

OFF-CAMPUS PROGRAM ASSESSMENT

Program Mission, Program Educational Objectives, and Program Outcome

Spring 2010

Degree Program:	MBA/MSSE	Location:	Rose Orchard Tech Center
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PROGRAM MISSION:

Program Mission:

Apply an integrated approach to educate industry professionals in enhancing their capabilities of emerging software technologies and development methodologies as well as the principles and best practices of business management.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs): *PEOs should be aligned with the Program Mission*

	Description
PEO 1	To demonstrate the competency of emerging software technologies
PEO 2	To demonstrate the proficiency of latest software development methodologies
PEO 3	To demonstrate the capability of being a leader in the engineering and business fields

PROGRAM OUTCOMES (POs): *POs should be aligned with the PEOs*

	Description
PO 1	Be able to demonstrate an understanding of advanced knowledge of the practice of software engineering, from vision to analysis, design, validation and deployment.
PO 2	Be able to tackle complex engineering problems and tasks, using contemporary engineering principles, methodologies and tools.
PO 3	Be able to demonstrate leadership and the ability to participate in teamwork with different disciplines of engineering and business.
PO 4	Be aware of ethical, economic and environmental implications of their work, as appropriate.
PO 5	Be able to advance successfully in the engineering profession, and sustain a process of life-long learning in engineer or other professional areas.
PO 6	Be able to communicate effectively, in both oral and written forms.

PROGRAM EDUCATIONAL OBJECTIVES TO PROGRAM OUTCOMES:

	Program Outcomes					
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
PEO 1	X	X	X			
PEO 2	X	X	X	X	X	X
PEO 3	X	X	X	X	X	X

PROGRAM OUTCOMES TO COURSE LEARNING OUTCOMES:

	Courses								
	202	203	221	272	273	275	295A	295B	297
PO 1	X		X			X	X	X	X
PO 2	X		X	X	X	X	X	X	X
PO 3		X							
PO 4		X							
PO 5		X							

PO 6		X		X		X	X	X	X
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SCHEDULE OF ASSESSMENT ACTIVITIES: PEOs and POs Timeline Assessment

Program Educational Objectives (PEOs) Timeline Assessment

	F07	S08	F08	S09	F09	S10	F10	S11	F11	S12	F12
PEO 1		CD	CDI	CD	CDI	CD	CDI	CD	CDI	CD	CDI
PEO 2		CD	CDI	CD	CDI	CD	CDI	CD	CDI	CD	CDI
PEO 3		CD	CDI	CD	CDI	CD	CDI	CD	CDI	CD	CDI

Program Outcomes (POs) Timeline Assessment

	F07	S08	F08	S09	F09	S10	F10	S11	F11	S12	F12
PO 1	CD	CD	CD	CD	CDI	CDI	CDI	CDI	CDI	CDI	CDI
PO 2	CD	CD	CD	CD	CDI	CDI	CDI	CDI	CDI	CDI	CDI
PO 3		CD	CD			CDI	CDI			CDI	CDI
PO 4		CD						CDI			
PO 5		CD						CDI			
PO 6		CD	CD			CDI	CDI		CDI	CDI	

PROGRAM OUTCOMES ASSESSMENT

Program Outcome #1

Be able to demonstrate an understanding of advanced knowledge of the practice of software engineering, from vision to analysis, design, validation and deployment.

1.1 Data Collection:

Following Course Learning Objectives (CLO) contributes to this Program Outcome:

CMPE 221 CLO 1 - Be able to understand the SOA principles of Loose Coupling and Service Contracts and apply them to a real-world project

CMPE 295A CLO 3 - Be able to conduct research, analysis, design, implementation, verification, and other development tasks for a project.

CMPE 295B CLO 1 - Be able to finalize research, analysis, design, implementation, verification, and other development tasks for a project.

In Spring 2010, this CLO was assessed via both direct and indirect measurements.

