
NEW PROGRAM PROPOSAL
Master of Science in Information Technology and Management

The attached proposed Master of Science in Information Technology and Management has been approved by the faculty of the Department of Information Technology and Management and is forwarded for consideration by the Graduate Studies Committee and the University Faculty Council.

Encl: New Program Proposal MS-ITM : Master of Science in Information Technology and Management
Draft Bulletin pages for Master of Science in Information Technology and Management
Information Technology and Management Assessment Plan for Graduate Degrees, 2019-2021

New Program Proposal

Date Submitted: 01/27/19 11:35 pm

MS-ITM : Master of Science in Information Technology and Management

Last edit: 01/27/19 11:35 pm

Changes proposed by: trygstad

Requestor	Name	Raymond Trygstad	E-mail	trygstad@iit.edu
Origination Date	2019-1-27			
Is this an interdisciplinary program?	No			
Academic Unit	Information Technology & Mgmt	College	School of Applied Technology	
Program Title	Master of Science in Information Technology and Management			
Effective Academic Year	2019 - 2020	Effective Term	Fall 2019	
Academic Level	Graduate			
Program Type	Graduate Degree			
Degree Type	Master of Science (MS)			
CIP Code	11.0103 - Information Technology.			
Is there more than one Academic Unit proposer?	No			
Program Code	MS-ITM			
Program Attribute				
Total Program Credit Hours	32			

In Workflow

1. ITMG Chair
2. Academic Affairs
3. Director of Assessment
4. AT Dean
5. Marketing and Communications
6. Graduate Studies Committee Chair
7. Faculty Council Chair
8. Faculty Council Chair
9. Provost
10. President
11. Board of Trustees
12. Academic Affairs

Program Narrative and Justification

Narrative description of how the institution determined the need for the program. For example, describe what need this program will address and how the institution became aware of that need. If the program is replacing a current program(s), identify the current program(s) that is being replaced by the new program(s) and provide details describing the benefits of the new program(s). If the program will be offered in connection with, or in response to, an initiative by a governmental entity, provide details of that initiative.

Computers and networks are core infrastructure that are essential to our way of life. The need for information technology professionals in all job roles continues to be one of the strongest sectors in our economy. The Master of Science in Information Technology and Management will be a research degree which will build on strong experience in student research already in place in the department with students in our European dual-degree programs. The hiring of research faculty in the Department of Information Technology and Management and the expansion of graduate programs in information technology nationally and internationally have led to a clear need for a degree to prepare students to conduct post-graduate academic and industry research in the field. Respected institutions such as George Mason University and Rutgers University currently offer Ph.D. degrees in information technology and we need to prepare students to compete for these degrees. Additionally, establishment of a strong role for research students in the ITM Department is essential in support of tenure-track/tenured faculty research, and is a key component of a degree progression that will ultimately lead to the establishment of a Ph.D. program in the department. Many students will enter this degree from a Bachelor of Science in Information Technology which we are proposing at the same time as this.

Narrative description of how the program was designed to meet local market needs, or for an online program, regional or national market needs. For example, indicate if Bureau of Labor Statistics data or State labor data systems information was used, and/or if State, regional, or local workforce agencies were consulted. Include how the course content, program length, academic level, admission requirements, and prerequisites were decided; including information received from potential employers about course content; and information regarding the target students and employers.

Employment of computer and information technology occupations is projected to grow 13 percent from 2016 to 2026, faster than the average for all occupations. These occupations are projected to add about 557,100 new jobs. Demand for these workers will stem from greater emphasis on cloud computing, the collection and storage of big data, and information security. (BLS) All of these topics are areas of study covered in the proposed degree. The median annual wage for computer and information technology occupations was \$84,580 in May 2017, which was higher than the median annual wage for all occupations of \$37,690. (BLS) Because analysis and experience has shown us that a major employment market for graduates of our department is the financial services sector, the expanded research emphasis in this program will further enhance the employability of these graduates.

A Bachelor of Science in Information Technology is being proposed in parallel with this proposal. This will create a new, research-oriented degree path in this field. The increased visibility brought about by this research-focused degree path will attract more students and will open new avenues for funded research and grant support of these programs.

