

# MASTER OF INFORMATION TECHNOLOGY AND MANAGEMENT

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At the conclusion of their studies, graduates of this degree should be able to:

- Deliver optimal technical and policy technology solutions for the problems of business, industry, government, non-profit organizations, and individuals in each student's particular area of focus.
- Work with, lead, and manage teams in an enterprise environment to collaboratively arrive at optimal technology solutions.
- Manage and deploy information resources applicable to each student's particular area of focus in an enterprise setting.

All students are required to complete a minimum of three core courses. These core courses will ensure an ability to develop software applications at a competent level using a contemporary programming language, the capability to employ and deploy appropriate system technologies, and a grasp of business development knowledge appropriate to the discipline. Students completing a specialization are required to complete three core courses, selecting one from each of the core subjects. Students electing not to complete a specialization must complete at least one course from each of the seven core subject topic areas. Advisers will assist students in the selection of core courses most relevant to their interests and career goals.

The specializations are meant to guide students in their course selection, allowing them to focus on a particular area of information technology, depending on their interests, background, and career goals. Alternative courses in each specialization may be available at the discretion of the student's adviser.

## Curriculum

### Master of Information Technology & Management (without Specialization)

<b>Programming</b>	(3)
Select 3 credit hours of Programming courses	3
<b>Application Development</b>	(3)
Select 3 credit hours of Application Development courses	3
<b>Information Systems Technologies</b>	(3)
Select 3 credit hours of Information Systems Technologies courses	3
<b>Information Technology Architectures</b>	(3)
Select 3 credit hours of Information Technology Architectures courses	3
<b>Design</b>	(3)
Select 3 credit hours of Design courses	3
<b>Management</b>	(3)
Select 3 credit hours of Management courses	3
<b>Innovation</b>	(3)
Select 3 credit hours of Innovation courses	3
<b>Elective Courses</b>	(9)
Select 9 credit hours	9
<b>Total Credit Hours</b>	<b>30</b>

**Master of Information Technology & Management (with Specialization)**

<b>Software Development</b>	(3)
Select 3 credit hours of Software Development courses	3
<b>System Technologies</b>	(3)
Select 3 credit hours of System Technologies courses	3
<b>Business Development</b>	(3)
Select 3 credit hours of Business Development courses	3
<b>Specialization Courses</b>	(21)
Select 21 credit hours from approved specialization courses <sup>1</sup>	21
<b>Total Credit Hours</b>	<b>30</b>

<sup>1</sup> Students may select courses in order to fulfill a desired specialization. See Specializations tab on this page for more details. Courses taken to meet the requirements of a specialization may also count toward core course requirements.

**Graduate Core Courses by Subject and Topic**

The following courses comprise the graduate core courses:

**Subject: Software Development****Topic: Programming**

ITMD 510	Object-Oriented Application Development	3
ITMD 512	Structured and Systems Programming	3
ITMD 515	Advanced Software Programming	3

**Subject: System Technologies****Topic: Application Development**

ITMD 553	Enterprise Intelligent Device Applications	3
ITMD 554	Mass-Market Intelligent Device Applications	3
ITMD 555	Open-Source Intelligent Device Applications	3
ITMD 565	Rich Internet Applications	3
ITMD 566	Service-Oriented Architectures	3
ITMT 593	Embedded Systems	3

**Topic: Information Systems Technologies**

ITMO 533	Enterprise Server Administration	3
ITMO 553	Open Source System Administration	3
ITMO 556	Introduction to Open Source Software	3
ITMS 558	Operating Systems Security	3

**Topic: Information Technology Architectures**

ITMO 540	Introduction to Data Networks and the Internet	3
ITMO 554	Operating Systems Virtualization	3
ITMS 548	Cyber Security Technologies	3
ITMT 535	Data Center Architecture	3

**Subject: Business Development****Topic: Design**

ITMD 511	Application Development Methodologies	3
ITMD 532	UML-Based Software Development	3
ITMD 534	Human and Computer Interaction	3
ITMT 531	Object-Oriented System Analysis, Modeling, and Design	3

**Topic: Management**

ITMM 570	Fundamentals of Management for Technology Professionals	3
ITMM 571	Project Management for Information Technology Management	3
ITMM 574	Information Technology Management Frameworks	3
ITMM 575	Networking and Telecommunications Management	3

ITMS 578	Cyber Security Management	3
<b>Topic: Innovation</b>		
ITMM 581	Information Technology Entrepreneurship	3
ITMM 582	Business Innovation	3
ITMD 535	Human-Computer Interaction Design	3

Note: Core courses that also apply to a specialization will still fulfill the core course requirement.

