

College of Engineering, Forestry, and Natural Sciences
Civil Engineering Bachelor of Science in Engineering

2014-2015 2013-2014 Undergraduate Catalog

Four Year Progression Plan

Sample Progression Plans are for planning purposes only; see the catalog for official details

Year 1 - Fall		
MAT 136	Calculus I	4
CHM 151	General Chemistry I	4
CHM 151L	General Chemistry I Lab	1
ENG 105	Critical Read/Writing In Univ	4
LIBST COURSE	Liberal Studies Course	3
NAU 100	Transition To College	1

Year 1 - Spring		
CENE 150	Intro To Environmtl Engineering	3
CENE 180	Computer Aided Drafting	2
EGR 156	Intro To Engineering Design	3
MAT 137	Calculus II	4
PHY 161	University Physics I	4

Year 2 - Fall		
CENE 225	Engineering Analysis	3
CENE 251	Applied Mechanics Statics	3
CENE 270	Surveying	3
MAT 238	Calculus III	4
PHY 262	University Physics II	3

Year 2 - Spring		
CENE 253	Mechanics Of Materials	3
CENE 253L	Mechanics Of Materials Lab	1
CENE 286	Case Design: The Process	3
ME 291	Thermodynamics I	3
MAT 239	Differential Equations	3
LIBST COURSE	Liberal Studies Course	3

Year 3 - Fall		
CENE 333	Water Resources I	3
CENE 376	Structural Analysis I	3
CENE 420	Traffic Study And Signal	3
ME 352	Applied Mechanics Dynamics	3
SCI ELECTIVE	Science Elective	3
Choose one of the options below:		
Option A		
PHI 105	Introduction To Ethics	3
Option B		
PHI 331	Environmental Ethics	3
Engineering program fee assessed		

Year 3 - Spring		
CENE 333L	Water Resources Lab	2
CENE 376	Water Resources II	3
CENE 383	Geotechnical Engineering I	3
CENE 383L	Geotechnical Engineering I Lab	1
CENE 386W	Engineering Design: The Methods	3
LS/DIV COURSE	Liberal Studies/Diversity Course	3
Engineering program fee assessed		

Year 4 - Fall		
CENE 401	Fo Exam Preparation	1
CENE 418	Highway Engineering	3
CENE 431	Municipal Engineering	3
CENE 438	Reinforced Concrete Design	3
CENE 450	Geotechnical Engineering II	3
CENE 476	Egr Design: Capstone Prep	1
TE COURSE	Technical Elective	3
Submit graduation application this term		
Engineering program fee assessed		

Year 4 - Spring		
CENE 486C	Engineering Design	3
TE COURSE	Technical Elective	3
TE COURSE	Technical Elective	3
LIBST COURSE	Liberal Studies Course	3
LS/DIV COURSE	Liberal Studies/Diversity Course	3
Engineering program fee assessed		

University Requirements Specified by Major	
Foundation Requirements: English (FNRO:ENG)	ENG 105 (4)
Foundation Requirements: Math (FNRO:MAT)	MAT 137 (4)
Aesthetic and Humanistic Inquiry (AHI)	PHI 105 (3)
Science/Applied Science (SAS/LAB)	PHY 161 (4), PHY 262 (3)
Liberal Studies Elective	MAT 136 (4)

① EGR 386W Engineering Design: The Methods (3)
 ② { CENE 476 & CENE 486C Egr Design: Cap Prep & Eng Design (1) & (3)
 C+ EGR 476C & EGR 486C Egr Design I & II (2) & (3)

PROGRAM INFORMATION

130 units are required for this degree. You may not have more than one grade of D in your engineering, mathematics, and science courses. All pre-requisites for any engineering course must be completed with grades of "C" or better.

* Take a Liberal Studies course that also satisfies a Diversity Requirement.

** Science electives include 3-4 units of: ~~BIO-181/181L~~, ~~CHM-152~~, ~~CHM-230~~, GLG-101/103; PHY 263;

*** Technical electives include 9 units from the following list. At least 6 units must have a CENE prefix.

- CENE 280, 330, 332, 335, 410, 434, 436, 437, 440, 457, 460, 462, 477, 485, 497, 499, 540, 541, 543, 545, 550, 551, 560, 562 and 568.
- Other non-CENE approved electives include: CM 329, 388, 391, 460, 499, EE 188; ME 340, 435, 450, 451, 454, 455, ^{CS 122}

Program Objectives:

Overarching learning goals are stated as Program Objectives; within three to five years of obtaining a bachelor's degree, a graduate is expected to achieve the following:

- Be employed in the engineering field or pursuing a formal academic program of study;
- Have a demonstrated commitment to life-long learning by participating in professional development activities;
- Be a registered professional engineer or be in the process of becoming a professional engineer;
- Demonstrate leadership through increasing responsibilities; and
- Engage in activities that benefit others outside of their employment.