Summary of results from direct measurement:

CMPE 221 CLO 1	Performance criteria set at 75%, minimum percentage of students who should reach performance criteria: 75% Lab Exam Questions: 1.1, 1.5 – 90 % of students scored at or above 75% Final Exam Questions: 1.1 to 1.12, 2.1 & 2.2 - 90 % of students scored at or above 75%
CMPE 295A CLO 3	Performance criteria set at 80%, minimum percentage of students who should reach performance criteria: 80% Project Abstract: 100% of students scored at or above 80% Project Plan Report: 100% of students scored at or above 80%
CMPE 295B	Performance criteria set at 80%, minimum percentage of students who should reach

CLO 1	performance criteria: 80% Project Abstract: 100% of students scored at or above 80% Project Plan Report: 100% of students scored at or above 80%
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Summary of results from Indirect Measurement:

(a) Student CLO Survey Results

	Part I – importance of course topic	Part II – portion learned and achieved
CMPE 221 CLO 1	95%	88%
CMPE 295A CLO 3	93%	84%
CMPE 295B CLO 1	NA	NA

(b) Qualitative Feedback

Informal group discussions were held with students during each course. Topics discussed included: course material, pace of course, and teaching effectiveness. For CMPE 221 some students commented on the fast pace of the class and their inability to see the big picture until later in the class.

1.2 What have you learned about this Program Outcome?

Through a sequence of software engineering courses, students demonstrated their understanding of emerging software technologies and development methodologies as well as the principles and best practices of business management. The curriculum can be improved by increasing the coordination efforts between CMPE 202 and CMPE 221 regarding the contents of business process modeling and more opportunities to apply UML in the context of business modeling.

1.3 Action Items(s) (if necessary):

Ensure all students should have sufficient background in business process modeling and more opportunities to apply UML in the context of business modeling.

1.4 Results of Action Items

For the new MBA/MSSE cohort in Spring 2011, coordinate with CMPE 202 instructors to strengthen students' background in business process modeling and more opportunities to apply UML in the context of business modeling.

Program Outcome #2

Be able to tackle complex engineering problems and tasks, using contemporary engineering principles, methodologies and tools.

2.1 Data Collection:

Following CLO's contribute to this Student Learning Objective:

CMPE 221 CLO 2 - Be able to use industry grade software tools (such as SOAP UI and JDeveloper) to design and prototype the architecture on an SOA project.

CMPE 221 CLO 3 - Be able to keep abreast on the changing landscape of SOA technology and to understand the pitfalls and issues involved in adopting SOA within an Enterprise.

CMPE 273 CLO 1 - Be able to perform software development with CORBA

CMPE 273 CLO 2 - Be able to perform software development with Web Services

CMPE 273 CLO 3 - Be able to perform software development with Java Messaging Service

CMPE 295A CLO 3 - Be able to conduct research, analysis, design, implementation, verification, and other development tasks for a project.

CMPE 295B CLO 1 - Be able to finalize research, analysis, design, implementation, verification, and other development tasks for a project.

In Spring 2010, the above CLO's were accessed via both direct and indirect measurements.

Summary of results from direct measurement:

CMPE 221 CLO 2	Performance criteria set at 75%, minimum percentage of students who should reach performance criteria: 75% Lab Exam Questions: 1.1, 1.5 – 90 % of students scored at or above 75% Final Exam Questions: 1.1 to 1.12, 2.1 & 2.2 - 90 % of students scored at or above 75%
CMPE 221 CLO 3	Performance criteria set at 75%, minimum percentage of students who should reach performance criteria: 75% Research Assignments on SOA, ESB and BPMN/BPEL - 90 % of students scored at or above 75% Graded Research Notebook Logs. - 90 % of students scored at or above 75%
CMPE 273 CLO 1	Performance criteria set at 75%, minimum percentage of students who should reach performance criteria: 75% Project Criteria 1: 71% of students scored at or above 75%
CMPE 273 CLO 2	Performance criteria set at 75%, minimum percentage of students who should reach performance criteria: 75% Project Criteria 2: 100% of students scored at or above 75%
CMPE 273 CLO 3	Performance criteria set at 75%, minimum percentage of students who should reach performance criteria: 75% Project Criteria 3: 100% of students scored at or above 75%
CMPE 295A CLO 3	Performance criteria set at 80%, minimum percentage of students who should reach performance criteria: 80% Project Abstract: 100% of students scored at or above 80% Project Plan Report: 100% of students scored at or above 80%
CMPE 295B CLO 1	Performance criteria set at 80%, minimum percentage of students who should reach performance criteria: 80% Project Abstract: 100% of students scored at or above 80% Project Plan Report: 100% of students scored at or above 80%

