University of South Florida
College of Engineering
2011/12 CURRICULUM

BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING 131 hours

Chemical Engineering Admissions Requirements
Students must have completed the equivalent USF Engineering Calculus, General Physics, and Chemistry courses with a C or better in each course; must have a USF and an overall GPA of 2.0 or better.

The schedule that follows indicates how a diligent student who can devote full time to coursework can satisfy requirements in four academic years. Students without a solid foundation or those who cannot devote full time to academics should plan a slower pace. The following sequence is intended to facilitate registration planning and is subject to change based upon course availability. The sequence may also vary based upon individual considerations. Registration assistance will be provided by academic advisors.

Fall Semester - Year 1	
ENC 1101 Composition I	3
MAC 2281 Engineering Calculus I	4
CHM 2045 General Chemistry I	***3***
CHM 2045L General Chemistry I Lab	***1***
EGN 3000 Foundations of Engineering	1
FKL Human/Diversity & Global Elective	3
FKL Fine Arts Elective	3
Total	18

Spring Semester - Year 1	
ENC 1102 Composition II	3
MAC 2282 Engineering Calculus II	4
CHM 2046 General Chemistry II	3
CHM 2046L General Chemistry II Lab	1
PHY 2048 General Physics I	3
PHY 2048L General Physics I Lab	1
Total	15

Fall Semester - Year 2	
MAC 2283 Engineering Calculus III	4
PHY 2049 General Physics II	3
PHY 2049L General Physics II Lab	1
EGN 3443 Probability & Statistics for Engineers	3
FKL Humanities Elective	3
FKL Social & Behavioral Science Elective	3
Total	17

Spring Semester - Year 2	
EGN 3433 Modeling & Analysis of Engineering Systems or MAP 2302 Differential Equations	3
EGN 3343 Thermodynamics	3
ECH 3023C Material and Energy Balances	4
FKL Humanities Elective	3
Total	13

Summer	
CHM 2210 Organic Chemistry I	3
CHM 2210L Organic Chemistry I Laboratory	2
FKL Social & Behavioral Science Elective	3
ENC3246 Communication for Engineers (WI)	3
Total	11

Fall Semester –Year 3	
ECH 4123 Chemical Engineering Thermodynamics	3
ECH 4264 Transport Phenomena	4
ECH 4845 Numerical Methods in Chemical Eng	4
Department Upper Level Elective	3
Total	14

Spring Semester - Year 3	
ECH 3702 Instrument Systems	3
ECH 4265C Mass Transfer Operations	4
CHM 2211 Organic Chemistry II	3
CHM 2211L Organic Chemistry II Lab	2
BME4406 Engineering of Biological Systems	3
Total	15

Fall Semester - Year 4	
ECH 4415C Reaction Engineering	4
ECH 3240L Chemical Engineering Lab I	3
EMA 4003 Intro to Materials Science	3
ECH 4605 Product & Process Sys Engineering	3
Department Upper Level Elective	3
Total	16

Spring Semester - Year 4	
ECH 4241L Chemical Engineering Lab II	3
ECH 4323C Process Dynamics and Control	3
ECH 4615 Product and Process Design (CD)	3
Department Upper Level Elective	3
Total	12

C- is the minimum acceptable grade in an engineering course that is a prerequisite for a subsequent course and in FKL courses. In other engineering courses, any passing grade may be applied but a minimum 2.0 GPA in the following categories must be maintained at all times: Overall, USF, Math/Science, Engineering and Specialization.

Gordon Rule (6A) is fully met through the mathematics courses above, ENC1101, ENC1102, ENC 3246 and by selecting one technical or general education elective that is an approved 6A communication course. Gordon Rule communication requirement is met for any student entering USF with 60 or more hours.

Exit Requirements: Exit requirements must be taken at USF. The Capstone Design Requirement (CD) and Writing Intensive (WI) exit requirements are met through ENC3246 and ECH 4615.

Course sequence: Courses in bold should be taken in sequence as early as possible in preparation for your major. Foundation of Knowledge & Learning (FKL) courses may be taken in any order.

Biomedical Engineering Minor

This biomedical engineering minor is a 15 credit hour program that is open to all engineering majors and other students that meet the prerequisites listed below. For engineering majors, at least 9 hours beyond the B.S. in any Engineering discipline must be completed for the biomedical engineering minor. Student must register with the Department of Chemical & Biomedical Engineering undergraduate advisor prior to starting this minor program. Departments within the College of Engineering are currently developing additional courses that will be added to the list of courses that can be applied to this minor, so consultation with the advisor will insure that students are informed of all offered courses.

