MASTER OF PUBLIC WORKS (INFRASTRUCTURE ENGINEERING AND MANAGEMENT)

The Master of Engineering in Public Works (M.P.W.) degree is the most widely recognized educational credential for professionals engaged in public works and infrastructure engineering and management. This program is offered in cooperation with the university's Master of Public Policy and Administration program.

Curriculum

Code	Title	Credit Hours
Required Courses		**(9)**
Select a minimum of three courses from the following:		9
CAE 523	Statistical Analysis of Engineering Data	3
CAE 539	Introduction to Geographic Information Systems	3
CAE 570	Legal Issues in Civil Engineering	3
CAE 574	Economic Decision Analysis in Civil Engineering	3
CAE 575	Systems Analysis in Civil Engineering	3
MATH 525	Statistical Models and Methods	3
PA 501	Introduction to Public Administration	3
PA 551	Public Infrastructure Management	3
Elective Courses		**(21)**
Select 21 credit hours (see recommended courses below) [1]		21
Total Credit Hours		**30**

[1]   If more than three courses from the required courses list are taken, those additional courses can be applied as electives

Recommended Elective Coursework by Subject

Construction Management

Code	Title	Credit Hours
CAE 471	Construction Planning and Scheduling	3
CAE 472	Construction Site Operation	3
CAE 473	Construction Contract Administration	3
CAE 474	Introduction to Building Information Modeling	3
CAE 569	Construction Methods, Cost Estimating, and Project Budgeting	3
CAE 570	Legal Issues in Civil Engineering	3
CAE 571	Lean Construction and Control	3

Geo-environmental Engineering

Code	Title	Credit Hours
CAE 482	Hydraulic Design of Open Channel Systems	3
CAE 486	Soil and Site Improvement	3
CAE 562	Engineering Behavior of Soil	4
CAE 564	Design of Foundations, Embankments and Earth Structures	4
CAE 565	Rock Mechanics and Tunneling	4
CAE 566	Earthquake Engineering and Soil Dynamics	4
CAE 589	Groundwater Hydrology and Sampling	3
CAE 590	Geotechnical Landfill Design and Maintenance	3
ENVE 404	Water and Wastewater Engineering	3
ENVE 528	Modeling of Environmental Systems	3
ENVE 551	Industrial Waste Treatment	3
ENVE 580	Hazardous Waste Engineering	3

Public Administration - Administration Process

Code	Title	Credit Hours
PA 502	Organizational Behavior	3
PA 503	Administration Law	3
PA 522	Human Resource Management	3
PA 532	Public Financial Management	3
PA 533	Advanced Financial Management for Public and Nonprofit Sectors	3

Public Administration - Policy Planning

Code	Title	Credit Hours
PA 537	Crisis Management and Homeland Security	3
PA 538	Information Systems Security and Cyber Crime	3
PA 539	Local Government Management	3
PA 562	Urban and Metropolitan Government	3
PA 578	Planning, Policy-Making, and the Built Environment	3
PA 588	Incident Response, Disaster Recovery, and Business Continuity	3

Structural Engineering

Code	Title	Credit Hours
CAE 504	Seismic Retrofit and Earthquake Hazard Reduction	4
CAE 506	Building Envelope Rehabilitation	3
CAE 508	Advanced Bridge Engineering	3
CAE 518	Advanced Reinforced Concrete	3
CAE 519	Structural Forensic Engineering	3
CAE 520	Buckling of Structures	4
CAE 525	Advanced Steel Structures	4
CAE 551	Prestressed Concrete	3
CAE 561	Structural Reliability and Probabilistic Bases of Design	3

Transportation Engineering

Code	Title	Credit Hours
CAE 419	Introduction to Transportation Engineering and Design	3
CAE 540	Asphalt and Concrete Mix Design	3
CAE 541	Pavement Evaluation and Management	3
CAE 544	Urban Transportation Planning	4
CAE 545	Traffic Operations and Flow Theory	3
CAE 546	Public Transportation Systems	3
CAE 547	Advanced Traffic Engineering	3
CAE 548	Transportation Systems Management	3
CAE 549	Transportation Economics, Development and Policy	3
CAE 555	Transportation Systems Evaluation	3
CAE 568	Transportation Asset Management	3
CAE 580	Intelligent Transportation Systems	3
CAE 581	Algorithms in Transportation	3
MATH 522	Mathematical Modeling	3
MATH 542	Stochastic Processes	3
MATH 563	Mathematical Statistics	3
MATH 564	Applied Statistics	3
MATH 565	Monte Carlo Methods in Finance	3
MATH 571	Data Preparation and Analysis	3
MATH 574	Bayesian Computational Statistics	3