 2.71

23. Can I be removed from the Industrial Engineering program?

Yes. If your major GPA falls below the GPA indicated below you will be given an academic warning. You must meet with your advisor and complete an Academic Notice of Warning. Students must meet a minimum GPA to avoid being dismissed from the department.

Hours Attempted	Required GPA
10 – 21	1.70
22-33	1.85
34 and more	1.93

Students who do not meet the minimum GPA will be dismissed from the department. The duration of the dismissal is:

- One semester – the first time
- One year – the second time
- Five years – the third time

Dismissed students will be transferred to the University College and will not be permitted to take any college restricted courses with the exception of those for which they can D/F repeat.

24. If I have taken a course at another school, can I use this course to meet the required course credit?

The Admissions and Records Office will need to translate this course to a WVU equivalent. Should the Admissions and Records Office not translate your course to a specific course at WVU, you can request the College have this course count for course credit. You must complete an Undergraduate Transient Application Request. You need to fill out this request before you take the course.

http://www.cemr.wvu.edu/studentservices/forms/

Your advisor must approve this request, before it is sent to the College for approval. You can find some courses that transfer at the following website

http://www.arc.wvu.edu/tes/student_info.php

In order for your advisor to approve your request, you will need to provide a description of the course taken. Make sure that the other school sends your grade for the course to WVU when you complete the course. Check your transcript on the STAR system to be sure the course was transferred.

25. What do I do if I have taken a course in another program that is similar to the required course?

You need to fill out a Course and Substitution Request form:
http://www.cemr.wvu.edu/studentservices/forms/

This must be approved by your advisor, the department chair, and the Dean's office. You must also state your reason for requesting a substitution. The most common reasons for substitutions are:

- Courses taken at another University that are equivalent to a required course
- Courses taken in another major that are equivalent to a required course in your major.

26. How do the grades I received at another school count in my WVU GPA?

Grades for classes taken at public college or university will be counted towards the calculation of the GPA.

27. Is there a maximum or minimum number of credit hours I am allowed to take per semester?

The minimum number of credit hours to be considered a full time student is twelve. The maximum credit load per semester is 20 hours. Extra hours may be taken, but you must request approval by completing the Course Over-Load Permission:

http://www.cemr.wvu.edu/studentservices/forms/

28. What does an incomplete grade mean?

An incomplete grade (I) is given whenever you are unable to complete a course due to illness or other circumstances. An incomplete grade is not allowable when you are not doing well in a course and need to take it again. Prior to requesting an incomplete be given, you need to sign a Contract to Remove Grade of I:

http://www.cemr.wvu.edu/studentservices/forms/

If the Incomplete is not changed to a completed grade in one semester or by the date stated in the contract, if earlier, it will count as an F until it is officially changed.

29. How do I qualify to graduate with honors?

Your grade-point average is used to determine whether or not you are eligible to graduate with honors. The GPA that is used is the grade-point average up through your next to last semester. Those graduating with a 3.8 or above are eligible to be graduated Summa Cum Laude. Those who have a GPA lower than 3.8 but above 3.6 are graduated Magna Cum Laude, and those whose GPA's are 3.4 to 3.6 will be graduated Cum Laude.

30. What do I need to do to graduate?

The process for graduation is shown on the Graduate Eligibility Worksheet and Graduation Checklist: http://www.cemr.wvu.edu/studentservices/forms/

This process is very important. Students who don't follow this process can endanger their graduation.

When you register for your last semester's classes, you and your advisor should fill out the top part of the Graduation Eligibility Worksheet. Also, prior to the start of the last semester, students must meet with the Chair of the Academic Standards Committee to fill out the bottom portion of the worksheet to ensure that all graduation requirements will be met at the end of that semester.

31. What does it take to complete a minor?

Step 1 Complete Declaration of Intent to Complete a Minor (http://www.cemr.wvu.edu/studentservices/forms/)

Step 2 Work with your advisor to integrate courses into your schedule

Step 3 Take the classes

Step 4 Indicate the minor in the Application for Graduation and Diploma

Step 5 Have your advisor certify that you have completed the minor

The minors of most likely interest include:

- Communication Studies
- Leadership Studies
- Business Administration
- Entrepreneurship
- Mathematics
- Physics
- Foreign languages (French, German, Spanish, Russian)
- Aerospace Studies, Military Science
- Computer Science

The requirements for a minor are located at catalog.wvu.edu/undergraduate/minors/. You can also track minors on Degree Works.

