

Master of Philosophy (MPhil) and Doctor of Philosophy (PhD) Programs in Environmental Engineering

Curriculum for Master of Philosophy (MPhil) Program in Environmental Engineering

The Master of Philosophy (MPhil) degree requires completion of at least 15 credits of approved coursework taken from more than one department, participation in the graduate seminar program EVNG 6050 Environmental Engineering Seminar every regular term, and successful defense of a research thesis. Of the 15 credits, students are required to take at least 9 credits from courses offered by the School of Engineering in List A below. Students taking courses from List B must have the prior approval from their thesis supervisors and the final endorsement of the Program Director. Students who do not have sufficient exposure to environmental courses need to take CIVL 2420 Water and Wastewater Engineering and/or MECH 4210 Air Pollution Control/ CIVL 4470 Air Quality Control and Management, or equivalent courses as advised by the EVNG Program Committee. In addition to the 15 credits, students must present at least one seminar and complete LANG 5001 Postgraduate English for Academic Purposes during their studies. Students can be exempted from taking LANG 5001 with the agreement of the Program Director. Students must demonstrate in their research thesis competence in environmental research and pass the oral defense examination.

Curriculum for Doctor of Philosophy (PhD) Program in Environmental Engineering

The Doctor of Philosophy (PhD) degree requires completion of at least 15 credits of approved coursework taken from more than one department. Of the 15 credits, students are required to take at least 9 credits from courses offered by the School of Engineering in List A below. Students taking courses from List B must have the prior approval from their thesis supervisors and the final endorsement of the Program Director. Students admitted to this program should possess a master's degree. In exceptional circumstances, if outstanding students are admitted to the program without a master's degree, they may be required to take additional credits to fulfill the program requirements. Students with a master's degree in an Environmental Engineering or a closely related field may be granted credit transfer by the Program Director on case-by-case basis.

Students must participate in the graduate seminar program EVNG 6050 Environmental Engineering Seminar every regular term. In addition to the 15 credits, students must present at least two seminars and complete LANG 5001 Postgraduate English for Academic Purposes during their degree studies. Students can be exempted from taking LANG 5001 with the agreement of the Program Director.

To become a doctoral candidate, the student must pass a qualifying examination within the first 18 months of his PhD studies. The qualifying examination involves the submission of a research proposal and an oral/written examination given by the Thesis Supervision Committee. The purpose of the qualifying examination is to establish the student's ability to formulate and conduct original research in the chosen field of study. Upon completion of the coursework and the thesis, the candidate is required to defend

the thesis before a Thesis Examination Committee.

List A Courses

Students are required to take at least 9 credits of coursework from the following courses offered by the School of Engineering. A maximum of 6 credits of 4000-level UG courses may be taken.

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| CENG | 5210 | Advanced Separation Processes |
| CENG | 5310 | Measurements of Air Pollutants |
| CENG | 5320 | Water Quality Assessment |
| CENG | 5650 | Environmental Biotechnology |
| CENG | 5760 | Advanced Physio-Chemical Treatment Processes |
| CENG | 5840 | Nanomaterials for Chemical Engineering Applications |
| CIVL | 4430 | Environmental Impact Assessment |
| CIVL | 4460 | Process Design of Environmental Engineering Facilities |
| CIVL | 4470 | Air Quality Control and Management |
| CIVL | 4480 | Air Quality Modeling and Analysis |
| CIVL | 4520 | Municipal Hydrosystems Engineering and Management |
| CIVL | 5410 | Physical-Chemical Water/Wastewater Treatment |
| CIVL | 5420 | Biological Waste Treatment |
| CIVL | 5430 | Aquatic Chemistry |
| CIVL | 5450 | Hazardous Waste Treatment and Site Remediation |
| CIVL | 5460 | Landfill Engineering and Design |
| CIVL | 5470 | Industrial Wastewater Treatment |
| CIVL | 5480 | Pollutant Transport in Soils and Groundwater |
| MECH | 4040 | Noise Control |
| MECH | 4210 | Air Pollution Control |
| MECH | 4350 | Indoor Air Quality in Buildings |
| MECH | 5210 | Fluid Dynamics |
| MECH | 5260 | Air Pollution Meteorology |

List B Courses

The following are courses offered by departments outside the School of Engineering that may be counted toward the program requirements.

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| ENVR | 5210 | Environmental Microbiology |
| ENVR | 6050 | Introduction to Oceanography |
| EVSM | 5220 | Advanced Environmental Chemistry |
| SOSC | 5620 | Sustainable Development |