

Template of Course Specification

Faculty: CIT
Department: CS
Program: B.SE

I. General information about the course:					
1. Course Title:	Selected topics in Software Engineering				
2. Course Code and Number :	SEL07				
3. Credit Hours: 3	Lecture	Seminar/Tutorial	Practical	Training	Total
	3	-	-	-	3
4. Study Level and Semester:	Level 4/ Semester 7 or 8				
5. Pre-requisites (if any):	Software Engineering (CS325) and Passing 95 CH				
6. Co-requisites (if any) :	---				
7. Program in which the course is offered	B.SC(Software Engineering)				
8. Teaching Language:	English				
9. Study System :	Semester Based				
10. Prepared by :	Course Facilitator (wadee alqubati)				
11. Approval date :					
12. Approved by:	Department				

II. Course Description:
<p>This Course is designed to cover the different special topics of interest . Topics of interest could be one or several from the followings: Software Reuse, Embedded software, component-based engineering, Distributed software engineering, Aspect-oriented engineering and Service-oriented architecture. and Other topics can be added as needed. The course will include case studies and hands on experiences. students participate during group discussions projects related to the special topics selected.</p>
III. Course Aims
<p>This Course aims to:</p> <ol style="list-style-type: none"> 1. Add new information to the students in the field of software engineering 2. explain central concepts and principles within selected software engineering topics. 3. discuss current research within the selected software engineering topics. 4. demonstrate how software engineering concepts and principles can be put into use in a concrete software project working in teams, as well as how software tools and techniques that are currently used within the field of study. 5. identify relevant research literature for the selected software engineering topics

VI. Course Intended Learning Outcomes (CILOs) :	
Knowledge and Understanding:	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Knowledge and Understanding PILOs	Knowledge and Understanding CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
A4. Understand the software process life cycles, for small, medium and large software projects, and different approaches of software development, software project management, risk and quality management, and human-computer interaction.	a1. Understand the advanced technologies in software engineering
A5. Recognize the social, professional, legal, ethical, and cultural issues involved in the use of computer technology.	a2. Understand the benefits and problems of reusing software when developing new systems.
	a3. provide an in-depth exposition of key representative Component Based Development approaches

Intellectual Skills :	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Intellectual Skills PILOs	Intellectual Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
B1. Determine and analyze criteria, specifications and requirements appropriate to specific computing problems and formulate strategies to solve them.	b1. Systematize the knowledge about structure and development of embedded systems to formulate and analyze specific problems in computing and solve them.
B2. Differentiate the various methods of computational thinking, determining their wide relevance and applicability within other domains in everyday life, and being able to employ them in different conditions.	b2. Evaluate and choose between a numbers of re-usable components for integration into a software system.
B3. Choose the most appropriate methods and tools including deploying appropriate theory, practices, and tools for the specification, design, implementation, and maintenance as well as the evaluation of computer-based systems.	b3. Propose and use the appropriate methods, models, techniques and tools for development, and maintain of each type of embedded systems.
B4. Criticize systems in terms of general quality attributes and possible tradeoffs presented within the given problem.	b4. Design and implement software architecture in a component oriented framework and to estimate the cost for the development model
	b5. Systematize project plan and risk management procedures in embedded software projects.

Professional and Practical Skills	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Professional and Practical Skills PILOs	Professional and Practical Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
C1. Apply fundamental concepts of computer science, software engineering, human-computer interaction, science and mathematics in the modeling and design of computer systems.	c1. Apply the advanced technologies terminologies in information technology in the working environment
C2. Develop a wide range of software through all stages of their life cycle, namely problem analysis, requirements specification, design, construction; verification and evolution using appropriate methods and tools.	c2. Use advanced Approach to Design software Architecture.
C3. Operate computing equipment and software systems effectively and efficiently.	c3. apply the diagram types in the Unified Modeling Language (UML) .
C4. Evaluate software process and artifacts in terms of software quality and models.	c4. Use CASE tools and graphical models to represent

