

**UCC/UGC/ECCC**

Proposal for Plan Change or Plan Deletion

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| **FAST TRACK (Select if this will be a fast track item**. Refer to  [***Fast Track Policy***](http://www4.nau.edu/avpaa/UCCPolicy/Agenda_FastTrack_Consent.docx) for eligibility) |

***If this proposal represents changes to the intent of the plan or its integral components, review by the college dean, graduate dean (for graduate items) and/or the provost may be required prior to college curricular submission.***

***All Plans with NCATE designation, or plans seeking NCATE designation, must include an NCATE Accreditation Memo of Approval from the NAU NCATE administrator prior to college curricular submission.***

***UCC proposals must include an updated 8-term plan.***

***UGC proposals must include an updated program of study.***

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| 1. College: | **CEFNS** | | | 2. Academic Unit: | | | **Civil Engineering,** | |
|  | |  |  | | |  | | |
| 3. Academic      Plan Name: | | **Civil Engineering; B.S.E (CIEGRBSEX)** | | | 4. Emphasis: | | |  |

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| --- | --- | --- | --- | --- | --- |
| 5. Plan proposal: | | Plan Change | | Plan Deletion | |
|  | New        Emphasis | | Emphasis       Change | | Emphasis             Deletion |

|  |  |
| --- | --- |
| 6. Current student learning outcomes of the plan. If structured as plan/emphasis, include for **both c**ore and emphasis.  Our specific learning goals are stated as our 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 society 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. | Show the proposed changes in this column (if applicable). **Bold** the changes, to differentiate from what is not changing, and change font to **~~Bold Red with strikethrough~~**for what is being deleted. *(*[*Resources, Examples & Tools for Developing Effective Program Student Learning Outcomes*](http://www4.nau.edu/avpaa/Assessment/ProgramLearningOutcomesPDF_090712.pdf)*).*  **UNCHANGED** |

