MASTER OF SCIENCE IN APPLIED SCIENCE

Existing program.

The new concentrations and curriculum are anticipated to be available in January 2018.

A multidisciplinary program for secondary school teachers to strengthen their background in science, mathematics, computing and technical communication.

Admission Requirements

Applicants should be practicing secondary school teachers who have a bachelor's degree. Individuals who seek admission to the program are considered on an individual basis. Students who lack an appropriate background for their chosen concentration or a particular course that they plan to take may be asked to take one or more bridge/undergraduate courses that will not count toward the degree requirements.

Degree requirements

Students must successfully complete 30 credits:

- 9 credits of core courses;
- 3 credits of master's project or 6 credits of master's thesis;
- 15 credits of courses in the chosen concentration when choosing the project option or 12 credits of courses in the chosen concentration when choosing the thesis option; and
- at least 3 credits of additional elective courses (elective courses can be from other concentrations if the student has the required background or prerequisites).

Core courses (9 credits)

Choose 3 courses (9 credits):

- PTC 603: Identity, Technology and Communication (3 credits) Available Online
- PTC 629: Theory and Practice of Social Media (3 credits) Available Online
- PTC 681: Tech in Class and Learning (3 credits) Available Online
- PTC 698: Digital Instruction Essentials (3 credits) Possibly Available Online

CONCENTRATIONS

Business

Required Courses *(3 credits)*

MGMT 620 Management of Technology Available Online

Additional Courses *(choose 3 or 4 courses to earn 9 or 12 credits)*

ECON 610	Managerial Economics	Available Online
FIN 600	Corporate Finance I	Available Online
FIN 624	Corporate Finance II	Available Online
MGMT 635	Data Mining and Analysis	Available Online
MGMT 640	New Venture Management	Available Online
MGMT 650	Knowledge Management	Available Online
MGMT 691	Legal and Ethical Issues	Available Online
MGMT 692	Strategic Management	Available Online

Computer Science

Required Courses *(6 credits)*

CS 505	Programming, Data Structures & Algorithms	Available Online
CS 506	Foundations of Computer Science	

Additional Courses *(choose 2 or 3 courses to earn 6 or 9 credits)*

CS 610	Data Structures & Algorithms	Available Online
CS 630	Operating Systems Design	Available Online
CS 631	Data Management System Design	Available Online
CS 656	Internet & Higher-Layer Protocols	Available Online

Engineering Management

Required Courses *(6 credits)*

EM 636	Project Management	Available Online
HRM 601	Organizational Behavior	Available Online

Additional Courses *(choose 2 or 3 courses to earn 6 or 9 credits)*

ACCT 615	Management Accounting	Available Online
IE 673	Total Quality Management	Available Online
MIS 645	Information Systems Principles	Available Online
EM 634	Legal, Ethical and Intellectual Property Issues for Engineering Managers	Available Online
EM 637	Project Control	Available Online
EM 691	Cost Estimating for Capital Projects	Available Online
EM 632	Legal Aspects in Construction	Available Online

Information Systems

Required Courses *(6 credits)*

IS 601	Web Systems Development	Available Online
IS 663	System Analysis and Design	Available Online

Additional Courses *(choose 2 or 3 courses to earn 6 or 9 credits)*

IS 631	Enterprise Database Management	Available Online
IS 665	Data Analytics for Information Systems	Available Online
IS 676	Requirements Engineering	Available Online
IS 678	IT Service Management	Available Online
IS 680	Information Systems Auditing	Available Online
IS 681	Computer Security Auditing	Available Online
IS 684	Business Process Innovation	Available Online
IS 688	Web Mining	Available Online

Engineering

Required Courses *(6 credits)*

IE 604	Advanced Engineering Statistics
IE 621	Systems Analysis and Simulation

Additional Courses *(choose 2 or 3 courses to earn 6 or 9 credits)*

ECE 601	Linear Systems Available Online
ECE 605	Discrete Event Dynamic Systems Available Online
ECE 673	Random Signal Analysis I Available Online
IE 618	Engineering Cost & Production Economics
IE 672	Industrial Quality Control Available Online
IE 673	Total Quality Management Available Online
ME 616	Matrix Methods in Mechanical Engineering
ME 632	Mechanical Engineering Measurements
ME 635	Computer-Aided Design
BME 669	Engineering Physiology
BME 670	Intro to Biomedical Engineering
BME 675	Computer Methods in Biomed. Engineering

Architecture

Required Courses *(6 credits)*

ARCH 545G	Structures I Available Online Soon
ARCH 548G	Structures II Available Online

Additional Courses *(choose 2 or 3 courses to earn 6 or 9 credits)*

ARCH 555G	Architectural Graphics
ARCH 500G	Advanced Architectural Graphics
ARCH 528G	History of Architecture I
ARCH 529G	History of Architecture II
ARCH 541G	Construction I
ARCH 542G	Construction II
ARCH 543G	Environmental Control Systems I
ARCH 544G	Environmental Control Systems II
ARCH 569G	Building and Development

Chemistry

Required Courses *(6 credits)*

CHEM 605	Advanced Organic Chemistry
CHEM 661	Instrumental Analysis Laboratory

Additional Courses *(choose 2 or 3 courses to earn 6 or 9 credits)*

CHEM 673	Biochemistry
CHEM 777	Principles of Medicinal Chemistry
EVSC 616	Toxicology for Engineers and Scientists
EVSC 610	Environmental Chemical Science

Mathematics

Required Courses *(6 credits)*

MATH 545 Introductory Mathematical Analysis
MATH 546 Advanced Calculus

Additional Courses *(choose 2 or 3 courses to earn 6 or 9 credits)*

MATH 611 Numerical Methods for Computation
MATH 630 Linear Algebra and Applications
MATH 660 Intro to Statistical Computing w/ SAS & R
MATH 661 Applied Statistics

Physics

Required Course *(3 credits)*

PHYS 611 Advanced Classical Mechanics

Additional Courses *(choose 3 or 4 courses to earn 9 or 12 credits)*

PHYS 621 Classical Electrodynamics
PHYS 631 Quantum Mechanics I
PHYS 641 Statistical Mechanics
PHYS 661 Solid-State Physics
PHYS 607 Topics in Astronomy and Cosmology

Custom concentration

Students may develop an individual area of concentration in consultation with a graduate advisor. A coherent set of courses involving mathematics, computing, physics, chemistry, biology or engineering are expected.