PROGRAM CHANGE OR DISCONTINUATION FORM

Program Code: CVCPGM   Program Name: ~~Programming in Java~~ *C++ Programming*

Effective Term: Fall 2012

Division Code: BCT   Department: CPS CISD

Directions:

1. Attach the current program listing from the WCC catalog or Web site and indicate any changes to be made.

2. Draw lines through any text that should be deleted and write in additions. Extensive narrative changes can be included on a separate sheet.

3. Check the boxes below for each type of change being proposed. Changes to courses, discontinuing a course, or adding new courses as part of the proposed program change, must be approved separately using a Master Syllabus form, but should be submitted at the same time as the program change form.

Requested Changes:

☐ Review
☐ Remove course(s): _____
☐ Add course(s): _____
☐ Program title (title was _____)
☐ Description
☐ Type of award
☐ Advisors
☐ Articulation information

☐ Program admission requirements
☐ Continuing eligibility requirements
☐ Program outcomes
☐ Accreditation information
☐ Discontinuation (attach program discontinuation plan that includes transition of students and timetable for phasing out courses)
☒ Other _____ Admission Requirements _____

Show all changes on the <u>attached page from the catalog</u>.

Rationale for proposed changes or discontinuation:

Remove the requirement for completion of the Foundations of Information Systems. It was a mistake to have this as a requirement as the 2 certificates have very little to do with each other.

Financial/staffing/equipment/space implications:

List departments that have been consulted regarding their use of this program.

Signatures:

Reviewer	Print Name	Signature	Date
Initiator	Clarence Hasselbach	*Clarence Hasselbach*	2/1/12
Department Chair	Clarence Hasselbach	*Clarence Hasselbach*	2/1/12
Division Dean/Administrator	Rosemary Wilson	*Rosemary Wilson*	2/1/12
Vice President for Instruction	Stuart Blacklaw	*Blacklaw*	3-12-12
President			

Do not write in shaded area. Entered in: Banner_____ C&A Database 4/26/17 Log File 4/26/17 Board Approval_____

Please submit completed form to the Office of Curriculum and Assessment and email an electronic copy to sjohn@wccnet.edu for posting on the website.

for done
logged 2/1/12 sjv
Office of Curriculum & Assessment

http://www.wccnet.edu/departments/curriculum

Program Information Report

School of Information Technology

The School of Information Technology gathers the diverse areas that make up the computer technology of today. From basic programming languages to systems development through networking, these programs provide the core of information technology. Develop skills in computer networking or programming in the growing field of applied information technology.

Washtenaw Community College offers programs at several levels for students who want to begin new careers, or advance in their existing careers. The first level is the certificate, which can vary from nine to thirty-six credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level, an Associate in Applied Science, is available for some programs. For some career fields, it is possible to earn a certificate, advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, advanced certificate and General Education requirements.

Programming

Learn the foundation of computer programming or specialize in a programming language through these programs.

C++ Programming (CVCPGM)
Advanced Certificate
Program Effective Term: Fall 2012

This program prepares students for jobs as a computer programmer where they will write C++ code and develop applications utilizing object-oriented programming techniques. Students will also develop skills that can be applied to the related jobs of programmer/analyst and software architect.

Program Admission Requirements:
Prior programming experience is recommended. Students who have no programming experience should consider taking CPS 120.

CPS 171	Introduction to Programming with C++	4
CPS 271	Object Features of C++	4
CPS 272	Data Structures with C++	4

Minimum Credits Required for the Program: **12**

C++ Programming (CVCPGM)
Advanced Certificate
Program requirements shown below are for catalog year:

Description:
This program prepares students for jobs as a computer programmer where they will write C++ code and develop applications utilizing object-oriented programming techniques. Students will also develop skills that can be applied to the related jobs of programmer/analyst and software architect.

Contact Information:
Division: Business and Computer Technologies
School: School of Information Technology
Department: Computer Instruction Dept
Advisors: Philip Geyer, Clarence Hasselbach, Khaled Mansour

Admission Requirements:
~~Completion of the Foundations of Information Systems certificate or equivalent.~~

Prior programing experience is recommended. Students who have no programming experience should consider taking CPS 120.

