

CENTRAL NEW MEXICO COMMUNITY COLLEGE
ASSESSMENT REPORT
Due to SAAC by October 15

PART 1: CONTACT & PROGRAM IDENTIFICATION

Report Year and Contact Information:			
Fall 2015-Summer 2016	Ivonne Nelson	inelson1@cnm.edu	224-4000 # 50270
Academic Year	Contact Person	Email	Phone Number

Subject of this Assessment Report:		
Program: Computer Information System: Computer Programming Concentration <input type="checkbox"/> Certificate <input type="checkbox"/> AA <input type="checkbox"/> AS <input checked="" type="checkbox"/> AAS	Gen Ed Area: _____ Applicable to: <input type="checkbox"/> AA/AS <input type="checkbox"/> AAS	Discipline Area: _____

PART 2: EVIDENCE OF OVERALL PROGRAM EFFECTIVENESS

Summary of Program Successes:
For the school year Fall2015 – Summer2016, 20 students graduated in Computer Programming. The average score on the Capstone project was 93.1.

Description and Evaluation of Recent Changes Made in Support of Student Learning:
<p>Last year’s action plan called for: “We will continue to emphasize debugging skills in the three languages, and we will bring in debugging skills earlier and more frequently in C++ I, C++ II, Java I and C#. We will add debugging practice in Android and ASP.net. “ Because of this expanded emphasis, we have met our Program goal for Debugging. (We think.)</p> <p>A special topics course, Computer Game and Simulation Development, was instituted in Spring 2015, to address the needs of students who are interested in the Gaming field. It was well-received with 14 students finishing the course with 71% of the students passing with a B or better.</p>

PART 3: REPORT ON RECENT ASSESSMENT OF STUDENT LEARNING

Student Learning Outcome(s) Assessed: <i>To add rows: right-click in cell below and select "Insert," "Insert Rows Above"</i>	Classes/Cohorts Assessed:
<p>1. Class construction: Write programs that contain a programmer-written class and demonstrate its use in the C++, Java and C# languages.</p>	<p>CIS2275, CIS1280, CIS2235, CIS1250</p>
<p>2. Class inheritance, and polymorphism: Write a program that contains a programmer-written class structure including a parent class and at least two children classes. The program must demonstrate polymorphism.</p>	<p>CIS2275, CIS1280, CIS2235, CIS1250</p>
<p>3. Graphical User Interface and Technical documentation: Write a program that contains a Graphical User Interface that includes event handling components. These components must include components such as menus, dialog boxes, sliders, buttons, and spinners. Tooltips must be on all components, where relevant. The program must contain a help section or additional documentation for the user.</p>	<p>CIS2275, CIS1280, CIS2235, CIS2237, CIS2284, CIS1250</p>
<p>4. Database manipulation and Web Application: Write a program that demonstrates the ability to connect to and manipulate a SQL database.</p>	<p>CIS1280, CIS2235, CIS2284, CIS2237, CIS1250</p>
<p>5. Web research: Use a search engine, such as "Google", to find information on classes or functions that are needed in a program. This web research includes finding the appropriate class/function, its documentation, and implementing the code in a program.</p>	<p>CIS1275, CIS2275, CIS1280, CIS2235, CIS2237, CIS2284, CIS1250</p>
<p>6. Debugging: Demonstrate the use of a debugging tool in at least two Integrated Development Environments, with at least two languages.</p>	<p>CIS1275, CIS2275, CIS1280, CIS2235, CIS2237, CIS2284, CIS1250</p>
<p>7. Linux: Students will demonstrate how to install, configure, create user accounts, issue correct commands and options, and perform standard network administration.</p>	<p>Outcome 7: All CIS concentrations which require Linux in their program, will report Linux assessment results. This assessment information reflects all CIS students who take the Linux course, CIS 1680.</p>

Measurement Tool(s) Used:	Enter X's for type of tool				Initial Achievement Target or Expectation:
	Internal	External	Direct	Indirect	
<i>To add rows: right-click in cell below and select "Insert," "Insert Rows Above"</i>					
Outcomes 1-5 were assessed via a portfolio of work created by the students. The students were given a detailed document describing the required computer programming topics. The document /portfolio topics were described and requested in order of the competencies. Students created a portfolio and each section addressed and demonstrated programming concepts.	X		X		Outcomes 1-6: The Computer Programming exit competencies are evaluated using a Rubrics with a scale of 4=excellent, 3=good, 2=fair and 1=poor. We believe a score of 3+ for 75% of our students represents success in accomplishing our goals.
Outcome 6 was assessed via a debugging exam given to students. The students were given debugging tests in three languages: C++, Java and C#.	X		X		These test scores are a part of the Capstone score. They are evaluated using a Rubrics with a scale of 4=excellent, 3=good, 2=fair and 1=poor. We believe a score of 3+ for 75% of our students represents success in accomplishing our goals.
Outcome 7 was assessed via the CIS 1680 Linux Essentials course. All students taking this course will be assigned a final project that encapsulates the exit competencies for this course.	X		X		Outcome 7: Several CIS concentrations incorporate the Linux course in its area of studies. Our achievement target for all Linux students (for all concentrations requiring this course) is 80%+ on the assessment skills exam for 75% of our students.

