

CEN320

Object Oriented Programming

Term 2 - 2014

Course Profile

All details in this course profile for CEN320 have been officially approved by MU University and represent a learning partnership between the University and you (our student). The information will not be change unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

OVERVIEW

Object-oriented programming is an approach to designing modular reusable software systems. Although discussions of object-oriented technology often get mired in the weeds of details about one language vs. the other the real key to the object-oriented approach is that it is a modelling approach first. Although often hyped as a revolutionary way to develop software by zealous proponents, the object-oriented approach is in reality a logical extension of good design practices that go back to the very beginning of computer programming. Object-orientation is simply the logical extension of older techniques such as structured programming and abstract data types. An object is an abstract data type with the addition of polymorphism and inheritance.

DETAILS

Level	Graduate
Credit Points	3(2-0-2)
Student Contribution Band	-
Function of full Time Student Load	-

PRE-REQUISITES OR CO-REQUISITES

Pre-requisite: CEN 215

ATTENDANCE REQUIRMENTS

All on-campus students are expected to attend scheduled classes in CEN320, The classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

ASSESSMENT OVERVIEW

Assessment Task	Weighting
1. Midterm Exam-1	15%
2. Midterm Exam-2	15%
3. Quizzes	10%
4. Assignments/Report/Seminar	20%
5. Final Exam	40%

This is a graded course: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the course of at least 50%, or an overall grade of 'pass' in order to pass the course. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the University's Grades and Results Procedures for more details of interim results and final grades.

MU University Policies

All University policies are available on the IMPortal.

You may wish to view these policies:

- Assessment of Coursework Procedures
- Grads and Results Procedure
- Review ox Grade Policy
- Plagiarism Procedure
- Student Misconduct and Plagiarism Policy
- Monitoring Academic Progress Policy
- Monitoring Academic Progress Policy
- Monitoring Academic Progress Procedures
- Refund Excess Payments (Credit Balances) Policy
- Student complaints Policy
- Use of Internet, mail and Computing Facilities Policy

This list is not an exhaustive list of all University policies. The full lists of University policies are available on the IMPortal.

Course Learning Outcomes

1. Students should gain the knowledge of the basic concepts of object oriented programming, and their realization in C++.
2. Students should be able to compare and contrast the Object Oriented approach to software implementation with its procedural alternative.
3. Students have to justify the use of the Object Oriented approach to software development according to the key benefits of maintainability and software reuse.
4. Students will have sufficient knowledge and understanding of the class to create required classes themselves.
5. Students are expected to reach a level of competence enabling them to easily learn other similar programming languages.

Alignment of Learning outcomes, Assessment and Graduate attributes

ALIGNMENT OF ASSESSMENT TASKS TO LEARNING OUTCOMES

Assessment Task	Learning Outcomes				
	1	2	3	4	5
1. Midterm Exam-1	
2. Midterm Exam-2
3. Quizzes
4. Assignments/Report/Seminar

5. Final Exam

Textbook and Resources

1. H. M. Deitel, P. J. Deitel, ^[OBJ] "C++ How to Program", Prentice Hall, 5th.
2. Robert Lafore, "Object-Oriented Programming", Sams, 4th..

PRESCRIBED TEXTBOOKS

Guide to Firewalls 7 VPN			
Author/s	: H. M. Deitel, P. J. Deitel	Year	: 2005
Edition	: 5 th	Publisher	: Prentice Hall
City	:	State:	:MA
Country	:USA		

IT RESOURCES

You will need access to the following IT resources:

- MU University Student Email
- Internet
- Course Website
- Computer System with Software to run C++ lab

Referencing style

All submissions for this course must use the **American Psychological Association (APA)** referencing style (details can be obtained here) OR **Harvard (author-date)** referencing style (details can be obtained here). For further information, see the Assessment Tasks below.

Teaching Contacts

Course Coordinator:	Dr. Ahmad Raza Khan
Lab/Tutorial Instructor:	Mr. Mohammed Abdul Khader
Email:	ar.khan@mu.edu.sa
Office Hours:	8:00am to 2:30pm
Office Number:	5383

Schedule

Week	Module/Topic	Chapter	Event and submission
Week-1	An overview of C++ basic concepts	An overview of C++ basic concepts	
Week-2	Essential concepts of object oriented programming	Essential concepts of object oriented programming	Assignment on applications of Object Oriented programming
Week-3	Objects classes (data members, function members, constructors, destructors,)	Objects classes (data members, function members, constructors, destructors,)	Assignment on Classes and Objects
Week-4	Access and modifiers functions, friend classes and functions	Access and modifiers functions, friend classes and functions	Assignment on Friend classes and some functions
Week-5	Abstraction, inheritance	Abstraction, inheritance	Assignment on abstraction and inheritance
Week-6	Base and derived classes, protected members, function overriding	Base and derived classes, protected members, function overriding	Mid Term -1 Exam
Week-7	public and protected and private inheritance, had	public and protected and private inheritance, had	Assignment on protected member function