## Specializations

### Computer and Information Security

<b>Required Courses</b>		(21)
ITMO 540	Introduction to Data Networks and the Internet	3
ITMO 556	Introduction to Open Source Software	3
ITMS 548	Cyber Security Technologies	3
ITMS 578	Cyber Security Management	3
Select a minimum of one course from the following:		3
ITMS 539	Steganography	3
ITMS 549	Cyber Security Technologies: Projects & Advanced Methods	3
Select a minimum of 3 credit hours from the following:		3
Any 500-level ITMS elective <sup>1</sup>		3
Select a minimum of 3 credit hours from the following:		3
Any 500-level ITMO elective		3
Any 500-level ITMS elective		3
ITMM 586	Information Technology Auditing	3
<b>Total Credit Hours</b>		<b>21</b>

<sup>1</sup> ITMS 579 may only be taken once as part of this requirement

### Data Center Operations and Management

<b>Required Courses</b>		(21)
ITMO 540	Introduction to Data Networks and the Internet	3
ITMO 554	Operating Systems Virtualization	3
ITMO 556	Introduction to Open Source Software	3
ITMM 576	Data Center Management	3
ITMT 535	Data Center Architecture	3
Select 6 credit hours from the following:		6
ITMD 526	Data Warehousing	3
ITMM 574	Information Technology Management Frameworks	3
ITMO 533	Enterprise Server Administration	3
ITMO 544	Cloud Computing Technologies	3
ITMO 546	Telecommunications Over Data Networks	3
ITMO 553	Open Source System Administration	3
ITMO 557	Storage Technologies	3
ITMS 548	Cyber Security Technologies	3
ITMS 578	Cyber Security Management	3
ITMS 588	Incident Response, Disaster Recovery, and Business Continuity	3
<b>Total Credit Hours</b>		<b>21</b>

**Data Management**

<b>Required Courses</b>			(21)
ITMD 523	Advanced Topics in Data Management		3
ITMD 526	Data Warehousing		3
ITMD 527	Data Analytics		3
ITMS 528	Database Security		3
ITMT 531	Object-Oriented System Analysis, Modeling, and Design		3
Select a minimum of 6 credit hours from the following:			6
ITMD 521	Client/Server Technologies and Applications	3	
ITMD 525	Topics in Data Science and Management	3	
ITMD 529	Advanced Data Analytics	3	
ITMD 566	Service-Oriented Architectures	3	
ITMM 574	Information Technology Management Frameworks	3	
ITMO 557	Storage Technologies	3	
ITMS 578	Cyber Security Management	3	
Total Credit Hours			21

**Digital Systems Technology**

<b>Required Courses</b>			(21)
ITMD 512	Structured and Systems Programming		3
ITMO 556	Introduction to Open Source Software		3
ITMT 533	Operating System Design Implementation		3
ITMT 593	Embedded Systems		3
Select a minimum of 3 credit hours from the following:			3
ITMD 553	Enterprise Intelligent Device Applications	3	
ITMD 554	Mass-Market Intelligent Device Applications	3	
ITMD 555	Open-Source Intelligent Device Applications	3	
Select a minimum of 3 credit hours from the following:			3
ITMD 511	Application Development Methodologies	3	
ITMD 556	Intelligent Device Projects	3	
ITMO 542	Wireless Technologies and Applications	3	
ITMO 544	Cloud Computing Technologies	3	
Select a minimum of 3 credit hours from the following:			3
ITMD 545	Web Real-Time Communications	3	
ITMD 553	Enterprise Intelligent Device Applications	3	
ITMD 554	Mass-Market Intelligent Device Applications	3	
ITMD 555	Open-Source Intelligent Device Applications	3	
ITMD 556	Intelligent Device Projects	3	
ITMD 565	Rich Internet Applications	3	
ITMO 540	Introduction to Data Networks and the Internet	3	
ITMO 541	Network Administration and Operations	3	
ITMO 546	Telecommunications Over Data Networks	3	
INTM 522	Computers in Industry	3	
TECH 565	Introduction to Social Commerce	3	
Total Credit Hours			21

