UNIVERSITY COURSES AND CURRICULA COMMITTEE
May 20, 2013
3-5 p.m.
MIKC 114
MINUTES

Members in attendance: Elena Pravosudova, Kambiz Raffiee, Tom Harrison, Chuck Coronella, Fred Holman, Kara Cleveland for Marsha Read, Kristi Van Gorder for Kathy Boardman, Gwen Shonkwiler, Gina Tempel.
Ex-Officio members in attendance: Joe Cline, Katy Schleef, Pat Ragains, Janet Stake.

Approval of minutes - May 6, 2013 - Approved

Follow-up on New Submission Deadlines (Elena Pravosudova, Janet Stake) – Approved - A sample calendar showing the technical review process using a submission deadline of 19 business days was displayed. The new deadline will allow time for follow-up and updates from the submitters. It will also increase the likelihood that the SLO reviews will be complete prior to the meeting. The new deadlines will be posted on the UCCC calendar. We will still work with colleges under the old deadlines since that may be how their curriculum meetings may be scheduled. If the proposal is received by the old deadline, it will need to be complete at submission, otherwise it will be moved to the following meeting agenda.

PROPOSED CHANGES IN DEGREES, MAJORS, AND COURSES

<table>
<thead>
<tr>
<th>Grad Council Approval / Core Board</th>
<th>CCN</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHS NURS 705 Create new course</td>
<td>Approved</td>
</tr>
<tr>
<td>ADD: Diagnosis, Symptom, and Illness Management (2+4) 3 units</td>
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<tr>
<td>Principles of diagnostic and treatment modalities; application of diagnostic reasoning skills needed to assess and manage the care of the acutely ill.</td>
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<tr>
<td>Prereq: NURS 717R; NURS 750.</td>
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<tr>
<td>Abbrev: Diagnosis, Sympt &amp; Illness Mgt</td>
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<tr>
<td>Offerings: Every Spring</td>
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<tr>
<td>Transfer agreements: N/A</td>
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<td>Implementation: SP15</td>
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<tr>
<td>DHS NURS 706 Create new course</td>
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<tr>
<td>ADD: Introduction to Management of Acute Care Patients Lecture (2+0) 2 units</td>
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<tr>
<td>Theoretical and clinical foundation of APN management of acute patients; emphasis on diagnosis and management of acute episodic conditions.</td>
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<tr>
<td>Prereq: NURS 717; NURS 750. Coreq: NURS 705; NURS 716.</td>
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<tr>
<td>Abbrev: Intro to Mgt Acute Care Patnts</td>
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<td>Offerings: Every Spring</td>
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<td>Transfer agreements: N/A</td>
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<td>Implementation: SP15</td>
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<tr>
<td>DHS NURS 707</td>
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</table>
| DHS | NURS | 709 | Create new course | Approved | ADD: Introduction to Acute Care Practicum (0+8) 2 units S/U only  
Synthesis and practical application of the ACNP role in a variety of precepted acute care clinical settings. Interdisciplinary collaboration is promoted.  
Prereq: NURS 716; NURS 717; NURS 750. Coreq: NURS 705. *(Corequisites need to be taken concurrently)*  
Abbrev: Intro to Acute Care Pract  
Offerings: Every Spring  
Transfer agreements: N/A  
Implementation: SP15 |
|---|---|---|---|---|
| DHS | NURS | 710 | Create new course | Approved | ADD: Advanced Prescribing Pharmacology for the Acutely Ill Patient (3+0) 3 units  
Understanding of basic pharmacologic principles applied to new drugs as they become available in the future with application to acute and critical care situations.  
Prereq: NURS 716; NURS 717R  
Abbrev: Adv Prscr Pharm Acute Care  
Offerings: Every Summer  
Transfer agreements: N/A  
Implementation: SU15 |
| DHS | NURS | 711 | Create new course | Approved | ADD: Management of Chronic Illness in Acute Care Lecture (2+0) 2 units  
Emphasis is placed on progressing competency in formation and evaluation of comprehensive evidence-based plans for complex and multi-system disorders.  
Prereq: NURS 705; NURS 706; NURS 707; NURS 709. Coreq: NURS 711. *(Corequisites need to be taken concurrently)*  
Abbrev: Mgt Chr Illness in Acute Care  
Offerings: Every Summer  
Transfer agreements: N/A  
Implementation: SU15 |
| DHS | NURS | 712 | Create new course | Approved | ADD: Management of Comorbid Conditions in Acute Care Lecture (1+0) 1 unit  
Practicum experiences in a variety of acute care settings with emphasis on collaborative partnerships with healthcare team.  
Prereq: NURS 710; NURS 711. Coreq: NURS 713. *(Corequisites need to be taken concurrently)* |
<table>
<thead>
<tr>
<th>Abbrev: Mgt Comorb Cond Acute Care</th>
<th>Offerings: Every Fall</th>
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<th>Implementation: FL15</th>
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<tbody>
<tr>
<td><strong>DHS NURS 713</strong> Create new course</td>
<td><strong>Approved</strong></td>
<td><strong>ADD: Management of Comorbid Conditions in Acute Care Setting Practicum (0+12) 3 units S/U only</strong></td>
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<tr>
<td></td>
<td></td>
<td>Advancing competency in the formation and evaluation of comprehensive evidence-based plans of care.</td>
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<td>Prereq: NURS 710; NURS 711. Coreq: NURS 712. <strong>(Corequisites need to be taken concurrently)</strong></td>
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<tr>
<td><strong>DHS NURS 714</strong> Create new course</td>
<td><strong>Approved</strong></td>
<td><strong>ADD: Advanced Practice Introduction to Critical Care I Lecture (2+0) 2 units</strong></td>
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<td>Refinement of knowledge and Skills in evidence-based practice; evaluation of patient outcomes for complex management within a critical care environment.</td>
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<td>Prereq: NURS 712; NURS 713. Coreq: NURS 715. <strong>(Corequisites need to be taken concurrently)</strong></td>
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<tr>
<td><strong>DHS NURS 715</strong> Create new course</td>
<td><strong>Approved</strong></td>
<td><strong>ADD: Advanced Practice Introduction to Critical Care Practicum (0+20) 5 units S/U only</strong></td>
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<td>Advanced health assessment, diagnostic reasoning, decision making and collaborative management of patients with critical health problems, utilizing advanced technology and diagnostics.</td>
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<td>Prereq: NURS 712; NURS 713. Coreq: NURS 714.</td>
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<th>Offerings: Every Spring</th>
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<th>Implementation: SP14</th>
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<tbody>
<tr>
<td><strong>EN CEE 120</strong> Create new course</td>
<td><strong>Approved pending modification of SLO #3</strong></td>
<td><strong>ADD: Civil Engineering in a Sustainable Society (3+0) 3 units</strong></td>
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<td>Introduction to civil engineering practice in a societal, economic and ecological context. Development of problem solving, critical analysis, communication and teamwork skills to analyze real-world open-ended problems.</td>
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<td>Prereq: ENGR 100.</td>
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<td>Implementation: SP14</td>
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<tr>
<th>Abbrev: Computer Tools for Civil and Environmental Engineers</th>
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<th>Transfer agreements: N/A</th>
<th>Implementation: SP14</th>
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<tbody>
<tr>
<td><strong>EN CEE 303</strong> Create new course</td>
<td><strong>Approved with minor re-write of student learning outcomes</strong></td>
<td><strong>ADD: Computer Tools for Civil and Environmental Engineers (2+3) 3 units</strong></td>
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<td>Computer skills development, drafting and graphical presentation of engineering material, maps, aspects of</td>
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<td></td>
<td>Abbrev: Computer Tools for Civil and Environmental Engineers</td>
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<td>Offerings: Every Spring</td>
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<td>Transfer agreements: N/A</td>
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<td>Meeting Date</td>
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<td>EN CEE 390R</td>
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<td>Change course title, description; removed “R” from course number; tabled from prior meeting for SLOs</td>
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<td>EN CEE 721</td>
<td>EN CEE 721</td>
<td>Create new course</td>
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**Approved OLD: Structural Analysis I (3+0) 3 units**
Principles and techniques of structural mechanics and their application to the analysis of engineering structures. Prereq: CEE 372 with a “C” or better.

**NEW: Structural Analysis (3+0) 3 units**
Fundamental and modern analysis techniques for statically indeterminate beams, trusses and frames; loads, internal forces, deflections, energy methods; introduction to stiffness methods with computational software. Prereq: CEE 372 with a “C” or better.