Narrative description of any wage analysis the institution may have performed, including any consideration of Bureau of Labor Statistics wage data related to the new program.

The median annual wage for computer and information technology occupations was \$84,580 in May 2017, which was higher than the median annual wage for all occupations of \$37,690. (BLS) According to Robert Half Technologies, 2019 starting salaries for jobs our degree would prepare students for, in the Chicago market specifically, include Web Developers at \$103,123; System Administrators at \$83,980; Mobile Application Developers at \$147,582; Database Managers at \$133,380; and Systems Security Administrator at \$115,781.

Narrative description of how the program was reviewed or approved by, or developed in conjunction with, one or more of the following: a) business advisory committees; b) program integrity boards; c) public or private oversight or regulatory agencies (not including the state licensing/authorization agency and accrediting agency); and d) businesses that would likely employ graduates of the program. For example, describe the steps taken to develop the program, identify when and with whom discussions were held, provide relevant details of any proposals or correspondence generated, and/or describe any process used to evaluate the program.

This program is based on existing professional Master's, adding research and strong faculty advising. The base degree program was developed in consultation with the School of Applied Technology Advisory Board and formal government studies on higher education programs in information technology.

Learning goal	Courses/student work used to assess achievement of this goal
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.	ITMD 510 Object-Oriented App Develop ITMD 512 Structured/Systems Programming ITMD 513 Open Source Programming ITMD 515 Advanced Software Programming
Work with, lead, and manage teams in an enterprise environment to collaboratively arrive at optimal technology solutions.	ITMD 511 Application Dev Methodologies ITMD 532 UML-Based Software Development ITMD 534 Human/Computer Interaction ITMD 535 Human-Computer Interaction Des ITMM 537 Vendor Mgmt/Service Lvl Agrmts ITMM 570 Fund of Mgmt for Tech Prof ITMM 571 Project Management for ITM ITMM 574 ITM Frameworks ITMM 575 Networking/Telecom Management ITMM 581 IT Entrepreneurship ITMM 582 Business Innovation ITMS 578 Cyber Security Mgmt ITMT 531 OO Syst Anlys Mod & Design
Manage and deploy information resources applicable to each student's particular area of focus in an enterprise setting.	ITMD 553 Enterprise Intelligent Device ITMD 554 Mass-Market Intelligent Device ITMD 555 Open-Source Intelligent Device ITMD 565 Rich Internet Applications ITMD 566 Service-Oriented Architectures ITMO 533 Enterprise Server Admin ITMO 540 Intro Data Networks & Internet ITMO 553 Open Source System Admin ITMO 554 Operating Sys Virtualization ITMO 556 Intro to Open Source Software ITMS 548 Cyber Security Technologies ITMS 558 Operating Systems Security ITMT 535 Data Center Architecture ITMT 593 Embedded Systems
Conduct and report on significant research in information technology and/or the management of information technology.	ITMT 591 Independent Study/Research ITMT 594 Special Projects in IT ITMT 597 Special Problem in IT

In what semesters will the data be collected to assess this learning goal, and by whom? See attached Information Technology and Management Assessment Plan for Graduate Degrees, 2019-2021

Provide the name of the rubric that will be used to assess the extent to which students are achieving this learning goal. Rubrics will be created as necessary to evaluate student work, as per the Information Technology and Management Assessment Plan for Graduate Degrees, 2019-2021

How often and by whom will the data be analyzed? What benchmarks or targets will be used to interpret your results? See attached Information Technology and Management Assessment Plan for Graduate Degrees, 2019-2021

Briefly describe the process that will be See attached Information Technology and Management Assessment Plan for Graduate Degrees, 2019-2021

used to share the results with faculty and use these to motivate program improvement.

