CIVIL ENGINEERING PLAN OF STUDY

Name ___________________________________________ Student ID ___________________________ Entered CE __________

FRESHMAN YEAR

<table>
<thead>
<tr>
<th>FALL</th>
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<tbody>
<tr>
<td>□ CVNG 1010 Freshman Engineering I¹</td>
<td>□ CVNG 1020 Freshman Engineering II¹ (CVNG 1010)</td>
</tr>
<tr>
<td>□ CHEM 1110/1115 General Chemistry I w/Lab²</td>
<td>□ CVNG 1500 Civil Engineering Computing (cc CVNG 1020, MATH 1510)</td>
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<tr>
<td>□ ENGL 1920 Advanced Writing for Professionals³</td>
<td>□ MATH 1520 Calculus II (MATH 1510)</td>
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<tr>
<td>□ MATH 1510 Calculus I⁴</td>
<td>□ PHYS 1610 Engineering Physics I (MATH 1510)</td>
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<tr>
<td>□ THEO 1000 Theological Foundations</td>
<td>□ PHYS 1620 Engineering Physics I Lab (cc PHYS 1610)</td>
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<td>□ Humanistic Values Elective⁶</td>
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1. ESCI 1010/1020 are acceptable for transfer credit. External transfer students may waive this requirement so long as the credit hours are transferred.
2. Requires one year of high school chemistry with a grade of "C" or better. Transfer credit can be given for CHEM 1070.
3. Enrollment in this course is based on your SAT or ACT score in English. Students can take ENGL 190 in lieu of ENGL 192.
4. Students may substitute another computer programming class (MatLab, C++, etc...) in place of CVNG 150.
5. Must be selected from approved departmental list included in pages 2 and 3. Either BIOL 1040 or an EAS course must be taken to satisfy the basic science requirement. Acceptable EAS courses include EAS 2000, EAS 2110/2440 or EAS 2530.

SOPHOMORE YEAR

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<tr>
<th>FALL</th>
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<tbody>
<tr>
<td>□ CVNG 2010 GIS and Surveying in Civil Engineering</td>
<td>□ STAT 3850 Probability &amp; Statistics (Math 2530)</td>
</tr>
<tr>
<td>□ CVNG 2020 GIS and Surveying Lab</td>
<td>□ Math/Science Elective⁶</td>
</tr>
<tr>
<td>□ CMM 2200 Small Group Presentation</td>
<td>□ ESCI 2150 Dynamics (ESCI 2100, MATH 1520)</td>
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<tr>
<td>□ Science Elective⁶</td>
<td>□ ESCI 3100 Mechanics of Solids (ESCI 210, cc MATH 2530)</td>
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<tr>
<td>□ ESCI 2100 Statics (cc PHYS 1610)</td>
<td>□ ESCI 3101 Mechanics of Solids Lab (cc ESCI 3100)</td>
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<tr>
<td>□ MATH 2530 Calculus III (MATH 1520)</td>
<td>□ MATH 3550 Differential Equations (MATH 2530)</td>
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JUNIOR YEAR

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<tr>
<td>□ CVNG 3010 Structural Analysis (ESCI 3100)</td>
<td>□ CVNG 3090 Geotechnical Engineering (CVNG 3030)</td>
</tr>
<tr>
<td>□ CVNG 3020 Structural Analysis Lab (cc CVNG 3010)</td>
<td>□ CVNG 3100 Geotechnical Engr. Lab (cc CVNG 3090)</td>
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<tr>
<td>□ CVNG 3030 Civil Engineering Materials (ESCI 3100 /3101)</td>
<td>□ CVNG 3110 Transportation Engrg. (STAT 3850)</td>
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<tr>
<td>□ CVNG 3040 Sustainability and Environmental Engineering (CHEM 1110 or CHEM 1070)</td>
<td>□ CVNG 3120 Transportation Engrg. Lab (cc CVNG 3110)</td>
</tr>
<tr>
<td>□ CVNG 3050 Sustainability and Environmental Engineering Lab (CHEM 1115, cc CVNG 2030)</td>
<td>□ CVNG 3130 Hydraulic Engineering (ESCI 3220)</td>
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<tr>
<td>□ ESCI 3200 Fluid Dynamics (ESCI 2100, MATH 2530)</td>
<td>□ CVNG 3140 Hydraulic Engineering Lab (cc CVNG 3130)</td>
</tr>
<tr>
<td>□ ESCI 3201 Fluid Dynamics Laboratory (cc ESCI 3200)</td>
<td>□ CVNG 3150 Intro. to Structural Design (CVNG 3010, CVNG3030)</td>
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<tr>
<td>□ CVNG 3070 Engineering Project Management</td>
<td>□ CVNG 3160 Intro. to Structural Design Lab (cc CVNG 3150)</td>
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SENIOR YEAR