Abbrev: Structural Analysis Offerings: Every Fall and Spring Transfer agreements: No changes anticipated Implementation: SP14 – offered scheduled terms

**Approved pending rewrite of student learning outcomes appropriate to a 700 level student**
ADD: Nonlinear Structural Analysis (3+0) 3 units
Solution algorithms for nonlinear problems using stiffness method; spring, truss, and frame element formulations; material and geometric nonlinearities; research applications using computational software. Prereq: CEE 486/686.
Abbrev: Nonlinear Structural Analysis
Offerings: Other
Transfer Agreements: N/A
Implementation: FL14

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<tr>
<th>EN</th>
<th>CEE</th>
<th>BS-CE 2245 Program changes</th>
</tr>
</thead>
</table>

**Approved with adjustment to recommended schedule**

I. University Core Curriculum Requirements (36-44 units)

NOTE: Refer to the Core Curriculum chapter of this catalog for information regarding the “Core English and Math Completion Policy”.

A. **English** (3-8 units)
   Refer to the “English” section of the Core Curriculum chapter in this catalog.
   NOTE: Students who place in ENG 102 are not required to complete ENG 101, but must take another three credit humanities course.

B. **Mathematics** (4 units)
   Refer to the “Mathematics” section of the Core Curriculum chapter in this catalog.
   MATH 181 - Calculus I (4 units) *

C. **Natural Sciences** (8 units)
   CHEM 201 - General Chemistry for Scientists and Engineers I (4 units) * (CHEM 121A / CHEM 121L accepted)
   PHYS 180 - Physics for Scientists and Engineers I (3 units) *
   PHYS 180L - Physics for Scientists and Engineers Laboratory I (1 unit) *

D. **Social Sciences** (3 units)
   Refer to the “Social Sciences” section of the Core Curriculum chapter in this catalog.

E. **Fine Arts** (3 units)
   Refer to the “Fine Arts” section of the Core Curriculum chapter in this catalog. Must not be a skills course.

F. **Core Humanities** (9 units)
   Refer to the “Core Humanities” section of the Core Curriculum chapter in this catalog.

G. **Capstone Courses** (6 units)
   CEE 427 - Capstone Design Project (3 units)
   Emphasis Capstone (3 units) ** - Choose one of the following:
   CEE 431 - Pavement Design
   CEE 443 - Geotechnical Engineering: Foundations
   CEE 456 - Design of Water Treatment Facilities
   CEE 457 - Design of Wastewater Treatment Facilities
   CEE 481 - Structural Steel Design

H. **Diversity** (0-3 units)
   Refer to the “Diversity” section of the Core Curriculum chapter of this catalog.
   NOTE: Students must take a three-credit course that satisfies the “Diversity” requirement. This can be a course that also satisfies either the “Fine Arts” or “Social Science” requirements.
II. Additional College Requirements (0 units)

III. Major Requirements (92-93 units)
A. Communications (3 units)
   ENGR 301 - Engineering Communication (3 units)
B. Basic Sciences (20-21 units)
   GEOL 101 - General Geology (4 units) OR
   BIOL 190 - Introduction to Cell and Molecular Biology (3 units)
   CEE 389 - Probability and Statistics for Civil Engineers (2 units)
   MATH 182 - Calculus II (4 units) *
   MATH 283R - Calculus III (4 units) *
   MATH 285 - Differential Equations (3 units) *
   PHYS 181 - Physics for Scientists and Engineers II (3 units) *
   PHYS 181L - Physics for Scientists and Engineers Laboratory II (1 unit) *
C. Engineering Science and Design (54-52 units)
   CEE 101 - Engineering Graphics (2 units)
   ENGR 100 - Introduction to Engineering Design (3 units) OR
   CEE 140R - Introduction to Civil Engineering (3 units)
   CEE 120 - Civil Engineering in a Sustainable Society (3 units)
   CEE 204R - Introduction to Environmental Engineering (3 units) *
   CEE 241 - Statics (3 units) *
   CEE 303 - Computer Tools for Civil and Environmental Engineers (3 units) (proposed course)
   CEE 362 - Transportation Engineering (3 units)
   CEE 364R - Engineering Hydrology (3 units)
   CEE 371R - Numerical Methods in Civil Engineering (3 units)
   CEE 372 - Strength of Materials (3 units) *
   CEE 377 - Construction Materials (4 units) *
   CEE 381 - Structural Analysis I (3 units) *
   CEE 388 - Engineering Economy (2 units)
   CEE 390R - Fundamentals of Environmental Engineering Design (3 units) *
   CEE 413 - Water Resources Engineering (3 units)
   CEE 442 - Fundamentals of Geotechnical Engineering (4 units) *
   CS 241 - Introduction to Computer Methods for Engineers (3 units)
   ENGR 490 - Fundamentals of Engineering Exam (0 units)
   ME 242 - Dynamics (3 units)
   ENGR 360 - Introduction to Fluid Mechanics (3 units) OR
   NRES 414 - Hydrologic Fluid Dynamics (3 units)
   ME 311 - Engr Thermodynamics I (3 units) OR
   EE 220 - Circuits I (3 units)
D. Technical Electives–15 units

NOTE: List available from the department. At least two courses must contain design and all students are required to take either CEE 480 or CEE 481.

IV. Electives (0-3 units)
V. Total Units (131 129 units)

*Must complete these courses with at least a “C”.

VI. Recommended Schedule

A. First Year

Fall Semester (17-18 units)

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>GEOL 101</td>
<td>General Geology</td>
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<tr>
<td>BIOL 190</td>
<td>Introduction to Cell and Molecular Biology</td>
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<td>ENGR 100</td>
<td>Introduction to Engineering Design</td>
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<td>CEE 140R</td>
<td>Introduction to Civil Engineering</td>
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<td>ENG 101</td>
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<td>MATH 181</td>
<td>Calculus I</td>
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<tr>
<td>CHEM 201</td>
<td>General Chemistry for Scientists and Engineers</td>
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* CHEM 121A / CHEM 121L accepted

Core Curriculum Fine Arts/Diversity Course (3 units)

Spring Semester (16 17 units)

<table>
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<th>Course Code</th>
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<tbody>
<tr>
<td>CEE 101</td>
<td>Engineering Graphics</td>
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<tr>
<td>CEE 120</td>
<td>Civil Engineering in a Sustainable Society</td>
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<td>ENG 102</td>
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<tr>
<td>MATH 182</td>
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<td>PHYS 180</td>
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<td>PHYS 180L</td>
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<tr>
<td>Core Curriculum Fine Arts/Diversity Course (3 units)</td>
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<tr>
<td>BIOL 190</td>
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B. Second Year

Fall Semester (17 units)

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<tbody>
<tr>
<td>CEE 204R</td>
<td>Introduction to Environmental Engineering</td>
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<tr>
<td>CEE 241</td>
<td>Statics</td>
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<td>CEE 303</td>
<td>Computer Tools for Civil and Environmental Engineers</td>
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<td>CS 241</td>
<td>Introduction to Computer Methods for Engineers</td>
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<td>CH 201</td>
<td>Ancient and Medieval Cultures</td>
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<tr>
<td>MATH 283R</td>
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<td>PHYS 181</td>
<td>Physics for Scientists and Engineers II</td>
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<td>PHYS 181L</td>
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Spring Semester (17 units)

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<td>CEE 388</td>
<td>Engineering Economy</td>
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<td>CEE 390R</td>
<td>Fundamentals of Environmental Engineering Design</td>
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<td>CH 201</td>
<td>Ancient and Medieval Cultures</td>
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<td>MATH 285</td>
<td>Differential Equations</td>
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<td>ME 242</td>
<td>Dynamics</td>
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C. Third Year

Fall Semester (18 units)
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<th><strong>EN</strong></th>
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<tr>
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<td>CEE 377 - Construction Materials (4 units) *</td>
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<tr>
<td>CEE 381 - Structural Analysis I (3 units) *</td>
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<td>CEE 389 - Probability and Statistics for Civil Engineers (2 units)</td>
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<td>ENGR 301 - Engineering Communication (3 units)</td>
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<td>ENGR 360 - Introduction to Fluid Mechanics (3 units) OR</td>
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<td>NRES 414 - Hydrologic Fluid Dynamics (3 units)</td>
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<td>CEE 362 - Transportation Engineering (3 units)</td>
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<td>CEE 371R - Numerical Methods in Civil Engineering (3 units)</td>
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<tr>
<td>CEE 413 - Water Resources Engineering (3 units)</td>
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<tr>
<td>CEE 442 - Fundamentals of Geotechnical Engineering (4 units)*</td>
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<tr>
<td>CEE 480 - Structural Concrete Design (3 units) OR</td>
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<tr>
<td>CEE 481 - Structural Steel Design (3 units) **</td>
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</tr>
</tbody>
</table>

**D. Fourth Year**

**Fall Semester (15 units)**

| CEE 427 - Capstone Design Project (3 units) |  |  |  |  |  |
| CH 202 - The Modern World (3 units) |  |  |  |  |  |
| EE 220 - Circuits I (3 units) OR |  |  |  |  |  |
| ME 311 - Engr Thermodynamics I (3 units) |  |  |  |  |  |
| Emphasis Capstone (3 units) ** |  |  |  |  |  |
| Core Curriculum Social Science (3 units) |  |  |  |  |  |
| **Technical Electives (6 units)** |  |  |  |  |  |
| ENGR 490 - Fundamentals of Engineering Exam (0 units) |  |  |  |  |  |

**Spring Semester (15 units)**

| CH 203 - American Experiences and Constitutional Change (3 units) |  |  |  |  |  |
| Emphasis Capstone (3 units) ** |  |  |  |  |  |
| Technical Electives (6 units) ** |  |  |  |  |  |

**Note(s):**

*In addition to the general university requirements of at least a “C” (2.0) average for graduation, engineering students must earn at least a “C” in those courses designated with an asterisk (*) and must also maintain at least a “C” average in the Core Curriculum Mathematics, Natural Sciences, and the major requirements courses.

