

ACADEMIC PROGRAMS

COMPUTER SCIENCE

Computer Security A.S. Transfer Program

This A.S. degree program is prepares graduates for careers in the field of Computer and Information Security, equipping them with marketable skills and a targeted knowledge of the infrastructure that supports IT in business. The hands-on labs built into this program ensure that the graduates will have gone far beyond just theoretical studies. The program was developed in collaboration with partner institutions, including Western Connecticut State University. The program articulates fully with the B.B.A. program in Management Information Systems – Option in Information Security Management offered at WestConn’s Ansell School of Business.

PROGRAM OUTCOMES

Upon successful completion of all program requirements, graduates will be able to:

1. Express ideas effectively through written and oral communication;
2. Acquire competence in algebraic logic, including Boolean operators;
3. Demonstrate an understanding of connections between various disciplines;
4. Understand the basic structure of the Internet and ecommerce, in particular;
5. Work with and study the transmission infrastructure and client/server hardware and software that supports the Internet;
6. Skilled in web servers and management software;
7. Understand team dynamics and working in groups, particularly in relation to the functioning of critical incident response teams;
8. Design and construct multiple types of networks, paying particular attention to their vulnerabilities;
9. Apply security hardware and software to network structures;
10. Lay out the framework for a generic security policy manual, identifying the items to be protected, parties responsible, and plan for response when a security breach is uncovered;
11. Utilize the risk management model to identify corporate threats and assess them in terms of their likelihood and impact.

REQUIREMENTS FOR THE A.S. DEGREE (64-66 CREDITS)

COLLEGE CORE REQUIREMENTS (28-30 CREDITS)

| | | | <i>Credits</i> |
|-----|-----|---|----------------|
| ENG | 101 | Composition | 3 |
| ENG | 102 | Literature and Composition | 3 |
| MAT | 172 | College Algebra or a higher level mathematics course | 3-4 |
| COM | 173 | Public Speaking | 3 |
| | | Biology, Physical or General Science elective with lab* | 4 |
| | | Humanities elective* | 3-4 |
| | | Fine Arts elective** | 3 |
| | | Social Science elective* | 3 |
| | | Liberal Arts elective* | 3 |

MAJOR REQUIREMENTS (36 CREDITS)

| | | | |
|-----|-----|--------------------------------|---|
| CSC | 108 | Introduction to Programming | 4 |
| CST | 111 | Internet Commerce Technology | 3 |
| CST | 121 | Operating Systems | 4 |
| CST | 180 | Networking I | 4 |
| CST | 181 | Networking II | 4 |
| CST | 182 | Networking III | 4 |
| CST | 183 | Networking IV | 4 |
| CST | 272 | Operations Security Technology | 3 |
| CST | 273 | Security Management Practices | 3 |
| CST | 274 | Network Security Technology | 3 |

RECOMMENDED SEQUENCE OF STUDY

SEMESTER 1

| | | | <i>Credits</i> |
|-----|-----|--|----------------|
| ENG | 101 | Composition | 3 |
| MAT | 172 | College Algebra or a higher level mathematics course | 3-4 |
| CST | 180 | Networking I | 4 |
| CSC | 108 | Introduction to Programming | 4 |
| | | Liberal Arts elective* | 3 |

SEMESTER 2

| | | | |
|-----|-----|---|---|
| ENG | 102 | Literature & Composition | 3 |
| COM | 173 | Public Speaking | 3 |
| CST | 181 | Networking II | 4 |
| CST | 111 | Internet Commerce Technology | 3 |
| | | Biology, Physical or General Science Elective with lab* | 4 |

SEMESTER 3

| | | | |
|-----|-----|--------------------------------|---|
| CST | 182 | Networking III | 4 |
| CST | 273 | Security Management Practices | 3 |
| CST | 121 | Operating Systems | 4 |
| CST | 272 | Operations Security Technology | 3 |

SEMESTER 4

| | | | |
|-----|-----|-----------------------------|-----|
| CST | 183 | Networking IV | 4 |
| CST | 274 | Network Security Technology | 3 |
| | | Humanities elective* | 3-4 |
| | | Fine Arts elective** | 3 |
| | | Social Science elective* | 3 |

*One of these electives must be an interdisciplinary (IDS) course.

**See program coordinator for qualifying course

Computer Systems Technology A.S. Transfer Program

The Computer Systems Technology Program is designed to prepare students for entry-level jobs as scientific programmers and systems software developers. The program is also designed to meet the first two years of a Computer Science Degree program found at most four-year colleges that offer the bachelor's degree in computer science.

