**Advising Form for UVA Civil Class of 2023**

##### **Name: Advisor:** **Expected Grad. Date** \_\_\_\_\_\_\_\_\_

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| **FALL** | **First Semester** |  | Sem | Gr | **SPRING** | **Second Semester** |  | Sem | Gr |
| APMA 1110 | Single Variable Calculus II | 4 |  |  | APMA 2120 | Multivariable Calculus | 4 |  |  |
| CHEM 1410 | Intro. Chemistry I | 3 |  |  | PHYS 1425 | General Physics I | 3 |  |  |
| CHEM 1411 | Intro. Chemistry I Lab | 1 |  |  | PHYS 1429 | Physics Workshop | 1 |  |  |
| ENGR 1624 | Intro. to Engineering & Lab | 4 |  |  | CS 1110, or 1111 or 1112 | Intro. to Computer Science | 3 |  |  |
| STS 1500 | Science, Technology & |  |  |  |  | Science I (1) | 3 |  |  |
|  | Contemporary Issues | 3 |  |  |  | HSS elective (2) | 3 |  |  |
|  |  | 15 |  |  |  |  | 17 |  |  |
| **FALL** | Third Semester |  |  |  | **SPRING** | Fourth Semester |  |  |  |
| APMA 2130 | Ordinary Differential Equations | 4 |  |  | APMA 3110 | App. Statistics & Probability | 3 |  |  |
| CE 2300 | Statics | 3 |  |  | CE 2100 | Intro to Environmental Eng. | 3 |  |  |
| PHYS 2415 | General Physics II | 3 |  |  | CE 2110 | Intro to Env. Engineering Lab | 1 |  |  |
| PHYS 2419 | Physics II Workshop | 1 |  |  | CE 2310 | Strength of Materials | 3 |  |  |
| CE 2010 | Civil Eng. Techniques | 3 |  |  |  | Technical Elective I (3) | 3 |  |  |
|  | HSS elective (2) | 3 |  |  | STS xxxx | STS 2xxxx/3xxxx elective | 3 |  |  |
|  |  | 17 |  |  |  |  | 16 |  |  |

##### **INFRASTRUCTURE SYSTEMS TRACK - IS**

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| **FALL** | Fifth Semester |  |  |  | **SPRING** | Sixth Semester |  |  |  |
| CE 3210 | Fluid Mechanics | 3 |  |  | CE 3220 | Water Resources Eng. | 3 |  |  |
|  |  |  |  |  | CE 3222 | Water Resource Eng. Workshop | 1 |  |  |
| CE 3300 | Structural Mechanics | 3 |  |  | CE 3400 | Trans. Facilities Design | 3 |  |  |
| CE 3710 | Intro. to Geotech. Eng. | 3 |  |  | CE 3402 | Transportation Infrastructure Design Workshop | 1 |  |  |
| CE 3712 | Intro. to Geotech. Eng. Lab | 1 |  |  | CE 3330 | Design of Structural Systems | 4 |  |  |
| APMA 3080 | Linear Algebra | 3 |  |  | CE 2020 | Engineering Economic Analysis | 1 |  |  |
|  | HSS elective (2) | 3 |  |  |  | Unrestricted elective (6) | 3 |  |  |
|  |  | 16 |  |  |  |  | 16 |  |  |
| **FALL** | **Seventh Semester** |  |  |  | **SPRING** | **Eighth Semester** |  |  |  |
| CE 4990 | CE Research and Design | 3 |  |  | STS 4600 | Engineer, Ethics & Professional Responsibility | 3 |  |  |
| STS 4500 | STS & Engineering Practice | 3 |  |  | CE 4991 | CE Design and Practice | 4 |  |  |
|  | Civil Eng elective (4) | 3 |  |  |  | Civil Eng elective (4) | 3 |  |  |
|  | Technical elective II (5) | 3 |  |  |  | Technical elective II (5) | 3 |  |  |
|  | Unrestricted elective (6) | 3 |  |  |  | Unrestricted elective (6) | 3 |  |  |
|  |  | 15 |  |  |  |  | 16 |  |  |