**Total number of credits is 18 for the Emphasis Capstone plus technical electives including CEE 480 and/or CEE 481.

Students enrolled in civil and environmental engineering internship programs are required to take a one-credit seminar course ( CEE 225 , CEE 325 , CEE 425 ) at the appropriate level each summer they are enrolled in the program. These credits are in addition to the total required for other engineering students.

Class attendance is mandatory in all civil and environmental engineering courses. Civil engineering students who need to repeat courses to meet the minimum grade-point average requirement set by the university or the college are allowed to repeat only those courses in which they received a grade lower than a “C” (2.0). It is the policy of the Department of Civil and Environmental Engineering to not accept transfer courses from outside the NSHE system with grades lower than a “C”.

Transfer agreements: 6362, 6464, 6263, 6461

Implementation: FL13
<table>
<thead>
<tr>
<th>Program changes</th>
<th>I. University Core Curriculum Requirements (36-44 units)</th>
</tr>
</thead>
</table>
|                | NOTE: Refer to the Core Curriculum chapter of this catalog for information regarding the “Core English and Math Completion Policy”.
|                | **A. English (3-8 units)** Refer to the “English” section of the Core Curriculum chapter in this catalog. NOTE: Students who place in ENG 102 are not required to complete ENG 101, but must take another three credit humanities course.
|                | **B. Mathematics (4 units)** Refer to the “Mathematics” section of the Core Curriculum chapter in this catalog. MATH 181 - Calculus I (4 units) *
|                | **C. Natural Sciences (8 units)** CHEM 201 - General Chemistry for Scientists and Engineers I (4 units) * (CHEM 121A / CHEM 121L accepted)
|                | PHYS 180 - Physics for Scientists and Engineers I (3 units) *
|                | PHYS 180L - Physics for Scientists and Engineers Laboratory I (1 unit) *
|                | **D. Social Sciences (3 units)** Refer to the “Social Sciences” section of the Core Curriculum chapter in this catalog.
|                | **E. Fine Arts (3 units)** Refer to the “Fine Arts” section of the Core Curriculum chapter in this catalog. Must not be a skills course.
|                | **F. Core Humanities (9 units)** Refer to the “Core Humanities” section of the Core Curriculum chapter in this catalog.
|                | **G. Capstone Courses (6 units)** CEE 456 - Design of Water Treatment Facilities (3 units) *
|                | CEE 457 - Design of Wastewater Treatment Facilities (3 units) *
|                | **H. Diversity (0-3 units)** Refer to the “Diversity” section of the Core Curriculum chapter of this catalog. NOTE: Students must take a three-unit course that satisfies the “Diversity” requirement. This can be a course that also satisfies either the “Fine Arts” or “Social Science” requirements.
|                | **II. Additional College Requirements (0 units)**
|                | **III. Major Requirements (91 units)**
|                | **A. Communications (3 units)** ENGR 301 - Engineering Communication (3 units)
|                | **B. Basic Sciences (30 units)** BIOL 190 - Introduction to Cell and Molecular Biology (3 units)
|                | CEE 389 - Probability and Statistics for Civil Engineers (2 units)
|                | CHEM 220A - Introductory Organic Chemistry Lecture (3 units)
|                | CHEM 202 - General Chemistry for Scientists and Engineers II (4 units) ( CHEM 122A /CHEM 122L accepted)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 182</td>
<td>Calculus II (4 units)</td>
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<tr>
<td>MATH 283R</td>
<td>Calculus III (4 units)</td>
<td>*</td>
</tr>
<tr>
<td>MATH 285</td>
<td>Differential Equations (3 units)</td>
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</tr>
<tr>
<td>PHYS 181</td>
<td>Physics for Scientists and Engineers II (3 units)</td>
<td>*</td>
</tr>
<tr>
<td>PHYS 181L</td>
<td>Physics for Scientists and Engineers Laboratory II (1 unit)</td>
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<tr>
<td></td>
<td>Earth Science Elective</td>
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<tr>
<td></td>
<td>Select one:</td>
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<tr>
<td>ATMS 411</td>
<td>Introduction to Atmospheric Physics (3 units)</td>
<td></td>
</tr>
</tbody>
</table>

**ATMS 412 – Introduction to Air Pollution (3 units)**

NRES 422 - Soil Physics (3 units)

**C. Engineering Science and Design (49 - 44 units)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATMS 412</td>
<td>Introduction to Air Pollution (3 units)</td>
<td></td>
</tr>
<tr>
<td>CEE 101</td>
<td>Engineering Graphics (2 units)</td>
<td></td>
</tr>
</tbody>
</table>

**ENGR 100 – Introduction to Engineering Design (3 units)**

**CEE 120 – Civil Engineering in Sustainable Society (3 units)**

CEE 204R - Introduction to Environmental Engineering (3 units)

CEE 241 - Statics (3 units) *

**CEE 303 – Computer Tools for Civil and Environmental Engineers (3 units)**

CEE 364R - Engineering Hydrology (3 units)

CEE 388 - Engineering Economy (2 units)

CEE 380R - Fundamentals of Environmental Engineering Design (3 units) *

CEE 404 - Open Channel Flow (3 units)

CEE 413 - Water Resources Engineering (3 units) *

CEE 417 - Introduction to Environmental Quality and Analysis (3 units)

CEE 418 - Principles of Water Quality Modeling (3 units)

CEE 453 - Environmental Microbiology (3 units)

CEE 456 - Design of Water Treatment Facilities (0 units) * (Units counted in Core Curriculum Capstone section above.)

CEE 457 - Design of Wastewater Treatment Facilities (0 units) * (Units counted in Core Curriculum Capstone section above.)

CEE 458R - Fundamentals of Environmental Chemistry (3 units)

CEE 459R - Hazardous and Solid Waste Management and Control (3 units) *

CHEM 421 - Physical Chemistry I (3 units)

CS 241 - Introduction to Computer Methods for Engineers (3 units)

ENGR 490 - Fundamentals of Engineering Exam (0 units)

ENGR 360 - Introduction to Fluid Mechanics (3 units) OR

NRES 414 - Hydrologic Fluid Dynamics (3 units)

**D. Technical Electives (9 - 12 units)**

NOTE: List available from the department.

**IV. Minor Requirements (0 units)**

**V. Electives (0-3 units)**

**VI. Total Units (130 - 128 units)**
*Must complete these courses with at least a "C"

VII. Recommended Schedule

A. First Year

Fall Semester (17 units)
  CHEM 201 - General Chemistry for Scientists and Engineers I (4 units) * (CHEM 121A/CHEM 121L accepted)
  ENG 101 - Composition I (3 units)
  MATH 181 - Calculus I (4 units) *
  Core Curriculum Social Science and/or Diversity (3 units)
  Core Curriculum Fine Arts and/or Diversity (3 units)

  ENGR 100 – Introduction to Engineering Design (3 units)

Spring Semester (17 units)
  CEE 101 - Engineering Graphics (2 units)
  CEE 120 – Civil Engineering in a Sustainable Society (3 units)
  CHEM 202 - General Chemistry for Scientists and Engineers II (4 units) (CHEM 122A/CHEM 121L accepted)
  ENG 102 - Composition II (3 units)
  MATH 182 - Calculus II (4 units) *
  PHYS 180 - Physics for Scientists and Engineers I (3 units) *
  PHYS 180L - Physics for Scientists and Engineers Laboratory I (1 unit) *

B. Second Year

Fall Semester (17 units)
  CEE 204R - Introduction to Environmental Engineering (3 units)
  CEE 241 - Statics (3 units) *
  CS 241 - Introduction to Computer Methods for Engineers (3 units)
  MATH 283R - Calculus III (4 units) *
  PHYS 181 - Physics for Scientists and Engineers II (3 units) *
  PHYS 181L - Physics for Scientists and Engineers Laboratory II (1 unit) *
  CH 201 - Ancient and Medieval Cultures (3 units)

