# Civil Engineering Plan of Study

**Name ___________________________**  
**Student ID ______________________**  
**Entered CE ______________________**

## Freshman Year

<table>
<thead>
<tr>
<th>FALL</th>
<th>SPRING</th>
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</thead>
<tbody>
<tr>
<td>CVNG 1010 Freshman Engineering I1</td>
<td>1. CVNG 1020 Freshman Engineering II1 (CVNG 1010) 1</td>
</tr>
<tr>
<td>CHEM 1110/1115 General Chemistry I w/Lab2</td>
<td>2. CVNG 1500 Civil Engineering Computing (cc CVNG 1020, MATH 1510) 3</td>
</tr>
<tr>
<td>ENGL 1920 Advanced Writing for Professionals3</td>
<td>3. MATH 1520 Calculus II (MATH 1510) 4</td>
</tr>
<tr>
<td>MATH 1510 Calculus I4</td>
<td>4. PHYS 1610 Engineering Physics I (MATH 1510) 3</td>
</tr>
<tr>
<td>THEO 1000 Theological Foundations</td>
<td>5. PHYS 1620 Engineering Physics I Lab (cc PHYS 1610) 1</td>
</tr>
</tbody>
</table>

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1. ESCL 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 1900 in lieu of ENGL 1920.
4. Student must meet the required Math Index before enrolling in MATH 1510 Calculus I.
5. Students may substitute another computer programming class (MatLab, C++, etc...) in place of CVNG 1500.
6. 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 2300, EAS 2110/2440 or EAS 2530.

## Sophomore Year

<table>
<thead>
<tr>
<th>FALL</th>
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<tbody>
<tr>
<td>CVNG 2030 Sustainability and Environmental Engineering (CHEM 1110 or CHEM 1070)</td>
<td>1. GIS 2170 GIS in Civil Engineering 3</td>
</tr>
<tr>
<td>CVNG 2040 Sustainability and Environmental Engineering Lab (CHEM 1115, cc CVNG 2030)</td>
<td>2. Math/Science Elective6 3</td>
</tr>
<tr>
<td>CMM 2200 Small Group Presentation</td>
<td>3. ESCL 2150 Dynamics (ESCL 2100, MATH 1520) 3</td>
</tr>
<tr>
<td>Science Elective6</td>
<td>4. ESCI 3100 Mechanics of Solids (ESCI 2100, MATH 2530) 3</td>
</tr>
<tr>
<td>ESCI 2100 Statics (cc PHYS 1610)</td>
<td>5. ESCI 3101 Mechanics of Solids Lab (cc ESCI 3100) 1</td>
</tr>
<tr>
<td>MATH 2530 Calculus III (MATH 1520)</td>
<td>6. MATH 3550 Differential Equations (MATH 2530) 3</td>
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## Junior Year

<table>
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<tr>
<th>FALL</th>
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<tbody>
<tr>
<td>CVNG 3010 Structural Analysis (ESCI 3100)</td>
<td>1. CVNG 3120 Transportation Engr. Lab (ccCVNG 3110) 1</td>
</tr>
<tr>
<td>CVNG 3020 Structural Analysis Lab (cc CVNG 3010)</td>
<td>2. CVNG 3110 Transportation Engr. (Math 4880) 3</td>
</tr>
<tr>
<td>CVNG 3030 Civil Engineering Materials (ESCI 3100/3101)</td>
<td>3. CVNG 3140 Hydraulic Engineering (ESCI 3220) 3</td>
</tr>
<tr>
<td>CVNG 3050 Introduction to Surveying</td>
<td>4. CVNG 3150 Intro. to Structural Design (CVNG 3010, CVNG 3030) 3</td>
</tr>
<tr>
<td>Math 4880 Probability &amp; Statistics (MATH 2530)</td>
<td>5. CVNG 3160 Intro. to Structural Design Lab (cc CVNG 3150) 1</td>
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## Senior Year

<table>
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<tr>
<th>FALL</th>
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<tbody>
<tr>
<td>CVNG 4500 Capstone Design I (12 or more credit hours of CVNG 3000 level coursework and consent of instructor)</td>
<td>1. CVNG 4510 Capstone Design II (CVNG 4500) 3</td>
</tr>
<tr>
<td>PHIL 3440 Engineering Ethics</td>
<td>2. CVNG 4010 Senior Engineering 1</td>
</tr>
<tr>
<td>Civil Engineering Electives7</td>
<td>3. Cultural Diversity Elective6 3</td>
</tr>
<tr>
<td>Civil Engineering Electives8</td>
<td>4. Humanistic Values Elective6 3</td>
</tr>
<tr>
<td>Professional Development Electives7</td>
<td>5. Civil Engineering Elective 3</td>
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<tr>
<td></td>
<td>6. Professional Development Electives6 3</td>
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7. See page 2.

**Total 125**

Faculty Mentor: ________________________________  
Effective: Fall 2015
**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 (3000 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 (3000 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.