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| 7. Current catalog plan overview and requirements in this column. Cut and paste the *Overview* and *Details* tabs, in their entirety, from the current on-line academic catalog: (<http://catalog.nau.edu/Catalog/>) ***Civil Engineering; B.S.E.***  In addition to University Requirements:   * At least 57 units of preprofessional requirements * At least 53 units of major courses * Be aware that you may not use courses with a CENE prefix to satisfy liberal studies requirements * Elective courses, if needed, to reach an overall total of at least 130 units   Please note that you may be able to use some courses to meet more than one requirement. Contact your advisor for details.   | Minimum Units for Completion | 130 | | --- | --- | | Mathematics Required | [MAT 239](http://catalog.nau.edu/Courses/course?courseId=005224&catalogYear=1314) | | Additional Fees/Program Fees | Required | | University Honors Program | Optional | | Integrated Undergraduate/Graduate Plan | Optional | | Progression Plan | [View Progression Plan](http://catalog.nau.edu/ProgressionPlans/index.jsp?inst=NAU00&cat=1314#CIEGRBSEX) |   *Major Requirements*  Take the following 110 units:  Preprofessional Requirements (57 units)  Mathematics and Science courses (30 units)   * MAT 136\*, MAT 137\*, MAT 238\*, MAT 239 (15 units) * CHM 151\*, CHM 151L (5 units) * PHY 161\*, PHY 262\* (7 units) * Select from: (BIO 181 and BIO 181L), CHM 152, CHM 230, (GLG 101 and GLG 103), PHY 263 (3-4 units)   Engineering Science courses (24 units)   * EGR 186\* (3 units) * CENE 180\*, CENE 225\*, CENE 251\*, CENE 253\*, CENE 253L, CENE 286\* (15 units) * ME 252, ME 291 (6 units)   Additional requirements include:   * PHI 105 or PHI 331 (3 units)   Major Courses (53 units)   * CENE 150, CENE 270\*, CENE 333\*, CENE 333L, CENE 336\*, CENE 376\*, CENE 383\*, CENE 383L\*, CENE 401, CENE 418, CENE 420\*, CENE 431, CENE 438, CENE 450, CENE 476\* (38 units) * CENE 386W\* (3 units) * CENE 486C (3 units)   Select Technical coursework; including at least 6 units with CENE prefixes, from (9 units):   * CENE 280, CENE 330, CENE 332, CENE 335, CENE 410, CENE 434, CENE 436, CENE 437, CENE 440, CENE 457, CENE 460, CENE 462, CENE 477, CENE 485, CENE 497, CENE 499, CENE 540, CENE 541, CENE 543, CENE 545, CENE 550, CENE 551, CENE 560, CENE 562, CENE 568 * CM 329, CM 388, CM 391, CM 460, CM 499 * EE 188 * ME 340, ME 435, ME 450, ME 451, ME 454, ME 455   \*Prerequisities to Engineering coursework that must be completed with grades of "C" or better. In addition, ENG 105 must be completed with a grade of "C" or better.  If you wish to enhance your education in the area of environmental engineering, mechanical engineering, mathematics, or construction management, you can easily pursue a minor in each discipline with the addition of a small number of courses and by consulting with the respective disciplinary advisors.  *General Electives*  Additional coursework is required, if, after you have met the previously described requirements, you have not yet completed a total of 130-136 units of credit.  You may take these remaining courses from any academic areas, using these courses to pursue your specific interests and goals. We encourage you to consult with your advisor to select the courses that will be most advantageous to you. (Please note that you may also use prerequisites or transfer credits as electives if they weren't used to meet major, minor, or liberal studies requirements.)  *Additional Information*  You may not have more than one grade of "D" in your required engineering, mathematics, and science courses. In addition, all prerequisite courses for your engineering courses must be completed with grades of "C" or better.  Be aware that some courses may have prerequisites that you must also take. For prerequisite information click on the course or see your advisor.  *Integrated Undergraduate/Graduate Plan Option*  This program is available as an Integrated Undergraduate/Graduate Plan. Integrated Programs provide the opportunity for outstanding undergraduates working on their bachelor’s degree to simultaneously begin work on a master’s degree, allowing them to complete both degrees in an accelerated manner. Students must apply to the master’s program by the application deadline, and meet all requirements as listed on the Integrated Program website (insert link to integrated degree secondary page) to be considered for admission. Admission to programs is competitive. Many qualified applicants are denied because of limits on the number of students admitted each year. Be sure to speak with your advisor regarding your interest in Integrated Programs.    PROGRAM FEE INFORMATION  Program fees are established by the Arizona Board of Regents (ABOR). A program fee of $500 per year in students' Junior and Senior years has been approved for this program. | Show the proposed changes in this column.  **Bold** the changes, to differentiate from what is not changing, and change font to **~~Bold Red with strikethrough~~** for what is being deleted.  ***Civil Engineering; B.S.E.***  In addition to University Requirements:   * At least 57 units of preprofessional requirements * At least 53 units of major courses * Be aware that you may not use courses with a CENE prefix to satisfy liberal studies requirements * Elective courses, if needed, to reach an overall total of at least 130 units   Please note that you may be able to use some courses to meet more than one requirement. Contact your advisor for details.   | Minimum Units for Completion | 130 | | --- | --- | | Mathematics Required | [MAT 239](http://catalog.nau.edu/Courses/course?courseId=005224&catalogYear=1314) | | Additional Fees/Program Fees | Required | | University Honors Program | Optional | | Integrated Undergraduate/Graduate Plan | Optional | | Progression Plan | [View Progression Plan](http://catalog.nau.edu/ProgressionPlans/index.jsp?inst=NAU00&cat=1314#CIEGRBSEX) |   *Major Requirements*  Take the following 110 units:  Preprofessional Requirements (57 units)  Mathematics and Science courses (30 units)   * MAT 136\*, MAT 137\*, MAT 238\*, MAT 239 (15 units) * CHM 151\*, CHM 151L (5 units) * PHY 161\*, PHY 262\* (7 units) * Select from: (BIO 181 and BIO 181L**), (BIO 182 and BIO 182L)**, **~~CHM 152, CHM 230,~~** (GLG 101 and GLG 103), **GLG 107, (GLG 112 and GLG 112L), GLG 115, ENV 230** **~~PHY 263~~** (3-4 units)   Engineering Science courses (24 units)   * EGR 186\* (3 units) * CENE 180\*, CENE 225\*, CENE 251\*, CENE 253\*, CENE 253L, CENE 286\* (15 units) * ME 252, ME 291 (6 units)   Additional requirements include:   * PHI 105 or PHI 331 (3 units)   Major Courses (53 units)   * CENE 150, CENE 270\*, CENE 333\*, CENE 333L, CENE 336\*, CENE 376\*, CENE 383\*, CENE 383L\*, CENE 401, CENE 418, CENE 420\*, CENE 431, CENE 438, CENE 450, CENE 476\* (38 units) * **~~CENE 386W\*~~** **EGR 386W \*** (3 units) * CENE 486C (3 units)   Select Technical coursework; including at least 6 units with CENE prefixes, from (9 units):   * CENE 280, CENE 330, CENE 332, CENE 335, CENE 410, CENE 434, CENE 436, CENE 437, CENE 440, CENE 457, CENE 460, CENE 462, CENE 477, CENE 485, CENE 497, CENE 499, CENE 540, CENE 541, CENE 543, CENE 545, CENE 550, CENE 551, CENE 560, CENE 562, CENE 568 * CM 329, CM 388, CM 391, CM 460, CM 499 * **CS 122** * EE 188 * ME 340, ME 435, ME 450, ME 451, ME 454, ME 455   \*Prerequisities to Engineering coursework that must be completed with grades of "C" or better. In addition, ENG 105 must be completed with a grade of "C" or better.  If you wish to enhance your education in the area of environmental engineering, mechanical engineering, mathematics, or construction management, you can easily pursue a minor in each discipline with the addition of a small number of courses and by consulting with the respective disciplinary advisors.  *General Electives*  Additional coursework is required, if, after you have met the previously described requirements, you have not yet completed a total of 130-136 units of credit.  You may take these remaining courses from any academic areas, using these courses to pursue your specific interests and goals. We encourage you to consult with your advisor to select the courses that will be most advantageous to you. (Please note that you may also use prerequisites or transfer credits as electives if they weren't used to meet major, minor, or liberal studies requirements.)  *Additional Information*  You may not have more than one grade of "D" in your required engineering, mathematics, and science courses. In addition, all prerequisite courses for your engineering courses must be completed with grades of "C" or better.  Be aware that some courses may have prerequisites that you must also take. For prerequisite information click on the course or see your advisor.  *Integrated Undergraduate/Graduate Plan Option*  This program is available as an Integrated Undergraduate/Graduate Plan. Integrated Programs provide the opportunity for outstanding undergraduates working on their bachelor’s degree to simultaneously begin work on a master’s degree, allowing them to complete both degrees in an accelerated manner. Students must apply to the master’s program by the application deadline, and meet all requirements as listed on the Integrated Program website (insert link to integrated degree secondary page) to be considered for admission. Admission to programs is competitive. Many qualified applicants are denied because of limits on the number of students admitted each year. Be sure to speak with your advisor regarding your interest in Integrated Programs.    PROGRAM FEE INFORMATION  Program fees are established by the Arizona Board of Regents (ABOR). A program fee of $500 per year in students' Junior and Senior years has been approved for this program. |