**IT Management and Entrepreneurship**

<b>Required Courses</b>			(21)
ITMD 534	Human and Computer Interaction		3
ITMM 570	Fundamentals of Management for Technology Professionals		3
ITMM 581	Information Technology Entrepreneurship		3
ITMM 582	Business Innovation		3

Select 3 credit hours from the following:		3
ITMD 553	Enterprise Intelligent Device Applications	3
ITMD 554	Mass-Market Intelligent Device Applications	3
ITMD 555	Open-Source Intelligent Device Applications	3
Select 6 credit hours from the following:		6
Any 500-level ITMM elective		
ITMD 556	Intelligent Device Projects	3
ITMS 578	Cyber Security Management	3
TECH 565	Introduction to Social Commerce	3
TECH 581	Consulting for Technical Professionals	3
Total Credit Hours		21

## Management Information Systems

<b>Required Courses</b>		(21)
ITMD 521	Client/Server Technologies and Applications	3
ITMD 523	Advanced Topics in Data Management	3
ITMD 566	Service-Oriented Architectures	3
ITMM 574	Information Technology Management Frameworks	3
Select a minimum of 6 credit hours from the following:		6
ITMM 572	Process Engineering for Information Technology Managers	3
ITMM 586	Information Technology Auditing	3
ITMO 554	Operating Systems Virtualization	3
ITMT 531	Object-Oriented System Analysis, Modeling, and Design	3
Select a minimum of 3 credit hours from the following:		3
INTM 522	Computers in Industry	3
ITMD 525	Topics in Data Science and Management	3
ITMD 526	Data Warehousing	3
ITMD 527	Data Analytics	3
ITMD 529	Advanced Data Analytics	3
ITMD 532	UML-Based Software Development	3
ITMM 537	Service Level Agreements	3
ITMO 544	Cloud Computing Technologies	3
ITMO 557	Storage Technologies	3
ITMS 528	Database Security	3
TECH 565	Introduction to Social Commerce	3
TECH 581	Consulting for Technical Professionals	3
Total Credit Hours		21

## Software Development

<b>Required Courses</b>		(21)
ITMD 510	Object-Oriented Application Development	3
ITMD 515	Advanced Software Programming	3
ITMD 536	Software Testing and Maintenance	3
ITMM 571	Project Management for Information Technology Management	3
Select a minimum of 6 credit hours from the following:		6
ITMD 511	Application Development Methodologies	3
ITMD 513	Open Source Programming	3
ITMD 532	UML-Based Software Development	3
ITMD 565	Rich Internet Applications	3
Select a minimum of 3 credit hours from the following:		3
ITMD 511	Application Development Methodologies	3
ITMD 512	Structured and Systems Programming	3

ITMD 513	Open Source Programming	3
ITMD 519	Topics in Software Development	3
ITMD 532	UML-Based Software Development	3
ITMD 534	Human and Computer Interaction	3
ITMD 553	Enterprise Intelligent Device Applications	3
ITMD 554	Mass-Market Intelligent Device Applications	3
ITMD 555	Open-Source Intelligent Device Applications	3
ITMD 556	Intelligent Device Projects	3
ITMD 565	Rich Internet Applications	3
ITMM 572	Process Engineering for Information Technology Managers	3
ITMS 518	Coding Security	3
ITMT 531	Object-Oriented System Analysis, Modeling, and Design	3
TECH 565	Introduction to Social Commerce	3

Total Credit Hours 21

## System Administration

**Required Courses** (21)

ITMO 540	Introduction to Data Networks and the Internet	3
ITMO 541	Network Administration and Operations	3
ITMO 556	Introduction to Open Source Software	3