Attach Additional Assessment Document(s) [2019-2021ITMGraduateProgramAssessmentPlan.pdf](#)

Graduate Program Requirements

Master of Science (M.S.) Degree

Minimum credit hours	32				
400-level credit hour limit?	Yes	How many hours allowed?	0		
500-600-level credit hour limits:	Minimum: 32	Maximum:	999		
700-level credit hour maximum:	6				
Thesis required?	Optional				
List specific details about the thesis option	Research credit hours must include five to eight credit hours of master's thesis work (ITMT 591). A student must successfully defend a thesis to apply ITMT 591 credit hours toward a degree. Students who complete both a project and a thesis can apply a maximum combined total of eight credit hours of ITMT 591 and ITMT 594 or ITMT 597 toward the degree.				
By what method is the thesis defended?	Thesis Defense				
Research course credit hours	Minimum 6	Maximum 8			
Project course required?	Optional				
List specific details about the project option	Research credit hours must include five to eight credit hours of master's project work (ITMT 594 or ITMT 597). If a project is elected, a student must complete one of the following: 1. A paper submitted for publication as an article or as a technical report. 2. A software product including an accompanying technical report and user documentation. 3. A hardware device or appliance including an accompanying technical report and user documentation. 4. A complete information system facilitating or enabling a defined business process, including an accompanying technical report and user documentation.				
Project report/ review required?	Optional				
Project course credit hours	Minimum 5	Maximum 8	Course Number	594/597	
Seminar/Colloquium required?	Not Required				
Required Concentration?	No				

List Core Course
Requirements

Course List

Code	Title	Credit Hours
Core Courses		9
Select a minimum of one course from Software Development:		
ITMD 510	Object-Oriented App Develop	3
ITMD 512	Structured/Systems Programming	3
ITMD 513	Open Source Programming	3
ITMD 515	Advanced Software Programming	3
Select a minimum of one course from System Technologies:		
ITMD 553	Enterprise Intelligent Device	3
ITMD 554	Mass-Market Intelligent Device	3
ITMD 555	Open-Source Intelligent Device	3
ITMD 565	Rich Internet Applications	3
ITMD 566	Service-Oriented Architectures	3
ITMO 533	Enterprise Server Admin	3
ITMO 540	Intro Data Networks & Internet	3
ITMO 553	Open Source System Admin	3
ITMO 554	Operating Sys Virtualization	3
ITMO 556	Intro to Open Source Software	3
ITMS 548	Cyber Security Technologies	3
ITMS 558	Operating Systems Security	3
ITMT 535	Data Center Architecture	3
ITMT 593	Embedded Systems	3
Select a minimum of one course from Business Development:		
ITMD 511	Application Dev Methodologies	3
ITMD 532	UML-Based Software Development	3
ITMD 534	Human/Computer Interaction	3
ITMD 535	Human-Computer Interaction Des	3
ITMM 537	Vendor Mgmt/Service Lvl Agrmts	3
ITMM 570	Fund of Mgmt for Tech Prof	3
ITMM 571	Project Management for ITM	3
ITMM 574	ITM Frameworks	3
ITMM 575	Networking/Telecom Management	3
ITMM 581	IT Entrepreneurship	3
ITMM 582	Business Innovation	3
ITMS 578	Cyber Security Mgmt	3
ITMT 531	OO Syst Anlys Mod & Des	3
Research Courses		5-8
Select 5 to 8 hours from the following:		
ITMT 591	Independent Study/Research	1-8
ITMT 594	Special Projects in IT	1-6
ITMT 597	Special Problem in IT	1-6

List Elective Course
Options

Select 15 to 18 hours from any 500-level ITM, ITMD, ITMM, ITMO, ITMS, ITMT, or TECH courses selected with the student's adviser. A limited number of courses from other departments may be selected with adviser approval.

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY AND MANAGEMENT

At the conclusion of their studies, graduates of the Master of Science in Information Technology and Management 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.
- Conduct and report on significant research in information technology and/or the management of information technology.

Students are required to complete three core courses. These 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 may choose from two research options to complete the degree:

Thesis Option

The thesis option requires coursework and five to eight credit hours of master's thesis work (ITMT 591). The result is a master's thesis. A student must successfully defend a thesis to apply ITMT 591 credit hours toward a degree. Students who complete both a project and a thesis can apply a maximum combined total of eight credit hours of ITMT 591 and ITMT 594 or ITMT 597 toward the degree.