Transferable (General) Skills :	
Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)	
Transferable (General) Skills PILOs	Transferable (General) Skills CILOs
After completing this program, students would be able to:	After completing this course, students would be able to:
D1. Communication skills: Make succinct presentations to a range of audiences about technical problems and their solutions. This may involve face-to-face, written communication or electronic communication.	d1. communicate effectively well-informed and well-reasoned positions on these issues, verbally (oral analysis) and in writing (project report) by applying critical thinking reasoning skills.
D4. Self-management skills: Manage one's own learning and development, including time management and organizational skills.	d2. work in a team of software engineering project taking into account the ethical issues related to software development tasks
D5. Professional development skills: Keep abreast of current developments in the discipline to continue one's own professional development.	d3. Write project - technical report and present projects/assignments
	d4. use the techniques, skills, and modern engineering tools necessary for engineering practice

VI. Alignment of CILOs to Teaching and Assessment Strategies

First: Alignment of Knowledge and Understanding CILOs

Knowledge and Understanding CILOs	Teaching Strategies	Assessment Strategies
a1. Understand the advanced technologies in software engineering	Lectures	Written Exam Observation
a2. Understand the benefits and problems of reusing software when developing new systems.	Group Discussions	Report/Screen shots Viva/Direct Questions
a3. provide an in-depth exposition of key representative Component Based Development approaches	Brain Storming	Quiz

Second: Alignment of Intellectual Skills CILOs

Intellectual Skills CILOs	Teaching Strategies	Assessment Strategies
b1. Systematize the knowledge about structure and development of embedded systems to formulate and analyze specific problems in computing and solve them.	Lectures Case study Assignment	Written test Quizzes Report
b2. Evaluate and choose between a numbers of re-usable components for integration into a software system.		
b3. Propose and use the appropriate methods, models, techniques and tools for development, and maintain of each type of embedded systems.		
b4. Design and implement software architecture in a component oriented framework and to estimate the cost for the development model		
b5. Systematize project plan and risk management procedures in embedded software projects.		

عميد الكلية

رئيس القسم

مسؤول البرنامج

المراجع

الموصف

د. عبدالقادر العبادي

أ. نبيل المخلافي

أ. وديع القباطي

Third: Alignment of Professional and Practical Skills CILOs		
Professional and Practical Skills CILOs	Teaching Strategies	Assessment Strategies
c1. Apply the advanced technologies terminologies in information technology in the working environment	Lab sessions	Technical Report
c2. Use advanced Approach to Design software Architecture.	Homework	Worksheets
c3. apply the diagram types in the Unified Modeling Language (UML) .	Group Discussions	Report + Presentation
c4. Use CASE tools and graphical models to represent		Observations

Fourth: Alignment of Transferable (General) Skills CILOs		
Transferable (General) Skills CILOs	Teaching Strategies	Assessment Strategies
d1. communicate effectively well-informed and well-reasoned positions on these issues, verbally (oral analysis) and in writing (project report) by applying critical thinking reasoning skills.	Grouping	Presentation
d2. work in a team of software engineering project taking into account the ethical issues related to software development tasks	Tips	Observation
d3. Write project - technical report and present projects/assignments	Notes	Report
d4. use the techniques, skills, and modern engineering tools necessary for engineering practice	Case Study	

VII. Course topics and sub-topics (theoretical and practical) with contact hours and alignment to CILOs

Topics/Units of Course Contents

First: Theoretical Aspects

No.	Course Topics/Units	Sub-topics	No. of Weeks	Contact Hours	CILOs
1	Software reuse	1- The reuse landscape 2- Application frameworks 3- Software product lines 4- COTS product reuse	2	6	a1, a2
2	Component-based software engineering	1- Components and component models 2- CBSE processes 3- Component composition	3	9	a2
3	Distributed software engineering	1- Distributed systems issues 2- Client-server computing 3- Architectural patterns for distributed systems 4- Software as a service	2	6	a2
MID TERM EXAM					
4	Service-oriented architecture	1- Services as reusable components 2- Service engineering 3- Software development with services	3	9	
5	Embedded software	1- Embedded systems design 2- Architectural patterns 3- Timing analysis 4- Real-time operating systems	2	6	
6	Aspect-oriented software engineering	1- The separation of concerns 2- Aspects, join points and pointcuts 3- Software engineering with aspects	2	6	
FINAL EXAM					
Total number of weeks and hours			14	42	

