



PROGRAMMING LOGIC AND DESIGN

Date 11/17/11

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COURSE NUMBER: CPT 168

PREREQUISITE(S): CPT114 with a minimum grade of "C".
MAT 101 or MAT 152 with a minimum grade of "C".

CO-REQUISITE(S): None

COURSE DESCRIPTIONS This course examines problem-solving techniques applied to program design. Topics include a variety of documentation techniques as a means of solution presentation.

TEXTBOOK(S): **Programming Logic and Design**, Farrell, Joyce. 6th Edition, Introductory, Course Technology, ISBN: 0-538-74477-4

An Introduction to Programming with C++, Zak, Diane. 6th Edition, Course Technology, ISBN: 0-538-46652-9
Bundle: 9781111488482

OTHER REQUIRED MATERIALS, TOOLS, AND EQUIPMENT: USB Flash Drive with 2 GB or higher.
Using CD are not practical for this course.

METHOD OF INSTRUCTION: Lecture, class exercise, projects, Homework, Tests.

GRADING SYSTEM:

90	-	100	=	A
80	-	89	=	B
70	-	79	=	C
60	-	69	=	D
Below	-	60	=	F

The standard mathematical procedure of rounding will be applied to arrive at a whole number percentage in final grade calculation.

GRADE CALCULATION METHOD:

Test (3 Tests)	=	45%
Homework (Review Questions)	=	10%
Lab Assignments (Programs/Flowcharts)	=	25%
Final Exam	=	20%
	=	100%

ATTENDANCE POLICY:

The student is responsible for punctual and regular attendance in all classes, laboratories, clinical, practica, internships, field trips, and other required class activities. The College does not grant excused absences; therefore, students are urged to reserve their absences for emergencies. When illness or other emergencies occur, the student is responsible for notifying instructors and completing missed work if approved for late submission by instructors.

The student is tardy if not in class at the time the class is scheduled to begin and is admitted to class at the discretion of the instructor.

Instructors maintain attendance records. However, it is the student's responsibility to withdraw from a course. A student enrolling in and attending at least one course session remains enrolled until the student initiates a withdrawal.

Withdrawal Policy: During the first 75% of the course, a student may initiate withdrawal and receive a grade of W. A student cannot initiate a withdrawal during the last 25% of the course. Extenuating circumstances require documentation and approval by the appropriate department head and academic dean.

Absences for Religious Holidays: Students who are absent from class in order to observe religious holidays are responsible for the content of any activities missed and for the completion of assignments occurring during the period of absence. Students who anticipate their observance of religious holidays will cause them to be absent from class and do not wish such absences to penalize their status in class should adhere to the following guidelines:

1. Observance of religious holidays resulting in three or fewer consecutive absences: Discuss the situation with the instructor and provide written notice at least one week prior to the absence(s). Develop (in writing) and instructor-approved plan which outlines the make up of activities and assignments.
2. Observances of religious holidays resulting in four or more consecutive absences: Discuss the situation with the instructor and provide the instructor with written notice within the first 10 days of the academic term. Develop an instructor-approved plan with

outlines the make up of activities and assignments.

**CLASSROOM
CONDUCT:**

ACADEMIC DISHONESTY: Students are expected to uphold the integrity of the College's standard of conduct, specifically in regards to academic honesty. All forms of academic dishonesty including, but not limited to, cheating on assignments/tests, plagiarism, collusion, and falsification of information will call for disciplinary action. Disciplinary action imposed may include one or more of the following: written reprimand, loss of credit for assignment/test, termination from course, and probation, suspension, or expulsion from the College. For further explanation of this and other conduct codes, please refer to the Student Handbook.

CELLULAR PHONES AND PAGERS/BEEPERS: Cellular phones, pagers and beepers are not permitted to be turned on or used within the classroom. Use of these devices during classroom time will be considered a violation of the student code as it relates to “disruptive behavior.”

**CLASS/LAB
PROCEDURES:**

Ten points will be deducted for each day a class exercise or project is late. One test (agreed by instructor) can be missed and replaced with final exam grade with 10 points deduction.

No smoking, drinking or eating is permitted in the classroom or lab at any time!

The Learning Center, located in the rooms E-2 & E-5 of the East Building, provides computers for your use. Check the website <http://www.sccsc.edu/resources/tutoring/tlc> or call 592-4968 for current semester operating hours.

ACCOMMODATIONS:

Students who need special accommodations in this class because of a documented disability should notify Student Disability Services by calling (864) 592-4818, toll-free 1-800-922-3679; via email through the SCC web site at www.sccsc.edu/resources/disabilities; or by visiting the office located in the East Building Room 30-B on the SCC Central campus. Contacting Student Disability Services early in the semester gives the College an opportunity to provide necessary support services and appropriate accommodations.

Inclement Weather Schedule:

- Check SCC Web Site: www.sccsc.edu
- Tune to **Channel-7** Local T.V. Station (CBS)
- Tune to an FM/AM Local radio station

Program Department Chair

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**COURSE OUTCOMES
& OBJECTIVES:**

Upon satisfactory completion of this course, the student will be able to:

- I. Relate the computer to the programming process
 1. Understand computer components and operations
 2. Describe the steps involved in the programming process
 3. Describe the data hierarchy
 4. Understand how to use flowchart symbols and Pseudocode statements
 5. Use and name variables
 6. Use a sentinel, or dummy value, to end a program
 7. Use a connector symbol
 8. Assign values to variables
 9. Recognize the proper format of assignment Statements
 10. Describe data types
- II. Design programming logic using structured logic
 1. Describe the features of unstructured spaghetti code
 2. Describe the three basic structures of sequence, selection and loop
 3. Use priming read
 4. Appreciate the need for structure
 5. Recognize structure
 6. Describe two special structures – case and do until
- III. Design program logic using selection
 1. Evaluate Boolean expressions to make comparisons
 2. Use the logical comparison operators
 3. Understand AND logic

4. Combine decisions in an AND situation
 5. Understand OR logic
 6. Combine decisions in an OR situation
 7. Understand NOT logic
 8. Combine decisions in an NOT situation
 9. Use selections within ranges
 10. Use decision tables
- IV. Design program logic using looping
1. Understand the advantages of looping
 2. Control a while loop using a loop control variable
 3. Increment a counter to control a loop
 4. Loop with a variable sentinel value
 5. Control a loop by decrementing a loop control variable
 6. Use a for loop
 7. Use a do until loop
 8. Nest loops
 9. Use a loop to accumulate totals
- V. Design program logic using control breaks
1. Understand control break logic
 2. Perform single-level control breaks
 3. Use control data within the control break module
 4. Perform control breaks with totals
 5. Perform multiple-level control breaks
- VI. Design program logic using arrays
1. Understand how arrays are used
 2. Declare and initialize an array
 3. Load array values
 4. Search an array
 5. Use parallel arrays
 6. Understand ranges of subscripts
 7. Use multi-dimensional arrays
- VII. Design program logic using string manipulation
1. Determine the number of characters contained in a string
 2. Remove, Replace and Insert characters from a string
- VIII. Design program logic using Sequential Files
1. Open, Read, Write and Close Sequential file