Prerequisite courses:

1. Biology I: BSC 2010
2. Calculus II: MAC 2282, MAC 2242, MAC 2233 or MAC 2312
3. Physics II: PHY 2049 or PHY 2054
4. General Chemistry II: CHM 2046

Required Courses (6 hours)

ECH 4931Special Topics in Chemical Engineering*	3
BME 4406 Engineering of Biological Systems	3

The remaining 9 credit hours can be taken from the following list:

ECH 6417 Bioseparations	3
ECH 4931 Special Topics in Chemical Engineering**	3
PHZ 4702 Applications of Physics to Biology & Medicine I	4
PHZ 4703 Applications of Physics to Biology & Medicine II	4
BCH 3023 Introductory Biochemistry	3
EIN 4313C Human Factors	3
BME 5006 Theory and Design of Bioprocesses	3
EIN 5245 Work Physiology/Biomechanics	3
BME 5040 Pharmaceutical Engineering	2
ECH 5748 Selected Topics in Biomedical Engineering**	1-10
BME 5748 Selected Topics in Biomedical Engineering **	3

*Please see academic advisor for required special topics courses.
**Please see academic advisor for selected special topics courses.

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BACHELOR OF SCIENCE IN CIVIL ENGINEERING 131 HOURS

Civil and Environmental Engineering Admissions Requirements
Students entering the Civil & Environmental Engineering department must have completed the equivalent USF Engineering Calculus sequence, one year equivalent USF General Physics and one semester equivalent USF General Chemistry with a minimum of 2.3 GPA; and must have an overall and USF GPA of 2.0 or better. **Continuation** in the Civil & Environmental Engineering program requires a minimum grade of "C-" as well as a 2.5 GPA (based on best attempt) over the following courses: EGN 3311 Statics, EGN 3331 Mechanics of Materials, EGN 3353 Basic Fluid Mechanics, EGN 3365 Materials Engineering I.

The schedule that follows indicates how a diligent student who can devote full time to coursework can satisfy requirements in four academic years. Students without a solid foundation or those who cannot devote full time to academics should plan a slower pace. The following sequence is intended to facilitate registration planning and is subject to change based upon course availability. The sequence may also vary based upon individual considerations. Registration assistance will be provided by academic advisors.

Fall Semester - Year 1	
ENC 1101 Composition I	3
MAC 2281 Engineering Calculus I	4
CHS 2440 Chemistry for Engineers	3
CHM 2440 Chemistry for Engineers Lab	1
EGN 3000 Foundations of Engineering	1
FKL Social & Behavioral Science Elective	3
Total	15

Spring Semester - Year 1	
ENC 1102 Composition II	3
MAC 2282 Engineering Calculus II	4
GLY3850 Geology for Engineers	3
PHY 2048 General Physics I	3
PHY 2048L General Physics I Lab	1
EGS 1113 Introduction to Design Graphics	3
Total	17

Fall Semester - Year 2	
MAC 2283 Engineering Calculus III	4
PHY 2049 General Physics II	3
PHY 2049L General Physics II Lab	1
EGN 3311 Statics	3
EGN 4427 Numerical & Computer Tools I	3
FKL Humanities Elective	3
Total	17

Spring Semester - Year 2	
MAP 2302 Differential Equations or EGN 3433* Modeling and Analysis of Engineering Systems	3
EGN 3321 Dynamics	3
EGN 3353 Basic Fluid Mechanics	3
EGN 3331 Mechanics of Materials	3
EGN 3331L Mechanics of Materials Lab	1
EGN4454 Numerical & Computer Tools II	3
	16

Summer Semester	
EGN 3615 Engineering Economics with Social & Global Perspectives	3
FKL Human/Diversity & Global Elective	3
ENC 3246 Communications for Engineering (6A WI)	3
Total	9

Fall Semester – Year 3	
ENV 4001 Environmental Systems Engineering	3
TTE 4004 Transportation Engineering I	3
EGN 3343 Thermodynamics	3
EGN 3443 Probability & Statistics for Engineers	3
EGN 3365 Materials I	3
Total	15

Spring Semester - Year 3	
CES 3102 Structures I	3
CWR 4202 Hydraulics	3
ENV 4004L Environmental/Hydraulics Lab	1
EGN 3373 Introduction to Electrical Systems I	3
CE Concentration Elective	3
FKL Humanities Elective	3
Total	16