Second: Practical/Tutorial/Clinical Aspects				
Write up practical/tutorial/clinical topics				
No.	Practical/Tutorial/Clinical topics	No. of Weeks	Contact Hours	CILOs
1	N/A			
2	N/A			
3	N/A			
4	N/A			
5	N/A			
6	N/A			
7	N/A			
8	N/A			
9	N/A			
Total number of weeks and hours				

I. Teaching Strategies
Lectures
Group Discussions
Case study
Assignment
Homework
gnimrotS niarB

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 د. عبدالقادر العبادي أ.نبيل المخلافي أ.وديع القباطي

II. Tasks and Assignments :				
No.	Task/Assignment	CILOs	Week due	Mark
1	Assignment 1		10	5 %
2	Assignment 2		12	10 %

III. Learning Assessment:					
No.	Assessment Tasks	Week due	Mark	Proportion of Final Assessment	Aligned CILOs
1	Assignments + Reports	12	25	25%	c1, c2, c3, d1
2	Quiz 1 & Quiz 2	4 & 9	5	5%	a1, a2
3	Mid term exam	7	20	20%	b1, b2, b3
4	Final Exam	15	50	50%	All course ILO's
Total			100	100%	

IV. Learning Resources :	
(Author, (Year), Book Title, Edition, Publisher, Country of publishing)	
Textbooks-not more than 2	
1. Ian Sommerville, 2011, Software Engineering, , Ninth edition, Pearson Education Limited, USA.	
Essential References-not less than 4	
1. Roger S Pressman, 2007, Software Engineering – A Practitioner’s Approach, 7th edition, McGraw Hill, USA.	
2. Michael Duck and Richard Read, 2003, Data Communications and Computer Networks, for Computer Scientists and Engineers, 2nd Edition, Pearson Prentice Hall, USA.	
3. Timothy C. Lethbridge and Robert Laganière, “Object Practical Software Development using UML and Java”, 2nd Edition, McGraw Hill, 2001.	
4. Stiller and LeBlanc, 2001, Project-based Software Engineering: an object-oriented approach, , 1st edition, Addison Wesley, USA.	
5. Craig Larman, Applying UML and Patterns, Prentice	
Electronic Materials and Web Sites	
McConnell, Steve. Software Project Survival Guide. http://www.amazon.com/Software-Project-Survival-Guide-Practices/dp/1572316217	
Ludi, Stephanie. Student Survival Guide to Managing Group Projects (online): http://www.csc.calpoly.edu/~sludi/SEmanual/TableOfContents.html	

V. Course Policies (To be determined by Faculty Deanship):	
Based on university regulations, the following aspects should be figured out:	
1.	(Class Attendance) :
2.	(Tardy) :
3.	(Exam Attendance/Punctuality) :
4.	(Assignments & Projects) :
5.	(Cheating) :
6.	(Plagiarism) :
7.	(Other policies) :

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Template of Course Syllabus

Faculty : **TIC**

Department: CS

Program : B.SE

I. General information about the course instructor :							
Name	(Facilitator)	Office Hours (3 Hours Weekly)					
Location & phone number	USTY	Sat	Sun	Mon	Tue	Wed	Thu
Email							

II. General information about the course:						
1.	Course Title :	Selected topics in Software Engineering				
2.	Course Code and Number :	SEL07				
3.	Credit Hours :	Credit Hours				Total
		Theoretical	Seminar/Tutorial	Practical	Training	
		3	-	-	-	3
4.	Study Level and Semester:	Level 4/ Semester 7 or 8				
5.	Pre-requisites (if any):	Software Engineering (CS325) and Passing 95 CH				
6.	Co-requisites (if any):	---				
7.	Program in which the course is offered:	B.SC(Software Engineering)				
8.	Teaching Language:	English				
9.	Instruction location:	Semester Based				

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I. Course Description

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4. demonstrate how software engineering concepts and principles can be put into use in a concrete software project working in teams, as well as how software tools and techniques that are currently used within the field of study.
5. identify relevant research literature for the selected software engineering topics