Assessment Findings:						
	COMP 1	COMP 2	COMP 3	COMP 4	COMP 5	COMP 6
SCORE	CLASSES	INHERITANCE	GUI	DB MANIP	RESEARCH	DEBUG
4	12	12	6	14	13	8
3.5 – 3.9	7	6	11	3	3	5
3		2	2		2	4
2.5	1		1	1	1	3
2				1		
1.5						
1				1	1	
0						

Linux outcomes;

Criteria	Outcomes
For Install and maintain Linux operating systems	The rate of students the scored 80% or more was 100%
For Locate Help resources in the Linux operating systems	The rate of students the scored 80% or more was 99.7%
For Use the package management utility to administer the Linux operating systems	The rate of students the scored 80% or more was 99.5%
For Explain the fundamental properties of the shell	The rate of students the scored 80% or more was 83.56%
For Administrate Linux operating systems using Command Line Interface (CLI) and Graphic User Interface (GUI)	The rate of students the scored 80% or more was 84.76%
For Manage jobs, processes and run levels in the Linux operating systems	The rate of students the scored 80% or more was 96%
For Able to configure the peripheral devices and perform network services.	The rate of students the scored 80% or more was 77%
For Conduct troubleshooting, performance evaluation and security features	The rate of students the scored 80% or more was 84%
For Compose administration shell scripts	The rate of students the scored 80% or more was 99.1%

Analysis and Interpretation of Assessment Findings:						
	COMP 1	COMP 2	COMP 3	COMP 4	COMP 5	COMP 6
SCORE	CLASSES	INHERITANCE	GUI	DB MANIP	RESEARCH	DEBUG
3+	19	20	19	17	18	17
<3	1	0	1	3	2	3
Meet Target?	yes	yes	yes	yes	yes	yes

Action Plan in Support of Student Learning:

We will continue to emphasize debugging in all of our programming classes. We will continue to watch the Gaming course and research to see if another topics course is warranted.

Recommendations, Proposals, and/or Funding Requests:

N/A

PART 4: EMBEDDED OUTCOMES

Critical Thinking and Life Skills/Teamwork Development within Programs:

a) Please describe how Critical Thinking assessment is embedded within your program assessment.

b) Please describe how Life Skills/Teamwork assessment is embedded within your program assessment.

a) All programming classes inherently emphasize critical thinking through the process of abstraction, which is analyzing the problem presented, and selecting the factors relevant to model and techniques best suited to solving the problem. The process of debugging errors in code, including compile-time errors, link errors and run-time errors, requires development of critical thinking skills. These skills are assessed in the Capstone course.

b) Life Skills/Teamwork is developed during team projects and during class time when students are encouraged to work together. The team projects are a part of the portfolio that is submitted through the Capstone course.

PART 5: ASSESSMENT CYCLE PLAN (Copy and paste from original plan if unchanged)

Cycle Years:	Plan Description:

Student Learning Outcomes:	When Measured:	Where Measured:	How Measured:
<p>1. Class construction: Write programs that contain a programmer-written class and demonstrate its use in the C++, Java and C# languages.</p>	<p>Every Semester. 2015-2016</p>	<p>Program Portfolio Demonstrations</p>	<p>Class construction: Students document their mastery of class-writing by showing the syntax/file structure for class constructions in all three language classes taught in this programming curriculum: C++, Java, and C#. They show the class definition and where the objects are created. The students also present overloaded constructors and class functions.</p>
<p>2. Class inheritance, and polymorphism: Write a program that contains a programmer-written class structure including a parent class and at least two children classes. The program must demonstrate polymorphism.</p>	<p>Every Semester. 2015-2016</p>	<p>Program Portfolio Demonstrations</p>	<p>Class inheritance, and polymorphism: The student has written a complete application based on the numerous programmer-written classes and derived classes. The program implements polymorphism using an array/vector of references or pointers. The student explains the class relationships and how the polymorphic features are implemented and software design implications.</p>
<p>3. Graphical User Interface and Technical documentation: Write a program that contains a Graphical User Interface that includes event handling components. These components must include components such as menus, dialog boxes, sliders, buttons, and spinners. Tooltips must be on all components, where relevant. The program must contain a help section or additional documentation for the user.</p>	<p>Every Semester. 2015-2016</p>	<p>Program Portfolio Demonstrations</p>	<p>Graphical User Interface and Technical documentation: Students write a complete applications that contains numerous GUI classes, menu, program-written dialog boxes, API provided dialog boxes and a main window of frame. The control values are initialized, and work consistently. The program contains programmer written classes and a structure (of some sort) to hold program data.</p>
<p>4. Database manipulation and Web Application: Write a program that demonstrates the ability to connect to and manipulate a SQL database.</p>	<p>Every Semester. 2015-2016</p>	<p>Program Portfolio Demonstrations</p>	<p>Database manipulation and Web Application: The student has written at least one program that connects to a database. The program provides the user the ability to obtain information from the database, and modify and update the database. The student explains how the database was created, where the file was located and how the program connects to</p>

			it. The student can show the SQL statements inside the program (source code) or LINQ statements if using C#.
5. Web research: Use a search engine, such as “Google”, to find information on classes or functions that are needed in a program. This web research includes finding the appropriate class/function, its documentation, and implementing the code in a program.	Every Semester. 2015-2016	Program Portfolio Demonstrations	Web research: student shows code that he/she had to research and implement in three different programs. The code is documented as to how the feature is used and/or implemented. Source code and short description of each is in the portfolio.
6. Debugging: Demonstrate the use of a debugging tool in at least two Integrated Development Environments, with at least two languages.	Every Semester. 2015-2016	Three tests, which are a part of the Capstone Program Project.	Debugging: In debugging tests for three languages, the Student: Is able to fix all compiler errors. Is able to get code to run. Is able to fix run-time errors. Code runs without crashing. Code is fixed so that it meets the desired problem specs.
7. Linux: Students will demonstrate how to install, configure, create user accounts, issue correct commands and options, and perform standard network administration.	Every Semester. 2015-2016	Course-wide evaluation using a Linux Project measured using a common rubric.	Linux: Students will demonstrate how to install, configure, create user accounts, issue correct commands and options, and perform standard network administration.