Major/Area Requirements		(12 Credits)
CPS 171	Introduction to Programming with C++	4
CPS 271	Object Features of C++	4
CPS 272	Data Structures with C++	4

Minimum Credits Required for the Program: **12 Credits**

Estimated Cost	
Tuition & Fees	$1,472.00
Books & Supplies	$230.00
Total Cost	**$1,702.00**

Length of Program
Intended time to complete   1 semesters

Careers Related to this Program

Computer Programmers

Computer Software Engineers, Applications

Computer Software Engineers, Systems Software

This website is for informational purposes only and is not to be construed as a binding offer or contract between WCC and the student. The information presented here is believed accurate, but is NOT guaranteed and is subject to change without notice.

For official information, see an Advisor.

PROGRAM PROPOSAL FORM

☐ **Preliminary Approval** – Check here when using this form for preliminary approval of a program proposal, and respond to the items in general terms.

☒ **Final Approval** – Check here when completing this form after the Vice President for Instruction has given preliminary approval to a program proposal. For final approval, complete information must be provided for each item.

Program Name:	C++ Programming	**Program Code:**
Division and Department:	BCT - CISD	CVCPGM
Type of Award:	☐ AA ☐ AS ☐ AAS ☐ Cert. ☒ Adv. Cert. ☐ Post-Assoc. Cert. ☐ Cert. of Comp.	
Effective Term/Year:	200901	**CIP Code:**
Initiator:	Clarence Hasselbach and Neil Gudsen	11.0202

Program Features Program's purpose and its goals. Criteria for entry into the program, along with projected enrollment figures. Connection to other WCC programs, as well as accrediting agencies or professional organizations. Special features of the program.	This program is part of an effort by the CIS Department to consolidate and streamline academic programs for academic year 2009-10. It replaces the Object Oriented Programming with C++ Advanced Certificate.
Need Need for the program with evidence to support the stated need.	"Research from **Robert Half International** and others suggests that not only will **IT salaries** increase slightly in 2009, but also that IT professionals with key skills could find themselves in demand …. The professional staffing and consulting firm estimates that IT salaries could increase by about 3.7 percent next year…." Source: CIO Magazine, October 24, 2008 http://www.cio.com/article/456568/IT_Salaries_Expected_to_Rise_in_

Program Outcomes/Assessment State the knowledge to be gained, skills to be learned, and attitudes to be developed by students in the program. Include assessment methods that will be used to determine the effectiveness of the program.	Outcomes	Assessment method
	1. C++ Foundations: At the conclusion of this program, students will be able to identify and analyze C++ Object Oriented techniques such as exceptions, operator overloading, polymorphism, and templates.	Common departmentally created final exam.
	2. Data Structures using STL: At the conclusion of this program, students will be able to identify and analyze STL data structures such as vectors, stacks, linked lists, queues, trees and hash maps. .	
	3. Recursive Algorithms: At the conclusion of this program, students will be able to identify and analyze the efficiency of recursive algorithms.	
	4. Sound Programming Practices: At the conclusion of this program, students will demonstrate sound software engineering techniques in developing a working software program. This will include creating a program that is logical, easy to understand, with properly indented code to solve a stated problem.	

Please return completed form to the Office of Curriculum & Assessment and email an electronic copy to sjohn@wccnet.edu for posting on the website.

Curriculum	Major/Area Requirements	(12 Credits)
List the courses in the program as they should appear in the catalog. List minimum credits required. Include any notes that should appear below the course list.	CPS 171 Introduction to Programming with C++	4
	CPS 271 Object Features of C++	4
	CPS 272 Data Structures with C++	4
	Minimum Credits Required for the Program:	**12 Credits**

Budget		START-UP COSTS	ONGOING COSTS
Specify program costs in the following areas, per academic year:	Faculty	No new costs	No new costs
	Training/Travel	No new costs	No new costs
	Materials/Resources	No new costs	No new costs
	Facilities/Equipment	No new costs	No new costs
	Other	No new costs	No new costs
	TOTALS:	No new costs	No new costs

Program Description for Catalog and Web site	This program prepares students for jobs as a computer programmer where they will write C++ code and develop applications utilizing object-oriented programming techniques. Students will also develop skills that can be applied to the related jobs of programmer/analyst and software architect.
Program Information	**Accreditation/Licensure** - none
	Advisors – Clarence Hasselbach, Philip Geyer, Khaled Mansour
	Advisory Committee - CIS Advisory Committee
	Admission requirements – Completion of Foundations of Information Systems Certificate of equivalent degree or experience.
	Articulation agreements - Eastern Michigan University in progress
	Continuing eligibility requirements - None

Assessment plan:

Program outcomes to be assessed	Assessment tool	When assessment will take place	Courses/other populations	Number students to be assessed
C++Foundations: At the conclusion of this program, students will be able to identify and analyze C++ Object Oriented techniques such as exceptions, operator overloading, polymorphism, and templates.	Common final examination to be prepared by the CIS department	Spring 2012 and every three years thereafter.	All sections of CPS 272	Random selection of 50% of the students
Data Structures using STL: At the conclusion of this program, students will be able to identify and analyze STL data structures such as vectors, stacks, linked lists, queues, trees and hash maps.	Common final examination to be prepared by the CIS department	Spring 2012 and every three years thereafter.	All sections of CPS 272	Random selection of 50% of the students

Recursive Algorithms: At the conclusion of this program, students will be able to identify and analyze the efficiency of recursive algorithms.	Common final examination to be prepared by the CIS department	Spring 2012 and every three years thereafter.	All sections of CPS 272	Random selection of 50% of the students
Sound Programming Practices: At the conclusion of this program, students will demonstrate sound software engineering techniques in developing a working software program. This will include creating a program that is logical, easy to understand, with properly indented code to solve a stated problem.	Common final examination to be prepared by the CIS department	Spring 2012 and every three years thereafter.	All sections of CPS 272	Random selection of 50% of the students

Scoring and analysis plan:

1. Indicate how the above assessment(s) will be scored and evaluated (e.g. departmentally developed rubric, external evaluation, other). Attach the rubric.

    Departmentally developed rubric. See attached.

2. Indicate the standard of success to be used for this assessment.

    At least 75% of students must score at least 70% or better on all learning outcome evaluations.

3. Indicate who will score and analyze the data.

    Assessment materials will be analyzed by the CIS Department.

4. Explain how and when the assessment results will be used for program improvement.

    Department will review the program if the standard of success is not met.

REVIEWER	PRINT NAME	SIGNATURE	DATE
Department Chair/Area Director	Clarence Hasselbach	*Clarence Hasselbach*	11/13/2008
Dean	Rosemary Wilson	*Rosemary Wilson*	11/14/08
Vice President for Instruction ☐ Approved for Development ☑ Final Approval	Mark M. Palay	*Mark M. Palay*	12/22/08
President	Larry Whitworth	*Larry Whitworth*	4/28/09
Board Approval			04/28/09

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Office of Curriculum & Assessment 1/6/09 *fm*

Program Proposal Form 8-2005

School of Information Technology

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Advanced Certificate
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Program Admission Requirements:
Completion of the Foundations of Information Systems certificate or equivalent.

Major / Area Requirements		(12 credits)
CPS 171	Introduction to Programming with C++	4
CPS 271	Object Features of C++	4
CPS 272	Data Structures with C++	4

Minimum Credits Required for the Program: **12**

C++ Programming
Advanced Certificate

Program requirements shown below are for catalog year: 2009-2010

Description:
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Contact Information:
Division: Business and Computer Technologies
School: School of Information Technology   *sub-school: programming*
Department: Computer Instruction
Advisors: Philip Geyer, Clarence Hasselbach, Khaled Mansour

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