III. Course Intended Learning Outcomes (CILOs) :

1. a1. Understand the advanced technologies in software engineering
2. a2. Understand the benefits and problems of reusing software when developing new systems.
3. a3. provide an in-depth exposition of key representative Component Based Development approaches
4. b1. Systematize the knowledge about structure and development of embedded systems to formulate and analyze specific problems in computing and solve them.
5. b2. Evaluate and choose between a numbers of re-usable components for integration into a software system.
6. b3. Propose and use the appropriate methods, models, techniques and tools for development, and maintain of each type of embedded systems.
7. b4. Design and implement software architecture in a component oriented framework and to estimate the cost for the development model
8. b5. Systematize project plan and risk management procedures in embedded software projects.
9. c1. Apply the advanced technologies terminologies in information technology in the working environment
10. c2. Use advanced Approach to Design software Architecture.
11. c3. apply the diagram types in the Unified Modeling Language (UML) .
12. c4. Use CASE tools and graphical models to represent
13. d1. communicate effectively well-informed and well-reasoned positions on these issues, verbally (oral analysis) and in writing (project report) by applying critical thinking reasoning skills.
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IV. Course Contents				
Theoretical Aspect:				
No.	Course Units	Sub-topics	Week due	Contact Hours
1.	Unit-1	1. Software reuse 2. Component-based software engineering 3. Distributed software engineering	Week 7	21
2.	Unit-2	4. Service-oriented architecture 5. Embedded software 6. Aspect-oriented software engineering	Week 14	21
Total number of weeks and hours			14	42

Second: Practical/Tutorial/Clinical Aspects :			
Write up practical/tutorial/clinical topics			
No.	Practical/Tutorial/Clinical topics	No. of Weeks	Contact Hours
1.	N/A		
2.	N/A		
3.	N/A		
4.	N/A		
5.	N/A		
6.	N/A		
7.	N/A		
8.	N/A		
9.	N/A		
Total number of weeks and hours			

V. Teaching Strategies
<ol style="list-style-type: none"> 1. Lectures 2. Group Discussions 3. Case study 4. Assignment 5. Homework 6. Brain Storming

VI. Tasks and Assignments			
No.	Task/Assignment	Week due	Mark
1.	Assignment 1 + report	WEEK 12	10
2.	Assignment 2 + report	WEEK 14	15

VII. Learning Assessment:				
No.	Assessment Tasks	Assessment day & date	Mark	Weight
1	Quiz 1	WEEK 3	5	5%
2	Quiz 2	WEEK 5		
3	Mid term exam	WEEK 7	20	20%
4	Assignment – 1	WEEK 12	10	10%
6	Assignment – 2	WEEK 14	15	15%
7	Reports	WEEK 14		
8	Final Exam	WEEK 15	50	50%
Total				

VIII. Learning Resources
OOB TXET Ian Sommerville, 2011, Software Engineering, , Ninth edition, Pearson Education Limited, USA.
SECNEREFER Roger S Pressman, 2007, Software Engineering – A Practitioner’s Approach, 7th edition, McGraw Hill, USA. Michael Duck and Richard Read, 2003, Data Communications and Computer Networks, for Computer Scientists and Engineers, 2nd Edition, Pearson Prentice Hall, USA. Timothy C. Lethbridge and Robert Laganière, “Object Practical Software Development using UML and Java”, 2nd Edition, McGraw Hill, 2001. Stiller and LeBlanc, 2001, Project-based Software Engineering: an object-oriented approach, , 1st edition, Addison Wesley, USA. Craig Larman, Applying UML and Patterns, Prentice
Electronic Materials and Web Sites: McConnell, Steve. Software Project Survival Guide. http://www.amazon.com/Software-Project-Survival-Guide-Practices/dp/1572316217 Ludi, Stephanie. Student Survival Guide to Managing Group Projects (online):

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IX. Course Policies (To be determined by Faculty Deanship)	
1.	Class Attendance :
2.	Tardy :
3.	Exam Attendance/Punctuality:
4.	Assignments & Projects:
5.	Cheating:
6.	Plagiarism:
7.	Other policies: