

Human Factors, MS

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This program addresses the growing need for engineering professionals trained in advanced human factors who can utilize Human Factors theories, procedures and empirically derived knowledge into understandable and actionable information for use in the design and evaluation of a wide variety of products and systems. The key sectors demanding human factors professionals include transportation, healthcare, robotics, manufacturing, computer, consumer products, social, and organizational and military issues. The core courses of the proposed MS in Human Factors program are built on the foundations of human factors and ergonomics, probabilities and statistics, etc. Topics from these foundation areas are integrated to create human factors for engineering applications. Students can select their elective or breadth courses from a wide range of fields. The program seeks to prepare students for a comprehensive set of human factors-related professional positions.

General Degree Requirements

To be eligible for admission to any of the MS degree programs, a prospective student must hold a Bachelor of Science degree in engineering, science, mathematics, or an equivalent field. Students in all master's degree programs must complete a minimum of 32 semester hours of approved course work (exclusive of any preparatory courses) with a minimum grade-point average (GPA) of 3.000. Students can complete a master's degree by pursuing any of one of the three tracks: course work option, project option, and thesis option. Specific degree requirements for each of these tracks can be found under the Program Requirements tab. Students may pursue any program either on a full-time or part-time basis; however, certain restrictions may apply.

Academic and Research Advisors

All nonthesis students are advised by the academic advisor designated for their respective concentration or program. Students willing to pursue the thesis option must first find a research advisor within their first year of study. The research advisor will guide the students' thesis work, and thesis reader(s) may be assigned at the discretion of their research advisor. The research advisor must be a full-time or jointly appointed faculty or affiliated member of the MIE department; otherwise, a petition must be filed and approved by the MIE Graduate Affairs Committee. If the research advisor is outside the MIE department, a faculty member with 50 percent or more appointments in the MIE department must be chosen as co-advisor. Thesis option students are advised by the academic advisor of their concentration before they select their research advisor(s).

Plan of Study and Course Selection

It is recommended that all new students attend orientation sessions held by the MIE department and the Graduate School of Engineering to acquaint themselves with the course work requirements and research activities of the department as well as with the general policies, procedures, and expectations.

In order to receive proper guidance with their course work needs, all MS students are strongly encouraged to complete and submit a fully signed Plan of Study (PS) to the department before enrolling in second-semester

courses. This form not only helps the students manage their course work but it also helps the department to plan for requested course offerings. The PS form may be modified at any time as the students progress in their degree programs.

Change of Program/Concentration

Students enrolled in any of the MIE department programs or concentrations may change their current program or concentration no sooner than the beginning of their second full-time semester of study. In order for the program or concentration change request to be considered by the MIE graduate affairs committee, the student must be in good academic standing and have completed at least 8 semester hours of required course work in their sought program at Northeastern.

Program Requirements

Core Requirements

Complete all courses and requirements listed below unless otherwise indicated. Students may not register for more than 9 semester hours in the fall, spring, and summer terms.

Code	Title	Hours
IE 6500	Human Performance in Sociotechnical Systems	4
IE 7280	Statistical Methods in Engineering	4
IE 7315	Human Factors Engineering	4
EMGT 5300	Engineering/Organizational Psychology	4

Options

Complete one of the following options:

COURSE WORK OPTION

Code	Title	Hours
	Complete 16 semester hours from the course list below. (p. 1)	16

PROJECT OPTION

Code	Title	Hours
IE 7945	Master's Project	4
	Complete 12 semester hours from the course list below. (p. 1)	12

THESIS OPTION

Code	Title	Hours
IE 7990	Thesis	8
	Complete 8 semester hours from the course list below. (p. 1)	8

Course List

Code	Title	Hours
College of Engineering		
IE 5137	Computational Modeling in Industrial Engineering	4
IE 5390	Structured Data Analytics for Industrial Engineering	4
IE 5630	Biosensor and Human Behavior Measurement	4

2 Human Factors, MS

IE 5640	Data Mining for Engineering Applications	4
IE 6600	Computation and Visualization for Analytics	4
CIVE 7388	Special Topics in Civil Engineering (Urban Informatics and Processing)	4
College of Social Sciences and Humanities:		
ECON 7200	Topics in Applied Economics	4
ECON 7251	International Finance	4
ECON 7271	Industrial Organization	4
College of Science		
PSYC 5180	Quantitative Methods 1	3
PSYC 5181	Quantitative Methods 2	3
PSYC 7300	Advanced Quantitative Analysis	3
PSYC 7301	Research Methodologies Psychology	3
Bouvé College of Health Sciences		
PT 5600	Ergonomics and the Work Environment	3
EXSC 5210	Physical Activity and Exercise: Prescription, Measurement, and Testing	3
EXSC 5220	Advanced Exercise Physiology	3
Khoury College of Computer Sciences		
CS 5340	Computer/Human Interaction	4
CS 6350	Empirical Research Methods	4
College of Arts, Media and Design		
ARTG 5150	Information Visualization Principles and Practices	3
ARTG 5310	Visual Cognition	4
ARTG 5330	Visualization Technologies 1: Fundamentals	4
ARTG 5600	Experience Design Studio 1: Principles	4
ARTG 5610	Design Systems	4
ARTG 5640	Prototyping for Experience Design	4
<i>Design Research Methods</i>		
ARTG 6310	Design for Behavior and Experience	4
ARTG 6320	Design of Information-Rich Environments	4
GSND 6240	Exploratory Concept Design	4
GSND 6250	Spatial and Temporal Design	4
GSND 6330	Player Experience	4
GSND 6340	Biometrics for Design	4

Program Credit/GPA Requirements

32 total semester hours required

Minimum 3.000 GPA required