PROGRAM OUTCOMES

Upon successful completion of all program requirements, graduates will be able to:

1. Demonstrate the ability to use an IDE (integrated development environment);
2. Demonstrate the use of OOP(object oriented programming) techniques in program design and development;

3. Demonstrate writing, compiling and executing code in multiple programming languages;
4. Test programs and troubleshoot simple problems;
5. Understand relational database design methodology and be able to use database software to build, modify, and query relational databases;
6. Produce logical software solutions to problems;
7. Apply appropriate math skills to the solution of problems;
8. Communicate clearly, both verbally and in written form;
9. Demonstrate an understanding of connections between various disciplines.

REQUIREMENTS FOR THE A.S. DEGREE

COLLEGE CORE REQUIREMENTS (22-23 CREDITS)

| | | | <i>Credits</i> |
|-----|-----|----------------------------|----------------|
| ENG | 101 | Composition | 3 |
| ENG | 102 | Literature and Composition | 3 |
| MAT | 172 | College Algebra | 3 |
| COM | 173 | Public Speaking | 3 |
| PHY | 114 | Mechanics | 4 |
| | | Humanities elective* | 3-4 |
| | | Social Science elective* | 3 |

MAJOR REQUIREMENTS (43-44)

| | | | |
|-----|-----|--|-----|
| CSC | 233 | Database Development I | 4 |
| CSC | 108 | Introduction to Programming | 4 |
| CSC | 226 | Object Oriented Programming Using Java | 4 |
| CSC | 283 | Introduction to Assembler | 4 |
| CSC | 241 | Data Structures & Algorithms | 4 |
| CSC | 207 | Introduction to Visual Basic | 4 |
| CST | 145 | Digital Circuits & Logic | 4 |
| CST | 245 | Microprocessors | 4 |
| MAT | 186 | Pre-Calculus | 4 |
| MAT | 254 | Calculus I | 4 |
| CSC | 295 | Co-op Work Experience or CSC 234, CSC 207, CSC 208, CSC 223, CSC 224 or MAT 256 | 3-4 |

RECOMMENDED SEQUENCE OF STUDY

SEMESTER 1

| | | | <i>Credits</i> |
|-----|-----|-----------------------------|----------------|
| ENG | 101 | Composition | 3 |
| MAT | 172 | College Algebra | 3 |
| CSC | 233 | Database Development I | 4 |
| CSC | 108 | Introduction to Programming | 4 |
| | | Humanities elective* | 3-4 |

SEMESTER 2

| | | | |
|-----|-----|--|---|
| ENG | 102 | Literature and Composition | 3 |
| COM | 173 | Public Speaking | 3 |
| MAT | 186 | Pre-Calculus | 4 |
| PHY | 114 | Mechanics | 4 |
| CSC | 226 | Object Oriented Programming Using Java | 4 |

SEMESTER 3

| | | | |
|-----|-----|------------------------------|---|
| MAT | 254 | Calculus I | 4 |
| CST | 145 | Digital Circuits & Logic | 4 |
| CSC | 283 | Introduction to Assembler | 4 |
| CSC | 241 | Data Structures & Algorithms | 4 |

SEMESTER 4

| | | | |
|-----|-----|--|-----|
| CSC | 207 | Introduction to Visual Basic | 4 |
| CST | 245 | Microprocessors | 4 |
| CSC | 295 | Co-op Work Experience or CSC 234, CSC 207, CSC 208, CSC 223, CSC 224 or MAT 256 | 3-4 |
| | | Social Science elective* | 3 |

*One of these electives must be an interdisciplinary (IDS) course.

** MAT256 recommended for transfer students.

ACADEMIC PROGRAMS

Information Systems A.S. Transfer Program

This program prepares students to enter careers in computer information systems or to transfer to a four-year program in computer/management information systems. Courses emphasize programming languages and software programs used in business computer environments. Students learn Visual Basic programming, as well as relational database design, and ORACLE. They also learn to use application software on IBM-compatible microcomputers. Completion of this program can lead to positions as programmers and database developers. An optional cooperative education work experience can give students a jump-start on their careers.