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<tr>
<td>□ CVNG 4500 Capstone Design I (12 or more credit hours of CVNG 3000 level coursework and consent of instructor)</td>
<td>□ CVNG 4510 Capstone Design II (CVNG 4500)</td>
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<tr>
<td>□ PHIL 3400 Engineering Ethics</td>
<td>□ Cultural Diversity Elective⁶</td>
</tr>
<tr>
<td>□ Civil Engineering Electives⁷</td>
<td>□ Humanistic Values Elective⁶</td>
</tr>
<tr>
<td>□ Professional Development Electives⁷</td>
<td>□ Civil Engineering Elective⁷</td>
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<td>□ Professional Development Electives⁷</td>
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7. See page 2.

Faculty Mentor: ___________________________________________  Effective: Fall 2016

Total 125
**Math/Science Electives**: The 4 hour science elective must be a lab course selected from the following list: BIOL 1040, CHEM 1120/1125, or PHYS 1630/1640. The 3 hour Math/Science elective must be at the level of rigor reflective of a sophomore level engineering student. Example courses include EAS 2300, 2110/2440, 2530 and MATH 3110, 3240. Either BIOL 1040 or an EAS course (or both) must be taken to satisfy the ABET basic science requirement. Acceptable EAS courses include EAS 2300, EAS 2110/2440, or EAS 2530. Courses for non-science majors and engineering courses will not be accepted.

**Civil Engineering and Professional Development Electives**: 9 civil engineering in-depth credit hours are required and must be selected from upper division (300 level and above) civil engineering courses. 6 additional professional development credit hours are also required and can be selected from the civil engineering department or courses from other departments that support the student's professional development goals. Courses can be selected from suggested elective tracks shown below or students can develop individualized plans with the approval of their faculty mentor (Not all courses will be offered each year – check Banner for availability of courses). A minimum of 6 hours must be upper division courses (300 level and above). Courses taken to satisfy a double majors and minors that enhance a student’s professional development can be used to satisfy this requirement. Examples of acceptable minors and double majors include Math, Chemistry, Business Administration, Environmental Science, and Geology.

**Infrastructure Analysis and Design**
- CVNG 4050 – Advanced Structural Analysis
- CVNG 4070 – Structural Dynamics
- CVNG 4090 – Advanced Reinforced Concrete
- CVNG 4110 – Advanced Steel Design
- CVNG 4130 – Bridge Engineering
- CVNG 4093 – Foundation Engineering
- CVNG 4370 – Slopes and Retaining Structures

**Environmental and Sustainable Engineering**
- CVNG 4190 – Sustainable Land Development Engineering
- CVNG 4210 – Sustainable Water Management
- CVNG 4230 – Biological Treatment Systems
- CVNG 4250 – Physical/Chemical Treatment Systems
- CVNG 4270 – Design of Wastewater Treatment Facilities
- CVNG 4290 – Design of Drinking Water Treatment Facilities
- CVNG 4310 – Air Pollution
- CVNG 4330 – Solid and Hazardous Waste Management

**Transportation Analysis, Planning, and Design**
- CVNG 4450 – Traffic Engineering
- CVNG 4470 – Urban Transportation Planning
- CVNG 4130 – Bridge Engineering
- CVNG 4490 – Data Management and Analysis
- CVNG 4310 – Air Pollution
- PPS 4930 – Future Issues in U.S. Rail Transportation

**Geotechnical and Geo-engineering**
- CVNG 4030 – Foundation Engineering
- CVNG 4370 – Slopes and Retaining Structures
- CVNG 4390 – Advanced Geotechnical Engineering
- CVNG 4070 – Structural Dynamics
- EAS 4190 - Geospatial Methods in Environmental Studies
- EAS 4260 - Environmental Geophysics
- EAS 4350 - Groundwater Hydrology

**Engineering Business Administration**
- ECON 1900 Principles of Economics*
- ITM 2000/2010 Introduction to Information Technology
- IB 2001 Introduction to International Business
- ACCT 2200 Financial Accounting
- ACCT 2220 Managerial Accounting
- MKT 3000 Introduction to Marketing Management
- MGT 3000 Management Theory & Practice
- FIN 3010 Principles of Finance
- MGT 2000 Legal Environment of Business

**Allied Engineering Courses**
- ECE 2001/2002 Electrical Engineering w/lab
- ESCI 2300 Thermodynamics
- ESCI 3110 Linear Vibrations
- MENG 3510 Material Science
- MENG 3430 Measurements

*ECON-1900 Principles of Economics taken as humanistic values elective.

