

Cover Sheet: Request 14619

Chemical Engineering

Info

Process	Major Curriculum Modify Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Cynthia Sain csain@che.ufl.edu
Created	1/15/2020 3:44:14 PM
Updated	2/19/2020 9:08:48 AM
Description of request	Add STA 2023 as an option for STA 3032.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	ENG - Chemical Engineering 011903000	Carlos Rinaldi		1/15/2020
S20 BSChE Model Semester Plan - STA Equivalency.docx					1/15/2020
College	Approved	ENG - College of Engineering	Heidi Dublin	Approved by the HWCOE Curriculum Committee and the Faculty Council.	2/11/2020
No document changes					
Associate Provost for Undergraduate Affairs	Approved	PV - APUG Review	Casey Griffith		2/19/2020
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			2/19/2020
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
Academic Assessment Committee Notified					
No document changes					
College Notified					
No document changes					

Major|Modify_Curriculum for request 14619

Info

Request: Chemical Engineering

Description of request: Add STA 2023 as an option for STA 3032.

Submitter: Cynthia Sain csain@che.ufl.edu

Created: 1/30/2020 10:13:31 AM

Form version: 2

Responses

Major Name Bachelor of Science in Chemical Engineering

Major Code ECH

Degree Program Name Chemical Engineering

Undergraduate Innovation Academy Program No

Effective Term Earliest Available

Effective Year Earliest Available

Current Curriculum for Major Plan of Study Grid

Semester One Credits

ABE 2062

or BSC 2010

Biology for Engineers

or Integrated Principles of Biology 1 3

CHM 2045

or CHM 2095

General Chemistry 1 (Critical Tracking; State Core Gen Ed Physical Sciences)

or Chemistry for Engineers 1 3

CHM 2045L

General Chemistry 1 Laboratory (Gen Ed Physical Sciences) 1

IDS 1161

What is the Good Life (Gen Ed Humanities) 3

MAC 2311

Analytic Geometry and Calculus 1 (Critical Tracking; State Core Gen Ed Mathematics)

4

State Core Gen Ed Humanities 2

3

Credits 17

Semester Two

Select one: 3

CHM 2046

General Chemistry 2 (Critical Tracking; State Core Gen Ed Biological and Physical Sciences)

CHM 2096

Chemistry for Engineers 2 (Critical Tracking; State Core Gen Ed Biological and Physical Sciences)

CHM 2046L

General Chemistry 2 Laboratory (Gen Ed Physical Sciences) 1

ENC 1101

Expository and Argumentative Writing (State Core Gen Ed Composition)

3

MAC 2312

Analytic Geometry and Calculus 2 (Critical Tracking; Gen Ed Mathematics) 4

PHY 2048

Physics with Calculus 1 (Critical Tracking; Gen Ed Physical Sciences) 3

PHY 2048L

Laboratory for Physics with Calculus 1 (Gen Ed Physical Sciences) 1

State Core Gen Ed Social and Behavioral Sciences 2

3

Credits 18

Semester Three

ECH 3023
Material and Energy Balances 1 4

ECH 4934
Professional Seminar 1

MAC 2313
Analytic Geometry and Calculus 3 (Critical Tracking) 4

MAP 2302
Elementary Differential Equations (Critical Tracking) 3

PHY 2049
Physics with Calculus 2 (Critical Tracking; Gen Ed Physical Sciences) 3

PHY 2049L
Laboratory for Physics with Calculus 2 (Gen Ed Physical Sciences) 1

Credits 16

Semester Four

CHM 4411
or PHY 3513
Physical Chemistry: Thermodynamics and Kinetics 5
or Thermal Physics 1 3-4

COT 3502
Computer Model Formulation 1 4

ECH 3264
Elementary Transport Phenomena 1 3

STA 3032
Engineering Statistics 3
Technical elective 3

Credits 16-17

Semester Five

CHM 2210
Organic Chemistry 1 3

ECH 3101
Process Thermodynamics 1 3

ECH 3203
Fluid and Solid Operations 1 3

ECH 3223
Energy Transfer Operations 1 3

ENC 3246
Professional Communication for Engineers (Gen Ed Composition) 3

Credits 15

Semester Six

CHM 2211
& 2211L
Organic Chemistry 2
and Organic Chemistry Laboratory 5

ECH 4123
Phase and Chemical Equilibria 3

ECH 4224L
Fluid and Energy Transfer Operations Laboratory 3 2

ECH 4403
Separation and Mass Transfer Operations 3

ECH 4714
Chemical Process Safety 3

Credits 16

Semester Seven

CGN 3710
or EEL 3003
Experimentation and Instrumentation in Civil Engineering
or Elements of Electrical Engineering 3

ECH 4404L
Separation and Mass Transfer Operations Laboratory 2

ECH 4504

Chemical Kinetics and Reactor Design 4
 ECH 4604
 Process Economics and Optimization 3
 ECH 4824
 Materials of Chemical Engineering 2
 Technical elective 3
 Credits 17
 Semester Eight
 ECH 4323
 & 4323L
 Process Control Theory
 and Chemical Engineering Laboratory 54
 ECH 4644
 Process Design 4 3
 State Core Gen Ed Social and Behavioral Sciences 2
 3
 Chemical engineering technical elective 3
 Technical elective 3
 Credits 16
 Total Credits 131

1 Minimum grade of C required.

2 Students are also expected to complete the general education international (GE-N) and diversity (GE-D) requirements. This is often done concurrently with another general education requirement (typically, GE-C, H or S).

3 Register for ECH 4224L immediately following completion of ECH 3101, ECH 3203 and ECH 3223.

4 The Integrated Product and Process Design program (ECH 4912 and ECH 4913) requires six credits of coursework and is offered as a sequence of two three-credit courses during fall and spring of the senior year. These two courses are pre-approved substitutes for three credits of technical electives and for ECH 4644.

5 If the Physical Chemistry Topics 3 credit requirement is satisfied by a 4 credit class, the additional credit satisfies 1 credit of the Technical elective requirement. Most students will have credit for research or industry experiential education during the previous summer.

Technical Electives

Technical electives are defined as department-approved, upper-division courses with significant technical science, engineering, and/or math content. Provision is made to receive up to five credits of approved co-op, internship and/or research experience with no more than three credits coming from industry work and no more than three coming from academic research. Military courses cannot be used for technical electives.

Proposed Curriculum Changes • Approve STA 2023 as an equivalency to STA 3032.

UF Online Curriculum Change No

Pedagogical Rationale/Justification STA3032 Engineering Statistics enrollment fills each term. As a pre-requisite, inability to enroll in the class delays student from taking major courses as scheduled. This delays graduation.

• The main difference between the two courses is coverage of continuous random variables. STA2023 Intro to Statistics is more applied, and several undergraduate program committee members believe it is the better choice for our students.

STA3032 - Engineering Statistics: The basic concepts in probability and statistics with engineering applications. Topics include probability, discrete and continuous random variables, estimation, hypothesis testing, and linear and multiple regression. (M) Prereq: MAC 2311. STA2023 - Introduction to Statistics 1: Graphical and numerical descriptive measures. Simple linear regression. Basic probability concepts, random variables, sampling distributions, central limit theorem. Large and small sample confidence intervals and significance tests for parameters associated with a single population and for comparison of two populations. Use of statistical computer software and computer applets to analyze data and explore new concepts. (M). STA2023 - Introduction to Statistics 1: Graphical and numerical descriptive measures. Simple linear regression. Basic probability concepts, random

variables, sampling distributions, central limit theorem. Large and small sample confidence intervals and significance tests for parameters associated with a single population and for comparison of two populations. Use of statistical computer software and computer applets to analyze data and explore new concepts. (M)

Impact on Enrollment, Retention, Graduation STA3032 enrollment fills each term. As a pre-requisite, inability to enroll in the class delays student from taking major courses as scheduled. This delays graduation.

Assessment Data Review Outcome (6): An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw appropriate conclusions.

Academic Learning Compact and Academic Assessment Plan No modifications.

Catalog Copy Yes

- [Overview](#)
- [Critical Tracking](#)
- [Model Semester Plan](#)
- [Academic Learning Compact](#)

To remain on track, students must complete the appropriate critical-tracking courses, which appear in bold. These courses must be completed by the terms as listed above in the Critical Tracking criteria.

