

# **Master of Science in Information Systems**

## **Professional Management Option**

With the approval of the Faculty Senate (and its Committee on Graduate Education) New Jersey Institute of Technology (NJIT) is initiating a Professional Management Option for its Master of Science in Information Systems (MS IS) degree program.

### **Objective**

The objective of the MS IS – Professional Management option is to create leaders with strong communication and management skills in addition to solid technical knowledge in data analytics, and the analysis, design, and implementation of information systems. This option is designed for working professionals or students who already have acquired some professional experience. It mandates a strong experiential component (a MS project or MS thesis or Cooperative Experience with industry participation and professorial guidance).

### **Comparison with the Traditional MS IS Program**

The MS IS – Professional Management Option (PMO) is a 36 credits degree program, while the traditional MS IS is a 30 credits program. While the MS IS offers a broad set of electives from across the curriculum, the PMO electives focus specifically on Management and on Professional and Technical Communications, and if the professional chooses a Masters Project or Co-op, he or she may optionally take 1-2 additional Information Systems electives. The traditional program does not offer these specific combinations of electives, or some particular electives at all. The PMO experiential component mandates an industry component, whereas the traditional MS IS program makes this component optional and does not require any industry participation in a project or thesis, and the Co-op typically is overseen by a college advisor instead of a professor.

The requirements of the traditional MS IS and the new MS IS Professional Management Option are presented in the following pages. The pages for the PMO highlight in yellow the differences from the traditional MS IS program.

## Traditional MS Information Systems Degree

M.S. in Information Systems (30 credits)

Code	Title	Credits
<b>IS Core Courses</b>		
IS 601	Web Systems Development	3
IS 663	System Analysis and Design	3
IS 631	Enterprise Database Management	3
IS 665	Data Analytics for Info System	3
IS 684	Business Process Innovation	3
Select one of the following User Experience courses <sup>3</sup> :		3
IS 661	User Experience Design	
IS 664	Customer Discovery	
Select one of the following Analytics courses:		3
IS 634	Information Retrieval	
IS 687	Transaction Mining and Fraud Detection	
IS 688	Web Mining	
<b>Electives and Specialization Areas</b>		
Select three of the following electives or		9
Select IS 700B and two of the following electives or		
Select IS 701 and one of the following electives:		
<b>Data Analytics</b>		
IS 634	Information Retrieval	
IS 687	Transaction Mining and Fraud Detection	
IS 688	Web Mining	
CS 602	Java Programming	
CS 632	Advanced Database System Design	
CS 634	Data Mining	

<b>Code</b>	<b>Title</b>	<b>Credits</b>
CS 636	Data Analytics with R Program	
CS 644	Introduction to Big Data	
CS 675	Machine Learning	
CS 676	Cognitive Computing	
CS 731	Applications of Database Systems	
CS 732	Advanced Machine Learning	
CE 602	Geographic Information System	
MATH 644	Regression Analysis Methods	
MATH 660	Introduction to statistical Computing with SAS and R	
MATH 678	Intro to Stat Methods in Data	
MGMT 635	Data Mining and Analysis	
MGMT 682	Business Research Methods I	
MGMT 683	Business Research Methods II	
PTC 628	Analyzing Social Networks	
<b>Business Decision Making</b>		
IS 677	Information System Principles	
IS 678	IT Service Management	
ACCT 615	Management Accounting	
FIN 600	Corporate Finance I	
HRM 601	Organizational Behavior	
MIS 648	Decision Support Systems for Managers	
MIS 680	Management Science	
MGMT 620	Management of Technology	
MGMT 630	Decision Analysis	
MGMT 650	Knowledge Management	
MGMT 685	Operations Research and Decision Making	
MGMT 688	Information Technology, Business and the Law	

<b>Code</b>	<b>Title</b>	<b>Credits</b>
MGMT 710	Forecasting Methods for Business Decisions	
MRKT 620	Competing in Global Markets	
MRKT 645	Internet Marketing Strategy	
<b>Healthcare Informatics</b>		
CS 639	Elec. Medical Records: Med Terminologies and Comp. Imp.	
IE 686	Intro to Healthcare Systems	
IE 687	Healthcare Enterprise Systems	
IE 688	Healthcare Sys Perfor Modeling	
PTC 640	Health Communications.	
R834 581	Health Systems and Policy	
R834 582	Health Care Management	
R834 659	Healthcare Finance	
<b>User Experience Design</b>		
IS 661	User Experience Design <sup>3</sup>	3
IS 664	Customer Discovery <sup>3</sup>	
IS 686	Pervasive Computing: An HCI Perspective	
IS 735	Social Media	
IE 661	Man-Machine Systems	
IE 662	Cognitive Engineering	
IE 664	Advanced Ergonomics	
PTC 605	Elements of Visual Design	
PTC 606	Advanced Information Design	
PTC 629	Theory and Practice of Social Media	
PTC 650	ELearning Design for Mobile	
<b>Security and Network Management</b>		
IS 680	Information Systems Auditing	

IS 681	Computer Security Auditing
IS 682	Forensic Auditing for Computing Security
IS 687	Transaction Mining and Fraud Detection
CS 608	Cryptography and Security
CS 645	Security and Privacy in Computer Systems
CS 646	Network Protocols Security
CS 647	Counter Hacking Techniques
CS 651	Data Communications
CS 652	Computer Networks-Architectures, Protocols and Standards
CS 656	Internet and Higher-Layer Protocols
CS 696	Network Management and Security
CS 708	Advanced Data Security and Privacy
CS 755	Security and Privacy in Wireless Networks
CS 756	Mobile Computing and Sensor Networks
IT 620	Wireless Networks Security and Administration
IT 640	Network Services Administration
<b>Systems Analysis and Design</b>	
IS 664	Customer Discovery
IS 676	Requirements Engineering
IS 685	Enterprise Architecture and Integration
CS 673	Software Design and Production Methodology
CS 683	Software Project Management
CS 684	Software Testing and Quality Assurance
CS 685	Software Architecture
EM 636	Project Management
EM 637	Project Control
MRKT 636	Design and Development of High Technology Products