8. Justification for proposal:

**Our ABET accreditor (visit Oct 7-8, 2013) indicated that CHM and PHY courses do not satisfy intent of additional breadth in SCI Elective course; changes made to meet this requirement. CENE 386W has been replaced with EGR 386W. CS 122 was formally an accepted technical elective and was inadvertently omitted in previous revision.**

9. NCATE designation, if applicable**:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Initial Plan |  | Advanced Plan | | | |  | Remove Designation | |
| 10. Effective beginning **FALL**: | | | **2014** | |  | | |
| [**See effective dates calendar**](http://www4.nau.edu/avpaa/timelines/1314Effective.xls). | | | |  | | | |

11. Will this proposal impact other plans, sub plans, or course offerings, etc.? Yes      No

   If yes, describe the impact. If applicable, include evidence of notification to and/or response from

each impacted academic unit

**See attached notification/responses from BIO, CHM, GLG/ENV, PHY, CS Departments .**

**Answer 12-13 for UCC/ECCC only:**

12. A major is differentiated from another major by required course commonality: 24 units of the        required credit hours of a major must be unique, (i.e. not common or not dual use as a required        element in another major), to that major. Does this plan have 24 units of unique required        credit? Yes       No

13. Minor: A planned group of courses from one or more subject matter areas consisting of at least        18 hours and no more than 24 hours. At least 12 hours of the minor must be unique to that minor        to differentiate it from other minors.

         Does this minor have 12 units of unique required credit? Yes       No

**Answer 14-15 for UGC only:**

14. If this is a non-thesis plan, does it require a minimum of 24 units of formal graded coursework?                                                                                                                                       Yes       No

       If no, explain why this proposal should be approved.

15. If this is a thesis plan, does it require a minimum of 18 units of formal graded coursework?                                                                                                                                       Yes       No

       If no, explain why this proposal should be approved.

|  |  |
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| **FLAGSTAFF MOUNTAIN CAMPUS** |  |
| **Scott Galland** | **10/10/2013** |
| Reviewed by Curriculum Process Associate | Date |
|  |  |
| **Approvals**: |  |
|  |  |
| Department Chair/Unit Head (if appropriate) | Date |
|  |  |
| Chair of college curriculum committee | Date |
|  |  |
| Dean of college | Date |
|  |  |
| **For Committee use only:** |  |
|  |  |
| UCC/UGC Approval | Date |

Approved as submitted: Yes  No

Approved as modified: Yes  No

|  |  |
| --- | --- |
| **EXTENDED CAMPUSES** |  |
|  |  |
| Reviewed by Curriculum Process Associate | Date |
|  |  |
| **Approvals:** |  |
|  | |
| Academic Unit Head | Date |
|  | |
| Division Curriculum Committee (Yuma, Yavapai, or Personalized Learning) | Date |
|  | |
| Division Administrator in Extended Campuses (Yuma, Yavapai, or Personalized Learning) | Date |
|  | |
| Faculty Chair of Extended Campuses Curriculum Committee (Yuma, Yavapai, or Personalized Learning) | Date |
|  | |
| Chief Academic Officer; Extended Campuses (or Designee) | Date |
|  |  |

Approved as submitted: Yes  No

Approved as modified: Yes  No

**From:** Stuart S Galland   
**Sent:** Wednesday, September 18, 2013 1:13 PM  
**To:** Maribeth Watwood; Paul Umhoefer; David Robin Scott  
**Cc:** Pauline Laurie Entin  
**Subject:** Civil Engineering Proposal

 Hi,

The CECMEE  department is proposing to add some more optional  Science and Technical Electives to the Civil Engineering plan (see below).

 According to the chair, currently 75% of the students take the GLG courses and only a “handful” take BIO.  The impact on ENV and CS would be nominal.

 Please let me know if you support this change or not.  If undecided, let me know if I can get you any additional information.  THX!

Scott Galland

Curriculum Process Associate

Office of Curriculum, Learning Design, and Academic Assessment

928-523-1753

928-699-9147 (cell)

[scott.galland@nau.edu](mailto:scott.galland@nau.edu)

**From:** Maribeth Watwood   
**Sent:** Wednesday, September 18, 2013 1:17 PM  
**To:** Stuart S Galland  
**Cc:** Paul Umhoefer; David Robin Scott; Pauline Laurie Entin  
**Subject:** Re: Civil Engineering Proposal

I don't think we have a problem with this.  
  
Maribeth Watwood, Ph.D.

Chair, Department of Biological Sciences

Northern Arizona University

Flagstaff, Arizona 86011-5640

928-523-9322

**From:** David Robin Scott   
**Sent:** Wednesday, September 18, 2013 6:35 PM  
**To:** Stuart S Galland; Bridget Bero  
**Subject:** RE: Civil Engineering Proposal

Scott and Bridget,  
The proposed change is acceptable to the Electrical Engineering and Computer Science Department.  
David Scott  
Chair, EE&CS Department

**From:** Marin Sands Robinson   
**Sent:** Thursday, September 19, 2013 10:52 AM  
**To:** Stuart S Galland  
**Subject:** RE: Civil Engineering Proposal

Sure – we are happy to let those students take something other than chemistry.

**From:** Stuart S Galland   
**Sent:** Thursday, September 19, 2013 10:51 AM  
**To:** Marin Sands Robinson  
**Subject:** FW: Civil Engineering Proposal

Hi Marin!

From Bridget:

7 out of 39 and they were all CHM 152.  Only EnEs take 230.

Scott Galland

Curriculum Process Associate

Office of Curriculum, Learning Design, and Academic Assessment

928-523-1753

928-699-9147 (cell)

[scott.galland@nau.edu](mailto:scott.galland@nau.edu)

**From:** Bridget Bero   
**Sent:** Thursday, September 19, 2013 10:42 AM  
**To:** Stuart S Galland  
**Subject:** RE: Civil Engineering Proposal

7 out of 39 and they were all CHM 152.  Only EnEs take 230.

I am also thinking of adding the following to the list:

AST 280

FOR250

FOR251

FOR255

I am waiting to hear from the ABET guy on the FOR courses.  I think AST is fine as it is not physics prefixed.

b

**From:** Stuart S Galland   
**Sent:** Thursday, September 19, 2013 9:33 AM  
**To:** Bridget Bero  
**Subject:** FW: Civil Engineering Proposal

Hi Bridget!

About how many CE student opted for CHM 152 or CHM 230?

Scott Galland

Curriculum Process Associate

Office of Curriculum, Learning Design, and Academic Assessment

928-523-1753

928-699-9147 (cell)

[scott.galland@nau.edu](mailto:scott.galland@nau.edu)

**From:** Marin Sands Robinson   
**Sent:** Wednesday, September 18, 2013 1:35 PM  
**To:** Stuart S Galland; Stephen Christopher Tegler  
**Subject:** RE: Civil Engineering Proposal

Scott,

This seems OK to me and may end up in a reduction of students in 152 and 230. I can’t imagine many CE students previously opted for CHM 152 or 230, did they? Is there a way to track this?

Marin

**From:** Stephen Christopher Tegler   
**Sent:** Thursday, September 19, 2013 3:18 PM  
**To:** Marin Sands Robinson; Stuart S Galland  
**Cc:** Stephen Christopher Tegler  
**Subject:** Civil Engineering Proposal

Hi Scott,  
This is ok with me too. I defer to the engineers on the issue of whether PHY 263 is necessary for the professional preparation of their students. PHY 263 is packed, and if we free up some seats that would be ok with Physics and Astronomy.   
Steve

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  
Stephen C. Tegler  
Professor and Chair, Physics and Astronomy  
Northern Arizona University  
Box 6010  
Flagstaff, AZ 86011  
Phone: (928) 523-9382  
Fax:     (928) 523-1371

**From:** Paul Umhoefer   
**Sent:** Wednesday, October 09, 2013 9:15 AM  
**To:** Bridget Bero; Mary Reid  
**Cc:** Pauline Laurie Entin; Stuart S Galland  
**Subject:** Re: Civil Engineering Proposal - need support letter, ABET requirement  
**Importance:** High

Bridget and others – These classes can accommodate the Engineering students given the numbers you describe and therefore we endorse the plan Stuart sent to me.

(GLG 101 and GLG 103), **GLG 107, (GLG 112 and GLG 112L), GLG 115, ENV 230**

Paul Umhoefer  
Director and Professor of Geology  
School of Earth Sciences & Environmental Sustainability  
625 S. Knoles Drive  
Flagstaff, AZ  86011-0001  
928-523-1637 (Director office - call first)  
928-523-6464 (research office)