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Background Brief: Information Technology and Management Undergraduate Degrees

The Department of Information Technology and Management (ITM) at Illinois Tech offers two undergraduate degrees, the **Bachelor of Information Technology and Management (BITM)** and the **Bachelor of Science in Applied Cybersecurity and Information Technology (BSACIT)**. There are over 200 students enrolled in the two degrees.

Bachelor of Information Technology and Management

This degree was established in 2002 as a transfer program for Associate of Applied Science graduates of community colleges, especially College of DuPage. It became a four-year program and moved from Illinois Tech's suburban Rice Campus in Wheaton to our main campus in Chicago in 2010. In 2018 we added our first tenure-track faculty and expanded to our graduate programs to support research.

Students in the Bachelor of Information Technology and Management complete 39 hours of required courses in Information Technology and Management and 18 hours of major electives. Required courses include:

- ITM 100 Introduction to Information Technology as a Profession (Intro to systems, systems theory, and info systems; societal, ethical, and legal considerations in computing; and professional development)
- ITM 301 Introduction to Operating Systems and Hardware I (Based on CompTIA A+)
- ITM 311 Introduction to Software Development (Java)
- ITM 313 Introduction to Open Source Application Development (Python)
- ITMD 321 Data Modeling and Applications (SQL and database management with MySQL)
- ITMD 361 Fundamentals of Web Development (HTML 5, CSS3, and Javascript)
- ITMD 362 Human-Computer Interaction and Web Design (UI/UX/HCI)
- ITMD 411 Intermediate Software Development (Intermediate Java)
- ITMM 471 Project Management for Information Technology and Management (PMI basics, SDLC, and Agile)
- ITMO 340 Introduction to Data Networks & the Internet
- ITMO 356 Introduction Open Source Operating Systems (Linux, based on CompTIA Linux+)
- ITMS 448 Cyber Security Technologies
- ITMT 430 System Integration (DevOps)

The 18 hours of major elective courses are drawn from nearly 70 courses covering all areas of Information Technology. In these electives, student have the option of completing an undergraduate specialization which consists of four elective courses in a particular subject area. The following optional specializations are available to students in this degree:

- Data Management
- IT Entrepreneurship and Management
- Networking and Communications
- Software Development
- System Administration
- Systems Security
- Web Design and Application

In addition students take Core Curriculum (aka general education) courses including 21 hours of humanities and social science, 10 hours of natural science or engineering, 6 hours of mathematics which includes Fundamentals of Discrete Mathematics and Statistics, and 6 hours of Inter Professional Project (IPRO) courses. In IPROs, distinctive to Illinois Tech, our students work on real-world projects with students from all of the disciplines at Illinois Tech. Students also complete a required 15-hour minor in another field of study in the university and 12 hours of free electives.

Fifty percent of eligible students in this degree elect to enter the university's Accelerated Masters Program which allows them to complete a Masters Degree with one additional year of study, and to maintain their undergraduate status (and undergraduate financial aid!) the entire time. Most of these students enter the Master of Cyber Forensics and Security degree.

The **Bachelor of Information Technology and Management** is accredited in Information Technology by the Computing Accreditation Commission of ABET, one of only 39 degrees in the U.S. to earn this distinction and the only one in Illinois.

Compete details of this degree can be found in our *Undergraduate Bulletin* at:

<http://bulletin.iit.edu/undergraduate/colleges/computing/information-technology-management/bachelor-information-technology-management/>.

Bachelor of Science in Applied Cybersecurity and Information Technology

This degree is intended to equip students to be an Information Technology and Cybersecurity practitioner or to do research or graduate education in the fields. The degree was opened to students in 2018. It has the same 13 required courses as the Bachelor of Information Technology and Management to build a strong foundation of information technology knowledge, but tops those courses off with the following 8 courses for 24 credit hours:

- ITMM 485 Legal and Ethical Issues in Information Technology
- ITMS 418 Coding Security (not a programming course; it's about how we ensure a secure development process is in place and that all of our code is auditable.)
- ITMS 438 Cyber Forensics
- ITMS 443 Vulnerability Analysis and Control (A fancy academic name for Ethical Hacking)
- ITMS 448 Cyber Security Technologies
- ITMS 458 Operating System Security
- ITMS 478 Cyber Security Management
- ITMS 483 Digital Evidence

In addition it replaces the 6 hours of mathematics in the Bachelor of Information Technology and Management with 21 hours of mathematics that prepare students to do advanced research in the field:

- MATH 151 Calculus I
- MATH 152 Calculus II
- MATH 230 Introduction to Discrete Math
- MATH 251 Multivariate & Vector Calculus
- MATH 474 Probability and Statistics

The Core Curriculum requirements are otherwise the same, but because of the additional cybersecurity and mathematics courses, there is no minor and there are only 6 hours of major electives and 6 hours of free electives.

The **Bachelor of Science in Applied Cybersecurity and Information Technology** has been specifically designed and named to be accredited by the Computing Accreditation Commission of ABET in both Information Technology *and* Cybersecurity. We are not yet accredited because we cannot seek accreditation until we have a program graduate.

Complete details of this degree can be found in our Undergraduate Bulletin at:

<http://bulletin.iit.edu/undergraduate/colleges/computing/information-technology-management/bs-applied-cybersecurity-information-technology/>

More Information!

- **ITM Student Information page** (a *plethora* of information): <http://www.itm.iit.edu/StudentResources/>
- **ITM Departmental Syllabi**: <http://www.itm.iit.edu/faculty/itmdepartmentalsyllabus.html>
- **ITM Program Educational Outcomes**: <http://www.itm.iit.edu/data/ITMUndergraduatePEOsEffectiveFall2021.pdf>
- **Possible Career Outcomes for ITM Graduates**: <http://www.itm.iit.edu/data/itjobroles.html>
- **How we know what to teach: 2020-2021 ABET Criteria for Accrediting Computing Programs**: <http://www.itm.iit.edu/faculty/C001-20-21-CAC-Criteria-MARK-UP-11-30-19-Updated-2.pdf>
- **Detailed version of how we know what to teach: 2017 Curriculum Guidelines for Undergraduate Degree Programs in Information Technology (IT 2017)** – ACM/IEEE Computer Society <http://www.itm.iit.edu/faculty/it2017.pdf>
- **How we know what to teach in cybersecurity: 2017 Curriculum Guidelines for Post-Secondary Degree Programs in Cybersecurity (CSEC 2017)** – ACM/IEEE Computer Society/AIS/ifip http://www.itm.iit.edu/faculty/newcover_csec2017.pdf (four Illinois Tech ITM faculty members served as reviewers of this document)
- A more complete history of the Bachelor of Information Technology and Management degree and our Department can be found in the document prepared for our Fall 2019 External Review at <http://dickens.rice.iit.edu/faculty/2019ExternalReviewDocument.pdf>.