Master's Project Option

The master's project option requires coursework and five to eight credit hours of ITMT 594 or ITMT 597 for a total of 32 credit hours. If a project is elected, a student must complete one of the following:

1. A paper submitted for publication as an article or as a technical report.
2. A software product including an accompanying technical report and user documentation.
3. A hardware device or appliance including an accompanying technical report and user documentation.
4. A complete information system facilitating or enabling a defined business process, including an accompanying technical report and user documentation..

Master of Science in Information Technology and Management (Thesis Option)

Code	Title	Credit Hours
Required Core Courses		(9)
Select three credit hours of Software Development		3
Select three credit hours of System Technologies		3
Select three credit hours of Business Development		3
Research Courses		(5-8)
ITMT 591	Independent Study/Research	5-8
Elective Courses		(15-18)
15 to 18 hours of 500-level ITM or TECH courses selected with the student's adviser		15-18

A limited number of elective courses from other departments may be selected with adviser approval.

Master of Science in Information Technology and Management (Project Option)

Code	Title	Credit Hours
Required Core Courses		(9)
Select three credit hours of Software Development		3
Select three credit hours of System Technologies		3
Select three credit hours of Business Development		3
Research Courses		(5-8)
ITMT 594 or ITMT 597	Special Projects in IT Special Problem in IT	5-8
Elective Courses		(15-18)
15 to 18 hours of 500-level ITM or TECH courses selected with the student's adviser		15-18

A limited number of elective courses from other departments may be selected with adviser approval.

Graduate Core Courses by Subject and Topic

The following courses comprise the graduate core courses:

Subject: Software Development

Topic: Programming

Code	Title	Credit Hours
ITMD 510	Object-Oriented Application Development	3
ITMD 512	Structured and Systems Programming	3
ITMD 513	Open Source Programming	3
ITMD 515	Advanced Software Programming	3

Subject: System Technologies

Topic: Application Development

Code	Title	Credit Hours
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

Code	Title	Credit Hours
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

Code	Title	Credit Hours
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

Code	Title	Credit Hours
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

Code	Title	Credit Hours
ITMM 537	Vendor Management and Service Level Agreements	3
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

Topic: Innovation

Code	Title	Credit Hours
ITMM 581	Information Technology Entrepreneurship	3
ITMM 582	Business Innovation	3
ITMD 535	Human-Computer Interaction Design	3

INFORMATION TECHNOLOGY AND MANAGEMENT

Perlstein Hall
 10 W. 33rd Street, Room 223
 Chicago, IL 60616
appliedtech.iit.edu/information-technology-and-management

Daniel F. and Ada L. Rice Campus
 201 E. Loop Road
 Wheaton, IL 60189

Dean and Chair
 C. Robert Carlson

Faculty with Research Interests

For more information regarding faculty visit the Department of Information Technology and Management website.

The mission of the Department of Information Technology and Management is to educate and inform students to prepare them to assume technical and managerial leadership in the information technology and cybersecurity fields. The information technology and management degrees apply a hands-on, reality-based approach to education that allows students to apply what they learn in class to solve real-life problems. Additional courses may be taken from the Chicago-Kent College of Law curriculum to give cybersecurity and forensics practitioners a thorough grounding in legal issues and compliance. The program provides an innovative experience where students work on cutting-edge, industry-sponsored projects. This teaching philosophy prepares students to become innovators, entrepreneurs and leaders of the future. For some areas of study, it is possible to complete the entire Master of Information Technology and Management degree online.

Laboratories and Research Centers

The School of Applied Technology operates and administers over 400 computers and servers at the Mies and Rice campuses to support teaching, learning and research. Ten laboratories include a networking/network security and computer forensics facility, and a dedicated Real-Time Communications (RTC) facility which includes an entire CISCO VoIP LAN as well as video and mesh wireless capabilities. The security/forensics and RTC laboratories as well as the general-use laboratories provide additional facilities for student projects and applied research, some of which is undertaken in conjunction with industry partners. Some laboratories are available for student use outside of class hours, and one or more laboratories are available for student use weekdays between 10 a.m. and 10 p.m. at the Rice Campus. A wireless network at the Rice Campus provides complete coverage of the campus and operates at all times that the campus is open. Students make extensive use of the network infrastructure provided to support personal notebook computers.