### **Web Systems**

IS 634	Information Retrieval
IS 664	Customer Discovery
IS 683	Web Systems Development
IS 688	Web Mining
IS 690	Web Services and Middleware
PTC 605	Elements of Visual Design
PTC 628	Analyzing Social Networks
PTC 632	Content Management and Information Architecture

### **Build Your Own Specialization**

Students may propose a coherent set of courses that have a common thread related to an area that you are interested in. The MS IS advisor approves the proposed specialization.

## MS Information Systems – Professional Management Option

### Overview

- 36 credits are required.
- All 7 MSIS core courses (21 credits) are required.
- Experiential Aspect: A one-semester IS Capstone Project (IS 700B - 3 credits), two-semester MS Thesis (IS 701 – 6 credits), or Co-Op experience (not counting towards degree credits) is required.
- Electives: To meet the 36-credit requirement, students will take 9-15 credits of electives, where each elective course is 3 credits. The electives required will depend on which Experiential Aspect is chosen.
  - Students who take the IS Capstone Project (IS 700B - 3 credits) must take 4 elective courses: 1 course from the list of IS electives, 1-2 courses from the list of PTC electives and 1-2 courses from the list of Management electives.
  - Students who take the MS Thesis (IS 701 – 6 credits) must take 3 elective courses: 1-2 courses from the list of PTC electives and 3-6 credits from the list of Management electives.
  - Students who take the Co-Op experience (IS 590) must take 5 elective courses: 1-2 courses from the list of IS electives, 1-3 courses from the list of PTC electives and 1-3 courses from the list of Management electives.

MS IS Core Course Requirements		21 credits
IS 601	Web Systems Development	3
IS 663	System Analysis and Design	3
IS 631	Enterprise Database Management	3
IS 661	User Experience Design	3
IS 665	Data Analytics for Info System	3
IS 684	Business Process Innovation	3
Select one of the following Analytics courses:		3
IS 634	Information Retrieval	
IS 687	Transaction Mining and Fraud Detection	
IS 688	Web Mining	

IS Experiential Aspect		0-6 credits
Select one of the following Capstone or Co-op options. The Co-op does not count towards the degree credits. All Experiential options will be undertaken in collaboration with industry, and evaluated by a faculty member.		
IS 700B	Masters Project	3
IS 701	Masters Thesis	6

IS 590	Graduate Co-op Work Experience I	0
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**Information Systems Electives**

**0-6 elective credits**

Students who take the IS Capstone Project (IS 700B) choose 1 IS elective.  
 Students who take the MS Thesis (IS 701) choose no IS electives.  
 Students who take the Co-Op experience (IS 590) choose 1-2 IS electives.

IS 634	Information Retrieval
IS 664	Customer Discovery
IS 676	Requirements Engineering
IS 677	Information System Principles
IS 678	IT Service Management
IS 680	Information Systems Auditing
IS 681	Computer Security Auditing
IS 682	Forensic Auditing for Computing Security
IS 685	Enterprise Architecture and Integration
IS 686	Pervasive Computing: An HCI Perspective
IS 687	Transaction Mining and Fraud Detection
IS 688	Web Mining
IS 735	Social Media



**PTC (Professional and Technical Communications)  
Electives****3-9 elective credits**

Students who take the IS Capstone Project (IS 700B) choose 1-2 PTC electives.  
Students who take the MS Thesis (IS 701) choose 1-2 PTC electives.  
Students who take the Co-Op experience (IS 590) choose 1-3 PTC electives.

PTC 601	Advanced Professional and Technical Communication
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PTC 605	Elements of Visual Design
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PTC 606	Advanced Information Design
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<b>PTC 610</b>	<b>Research Methods for Information Design</b>
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<b>PTC 620</b>	<b>Proposal Writing</b>
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<b>PTC 622</b>	<b>Working in Teams: Collaborative and Interpersonal Communications</b>
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<b>PTC 624</b>	<b>Professional and Technical Editing</b>
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PTC 628	Analyzing Social Networks
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PTC 629	Theory and Practice of Social Media
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PTC 632	Content Management and Information Architecture
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PTC 6XX	User Experience Design
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**Management Electives****3-9 elective credits**

Students who take the IS Capstone Project choose 1-2 Management electives.  
Students who take the MS Thesis (IS 701) choose 1-2 Management electives.  
Students who take the Co-Op experience (IS 590) choose 1-3 Management electives.

ACCT 615	Management Accounting
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EM 636	Project Management
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FIN 600	Corporate Finance I
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HRM 601	Organizational Behavior
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MIS 648	Decision Support Systems for Managers
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MIS 680	Management Science
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MGMT 620	Management of Technology
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MGMT 630	Decision Analysis
<b>MGMT 641</b>	<b>Global Project Management</b>
MGMT 650	Knowledge Management
MGMT 682	Business Research Methods I
MGMT 685	Operations Research and Decision Making
MGMT 688	Information Technology, Business and the Law
<b>MGMT 691</b>	<b>Legal and Ethical Issues</b>
MGMT 710	Forecasting Methods for Business Decisions
MRKT 620	Competing in Global Markets
MRKT 636	Design and Development of High Technology Products
MRKT 645	Internet Marketing Strategy