Computer & Information Technologies Associate in Applied Science

With tracks in Applications, Computer Science, Internet Technologies, Network Technologies, and Programming
Academic Plan Code – 1103017039

Description:

A core set of courses are required by all options, which includes a general education component central to a collegiate education and technical courses giving students an introduction to information systems, computer applications, program development, system maintenance, and networking including the Internet. In addition to core courses, students must take specialty courses for their selected option.

Track Information

The **Applications Track** emphasizes several aspects of application software. It includes such productivity applications as: word processing, spreadsheets, database management, presentations, geographic information systems, website development/maintenance, and help desk tracking systems. Completion of this track will prepare students to work with computer-based systems in business and industry focusing on the following specializations:

- **Business Software Specialist -** Designed to train students to operate a wide variety of software packages and to assist businesses in developing and maintain databases, producing financial statements, and developing applications using various software packages.
- **Computer Support -** Provides an in-depth knowledge of application software, computer system configurations, Help Desk Tools/Software, end-user documentation, user training, and other user support skills.
- **Geographic Information Systems -** Provides students with practical GIS skills and a solid foundation for geographical manipulation through developing and implementing GIS Applications.
- **Software Support -** Provides an in-depth knowledge of application software, computer system configurations, and data driven websites.

The **Computer Science Track** prepares students interested in an advanced study of computer programming. The curriculum couples the study of programming with computer science concepts such as computational complexity, advanced data structures, and proof techniques. The curriculum may also be used to prepare students for entry into bachelor-level programs in computer science.

The **Internet Technologies Track** prepares students to design, program, and maintain Internet-based services. With specializations in web programming and web server administration, this track will help prepare students for positions developing and maintaining interactive web sites.

The **Network Technologies Track** provides the concepts and skills needed to set up, maintain, and expand networked computer systems. This track requires sequences in Microsoft Windows, Cisco, and UNIX/Linux as well as courses providing deeper insight into Internet protocols and network security. Employment opportunities include entry-level positions in installation and administration of local area networks in medium to large organizations and as computer network administrators in small businesses.

The **Programming Track** prepares students to design, develop, and maintain computer programs written in current and emerging programming languages. With specializations in Information Systems and Software Development, students successfully completing this track are prepared for entry-level positions in computer programming.

- **Information Systems -** This track is designed with an emphasis on programming for a business environment. Students completing the Information Systems track study basic business concepts, one programming language at an advanced level, and two programming languages at an introductory level.
- **Software Development -** This track emphasizes computer software development. Students completing the Software Development track study a minimum of two computer programming languages at an advanced level and additional programming language(s) at an introductory level. Flexibility within this track allows students to focus on a specific area of software development by means of the programming languages they choose to study (object-oriented programming, database programming, game development, etc.).

Course Number	Course Title	Credit Hours
General Education Core		
ENG 101	Writing I	3
MAT 150	College Algebra	3
	Heritage/Humanities Course	3
	Natural Science Course	3
	Social/Behavior Science Course	3
CIT 105	Introduction To Computers	3
	Subtotal Credit Hours	**18**
Technical Core or Support Courses		
CIT 111	Computer Hardware and Software	4
CIT 120	Computational Thinking	3
CIT 150	Internet Technologies	3
	Approved Level I Networking course: CIT 160 Introduction to Networking Concepts OR CIT 161 Network Fundamentals (must be taken by Network Technologies students beginning Fall 2012)	4
CIT 170	Database Design Fundamentals	3
CIT 180	Security Fundamentals	3
	Approved Level I Programming Language Course	3
CIT 291	CIT Capstone	3
	Subtotal Credit Hours	**26**
Options (choose one of the following)		
Applications Option		
CIT 130	Productivity Software	3
	Approved Business or Management course	3
	Approved CIT Elective	3
	Applications Track Course Specialization	12
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	•	
	•	
	•	
	Subtotal Credit Hours	**21**

(Courses are listed by category and not necessarily in the order to be taken)

