

Cover Sheet: Request 14572

Civil Engineering BS Curriculum Change 2020

Info

Process	Major Curriculum Modify Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Robert Thieke robert.thieke@essie.ufl.edu
Created	12/23/2019 12:16:44 PM
Updated	2/19/2020 9:02:09 AM
Description of request	The following changes are proposed to the CE BS Curriculum: 1) Add EGN 2020C to Semester 1 2) Remove CGN 2002 from Semester 1 3) Remove PHY 2049L from Semester 3

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	ENG - Civil and Coastal Engineering 011904000	Robert Thieke	Approved	12/23/2019
Civil Engineering BS Curriculum Change 2020 - General.docx					12/23/2019
Civil Engineering BS Curriculum Change 2020 - Add EGN 2020C - Track Changes.docx					12/23/2019
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 14572

Info

Request: Civil Engineering BS Curriculum Change 2020

Description of request: The following changes are proposed to the CE BS Curriculum:

- 1) Add EGN 2020C to Semester 1
- 2) Remove CGN 2002 from Semester 1
- 3) Remove PHY 2049L from Semester 3

Submitter: Robert Thieke robert.thieke@essie.ufl.edu

Created: 12/23/2019 12:06:24 PM

Form version: 1

Responses

Major Name Civil Engineering

Major Code CVE

Degree Program Name BS in Civil Engineering

Undergraduate Innovation Academy Program No

Effective Term Fall

Effective Year 2020

Current Curriculum for Major

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

CGN 2002 Introduction to Civil Engineering 1

Select one: 3

CHM 2045

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

CHM 2095

Chemistry for Engineers 1 (Critical Tracking; Gen Ed Physical Sciences)

CHM 2045L General Chemistry 1 Laboratory (Gen Ed Physical Sciences) 1

ENC 1101 Expository and Argumentative Writing (State Core Gen Ed Composition; Writing

Requirement: 6,000 words) 1 3

IDS 1161 What is the Good Life (Gen Ed Humanities) 3

MAC 2311 Analytic Geometry and Calculus 1 (Critical Tracking; Gen Ed Mathematics) 1

4

Credits 15

Semester Two

ENC 3246 Professional Communication for Engineers (Gen Ed Composition; Writing

Requirement: 6,000 words) 1 3

MAC 2312 Analytic Geometry and Calculus 2 (Critical Tracking; State Core Gen Ed Mathematics)

1 4

PHY 2048 Physics with Calculus 1 (Critical Tracking; State Core Gen Ed Physical Sciences) 1

3

PHY 2048L Laboratory for Physics with Calculus 1 (Gen Ed Physical Sciences)

1

State Core Gen Ed Humanities 1 3

State Core Gen Ed Social and Behavioral Sciences 1 3

Credits 17

Semester Three

COP 2271 Computer Programming for Engineers 2
MAC 2313 Analytic Geometry and Calculus 3 (Critical Tracking; Gen Ed Mathematics) 1
4
PHY 2049 Physics with Calculus 2 (Critical Tracking; Gen Ed Physical Sciences) 1
3
PHY 2049L Laboratory for Physics with Calculus 2 1
STA 3032 Engineering Statistics 3
Gen Ed Social and Behavioral Sciences with International; Writing Requirement: 6,000 words
3
Credits 16

Semester Four

CGN 2328 Technical Drawing and Visualization 3
CGN 3710 Experimentation and Instrumentation in Civil Engineering 3
EGM 2511 Engineering Mechanics: Statics 1 3
MAP 2302 Elementary Differential Equations (Critical Tracking; Gen Ed Mathematics) 1
3
Science elective 3
Credits 15

Semester Five

CGN 3501C Civil Engineering Materials 4
CGN 4160 Civil Engineering Practice 1 3
CGN 3510 Introduction to Sustainable Engineering 3
EGM 3400 Elements of Dynamics 1 2
EGM 3520 Mechanics of Materials 1 3
Select one: 3
ARC 4310C
Building Information Modeling

