

## Online Master of Science Degree in Environmental Engineering

### Department of Civil and Environmental Engineering

Old Dominion University

Norfolk, Virginia 23529

Phone: 757-683-3753

Web site: <http://www.odu.edu/cee>

#### Opportunities

The Department of Civil and Environmental Engineering at Old Dominion University offers **Master of Science (M.S.) in Environmental Engineering as an online option** designed for non-resident students. Courses are offered in either synchronous (live weekday evenings) or in asynchronous (archived) mode and may be taken in either format during regular semesters. The degree can be obtained solely through ODU's online graduate courses or in combination with approved transfer credits from other institutions. Potential students must apply for and be admitted to the Old Dominion University Graduate School to pursue the degree.

#### Degree Requirements

M.S. degree in Environmental Engineering offers three options; **Thesis Option**, **Project Option** and **Course Option**. Thesis Option requires twenty-four credit hours of graduate courses and six hours of thesis credit. Project Option requires twenty-seven credit hours in graduate course work plus a three-credit-hour project. Course Option requires thirty credit hours of graduate course work and the student must pass a written final comprehensive examination covering the entire program of study. The required courses for various options are listed below.

M.S. Thesis Option	Crd. Hrs.	M.S. Project Option	Crd. Hrs.	M.S. Course Option	Crd. Hrs.
Core courses (choose from CEE 751,752, 755, 756, 762)	12	Core courses (choose from CEE 751,752,7 55, 756, 762)	12	Core courses (choose from CEE 751,752, 755, 756, 762)	12
		B	3	B	6
A, B, C or D	9	A, B, C or D	9	A, B, C or D	9
MATH or STAT	3	MATH or STAT	3	MATH or STAT	3
Thesis	6	Project	3	Comprehensive exam.	
Total Crd. Hrs.	30**	Total Crd. Hrs.	30**	Total Crd. Hrs.	30

\*\* Note: For Thesis and Project options, no more than 9 credit hours can be at the 500 level.

#### Graduate Online Courses Offered in Civil and Environmental Engineering

The CEE department at ODU offers the following **online graduate courses** in the area of civil and environmental engineering. These classes are categorized as A: Upper-level Civil Engineering courses, B: Upper-level Environmental Engineering courses, C: Entry-level graduate courses, and MATH/STAT course.

**Category A** (3 credit hours each) – Upper level courses in Civil Engineering

CEE 711 Finite Element Analysis (Fall semester offer)

CEE 715 Engineering Optimization I (Spring)

CEE 722 Cluster Parallel Computing (Summer)

CEE 775 Computational Methods for Transportation Systems (Fall 2 yrs. cycle)

CEE 782 Design of Coastal Structures (Fall)

CEE 787 Dredging & Beach Engineering (Spring 2 yrs. cycle)

CEE 788 Coastal Hydrodynamics & Sediment Processes (Fall)

**Category B** (3 credit hours each) – Upper level courses in Environmental Engineering

CEE 741 Open Channel Flow (Fall 2 yrs. cycle)

CEE 747 Groundwater Flow (Spring 2 yrs. cycle)

CEE 751 Physicochemical Treatment Processes (Fall)

CEE 752 Biological Wastewater Treatment (Spring)

CEE 755 Water Quality Management (Spring)

CEE 756 Water Quality Modeling (Fall)

CEE 761 Water Resources Process and Analysis Methods (Fall 2 yrs. Cycle)

CEE 762 Aquatic Chemistry in Environmental Engineering (Spring)

CEE 788 Coastal Hydrodynamics & Sediment Processes (Fall)

(Note: **CEE 751, 752, 755, 556, 762: Core courses** in Environmental Engineering)

**Category C** (3 credit hours each) – Entry level courses in Civil & Environmental Engineering

CEE 540 Hydraulic Engineering (Summer 2 yrs. cycle)

CEE 546 Urban Stormwater Hydrology (Spring 2 yrs. cycle)

CEE 547 Groundwater Hydraulics (Fall 2 yrs. cycle)

CEE 552 Air Quality (Spring)

CEE 554 Hazardous Waste Treatment (Fall)

CEE 555 Pollution Prevention (Summer)

CEE 558 Sustainable Development (Fall)

CEE 559 Biofuels Engineering (Spring)

CEE 582 Introduction to Coastal Engineering (Spring)

**Category D** – Other related graduate courses, which shall be pre-approved by Graduate Program Director.

**MATH/STAT Category** (3 credit)

CEE 700 Civil and Environmental Engineering Experimental Design (Spring)

#### Transfer of Graduate Courses from Other Universities (12 credit limit)

A student, with consultation with his/her academic advisor, can take courses from other institutions and upon successful completion, transfer these courses to ODU to satisfy degree requirements. These courses may be taken on site at a university in your region or by distance learning from another university, as applicable. ODU approves the transfer of **up to 12 credit hours from other universities** (with grades B or better) for the graduate degree programs. Courses appearing on transcripts from other Universities and already counted for degrees from other Universities are **not** acceptable for transfer to ODU.