**Humanistic Value Courses**: Courses shall be chosen from Philosophy, Theology, Social and Behavioral Sciences, or Humanities (refer to the guidelines below):


Humanities courses include: Fine Arts (excludes applied, studio, and performance courses), Literature, History, and Foreign Languages (excludes English or native language).

Social & Behavioral Sciences courses (3-credit) include: Anthropology, Communication, Communication Disorders, Economics, Education, Political Science, Psychology, Social Work, Sociology, Criminal Justice, and Public Policy Studies (excludes field service courses).
Spring 2014 Approved Cultural Diversity Courses for Parks College Students

Cultural diversity courses shall be chosen from the list of course provided by the College of Arts and Sciences. Students may also satisfy the cultural diversity requirement for an academic term of study at an institution where the culture is significantly different from the students’ native culture. Students should consult with their Department Chair prior to the semester of study.

Parks college students enrolling fall semester of 2011 or after must complete one course from either the Diversity in the U.S. list or the Global Citizenship list.

### 3 hrs Diversity in the U.S.
- AAM200 Introduction to African American Studies
- AAM201 Contemporary Black America
- AAM222/ARTH222 African American Art
- AAM250 Intergroup Dialog
- AAM322/AIDS322 The Urban Crisis
- AAM337 Spirituals, Motown, and Hip Hop
- AAM434/PSY424 African American Psychology
- AAM481/PHIL482 Philosophy and Race
- AAM 490 Black Women in Society
- ASTD202 Investigating America
- ASTD310 American Decades
- ASTD320 Making the American City
- ASTD322/AAM 322 The Urban Crisis
- CMH365 Public Health and Social Justice
- CMH430 Intercultural Communication
- CMH432 Communication across Racial Divisions
- CMH435 Stereotyping and Bias in Mass Media
- CSD330 Characteristics of Multicultural Populations
- ENGL335 American Ethnic Literature and Film
- ENGL389 The Female Bildungsroman
- HCE426 Race and Research Ethics
- HIST359 American Women
- HIST364 History of the American West since 1848
- MLNG200, 201, and 202 to fulfill Global Citizenship Requirement

### 3 hrs Global Citizenship
- AAM212/ARTH212 Survey of Art in Africa
- ARTH210 Art of Jerusalem & Three Faiths
- AAM232/ARTH232 Art of African Diaspora
- ARTH235 Excavating Culture of Three Faiths
- ASTD240 American Home fronts, Global Wars
- ARTH314 Islamic Art and Society
- BIOL134 The Diversity of Life
- BIOL328 Ethnobotany
- CMH201 Introduction to Global Health
- CMH403 International Public Relations
- CMH493 International Mass Communication
- EAS109 Climate Change
- ENGL325 Post-Colonial Literature
- ENGL333 African Diaspora Literature
- ENGL340 World Literary Traditions I
- ENGL341 World Literary Traditions II
- ENGL342 Literary Traditions
- FREN407 Exoticism
- HIST323 History of Africa to 1884
- HIST324 History of Africa since 1884
- MLNG200 Cross-Cultural Preparation for Study Abroad (1 hr)
- MLNG201 Cross-Cultural Inquiry for Study Abroad (1 hr)
- MLNG202 Cross-Cultural Re-Entry from Study Abroad (1 hr)
- Note: Students must take MLNG 200, 201, and 202 to fulfill Global Citizenship Requirement
- PHIL342 Environmental & Ecological Ethics
- PHIL349 Jewish Life & Thought
- POLS151 Introduction to Politics of the Developing World
- POLS160 Introduction to International Politics
- POLS252 African Politics
- POLS253 Soviet and Post-Soviet Politics
- POLS254 Ethnicity and Internal War
- POLS255 Politics of Sub-Saharan Africa
- POLS256 The Politics of Asia
- POLS257 Introduction to Latin American Politics
- POLS260 Introduction to International Political Economy
- POLS350 Asian Miracles
- POLS353 Comparative Revolution
- POLS354 Latin American Social Movements
- POLS360 Problems of Globalization
- POLS365 International Relations of Africa
- PUBH201 Introduction to Global Health
- SOCL118 Geography of World Regions
- SOCL120 Introduction to Anthropology
- SPAN435 Counter Hegemony Discourse
- SPAN438 Cultural Stereotypes
- THEO273 Islam: Religion and Culture
- THEO279 The World's Religions
- WSTD461 Global and Transnational Feminism