Spring Semester (17 units)
  CH 201 - Ancient and Medieval Cultures (3 units)
  BIOL 190 - Introduction to Cell and Molecular Biology (3 units)
  CHEM 220A - Introductory Organic Chemistry Lecture (3 units)
  CEE 388 - Engineering Economy (2 units)
  MATH 285 - Differential Equations (3 units) *
  CEE 390R - Fundamentals of Environmental Engineering Design (3 units) *

  CEE 303 – Computer Tools for Civil and Environmental Engineers (3 units)

C. Third Year

Fall Semester (17 units)
  CH 202 - The Modern World (3 units)
  CEE 364R - Engineering Hydrology (3 units)
  CEE 389 - Probability and Statistics for Civil Engineers (2 units)
  CEE 453 - Environmental Microbiology (3 units)
CHEM 421 - Physical Chemistry I (3 units)
ENGR 360 - Introduction to Fluid Mechanics (3 units) OR
NRES 414 - Hydrologic Fluid Dynamics (3 units)

Core Curriculum Fine Arts and/or Diversity (3 units)

Spring Semester (15 units)
CEE 413 - Water Resources Engineering (3 units) *
CEE 404 - Open Channel Flow (3 units)
CEE 418 - Principles of Water Quality Modeling (3 units)
ENGR 301 - Engineering Communication (3 units)
Technical Elective or Earth Science Elective (3 units)
Technical Elective (3 units)

Technical Elective or Earth Science Elective (3 units)

Technical Elective (3 units)

D. Fourth Year

Fall Semester (15 units)
ATMS 412 - Introduction to Air Pollution (3 units)
CEE 404 - Open Channel Flow (3 units)
CEE 417 - Introduction to Environmental Quality and Analysis (3 units)
CEE 456 - Design of Water Treatment Facilities (3 units) *
CEE 459R - Hazardous and Solid Waste Management and Control (3 units) *
CH 203 - American Experiences and Constitutional Change (3 units)
Technical Elective (3 units)

Technical Elective or Earth Science Elective (3 units)
ENGR 490 - Fundamentals of Engineering Exam (0 units)

Spring Semester (15 units)
CEE 457 - Design of Wastewater Treatment Facilities (3 units) *
CEE 458R - Fundamentals of Environmental Chemistry (3 units)
CH 203 - American Experiences and Constitutional Change (3 units)
Technical Elective or Earth Science Elective (3 units)
Technical Elective (3 units)

Note(s):
*In addition to the general university requirements of at least a “C” (2.0) average for graduation, engineering students must earn at least a “C” in those courses designated with an asterisk (*) and must also maintain at least a “C” average in the Core Curriculum Mathematics, Natural Sciences, and the major requirements courses. Class attendance is mandatory in all civil and environmental engineering courses.
Civil/environmental engineering students who need to repeat courses to meet the minimum grade-point average requirement set by the university or the college are allowed to repeat only those courses in which they received a grade lower than a “C” (2.0).
It is the policy of the Department of Civil and Environmental Engineering not to accept transfer courses from outside the NSHE system with grades lower than a “C”.

Transfer agreements: 6365, 6266, 6559, 6562
Implementation: FL13

EN CSE CPE201R
CPE201R
103455
Approved
OLD: CPE 201R – Introduction to Computer Engineering (3+3), 4 units
Fundamentals of digital design. Topics include: number bases, binary arithmetic, Boolean logic minimizations,
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>combinational and sequential circuits, registers, counters, memory, programmable logic devices, register transfer. (Formerly CS 236; implemented Spring 2005).</strong></td>
<td><strong>NEW: CPE 201 – Digital Design (2+3) 3 units</strong></td>
<td>Fundamentals of digital design. Topics include: number bases, binary arithmetic, Boolean logic, minimizations, combinational and sequential circuits, registers, counters, memory programmable logic devices, register transfer. Prereq: CS 135 with a “C” or better.</td>
</tr>
</tbody>
</table>
| | | Abbrev: Digital Design  
Offerings Every Fall and Spring  
Transfer agreements: 6370, 6271, 6469, 6567, 6363, 6264, 6462, 6560, 6364, 6265, 6463, 6561  
Implementation: SP14 – offered scheduled terms |
| | **NEW: CPE 301 – Embedded Systems Design (2+3) 3 units** | Embedded systems design and applications. Field programmable gate arrays, microcontroller architecture, memory and I/O decoding, timers, interrupt systems, analog to digital converters. Prereq: CPE 201. |
| | | Abbrev: Embedded Systems Design  
Offerings: Every Fall and Spring  
Transfer agreements: 6370, 6271, 6469, 6567, 6363, 6264, 6462, 6560, 6364, 6265, 6463, 6561  
Implementation: SP14 – offered scheduled terms |
| | **ADD: Computer Organization (3+0) 3 units** | Introduction to organization and integration of computer components. Topics include: computer abstractions and performance, arithmetic operations, instruction set architecture, assembly programming, datapath, pipelining, memory hierarchy, I/O, and parallel architectures. Prereq: CS 202 or CPE 201. |
| | | Abbrev: Computer Organization  
Offerings: Every Fall and Spring  
Transfer agreements: 6469, 6370, 6271, 6567  
Implementation: SP14 |
| **I. University Core Curriculum Requirements (39-44 units)** | | NOTE: Refer to the Core Curriculum chapter of this catalog for information regarding the “Core English and Math Completion Policy”.
A. English (3-8 units)
Refer to the “English” section of the Core Curriculum chapter in this catalog.
NOTE: Students who place in ENG 102 are not required to complete ENG 101, but must complete 3 additional credits of general electives.

B. Mathematics (4 units)
Refer to the “Mathematics” section of the Core Curriculum chapter in this catalog.
   MATH 181 - Calculus I (4 units) *

C. Natural Sciences (8 units)
   PHYS 180 - Physics for Scientists and Engineers I (3 units) *
   PHYS 180L - Physics for Scientists and Engineers Laboratory I (1 unit) *
   PHYS 181 - Physics for Scientists and Engineers II (3 units) *
   PHYS 181L - Physics for Scientists and Engineers Laboratory II (1 unit) *

D. Social Sciences (3 units)
Refer to the “Social Sciences” section of the Core Curriculum chapter in this catalog.

E. Fine Arts (3 units)
Refer to the “Fine Arts” section of the Core Curriculum chapter in this catalog. Must not be a skills course.

F. Core Humanities (9 units)
Refer to the “Core Humanities” section of the Core Curriculum chapter in this catalog.

G. Capstone Courses (6 units)
   CS 425R - Software Engineering (3 units)
   CS 426 - Senior Projects in Computer Science (3 units) OR
   CPE 426 - Senior Projects in Computer Engineering (3 units)

H. Diversity (3 units)
Refer to the “Diversity” section of the Core Curriculum chapter of this catalog.

II. Additional College Requirements (0 units)

III. Major Requirements (86-89 83-86 units)
A. Communication (3 units)
   ENGR 301 - Engineering Communication (3 units)

B. Computer Science and Engineering (44, 42 units)
   CS 105 - Introduction to Computing (3 units) OR
   ENGR 100 - Introduction to Engineering Design (3 units)
   CS 135 - Computer Science I (3 units) *
   CS 202 - Computer Science II (3 units) *
   EE 220 - Circuits I (3 units) *
   CPE 201R - Introduction to Computer Engineering (4, 3 units)
   CPE 301R - Microprocessors System Design (4, 3 units)
   CPE 400 - Computer Communication Networks (3 units)
CPE 411R – Digital Computer Architecture and Design (3 units)

**CS 219 – Computer Organization (3 units)**

CS 302 - Data Structures (3 units) *
CS 326R - Programming Languages, Concepts and Implementation (3 units)
CS 365R - Mathematics of Computer Science (3 units)
CS 425R - Software Engineering (0 units) (Units counted in Core Curriculum Capstone section above.)
CS 426 - Senior Projects in Computer Science (0 units) (Units counted in the Core Curriculum Capstone section above.) OR
CPE 426 - Senior Projects in Computer Engineering (0 units) (Units counted in the Core Curriculum Capstone section above.)
CS 446 - Principles of Operating Systems (3 units)
CS 456 - Automata and formal Languages (3 units)
CS 477R - Analysis of Algorithms (3 units)

**C. Physics (4 units)**

CS 282 – Simulation Physics (4 units)

**D C. Mathematics (14 units)**

MATH 182 - Calculus II (4 units) *
MATH 283R - Calculus III (4 units) *
MATH 330 - Linear Algebra (3 units)
MATH 352 - Probability and Statistics (3 units) OR
STAT 352 - Probability and Statistics (3 units)
MATH/STAT/Science Elective (3 units)

**E. Specialization or Technical Electives (21-24 units)**

If the intention is to complete one of the specialization areas under the BS in Computer Science and Engineering, then at least 18 of the 21-24 units must satisfy the requirements for the corresponding specialization. The remaining units must be in computer science and engineering, mathematics or electrical engineering courses that are not already required. If no specialization is followed then select these units from 300 or 400-level computer science and engineering, mathematics or electrical engineering courses that are not already required. At least eighteen 15 units must be in computer science or computer engineering.