Fall Semester - Year 4	
CEG 4011 Geotechnical Engineering I	3
CEG 4011L Geotechnical/Transportation Lab	1
CE Concentration Elective	3
CE Concentration Elective	3
FKL Fine Arts Elective	3
Total	13

Spring Semester - Year 4	
CE Concentration Elective	3
CE Concentration Elective	3
CE Capstone Design Requirement (CD)	3
CGN4122 Professional/Ethical Issues in Engineering	1
FKL Social & Behavioral Science Elective	3
Total	13

C- is the minimum acceptable grade in each engineering course. A minimum GPA of 2.0 in the following categories must be maintained at all times: Overall, USF, Math/Science, Engineering Courses and Specialization Courses. A minimum GPA of 2.5 is required in the continuation courses.

Gordon Rule (6A) is fully met through the mathematics courses above, ENC1101, ENC1102, ENC 3246 and by selecting one technical or general education elective that is an approved 6A communication course. Gordon Rule communication requirement is met for any student entering USF with 60 or more hours.

Exit Requirements: Exit requirements must be taken at USF. The Capstone Design Requirement (CD) and Writing Intensive (WI) exit requirements are met through ENC3246 and the Capstone Design Course.

Course sequence: Courses in bold should be taken in sequence as early as possible in preparation for your major. Foundation of Knowledge & Learning (FKL) courses may be taken in any order.

Civil Engineering Concentration AND CAPSTONE DESIGN Requirements

Civil Engineering students take one of the 3 tracks next listed:

Structures/Materials/Geotechnical Track

CES 4702 Concepts of Concrete Design (R)	3
CES 4605 Concepts of Steel Design (R)	3
CGN 4851 Concrete Construction Materials (R)	3
CEG 4012 Geotechnical Engineering II	
or	
TTE 4005 Transportation Engineering II	3
Technical Elective	3
CES 4750 Capstone Structures/Materials/Geotechnical Design	3

Geotechnical/Transportation Track

CGN 4851 Concrete Construction Materials (R)	3
CEG 4012 Geotechnical Engineering II (R)	3
TTE 4005 Transportation Engineering (R)	3
Technical Elective	3
Technical Elective	3
CEG 4850 Capstone Geotechnical/Transportation Design	3

Environmental/Water Resources Track

ENV 4417 Water Quality and Treatment (R)	3
CWR 4540 Water Resources Engineering (R)	3
CEG 4012 Geotechnical Engineering II	
or	
TTE 4005 Transportation Engineering II	3
Technical Elective	3
Technical Elective	3
CWR 4812 Capstone Water Resources/Environmental Design	3

The Program supports the following technical elective courses:

CCE 4031 Construction Management	3
CEG 4012 Geotechnical Engineering II	3
CES 4605 Concepts of Steel Design	3
CES 4702 Concepts of Concrete Design	3
CGN 4851 Concrete Construction Materials	3
CGN 4933 Special Topics in Civil & Environmental Engineering **	3
CWR 4540 Water Resources Engineering I	3
ENV 4417 Water Quality and Treatment	3
SUR 2101C Engineering Land Surveying	3
TTE 4003 Transportation and Society	3
TTE 4005 Transportation Engineering II	3

**Please see academic advisor for selected special topics courses.

(R) = Required for Concentration

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BACHELOR OF SCIENCE IN COMPUTER ENGINEERING 128 hours

Admission to the Department of Computer Science and Engineering
All students must complete the equivalent of USF Composition I & II, Engineering Calculus I & II and calculus-based General Physics I & II (with labs) with a 3.00 overall grade point average in these courses (best attempt) and a minimum grade of "C" in each course to be admitted to the CS&E department. Continuation in the major requires successful completion of CDA 3103 and COP 3514 with a minimum grade of "B" in each course based on best attempts.

The schedule that follows indicates how a diligent student who can devote full time to coursework can satisfy requirements in four academic years. Students without a solid foundation or those who cannot devote full time to academics should plan a slower pace. The following sequence is intended to facilitate registration planning and is subject to change based upon course availability. The sequence may also vary based upon individual considerations. Registration assistance will be provided by academic advisors.