The Center for Cyber Security and Forensics Education

The Center for Cyber Security and Forensics Education (C²SAFE) is a multi-disciplinary center within the School of Applied Technology. The objectives of the Center for Cyber Security and Forensics Education are to:

- Develop, promote and support education and research in cyber security technologies and management, information assurance, and digital forensics across all academic disciplines at Illinois Institute of Technology.
- Engage with business and industry, government, professional associations, and community colleges to enhance knowledge, awareness, and education in cyber security and digital forensics and improve practices in information assurance.
- Coordinate the designation of Illinois Institute of Technology as a National Center of Academic Excellence in Cyber Defense Education by the National Security Agency and the Department of Homeland Security.
- Maintain resources for education and research in cyber security and digital forensics, publish student and faculty research in the field, and sponsor, organize, and conduct conferences and other events to promote and advance cyber security and forensics education.
- Support university academic departments in the delivery of the highest caliber of cyber security and digital forensics education.

The center plans, organizes and conducts the annual ForenSecure conference in the spring of each year, as well as additional activities and student competitions that advance the mission of the center.

The center actively cooperates and coordinates activities with agencies of the federal government and with professional organizations and programs such as the Information Systems Security Association (ISSA), the Information Systems Audit and Control Association (ISACA), the Association of Information Technology Professionals (AITP), the Association for Computing Machinery (ACM), the Institute of Electrical and Electronic Engineers (IEEE), UNIFORM, CompTIA, Infragard, and others. The center makes every effort to engage in joint activities with these organizations and to encourage them to engage with the center whenever possible.

Resources for education and research as well as published student and faculty research in the form of technical reports and white papers are available on the center's website at ccsafe.iit.edu/.

Placement Examinations

Students entering the Master of Information Technology and Management degree program may be required to take placement examinations based on an evaluation of their background and their undergraduate degree program.

Students may be required to demonstrate proficiency in the use of a contemporary object oriented programming language through completion of a programming proficiency examination. Students will be requested to complete a representative set of basic programming tasks and will have a choice of contemporary programming languages in which to complete the tasks; Visual Basic is not an acceptable language for this purpose. References may be consulted, but the test is timed so ability to code is necessary. Students who cannot satisfactorily complete the exam may be required to attend a refresher workshop or short course in their selected programming language, or may be required to complete an ITM programming course; appropriate action will be based on their score on the exam.

Students who are not required to complete the Test of English as a Foreign Language (TOEFL) but have low scores on the GRE verbal may be required to complete an English evaluation. If students cannot pass the examination or evaluation they will be required to enroll in an appropriate PESL course and demonstrate proficiency at course completion.

Accelerated Courses

The program may offer accelerated courses for credit in several areas of information technology and management. (Students should see the definition of accelerated courses.)

Accelerated courses provide an opportunity for degree-seeking students at the university to complete graduate degree requirements in a shorter time period. If taken by non-degree seeking students, all courses may be later applied toward the Master of Information Technology and Management degree for those who apply and are accepted to the degree program.

Admission Requirements

Applicants for admission to a professional masters degree must have earned a four-year bachelor's degree from an accredited institution with a minimum cumulative undergraduate GPA of 3.0/4.0. International applicants are required to submit a GRE score with a minimum score of 300 (combined quantitative and verbal), 151 quantitative, and 3.0 analytical writing and may be required to submit a TOEFL score (see Graduate Admission). Applicants for admission to a master of science degree should hold a four-year bachelor's degree in a computing or computing-related engineering discipline from an accredited institution with a minimum cumulative undergraduate GPA of 3.0/4.0 and minimum GRE score of 305 (combined quantitative and verbal), 151 quantitative, and 3.0 analytical writing; International applicants may be required to submit a TOEFL score (see Graduate Admission). Applicants admitted to a master of science degree who do not hold a four-year bachelor's degree in a computing or computing-related engineering discipline may be required to complete up to one year of prerequisite courses prior to beginning formal graduate studies. Admission as a non-degree student follows the university policy set forth in this bulletin.

