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

Assessment plans for 2019-2021 will adhere to the rubric as defined by the IIT Assessment Report Evaluation Rubric. Two or three program educational objectives and three to five student outcomes will be assessed each term, and all objectives and outcomes will be assessed twice in each three-year cycle. The full list of objectives and outcomes follows beginning on page 3 below. In addition to the objectives and outcomes listed below, 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 Undergraduate Program.

Spring 2019:
Program Educational Objectives Assessed: 2, 5
Student Outcomes Assessed: (a), (e), (f), (h)
Student Artifacts: Survey / April 2019 / Evaluation by ITM Curriculum Committee members
Assignments / May 2019/ Evaluator(s) TBD
Courses assessed:

Curricular Area | Course
---|---
Software Development | ITM 313 Intro to Open Source Software Development
Web Design and HCI | ITMD 362 Human Computer Interaction & Web Design
System Integration & Architecture | ITMT 430 System Integration
Societal & Human Security | ITMS 483 Digital Evidence (BSACIT only)

Fall 2019:
Program Educational Objectives Assessed: 3, 4, 6
Student Outcomes Assessed: (b), (f), (h)
Student Artifacts: Survey / November 2019 / Evaluation by ITM Curriculum Committee
Assignments / December 2019 / Evaluators: Evaluator(s) TBD
Courses assessed:

Curricular Area | Course
---|---
Data Management | ITMD 421 Data Modeling and Applications
Networking and Communications | ITMO 440 Introduction to Data Networks & the Internet
Data, Component, Connection, & System Security / Secure Computing | ITMS 448 Cyber Security Technologies
Research | ITMT 491 Undergraduate Research (BSIT draft only)

Spring 2020:
Program Educational Objectives Assessed: 1, 2, 5
Student Outcomes Assessed: (a), (c), (g), (h)
Student Artifacts: Survey / April 2020 / Evaluation by ITM Curriculum Committee
Assignments / May 2020 / Evaluator(s) TBD
Courses assessed:

Curricular Area | Course
---|---
Web Design and HCI | ITMD 362 Human Computer Interaction & Web Design
Software Development | ITMD 411 Intermediate Software Development
System Integration & Architecture | ITMT 430 System Integration
System & Organizational Security | ITMS 438 Digital Forensics (BSACIT only)
**Fall 2020:**

Program Educational Objectives Assessed: 3, 4, 6  
Student Outcomes Assessed: (b), (c), (g), (h)  
Student Artifacts: Survey / November 2020 / Evaluation by ITM Curriculum Committee  
Assignments / December 2020 / Evaluator(s) TBD

Courses assessed:

<table>
<thead>
<tr>
<th>Curricular Area</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Admin and Maintenance</td>
<td>ITM 301 Operating Systems &amp; Hardware I</td>
</tr>
<tr>
<td>Software Development</td>
<td>ITM 311 Introduction to Software Development</td>
</tr>
<tr>
<td>IT Management</td>
<td>ITMM 471 Project Management for ITM</td>
</tr>
<tr>
<td>Research</td>
<td>ITM 497 Independent Study (BSIT draft only)</td>
</tr>
<tr>
<td>Human, Organizational and Societal Security</td>
<td>ITMS 478 Cybersecurity Management (BSACIT only)</td>
</tr>
</tbody>
</table>

**Spring 2021:**

Program Educational Objectives Assessed: 1, 3, 5  
Student Outcomes Assessed: (d), (f), (h)  
Student Artifacts: Survey / April 2021 / Evaluation by ITM Curriculum Committee  
Assignments / May 2021 / Evaluator(s) TBD

Courses assessed:

<table>
<thead>
<tr>
<th>Curricular Area</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Integration, Local and Global Impacts of Computing</td>
<td>ITM 100 Intro to Information Technology as a Profession</td>
</tr>
<tr>
<td>Data Management</td>
<td>ITMD 421 Data Modeling and Applications</td>
</tr>
<tr>
<td>System Admin and Maintenance</td>
<td>ITMO 456 Intro to Open Source Operating Systems</td>
</tr>
<tr>
<td>Software Security</td>
<td>ITMS 418 Coding Security (BSACIT only)</td>
</tr>
</tbody>
</table>