**IV. Minor Requirements (0 units)**

**V. Electives (0-3 units)**

**VI. Total Units (128 125 units)**

*Complete this course with at least a “C”.

**Computer and Network Systems Specialization**

The Computer and Network Systems specialization area offered within the Computer Science and Engineering Bachelor degree program is composed of 18 units of coursework along with 3-6 additional units in mathematics, electrical engineering, or computer science and engineering. Nine of these 18 credits must be the following required courses:

CPE 401 – Computer Network Systems (3 units)
EE 362 - Signals and Systems (3 units)
CPE 406 - Real Time Computing Systems (3 units) OR
CS 450 - Fundamentals of Integrated Computer Security (3 units)
The remaining nine units must be taken from the following list of courses:
CPE 406 - Real Time Computing Systems (3 units)
CPE 470 - Autonomous Mobile Robots (3 units)
CPE 481 - Embedded Games Development (3 units)
CPE 491 - Topics of Computer Engineering (1 to 3 units)
CPE 493 - Directed Study in Computer Engineering (1 to 3 units)
CS 415 - Parallel Computing (3 units)
CS 447 - Computer Systems Administration (3 units)
CS 450 - Fundamentals of Integrated Computer Security (3 units)
CS 457 - Database Management Systems (3 units)
CS 467R - Numerical Methods II (3 units)
CS 491B - Topics (1 to 3 units)
CS 491G - Topics (1 to 3 units)
CS 491H - Topics (1 to 3 units)
CS 491R - Topics (1 to 3 units)
CS 491U - Topics (1 to 3 units)
CS 491V - Topics (1 to 3 units)
CS 493B - Directed Study in Computer Science (1 to 3 units)
CS 493G - Dir Stdy: Comp Ntwks (1 to 3 units)
CS 493H - Directed Study in Computer Science (1 to 3 units)
CS 493R - Directed Study in Computer Science (1 to 3 units)
CS 493U - Dir Stdy: Oper Syst (1 to 3 units)
CS 493V - Directed Study in Computer Science (1 to 3 units)

Games and Simulations Specialization
The Games and Simulations specialization area focuses on the design and implementation of games and their underlying simulations. This specialization within the Computer Science and Engineering Bachelor degree program is composed of a total of 18 units of coursework along with 3-6 additional units in mathematics, electrical engineering, or computer science and engineering.

Twelve of these 18 units must be the following required courses:
CS 328 - Fundamentals of Game Design (3 units)
CS 381 - The Game Development Pipeline (3 units)
CS 382 - Introduction to Artificial Intelligence (3 units)
CS 480R - Computer Graphics (3 units)

The remaining six units must be taken from the following list of courses:
CS 320 - Interaction Design (3 units)
CS 420 - Human-Computer Interaction (3 units)
CS 481 - Advanced Computer Game Design (3 units)
CS 483R - Artificial Intelligence Programming (3 units)
CPE 406 - Real Time Computing Systems (3 units)
CPE 481 - Embedded Games Development (3 units)

Intelligent Systems Specialization
The Intelligent Systems Specialization area offered within the Computer Science and Engineering Bachelor degree program is composed of 18 units of coursework along with 3-6 units in mathematics, electrical engineering, or computer science and engineering.
engineering, or computer science and engineering.

Twelve of these 18 units must be the following required courses:
- CS 382 - Introduction to Artificial Intelligence (3 units)
- CS 482R - Artificial Intelligence (3 units)
- CS 485R - Computer Vision (3 units)
- CPE 470 - Autonomous Mobile Robots (3 units)

The remaining six units must be taken from the following list of courses:
- CS 466 - Numerical Methods I (3 units)
- CS 467R - Numerical Methods II (3 units)
- CS 474R - Image Processing and Interpretation (3 units)
- CS 479 - Pattern Recognition (3 units)
- CS 483R - Artificial Intelligence Programming (3 units)
- CS 491E - Topics (1 to 3 units)
- CS 491K - Topics (1 to 3 units)
- CS 491Q - Topics (1 to 3 units)
- CS 491R - Topics (1 to 3 units)
- CS 491S - Topics (1 to 3 units)
- CS 491X - Topics: Robotics (1 to 3 units)
- CS 493E - Dir Stdy: Comp Science (1 to 3 units)
- CS 493K - Directed Study in Computer Science (1 to 3 units)
- CS 493Q - Dir Stdy: Machine Lrng (1 to 3 units)
- CS 493R - Directed Study in Computer Science (1 to 3 units)
- CS 493S - Directed Study in Computer Science (1 to 3 units)
- CS 493X - Dir Stdy: Robotics (1 to 3 units)

Software Systems Specialization Area

The Software Systems specialization area offered within the Computer Science and Engineering Bachelor degree program is composed of 18 units of coursework along with 3-6 units in mathematics, electrical engineering, or computer science and engineering.

Twelve of the 18 credits must be the following required courses:
- CS 320 - Interaction Design (3 units)
- CS 330R - Design Patterns (3 units)
- CS 457 - Database Management Systems (3 units) OR IS 475 - Database Design and Implementation (3 units)
- CS 480R - Computer Graphics (3 units)

The remaining six credits must be taken from the following list of courses:
- IS 360 - Internet Programming I (3 units)
- CS 415 - Parallel Computing (3 units)
- CS 420 - Human-Computer Interaction (3 units)
- CS 447 - Computer Systems Administration (3 units)
- CS 450 - Fundamentals of Integrated Computer Security (3 units)
- CS 460 - Compiler Construction (3 units)
- CS 491A - Topics (1 to 3 units) **
- CS 491D - Topics (1 to 3 units) **
- CS 491F - Topics (1 to 3 units) **
- CS 491H - Topics (1 to 3 units) **
- CS 491M - Topics (1 to 3 units) **
- CS 491T - Topics (1 to 3 units) **
CS 491V - Topics (1 to 3 units) **
CS 491W - Topic: Prog Lang (1 to 3 units) **
CS 491X - Topics: Scientific Visualization (1 to 3 units) **
CS 491Z - Topics: Software Engineering (1 to 3 units) **

** At most, 3 units from CS 491 may apply here.

Note(s):

More information and updates on the specializations described above are available on the departmental website.

VII. Recommended Schedule

A. First Year

Fall Semester (16 units)
- CS 105 - Introduction to Computing (3 units) OR
- ENGR 100 - Introduction to Engineering Design (3 units)
- CS 135 - Computer Science I (3 units)
- ENG 101 - Composition I (3 units)
- MATH 181 - Calculus I (4 units) *
- Core Curriculum Fine Arts (3 units)

Spring Semester (16 units)
- CS 202 - Computer Science II (3 units)
- CPE 201R - Introduction to Computer Engineering (4 units)
- ENG 102 - Composition II (3 units)
- MATH 182 - Calculus II (4 units)
- PHYS 180 - Physics for Scientists and Engineers I (3 units)
- PHYS 180L - Physics for Scientists and Engineers Laboratory I (1 unit)

B. Second Year

Fall Semester (18 units)
- CH 201 - Ancient and Medieval Cultures (3 units)
- MATH 283R - Calculus III (4 units)
- PHYS 181 - Physics for Scientists and Engineers II (3 units)
- PHYS 181L - Physics for Scientists and Engineers Laboratory II (1 unit)
- CS 219 - Computer Organization (3 units)
- CS 302 - Data Structures (3 units)
- CPE 301R - Microprocessors System Design (4 units)

Spring Semester (15 units)
- CH 202 - The Modern World (3 units)
- MATH 330 - Linear Algebra (3 units)
- CS 365R - Mathematics of Computer Science (3 units)
- CS 282 - Simulation Physics (4 units)
- EE 220 - Circuits I (3 units)
- CPE 301 - Microprocessors System Design (3 units)
C. Third Year
Fall Semester (15 units)
- CH 203 - American Experiences and Constitutional Change (3 units)
- MATH 352 - Probability and Statistics (3 units) OR STAT 352 - Probability and Statistics (3 units)
- CS 326R - Programming Languages, Concepts and Implementation (3 units)
- CS 477R - Analysis of Algorithms (3 units)
  Specialization Course or Technical Elective (3 units)
Spring Semester (15 units)
- ENGR 301 - Engineering Communication (3 units)
- CS 446 - Principles of Operating Systems (3 units)
- CPE 411R - Digital Computer Architecture and Design (3 units)
  Specialization Courses or Technical Electives (6 units)

D. Fourth Year
Fall Semester (15 units)
- CPE 400 - Computer Communication Networks (3 units)
- CS 425R - Software Engineering (3 units)
- ECON 102 - Principles of Microeconomics (3 units) OR other Core Curriculum Social Science (3 units)
  Specialization Courses or Technical Electives (6 units)
Spring Semester (15 units)
- Core Curriculum Diversity (3 units)
- CS 426 - Senior Projects in Computer Science (3 units)
- CS 456 - Automata and formal Languages (3 units)
  Specialization Courses or Technical Electives (6 units)

Note(s):
In addition to the general university requirements of at least a “C” (2.0) average for graduation, engineering students must earn at least a “C” in those courses designated with an asterisk (*) and must also maintain at least a “C” average in the Core Mathematics, Natural Sciences, and major requirements courses.