Fall Semester - Year 1	
ENC 1101 Composition I	*3*
MAC 2281 Engineering Calculus I	4
CHS 2440 Chemistry for Engineers	3
CHS 2440L Chemistry for Engineers Lab	1
EGN 3000 Foundations of Engineering	1
FKL Social & Behavioral Science Elective	3
Total	15

Spring Semester - Year 1	
ENC 1102 Composition II	3
MAC 2282 Engineering Calculus II	4
PHY 2048 General Physics I	3
PHY 2048L General Physics I Lab	1
COP 2510 Programming Concepts	3
Total	14

Fall Semester - Year 2	
MAC 2283 Engineering Calculus III	4
PHY 2049 General Physics II	3
PHY 2049L General Physics II Lab	1
COP 3514 Program Design	3
FKL Social & Behavioral Science Elective	3
Total	14

Spring Semester - Year 2	
CDA 3103 Computer Organization	3
COT 3100 Intro Discrete Structures	3
COP 3331 Object Oriented Design	3
MAP 2302 Differential Equations or EGN 3433 Modeling and Analysis of Engineering Systems	3
FKL Humanities Elective	3
Total	15

Summer Semester	
CDA 3201 Logic Design	3
CDA 3201L Logic Design Lab	1
COP 4530 Data Structures	3
EGN4450 Introduction to Linear Systems	2
Total	9

Fall Semester – Year 3	
CDA 4205 Computer Architecture	3
EEE 3394 Electronic Materials	3
EGN 3373 Electrical Systems I	3
COT 4400 Analysis of Algorithms	3
CSE Elective	3
Total	15

Spring Semester - Year 3	
CDA 4203 Computer System Design	3
CDA 4203L Computer Systems Design Lab	1
EGN 3615 Engineering Economics with Social and Global Implications	3
COP 4600 Operating Systems	3
CSE Hardware Elective	3
Natural Science Elective	3
Total	16

Fall Semester - Year 4	
CDA 4213 CMOS-VLSI Design	3
CDA 4213L CMOS-VLSI Design Lab	1
EGN 3443 Probability and Statistics for Engineers	3
ENC 3246 Communication for Engineers (6A WI)	3
FKL Fine Arts Elective	3
CSE Elective	3
Total	16

Spring Semester - Year 4	
CIS 4910 Senior Project	2
CIS 4250 Ethical Issues and Professional Conduct (CD)	3
FKL Human/Diversity & Global Elective	3
FKL Humanities Elective	3
CSE Hardware Elective	3
Total	14

With the exception of the courses referred to in the admissions statement above, C- is the minimum acceptable grade in each math, science and engineering course. A minimum GPA of 2.0 in the following categories must be maintained at all times: Overall, USF, Math/Science, Engineering Courses and Specialization Courses.

Gordon Rule (6A) is fully met through the mathematics courses above, ENC1101, ENC1102, ENC3246 and CIS4250. Gordon Rule communication requirement is met for any student entering USF with 60 or more hours.

Exit Requirements: Exit requirements must be taken at USF. The Capstone Design (CD) and Writing Intensive (WI) exit requirements are met through ENC3246 and CIS4250.

Course sequence: Courses in bold should be taken in sequence as early as possible in preparation for your major. Foundation of Knowledge & Learning (FKL) courses may be taken in any order.

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BACHELOR OF SCIENCE IN COMPUTER SCIENCE 120 HOURS

Admission to the Department of Computer Science and Engineering
All students must complete the equivalent of USF Composition I & II, Engineering Calculus I & II and calculus-based General Physics I & II (with labs) with a 3.00 overall grade point average in these courses (best attempt) and a minimum grade of "C" in each course to be admitted to the CS&E department. **Continuation** in the major requires successful completion of CDA 3103 and COP 3514 with a minimum grade of "B" in each course based on best attempts.

The schedule that follows indicates how a diligent student who can devote full time to coursework can satisfy requirements in four academic years. Students without a solid foundation or those who cannot devote full time to academics should plan a slower pace. The following sequence is intended to facilitate registration planning and is subject to change based upon course availability. The sequence may also vary based upon individual considerations. Registration assistance will be provided by academic advisors.

Fall Semester - Year 1	
ENC 1101 Composition I	3
MAC 2281 Engineering Calculus I	4
Natural Science Elective	3
FKL Social & Behavioral Science Elective	3
Foundations of Engineering	1
Total	14

Spring Semester - Year 1	
ENC 1102 Composition II	3
MAC 2282 Engineering Calculus II	4
PHY 2048 General Physics I	3
PHY 2048L General Physics I Lab	1
COP 2510 Programming Concepts	3
Total	14

Fall Semester - Year 2	
MAC 2283 Engineering Calculus III	4
PHY 2049 General Physics II	3
PHY 2049L General Physics II Lab	1
COP 3514 Program Design	3
FKL Social & Behavioral Science Elective	3
Total	14

