Cover Sheet: Request 12083

BS Civil Engineering Curriculum Change 131 to 128 credits

Info

Process	Degree|Change Credits|Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Robert Thieke robert.thieke@essie.ufl.edu
Created	11/21/2017 10:42:26 AM
Updated	1/25/2018 4:06:47 PM
Description of request	Reduction of total required credit hours from 131 to 128 for Bachelor of Science in Civil Engineering

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	ENG - Civil and Coastal Engineering 011904000	Robert Thieke		11/21/2017
Civil Engineering Model Semester Plan 131 to 128 credits.docx					11/21/2017
College	Conditionall Approved	ENG - College of Engineering	Heidi Dublin	Per Curriculum Committee Meeting, please add side by side comparison and resubmit.	11/29/2017
No document changes					
Department	Approved	ENG - Civil and Coastal Engineering 011904000	Robert Thieke	Side by side comparison of existing 131 hour curriculum required CE courses and proposed 128 hour curriculum required CE courses uploaded (changes highlighted in yellow).	11/29/2017
CE Curriculum 2017 - 128 Hour Comparison.pdf					11/29/2017
College	Approved	ENG - College of Engineering	Heidi Dublin		1/5/2018
No document changes					
University Curriculum Committee	Recycled	PV - University Curriculum Committee (UCC)	Casey Griffith	Recycled at request of H. Dublin	1/5/2018
No document changes					
College	Approved	ENG - College of Engineering	Heidi Dublin	Approved by HWCOE Curriculum COmmittee and Faculty Council	1/25/2018
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			1/25/2018
No document changes					
Faculty Senate Steering Committee					
No document changes					
Faculty Senate					
No document changes					

Step	Status	Group	User	Comment	Updated
Academic Affairs					
No document changes					
Board of Trustees					
No document changes					
Board of Governors					
No document changes					
Academic Affairs Notified					
No document changes					
Office of the Registrar					
No document changes					
OIPR Notified					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Degree|Change_Credits for request 12083

Info

Request: BS Civil Engineering Curriculum Change 131 to 128 credits
Description of request: Reduction of total required credit hours from 131 to 128 for Bachelor of Science in Civil Engineering
Submitter: Robert Thieke robert.thieke@essie.ufl.edu
Created: 11/21/2017 9:56:13 AM
Form version: 1

Responses

Degree Name Bachelor of Science in Civil Engineering
CIP Code 14.0801
Current Total Credits 131
Proposed Total Credits 128
Effective Term Fall
Effective Year 2018
Pedagogical Rationale/Justification The 4-year graduation rate from the BS program in Civil Engineering has historically been lower than the college mean; the reduction in total credit hours from 131 to 128 permits graduation in 8 semesters of 16 credits each. ABET Civil Engineering program criteria for national engineering accreditation require Civil Engineering students to cover 4 major areas of Civil Engineering specialization; this is still accommodated in the program design, as all students take 1 course in 5 different specialty areas and a second course in 4 of the 5 specialties.
Impact on Initial Enrollment/Retention/Graduation The goal is to improve the 4-year graduation rate of Civil Engineering BS students. The total 128 credit hours permits graduation in 8 semesters of 16 credits each, which will aid in improving the 4-year graduation rate. Additionally, by brining the total number of credits in line with the other bachelor's degree programs in the Herbert Wertheim College of Engineering, the program will be more attractive to entering freshman, as the additional credit hours will no longer provide an extra obstacle.
Assessment Data Review Feedback from students via student exit surveys and input from professional advisory board indicated that the program specializations were uneven (heavier emphasis on water resources and less on transportation). The proposed change balances this by moving ENV 4514C to elective status and elevating CGN 4503 to primary course status. Additionally, the 4-graduation rate from the BS in Civil Engineering has historically been lower than the college mean; the reorganization of primary courses into two levels with only 4 or 5 courses required at the second level reduces the total credit hours from 131 to 128 while still meeting the ABET Civil Engineering program criteria for accreditation.
Academic Learning Compact and Academic Assessment Plan None; change of course ENV 4514C to elective status was not part of ALC or academic assessments.

