

## Degree Requirements

<b>I. Core Computer Technology Courses (33-37 Semester Hours)</b>			Sem. Hrs.
CTEC 114	Computing Tools and Environments		3
COSC 112	Computer Science I		4
COSC 113	Computer Science II		4
COSC 208	Discrete Structures		3
COSC 214	Data Structures and Algorithms		4
CTEC 214	Client Operating Systems		4
CTEC 222	UNIX Operating SYSTEM		3
CTEC 226	Introduction to Database Development		3
CTEC 294	PC Architecture		3
CTEC 302	Computer Networking		3
CTEC 305	Server Administration I		3

( Note: COSC 190 Intermediate Computer Programming may be used in place of COSC 112 and COSC 113 by (1) students with transfer credit for COSC 190, and (2) entering students with a strong programming background and consent of the instructor.)

## II. CTEC PROGRAM TRACKS (12-19 semester hours)

### A. COMPUTER NETWORKING AND SYSTEM ADMINISTRATION TRACK

CTEC 335	Network Protocols (TCP/IP)		3
CTEC 405	Server Administration II		3
CTEC 410	Internet Technology		3
CTEC 435	UNIX System Administration		3

*Note: Total number of required CTEC Program electives: 15 semester hours*

### B. DATABASE DEVELOPMENT AND ADMINISTRATION TRACK

CTEC 300	Database Architecture		3
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CTEC	324	Database Application Development	3
COSC	420	Database Management	3
CTEC	424	Database Administration	3

*Note: Total number of required CTEC Program electives: 15 semester hours*

### **C.COMPUTER AND NETWORK SECURITY TRACK**

CTEC	335	Network Protocols (TCP/IP)	3
CTEC	345	Foundations of Computer and Network Security	3
CTEC	350	Principles and Methods of Intrusion Detection	3
CTEC	402	Software and Operating System Security	3
CTEC	435	UNIX System Administration	3
CTEC	445	Fundamentals of Cryptography and Applications	3

*Note: Total number of required CTEC Program electives: 15 semester hours*

### **D. INTERNET TECHNOLOGY AND MULTIMEDIA TRACK**

CTEC	293	Internet Programming I	3
CTEC	335	Network Protocols (TCP/IP)	3
CTEC	393	Internet Programming II	3
CTEC	415	Internet Applications I	3

*Choose one of the following two courses:*

CTEC	225	Graphical User Interface App. Develop	3
CTEC	340	Multimedia Application Development	4

*Choose one of the following two courses:*

CTEC	440	Human Factors	3
CTEC	477	Virtual Reality	3

*Note: Total number of required CTEC Program electives: 8 or 9 semester hours*

### **III. CTEC PROGRAM ELECTIVES (8-15 semester hours)**

*Note: The CTEC Program Track courses together with the CTEC Program Electives must total at least 27 semester hours.*

*A student in one track may take a CTEC OR COSC course not required by their track as an elective, provided the student satisfies the prerequisite(s) for the selected course. Technical courses from other disciplines may be allowed with prior approval by the department chairperson.*

**IV: REQUIRED MATHEMATICS COURSES (7 semester hours)**

Math	215	Elements of Calculus	4
Math	155	Probability and Statistics	3

**V. COURSES IN NATURAL LABORATORY SCIENCES (7-8 semester hours)**

Two courses from two different natural sciences: At least one course must have an associated laboratory experience. For example:

BIOL	Biology
CHEM	Chemistry
PHSC	Physical Science
PHYS	Physics

**VI. REQUIRED ENGLISH COURSE (3 semester hours)**

ENGL	362	Technical Writing for Computer Science	3
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**NOTE:** Computer Technology majors must earn a grade of “C” or better in each course in areas I through VI above.

**VII. GENERAL EDUCATION REQUIREMENTS (18 semester hours) English**

**Composition (6 semester hours)**

ENGL	101	Expository Writing	3
ENGL	102	Argument and Research	3

**Arts and Humanities (6 semester hours)**

COMM	101	Oral Communications	3
_____	_____	Arts and Humanities Elective	3

**Choose from designated General Education courses in art, literature, modern languages, music, philosophy, and theater. (The Arts and Humanities Elective must be in a discipline other than COMM.)**

**Social Sciences (6 semester hours)**

HIST 114	African American History to 1865 or	
HIST 115	African American History since 1865	3
_____	Social Sciences Elective	3

**Choose from designated General Education courses in anthropology, economics, geography, political science, psychology, social work, sociology, or interdisciplinary social science. (The Social Sciences Elective must be in a discipline other than HIST,)**

**NOTE: Science (7-8 semester hours), Mathematics (3 semester hours), and Technology (3 semester hours)** General Education Requirements are satisfied by required courses in areas I through V. **Free General Education Electives (9 semester hours)** are usually satisfied by courses in area I (**Technology** category) and a prerequisite course in area IV( **Mathematics** category). Additional **Free General Education Electives**, if needed, are chosen, with Departmental advisement, from designated General Education courses in any category,

*Note: The Department reserves the right to specify suitable General Education courses, in keeping with COMAR, for its majors.*

**VIII. INSTITUTIONAL REQUIREMENTS (6 semester hours)**

**Freshman Seminar (3 semester hours)**

FRSE 101                      Freshman Seminar

**Freshman Seminar (FRSE 101) is required for all entering freshmen and for all transfer students with fewer than 12 credits.**

**Health and Wellness (3 semester hours)**

Choose one of the General Education courses designated for this category.

HEED	102	Life and Health	3
HEED	200	Fundamentals of Sex Education	3
IDIS	210	Contemporary Issues in Women's Health	3

### **General Electives**

The remaining credits needed to make the total at least 120 should be chosen by the student in consultation with his/her advisor.

### **MINOR IN COMPUTER TECHNOLOGY**

A minor in Computer Technology can be obtained by completing the 33-37 semester hours listed as CORE COMPUTER SCIENCE/TECHNOLOGY COURSES (with a grade of "C" or better in each course). Students are required to satisfy the prerequisites for each course.

### **THE "2+2" COMPUTER TECHNOLOGY PROGRAM**

The Department offers a program for holders of an associate degree; this program will have completed the core requirements of a computer technology program and some general education credits at a community college or junior college. The student must complete the remaining general education and institutional requirements, upper division courses and elective courses at Bowie State University.

### **Admission to the Program**

A student will be admitted to this program if he or she has:

1. An associate degree in computer technology or closely related area and
2. A cumulative grade point average of at least 2.5 (on a scale of 4).

*Note; A student with an Associate Degree in an area other than Computer Technology may be admitted to the program upon successful completion of selected computer science and technology courses that will be determined by the Department.*

### **Graduation Requirements**

1. Completion of at least 120 semester credit hours of which at least 60 credit hours must be completed at Bowie State University.
2. Completion of at least 24 semester credit hours of computer science technology requirements at Bowie State University.

3. Completion of the general education and institutional requirement of Bowie State University.
4. Successful completion of the *English Proficiency Examination*. Meeting all other relevant graduation requirements as specified in the University catalog.

**Procedure**

To pursue this program, the student will meet with the 2+2 Program Coordinator to draw up a Program of Study, which lists the courses to be taken to satisfy the program requirements. The selection of courses will be made based on the courses already completed. The 2+2 Program Coordinator will advise each student individually.