

**UCC/UGC/ECCC**

Proposal for Plan Change or Plan Deletion

|  |
| --- |
| **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.***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. College: | **CEFNS** | | | 2. Academic Unit: | | | **CECMEE** | |
|  | |  |  | | |  | | |
| 3. Academic      Plan Name: | | **Environmental Engineering; B.S.E (ENEGRBSEX)** | | | 4. Emphasis: | | |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 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** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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/>) ***Environmental Engineering; B.S.E.***  In addition to University Requirements:   * At least 56 units of preprofessional requirements * At least 55 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) | | Foreign Language | Optional | | Research | Optional | | Additional Fees/Program Fees | Required | | University Honors Program | Optional | | Progression Plan | [View Progression Plan](http://catalog.nau.edu/ProgressionPlans/index.jsp?inst=NAU00&cat=1314#ENEGRBSEX) |   *Major Requirements*  Take the following 111 units:  Pre professional Requirements (56 units)  Mathematics and Science courses (33-34 units)   * CHM 151\*, CHM 151L\*, CHM 152\*, (CHM 230\* or CHM 235\*) (11-12 units) * MAT 136\*, MAT 137\*, MAT 238\*, MAT 239\* (15 units) * PHY 161\*, PHY 262\* (7 units)   Engineering Science courses (20 units)   * EGR 186\* (3 units) * CENE 180\*, CENE 225\*, CENE 251\*, CENE 253\*, CENE 286\* (14 units) * ME 291 ( 3 units)   Additional requirements include:   * PHI 105 or PHI 331 (3 units)   Major Courses (55 units)   * CENE 150\*, CENE 150L\*, CENE 270, CENE 280\*, CENE 281L\*, CENE 330, CENE 332\*, CENE 333\*, CENE 333L, CENE 335, CENE 383, CENE 383L\*, CENE 401, CENE 410\*, CENE 434, CENE 476\*, CENE 480\* (40 units) * CENE 386W\* (3 units) * CENE 486C (3 units)   Select Technical coursework, including at least 6 units with CENE prefixes, from (9 units):   * CENE 336, CENE 376, CENE 418, CENE 420, CENE 430, CENE 436, CENE 437, CENE 438, CENE 440, CENE 450, 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 * CHM 320, CHM 341 * GLG 451 * ME 340, ME 435, ME 450, ME 451, 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 civil engineering, chemistry, mechanical engineering, or mathematics, 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 advisor.    *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*  Program Objectives:   * Our overarching learning goals are stated as our 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. * 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.  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.  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 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. | 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.  ***Environmental Engineering; B.S.E.***  In addition to University Requirements:   * At least 56 units of preprofessional requirements * At least 55 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) | | Foreign Language | Optional | | Research | Optional | | Additional Fees/Program Fees | Required | | University Honors Program | Optional | | Progression Plan | [View Progression Plan](http://catalog.nau.edu/ProgressionPlans/index.jsp?inst=NAU00&cat=1314#ENEGRBSEX) |   *Major Requirements*  Take the following 111 units:  Pre professional Requirements (56 units)  Mathematics and Science courses (33-34 units)   * CHM 151\*, CHM 151L\*, CHM 152\*, (CHM 230\* or CHM 235\*) (11-12 units) * MAT 136\*, MAT 137\*, MAT 238\*, MAT 239\* (15 units) * PHY 161\*, PHY 262\* (7 units)   Engineering Science courses (20 units)   * EGR 186\* (3 units) * CENE 180\*, CENE 225\*, CENE 251\*, CENE 253\*, CENE 286\* (14 units) * ME 291 ( 3 units)   Additional requirements include:   * PHI 105 or PHI 331 (3 units)   Major Courses (55 units)   * CENE 150\*, CENE 150L\*, CENE 270, CENE 280\*, CENE 281L\*, CENE 330, CENE 332\*, CENE 333\*, CENE 333L, CENE 335, CENE 383, CENE 383L\*, CENE 401, CENE 410\*, CENE 434, CENE 476\*, CENE 480\* (40 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 336, CENE 376, CENE 418, CENE 420, CENE 430, CENE 436, CENE 437, CENE 438, CENE 440, CENE 450, 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 * CHM 320, CHM 341 * **CS 122** * GLG 451 * ME 340, ME 435, ME 450, ME 451, 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 civil engineering, chemistry, mechanical engineering, or mathematics, 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 advisor.    *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*  Program Objectives:   * Our overarching learning goals are stated as our 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. * 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.  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.  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 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. |

8. Justification for proposal:

**CENE 386W has been replaced with EGR 386W. CS 122 was formerly an accepted technical elective and was omitted.**

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 CS Department**

**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.

|  |  |
| --- | --- |
| **FLAGSTAFF MOUNTAIN CAMPUS** |  |
| **Scott Galland** | **10/08/2013** |
| 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:** Tuesday, October 08, 2013 12:18 PM  
**To:** David Robin Scott  
**Subject:** Environmental Engineering Proposal

Hi David,

CECMEE is proposing to add CS 122 to their technical elective course list in the Environmental Engineering degree as well.

(Sorry I forgot to include this request with the original Civil Engineering request!)

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:** David Robin Scott   
**Sent:** Tuesday, October 08, 2013 2:03 PM  
**To:** Stuart S Galland  
**Subject:** RE: Environmental Engineering Proposal

Scott,

That addition should be fine with us.  I support the change to add CS122 to their list of select technical coursework.

David R. Scott, Ph.D.

Chair, NAU Electrical Engineering & Computer Science Department

Phone: 928-523-3162          Fax: 928-523-2300

Email: [David.Scott@nau.edu](mailto:David.Scott@nau.edu)

EE Website:  <http://nau.edu/cefns/engineering/electrical/>

CS Website: <http://nau.edu/cefns/engineering/computer-science/>