Student Learning Outcomes:

Specific learning goals are stated as Student Learning Outcomes; upon graduation, students will have developed the following:

- An ability to apply knowledge of mathematics, science, and engineering;
- An ability to design and conduct experiments, as well as to analyze and interpret data;
- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;
- An ability to function on multidisciplinary teams;
- An ability to identify, formulate, and solve engineering problems;
- An understanding of professional and ethical responsibility;
- An ability to communicate effectively;
- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;
- A recognition of the need for, and an ability to engage in life-long learning;
- A knowledge of contemporary issues;
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Upon the successful completion of the Civil Engineering curricula, you will be proficient in the areas of:

- Structural engineering
- Water resources engineering
- Transportation engineering
- Geotechnical engineering

CONTACT INFORMATION

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College of Engineering, Forestry & Natural Sciences
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Engineering Programs
Building 69, Room 122
Phone: 928-523-5251
<http://nau.edu/cefns/engineering/civil-environmental/>
Department Chair: Bridget Bero
Phone: 928-523-2051
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** ~~PHO 181/181L~~, ~~PHO 182/182L~~, GLG 101/103, GLG 107, GLG 112/112L, GLG 115, & NV 230



NORTHERN ARIZONA UNIVERSITY

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Four Year Honors Plan

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Year 1 - Fall		
MAT 136	Calculus I	4
CHM 151	General Chemistry I	4
CHM 151L	General Chemistry I Lab	1
HON 190	Sem Critical Reading & Writing I	3
LIBST COURSE	Liberal Studies Course	3
HON 100	Introduction To Honors	1

Year 1 - Spring		
CENE 150	Intro To Environmental Engineering	3
CENE 180	Computer Aided Drafting	2
EGR 186	Intro To Engineering Design	3
MAT 137	Calculus II	4
PHY 161	University Physics I	4
HON 29X	Honors Topic Seminar 29X	3

Year 2 - Fall		
CENE 225	Engineering Analysis	3
CENE 251	Applied Mechanics Statics	3
CENE 270	Surveying	3
MAT 238	Calculus III	4
PHY 262	University Physics II	3

Year 2 - Spring		
CENE 253	Mechanics Of Materials	3
CENE 253L	Mechanics Of Materials Lab	1
CENE 286	Cene Design: The Process	3
ME 291	Thermodynamics I	3
MAT 239	Differential Equations	3
HON 39X	Honors Advanced Seminar 39X	3

Year 3 - Fall		
CENE 333	Water Resources I	3
CENE 376	Structural Analysis I	3
CENE 420	Traffic Study And Signal	3
ME 252	Applied Mechanics Dynamics	3
SCI ELECTIVE	Science Elective	3
Choose one of the options below		
Option: A		
PHI 105	Introduction To Ethics	3
Option: B		
PHI 331	Environmental Ethics	3
Engineering program fee assessed.		

Year 3 - Spring		
CENE 333L	Water Resources Lab	2
CENE 336	Water Resources II	3
CENE 383	Geotechnical Engineering I	3
CENE 383L	Geotechnical Engineering I Lab	1
CENE 386W	Engineering Design: The Methods	3
LS/DIV COURSE	Liberal Studies Diversity Course	3
Engineering program fee assessed.		

Year 4 - Fall		
CENE 401	Fe Exam Preparation	1
CENE 418	Highway Engineering	3
CENE 431	Municipal Engineering	3
CENE 438	Reinforced Concrete Design	3
CENE 450	Geotechnical Engineering II	3
CENE 476	Egr Design: Capstone Prep	1
TE COURSE	Technical Elective	3
Submit graduation application this term.		
Engineering program fee assessed.		

Year 4 - Spring		
CENE 486C	Engineering Design	3
TE COURSE	Technical Elective	3
TE COURSE	Technical Elective	3
LIBST COURSE	Liberal Studies Course	3
LS/DIV COURSE	Liberal Studies Diversity Course	3
Engineering program fee assessed.		

University Requirements Specified by Major	
Foundation Requirements: Math (FNRO:MAT)	MAT 137 (4)
Aesthetic and Humanistic Inquiry (AHI)	PHI 105 (3)
Science/Applied Science (SAS/LAB)	PHY 161 (4), PHY 262 (3)
Liberal Studies Elective	MAT 136 (4)

① EGR 386 W Engineering Design: The Methods

(3)

University Honors Program

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Cowden Hall - (Bldg #38)
Email: Honors@nau.edu
Phone: 928-523-3334
Fax: 928-523-6558
<http://nau.edu/Honors>

College of Engineering, Forestry, and Natural Sciences

2112 S Huffer Ln
PO Box: 5621
Flagstaff AZ 86011

Engineering and Technology - (Bldg #69)
Email: cefnsacademic@nau.edu
Phone: 928-523-2408
Fax: 928-523-2300
<http://nau.edu/CEFNS/Welcome/>

② { CENE 476 & CENE 486C Egr Design: Cap Prep & Eng Design (1) $\frac{1}{3}$ (3)
or
EGR 476C & EGR 486C Egr Design I & II (2) $\frac{1}{3}$ (3)