<table>
<thead>
<tr>
<th>Infrastructure Analysis and Design</th>
<th>Geotechnical and Geo-engineering</th>
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<tbody>
<tr>
<td>CVNG 4050 – Advanced Structural Analysis</td>
<td>CVNG 4030 – Foundation Engineering</td>
</tr>
<tr>
<td>CVNG 4070 – Structural Dynamics</td>
<td>CVNG 4370 – Slopes and Retaining Structures</td>
</tr>
<tr>
<td>CVNG 4090 – Advanced Reinforced Concrete</td>
<td>CVNG 4390 – Advanced Geotechnical Engineering</td>
</tr>
<tr>
<td>CVNG 4110 – Advanced Steel Design</td>
<td>CVNG 4070 – Structural Dynamics</td>
</tr>
<tr>
<td>CVNG 4130 – Bridge Engineering</td>
<td>EAS 4190 - Geospatial Methods in Environmental Studies</td>
</tr>
<tr>
<td>CVNG 4030 – Foundation Engineering</td>
<td>EAS 4260 - Environmental Geophysics</td>
</tr>
<tr>
<td>CVNG 4370 – Slopes and Retaining Structures</td>
<td>EAS 4350- Groundwater Hydrology</td>
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<table>
<thead>
<tr>
<th>Environmental and Sustainable Engineering</th>
<th>Engineering Business Administration</th>
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<tbody>
<tr>
<td>CVNG 4190 – Sustainable Land Development Engineering</td>
<td>ECON 1900 Principles of Economics*</td>
</tr>
<tr>
<td>CVNG 4210 – Sustainable Water Management</td>
<td>ITM 2000/2010 Introduction to Information Technology</td>
</tr>
<tr>
<td>CVNG 4230 – Biological Treatment Systems</td>
<td>IB 2001 Introduction to International Business</td>
</tr>
<tr>
<td>CVNG 4250 – Physical/Chemical Treatment Systems</td>
<td>ACCT 2200 Financial Accounting</td>
</tr>
<tr>
<td>CVNG 4270 – Design of Wastewater Treatment Facilities</td>
<td>ACCT 2220 Managerial Accounting</td>
</tr>
<tr>
<td>CVNG 4290 – Design of Drinking Water Treatment Facilities</td>
<td>MKT 3000 Introduction to Marketing Management</td>
</tr>
<tr>
<td>CVNG 4310 – Air Pollution</td>
<td>MGT 3000 Management Theory &amp; Practice</td>
</tr>
<tr>
<td>CVNG 4330 – Solid and Hazardous Waste Management</td>
<td>FIN 3010 Principles of Finance</td>
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<td>MGT 2000 Legal Environment of Business I</td>
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<thead>
<tr>
<th>Transportation Analysis, Planning, and Design</th>
<th>Allied Engineering Courses</th>
</tr>
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<tbody>
<tr>
<td>CVNG 4450 – Traffic Engineering</td>
<td>ECE 2001/2002 Electrical Engineering w/lab</td>
</tr>
<tr>
<td>CVNG 4470 – Urban Transportation Planning</td>
<td>ESCI 2300 Thermodynamics</td>
</tr>
<tr>
<td>CVNG 4130 – Bridge Engineering</td>
<td>ESCI 3110 Linear Vibrations</td>
</tr>
<tr>
<td>CVNG 4490 – Data Management and Analysis</td>
<td>MENG 3510 Material Science</td>
</tr>
<tr>
<td>CVNG 4310 – Air Pollution</td>
<td>MENG 3430 Measurements</td>
</tr>
</tbody>
</table>
| PPS 4930 – Future Issues in U.S. Rail Transportation | *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 in Fine Arts, Literature, History, or Foreign Languages.

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).
CULTURAL DIVERSITY

All current Parks College students must complete a minimum of one approved cultural diversity course. This requirement may simultaneously satisfy another core curriculum requirement, a requirement for a major, minor, or certificate program, or an elective course. The following is a list of approved cultural diversity courses. You may complete one course from either the Diversity in the U.S. list or the Global Citizenship list.