**Fall 2021:**

Program Educational Objectives Assessed: 2, 4  
Student Outcomes Assessed: (a), (b), (h)  
Student Artifacts: Survey / November 2021 / Evaluation by ITM Curriculum Committee  
Assignments / December 2021 / Evaluator(s) TBD

Courses assessed:

<table>
<thead>
<tr>
<th>Curricular Area</th>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>Software Development</td>
<td>ITMD 411 Intermediate Software Development</td>
</tr>
<tr>
<td>Networking and Communications</td>
<td>ITMO 440 Introduction to Data Networks &amp; the Internet</td>
</tr>
<tr>
<td>Data, Component, Connection, &amp; Component &amp; System Security / Secure Computing</td>
<td>ITMS 448 Cyber Security Technologies</td>
</tr>
<tr>
<td>and System Security / Secure Computing</td>
<td>ITMS 458 Operating System Security (BSACIT only)</td>
</tr>
</tbody>
</table>

**Degrees Assessed and Program Accreditation Criteria Applied:**

Bachelor of Information Technology and Management – BITM  
ABET CAC 2019-2020 Information Technology Criteria

Bachelor of Science in Applied Cybersecurity and Information Technology – BSACIT  
ABET CAC 2019-2020 Cybersecurity Criteria and  
ABET CAC 2019-2020 Information Technology Criteria

Bachelor of Science in Information Technology – BSIT (draft)  
Degree is in draft; will be ABET CAC 2019-2020 Information Technology Criteria
The following program education objectives will be evaluated for all ITM Department degrees for HLC and ABET accreditation purposes:

Bachelors degrees from the Department of Information Technology and Management produces graduates who are able to:

<table>
<thead>
<tr>
<th>Program Educational Objective</th>
<th>Required Courses Supporting the Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Problem solve and create innovative answers to provide technology solutions for the problems of business, industry, government, non-profit organizations, and individuals.</td>
<td>ITM 301 Intro to Contemporary Operating Systems &amp; Hardware I ITMD 411 Intermediate Software Development ITMD 421 Data Modeling &amp; Applications ITMT 430 Systems Integration IPRO 3/497 Interprofessional Project (Not assessed by ITM)</td>
</tr>
<tr>
<td>2. Perform requirements analysis, design and administration of computer and network-based systems conforming to policy and best practices, and monitor and support continuing development of relevant policy and best practices as appropriate.</td>
<td>ITM 311 Introduction to Software Development ITMD 362 Human-Computer Interaction and Web Design ITMO 440 Introduction to Data Networking &amp; the Internet ITMO 456 Introduction to Open Source Operating Systems ITMS 448 Cyber Security Technologies ITMT 430 Systems Integration</td>
</tr>
<tr>
<td>3. Apply current technical and mathematical concepts and practices in the core information technologies and recognize the need to engage in continuing professional development.</td>
<td>ITM 100 Introduction to Information Technology as a Profession ITMD 411 Intermediate Software Development ITMD 421 Data Modeling &amp; Applications ITMM 471 Project Management for ITM ITMO 440 Introduction to Data Networking &amp; the Internet ITMT 430 Systems Integration</td>
</tr>
</tbody>
</table>

In addition, the following program education objectives will be evaluated for the Bachelor of Science in Applied Cybersecurity and Information Technology for HLC and ABET accreditation purposes:

In addition to the objectives listed above, the Bachelor of Science in Applied Cybersecurity and Information Technology degree produces graduates who are able to:

<table>
<thead>
<tr>
<th>Program Educational Objective</th>
<th>Required Courses Supporting the Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Design and implement an enterprise security program using both policy and technology to implement technical, operational, and managerial controls, which will technically secure enterprise information assets and resources to deter, detect, and prevent the success of attacks and intrusions.</td>
<td>ITMS 443 Vulnerability Analysis and Control ITMS 448 Cyber Security Technologies ITMS 478 Cyber Security Management</td>
</tr>
<tr>
<td>5. 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.</td>
<td>ITMS 438 Digital Forensics ITMS 483 Digital Evidence</td>
</tr>
</tbody>
</table>

In addition, the following program education objectives will be evaluated for the Bachelor of Science in Information Technology (draft) for HLC and ABET accreditation purposes:

In addition to objectives 1. through 3. listed above, the Bachelor of Science in Information Technology degree (draft) produces graduates who are able to:

<table>
<thead>
<tr>
<th>Program Educational Objective</th>
<th>Required Courses Supporting the Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Apply mathematics and technical skills to research and innovation in the field. (draft)</td>
<td>ITMT 491 Undergraduate Research ITM 497 Independent Study MATH 474 Probability &amp; Statistics (Not assessed by ITM)</td>
</tr>
</tbody>
</table>

The following student outcomes will be evaluated in all ITM Department degrees for ABET accreditation purposes:
<table>
<thead>
<tr>
<th>Student Outcomes &amp; [Source]</th>
<th>Required Courses Supporting the Outcome</th>
</tr>
</thead>
</table>
| (a) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions [ABET Computing 3.1] | ITM 311 Introduction to Software Development  
ITM 313 Introduction to Open Source Software Development  
ITMD 361 Fundamentals of Web Development  
ITMD 362 Human-Computer Interaction and Web Design  
ITMD 411 Intermediate Software Development  
ITMD 421 Data Modeling & Applications  
ITMO 440 Introduction to Data Networking & the Internet  
ITMS 448 Cyber Security Technologies  
ITMT 430 Systems Integration |
| (b) Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program’s discipline [ABET Computing 3.2] | ITM 301 Intro to Contemporary Operating Systems & Hardware I  
ITM 311 Introduction to Open Source Software Development  
ITM 313 Introduction to Systems Software Programming  
ITMD 361 Fundamentals of Web Development  
ITMD 362 Human-Computer Interaction and Web Design  
ITMD 411 Intermediate Software Development  
ITMD 421 Data Modeling & Applications  
ITMO 440 Introduction to Data Networking & the Internet  
ITMO 456 Introduction to Open Source Operating Systems  
ITMT 430 Systems Integration |
| (c) Communicate effectively in a variety of professional contexts [ABET Computing 3.3] | ITMD 361 Fundamentals of Web Development  
ITMD 362 Human-Computer Interaction and Web Design  
ITMMM 471 Project Management for ITM  
ITMS 448 Cyber Security Technologies  
IPRO 397/497 Interprofessional Project (Not assessed by ITM) |
| (d) Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles [ABET Computing 3.4] | ITM 100 Introduction to Information Technology as a Profession  
ITM 301 Intro to Contemporary Operating Systems & Hardware I  
ITMM 471 Project Management for ITM  
ITMM 485 Legal and Ethical Issues in Information Technology (BSACIT only)  
ITMS 438 Digital Evidence (BSACIT only) |
| (e) Function effectively as a member or leader of a team engaged in activities appropriate to the program’s discipline [ABET Computing 3.5] | ITM 100 Introduction to Information Technology as a Profession  
ITMM 471 Project Management for ITM  
ITMS 448 Cyber Security Technologies  
ITMT 430 Systems Integration |
| (f) Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems [ABET IT 3.6] | ITM 311 Introduction to Software Development  
ITMD 362 Human-Computer Interaction and Web Design  
ITMD 411 Intermediate Software Development  
ITMD 421 Data Modeling & Applications  
ITMM 471 Project Management for ITM  
ITMO 440 Introduction to Data Networking & the Internet  
ITMO 456 Introduction to Open Source Operating Systems  
ITMT 430 Systems Integration |
| (g) Assist in the creation of an effective project plan [IIT only] | ITMM 471 Project Management for ITM  
ITMS 448 Cyber Security Technologies  
ITMT 430 Systems Integration  
IPRO 397/497 Interprofessional Project (Not assessed by ITM) |

The following additional student outcome will be evaluated in degrees in Applied Cybersecurity for ABET accreditation purposes:

<table>
<thead>
<tr>
<th>Student Outcomes &amp; [Source]</th>
<th>Required Courses Supporting the Outcome</th>
</tr>
</thead>
</table>
| (h) Apply security principles and practices to maintain operations in the presence of risks and threats [ABET CY 3.6] | ITMS 418 Coding Security  
ITMS 443 Vulnerability Analysis and Control  
ITMS 448 Cyber Security Technologies  
ITMS 458 Operating System Security  
ITMS 478 Cyber Security Management  
ITMT 430 Systems Integration |
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.