Transfer agreements: 6469, 6370, 6271, 6567
Implementation: FL13

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<th>EN</th>
<th>CSE</th>
<th>CSE as a 2nd major/1700 Program changes</th>
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<tr>
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<td>Approved</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A. Communication (3 units)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ENGR 301 - Engineering Communication (3 units)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B. Computer Science (47- 45 units)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPE 201R - Introduction to Computer Engineering (4- 3 units)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPE 301R - Microprocessors System Design (4- 3 units)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPE 411R - Digital Computer Architecture and Design (3 units)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CS 105 - Introduction to Computing (3 units)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CS 135 - Computer Science I (3 units) *</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CS 202 - Computer Science II (3 units) *</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>CS 219 – Computer Organization (3 units)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CS 302 - Data Structures (3 units) *</td>
</tr>
</tbody>
</table>
C. Technical Electives—Select 12 units
Nine units must be 300 and 400 level courses in computer science and engineering and must be courses that are not already required as listed above. The remaining three units can be a 300 or 400 level course in computer science and engineering, mathematics, or electrical engineering courses that are not already required.

D. Mathematics/Statistics/Science (15-29 units)
- MATH 181 - Calculus I (4 units)
- MATH 182 - Calculus II (4 units)
- STAT 352 - Probability and Statistics (3 units) OR MATH 352 - Probability and Statistics (3 units)
- MATH 283R - Calculus III (4 units)
- MATH 330 - Linear Algebra (3 units)

E. Science—12 units
- PHYS 180 - Physics for Scientists and Engineers I (3 units)
- PHYS 180L - Physics for Scientists and Engineers Laboratory I (1 unit)
- PHYS 181 - Physics for Scientists and Engineers II (3 units)
- PHYS 181L - Physics for Scientists and Engineers Laboratory II (1 unit)
- CS 282 - Simulation Physics (4 units)

Note(s):
* In addition to the general university requirement of at least a “C” (2.0) average for graduation, engineering students must earn at least a “C” in those courses designated with an asterisk (*) and must also maintain at least a “C” average in the Core Curriculum Mathematics, Natural Sciences, and the major requirement courses.

Transfer agreements: N/A
Implementation: FL13

The Computer Science and Engineering minor is open to all students at the university except those pursuing a major within the department. Students who complete the minor have a strong technical foundation upon which to build further expertise in computer science and engineering, and they can strengthen their understanding of the applications of computers in their selected fields.

In addition to the general university requirements of at least a “C” (2.0) GPA for graduation, all Computer Science and Engineering minors must earn at least a “C” in those minor courses designated with an asterisk (*) and a “C” average for all courses used to satisfy the minor requirements.

Required courses are:
- CPE 201R - Introduction to Computer Engineering (4 units)
### CPE 301R - Microprocessors System Design (4 units)

### CS 105 - Introduction to Computing (3 units)

### CS 135 - Computer Science I (3 units) *

### CS 202 - Computer Science II (3 units) *

---

**CS 219 – Computer Organization (3 units)**

CS 302 - Data Structures (3 units) *

CS 365R - Mathematics of Computer Science (3 units)

CS 326R - Programming Languages, Concepts and Implementation (3 units) OR

CS 446 - Principles of Operating Systems (3 units)

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Total Units (26-27 units)

Transfer agreements: N/A

Implementation: FL13

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**Approved**

This minor is open to all students at the university. The courses required for the minor are: **CS 135**, **CS 202**, **CS 302**, **CS 328**, **CS 381**, and one of **CS 481** or **CPE 481**. Students must also earn an additional six upper-division credits from the list of approved courses for this minor maintained on the Department’s website, for a total of 21 units.

Students who complete the minor have a strong technical foundation in the theory and practice of using computing principles to create digital interactive games.

In addition to the general university requirements of at least a “C” (2.0) GPA for graduation, all Digital Interactive Games minors must earn at least a “C” in those minor courses designated with an asterisk (*) and a “C” average for all courses used to satisfy the minor requirements.

Transfer agreements: N/A

Implementation: FL13

---

**Approved**

I. University Core Curriculum Requirements (37-45 units)

NOTE: Refer to the Core Curriculum chapter of this catalog for information regarding the “Core English and Math Completion Policy”.

A. **English** (3-8 units)

Refer to the “English” section of the Core Curriculum chapter in this catalog.

NOTE: Students who place in ENG 102 are not required to complete ENG 101.

B. **Mathematics** (4 units)

Refer to the “Mathematics” section of the Core Curriculum chapter in this catalog.

MATH 181 - Calculus I (4 units) *

C. **Natural Sciences** (8 units)

CHEM 201 - General Chemistry for Scientists and Engineers I (4 units) OR

CHEM 121A - General Chemistry I (3 units) * AND

CHEM 121L - General Chemistry Laboratory I (1 unit) *

PHYS 180 - Physics for Scientists and Engineers I (3 units) * AND

PHYS 180L - Physics for Scientists and Engineers Laboratory I (1 unit) *
### D. Social Sciences (3 units)
- ECON 102 - Principles of Microeconomics (3 units)

### E. Fine Arts (3 units)
Students must take a three-unit course that satisfies the Core Curriculum Fine Arts and Diversity requirements, see list below. If the student is unable to take a class that fulfills both Fine Arts and Diversity, the student will need to take an additional course.
- DAN 265 - History of Dance I: Ancient Civilizations-18th Century (3 units)
- DAN 266 - History of Dance II: 20th Century (3 units)
- THTR 210 - Theatre: a Cultural Context (3 units)

### F. Core Humanities (9 units)
Refer to the “Core Humanities” section of the Core Curriculum chapter in this catalog.

### G. Capstone Courses (7 units)
- EE 490 - Electrical Projects Laboratory (3 units)
- EE 491 - Engineering Design/Analysis (4 units)

### H. Diversity (0-3 units)
Students must take a three-unit course that satisfies the Core Curriculum Fine Arts and Diversity requirements, see list below. If the student is unable to take a class that fulfills both Fine Arts and Diversity, the student will need to take an additional course.
- DAN 265 - History of Dance I: Ancient Civilizations-18th Century (3 units)
- DAN 266 - History of Dance II: 20th Century (3 units)
- THTR 210 - Theatre: a Cultural Context (3 units)

### II. Additional College Requirements (0 units)

### III. Major Requirements (89 units)

#### A. Communications (3 units)
- ENGR 301 - Engineering Communication (3 units)

#### B. Mathematics and Sciences (20 units)
- MATH 182 - Calculus II (4 units) *
- MATH 283R - Calculus III (4 units) *
- MATH 285 - Differential Equations (3 units) *
- MATH 330 - Linear Algebra (3 units)
- MATH 352 - Probability and Statistics (3 units) OR
  - STAT 352 - Probability and Statistics (3 units)
- PHYS 181 - Physics for Scientists and Engineers II (3 units) *

#### C. Engineering Science and Design Courses (42-45 units)
- CS 135 - Computer Science I (3 units) *
- CEE 241 - Statics (3 units) OR
  - ME 241 - Statics (3 units)
- CPE 201R - Introduction to Computer Engineering (4 units)
  - CPE 301R - Microprocessors System Design (4 units)
  - ENGR 100 - Introduction to Engineering Design (3 units) OR
EE 191 - Introduction to Electrical Engineering (3 units)
EE 120 - Fundamentals of Electrical Engineering (3 units)
EE 220L - Circuits I Laboratory (1 unit)
EE 220 - Circuits I (3 units) *
EE 221 - Circuits II (3 units)
EE 291 - Computer Methods for Electrical Engineers (3 units)
EE 320L - Electronics I Laboratory (1 unit)
EE 320R - Electronics I (3 units)
EE 330R - Engineering Electromagnetics (3 units)
EE 340 - Power System Fundamentals (3 units)
EE 362 - Signals and Systems (3 units)
EE 370L - Control Systems I Laboratory (1 unit)
EE 370R - Control Systems (3 units)
EE 490 - Electrical Projects Laboratory (0 units) (Units counted in Core Curriculum Capstone section above.)
EE 491 - Engineering Design/Analysis (0 Units) (Units counted in Core Curriculum Capstone section above.)
ENGR 490 - Fundamentals of Engineering Exam (0 units)

D. Science and Technical Electives (18 units)

E. Free Technical Elective (3 units) – Choose an upper-division course in biology, business, mathematics, chemistry or physics.