Students whose undergraduate degree is not in a computer-related area or who do not have significant experience or certifications in the information technology field will be required to demonstrate proficiency in undergraduate courses that are prerequisites for the graduate program. Proficiency may be demonstrated by taking and passing a written exam or taking and passing, with a grade of "B" or better, the prerequisite undergraduate courses at Illinois Institute of Technology. Proficiency may also be demonstrated by presentation of documentation of equivalent training or certification; in this case waivers of the prerequisites may only be granted by the graduate adviser or the ITM associate chair.

Current prerequisites for the Master of Information Technology and Management include computer hardware and operating system literacy (ITM 301 or equivalent coursework, certification, or experience) and an ability to program at a basic level using a contemporary programming language (ITM 311 or ITM 312 or equivalent coursework, certification, or experience); basic knowledge of HTML, CSS, and JavaScript (ITMD 361); and the ability to create and administer databases using a modern database management system (ITMD 421). Students enrolled in undergraduate post-baccalaureate studies (see Graduate Admission) may take these courses as part of that program.

Current prerequisites for the Master of Cyber Forensics and Security include computer hardware and operating system literacy (ITM 301 or equivalent coursework, certification, or experience); an ability to program at a competent level using a contemporary programming language (ITMD 411 or ITMD 510); basic knowledge of networking concepts, protocols, methods, and the Internet (ITMO 440 or ITMO 540); and the ability to create and administer databases using a modern database management system (ITMD 421).

Current prerequisites for the Master of Science in Cybersecurity and Digital Forensics include computer hardware and operating system literacy (ITM 301 or equivalent coursework, certification, or experience); an ability to program at a competent level using a contemporary programming language (ITMD 411 or ITMD 510); basic knowledge of networking concepts, protocols, methods, and the Internet (ITMO 440 or ITMO 540); the ability to create and administer databases using a modern database management system (ITMD 421); and completion of a program of mathematics culminating in a calculus-based course in probability and statistics (MATH 474).

Current prerequisites for the Master of Science in Information Technology and Management include computer hardware and operating system literacy (ITM 301 or equivalent coursework, certification, or experience); an ability to program at a competent level using a contemporary programming language (ITMD 411 or ITMD 510); basic knowledge of HTML, CSS, and JavaScript (ITMD 361); the ability to create and administer databases using a modern database management system (ITMD 421); and completion of a program of mathematics culminating in a calculus-based course in probability and statistics (MATH 474).

Degrees Offered

- Master of Cyber Forensics and Security
- Master of Information Technology and Management
- Master of Science in Cybersecurity and Digital Forensics
- **Master of Science in Information Technology and Management**

Certificate Programs

- Advanced Software Development
- Cyber Security Management
- Cyber Security Technologies
- Data Center Operations and Management
- Data Management and Analytics
- Digital Voice and Data Communication Technologies
- Information Technology Innovation, Leadership, and Entrepreneurship
- System Administration
- Systems Analysis
- Web Design and Application Development

Information Technology and Management Assessment Plan for Graduate Degrees, 2019-2021

Assessment plans for 2019-2021 will adhere to the rubric as defined by the IIT Assessment Report Evaluation Rubric. One Program Educational Objective in each degree program will be assessed each term, and all objectives will be assessed twice in each three-year cycle. The full list of Program Educational Objectives to be assessed follows beginning on page 3 below. In addition to the Program Educational Objective, course objectives for each course will be assessed. Separate plans will be used for the undergraduate and graduate programs. This document addresses the courses in the Graduate Program.