Spring Semester - Year 2	
CDA 3103 Computer Organization	3
COT 3100 Intro Discrete Structures	3
COP 3331 Object Oriented Design	3
FKL Humanities Elective	3
Total	12

Summer Semester –Year 2	
COP 4530 Data Structures	3
CDA 3201 Computer Logic Design	3
CDA 3201L Computer Logic Design Lab	1
EGN 4450 Linear Systems	2
Total	9

Fall Semester – Year 3	
CDA 4205 Computer Architecture	3
COT 4400 Analysis of Algorithms	3
EGN 3443 Probability and Statistics for Engineers	3
CSE Software Elective	3
Natural Science Elective	3
Total	15

Spring Semester - Year 3	
COP 4600 Operating Systems	3
CSE Theory Elective	3
CSE Software Elective	3
CSE Elective	3
ENC 3246 Communication for Engineers (WI)	3
Total	15

Fall Semester - Year 4	
FKL Fine Arts Elective	3
FKL Human/Diversity & Global Elective	3
FKL Humanities Elective	3
CSE Elective	3
CSE Elective	3
Total	15

Spring Semester - Year 4	
CIS 4250 Ethical Issues and Prof. Conduct (WI,CD)	3
CSE Elective	3
CSE Elective	3
Upper Level FKL Humanities, Social Science or FKL Fine Arts Elective	3
Total	12

With the exception of the courses referred to in the admissions statement above, C- is the minimum acceptable grade in each math, science and engineering course. A minimum GPA of 2.0 in the following categories must be maintained at all times: Overall, USF, Math/Science, Engineering Courses and Specialization Courses.

Gordon Rule (6A) is fully met through the mathematics courses above, ENC1101, ENC1102, ENC3246 and CIS4250. Gordon Rule communication requirement is met for any student entering USF with 60 or more hours.

Exit Requirements: Exit requirements must be taken at USF. The Capstone Design (CD) and Writing Intensive (WI) exit requirements are met through ENC3246 and CIS4250.

Course sequence: Courses in bold should be taken in sequence as early as possible in preparation for your major. Foundation of Knowledge & Learning (FKL) courses may be taken in any order.

Computer Science Minor

This Computer Science minor is an 18 credit hour program that is open to all students, except for Department majors, that meet the prerequisites listed below. The Computer Science minor is expected to be very attractive to students in other Engineering departments, and to students in Mathematics and the Sciences (including Physics, Chemistry, and Biology). Students must register with the Department of Computer Science and Engineering undergraduate advisor prior to starting this minor program. Consultation with the Department undergraduate advisor will insure that students are informed of all offered courses. All catalog prerequisites and registration requirements must be met for enrollment in any of the courses required for the minor. All students desiring to pursue the minor must meet the same entry and continuation requirements as a Departmental major

Prerequisite courses:

1. Calculus I and II (MAC 2281 and MAC 2282 are recommended)
2. Physics I and II with lab (PHY 2048/2048L and PHY 2049/2049L are recommended)
3. Programming Concepts COP 2510 or other approved introductory programming course

Required Courses (12 hours)

COP 3514 Program Design	3
CDA 3103 Computer Organization	3
COP 3331 Object Oriented Design	3
COP 4530 Data Structures	3

The remaining six credit hours can be taken from electives offered by the Department. Specialty tracks in hardware, software, theory, and many other areas can be defined in consultation with the Department undergraduate advisor. A specific pre-graduate school track (requiring a total of 21 hours) intended for students planning to seek admission into the Department graduate program has been defined as follows:

COT 4400 Analysis of Algorithms	3
COP 4600 Operating Systems	3
CDA 4205 Computer Architecture	3

Successful completion of the minor requires a minimum 2.0 GPA in the above listed courses.

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BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING 128 hours

Department of Electrical Engineering Admissions Requirements
Completion of the Engineering Calculus and Physics sequences and Chemistry I and Chemistry I lab with a "C" or better in each course and a minimum 3.0 GPA in these courses (best attempt); must have an overall GPA of 2.0 or better. **Continuation** in the Electrical Engineering Department requires the completion of both EGN 3373 and EGN 3374 with grades of B or higher (best attempt).

The schedule that follows indicates how a diligent student who can devote full time to coursework can satisfy requirements in four academic years. Students without a solid foundation or those who cannot devote full time to academics should plan a slower pace. The following sequence is intended to facilitate registration planning and is subject to change based upon course availability. The sequence may also vary based upon individual considerations. Registration assistance will be provided by academic advisors.