IV. Minor Requirements (0 units)

V. Electives (0-3 units)

VI. Total Units (129 units)

* Must complete these courses with at least a “C”

VII. Recommended Schedule

A. First Year

Fall Semester (17 units)
CHEM 201 - General Chemistry for Scientists and Engineers I (4 units) OR
CHEM 121A - General Chemistry I (3 units) * AND
CHEM 121L - General Chemistry Laboratory I (1 unit)
ENGR 100 - Introduction to Engineering Design (3 units) OR
EE 191 - Introduction to Electrical Engineering (3 units)
ENG 101 - Composition I (3 units)
MATH 181 - Calculus I (4 units) *
Core Curriculum Fine Arts/Diversity (3 units)

Spring Semester (17 units)
CS 135 - Computer Science I (3 units) *
EE 120 - Fundamentals of Electrical Engineering (3 units)
ENG 102 - Composition II (3 units)
MATH 182 - Calculus II (4 units) *

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<table>
<thead>
<tr>
<th>B. Second Year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Semester (16 units)</strong></td>
<td></td>
</tr>
<tr>
<td>CEE 241 - Statics (3 units) OR</td>
<td></td>
</tr>
<tr>
<td>ME 241 - Statics (3 units) *</td>
<td></td>
</tr>
<tr>
<td>EE 291 - Computer Methods for Electrical Engineers (3 units)</td>
<td></td>
</tr>
<tr>
<td>CPE 201R - Introduction to Computer Engineering (4 units) *</td>
<td></td>
</tr>
<tr>
<td>MATH 283R - Calculus III (4 units) *</td>
<td></td>
</tr>
<tr>
<td>PHYS 181 - Physics for Scientists and Engineers II (3 units) *</td>
<td></td>
</tr>
<tr>
<td><strong>Spring Semester (16 units)</strong></td>
<td></td>
</tr>
<tr>
<td>EE 220L - Circuits I Laboratory (1 unit)</td>
<td></td>
</tr>
<tr>
<td>EE 220 - Circuits I (3 units) *</td>
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</tr>
<tr>
<td>CPE 301R - Microprocessors System Design (4 units)</td>
<td></td>
</tr>
<tr>
<td>CH 201 - Ancient and Medieval Cultures (3 units)</td>
<td></td>
</tr>
<tr>
<td>MATH 285 - Differential Equations (3 units) *</td>
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</tr>
<tr>
<td>MATH 330 - Linear Algebra (3 units)</td>
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<table>
<thead>
<tr>
<th>C. Third Year</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Semester (16 units)</strong></td>
<td></td>
</tr>
<tr>
<td>EE 221 - Circuits II (3 units)</td>
<td></td>
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<tr>
<td>EE 320L - Electronics I Laboratory (1 unit)</td>
<td></td>
</tr>
<tr>
<td>EE 320R - Electronics I (3 units)</td>
<td></td>
</tr>
<tr>
<td>EE 362 - Signals and Systems (3 units)</td>
<td></td>
</tr>
<tr>
<td>CH 202 - The Modern World (3 units)</td>
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<tr>
<td>MATH 352 - Probability and Statistics (3 units) OR</td>
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</tr>
<tr>
<td>STAT 352 - Probability and Statistics (3 units)</td>
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<tr>
<td><strong>Spring Semester (16 units)</strong></td>
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<tr>
<td>CH 203 - American Experiences and Constitutional Change (3 units)</td>
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<tr>
<td>EE 330R - Engineering Electromagnetics (3 units)</td>
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<tr>
<td>EE 370L - Control Systems I Laboratory (1 unit)</td>
<td></td>
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<tr>
<td>EE 370R - Control Systems (3 units)</td>
<td></td>
</tr>
<tr>
<td>EE 340 - Power System Fundamentals (3 units)</td>
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<tr>
<td>ENGR 301 - Engineering Communication (3 units)</td>
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</table>

<table>
<thead>
<tr>
<th>D. Fourth Year</th>
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<tbody>
<tr>
<td><strong>Fall Semester (15 units)</strong></td>
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<tr>
<td>EE 490 - Electrical Projects Laboratory (3 units)</td>
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<tr>
<td>ENGR 490 - Fundamentals of Engineering Exam (0 units)</td>
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</tr>
<tr>
<td>Technical Electives (12 units)</td>
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<tr>
<td><strong>Spring Semester (16 units)</strong></td>
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<tr>
<td>EE 491 - Engineering Design/Analysis (4 units)</td>
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<tr>
<td>ECON 102 - Principles of Microeconomics (3 units)</td>
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<tr>
<td>------------------------------------------------</td>
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</tr>
<tr>
<td><strong>Science or Free</strong> Technical Elective (3 units)</td>
<td></td>
</tr>
<tr>
<td>Technical Electives (6 units)</td>
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</tr>
</tbody>
</table>

**Note(s):**
* In addition to the general university requirements of at least a "C" (2.0) average for graduation, engineering students must earn at least a "C" in those courses designated with an asterisk (*) and must also maintain at least a "C" average in the Core Curriculum Mathematics, Natural Sciences, and the major requirements courses.

**NOTE:** EE 220L, EE 220, EE 221, CPE 201R and CPE 301R are offered every semester; EE 191, EE 291, EE 320L, EE 320R, EE 362 and EE 490 are offered during the fall semester; EE 120, EE 330R, EE 340, EE 370L, EE 370R and EE 491 are offered during the spring semester.

Transfer agreements: 6363, 6264, 6462, 6560

**Implementation:** FL13

<table>
<thead>
<tr>
<th>EN CHEMAT</th>
<th>MSE 466/666 Create new course</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Approved with substantial rewrite of student learning outcomes</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ADD: Nuclear Fuel Cycle (3+0) 3 units</strong></td>
<td></td>
</tr>
<tr>
<td>Steps in the Nuclear Fuel Cycle: mining to fuel development, usage and waste management.</td>
<td></td>
</tr>
<tr>
<td>Prereq: MATH 181; MSE 232.</td>
<td></td>
</tr>
<tr>
<td>Abbrev: Nuclear Fuel Cycle</td>
<td></td>
</tr>
<tr>
<td>Offering: Every Fall – Odd Years</td>
<td></td>
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<tr>
<td>Transfer agreements: Changes Required</td>
<td></td>
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<td>Implementation: FL13</td>
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</table>

**NA**

Response deadline falls after meeting date

<table>
<thead>
<tr>
<th>LBA ART</th>
<th>448/648 114303 Create new course to be crosslisted with existing course BASQ 448/648</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Approved</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ADD: Basque Art, Politics, and Identity in a Global Context (3+0) 3 units</strong></td>
<td></td>
</tr>
<tr>
<td>Situates Basque art in indigenous culture and relates it to major Western and non-Western artistic movements and explores identity politics through art. (General Capstone).</td>
<td></td>
</tr>
<tr>
<td>Abbrev: Basque Art and Identity</td>
<td></td>
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<tr>
<td>Offerings: Every Fall</td>
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<tr>
<td>Transfer agreements: N/A</td>
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<tr>
<td>Implementation: FL13</td>
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**NA**

OK

<table>
<thead>
<tr>
<th>LBA CRJ</th>
<th>791 Create new course</th>
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<tbody>
<tr>
<td><strong>Approved</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ADD: Graduate Internship 1 to 3 units S/U only</strong></td>
<td></td>
</tr>
<tr>
<td>Supervised theoretical and practical experience in criminal justice or justice-related governmental or private organization. <strong>Repeatable to a maximum of 6 units.</strong></td>
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</tr>
<tr>
<td>Abbrev: Graduate Internship</td>
<td></td>
</tr>
<tr>
<td>Offerings: Every Fall, Spring and Summer</td>
<td></td>
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<tr>
<td>Transfer agreements: N/A</td>
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<tr>
<td>Implementation: FL13</td>
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</table>

**NA**

NA

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<tr>
<th>SCI BIOL</th>
<th>479 Create new course</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Approved; need to change wording in SLO #5 from &quot;understand&quot; to &quot;explain&quot;</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ADD: Techniques in Neuroscience Laboratory (0+4) 2 units</strong></td>
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<tr>
<td>A combination of guided exercises and student-designed projects will provide training in techniques to study neural mechanisms underlying development and behavior.</td>
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<tr>
<td>Prereq: BIOL 475; PSY 403 or PSY 405 or PSY 416.</td>
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</table>

**NA**

OK
### Abbrev: Neuroscience Lab
Offerings: Every Spring
Transfer agreements: No changes anticipated
Implementation: SP14

<table>
<thead>
<tr>
<th>SCI</th>
<th>GEOG</th>
<th>470 106925</th>
<th>Change course components; tabled at prior mtg due to SLOs</th>
</tr>
</thead>
</table>

**Approved**

**OLD:** Geographic Explorations 1 to 3 units S/U only (Lecture)

**NEW:** Geographic Explorations 1 to 3 units S/U only (Lecture and Lab)

*Multiple enrollment in one term allowed*

Abbrev: Geographic Explorations
Offerings: Every Summer
Transfer agreements: No changes anticipated
Implementation: SU14

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**ITEMS PENDING GRAD COUNCIL –**

**PROPOSED CHANGES**

<table>
<thead>
<tr>
<th>DHS</th>
<th>NURS</th>
<th>MSN/ New Specialization</th>
<th>Approved Adult-Gerontology Acute Care Nurse Practitioner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

**I. Contact Information**

Stephanie Deboor  
(775) 682-7156  
debrooms2@unr.edu

**II. Brief Introduction**

The Acute Care Nurse Practitioner (ACNP) program prepares nurses to provide advanced practice in acute care settings through a program of study focused on the care of acutely ill patients and their families. An ACNP can diagnose and treat medical conditions. In collaboration with the physician and other members of the health care team, ACNPs provide direct care to patients from hospital admission through discharge. With an increasing inpatient population of acutely and critically, research has shown that nurse practitioners within these settings demonstrated evidence of reducing length of stay, hospital costs, and patient complications, while improving communication among the health care team, along with patient and family satisfaction.