Spring 2019:

Master of Information Technology and Management (MITM) and Master of Science in Information Technology and Management (MSITM) (draft) Program Educational Objectives Assessed: 3

Master of Cyber Forensics and Security (MCYF) and M.S. in Applied Cybersecurity and Digital Forensics (MSACDF) Program Educational Objectives Assessed: 2

M.S. in Applied Cybersecurity and Digital Forensics (MSACDF) Program Educational Objectives Assessed: 4

Student Artifacts: Survey / April 2019 / Evaluation by ITM Curriculum Committee members
Assignments / May 2019/ Evaluator(s) TBD

Courses assessed:

<i>Curricular Area</i>	<i>Course</i>
Software Development (MITM and MSITM (draft))	ITMD 510 Object-Oriented Application Development
Security & Forensics (MCYF)	ITMS 583 Digital Evidence
Security Technologies (MSACDF)	ITMS 549 Cyber Security Technologies: Projects & Advanced Methods

Fall 2019:

Master of Information Technology and Management (MITM) and Master of Science in Information Technology and Management (MSITM) (draft) Program Educational Objectives Assessed: 1

Master of Cyber Forensics and Security (MCYF) and M.S. in Applied Cybersecurity and Digital Forensics (MSACDF) Program Educational Objectives Assessed: 3

Master of Science in Information Technology and Management (MSITM) (draft) Program Educational Objectives Assessed: 4

Student Artifacts: Survey / November 2019 / Evaluation by ITM Curriculum Committee
Assignments / December 2019 / Evaluators: Evaluator(s) TBD

Courses assessed:

<i>Curricular Area</i>	<i>Course</i>
System Technologies (MITM and MSITM (draft))	ITMO 540 Introduction to Data Networks & the Internet
Security Technologies (MCYF and MSACDF)	ITMS 548 Cyber Security Technologies
Graduate Research (MSITM)(draft)	ITMT 597 Special Problems in Information Technology

Spring 2020:

Master of Information Technology and Management (MITM) and Master of Science in Information Technology and Management (MSITM) (draft) Program Educational Objectives Assessed: 2

Master of Cyber Forensics and Security (MCYF) and M.S. in Applied Cybersecurity and Digital Forensics (MSACDF) Program Educational Objectives Assessed: 2

Student Artifacts: Survey / April 2020 / Evaluation by ITM Curriculum Committee
Assignments / May 2020 / Evaluator(s) TBD

Courses assessed:

<i>Curricular Area</i>	<i>Course</i>
I.T. Infrastructures (MITM and MSITM (draft))	ITMO 554 Operating Systems Virtualization
Security Technologies (MCYF and MSACDF)	ITMS 538 Digital Forensics

Fall 2020:

Master of Information Technology and Management (MITM) and Master of Science in Information Technology and Management (MSITM) (draft) Program Educational Objectives Assessed: 1

Master of Cyber Forensics and Security (MCYF) and M.S. in Applied Cybersecurity and Digital Forensics (MSACDF) Program Educational Objectives Assessed: 1

M.S. in Applied Cybersecurity and Digital Forensics (MSACDF) and Master of Science in Information Technology and Management (MSITM) (draft) Program Educational Objectives Assessed: 4

Student Artifacts: Survey / November 2020 / Evaluation by ITM Curriculum Committee
Assignments / December 2020 / Evaluator(s) TBD

Courses assessed:

<i>Curricular Area</i>	<i>Course</i>
Data Management (MITM and MSITM (draft))	ITMD 527 Data Analytics
Security Management (MCYF and MSACDF)	ITMS 578 Cyber Security Management
Thesis Research (MSACDF and MSITM)	ITMT 591 Independent Study and Research

Spring 2021:

Master of Information Technology and Management (MITM) and Master of Science in Information Technology and Management (MSITM) (draft) Program Educational Objectives Assessed: 3

Master of Cyber Forensics and Security (MCYF) and M.S. in Applied Cybersecurity and Digital Forensics (MSACDF) Program Educational Objectives Assessed: 3

Student Artifacts: Survey / April 2021 / Evaluation by ITM Curriculum Committee
Assignments / May 2021 / Evaluator(s) TBD

Courses assessed:

<i>Curricular Area</i>	<i>Course</i>
Web Design/Development (MITM MSITM (draft))	ITMD 565 Rich Internet Applications
Security Technologies (MCYF and MSACDF)	ITMS 543 Vulnerability Analysis and Control

Fall 2021:

Master of Information Technology and Management (MITM) and Master of Science in Information Technology and Management (MSITM) (draft) Program Educational Objectives Assessed: 2

Master of Cyber Forensics and Security (MCYF) and M.S. in Applied Cybersecurity and Digital Forensics (MSACDF) Program Educational Objectives Assessed: 1

Student Artifacts: Survey / November 2021 / Evaluation by ITM Curriculum Committee
Assignments / December 2021 / Evaluator(s) TBD

Courses assessed:

<i>Curricular Area</i>	<i>Course</i>
I.T. Management (MITM) MSITM (draft))	ITMM 571 Project Management for ITM
Security Technologies (MCYF and MSACDF)	ITMS 548 Cyber Security Technologies

The following program education objectives will be assessed for HLC accreditation purposes:

Master of Information Technology and Management (MITM) Program Educational Objectives
At the conclusion of their studies, graduates of the Master of Information Technology and Management should be able to:
1. 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.
2. Work with, lead, and manage teams in an enterprise environment to collaboratively arrive at optimal technology solutions.
3. Manage and deploy information resources applicable to each student's particular area of focus in an enterprise setting.

Master of Cyber Forensics and Security (MCYF) Program Educational Objectives
At the conclusion of their studies, graduates of the Master of Cyber Forensics and Security degree should be able to:
1. Design and implement a comprehensive enterprise security program using both policy and technology to implement technical, operational, and managerial controls.
2. Comprehensively investigate information security incidents and violation of law using computer resources in a manner such that all evidence is admissible in a court of law.
3. Technically secure enterprise information assets and resources to deter, detect, and prevent the success of attacks and intrusions.

Master of Science in Information Technology and Management (MSITM) (Draft) Program Educational Objectives
At the conclusion of their studies, graduates of the Master of Science in Information Technology and Management should be able to:
1. 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.
2. Work with, lead, and manage teams in an enterprise environment to collaboratively arrive at optimal technology solutions.
3. Manage and deploy information resources applicable to each student's particular area of focus in an enterprise setting.
4. Conduct and report on significant research in information technology and/or the management of information technology.

Master of Science in Applied Cybersecurity and Digital Forensics (MSACDF) Program Educational Objectives
At the conclusion of their studies, graduates of the Master of Science in Applied Cybersecurity and Digital Forensics degree should be able to:
1. Design and implement a comprehensive enterprise security program using both policy and technology to implement technical, operational, and managerial controls.
2. Comprehensively investigate information security incidents and violation of law using computer resources in a manner such that all evidence is admissible in a court of law.
3. Technically secure enterprise information assets and resources to deter, detect, and prevent the success of attacks and intrusions.
4. Conduct and report on significant research in the areas of cybersecurity and/or digital forensics.

Survey drafting and data collection staff:

Angela Jarka, ITM Department Manager

Ryan Nelson, ITM Admissions and Recruitment Specialist

Assessment Evaluators:

ITM Curriculum Committee

Faculty members of the Curriculum Committee evaluate Survey Artifacts and make recommendations based on evaluations of all assessment artifacts. All full-time faculty members are voting members of the committee should they elect to participate.

Chair: Ray Trygstad, ITM Associate Chair and Industry Professor

Members: Jeremy Hajek, Industry Associate Professor

Maurice E. Dawson, Director of the Center for Cyber Security and Forensics Education and Assistant Professor

Louis F. McHugh IV, SAT Computer Systems Manager and Adjunct Industry Associate Professor

Thomas "T.J." Johnson, Adjunct Industry Professor

Dan Kahn, Adjunct Industry Professor

Faculty: C. Robert Carlson, ITM Chair and Professor

Karl Stolley, Associate Professor (joint appointment)

Adarsh Arora, Coleman Entrepreneur-in-Residence and Industry Professor

William Lidinsky, Industry Professor

James Pappademas, Industry Professor

Yong Zheng, Assistant Professor

All full-time faculty members may be appointed as assessment evaluators for Assignment Artifacts. Appointments will be made at the beginning of each term in which assignments will be assessed, and the Assessment Plan will be updated to reflect these appointments.