

# INFORMATION TECHNOLOGY UNDERGRADUATE CERTIFICATE

**Banner Code:** EC-CERB-INFT

## Academic Advising

5400 Nguyen Engineering Building  
Fairfax Campus

101 Bull Run Hall  
Science and Technology Campus

Phone: 703-993-3565  
Email: bsit@gmu.edu  
Website: [ist.gmu.edu/programs/undergraduate-programs/](http://ist.gmu.edu/programs/undergraduate-programs/)

This certificate is designed primarily for those students who have earned a bachelor's degree or current undergraduate students who desire deeper knowledge than what can be accomplished through the IT minor. It allows students to augment the knowledge gained through their major-related courses with a foundation of information technology (IT) topics and their application within organizations to achieve organizational objectives. Completing this undergraduate certificate provides students with the necessary skills to improve their attractiveness to employers in our technology-driven society. The certificate requires a minimum of 24 credits, including 15 credits of core courses. Beyond these requirements, students must select three additional IT courses (9 credits, at least 3 upper division credits). Students pursuing the IT undergraduate certificate should consult with an advisor to select their additional courses.

Students pursuing only the undergraduate certificate in information technology will not maintain full-time status which requires a minimum of 12 credits per semester.

## Admissions & Policies

### Policies

The Information Technology certificate may be pursued on a part-time basis only.

For policies governing all undergraduate certificates, see AP.5.3.5 Undergraduate Certificates (<http://catalog.gmu.edu/policies/academic/undergraduate-policies/#ap-5-3-5>).

## Requirements

### Certificate Requirements

Total credits: 24-28

This certificate may be pursued on a part-time basis only.

### Required Courses

Code	Title	Credits
IT 102 or MATH 125	Discrete Structures Discrete Mathematics I (Mason Core) ( <a href="http://catalog.gmu.edu/mason-core/">http://catalog.gmu.edu/mason-core/</a> )	3
IT 104	Introduction to Computing (Mason Core) ( <a href="http://catalog.gmu.edu/mason-core/">http://catalog.gmu.edu/mason-core/</a> )	3

IT 105	IT Architecture Fundamentals	3
IT 106 or IT 109	Introduction to IT Problem Solving Using Computer Programming Introduction to Computer Programming	3
Select one from the following:		3
IT 206 or IT 209	Object Oriented Techniques for IT Problem Solving Introduction to Object Oriented Programming	
IT 207	Applied IT Programming	
IT 213	Multimedia and Web Design	
IT 214	Database Fundamentals	
IT 223	Information Security Fundamentals	
Total Credits		15

### Technical Focus Courses

Students must satisfy all prerequisites and other requirements in order to take any of the courses listed below. Courses chosen for the technical focus must be chosen with a coordinator in the Information Sciences and Technology department. Not all courses are offered each semester.

Code	Title	Credits
Select 9 credits from the approved list of technical focus courses; at least 3 of those credits must be at the upper division level.		9
IT 206 or IT 209	Object Oriented Techniques for IT Problem Solving Introduction to Object Oriented Programming	
IT 207	Applied IT Programming	
IT 213	Multimedia and Web Design	
IT 214	Database Fundamentals	
IT 223	Information Security Fundamentals	
IT 300	Modern Telecommunications	
IT 304	IT in the Global Economy	
IT 306 or IT 309	Data Structures and Algorithms in Java Data Structures and Algorithms in Python	
IT 314	Database Programming	
IT 315	Mobile Development	
IT 322	Health Data Challenges	
IT 324	Health Information Technology Fundamentals	
IT 331	Web I: Web Development	
IT 332	Web Server Administration	
IT 335	Web Development using Content Management Systems	
IT 341	Data Communications and Network Principles	
IT 342	Operating Systems Fundamentals	
IT 352	Security Administration of Linux Systems	
IT 353	Information Defense Technologies	
IT 357	Computer Crime, Forensics, and Auditing	
IT 366	Network Security	

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IT 390	Rapid Development of Scalable Cloud Applications
IT 409 or IT 410	Python Web Programming Web Programming
IT 414	Database Administration
IT 415	Information Visualization
IT 429	Security Accreditation of Information Systems
IT 431	Web II: Advanced Web Development
IT 442	Cloud Infrastructure
IT 445	Advanced Networking Principles
IT 451	Cloud Services Management
IT 455	Wireless Communications and Networking
IT 461	Application Development in Cloud
IT 462	Applied Cyber Threat Analysis
IT 466	Foundations of Cryptography and Security
IT 467	Network Defense
IT 471	Big Data on Cloud Systems
IT 481	Cloud Security
IT 484	Voice Communications Technologies
IT 488	Fundamentals of Satellite Communications
Total Credits	9