## Sample scheduling toward completion of Online Master degrees

In order to plan the classes, visit the site (CEE five-year schedule); <https://www.odu.edu/content/dam/odu/col-dept/cee/docs/cee-five-year-schedule19-24.pdf>

By assuming two courses per semester, below samples allow students to complete M.S. degree in 6 semesters starting in a fall semester.

### M.S. Thesis option:

Fall even year: CEE 554 (ABCD course), CEE 751 (Core)  
Spring odd year: CEE 700 (MATH/STAT), CEE 752 (Core)  
Summer odd year: CEE 555 (ABCD course)  
Fall odd year: CEE 558 (ABCD course), CEE 756 (Core)  
Spring even year: CEE 755 (Core course) or CEE 762 (Core),  
Preparation for thesis  
Fall even year: CEE 699 (6 credits, Thesis)

### M.S. Project option:

Fall even year: CEE 554 (ABCD course), CEE 751 (Core)  
Spring odd year: CEE 700 (MATH/STAT), CEE 752 (Core)  
Summer odd year: CEE 555 (ABCD course)  
Fall odd year: CEE 756 (Core)  
Spring even year: CEE 755 (Core) or CEE 762 (Core),  
Preparation for project  
Fall even year: CEE 558 (ABCD course), CEE 698 (Project)

### M.S. Course option:

Fall even year: CEE 554 (ABCD course), CEE 751 (Core)  
Spring odd year: CEE 700 (MATH/STAT), CEE 752 (Core)  
Summer odd year: CEE 555 (ABCD course)  
Fall odd year: CEE 558 (ABCD course), CEE 756 (Core)  
Spring even year: CEE 755 (Core), CEE 762 (Core)  
Fall even year: CEE 756 (Core), Comprehensive examination

## Requirements for Admission into the Master's Program

Regular admission requirements include (1) a bachelor's degree in civil or environmental engineering, (2) a 3.00 grade point average (4.00 scale), (3) a 500-word (or less) essay on academic and personal goals, and (4) two letters of recommendation from current or former professors or supervisors.

Applicants with an undergraduate degree in other fields of engineering and science are also welcome and could be admitted provisionally. **Provisionally-admitted** students may be required to complete prerequisite courses in preparation for the graduate courses that will make up their program of study. **Potential prerequisites** are listed below.

## Potential Prerequisite Courses for Master Program in Environmental Engineering

MATH 211 Calculus I  
MATH 212 Calculus II  
MATH 307 Ordinary. Differential. Equations  
MATH 312 Calculus III  
PHYS 231N University Physics  
PHYS 232N University Physics Lab  
CHEM 121 Foundations of Chemistry I  
CHEM 123 Foundations of Chemistry II  
CEE 204 Statics  
CEE 305 Engineering Dynamics  
CEE 305 CEE Computations  
CEE 330 Hydromechanics  
CEE 340 Hydraulics & Water Resources  
CEE 350 Environmental Pollution & Control

## Environmental Engineering Faculty and Research Activities

**Mujde Erten-Unal, Ph.D.** (Missouri U. of S. & T.), Associate Professor, environmental engr.; wastewater treatment; env. microbiology; haz. waste treatment; sustainable develop. (Director, Sust. Develop. Inst.).

**Sandeep Kumar, Ph.D.** (Auburn University), Professor, sustainable chemical conversion processes, biofuels; thermochemical conversion of biomass; sub- and supercritical water/CO<sub>2</sub> technology  
**Peter Pommerenk, Ph.D.** (Old Dominion University), Adjunct Assistant Professor, aquatic chemistry, sorption processes, water treatment, physicochemical treatment processes

**Gary C. Schafran, Ph.D.** (Syracuse Univ.), Professor, environmental engr.; fate and transport of contaminants in natural systems; lake oxygenation; aquatic chemistry; physicochemical treatment processes.

**Navid Tahvildari, Ph.D.** (Texas A&M University), Associate Professor, coastal engineering; environmental fluid mechanics; nonlinear wave dynamics; ocean mixing; internal waves; inverse modeling.

**Xixi Wang, Ph.D.** (Iowa State U.), *P.E.*, Professor, water resources, hydrological processes, ecohydrology, watershed analysis/modeling, climate change, stormwater, flooding and drought.

**Jaewan Yoon, Ph.D.** (North Dakota State U.), Associate Professor, University Professor, environmental engineering; water quality modeling and management; stochastic and geospatial methods.

## Contact

For further information, visit <http://www.odu.edu/cee> or contact Graduate Program Director at [CEGPD@odu.edu](mailto:CEGPD@odu.edu) or the department at 757-683-3753.

(Updated: November 9, 2021)

## Online Master of Science Degree in Environmental Engineering

# Department of Civil and Environmental Engineering



**OLD DOMINION UNIVERSITY**

Frank Batten College of Engineering and Technology