Fall Semester - Year 1	
ENC 1101 Composition I	3
MAC 2281 Engineering Calculus I	4
FKL Social & Behavioral Science Elective	3
FKL Fine Arts Elective	3
FKL Humanities Elective	3
Total	16

Spring Semester - Year 1	
ENC 1102 Composition II	3
MAC 2282 Engineering Calculus II	4
CHS 2440 Chemistry for Engineers	3
CHS 2440L Chemistry for Engineers Lab	1
PHY 2048 Physics I	3
PHY 2048L Physics Lab I	1
EGN 3000 Foundations of Engineering	1
Total	16

Fall Semester - Year 2	
MAC 2283 Engineering Calculus III	4
PHY 2049 Physics II	3
PHY 2049L Physics Lab II	1
EGN 3443 Probability & Statistics for Engineers	3
EGN 3615 Engineering Economics with Social & Global Implications	3
Total	14

Spring Semester - Year 2	
EGN 3433 Modeling & Analysis of Engineering Systems or MAP 2302 Differential Equations	3
EGN 3420 Engineering Analysis	3
EGN 3373 Electrical Systems I	3
EEL 2161Electrical Engineering Computing Methods	3
EEE 3394 Electronic Materials	3
Total	15

*Some electives with lab components will incur a lab fee.

Summer Term	
EGN 3374 Electrical Systems II	3
ENC 3246 Communications for Engineers (6A WI)	3
FKL Humanities Elective	3
Total	9

Fall Semester – Year 3	
EEL 3100 Network Analysis	3
EEL 4705 Logic Design	3
EEL 4705L Logic Lab	1
EEL 3115L Lab I (Circuits)	1
EEL 4471 Electromagnetics	3
EEE 4351C Semiconductor Devices	3
Total	14

Spring Semester - Year 3	
EEL 4102 Linear Systems Analysis	3
EGN 3375 Electromechanical Systems	3
EEL 4744 Microprocessors	3
EEL 4743L Microprocessor Lab	1
EEE 3302 Electronics I	3
EEL 4423L Wireless Circuits & Systems Lab	2
Total	15

Fall Semester - Year 4	
EEL 4906 Eng. Design & Professionalism (CD)	3
EEL 3116L EE Lab II (Electronics)	1
EEL 4657 Linear Control Systems	3
EEL 4657L Linear Controls Laboratory	1
EEE 4301 Electronics II	3
EEL 4512C Communication Systems	3
Total	14

Spring Semester - Year 4	
EEL 4914 EE Design Project	3
Tech Elective*	3
Tech Elective*	3
FKL Social & Behavioral Science Elective	3
FKL Human/Diversity & Global Elective	3
Total	15

The minimum acceptable grade in each math, science and engineering course, except EGN 3373 and EGN 3374, is a "C". EGN 3373 and EGN 3374 must be passed with a grade of B or better to continue in the program. A minimum GPA of 2.0 in the following categories must be maintained at all times: Overall, USF, Math/Science, Engineering Courses and Specialization Courses.

Gordon Rule (6A) is fully met through the mathematics courses above, ENC 1101, ENC 1102, ENC 3246 and by selecting one technical or general education elective that is an approved 6A communication course. Gordon Rule communication requirement is met for any student entering USF with 60 or more hours.

Exit Requirements: Exit requirements must be taken at USF. The Capstone Design (CD) and Writing Intensive (WI) exit requirements are met through ENC 3246 and EEL 4906.

Course sequence: Courses in bold should be taken in sequence as early as possible in preparation for your major. Foundation of Knowledge & Learning (FKL) courses may be taken in any order.

Requirements for the Electrical Engineering Honors Program:

I. Admissions Criteria

a. Junior status – An invitation to apply will be sent to eligible students at the start of their junior year by the Department of Electrical Engineering and application can be made at that time with decisions made at the end of the first semester, junior year.

b. Completion of the core courses required for the Electrical Engineering major with a GPA of at least 3.5 through the completion of the first semester, junior year.

c. An overall GPA of at least 3.5 through the completion of the first semester, junior year.

d. Recommendation of a committee consisting of Electrical Engineering faculty members and engineering leaders from industry, based upon an application, letters of recommendation, statement of interest, and an interview.