PROPOSAL TO REDUCE CURRICULUM TO 128 CREDIT HOURS

- Move ENV 4514C to elective status
- Reorganize CE Core Classes (currently 53 credits) into two tiers (50 credits)
- Add transportation-related class CGN 4503 Pavement Design to second tier
- Reduce CGN 3421 Computer Methods in Civil Engineering from 4 credits to 3 credits
- Reduce CGN 4160 Civil Engineering Practice from 4 credits to 3 credits
- Add COP 2271 Computer Programming for Engineers as required class (2 credits)
- Advanced electives remain unchanged (at 15 credits total):

Current Arrangement:

Required Civil Engineering Courses (53 credits)

General:

CGN 3421	(4)	Computer Methods in CE
CGN 3710	(3)	Experimentation
CGN 2328	(3)	Technical Drawing (AutoCAD)
CGN 3501C	(4)	CE Materials
EGS 4034	(1)	Professional Ethics

Construction:

CGN 4160	(4)	Civil Engineering Practice (≥3EG)
EIN 4354	(3)	Engineering Economy

Geotechnical:

CEG 4011	(4)	Soil Mechanics
CEG 4012	(3)	Geotechnical Engineering

Hydraulics and Water Resources:

CWR 3201	(4)	Hydrodynamics
CWR 4202	(3)	Hydraulics
ENV 4514C	(3)	Water and Wastewater Treatment *(moved to elective status)*

Structures:

CES 3102	(4)	Structural Analysis
CES 4702	(3)	Reinforced Concrete

Transportation:

TTE 4004C	(4)	Transportation Engineering
Choose one:	(3)	SUR 3103C Geomatics; or
	(3)	URP 4273 Planning Info. Sys.; or
	(3)	SWS 4720C GIS in Soil & Water
	(3)	GIS 3072C Geo. Info. Sys.

Proposed Arrangement:

Required Civil Engineering Courses (50 credits)

General (16 credits):

CGN 3421	(3)	Computer Methods in CE
CGN 3710	(3)	Experimentation & Instrumentation
CGN 2328	(3)	Technical Drawing (AutoCAD)
COP 2271	(2)	Computer Prog. for Engineers (added)
CGN 3501C	(4)	CE Materials
EGS 4034	(1)	Professional Ethics (≥3EG)

Additional Spatial Information/Technology Course (3 credits)
Choose One:

SUR 3103C	(3)	Geomatics; or
URP 4273	(3)	Survey of Plan. Info. Systems; or
SWS 4720C	(3)	GIS in Soil & Water Science; or
GIS 3072C	(3)	Geographic Information Systems

Primary Tier Courses – Core Areas (19 credits):

Construction:	CGN 4160	(3)	Civil Engineering Practice
Geotechnical:	CEG 4011	(4)	Soil Mechanics
Water:	CWR 3201	(4)	Hydrodynamics
Structures:	CES 3102	(4)	Structural Analysis
Transportation:	TTE 4004C	(4)	Transportation Engineering

Secondary Tier Courses – Additional Depth (12 Credits) - Choose 4 of 5:

EIN 4354	(3)	Engineering Economy
CEG 4012	(3)	Geotechnical Engineering
CWR 4202	(3)	Hydraulics
CES 4702	(3)	Reinforced Concrete
CGN 4503	(3)	Pavement Design

Model Semester Plan

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.

Semester 1	Credits
CGN2002 Introduction to Civil Engineering	1
CHM 2045 General Chemistry 1 *(Minimum grade of C required) or* **CHM 2095 Chemistry for Engineers 1** *GE-P*	**3**
CHM 2045L General Chemistry 1 Laboratory *GE-P*	1
ENC 1101 Expository and Argumentative Writing *State Core GE-C; E6; minimum grade of C required*	3
IUF 1000 What is the Good Life *GE-H; minimum grade of C required*	3
MAC 2311 Analytic Geometry and Calculus 1 *GE-M; minimum grade of C required*	**4**
Total	15