32. How do web-based courses at WVU work?

They work like any other course. In most cases, you do not need to be on campus to take these courses. Grades count as would any regular course. Web - based courses are very popular in the summer. Typically you cannot take web-based courses during the fall/spring semesters if you are a full time student.

Scholarships and Financial Aid

33. What are the minimum qualifications for scholarships?

Each scholarship has its own requirements. The requirements for the most common scholarships are shown below.

WV Residents

PROMISE = 30 credit hours per year, 2.75 GPA (Freshman year), 3.00 GPA (2nd year and later)

Blue and Gold Level I = 24 credit hours per year, 2.75 GPA (Freshman year), 3.00 (2nd year and later).

Blue and Gold Level II = 24 credit hours per year, 2.50 GPA (Freshman year), 2.75 (2nd year and later).

Foundation = 30 minimum credit hours, 3.20 Freshmen/ 3.30 thereafter

Bucklew = 30 credit hours per year, 3.2 first year/ 3.3 thereafter

University Merit = 24 credit hours per year, 3.2 first year/3.3 thereafter

Presidential – 30 credit hours per year, 3.0 first year/3.2 thereafter

Rhodendron = 30 credit hours per year, 2.90 Freshmen/ 3.10 thereafter

Mountaineer = 24 credit hours per year, 2.75 first year/ 3.00 thereafter

GHA = 30 credit hours per year, 2.75 first year/3.00 thereafter

Berry = 24 credit hours per year, 2.50 Freshmen/ 2.75 thereafter

Non WV Resident

University Merit = 30 credit hours per year, 3.20 Freshman/ 3.30 thereafter

Acad. Excellence I = 30 credit hours per year, 3.20 Freshman/ 3.30 thereafter

Acad. Excellence II = 30 credit hours per year, 3.00 Freshman/ 3.20 thereafter

Blue/ Gold Level I = 30 credit hours per year, 2.75 Freshman/ 3.00 thereafter

Blue/Gold Level II = 30 credit hours per year, 2.50 Freshman/ 2.75 thereafter

These scholarships fund four years of undergraduate education.

34. What is the time period for determining the credit hours and GPA?

In most cases, the time period begins with the fall semester and continues through the summer session. Credits that you earned prior to your first full-time semester do not count in the GPA or credit hours for determining scholarship eligibility.

35. Can my scholarship be used in the summer?

In most cases No. You will need to check out the scholarship rules.

36. What are the requirements for continuing to receive financial aid?

You need to be making measurable academic progress. In most cases, this means you have the GPA shown below.

Credit Hours	Required GPA
1-28	1.4
29-58	1.7
59- 88	1.9
89 and above	2.0

The GPA and credit hour time period runs from the Fall semester to the Spring semester.

You must also have completed 67% of the attempted credit hours. Courses with W, I, and F grades count in the attempted credit hours as do all transfer hours and courses taken under the D/F repeat rule. You will receive a warning if you don't meet these requirements. Should you lose your financial aid, your advisor can help you do an appeal.

37. How do I find out about available scholarships?

Go to the college website at

http://www.cemr.wvu.edu/academics/scholarships.php

Career Planning

38. What type of career support does the department/college/University have?

One of our faculty, Dr Jack Byrd Jr, is the career coordinator for the department. He will help you in preparing your resume, helping you make career connections, advising you on different opportunities, etc.

In addition, the College offers a variety of services including:

- An annual career fair in the Fall
- Career day Thursdays in the Spring
- A one-hour course, Engineering 463, which will help you find an internship, co-op, or permanent job.
- A career center which helps you become aware of opportunities.

In addition the University Career Services Center can be useful.

39. What is the difference between a co-op and an internship?

A **co-op** is an extended opportunity to gain experience during a complete semester and possibly a summer. In some cases, you can do 2-3 co-op rotations during your time in college.

An **internship** is a summer experience.

In general a co-op rotation gives you more experience and is more valued by employers.

40. Can I get academic credit for a co-op or internship?

If you do a co-op during your second semester, junior year or an internship in the summer after your junior year, you can use this experience to fulfill the practice requirements of IENG 471/472. You will need to follow the guidelines of the course when you do this.

41. How does doing a co-op affect my scholarship status?

In most cases, you can extend your scholarship period. You will need to work with the College's Co-op Office to make sure you don't lose your scholarship.

Attachment A – IMSE Course Schedule

Common first year as listed in the catalog.

Second Year

First Semester	Hrs.	Second Semester	Hrs.
MATH 251 Multivariable Calculus	4	MATH 261 Elem. Differential Equat.	4
CHEM 116 or PHYS 112	4	MAE 243 Mech. of Materials	3
MAE 241 Statics	3	IENG 213 Engineering Statistics	3
ENGL 102 Comp. & Rhetoric	3	IENG 377 Engineering Economy	3
IENG 200 Fundamentals of IE	1	GEC Elective	3
IENG 220 Re-Engineering	3		
Total	**18**	**Total**	16

Third Year

First Semester	Hrs.	Second Semester	Hrs.
ECON 201 Microeconomics	3	ECON 202 Macroeconomics	3
IENG 301 Materials and Costing	1	IENG 302 Mfg. Processes	2
IENG 305 intro to Systems Engineering	2	IENG 303 Mfg. Processes Lab	1
IENG 314 Adv. Analy. Eng. Data	3	IENG 316 Ind. Quality Cont.	3
IENG 350 Intro. Oper. Research	3	IENG 331 Computer Appl. IE	3
IENG 360 Human Factors Engr.	3	IENG 343 Prod. Plan & Design	3
Total	**15**		**15**

Fourth Year

First Semester	Hrs.	Second Semester	Hrs.
EE 221 Basic Electric Eng.	3	IENG 472 Design Prod. Systems	3
EE 222 Basic Electric Lab	1	IENG Tech. Elective	3
IENG Tech. Elective	3	IENG 446 Plant Layout/Mat'l Hand.	3
IENG 455 Simula. Digital Meth.	3	Select 1 of the following courses	3
IENG 471 Design Productive Sys.	3	MAE 242 Dynamics MAE 320 Thermodynamics MAE 331 Fluid Mechanics Technical Elective	3
GEC Elective	3		
Total	16		**15**
Grand Total			**129**

IE Technical Elective options include:

IENG 405 Design for Manufacturability (Spring semester)
IENG 417 Total Quality Management (Fall semester)
IENG 423 Designing Decision Support Systems (Spring semester)
IENG 431 Expert Systems (Spring Semester)
IENG 432 Decision Support Systems (Spring semester)
IENG 461 System Safety Engineering (Fall semester)
IENG 473 Team Facilitation (Spring semester)
IENG 474 Technology Entrepreneurship (Summer) (On-line course)
IENG 493 Project Management (On-line course)

For the list of Technical Elective courses refer to the catalog.

