

# B.S. in Information Technology

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## First Year

1st Semester		Term Credits
IT 101	Introduction to Information Technology	3
CS 100	Roadmap to Computing	3
MATH 138	General Calculus I	3
HUM 101	English Composition: Writing, Speaking, Thinking I	3
Select one of the following Science courses:		3
Phys1/202		
Chem1		
Bio 1		
Geol 1		
CS 107	Computing as a Career	1
<b>Term Credits</b>		<b>16</b>

## 2nd Semester

CS 113	Introduction to Computer Science	3
IT 120	Introduction to Network Technology	3
MATH 105	Elementary Probability and Statistics	3
Select one of the following Science courses:		3
Phys2/203		
Chem 2		
Bio 2		
Geol 2		
Science Lab course		1
HUM 102	English Composition: Writing, Speaking, Thinking II	3
<b>Term Credits</b>		<b>16</b>

## Second Year

### 1st Semester

IT 114	Advanced Programming for Information Technology	3
IT 201	Information Design Techniques	3
Social Science (lower-level):GUR Elective		3
General Elective 1		3
English Compsoiton and Cultural History (lower-level):GUR Elective		3
<b>Term Credits</b>		<b>15</b>

### 2nd Semester

IT 202	Internet and Applications	3
Specialization Course 1		3
Specialization Course 2		3
General Elective 2		3
Social Science (lower-level):GUR Elective		3
CS 207	Computing and Effective Communication	1
<b>Term Credits</b>		<b>16</b>

## Third Year

### 1st Semester

IS 331	Database Design Management and Applications	3
Humanities and Social Sciences (upper-level) GUR Elective		3
MGMT 390	Principles of Management	3
or IE 492	or Engineering Management	
Specialization Course 3		3
Specialization Course 4		3

IT 340	Introduction to System Administration	3
<b>Term Credits</b>		<b>18</b>
<b>2nd Semester</b>		
IT 420	Computer Systems and Networks	3
ENG 352 or ENG 340	Technical Writing or Oral Presentations	3
IS 350	Computers, Society and Ethics	3
Specialization Course 5		3
Specialization Course 6		3
Physical Education		1
<b>Term Credits</b>		<b>16</b>
<b>Fourth Year</b>		
<b>1st Semester</b>		
IT 490	Systems Integration	3
Humanities and Social Sciences (upper-level) Capstone Seminar GUR Elective		3
General Elective 3		3
Specialization Course 7		3
General Elective 4		3
Physical Education		1
<b>Term Credits</b>		<b>16</b>
<b>2nd Semester</b>		
IT 491	IT Capstone Project	3
Specialization Course 8		3
General Elective 5		3
General Elective 6		3
General Elective 7		3
CS 407	Professional Development in Computing	1
<b>Term Credits</b>		<b>16</b>
<b>Total Credits</b>		<b>129</b>

## Electives

### Social Sciences (lower level) Electives GUR

Select two of the following: 6

ECON 201	Economics	
ECON 265	Microeconomics	
ECON 266	Macroeconomics	
EPS 202	Society, Technology, and the Environment	
STS 257	Technology, Society and Culture: An American View	
STS 258	Technology, Society and Culture: A Global View	

Approved introductory courses in basic social sciences at Rutgers-Newark

ENG 352 or ENG 340	Technical Writing <sup>1</sup> Oral Presentations	3
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### English Composition and Cultural History (lower-level) GUR

Select one of the following: 3

HUM 211	The Pre-Modern World	
HUM 212	The Modern World	
HIST 213	The Twentieth-Century World	
HIST 2XX	Approved 200-level history course at Rutgers-Newark	

### Humanities and Social Sciences (upper-level)

Select one of the following 300-level courses: 3

LIT 3XX	Literature course	
HIST 3XX	History course	

PHIL 3XX	Philosophy course	
STS 3XX	Science, Technology and Society course	
3XX	Approved 300-level course at Rutgers-Newark	

**Capstone Seminar in Humanities and Social Sciences (upper-level) GUR**

Select one of the following. Students in honors college enroll in HONORS section. 3

HSS 403	Humanities Senior Seminar - Literature	
HSS 404	Humanities Senior Seminar - History	
HSS 405	Humanities Senior Seminar - Philosophy	
HSS 406	Humanities Senior Seminar - English	
HSS 407	Humanities Senior Seminar - Theater	
HSS 408	Humanities Senior Seminar - Science, Technology, and Society	
HSS 409	Humanities Senior Seminar - Social Science	

**Management GUR**

IE 492 or MGMT 390	Engineering Management Principles of Management	3
AS 333	Leadership and Management I (acceptable only for students taking the aerospace option)	3

**Mathematics**<sup>2</sup>

Select one calculus course		3
Select one course chosen in consultation with the IT Academic Advisor		3
Select at least one probability and statistics course (included in the math GUR, as approved by advisor)		3

**Natural Sciences**

Select two Natural Science courses<sup>3</sup> 7

- <sup>1</sup> IT students should select ENG 352 Technical Writing or ENG 340 Oral Presentations to fulfill the Open GUR requirement.
- <sup>2</sup> Depending on the specialization, a specific math sequence may be required.
- <sup>3</sup> One of the courses must be a laboratory science, approved by advisor. Depending on the specialization, a specific natural science sequence may be required.