This semester plan represents an example progression through the major. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

Plan of Study Grid		
	Semester One	Credits
ABE 2062 or BSC 2010	Biology for Engineers or Integrated Principles of Biology 1 General Chemistry 1 (Critical Tracking ; State Core Gen Ed Physical Sciences)	3
CHM 2045 or CHM 2095	or Chemistry for Engineers 1 General Chemistry 1 Laboratory (Gen Ed Physical Sciences)	3
CHM 2045L	What is the Good Life (Gen Ed Humanities)	1
IDS 1161	Analytic Geometry and Calculus 1 (Critical Tracking ; State Core Gen Ed Mathematics)	3
MAC 2311		4
State Core Gen Ed Humanities 2		3
	Credits	17
	Semester Two	
Select one:	General Chemistry 2 (Critical Tracking ; State Core Gen Ed Biological and Physical Sciences)	3
CHM 2046	Chemistry for Engineers 2 (Critical Tracking ; State Core Gen Ed Biological and Physical Sciences)	
CHM 2096	General Chemistry 2 Laboratory (Gen Ed Physical Sciences)	1
CHM 2046L	Expository and Argumentative Writing (State Core Gen Ed Composition)	3
ENC 1101	Analytic Geometry and Calculus 2 (Critical Tracking ; Gen Ed Mathematics)	4
MAC 2312	Physics with Calculus 1 (Critical Tracking ; Gen Ed Physical Sciences)	3
PHY 2048	Laboratory for Physics with Calculus 1 (Gen Ed Physical Sciences)	1
PHY 2048L		
State Core Gen Ed Social and Behavioral Sciences 2		3
	Credits	18
	Semester Three	
ECH 3023	Material and Energy Balances 1	4
ECH 4934	Professional Seminar	1
MAC 2313	Analytic Geometry and Calculus 3 (Critical Tracking)	4
MAP 2302	Elementary Differential Equations (Critical Tracking)	3
PHY 2049	Physics with Calculus 2 (Critical Tracking ; Gen Ed Physical Sciences)	3
PHY 2049L	Laboratory for Physics with Calculus 2 (Gen Ed Physical Sciences)	1
	Credits	16
	Semester Four	

CHM 4411 or PHY 3513	Physical Chemistry: Thermodynamics and Kinetics 5	3-4
COT 3502	or Thermal Physics 1 Computer Model Formulation 1	4
ECH 3264	Elementary Transport Phenomena 1	3
STA 3032 Or STA 2023 Technical elective	Engineering Statistics Or Introduction to Statistics 1	3
	Credits	3
	Semester Five	16-17
CHM 2210	Organic Chemistry 1	3
ECH 3101	Process Thermodynamics 1	3
ECH 3203	Fluid and Solid Operations 1	3
ECH 3223	Energy Transfer Operations 1	3
ENC 3246	Professional Communication for Engineers (Gen Ed Composition) Credits	3 15
CHM 2211	Semester Six Organic Chemistry 2	5
†& 2211L ECH 4123	†and Organic Chemistry Laboratory Phase and Chemical Equilibria	3
ECH 4224L	Fluid and Energy Transfer Operations Laboratory 3	2
ECH 4403	Separation and Mass Transfer Operations	3
ECH 4714	Chemical Process Safety Credits	3 16
CGN 3710 or EEL 3003	Semester Seven Experimentation and Instrumentation in Civil Engineering	3
ECH 4404L	or Elements of Electrical Engineering Separation and Mass Transfer Operations Laboratory	2
ECH 4504	Chemical Kinetics and Reactor Design	4
ECH 4604	Process Economics and Optimization	3
ECH 4824	Materials of Chemical Engineering	2
Technical elective		3
	Credits	17
ECH 4323	Semester Eight Process Control Theory	4
†& 4323L	†and Chemical Engineering Laboratory 5 Process Design	4
ECH 4644	4	3
State Core Gen Ed Social and Behavioral Sciences		3
	2	
Chemical engineering technical elective		3
Technical elective		3
	Credits	16
	Total Credits	131
1		
2	Minimum grade of C required.	

Students are also expected to complete the general education international (GE-N) and diversity (GE-D) requirements. This is often done concurrently with another general

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education requirement (typically, GE-C, H or S).

3

Register for [ECH 4224L](#) immediately following completion of [ECH 3101](#) , [ECH 3203](#) and [ECH 3223](#) .

4

The Integrated Product and Process Design program ([ECH 4912](#) and [ECH 4913](#)) requires six credits of coursework and is offered as a sequence of two three-credit courses during fall and spring of the senior year. These two courses are pre-approved substitutes for three credits of technical electives and for [ECH 4644](#) .

5

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