II. Requirements for Completion of Departmental Honors

a. Completion of requirements for a major in Electrical Engineering with a GPA of at least 3.5 for core courses and an overall GPA of at least 3.5.

b. Selection of two (2) Technical Electives in conjunction with a program advisor. One of the courses should be a 4000 level Sustainable Engineering/Green Engineering course and the other should be a course at the 5000/6000 level.

c. Nine (9) additional credits (the EE Honors courses) beyond the degree requirements, which include a 4000 level Leadership Forum, 4000 level Internship/Study Abroad/Enrichment Experience, and 5000 level Honors Thesis. These courses are described in the sequel.

Continuation Requirements

a. Electrical Engineering Leadership Honors Program students failing to complete the EE Honors courses with a grade of “B” or better will not be eligible to continue in the program and will be notified by the Department of Electrical Engineering of their dismissal from the program.

b. Electrical Engineering Leadership Honors Program students must complete and defend their Honors thesis in the second semester of their senior year. Students who do not complete this requirement may, upon the recommendation of their Honors thesis supervisor and the Department of Electrical Engineering, be allowed to continue in the program until the final semester prior to their graduation. Under no circumstances shall the extension be for more than one academic year.

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BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING 128 hours

Department of Industrial and Management Systems Engineering Admissions Requirements
Transfer students must have completed the equivalent USF Engineering Calculus sequence with a 2.0 GPA; must have completed one year of equivalent USF General Physics and Chemistry courses with a minimum of 2.0 GPA; must have a USF and overall GPA of 2.0 or better.

The schedule that follows indicates how a diligent student who can devote full time to coursework can satisfy requirements in four academic years. Students without a solid foundation or those who cannot devote full time to academics should plan a slower pace. The following sequence is intended to facilitate registration planning and is subject to change based upon course availability. The sequence may also vary based upon individual considerations. Registration assistance will be provided by academic advisors.

Fall Semester - Year 1	
ENC 1101 Composition I	3
MAC 2281 Engineering Calculus I	4
CHM 2045 Chemistry I	3
CHM 2045L Chemistry I Lab	1
EGN 3000 Foundations of Engineering	1
FKL Social & Behavioral Science Elective	3
Total	15
Spring Semester - Year 1	
ENC 1102 Composition II	3
MAC 2282 Engineering Calculus II	4
CHM 2046 Chemistry II	3
PHY 2048 Physics I	3
PHY 2048L Physics I Lab	1
FKL Humanities Elective	3
Total	17
Fall Semester - Year 2	
MAC 2283 Engineering Calculus III	4
PHY 2049 Physics II	3
PHY 2049L Physics II Lab	1
EGN 3443 Probability & Statistics for Engineers	3
FKL Humanities Elective	3
Total	14
Spring Semester - Year 2	
EGN 3311 Statics	3
COP 2510 Programming Concepts (or COP2270)	3
EGN 4450 Linear Systems	2
EGN 3433 Modeling & Analysis of Engineering Systems or MAP 2302 Differential Equations	3
FKL Fine Arts Elective	3
Total	14

Summer Term	
EGS 1113 Engineering Graphics	3
EGN 3615 Engineering Economy with Social and Global Implications (SB)	3
FKL Human/Diversity & Global Elective	3
Total	9
Fall Semester – Year 3	
EGN 3365 Materials Engineering I	3
EGN 3373 Introduction to Electrical Systems I	3
EIN 4312C Work Analysis	3
EIN 4621 Manufacturing Processes	3
ESI 4312 Deterministic OR	3
Total	15
Spring Semester - Year 3	
EGN 3343 Thermodynamics	3
EIN 4333 Production Control	3
ESI 4221 Industrial Statistics/Quality Control	3
ESI 4313 Probabilistic OR	3
Tech Elective Engineering Science	3
Total	15
Fall Semester - Year 4	
EIN 4364C Facilities Design	3
EIN 4352 Engineering Cost Analysis	3
ESI 4244 Design of Experiments	3
ESI 4523 Industrial Systems Simulation	3
Tech Elective Industrial Engineering	2
Total	14
Spring Semester - Year 4	
EIN 4243C Human Factors (6A)	3
EIN 4891 Capstone Design (CD)	3
EIN 4601C Automation and Robotics	3
ENC 3246 Communication for Engineers (6A WI)	3
Tech Elective Industrial Engineering	3
Total	15

The minimum acceptable grade in each math, science and engineering course is a "C". A minimum GPA of 2.0 in the following categories must be maintained at all times: Overall, USF, Math/Science, Engineering Courses and Specialization Courses.

Gordon Rule (6A) is fully met through the mathematics courses above, ENC 1101, ENC 1102, ENC 3246 and EIN 4243C. Gordon Rule communication requirement is met for any student entering USF with 60 or more hours.