Select a minimum of 6 credit hours from the following: 6

ITMO 533	Enterprise Server Administration	3
ITMO 550	Enterprise End-User System Administration	3
ITMO 553	Open Source System Administration	3

Select a minimum of 6 credit hours from the following: 6

ITMM 537	Service Level Agreements	3
ITMM 571	Project Management for Information Technology Management	3
ITMM 574	Information Technology Management Frameworks	3
ITMM 575	Networking and Telecommunications Management	3
ITMO 517	Shell Scripting for System Administration	3
ITMO 533	Enterprise Server Administration	3
ITMO 544	Cloud Computing Technologies	3
ITMO 550	Enterprise End-User System Administration	3
ITMO 553	Open Source System Administration	3
ITMO 554	Operating Systems Virtualization	3
ITMO 557	Storage Technologies	3
ITMS 558	Operating Systems Security	3

Total Credit Hours 21

## Systems Analysis

**Required Courses** (21)

ITMD 511	Application Development Methodologies	3
ITMD 534	Human and Computer Interaction	3
ITMD 536	Software Testing and Maintenance	3
ITMM 572	Process Engineering for Information Technology Managers	3
ITMT 531	Object-Oriented System Analysis, Modeling, and Design	3

Select a minimum of 6 credit hours from the following: 6

INTM 522	Computers in Industry	3
ITMD 532	UML-Based Software Development	3
ITMM 574	Information Technology Management Frameworks	3
ITMM 575	Networking and Telecommunications Management	3
ITMM 586	Information Technology Auditing	3

ITMS 578	Cyber Security Management	3
TECH 581	Consulting for Technical Professionals	3
Total Credit Hours		21

## Voice and Data Communication Technology

<b>Required Courses</b>		(21)
ITMD 545	Web Real-Time Communications	3
ITMO 540	Introduction to Data Networks and the Internet	3
ITMO 546	Telecommunications Over Data Networks	3
ITMO 556	Introduction to Open Source Software	3
Select a minimum of 6 credit hours from the following:		6
ITMO 541	Network Administration and Operations	3
ITMO 542	Wireless Technologies and Applications	3
ITMO 544	Cloud Computing Technologies	3
ITMO 547	Telecommunications Over Data Networks: Projects and Advanced Methods	3
Select a minimum of 3 credit hours from the following:		3
ITMD 553	Enterprise Intelligent Device Applications	3
ITMD 554	Mass-Market Intelligent Device Applications	3
ITMD 555	Open-Source Intelligent Device Applications	3
ITMD 565	Rich Internet Applications	3
ITMM 571	Project Management for Information Technology Management	3
ITMM 575	Networking and Telecommunications Management	3
ITMO 541	Network Administration and Operations	3
ITMO 542	Wireless Technologies and Applications	3
ITMO 547	Telecommunications Over Data Networks: Projects and Advanced Methods	3
ITMS 543	Vulnerability Analysis and Control	3
ITMS 548	Cyber Security Technologies	3
ITMS 555	Mobile Device Forensics	3
TECH 565	Introduction to Social Commerce	3
Total Credit Hours		21

## Web Design and Application Development

<b>Required Courses</b>		(21)
ITMD 534	Human and Computer Interaction	3
ITMD 562	Web Site Application Development	3
ITMD 565	Rich Internet Applications	3
ITMD 567	Web Systems Integration	3
ITMM 582	Business Innovation	3
Select a minimum of 6 credit hours from the following:		6
COM 525	User Experience Research and Evaluation	3
ITMD 513	Open Source Programming	3
ITMD 515	Advanced Software Programming	3
ITMD 519	Topics in Software Development	3
ITMD 553	Enterprise Intelligent Device Applications	3
ITMD 554	Mass-Market Intelligent Device Applications	3
ITMD 555	Open-Source Intelligent Device Applications	3
ITMD 563	Intermediate Web Application Development	3
ITMD 564	Advanced Web Application Development	3
ITMD 566	Service-Oriented Architectures	3
ITMD 569	Topics in Application Development	3
TECH 565	Introduction to Social Commerce	3
Total Credit Hours		21