ENVIRONMENTAL & WATER RESOURCES TRACK\* - EWR

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| **FALL** | Fifth Semester |  |  |  | **SPRING** | Sixth Semester |  |  |  |
| CE 3100 | Water for the World | 3 |  |  | CE 3220 | Water Resources Eng. | 3 |  |  |
| CE 3210 | Fluid Mechanics | 3 |  |  | CE 3222 | Water Resource Eng. Workshop | 1 |  |  |
|  |  |  |  |  |  | Env. Engineering Elective (9) | 3 |  |  |
| CE 3710 | Intro. to Geotech. Eng. | 3 |  |  | CE 3050 | Intro to Green Eng | 3 |  |  |
| CE 3712 | Intro. to Geotech. Eng. Lab | 1 |  |  |  | EWR CE Breadth elective (8) | 3 |  |  |
|  | EWRE Science II elective (7) | 3 |  |  |  | HSS elective (2) | 3 |  |  |
|  | Unrestricted elective (6) | 3 |  |  |  |  |  |  |  |
|  |  | 16 |  |  |  |  | 16 |  |  |
| **FALL** | **Seventh Semester** |  |  |  | **SPRING** | **Eighth Semester** |  |  |  |
| CE 4990 | CE Research and Design | 3 |  |  | STS 4600 | Engineer, Ethics & Professional Responsibility | 3 |  |  |
| STS 4500 | STS & Engineering Practice | 3 |  |  | CE 4991 | CE Design and Practice | 4 |  |  |
|  | Civil Engineering elective (4) | 3 |  |  |  | Civil Engineering elective (4) | 3 |  |  |
|  | Water Resources elective (10) | 3 |  |  |  | Technical elective II (5) | 3 |  |  |
|  | Unrestricted elective (6) | 3 |  |  |  | Unrestricted elective (6) | 3 |  |  |
|  |  | 15 |  |  |  |  | 16 |  |  |

\* Students in EWR track are encouraged to take the Environmental Engineering Fundamentals of Engineering Exam

Construction Engineering and Management (CEM) Track

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| **FALL** | Fifth Semester |  |  | **SPRING** | Sixth Semester |  |  |
| CE 3210 | Fluid Mechanics | 3 |  | CE 3330 | Design of Structural Systems | 4 |  |
| CE 3300 | Structural Mechanics | 3 |  |  | Civil Eng elective (4) | 3 |  |
| CE 3710 | Intro. to Geotech. Eng. | 3 |  | APMA 3080 | Linear Algebra | 3 |  |
| CE 3712 | Intro. to Geotech. Eng. Lab | 1 |  |  | CEM Elective I (11) | 3 |  |
| CE 2030 | Management of Engineering and Construction Projects | 3 |  |  | Unrestricted elective (6) | 3 |  |
|  | HSS elective (2) | 3 |  |  |  |  |  |
|  |  | 16 |  |  |  | 16 |  |
| **FALL** | Seventh Semester |  |  | **SPRING** | Eighth Semester |  |  |
| CE 4990 | CE Research and Design | 3 |  | STS 4600 | Engineer, Ethics & Professional Responsibility | 3 |  |
| STS 4500 | STS & Engineering Practice | 3 |  | CE 4991 | CE Design and Practice | 4 |  |
|  | CEM Elective I (11) | 3 |  |  | Civil Eng elective (4) | 3 |  |
|  | Technical elective II (5) | 3 |  |  | CEM Elective II (12) | 3 |  |
|  | Unrestricted elective (6) | 3 |  |  | Unrestricted elective (6) | 3 |  |
|  |  | 15 |  |  |  | 16 |  |