### 3 hrs Diversity in the U.S.
- AAM2000 Introduction to African American Studies
- AAM2010 Contemporary Black America
- AAM2220/ARTH2220 African American Art
- AAM2500 Intergroup Dialogue
- AAM3220/ASTD3220 The Urban Crisis
- AAM3370 Spirituals, Motown, and Hip Hop
- AAM4340/PSY4240 African American Psychology
- AAM4810/PHIL4820 Philosophy and Race
- AAM4900 Black Women in Society
- ARTH2220/AAM2220 African American Art
- STD1000 Investigating America
- STD3000 American Decades
- STD3100 Making the American City
- STD3220/AAM3220 The Urban Crisis
- STD3900 Mixed-Race America
- STD3020 American Mosaic - Literature and Diversity
- CCJ 2250 Introduction to Corrections
- CMN230/AAM250 Intergroup Dialogue
- CMN3300 Intercultural Communication
- CMN4320 Communication across Racial Divisions
- CMN4500 Stereotyping and Bias in Mass Media
- CSD3000 Characteristics of Multicultural Populations
- ENGL3560 American Ethnic Literature
- ENGL3240 Female Bildungsroman Reading
- HCE4260 Race and Research Ethics
- HIST3590 American Women
- HIST3640 History of the American West
- MLNG3211 Repairing the World: Social Justice through the Lenses of the Jewish Tradition
- PHIL4320 Feminism and the History of Ethics
- PHIL4810/WSTD4810 Philosophy of Feminism
- PHIL4820/AAM4810 Philosophy and Race
- POLS2010 Ethics and Politics
- POLS2050 The Politics of Black America
- POLS2220 Urban Politics
- POLS3150 Civil Liberties and Civil Rights
- POLS3770/WSTD3775 Feminist Theory: Gender Justice
- POLS3780 Disability Theory and Politics
- POLS3800 Structure of Poverty: Globally and Locally
- POLS3330 Metropolitan Environment
- PSY4330 Psychology of Oppression
- PSY4340/AAM4340 African American Psychology
- PUBH 3100 Public Health and Social Justice
- SOC1110 Introduction to Sociology: Diversity Emphasis
- SOC1500 Urban Community: Race, Class and Spatial Justice
- SOC2110 Sociology of Sport
- SOC3290 Native Peoples of North America
- SOC3430/WSTD3430 Marriage and the Family
- THR2700 U.S. Diversity in Theatre
- SWRK3200 Diversity and Anti-Oppression Practice
- WGST1900 Introduction to Women's and Gender Studies
- WGST333/CMM3300 Intercultural Communication
- WGST3340/SOC3340 Marriage and Family
- WGST3775/POLS3770 Gender Justice
- WGST4200 Psychology of Women
- WGST4330/PSY4340/AAM4340 Psychology of Oppression
- WGST4810/PHIL4810 Philosophy of Feminism
- WGST4800/AAM4900 Black Women in Society

### 3 hrs Global Citizenship
- ARTH2100 Art of Jerusalem and Three Faiths
- ARTH2120/AAM212 Survey of Art in Africa since Pre-history
- ARTH2320/AAM320 Art of the African Diaspora
- ARTH2350 Excavating Culture of 3 Faiths
- ARTH3140 Islamic Art and Society
- ASCI3600 Humanitarian Action
- ASTD200 American Homefronts, Global Wars
- ASTD2300 Americans Abroad
- BIOL1340 The Diversity of Life
- BIOL3280 Ethnobotany
- GLCH2010 Introduction to Global Health
- CMN4650 International Public Relations
- EAS1090 Climate Change
- ENGL3500 Literature of Post-Colonial World
- ENGL3540 Literature of African Diaspora
- ENGL3310 World Literary Traditions I
- ENGL3320 World Literary Traditions II
- ENGL3330 World Literary Traditions III
- FREN4870 Exoticism: France and its “Others”
- HIST3230 Africa to 1884
- HIST3240 Africa since 1884
- ITAL3650 All Things Trans-: Modern Italy Across Borders, Cultures, and Disciplines
- MLNG2000 Cross-Cultural Preparation for Study Abroad (1hr)
- MLNG2010 Cross-Cultural Inquiry for Study Abroad (1hr)
- MLNG2020 Cross-Cultural Re-Entry from Study Abroad (1hr)
- Note: Students must take MLNG 201, 201, and 202 to fulfill Global Citizenship Requirement
- MLNG3200 Israeli Culture: From the birth of Zionism to the 21st Century
- MUSC1170 World Music
- PHIL3420 Environmental and Ecological Ethics
- PHIL4390 Jewish Life: Middle Ages to Modern Time
- POLS1510 Politics of the Developing World
- POLS1600 Introduction to International Politics
- POLS2520 Introduction to African Politics
- POLS2530 Soviet and Post-Soviet Politics
- POLS2540 Ethnicity and Internal War
- POLS2550 Political Systems of Sub-Saharan Africa
- POLS2560 The Politics of Asia
- POLS2570 Introduction to Latin American Politics
- POLS2600 Introduction to International Political Economy
- POLS3500 Asian Miracles
- POLS3530 Comparative Revolutions
- POLS3540 Latin American Social Movements
- POLS3600 Problems of Globalization
- POLS3650 International Relations of Africa
- PSY4270 Cross-Cultural Psychology
- PUBH2100 Introduction to Global Health
- SOC1180 World Geography
- SOC1200 Introduction to Anthropology
- SOC1380 Immigration
- SPAN4350 Latin American Testimony
- SPAN4380 Cultural Stereotypes: Latin America
- SPAN4400 Strangers in a Familiar Land: Displacements in Latin America
- THEO2710 Religions of the World
- THEO2720 Islam Religion & Culture
- WGST4860 Global and Transnational Feminism