ARC 4511
Structural Modeling

GIS 3072C
Geographic Information Systems

SUR 3103C
Geomatics

SWS 4720C
GIS in Soil and Water Science

URP 4273
Survey of Planning Information Systems

Credits 18

Semester Six

CEG 4011 Soil Mechanics 4
CES 3102 Mechanics of Engineering Structures 1 4
CWR 3201 Hydrodynamics 1 4
TTE 4004C Transportation Engineering 1 4
Credits 16

Semester Seven

CGN 3421 Computer Methods in Civil Engineering 3
EGS 4034 Engineering Ethics and Professionalism 1
Second-Level Core courses 9
Approved Technical elective 3

Credits 16
 Semester Eight
 Second-Level Core course 3
 CGN 4806
 or CGN 4910
 Transportation-Water-Materials Design
 or Structures-Geotechnical-Construction Comprehensive System Design
 3
 Approved Design elective 3
 Approved Technical electives 6
 Credits 15
 Total Credits 128

1

Minimum grade of C required.

Approved Electives

Science Electives

Course List

Code	Title	Credits
BSC 2010	Integrated Principles of Biology 1	3
EES 4103		
& EES 4102L	Applied Ecology	
	and Environmental Biology Laboratory	3
GEO 2242	Extreme Weather	3
GEO 3250	Climatology	3
GLY 2030C	Environmental and Engineering Geology	3
MET 3503	Weather and Forecasting	3

Second-Level Core Classes

Course List

Code	Title	Credits
CEG 4012	Geotechnical Engineering	3
CES 4702	Analysis and Design in Reinforced Concrete	3
CGN 4503	Pavement Design	3
CWR 4202	Hydraulics	3
EIN 3354	Engineering Economy	3

Technical Electives

Course List

Code	Title	Credits
CCE 4015	Civil Engineering Estimating	3
CCE 4204	Construction Equipment, Methods and Management	3
CCE 4811	Construction Engineering Design	3
CEG 4104	Retaining Wall and Embankment Design	3
CEG 4111	Foundation Engineering Design	3
CES 4141	Matrix Structural Analysis	3
CES 4605	Analysis and Design in Steel	3
CES 4704	Advanced Reinforced Concrete Design	3
CES 4608	Advanced Steel Design	3
CGN 4600	Public Works Engineering and Management Practices	3
CGN 4905	Special Problems in Civil Engineering (Building Codes and Professional Practice)	3
CWR 4114	Surface Hydrology	3
CWR 4120	Groundwater	3
CWR 4306	Urban Stormwater Systems Design	3
CWR 4542	Water Resources Engineering	3
ENV 4514C	Water and Wastewater Treatment	3
SUR 4463	Subdivision Design	3
TTE 4106	Urban Transportation Planning	3
TTE 4201	Traffic Engineering	3
TTE 4300	Transportation Systems Analysis	3

One technical class at 3000/4000 level from outside CE department in geology, environmental engineering, building construction/architecture or urban and regional planning (or other as approved by advisor) 3

Design Electives | Select at Least One

Course List

Code	Title	Credits
CCE 4811	Construction Engineering Design	3
CEG 4104	Retaining Wall and Embankment Design	3
CEG 4111	Foundation Engineering Design	3
CES 4605	Analysis and Design in Steel	3
CES 4704	Advanced Reinforced Concrete Design	3
CES 4608	Advanced Steel Design	3
CWR 4306	Urban Stormwater Systems Design	3
SUR 4463	Subdivision Design	3

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Proposed Curriculum Changes The following changes are proposed to the CE BS Curriculum:

- 1) Add EGN 2020C to Semester 1
- 2) Remove CGN 2002 from Semester 1
- 3) Remove PHY 2049L from Semester 3

UF Online Curriculum Change No

Pedagogical Rationale/Justification There will be no net change in credits - total credit hours in the program will remain at 128.