BLUEGRASS COMMUNITY AND TECHNICAL COLLEGE

Internet Technologies Option		
CIT 155	Web Page Development	3
CIT 157	Web Page Design and Production	3
CIT 253	Data-Driven Web Pages:Topic	3
CIT 258	Internet Technologies Seminar	3
	Internet Technologies Specialization Sequence	12
	•	
	•	
	•	
	•	
	Subtotal Credit Hours	**24**
Networking Technologies Option		
CIT 219	Internet Protocols	3
CIT 288	Network Security	3
	Approved Level I AND Level II Network Specialization Sequence (Microsoft, Cisco, UNIX/Linux	10-12
	•	
	•	
	•	
	•	
	Approved Level I, II OR III Network Specialization Sequence (Microsoft, Cisco, UNIX/Linux)	6-7
	•	
	•	
	Subtotal Credit Hours	**22-24**
Programming Option		
CIT 130	Productivity Software	3
	Approved CIT Technical Course	3
	Approved CIT Technical Course	3
	Programming Option Sequences	15
	•	3
	•	3
	•	3
	•	(3)
	•	1-3
	Subtotal Credit Hours	**24**
	Total Credit Hours	**65-68**

Computer & Information Technologies Computer Science Track		
Course Number	**Course Title**	**Credit Hours**
General Education Core		
ENG 101	Writing I	3
ENG 102	Writing II	3
MA 114 MAT 175	Calculus I OR Calculus I	4 (5)
MA 114 MAT 185	Calculus II OR Calculus II	4 (5)
PHY 151	Introductory Physics	3
PHY 152	Introductory Physics Lab I	1
	Social/Behavioral Science Course	3
	Heritage/Humanities Course	3
CIT 105	Introduction To Computers	3
	Subtotal Credit Hours	**27-29**
Technical Core or Support Courses		
CIT 111	Computer Hardware and Software	4
CIT 120	Computational Thinking	3
CIT 150	Internet Technologies	3
CIT 160	Introduction to Networking Concepts	4
CIT 170	Database Design Fundamentals	3
CIT 180	Security Fundamentals	3
CIT 291	CIT Capstone	3
CS 115	Intro to Computer Programming	3
CS 215	Intro to Program Design, Abstraction, and Problem Solving	4
CS 216	Intro to Software Engineering	3
CS 275	Discrete Math	4
	Subtotal Credit Hours	**37**
	Total Credit Hours	**64-66**

Applications Track

1. **Business Software Specialist**
   CIT 234 Advanced Productivity Software (3)
   CIT 236 Advanced Data Organization (3)
   CIT 171 SQL I (3)
   Approved Business or Management course (3)

2. **Computer Support**
   CIT 232 Help Desk Operations (3)
   CIT 234 Advanced Productivity Software (3)
   CIT 236 Advanced Data Organization (3)
   CIT Technical Course (3)

3. **Geographic Information Systems**
   GIS 110 Spatial Data Analysis and Map Interpretation (3)
   GIS 120 Intro to Geographic Information Systems (3)
   GIS 210 Advanced Geographic Information Systems (3)
   CIT 253 Data-Driven Web Pages: Topic (3)

4. **Software Support**
   CIT 234 Advanced Productivity Software (3)
   CIT 236 Advanced Data Organization (3)
   CIT 253 Data-Driven Web Pages: Topic (3)
   ENG 102 Writing II (3) OR
   Oral Communications (3)

Approved Business Courses

ACT 111 Fundamentals of Accounting (3)
ACC 201 Financial Accounting I (3)
MGT/BAS 160 Introduction to Business (3)
Approved Management Courses

(Courses are listed by category and not necessarily in the order to be taken)

MGT/BAS 200 Small Business Management (3)
MGT/BAS 274 Human Resource Management (3)
MGT/BAS 283 Principles of Management (3)
MGT/BAS 287 Supervisory Management (3)
MGT/BAS 288 Personal and Organizational Leadership (3)
MFG 256 Production Management (3)
OST 275 Office Management (3)
QMS 101 Introduction to Quality System (3)
QMS 201 Customer Service Improvement Skills (3)

CIT Technical Courses

Any additional CIT course (except CIT 103 or lower)
GIS 120 Introduction to Geographical Information Systems (3)
IMD 126 Introduction to Desktop Publishing (3)
IMD 133 Beginning Web Design (3)
ENG 102 Writing II (3) (cannot count for two requirements)
Oral Communications (3) (cannot count for two requirements)
Additional Accounting, Business, or Economics course as approved by Program Coordinator