Summary of results from Indirect Measurement:**(a) Student CLO Survey Results**

	Part I – importance of course topic	Part II – portion learned and achieved
CMPE 221 CLO 2	87%	87%
CMPE 221 CLO 3	93%	84%
CMPE 273 CLO 1	52%	71%
CMPE 273 CLO 2	86%	75%
CMPE 273 CLO 3	83%	72%
CMPE 295A CLO 3	93%	84%
CMPE 295B CLO 1	NA	NA

(b) Qualitative Feedback

Informal group discussions were held with students during each course. Topics discussed included: course material, pace of course, teaching effectiveness, etc.

For CMPE 221, Oracle SOA Suite 10g posed some technical difficulties to more than half of the class due to their use of Windows 7. Some suggested that the class move to Oracle SOA Suite 11g.

Some students in CMPE 273 found they have inadequate preparation in Java, more specifically, object oriented programming and data structures. As a result, it is difficult for them to understand distributed object topics.

2.2 What have you learned about this Program Outcome?

Although students have gained the capability to tackle complex engineering problems and tasks, using contemporary engineering principles, methodologies and tools, there are rooms for improvement. The prerequisites of CMPE 273 are classified graduate standing and Java programming. However most students rated themselves as medium to low in Java programming. A refresher course in Java can help them to improve their programming skills.

Many students in CMPE 273 think that CORBA is not important enterprise distributed systems. However, CORBA is the foundation of distributed systems and provides remote object access with stateful states. It needs to be emphasized to students.

2.3 Action Items(s):

Add a ramp course or dedicate two class sessions of each class to cover some essential topics in object-oriented paradigm and programming, data structures and algorithms, data base design, and operating systems. Such change will be implemented for the next MBA/MSSE cohort.

2.4 Results of Action Items:

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To be implemented and accessed for the new MBA/MSSE cohort in Spring 2011.

Program Outcome #6

Be able to communicate effectively, in both oral and written forms.

6.1 Data Collection:

Following CLO's contribute to this Student Learning Objective:

CMPE 295A CLO 1 - Be able to formulate and communicate a project topic under the guidance of an advisor.

CMPE 295A CLO 2 - Be able to communicate via a project report using documentation guidelines.

CMPE 295B CLO 2 - Be able to communicate via a project report and a project presentation.

In Spring 2010, the above CLO's were assessed via both direct and indirect measurements.

Summary of results from direct measurement:

CMPE 295A CLO 1	Performance criteria set at 80%, minimum percentage of students who should reach performance criteria: 80% Project Abstract: 100% of students scored at or above 80% Project Plan Report: 100% of students scored at or above 80%
CMPE 295A CLO 2	Performance criteria set at 80%, minimum percentage of students who should reach performance criteria: 80% Project Abstract: 100% of students scored at or above 80% Project Plan Report: 100% of students scored at or above 80%
CMPE 295B CLO 2	Performance criteria set at 80%, minimum percentage of students who should reach performance criteria: 80% Project Abstract: 100% of students scored at or above 80% Project Plan Report: 100% of students scored at or above 80%

Summary of results from Indirect Measurement:

(a) Student CLO Survey Results

	Part I – importance of course topic	Part II – portion learned and achieved
CMPE 295A CLO 1	95	88
CMPE 295A CLO 2	87	87
CMPE 295B CLO 2	NA	NA

Survey results are weighted by A = 95%, B = 80%, C = 60%, D = 40%, E = 20%

(b) Qualitative Feedback

Informal group discussions were held with students several times during each course. Topics discussed included: course material, pace of course, teaching effectiveness, etc. No specific concerns regarding this CLO were raised.

6.2 What have you learned about this Program Outcome?

This PO is assessed as “achieved”.

6.3 Action Items(s) (if necessary):

None.

6.4 Results of Action Items:

NA