- 1) Add EGN 2020C to Semester 1 (+2 credits); The freshman design class will provide a key early applied connection to the design process and should aid in retention.
- 2) Remove CGN 2002 from Semester 1 (-1 credit); Material from this class will be covered via workshops tailored specifically for freshman admits and transfer students separately.
- 3) Remove PHY 2049L from Semester 3 (-1 credit); The minor loss of lab content in PHY 2049L is more than made up in our 3-credit laboratory course CGN 3710 (Experimentation and Instrumentation in Civil Engineering – 3 credits), which has extensive coverage of applied circuits in civil engineering applications.

Impact on Enrollment, Retention, Graduation No effect on students currently in the major. Will affect new students entering Fall 2020.

The hope is that a freshman design course will expose new engineering students to the excitement of the engineering design process while they are taking other less applied courses to meet math, chemistry physics and general education requirements in their first year. This should improve retention of students, particularly those who lose interest in the major as a result of the inability to see practical connections of their early classwork.

Assessment Data Review Data for change came from ESSIE Advisory Board feedback and from engineering education research provided by the UF Institute for Excellence in Engineering Education (now the Department of Engineering Education).

Academic Learning Compact and Academic Assessment Plan None - courses were not part of ALCs.

Catalog Copy Yes

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**

EGN 2020C	Engineering Design & Society	2
Select one:		3
CHM 2045	General Chemistry 1 (Critical Tracking ; Gen Ed Physical Sciences) 1	
CHM 2095	Chemistry for Engineers 1 (Critical Tracking ; Gen Ed Physical Sciences)	
CHM 2045L	General Chemistry 1 Laboratory (Gen Ed Physical Sciences)	1
ENC 1101	Expository and Argumentative Writing (State Core Gen Ed Composition ; Writing Requirement: 6,000 words) 1	3
IDS 1161	What is the Good Life (Gen Ed Humanities)	3
MAC 2311	Analytic Geometry and Calculus 1 (Critical Tracking ; Gen Ed Mathematics) 1	4
	Credits	16

Semester Two

ENC 3246	Professional Communication for Engineers (Gen Ed Composition; Writing Requirement: 6,000 words) 1	3
MAC 2312	Analytic Geometry and Calculus 2 (Critical Tracking ; State Core Gen Ed Mathematics) 1	4
PHY 2048	Physics with Calculus 1 (Critical Tracking ; State Core Gen Ed Physical Sciences) 1	3
PHY 2048L	Laboratory for Physics with Calculus 1 (Gen Ed Physical Sciences)	1
State Core Gen Ed Humanities	1	3
State Core Gen Ed Social and Behavioral Sciences	1	3
	Credits	17

Semester Three

COP 2271	Computer Programming for Engineers	2
MAC 2313	Analytic Geometry and Calculus 3 (Critical Tracking ; Gen Ed Mathematics) 1	4
PHY 2049	Physics with Calculus 2 (Critical Tracking ; Gen Ed Physical Sciences) 1	3

STA 3032	Engineering Statistics	3
Gen Ed Social and Behavioral Sciences with International; Writing Requirement: 6,000 words		3
	Credits	15
Semester Four		
CGN 2328	Technical Drawing and Visualization	3
CGN 3710	Experimentation and Instrumentation in Civil Engineering	3
EGM 2511	Engineering Mechanics: Statics 1	3
MAP 2302	Elementary Differential Equations (Critical Tracking ; Gen Ed Mathematics) 1	3
Science elective		3
	Credits	15
Semester Five		
CGN 3501C	Civil Engineering Materials	4
CGN 4160	Civil Engineering Practice 1	3
CGN 3510	Introduction to Sustainable Engineering	3
EGM 3400	Elements of Dynamics 1	2
EGM 3520	Mechanics of Materials 1	3
Select one:		3
ARC 4310C	Building Information Modeling	
ARC 4511	Structural Modeling	
GIS 3072C	Geographic Information Systems	
SUR 3103C	Geomatics	
SWS 4720C	GIS in Soil and Water Science	
URP 4273	Survey of Planning Information Systems	
	Credits	18
Semester Six		
CEG 4011	Soil Mechanics	4
CES 3102	Mechanics of Engineering Structures 1	4
CWR 3201	Hydrodynamics 1	4
TTE 4004C	Transportation Engineering 1	4
	Credits	16
Semester Seven		
CGN 3421	Computer Methods in Civil Engineering	3
EGS 4034	Engineering Ethics and Professionalism	1