Internet Technologies Track

1. Web Programming:
CIT 171 SQL I (3)
Approved Level I Web Programming Language (3)
Approved Level II Web Programming Language (3)
Approved CIT Technical Course (3)

2. Web Administration:
Microsoft:
CIT 213 MS Client/Server Configuration (3)
CIT 261 MS Active Directory Services (3) OR
(CIT 262) MS Network Infrastructure (3)
CIT 255 Web Server Administration (3)
CIT 219 Internet Protocols (3)

Unix:
CIT 217 UNIX/Linux Administration (3)
CIT 218 UNIX/Linux Net Infrastructure (3)
CIT 255 Web Server Administration (3)
CIT 219 Internet Protocols (3)

Programming Track

1. Information Systems:
CIT 171 SQL I (3)
Approved Level II Programming Language (3)
Approved Level I, II, or III Programming Language (3)
Approved Programming Management Course (3)
Approved Programming Business. Course (3)

2. Software Development
Approved Level I Programming Language (3)
Approved Level II Programming Language (3)
Approved Level II Programming Language (3)
Approved Level I, II, or III Programming Language (3)
CIT 253 Data-Driven Web Pages: Topic (3)

Approved Level I Programming Language Courses

CIT 140 Javascript I (3)
CIT 141 PHP I (3)
CIT 142 C++ I (3)
CIT 145 Perl I (3)
CIT 147 Programming I: Language (3)
CIT 148 Visual BASIC I (3)
CIT 149 Java I (3)
CIT 171 SQL I (3)
CS 115 Intro to Computer Programming (3)

Approved Level II Programming Language Courses

CIT 241 PHP II (3)
CIT 242 C++ II (3)
CIT 246 2D Game Development: Language (3)
CIT 247 Programming II: Language (3)
CIT 248 Visual BASIC II (3)
CIT 249 Java II (3)
CIT 271 SQL II (3)
CS 215 Intro to Program Design, Abstraction, & Problem Solving (4)

Approved Level III Programming Language Courses

CIT 276 3D Game Development: Language (3)
CIT 277 Programming III: Language (3)
CIT 278 Visual BASIC III (3)

Network Technologies Track

Level I Network Specialization Sequence

1. Microsoft Windows:
Any 6 credit hours of course work from the Microsoft Windows Network Specialization Course List

2. UNIX/Linux:
CIT 217 UNIX/Linux Administration (3)
CIT 218 UNIX/Linux Net Infrastructure (3)

3. Cisco:
CIT 210 Routing Protocols (4)

4. Security:
Any 6 credit hours from the Approved Security Specialization Sequence Course List which are not taken as part of another sequence

Level II Network Specialization Sequence

1. Microsoft Windows:
Any 6 credit hours of course work from the Microsoft Windows Network Specialization Course List

2. Unix/Linux (choose two):
CIT 286 Unix/Linux OS Security (3)
CIT 255 Web Server Administration (3)
CIT 145 Perl I (3)

3. Cisco:
CIT 211 LAN Switching and Wireless (4)
CIT 212 Accessing the WAN (4)

Level III Network Specialization Sequence

1. Internet Servers Administration:
CIT 255 Web Server Administration (3)
CIT 265 Microsoft Applications Servers (3)

2. Microsoft Windows:

Any 6 credit hours of course work from the Microsoft Network Specialization Course List

Approved Microsoft Windows Network Specialization Courses

CIT 213 MS Client/Server Configuration (3)
CIT 261 MS Active Directory Services (3)
CIT 262 MS Network Infrastructure (3)
CIT 264 MS Server Administration (3)
CIT 265 MS Applications Servers (3)
CIT 266 MS Enterprise Administration (3)

Approved Security Specialization Sequence Courses

CIT 182 Perimeter Defense and Countermeasures (3)
CIT 184 Attacks and Exploits (3)
CIT 284 Computer Forensics (3)
CIT 285 Windows OS Security (3)
CIT 286 UNIX/Linux OS Security (3)

Approved Level I Web Programming Language Courses

CIT 141 PHP I (3)
CIT 148 Visual BASIC I (3)
CIT 149 Java I (3)

Approved Level II Web Programming Language Courses

CIT 241 PHP II (3)
CIT 248 Visual BASIC II (3)
CIT 249 Java II (3)