Exit Requirements: Exit requirements must be taken at USF. The Capstone Design (CD) and Writing Intensive (WI) exit requirements are met through ENC 3246 and EIN 4891.

Course sequence: Courses in bold should be taken in sequence as early as possible in preparation for your major. Foundation of Knowledge & Learning (FKL) courses may be taken in any order.

University of South Florida
College of Engineering
2011/12 CURRICULUM

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING 128 hours

Department of Mechanical Engineering Admissions Requirements
Students entering the Mechanical Engineering department must have completed the equivalent USF Engineering Calculus sequence, one year equivalent USF General Physics and one semester equivalent USF General Chemistry with a 2.5 GPA [based upon all attempts (USF grade forgiveness honored) in these courses] and a minimum grade of C in each course; and must have an overall and USF GPA of 2.0 or better.

The schedule that follows indicates how a diligent student who can devote full time to coursework can satisfy requirements in four academic years. Students without a solid foundation or those who cannot devote full time to academics should plan a slower pace. The following sequence is intended to facilitate registration planning and is subject to change based upon course availability. The sequence may also vary based upon individual considerations. Registration assistance will be provided by academic advisors.

Fall Semester - Year 1	
ENC 1101 Composition I	3
MAC 2281 Engineering Calculus I	4
CHS 2440 Chemistry for Engineers	3
CHS 2440L Chemistry for Engineers Lab	1
EGN 3000 Foundations of Engineering	1
FKL Humanities Elective	3
Total	15

Spring Semester - Year 1	
ENC 1102 Composition II	3
MAC 2282 Engineering Calculus II	4
PHY 2048 General Physics I	3
PHY 2048L General Physics I Lab	1
FKL Fine Arts Elective	3
Total	14

Fall Semester - Year 2	
MAC 2283 Engineering Calculus III	4
PHY 2049 General Physics II	3
PHY 2049L General Physics II Lab	1
EGN 3311 Statics	3
FKL Social & Behavioral Science Elective	3
Total	14

Spring Semester - Year 2	
EGN 3321 Dynamics	3
EGN 3365 Materials Engineering I	3
EGN 3373 Electrical Systems I	3
EML 3035 Programming Concepts for ME	1
EGN 3433 Modeling & Analysis of Engineering Systems or MAP 2302 Differential Equations	3
FKL Social & Behavioral Science Elective	3
Total	16

Summer Term	
EGN 3343 Thermodynamics I	3
EGN 3443 Probability & Statistics for Engineers	3
EML 3500 Mechanics of Solids	3
EML 3022 Computer Aided Engineering (CAD)	3
Total	12

Fall Semester – Year 3	
EML 3041 Computational Methods	3
EML 3701 Fluid Systems	3
EML 3262 Kinematics and Dynamics of Machinery	3
EML 4325 Mechanical Manufacturing Processes	3
ENC 3246 Communication for Engineers (6A WI)	3
Total	15

Spring Semester - Year 3	
EML 4501 Machine Design	3
EML 3303 Mechanical Engineering Lab I	3
EML 4124 Heat Transfer	3
Approved Technical/Design/Science Elective	3
FKL Human/Diversity & Global Elective	3
Total	15

Fall Semester - Year 4	
EML 4106C Thermal Systems	3
EML 4302 Mechanical Engineering Lab II	3
EML 4220 Vibrations	3
Approved Technical/Design/Science Elective	3
FKL Humanities Elective	3
Total	15

Spring Semester - Year 4	
EML 4312 Mechanical Controls	3
EML 4551 Capstone Design (CD)	3
Approved Technical/Design/Science Elective	3
Approved Technical/Design/Science Elective	3
Total	12

A grade of C- is the minimum for engineering courses but a minimum 2.0 GPA in the following categories must be maintained at all times: Overall, USF, Math/Science, Engineering and Specialization.

Gordon Rule (6A) is fully met through the mathematics courses above, ENC 1101, ENC 1102, ENC 3246 and by selecting one technical or general education elective that is an approved 6A communication course. Gordon Rule communication requirement is met for any student entering USF with 60 or more hours.

Exit Requirements: Exit requirements must be taken at USF. The Capstone Design (CD) and Writing Intensive (WI) exit requirements are met through ENC 3246 and EML 4551.

Course sequence: Courses in bold should be taken in sequence as early as possible in preparation for your major. Foundation of Knowledge & Learning (FKL) courses may be taken in any order.