PROGRAM OUTCOMES

Upon successful completion of all program requirements, graduates will be able to:

1. Demonstrate desirable attitudes and work habits - creative thinking, problem solving, cooperation, responsibility, team dynamics;
2. Understand and respect the need for high quality work, and understand the concept of deadlines in the computer industry;

3. Demonstrate sufficient understanding of information technology for entry-level employment and advancement in the field;
4. Apply knowledge of interpersonal and motivational skills and communication techniques learned in English, speech, and social sciences when working;
5. Communicate clearly, both verbally and in written form;
6. Exhibit moral and ethical professional behavior;
7. Apply appropriate mathematical skills;
8. Develop programming and testing skills in various languages;
9. Exhibit an awareness of emerging computer technologies;
10. Use analytical and logical skills to develop software solutions to business problems;
11. Understand relational database design methodology, and be able to build, modify, and query a relational database using database software;
12. Work with others including culturally and intellectually diverse peoples;
13. Demonstrate an understanding of connections between various disciplines.

COLLEGE CORE REQUIREMENTS (24-26 CREDITS)

| | | | Credits |
|-----|-----|--|-----------|
| ENG | 101 | Composition | 3 |
| ENG | 102 | Literature and Composition | 3 |
| MAT | 172 | College Algebra or a higher level mathematics course | 3-4 |
| COM | 173 | Public Speaking | 3 |
| ECN | 101 | Principles of Macroeconomics | or |
| ECN | 102 | Principles of Microeconomics | 3 |
| | | Science elective*** | 3 |
| | | Humanities elective*** | 3-4 |
| | | Liberal Arts elective*** | 3 |

MAJOR REQUIREMENTS (43 CREDITS)

| | | | Credits |
|-----|-----|---|-----------|
| MAT | 201 | Statistics | 3 |
| ACC | 113 | Principles of Financial Accounting | 3 |
| CSC | 103 | Computer Concepts and Applications | 4 |
| CSC | 207 | Introduction to Visual Basic | 4 |
| CSC | 233 | Database Development I | 4 |
| CSC | 208 | Advanced Visual Basic | 4 |
| CSC | 234 | Database Development II | 4 |
| CSC | 255 | Systems Analysis Design & Development | 4 |
| CST | 205 | Project Management | or |
| CSC | 295 | Co-operative Work Experience | or |
| | | Business electives (choose two of the following: BMK 201, BBG 101, BMG 202, BBG 231, ACC 117, BMK 201, BMG 202, BMG 210)* | 6 |
| | | Programming electives** | 7-8 |

RECOMMENDED SEQUENCE OF STUDY

| | | | Credits |
|-------------------|-----|--|-----------|
| SEMESTER 1 | | | |
| ENG | 101 | Composition | 3 |
| ACC | 113 | Principles of Financial Accounting | 3 |
| CSC | 103 | Computer Concepts and Applications | 4 |
| MAT | 172 | College Algebra | 3 |
| | | Business elective (choose one of the following: BMK 201, BBG 101, BMG 202, BBG 231) | 3 |
| SEMESTER 2 | | | |
| ENG | 102 | Literature and Composition | 3 |
| | | Business elective (Choose one of the following: ACC 117, BMK 201, BMG 202, BMG 210)* | 3 |
| CSC | 207 | Introduction to Visual Basic | 4 |
| CSC | 233 | Database Development I | 4 |
| | | Science elective*** | 3 |
| SEMESTER 3 | | | |
| COM | 173 | Public Speaking | 3 |
| CSC | 208 | Advanced Visual Basic | 4 |
| CSC | 234 | Database Development II | 4 |
| MAT | 201 | Statistics | 3 |
| | | Programming elective** | 4 |
| SEMESTER 4 | | | |
| CSC | 255 | Systems Analysis Design & Development | 4 |
| ECN | 101 | Principles of Macroeconomics | or |
| ECN | 102 | Principles of Microeconomics | 3 |
| CST | 205 | Project Management | or |
| CSC | 295 | Co-operative Work Experience | or |
| | | Programming elective** | 3-4 |
| | | Humanities elective*** | 3-4 |
| | | Liberal Arts elective*** | 3 |

*ACC 117 recommended for transfer students

**Any 4 credit CST, CSC course except CST 141

***One of these must be an Interdisciplinary (IDS) course.

Information Technology A.A.S. Career Program

The Information Technology program prepares students for technical positions within the fast-evolving field of Information Technology. Students must select either the option in Internet Technology or the option in Networking. The curriculum focuses on the development of technical competency, a broad understanding of the Information Technology field, and development of written and verbal skills needed in the business community. The required internship experience, either through the NCC Ventures project lab or through the NCC Cooperative Education program, provides the student with on-the-job experience that can help students to jumpstart their careers.

