

SULTAN QABOOS UNIVERSITY
COLLEGE OF SCIENCE DEPARTMENT OF COMPUTER SCIENCE
COMP5595: MODEL DRIVEN APPROACH FOR SOFTWARE ENGINEERING
SEMESTER: SPRING 2015

LECTURES: MON&WED @ 12:00 - 13:20 - CMT/D09
OFFICE HOURS: MON@ 8:00- 10:00, WED @ 8:00- 10:00

Instructor: Dr. Naoufel KRAIEM
Extension: 2220
Credit Hours: 3 (3)

Room: 0013
Email: naoufel@squ.edu.om

Textbook:

- 1- MDA Distilled
Stephen J. Mellor, Kendall Scott, Axel Uhl, Dirk Weise
Publisher: Addison-Wesley Professional, 2004.
ISBN-10: 0201788918

References:

1. "Model Driven Architecture with Executable UML"
Chris Raistrick, Paul Francis, John Wright, Colin Carter, Ian Wilkie
Publisher: Cambridge University Press, 2004.
ISBN: 0521537711
2. "Executable UML: A Foundation for Model Driven Architecture"
Stephen J. Mellor, Marc J. Balcer, Stephen Mellor, Marc Balcer
Publisher: Addison-Wesley Professional, 2002.
ISBN-10: 0201748045

Prerequisite by course:

1. COMP 3401: Introduction to Software Engineering

Prerequisites by topic

1. UML diagrams (use case, class)

Course Description:

The course presents the enabling technologies of the model driven approach to software engineering. Topics covered include UML metamodel, UML profiles, Meta-Object Facility (MOF), Introduction to the Object Constraint Language (OCL), Model Driven Development (MDD), Model Driven Architecture (MDA), Platform-Independent Models (PIM), Platform-Specific Models (PSM), Model Transformations, Action Specification, Automatic System Generation, Using MDA in a typical project, Case Studies.

Course Outcomes

On successful completion of the course student will be able to understand:

1. To explain the socio-technical and legacy systems (c3).
2. To Practice UML 2 (k2, b2)
3. To explain the MDA framework, including the platform-independent model (PIM) and the platform-specific model (PSM) (b2)
4. To explain The Meta Object Facility (MOF)--the OMG's adopted standard for metamodeling (c3)
5. To explain the horizontal, vertical, and merging mappings between models (h1, h2)
6. To Build marks and marking models (c2)
7. To Elaborate models, including viewing generated models, (k2)and managing manual changes (c3)
8. To Build executable models with Executable UML (k2)
9. To explain Agile MDA development (e1, d1)
10. Describe the professional and ethical issues involved with software engineering. (e2)

Credit Hours: 3

Week	Topic
1	Introduction Software Modeling
2 and 3	Introduction to MDA
4 and 5	Overview and advanced aspects of UML
6 and 7	Specifying constraints: Introduction to Object Constraint Language (OCL)
7 and 8	Meta Modeling : Overview of UML Metamodel and Meta Object Facility
9	Review and Executable UML (Model Driven Architecture)
10 and 11	Platform-Independent Modeling with domains
12 and 13	Model Transformations Action Specification Automatic System Generation
14	Student Projects

Assessment plan:

The students will be evaluated according to the following marking scheme:

Item	Weights
Project made up of 3 parts:	30% (Weeks: 9, 12 and 14)
Midterm Exam 1	15% (Week 8; Wednesday)
Midterm Exam2	15% (Week13; Wednesday)
Final Exam :	40%
Total:	100%

Policy on late submission and cheating:

1. Late submission of assignments faces a penalty of 10% per day
2. Students involved in copying will be **severely penalized**.

A **zero mark** will be assigned the first time a student is caught involved in copying and his/her name will be added to a watch list maintained by the Head of Department. Further repeated involvement in copying will cause the student to get an **F grade** in that course. This is in line with the university academic regulations (see pages 36-37 of the 2005 edition of the university academic regulations booklet)

LO-PI Mapping Table

LO	Related to PI	Addressed in chapter/section	Assessed in component
1	(c3)	Ch1 and Ch2	Mini-project
2	(k2, b2)	Ch1, Ch2 and Ch9	Midterms, Mini-project and or Final
3	(b1)	Ch2 , Ch12 and Ch3	Midterm2, Mini-project and or Final
4	(c3)	Ch7 and Ch8	Midterm2, Mini-project and or Final
5	(h1,h2)	Ch12 and Ch13	Final exam and Mini-project
6	(c2)	Ch12 and Ch13	Mini-project and or Final
7	(c3)	Ch12 and Ch13	Final exam and/or Mini-project
8	(k2)	Ch9	Mini-project
9	(e1, d1)	Ch14	Presentation
10	(e2)	Ch1	Mini-project and/or Final exam

List of PIs enabled in this course

- b1: An ability to analyze a problem.
- c2: An ability to implement a designed computer-based system, process, component, or program to meet identified requirements.
- c3: An ability to evaluate an implemented computer-based system, process, component, or program to meet identified requirements.
- d1: An ability to collaborate with other teammates.
- e1: An understanding of professional issues and responsibilities.
- e2: An understanding of ethical issues and responsibilities.
- h1: Recognition of the need for continuing professional development.
- h2: Ability to engage in continuing professional development.
- k2: An ability to use software development and programming tools in the construction of software systems.