Structural Engineering (SE) Track

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| **FALL** | Fifth Semester |  |  |  | **SPRING** | Sixth Semester |  |  |  |
| CE 3210 | Fluid Mechanics | 3 |  |  | CE 3330 | Design of Structural Systems | 4 |  |  |
| CE 3300 | Structural Mechanics | 3 |  |  |  | Civil Eng elective (4) | 3 |  |  |
| CE 3710 | Intro. to Geotech. Eng. | 3 |  |  | APMA 3080 | Linear Algebra | 3 |  |  |
| CE 3712 | Intro. to Geotech. Eng. Lab | 1 |  |  |  | Technical elective II (5) | 3 |  |  |
| CE 2030 | Management of Engineering and Construction Projects | 3 |  |  |  | Unrestricted elective (6) | 3 |  |  |
|  | HSS elective (2) | 3 |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | 16 |  |  |
|  |  | 16 |  |  |  |  |  |  |  |
| **FALL** | Seventh Semester |  |  |  | **SPRING** | Eighth Semester |  |  |  |
| CE 4990 | CE Research and Design | 3 |  |  | STS 4600 | Engineer, Ethics & Professional Responsibility | 3 |  |  |
| STS 4500 | STS & Engineering Practice | 3 |  |  | CE 4991 | CE Design and Practice | 4 |  |  |
|  | Structural Design elective (13) | 3 |  |  |  | Structural Eng. Elective (14) | 3 |  |  |
|  | Civil Eng elective (4) | 3 |  |  |  | Technical elective II (5) | 3 |  |  |
|  | Unrestricted elective (6) | 3 |  |  |  | Unrestricted elective (6) | 3 |  |  |
|  |  | 15 |  |  |  |  | 16 |  |  |

STRUCTURAL MECHANICS & MATERIALS TRACK - SMM (being phased out but still available on request)

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| **FALL** | Fifth Semester |  |  |  | **SPRING** | Sixth Semester |  |  |  |
| CE 3210 | Fluid Mechanics | 3 |  |  | CE 3330 | Design of Structural Systems | 4 |  |  |
| ~~CE 3212~~ | ~~Fluid Mechanics Lab~~ | ~~1~~ |  |  |  |  |  |  |  |
| CE 3300 | Structural Mechanics | 3 |  |  | APMA 3080 | Linear Algebra | 3 |  |  |
| CE 3710 | Intro. to Geotech. Eng. | 3 |  |  | MSE 4320 | Origins/Mechanical Behavior | 3 |  |  |
| CE 3712 | Intro. to Geotech. Eng. Lab | 1 |  |  |  | Technical elective II (5) | 3 |  |  |
| MSE 3060 | Structures & Defects/Materials | 3 |  |  |  | Unrestricted elective (6) | 3 |  |  |
|  | HSS elective (2) | 3 |  |  |  |  |  |  |  |
|  |  | 16 |  |  |  |  | 16 |  |  |
| **FALL** | Seventh Semester |  |  |  | **SPRING** | Eighth Semester |  |  |  |
| CE 4990 | CE Research and Design | 3 |  |  | STS 4600 | Engineer, Ethics & Professional Responsibility | 3 |  |  |
| STS 4500 | STS & Engineering Practice | 3 |  |  | CE 4991 | CE Design and Practice | 4 |  |  |
|  | Civil Eng elective (4) | 3 |  |  |  | SMM CE Breadth elective (15) | 3 |  |  |
|  | Technical elective II (5) | 3 |  |  |  | Civil Eng elective (4) | 3 |  |  |
|  | Unrestricted elective (6) | 3 |  |  |  | Unrestricted elective (6) | 3 |  |  |
|  | In red, anticipated changes | 15 |  |  |  |  | 16 |  |  |

* Students on this track must take MSE 2090, which is a prerequisite for all subsequent MSE courses. This can easily be accommodated using the Science 1 elective in the spring of the first year, or the Science/Engineering elective in the spring of the second year.
* Students in this track are also encouraged to use a subset of their electives to complete a MSE minor. This would entail taking MSE 3050 Thermo/Kinet of Materials (a requirement for the MSE minor), combined with an additional MSE course. Suggestions for this course are:
  + MSE 3080 – Corrosion, Batteries and Fuel Cells
  + MSE 3101 - Materials Science Investigations

**Minimum Requirements for Graduation: 128 Credit Hours**

(1) Science I elective – chosen from: **BIOL 2100** Introduction to Biology: Cell Biology and Genetics; **BIOL 2200** Introduction to Biology: Organismal and Evolutionary Biology; **MSE 2090** Introduction to Science and Engineering of Materials;

**EVSC 2800** Fundamentals of Geology; **EVSC 3200** Fundamentals of Ecology; **EVSC 3300** Atmosphere and Weather.

1. Humanities & Social Sciences (HSS) elective – chosen from the approved list available in Thornton A122.

(3) Technical elective I - chosen from CHEM 1620 or any technical courses 2000-level and higher, where technical courses are defined as all SEAS courses (with the exception of STS courses, ENGR2595 Spanish for Engineers, and any other courses that count as HSS), BIO, CHEM, MATH, PHYS, EVSC, EVGE, EVEC, EVHY, PLAN, PLAC, LAR, ARCH, DS, and COMM

(4) Civil engineering elective – chosen from all 3000-level and above Civil Engineering courses.

1. Technical elective II – chosen from all technical courses 3000-level and higher. See footnote (3) for definition of technical courses

(6) Unrestricted electives – chosen from any graded course in the University except mathematics courses below MATH 1310 Calculus I and courses that substantially duplicate any others offered for the degree, including PHYS 2010 Physics I, PHYS 2020 Physics II; CS 1010 Information Technology, or any introductory programming course. Students in doubt as to what is acceptable to satisfy a degree requirement should get the approval of their advisor and the dean’s office, located in Thornton Hall, Room A122. APMA 1090 Single Variable Calculus I counts as a three-credit unrestricted elective.

(7) EWRE Science II elective – selected from:

**BIOL 2100** Introduction to Biology: Cell Biology and Genetics;

**BIOL 2200** Introduction to Biology: Organismal and Evolutionary Biology

**BIOL** **3090** Our World of infectious Diseases; **BIOL 3120 General** Microbiology

**CHEM 1620** Introductory Chemistry II for Engineers; **CHEM 2410** Organic Chemistry I

**ENGR 2500** Introduction to Nanoscience and Technology

**EVSC 2800** Fundamentals of Geology

**EVSC 3200** Fundamentals of Ecology

**EVSC 3300** Atmosphere and Weather

**EVSC 3600** Physical Hydrology

**EVSC 3840** Earth Surface Processes and Landforms

**EVSC 4110** Estuarine Ecology

**EVSC 4200** Ecology of Coastal Wetlands

**EVSC 4270** Soil Science

**EVSC 4290** Limnology: Inland Water Ecosystems

**EVSC 4440** Climate Change

**EVSC 4660** Hydrological Field Methods and Data Analysis

(8) EWRE Civil Engineering Breadth Elective selected from

CE 3300 Structural Mechanics

CE 3400 Transportation Infrastructure Design

Any CEM elective I

(9) Environmental Engineering Elective: selected from:

CE 3120 Solid Waste Management

CE 4160 Environmental Microbiology and Biological Waste Treatment

CE 4100 Water Chemistry for Environmental Engineering

CE 4110 Environmental Systems Modeling and Management

Other CE 4500 and CE5500 offerings may be appropriate, if approved

(10) Water Resources Engineering Elective: Selected from:

CE 4210 Stormwater Management

CE 4220 Coastal Engineering: Energy and Environment

CE 5240 Ground-Water Hydrology and Contaminant Transport

Other CE 4500 and CE5500 offerings may be appropriate, if approved

(11)CEM Elective I selected from:

CE 3010 Project Business Planning

CE 3030 Land Development Engineering

CE 4015 Industry Workshop: Bringing Theory to Practice (Recommended)

CE 4025 VDC Coordination and Control

CE 4040 Sustainability and Systems in the Built Environment

(12)CEM Elective II selected from:

Any CEM Elective I

CE 3220 Water Resources Engineering

CE 3400 Transportation Infrastructure Design

CE 5500 Construction Planning, Scheduling, and Control (to be approved)

COMM 4790 Fundamentals of Real Estate Analysis

ARCH 3271 Breaking BIM

ENGR 4880 Business and Technical Leadership in Engineering

Other CE 3500, CE4500, CE5500 or SYS 4583 offerings may be appropriate, if approved

(13) Structural Design elective – Select one of the following courses:

CE 4320 – Advanced Reinforced Concrete Design

CE 4330 – Prestressed Concrete Design

CE 5300 – Advanced Design of Metal Structures

(14) Structural Engineering elective – Select one of the following:

Any Structural Design Elective

CE 4500 Intro to Bridge Engineering and Design

CE 5340 Advanced Topics in Structural Engineering

CE 5700 Foundation Engineering

Other CE 4500 and CE5500 offerings may be appropriate, if approved

(15) SMM Civil Breadth Elective selected from

CE 3220 Water Resources Engineering

CE 3400 Transportation Infrastructure Design

CE 4040 Sustainability and Systems in the Built Environment

CE 5000 Management Large-Scale Construction Projects