PROGRAM OUTCOMES

Upon successful completion of all program requirements, graduates will be able to:

1. Express ideas effectively through written and oral communication;
2. Acquire competence in algebraic logic, including Boolean operators;

3. Demonstrate an understanding of connections between various disciplines;
4. Understand the basic structure of business and Internet commerce, in particular;
5. Work with and study the underlying technologies that support the Internet;
6. Capability to create and work with relational databases (optional);
7. Gain experience with and understand the various phases of project management;
8. Understand team dynamics and working in groups;
9. Design and construct multiple types of networks (Networking);
10. Work safely with various network tools and equipment (Networking);
11. Build commercial and generic web sites from design through implementation (Internet);
12. Support web pages with server-side java programming and other dynamic products (Internet).

REQUIREMENTS FOR THE A.A.S DEGREE (64-69 CREDITS)

COLLEGE CORE REQUIREMENTS (21-24)

| | | | <i>Credits</i> |
|-----|-----|--|----------------|
| ENG | 101 | Composition | 3 |
| ENG | 102 | Literature & Composition | 3 |
| COM | 173 | Public Speaking | 3 |
| MAT | 172 | College Algebra or Higher level MAT | 3-4 |
| | | Social Science elective** | 3 |
| | | Humanities elective** | 3-4 |
| | | Biology, Physical or General Science at 100 level or higher with lab** | 3-4 |

MAJOR REQUIREMENTS (43-45)

| | | | |
|---|-----|----------------------------------|-----|
| Information Technology Core (23-25 credits) | | | |
| BBG | 101 | Introduction to Business | 3 |
| CST | 111 | Internet Commerce Technology | 3 |
| CSC | 233 | Database Development I or | |
| CST | 121 | Operating Systems | 4 |
| CST | 205 | Project Management | 4 |
| CSC | 295 | Cooperative Work Experience | 3 |
| | | C/IS Approved electives* | 6-8 |

1. OPTION IN INTERNET TECHNOLOGY (20 CREDITS)

| | | | |
|-----|-----|--|---|
| CSC | 108 | Intro to Programming | 4 |
| CST | 153 | Web Development & Design I | 4 |
| CST | 252 | Web Development & Design II | 4 |
| CSC | 226 | Object Oriented Programming Using Java | 4 |
| CSC | 224 | Java Programming II | 4 |

2. OPTION IN NETWORKING (16 CREDITS)

| | | | |
|-----|-----|----------------|---|
| CST | 180 | Networking I | 4 |
| CST | 181 | Networking II | 4 |
| CST | 182 | Networking III | 4 |
| CST | 183 | Networking IV | 4 |

RECOMMENDED SEQUENCE OF STUDY

SEMESTER 1

| | | | <i>Credits</i> |
|-----|-----|-------------------------------------|----------------|
| ENG | 101 | Composition | 3 |
| MAT | 172 | College Algebra or Higher level MAT | 3-4 |
| | | C/IS Approved elective* | 3-4 |
| CST | 153 | Web Development & Design I | 4 |
| BBG | 101 | Introduction to Business | 3 |

SEMESTER 2

| | | | |
|-----|-----|------------------------------|---|
| ENG | 102 | Literature & Composition | 3 |
| COM | 173 | Public Speaking | 3 |
| CST | 252 | Web Development & Design II | 4 |
| CSC | 108 | Intro to Programming | 4 |
| CST | 111 | Internet Commerce Technology | 3 |

SEMESTER 3

| | | | |
|-----|-----|--|-----|
| | | Social Science elective** | 3 |
| CSC | 226 | Object Oriented Programming Using Java | 4 |
| CSC | 233 | Database Development I or | |
| CST | 121 | Operating Systems | 4 |
| | | C/IS Approved elective* | 3-4 |

SEMESTER 4

| | | | |
|-----|-----|--|-----|
| CSC | 224 | Java Programming II | 4 |
| | | Humanities elective** | 3-4 |
| | | Biology, Physical or General Science at 100 level or higher with lab** | 3-4 |
| CST | 205 | Project Management | 4 |
| CSC | 295 | Cooperative Work Experience | 3 |

*Selected from BMG 202, BBG 240, BMG 218, or BES 218, GRA 225, GRA 230, GRA 231 or any CSC or CST course