## Information Technology Electives

**Information Technology Core**

Select information technology/computer and information science courses that provide fundamental knowledge and practice in information technology functions, system development, and software. 30

**IT Capstone Project**

Complete a culminating project<sup>1</sup>

**Specialization Courses**

Select nine courses, focusing on an application area relevant to Information Technology<sup>2</sup>

**General Electives**

Select a minimum of six courses to be chosen in consultation with the advisor 18

**CSS Electives**

Select a coherent set of courses in conjunction with the declared specialization.<sup>3</sup>

- <sup>1</sup> A culminating project experience that integrates the student's IT and specialization expertise. The IT Program strongly supports and encourages the student to implement this project in collaboration with NJIT industrial partners and/or NJIT's Enterprise Development Centers. In accordance with the need for the IT professional to have highly developed communication skills, the student will present the results of their projects at the completion of the project.
- <sup>2</sup> Students may select specializations from all four NJIT colleges and schools. A list of possible specialization areas can be obtained from the Academic Advisor.
- <sup>3</sup> They must be courses within the College of Computing Sciences and 300/400 level.

## Co-op

In IT, IT 311 Co-op Work Experience I and IT 411 Co-op Work Experience can be taken for degree credit.

## Criminal Justice and Law Specialization

(27 credits)

IT 220	Wireless Networks	3
IT 230	Computer and Network Security	3
IT 310	E-commerce Technology	3
IT 330	Computer Forensic	3
IT 400	Information Technology and the Law	3
IT 430	Ethical Hacking for System Administrators	3
Select three of the following:		9
R202 203	Police And Community	
R202 301	Cj Reserach Methods	
R202 102	Criminology	
R202 310	Case Proc Law Courts	
R202 331	Delinquency Juv Justice	
R202 202	Gender Crime & Justice	

**Total Credits****27**

## Management Information Systems Specialization

(24 credits)

Select 8 of the following:		24
ACCT 117	Survey of Accounting	3
HRM 301	Organizational Behavior	3
IS 265 or MIS 245	Introduction to Information Systems Introduction to Management Information Systems	3
IT 220	Wireless Networks	3
IT 302	Advanced Internet Applications	3
IT 310	E-commerce Technology	3
IS 344	Computing Applications in Business	3
IS 390	Requirements Analysis and Systems Design	3
IS 455	IS Mgmt & Business Processes	3
IS 465	Advanced Information Systems	3
MIS 363 or MGMT 480	Project Management for Managers Managing Technology and Innovation	3
MRKT 330	Principles of Marketing	3
OM 375	Management Science	3

## Game Development Specialization

(27 credits)

Select 9 of the following:		27
IT 265	Game Architecture and Design	
CS 266 or IT 266	Game Modification Development Game Modification Development	
CS 276 or IT 276	2D Game Development Game Development	
AD 150	Color and Composition	
STS 318	Educational Media Design	
CS 280	Programming Language Concepts	
IT 386 or COM 335	3D Modeling and Animation 3-D Modeling and Animation	
MATH 337	Linear Algebra	

COM 345	Character Modeling and Animation	
IT 286	Foundations of Game Production	
or COM 266	Foundations of Game Production	
IT 4XX	Game Development Workshop	
CS 366	3D Game Development	
IT 287	Advanced Game Production	
ARCH 434		

**Total Credits****27**

## Multimedia Specialization

(27 credits)

IS 270	Designing the Multimedia Experience	3
COM 335	3-D Modeling and Animation	3
or IT 386	3D Modeling and Animation	
COM 350	Digital Video Production	3
STS 347	Introduction to Music	3

Select five of the following:

15

STS 349	Advanced Music Technology	
COM 266	Foundations of Game Production	
or IT 286	Foundations of Game Production	
COM 303	Video Narrative	
COM 345	Character Modeling and Animation	
COM 351	Documentary Studies	
COM 352	Photojournalism	
COM 369	Digital Poetry	
COM 376	Game Design Studio	
IT 265	Game Architecture and Design	
IT 266	Game Modification Development	
or CS 266	Game Modification Development	
IT 276	Game Development	
or CS 276	2D Game Development	
ARCH 434		
CS 366	3D Game Development	
AD 150	Color and Composition	
ENG 353	Composing Documents for Print	
ENG 354	Composing Documents for the Web	
ENG 355	Television News Writing and Production	
IS 373	Content Management Systems	
STS 318	Educational Media Design	

## Network and Information Security Specialization

(27 credits)

Select 9 of the following:

27

IT 220	Wireless Networks	
IT 230	Computer and Network Security	
IT 310	E-commerce Technology	
IT 330	Computer Forensic	
IT 331	Privacy and Information Technology	
IT 332	Digital Crime	
IT 400	Information Technology and the Law	
IT 430	Ethical Hacking for System Administrators	

CS 332	Principles of Operating Systems	
CS 357	Fundamentals of Network Security	
CS 458	Technologies-Network Security	
<b>Total Credits</b>		<b>27</b>

## Web Applications Specialization

(24 credits)

Select 8 of the following:		27
IS 117	Introduction to Website Development	3
IS 218	Building Web Applications	3
IS 219	Adv Website Development	3
IS 247	Designing the User Experience	3
IS 322	Mobile Applications: Design, Interface, Implementation	3
IS 373	Content Management Systems	3
IS 375	Discovering User Needs to Enhance User eXperience	3
IS 392	Web Mining and Information Retrieval	3
or IS 421	Advanced Web Applications	
IT 302	Advanced Internet Applications	3
IT 310	E-commerce Technology	3
MGMT 480	Managing Technology and Innovation	3

*This curriculum represents the maximum number of credits per semester for which a student is advised to register. A full-time credit load is 12 credits.*

*First-year students are placed in a curriculum that positions them for success which may result in additional time needed to complete curriculum requirements. Continuing students should consult with their academic advisor to determine the appropriate credit load.*