Attachment B

Industrial Engineering Curriculum Check Sheet

Name_____ **SIN**_____ **Matriculation Date**_____

Course	Hr.	Yr.	Sem.	Offered (1)	Reg.	Grade	D/F	Prerequisites	Notes
MATH 155 (or Math 155/154)	4	Fr	F	F,S,S1,S2				See catalog	Pass placement test
CHEM 115	4	Fr	F	S,S1				See catalog	Pass placement test
ENGR 101	2	Fr	F	F,S,S1				Math 155 (Conc)or Math 153	
ENGR 199	1	Fr	F	F,S,S2					
ENGL 101 (See note 2 below)	3	Fr	F	F,S,S1,S2					
GEC Elective	3	Fr	F		See Below				
MATH 156	4	Fr	S	F,S,S1,S2				MATH 155 (7, C)	
GEC Elective	3	Fr	S	F,S,S2	See Below				
ENGR 102	3	Fr	S	F,S,S2				ENGR 101	
PHYS 111	4	Fr	S	F,S,S1				MATH 155 (C or higher)	
GEC Elective	3	Fr	S		See Below				
MATH 251	4	So	F	F,S,S1,S2				MATH 156 (7, C)	C or better in Math 156C or better in Math 251
CHEM 116 or PHYS 112	4	So	F	F,S,S2 F,S,S2				CHEM 115 or PHYS 111	
MAE 241	3	So	F	F,S,S1				PHYS 111 (7, C)	C or higher in Math 155, Phys 111
ENGL 102 (See Note 3 below)	3	So	F	F,S,S1,S2				ENGL 101	Must be sophomore
IENG 200	1	So	F	F,S					
IENG 220	3	So	F	F,S					
MATH 261	4	So	S	F,S,S2				MATH 251 (7, C)	
MAE 243	3	So	S	F,S,S2				MAE 241 & MATH 156	C or higher in Math 156
IENG 213	3	So	S	F,S,S2				MATH 156 (Conc)	
IENG 377	3	So	S	F,S,S2				None	
GEC Elective	3	So	S		See Below				
ECON 201	3	Jr	F	F,S,S1,S2				Soph standing	
IENG 301	2	Jr	F	F				IENG 377 & MAE 243 (Conc)	
IENG 305	1	Jr	F	F				IENG 213 & IENG 377	
IENG 314	3	Jr	F	F,S				IENG 213, Math 251	
IENG 350	3	Jr	F	F, S				IENG 213	
IENG 360	3	Jr	F	F, S				IENG 213	
ECON 202	3	Jr	S	F,S,S1,S2				ECON 201	
IENG 302	2	Jr	S	F,S				IENG 301 (Conc)	
IENG 303	1	Jr	S	F,S				IENG 302 (Conc)	
IENG 316	3	Jr	S	S				IENG 213	
IENG 331	3	Jr	S	F,S				None	
IENG 343	3	Jr	S	F, S				PR IENG 220, IENG 314 (Coreq)	
EE 221	3	Sr	F	F,S				PHYS 111 & Math 156	
EE 222	1	Sr	F	F,S				EE 221 (Conc)	See list Below
IENG Tech Elective	3	Sr	F						
IENG 455	3	Sr	F	F, S				IENG 213& IENG 331	
IENG 471	3	Sr	F	F				Sr standing	
GEC Elective	3	Sr	F		See Below				
IENG 472	3	Sr	S	S				Sr standing	
IENG Tech Elective	3	Sr	S						See List Below
IENG 446	3	Sr	S	F, S					
Select (MAE 242, MAE 320, MAE 331)	3	Sr	S						
Technical Elective	3	Sr	S						
GEC Courses	Obj 3	Obj 4	Obj 5	Obj 6	Obj 7	Obj 8	Obj 9	Notes: 1. Semesters offered represent past semesters. These semesters may vary in the future.	
ECON 201		X				X		2. Students who have a 29 or higher on the ACT English or 620 or above on the SAT Verbal should take English 103 in place of English 101 and 102. These students will need to have at least 129 hours of course work when they graduate.	
ECON 202		X				X			
IE Tech Courses									
IENG 405									
IENG 417									
IENG 423									
IENG 431									
IENG 432									
IENGR 461									
IENG 473									
IENG 474									
IENG 493									

Attachment C
General Education Courses

Objectives	Requirements	Courses
1. Communications	6 hrs	English 101 & 102 or English 103 One course in your major designated as a W course.
2. Basic Math & Science	13-14 hrs	Math 155 & 156, Chem 115, Physics 111
3. The Past and Its Traditions	3 hrs	Commonly selected courses include Art 101, Geog 108, Hist 101, Hist 102, Hist 152, Phil 140, Relg 102, Theatre 101
4. Ideas of Contemporary Society	3-4 hrs	**Econ 202 required for IE**
5. Artistic Expression	3 hrs	Art 101, Hum 101, 102, LARC 212, THET 101, 102
6. The Individual in Society	4 hrs	Engineering 199 Courses commonly selected include Comm 100, 102, 104, MilSci 101, 102, Phil 100, Psych 101, SPA 270
7. American Culture	3 hrs	Courses commonly selected include ASP 220, Comm 105, Hist 152, 153, SOCA 101, WMST 170
8 Western Culture	3 hrs	**Econ 201 is required for IENG**
9. Non- Western Culture	3 hrs	Courses commonly selected include AGEE 101, GEOG 102, SOCA 105, THET 170