Second-Level Core courses	9
Approved Technical elective	3
Credits	16

Semester Eight

Second-Level Core course	3
CGN 4806	Transportation-Water-Materials Design
or CGN 4910	or Structures-Geotechnical-Construction Comprehensive System Design
Approved Design elective	3
Approved Technical electives	6
Credits	15
Total Credits	128

1

Minimum grade of C required.

Approved Electives

Science Electives

Course List

Code	Title	Credits
BSC 2010	Integrated Principles of Biology 1	3
EES 4103	Applied Ecology	3
EES 4102L	and Environmental Biology Laboratory	3
GEO 2242	Extreme Weather	3
GEO 3250	Climatology	3
GLY 2030C	Environmental and Engineering Geology	3
MET 3503	Weather and Forecasting	3

Second-Level Core Classes

Course List

Code	Title	Credits
CEG 4012	Geotechnical Engineering	3
CES 4702	Analysis and Design in Reinforced Concrete	3
CGN 4503	Pavement Design	3
CWR 4202	Hydraulics	3
EIN 3354	Engineering Economy	3

Technical Electives

Course List

Code	Title	Credits
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CCE 4204	Construction Equipment, Methods and Management	3
CCE 4811	Construction Engineering Design	3
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CEG 4111	Foundation Engineering Design	3

CES 4141	Matrix Structural Analysis	3
CES 4605	Analysis and Design in Steel	3
CES 4704	Advanced Reinforced Concrete Design	3
CES 4608	Advanced Steel Design	3
CGN 4600	Public Works Engineering and Management Practices	3
CWR 4114	Surface Hydrology	3
CWR 4120	Groundwater	3
CWR 4306	Urban Stormwater Systems Design	3
CWR 4542	Water Resources Engineering	3
ENV 4514C	Water and Wastewater Treatment	3
SUR 4463	Subdivision Design	3
TTE 4106	Urban Transportation Planning	3
TTE 4201	Traffic Engineering	3
TTE 4300	Transportation Systems Analysis	3

One technical class at 3000/4000 level from outside CE department in geology, environmental engineering, building construction/architecture or urban and regional planning (or other as approved by advisor) 3

Design Electives | Select at Least One

Course List

Code	Title	Credits
CCE 4811	Construction Engineering Design	3
CEG 4104	Retaining Wall and Embankment Design	3
CEG 4111	Foundation Engineering Design	3
CES 4605	Analysis and Design in Steel	3
CES 4704	Advanced Reinforced Concrete Design	3
CES 4608	Advanced Steel Design	3
CWR 4306	Urban Stormwater Systems Design	3
SUR 4463	Subdivision Design	3

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Civil Engineering BS Curriculum Change 2020:

Add EGN 2020C (Engineering Design & Society) to Degree Requirements

The following changes are proposed to the CE BS Curriculum:

- 1) Add EGN 2020C to Semester 1 (+2 credits); The freshman design class will provide a key early applied connection to the design process and should aid in retention.

- 2) Remove CGN 2002 from Semester 1 (-1 credit); Material from this class will be covered via workshops tailored specifically for freshman admits and transfer students separately.

- 3) Remove PHY 2049L from Semester 3 (-1 credit); The minor loss of lab content in PHY 2049L is more than made up in our 3-credit laboratory course CGN 3710 (Experimentation and Instrumentation in Civil Engineering – 3 credits), which has extensive coverage of applied circuits in civil engineering applications.

The attached document outlines the catalog changes and also includes one editorial change under the CE Technical electives: delete CGN 4905 “Building Codes and Professional Practice” since this class is no longer taught.