**III. Program Objectives/Learning Outcomes**

- Integrates scientific findings from nursing, biopsychosocial fields, genetics, public health, quality improvement, and organizational sciences for the continual improvement of nursing care across diverse settings.
- Provide advanced, ethical, evidence-based nursing services for multi-cultural and ethnic
individuals, families, aggregates, and select populations.
c. Apply patient-care and communication technologies to deliver, enhance, integrate, and coordinate care.
d. Collaborate with other professionals and members of the community to provide optimal health care to individuals, families, special populations, and communities with an emphasis on health promotion and disease prevention.
e. Respect diversity and address complex health care needs of persons, including the unserved and under-served, populations and communities, in the role of nurse leader, educator, and/or advanced practice nurse.
f. Participate in the ethical organization, management, and policy negotiations of health care delivery systems to use advocacy strategies to influence health and healthcare.
g. Participate in the application of safe patient care and quality health care practices.
h. Participate in the development of nursing as a science, through the use of theory, research, and scientific processes while acquiring a foundation for doctoral study.

IV. Admission Requirements

This is a two-step process, wherein the applicant must first meet the university’s Graduate School requirements as well as the Orvis School of Nursing MSN requirements. Both schools must receive all application materials on or before March 1 for consideration for the fall semester.

- Have an overall undergraduate grade-point average of at least 3.0.
- Complete a baccalaureate degree with an upper-division major in nursing from an NLNAC- or CCNE accredited nursing school. The baccalaureate degree curriculum must include the following specific course work:
  - Statistics;
  - Growth and development (must cover lifespan);
  - Basic research;
  - Health assessment
- Have verification of current licensure to practice as a registered nurse in the United States. Students must be eligible to practice as a registered nurse in Nevada;
- Submit a statement of intent including graduate-study goals;
- Provide three letters of reference to the graduate program director using the form on the OSN website.
- Successful completion of a graduate level applied statistics course prior to fall admission.
- Submit scores for the Graduate Record Exam (GRE). (Optional, required for those students applying for the MSN/MPH program of study).

An interview may be required.

The total of required units for completing the degree varies according to the option the student selects. The minimum number of required units for completion of the MSN is 35. With graduate advisor approval, MSN students may apply more than 3 S/U units to the 35 units required.

Applicants who plan to apply graduate-level credit earned at another university to the University of Nevada, Reno may be able to satisfy specific course requirements in the nursing program. Applicants must provide specific course information for review to determine if the transferred courses are equivalent to university requirements. If approved, such courses may be included in the official program of study.
### V. Program Requirements

- **NURS 735R** – Introduction to Knowledge Development and Scientific Inquiry
- **NURS 717R** – Advanced Pathophysiology
- **NURS 750R** – Advanced Health Assessment
- **NURS 716R** – Advanced Ambulatory Pharmacy
- **NURS 705** – Diagnosis, Symptom, and Illness Management
- **NURS 706** – Introduction to Management of Acute Care Patients
- **NURS 707** – Introduction to Acute Care Practicum
- **NURS 709** – Advanced Prescribing Pharmacology for the Acute Care Patient
- **NURS 710** – Management of Chronic Illnesses within Acute Care
- **NURS 711** – Management of Chronic Illness in Acute Care Patient Practicum
- **NURS 736** – Health Care Policy and Social Justice
- **NURS 737** – Populations and Aggregate Health Issues
- **NURS 712** – Management of Comorbid Conditions in Acute Care
- **NURS 713** – Management of Comorbid Conditions in Acute Care Practicum
- **NURS 797** – Thesis (6 units) OR
- **NURS 798** – Research Project (4 units)
- **NURS 714** – Advanced Practice Introduction to Critical Care
- **NURS 715** – Advanced Practice Introduction to Critical Care Patients Practicum

### VI. Program Total Units: 48 – 50 Units

### VII. Notes

### VIII. Undergraduate Requirements

Transfer agreements: N/A
Implementation: FL13

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**CONSENT AGENDA** - (Items on the consent agenda are voted upon as a group. Any member of the committee may request that item(s) be removed from the consent agenda for individual consideration)

### PROPOSED CHANGES

<table>
<thead>
<tr>
<th>LBA</th>
<th>ANTH</th>
<th>449B</th>
<th>100486</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Change course components to facilitate PS scheduling</td>
<td>Approved</td>
</tr>
</tbody>
</table>

**OLD:** Lithic Artifact Analysis (2+3) - 3 units

**NEW:** Lithic Artifact Analysis (3+0) - 3 units

Transfer agreements: N/A
Implementation: FL13

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### PROPOSED CHANGES

<table>
<thead>
<tr>
<th>SCI</th>
<th>GEOG</th>
<th>435/635 106906</th>
<th>Change course components to facilitate PS scheduling</th>
<th>Approved</th>
<th>OLD: Conservation of Natural Resources (2+3) 3 units</th>
<th>NEW: Conservation of Natural Resources (3+0) 3 units</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCI</td>
<td>GEOG</td>
<td>435/635 106906</td>
<td>Change course components to facilitate PS scheduling</td>
<td>Approved</td>
<td>OLD: Conservation of Natural Resources (2+3) 3 units</td>
<td>NEW: Conservation of Natural Resources (3+0) 3 units</td>
</tr>
<tr>
<td>CABNR</td>
<td>BCH</td>
<td>707 101368</td>
<td>Reactivate course; reverse recent inactivation from Course Update Project;</td>
<td>Acknowledged</td>
<td>REACTIVATE: Protein Structure and Function (3+0) 3 units</td>
<td>Protein structure, biochemical properties, techniques for structure determination and conformation analysis, structure function relationships.</td>
</tr>
<tr>
<td>CABNR</td>
<td>BCH</td>
<td>707 101368</td>
<td>Reactivate course; reverse recent inactivation from Course Update Project;</td>
<td>Acknowledged</td>
<td>REACTIVATE: Protein Structure and Function (3+0) 3 units</td>
<td>Protein structure, biochemical properties, techniques for structure determination and conformation analysis, structure function relationships.</td>
</tr>
<tr>
<td>EN</td>
<td>CEE</td>
<td>CEE 442 101971</td>
<td>Make existing Lab component an optional component</td>
<td>Acknowledged</td>
<td>Lab component not required for GE students. This course has been set up this way for some time, need to add optional component notation for scheduling purposes.</td>
<td></td>
</tr>
</tbody>
</table>
| LBA | GRI | MR-HGPS | Remove graduate level courses from catalog description | Acknowledged | Group B (3 units) | Examples of social confrontations, conflicts, mass destructions, and genocides.  
ART 476R - Propagandistic Art: 1925-1945 (3 units)  
HGPS 415 - Vietnam: Conflict and Consequences (3 units)  
HIST 212 - History of East Asia II (3 units)  
HIST 230 - Hist Of Africa I (3 units)  
HIST 231 - History of Africa II (3 units)  
HIST 293 - African Amer Exp Amer (3 units)  
HIST 296 - Nomads to Nations in Inner Eurasia (3 units) |
<table>
<thead>
<tr>
<th>DHS NURS</th>
<th>716 110876 Change</th>
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<tbody>
<tr>
<td><strong>NEW: Advanced Ambulatory Pharmacy</strong></td>
<td>1 to 3 units</td>
</tr>
<tr>
<td>Reviews drug therapy in ambulatory practice. Legal aspects of prescribing, dispensing, sampling in primary care are addressed. Variable credit dependent on MSN track of enrollment.</td>
<td>SLO/Recordi ng Statement</td>
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<td>Recd updated syl with</td>
<td></td>
</tr>
<tr>
<td>course units, description</td>
<td>Prereq(s): <strong>NURS 717 R</strong>; admission to MSN program. Transfer agreements: N/A Implementation: FL13</td>
</tr>
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