	A and is A relationships	A and is A relationships	
Week-8	Encapsulation, reusability	Encapsulation, reusability	
Week-9	Virtual functions and polymorphism	Virtual functions and polymorphism	Online Quizzes
Week-10	Operators overloading	Operators overloading	Mid Term 2 Exam
Week-11	Class templates	Class templates	Assignment on polymorphism and operator overloading
Week-12	Exceptions processing	Exceptions processing	
Review Exam Week			Final Exam
Exam Week			

Assessment Task

WRITTEN ASSESMENT

Assessment Title	Midterm Exam-1
Task Description	This assignment is aligned to learning outcomes 1, 2, 3 and 4. In that regard, the assignment contains questions that assess: 1) Students' thorough understanding of Objects and Classes ; 2) Students' understanding about Access and modifiers functions, friend classes and functions. 3) Students' learn Abstraction, inheritance. 4) Students should have knowledge of Base and derived classes.
Assessment Due Date	Week 6
Return Date to Students	Week 8
Weighting	15%
Assessment Criteria	The assessment criteria for this task will be the grade given to the student
Referencing Style	American Psychological Association (APA) or Harvard (author-date)
Submission	Exam grades will be given to the students
Learning Outcomes Assessed	1. Students should gain the knowledge of the basic concepts of object oriented

	<p>programming, and their realization in C++.</p> <ol style="list-style-type: none"> 2. Students should be able to compare and contrast the Object Oriented approach to software implementation with its procedural alternative. 3. Students have to justify the use of the Object Oriented approach to software development according to the key benefits of maintainability and software reuse. 4. Students will have sufficient knowledge and understanding of the class to create required classes themselves.
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Assessment Title	Midterm Exam-2
Task Description	This assignment is aligned to learning outcomes 1, 2, 3, 4 and 5. In that regard, the assignment contains questions that assess: 1) Students' thorough understanding public and protected and private inheritance; 2) Students' understanding about Encapsulation, reusability, Virtual functions and polymorphism. 3) Students' learning Operators overloading, Class templates, Exceptions Processing.
Assessment Due Date	Week 10
Return Date to Students	Week 11
Weighting	15%
Assessment Criteria	The assessment criteria for this task will be the grade given to the student
Referencing Style	American Psychological Association (APA) or Harvard (author-date)
Submission	Exam grades will be given to the students
Learning Outcomes Assessed	<ol style="list-style-type: none"> 1. Students should gain the knowledge of the basic concepts of object oriented programming, and their realization in C++. 2. Students should be able to compare and contrast the Object Oriented approach to software implementation with its procedural alternative. 3. Students have to justify the use of the Object Oriented approach to software development according to the key benefits of maintainability and software reuse. 4. Students will have sufficient knowledge

	<p>and understanding of the class to create required classes themselves.</p> <p>5. Students are expected to reach a level of competence enabling them to easily learn other similar programming languages</p>
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Assessment Title	Online Quizzes
Task Description	This assignment is aligned to learning outcomes 1, 2, 3, 4 and 5. An online quiz will be conducted for the students on all the topics covered students have to use the computer system to check the correct answer.
Assessment Due Date	Week 09
Return Date to Students	Week 09
Weighting	10%
Assessment Criteria	The assessment criteria for this task will be the grade given to the student
Referencing Style	American Psychological Association (APA) or Harvard (author-date)
Submission	Exam grades will be given to the students
Learning Outcomes Assessed	<ol style="list-style-type: none"> 1. Students should gain the knowledge of microprocessor. 2. Students have to learn the architecture of microprocessor. 3. Students have to learn assembly language programming using mnemonics. 4. Students should be able to distinguish between various types of microprocessors like 8085,8086,8088 and others. 5. Students should learn about the interrupts and its applications. 6. Students should gain knowledge of programming techniques such as looping, counting and indexing addressing nodes by using assembly language.

Assessment Title	Assignments/Report/Seminar
Task Description	This assignment is aligned to learning outcomes 1, 2, 3, 4 and 5. All students have to submit there assignments and homework in time.
Assessment Due Date	Week 02,03,04,05,07,11
Return Date to Students	Week 03,04,05,06,08,12
Weighting	20%
Assessment Criteria	The assessment criteria for this task will be the grade given to the student
Referencing Style	American Psychological Association (APA) or Harvard (author-date)
Submission	Exam grades will be given to the students
Learning Assessed	Outcomes
	<ol style="list-style-type: none"> 1. Students should gain the knowledge of the basic concepts of object oriented programming, and their realization in C++. 2. Students should be able to compare and contrast the Object Oriented approach to software implementation with its procedural alternative. 3. Students have to justify the use of the Object Oriented approach to software development according to the key benefits of maintainability and software reuse. 4. Students will have sufficient knowledge and understanding of the class to create required classes themselves. 5. Students are expected to reach a level of competence enabling them to easily learn other similar programming languages

EXAMINATION

Outline	Complete an examination
Date	During University examination period
Weighting	40%
Length	3 Hrs
Details	Exam Paper will be given to the students Calculator Permitted Closed Books

Learning Outcomes Assessed

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4. Students will have sufficient knowledge and understanding of the class to create required classes themselves.
5. Students are expected to reach a level of competence enabling them to easily learn other similar programming languages