Semester 2	Credits

ENC 3246 Professional Communication for Engineers *GE-C; E6; minimum grade of C required*	3
MAC 2312 Analytic Geometry and Calculus 2 *State Core GE-M; minimum grade of C required*	**4**
PHY 2048 Physics with Calculus 1 *State Core GE-P; minimum grade of C required*	**3**
PHY 2048L Physics with Calculus 1 Laboratory *GE-P*	1
Humanities *State Core GE-H; minimum grade of C required*	3
Social and Behavioral Sciences *State Core GE-S; minimum grade of C required*	3
	Total 17

Semester 3	Credits
~~CGN3510 Introduction to Sustainable Engineering~~COP 2271 Computer Programming for Engineers	~~3~~ 2
~~EGS 4034 Professional Ethics~~	~~1~~
MAC 2313 Analytic Geometry and Calculus 3 *GE-M; minimum grade of C required*	**4**
PHY 2049 Physics with Calculus 2 *GE-P; minimum grade of C required*	**3**

PHY 2049L Laboratory for Physics with Calculus 2	1
STA 3032 Engineering Statistics	3
Social and Behavioral Sciences *GE-S, N; E6*	3
	Total ~~18~~16

Semester 4	**Credits**
CGN 2328 Technical Drawing and Visualization	3
CGN 3710 Experimentation and Instrumentation in Civil Engineering	3
~~CGN 4101 Civil Engineering Cost Analysis *or* EIN 4354 Engineering Economy~~	~~3~~
EGM 2511 Engineering Mechanics: Statics *Minimum grade of C required*	3
MAP 2302 Elementary Differential Equations *GE-M; minimum grade of C required*	**3**
Science elective	3
	Total ~~18~~15

Semester 5	**Credits**

CGN 3421 Computer Methods in Civil Engineering	~~4~~ 3
CGN 4160 Civil Engineering Practice	~~4~~3
CGN 3510 Introduction to Sustainable Engineering	3
EGM 3400 Elements of Dynamics *Minimum grade of C required*	2
EGM 3520 Mechanics of Materials *Minimum grade of C required*	3
GIS 3072C Geographic Information Systems *or* SUR 3103C Geomatics *or* SWS 4720C GIS in Soil and Water Science *or* URP 4273 Survey of Planning Information Systems	3
Total	~~16~~17

Semester 6	**Credits**
CES 3012 Mechanics of Engineering Structures	4
CGN 3501C Civil Engineering Materials	4
CWR 3201 Hydrodynamics	4
TTE 400C Transportation Engineering	4

Total 16

Semester 7	Credits
CEG 4011 Soil Mechanics	4
~~CES 4702 Analysis and Design in Reinforced Concrete~~Second-Level Core Course (from list below)	3
Second-Level Core Course (from list below)~~CWR 4202 Hydraulics~~	3
Second-Level Core Course (from list below)~~ENV 4514C Water and Wastewater Treatment~~	3
Technical elective	3
EGS 4034 Professional Ethics	1

Total ~~16~~17

Semester 8	Credits
~~CEG 4012 Geotechnical Engineering~~Second-Level Core Course (from list below)	3
CGN 4806 Transportation-Water-Materials Design *or* CGN 4910 Structures-Geotech-Construction Design	3
Design Elective	3

Technical electives	6
Total	~~15~~15

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Science Electives

Courses	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

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Second-Level Core Classes

Courses	Credits

EIN 4354 Engineering Economy	3
CEG 4012 Geotechnical Engineering	3
CWR 4202 Hydraulics	3
CES 4702 Analysis and Design in Reinforced Concrete	3
CGN 4503 Pavement Design	3

Technical Electives

Courses	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 Stress Analysis	3

CES 4605 Analysis and Design in Steel	3
CES 4704 Advanced Reinforced Concrete Design	3
CES 4608 Advanced Steel Design	3
~~CGN 4503 Pavement Design~~	~~3~~
CGN 4600 Public Works Engineering	3
CGN 4905 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

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Design Electives

Choose at least one

Courses	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
~~CGN 4503 Pavement Design~~	~~3~~
CWR 4306 Urban Stormwater Design	3

SUR 4463 Subdivision Design	3

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Related Civil Engineering Programs

Combined Degree