**One of these electives must be an Interdisciplinary (IDS) course.

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RECOMMENDED SEQUENCE OF STUDY IN NETWORKING

SEMESTER 1

| | | | Credits |
|-----|-----|--|---------|
| CST | 180 | Networking I | 4 |
| MAT | 172 | College Algebra. or higher level MAT C/IS Approved elective** | 3-4 |
| ENG | 101 | Composition | 3 |
| BBG | 101 | Introduction to Business | 3 |

SEMESTER 2

| | | | |
|-----|-----|--|---|
| ENG | 102 | Literature & Composition | 3 |
| COM | 173 | Public Speaking | 3 |
| CST | 181 | Networking II | 4 |
| CST | 111 | Internet Commerce Technology Social Science elective* | 3 |

SEMESTER 3

| | | | |
|-----|-----|---|-----------|
| CST | 182 | Networking III | 4 |
| CST | 121 | Operating Systems | or |
| CSC | 233 | Database Development I C/IS Approved electives** | 4 6-8 |

SEMESTER 4

| | | | |
|-----|-----|---|-----------------|
| CST | 183 | Networking IV | 4 |
| CSC | 295 | Cooperative Work Experience Biology, Physical or General Science at 100 or higher with Lab* Humanities elective* | 3 3-4 3-4 |
| CST | 205 | Project Management 4 | |

**One of these electives must be an interdisciplinary (IDS) course.*

***Selected from BMG 202, BBG 240, BMG 218, or BES 218, GRA 225, GRA 230, GRA 231 or any CSC or CST course.*



Small Business Computer Applications Certificate Program

This certificate program is designed for students who are preparing to enter the job market and/or want to earn a certificate on their way to earning an associate or bachelor's degree. It also benefits students who already have college degrees and are seeking technology retraining.

The program provides an understanding of accounting, the business world, and how computers work; proficiency in popular software programs on state-of-the-art microcomputers; relational database design; and fourth-generation language experience using the high-demand database tool, ORACLE.

REQUIREMENTS FOR THE CERTIFICATE (24 CREDITS)

SEMESTER 1

| | | | <i>Credits</i> |
|-----|-----|---|----------------|
| ACC | 113 | Principles of Financial Accounting | 3 |
| | | Business elective (BMK 201, BBG 101, BMG 202, or BBG 231) | 3 |
| CSC | 103 | Computer Concepts and Applications | 4 |
| CSC | 233 | Database Development I | 4 |

SEMESTER 2

| | | | |
|-----|-----|--|-----------|
| | | Business elective (ACC 117, BMK 201, BBG 101, BMG 202, or BBG 231) | 3 |
| CSA | 205 | Advanced Applications | or |
| BOT | 267 | Access & Crystal Reports for Business | or |
| BOT | 265 | Excel for Business | 3 |
| CSC | 234 | Database Development II | 4 |

Information Systems Certificate Program

This certificate program is designed for students who are preparing to enter the job market in the field of Information Systems and who want to earn a certificate on their way to earning an associate or bachelor's degree. It can also benefit students who already have a degree and need training in the computer technology. This program will give students all the tools they need to make them marketable in Information Systems – Visual Basic, Relational Database Development, and Systems Analysis Design & Development, as well as ORACLE and a programming language of their choice to increase their programming knowledge.

REQUIREMENTS FOR THE CERTIFICATE (27 CREDITS)

| | | | <i>Credits</i> |
|-------------------|-----|---|----------------|
| SEMESTER 1 | | | |
| CSC | 207 | Introduction to Visual Basic | 4 |
| ENG | 101 | Composition | 3 |
| SEMESTER 2 | | | |
| CSC | 208 | Advanced Visual Basic | 4 |
| CSC | 233 | Database Development I | 4 |
| SEMESTER 3 | | | |
| CSC | 234 | Database Development II | 4 |
| CSC | 255 | Systems Analysis Design & Development Programming elective* | 4 |

**Any 4 credit CSC or CST course except CST 141*

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Relational Database Certificate Program

This certificate program is designed for students who are preparing to enter the job market and want to earn a certificate on their way to earning an associate or bachelor's degree. It also benefits students who already have college degrees and are seeking retraining in the technology. The program provides an understanding of client/server environment, relational database design and development, PL/SQL, Database Administration and vast knowledge of the ORACLE package.

REQUIREMENTS FOR THE CERTIFICATE (12 CREDITS)

| | <i>Credits</i> |
|----------------------------------|----------------|
| SEMESTER 1 | |
| CSC 233 Database Development I | 4 |
| SEMESTER 2 | |
| CSC 234 Database Development II | 4 |
| SEMESTER 3 | |
| CSC 235 Database Development III | 4 |

Computer Programming in C Language Certificate Program

This certificate provides students with an in-depth study of programming. It is designed for students who are preparing to enter the job market as well as college graduates who are seeking retraining in the IT field.

Students obtaining this certificate may continue their studies to obtain an AS in Computer Systems Technology.

REQUIREMENTS FOR THE CERTIFICATE (23 CREDITS)

| | <i>Credits</i> |
|---|----------------|
| ENG 101 Composition | 3 |
| CSC 108 Introduction to Programming | 4 |
| CSC 213 Object-Oriented Programming Using C++ | 4 |
| CSC 241 Data Structures & Algorithms | 4 |
| <i>Select two of the following</i> | |
| CSC 207 Introduction to Visual Basic | |
| CSC 208 Advanced Visual Basic | |
| CSC 223 Java Programming I | |
| CSC 224 Java Programming II | 8 |

Computer Programming in Visual Basic Certificate Program

This certificate provides students with an in-depth study of programming. It is designed for students who are preparing to enter the job market as well as college graduates who are seeking retraining in the IT field.

Students obtaining this certificate may continue their studies to obtain an AS in Information Systems.

REQUIREMENTS FOR THE CERTIFICATE (23 CREDITS)

| | | | <i>Credits</i> |
|-----|-----|--|----------------|
| ENG | 101 | Composition | 3 |
| CSC | 103 | Computer Concepts and Applications | 4 |
| CSC | 207 | Introduction to Visual Basic | 4 |
| CSC | 208 | Advanced Visual Basic | 4 |
| CSC | 255 | System Analysis Design & Development Programming elective* | 4 |

*Any 4 credit CSC or CST course except CST 141

Web Developer Certificate Program

This certificate provides students with an in-depth study of Web Development. It is designed for students who are preparing to enter the job market as well as college graduates seeking retraining in the emerging technologies of the Internet.

Students obtaining this certificate may continue their studies to obtain an AAS in Information Technology.

PROGRAM OUTCOMES

Upon successful completion of all program requirements, graduates will possess the following skills and knowledge:

1. Ability to build a commercial or generic web site from the design phase through implementation;
2. Ability to develop web pages using low level code as well as web page development software packages;
3. Ability to support web pages with server-side java programming and other dynamic products.

REQUIREMENTS FOR THE CERTIFICATE (16 CREDITS)

| | | | <i>Credits</i> |
|-------------------|-----|--|----------------|
| SEMESTER 1 | | | |
| CST | 153 | Web Development & Design I | 4 |
| CSC | 226 | Object Oriented Programming Using Java | 4 |
| SEMESTER 2 | | | |
| CST | 252 | Web Development & Design II | 4 |
| CSC | 224 | Java Programming II | 4 |

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Networking Certificate Program

This certificate will provide students with a broad understanding of networking with a focus on Wide Area Networking, as well as preparing them to obtain internationally recognized networking certifications. It is designed for students who are preparing to enter the job market as well as college graduates seeking retraining in emerging communication technologies.

Students obtaining this certificate may continue their studies to obtain an AAS in Information Technology.

PROGRAM OUTCOMES

Upon successful completion of all program requirements, graduates will be able to:

1. Describe the functions of the TCP/IP and OSI reference model;
2. Perform a fairly complex Router configuration which would involve configuring; passwords, WAN & LAN interfaces, Routing Protocols, WAN Protocols, Access Control Lists, MOTD, Virtual terminals, and IP Hosting;

3. Operate Hyper-terminal and TFTP Server software;
4. Utilize commands for testing purposes(e.g. Telnet, Trace Route, Ping, Show and Debug);
5. Backup, upgrade, and load a backup Cisco IOS software image;
6. Be able to identify and differentiate between WAN services.

REQUIREMENTS FOR THE CERTIFICATE (16 CREDITS)

SEMESTER 1

| | | |
|---------|--------------|---|
| CST 180 | Networking I | 4 |
|---------|--------------|---|

SEMESTER 2

| | | |
|---------|---------------|---|
| CST 181 | Networking II | 4 |
|---------|---------------|---|

SEMESTER 3

| | | |
|---------|----------------|---|
| CST 182 | Networking III | 4 |
|---------|----------------|---|

SEMESTER 4

| | | |
|---------|---------------|---|
| CST 183 | Networking IV | 4 |
|---------|---------------|---|

Credits