Kingdom of Saudi Arabia
National Commission for
Academic Accreditation & Assessment

المملكــة العربيــة السعوديــة
الهيئـــة الوطنيـــة للتقويــم
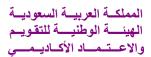والاعـتـمـاد الأكـاديـمــي

ATTACHMENT 2 (e)

Course Specifications

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The National Commission for Academic Accreditation & Assessment

Course Specifications
(CS)

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Course Specifications

Institution:- Najran University	Date of Report 6/4/2015

College/Department: College of Science and Arts Sharoura/ Department of Computer Science

A. Course Identification and General Information

1. Course title and code:
   Title: Introduction to Software Engineering   Code:-610CS-3 (٣-عال٦١٠)

2. Credit hours : 3 hours

3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)

4. Name of faculty member responsible for the course
   Dr. Mohammed Mahdy Bard

5. Level/year at which this course is offered:
   3rd year/ level 6

6. Pre-requisites for this course (if any)
   303CS-4 (Object oriented programming using Java)
   402IS-3 (Principles of Database Systems)

7. Co-requisites for this course (if any)

8. Location if not on main campus
   Male and Female Branches

9. Mode of Instruction (mark all that apply)

   a. Traditional classroom   ✓   What percentage?   100%

   b. Blended (traditional and online)   What percentage?

   c. e-learning   What percentage?

   d. Correspondence   What percentage?

   f. Other   What percentage?

   Comments:

   We still teach this course using traditional methods but there is a plan to transform all course into electronic format using E-learning

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B Objectives

1. What is the main purpose for this course?   Students are expected to be able to: 1- Gain knowledge about the principles and techniques of software engineering.   2- Get general understanding of the different software process models and their appropriate application.   3- Help students to develop skills that will enable them to construct software of high quality   4- Highlight on related issues during the different phases of software development process.   5- Combines work in groups and communication skills with others and continuous learning in the field of self-development.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

Software engineering is an engineered discipline in which the aim is the production of software products, delivered on time and within a set budget, that satisfies the client's needs. This course introduces the major concepts and techniques of software engineering so that students can prepare for their future careers as software engineers. Moreover, through group projects, students can obtain hands-on experiences on entire phases and workflow of the software process.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
Introduction to software engineering What is the software engineering- software development- Software engineering ethics	2	4
Software Processes Types of Software models - Process activities	1	2
Agile Software Development Agile methods Plan -driven and agile development	1	2
Requirements Engineering Functional and non-functional requirements The software requirements – document Requirements specification Requirements engineering processes Requirements elicitation and analysis Requirements validation Requirements management	2	4
System Modeling Context models - Interaction models- Structural models- Behavioral models	2	4
Architectural Design Architectural design decisions- Architectural views	1	2
Design and Implementation	2	4

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Software Testing Development testing- Test-driven development- Release testing- User testing	2	4
Software Evolution Evolution processes - Program evolution dynamics- Software maintenance- Legacy system management	2	

1. Topics to be Covered Lab

List of Topics	No. of Weeks	Contact Hours
Study how to create feasibility study using MS-project(lab)	6	12(lab)
Study how to create the system modeling using UML(lab)	8	16(lab)

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30	-	30			60
Credit	30	-	15			45

3. Additional private study/learning hours expected for students per week.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The *National Qualification Framework* provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes,

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assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.

		NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0		**Knowledge**		
1.1		List the basic knowledge in the field of Software Engineering	Lecture and Discussion	Achievement Test, Home Duties
1.2		Determine the responsibilities of each person in the software systems	Lecture and Discussion	Achievement Test, Home Duties
1.3		Retrieve the foundations of moral and professional to be enjoyed by the software engineer	Lecture and Discussion	Achievement Test, Home Duties
1.4		Record basic information and the necessary software system for used.	Lecture and Discussion	Achievement Test, Home Duties
1.5		Memorize the standard tests and assess the necessary quality to develop and evaluate the system software	Lecture and Discussion	Achievement Test, Home Duties
2.0		**Cognitive Skills**		
2.1		Analyze part of the system	Lecture, Discussion and laboratory	Achievement Test, Home Duties, testing in laboratory
2.2		Design part of the system	Lecture, Discussion and laboratory	Achievement Test, Home Duties, testing in laboratory
2.3		Contrast a plan for the stages of the system software and creativity in the analysis and design	Lecture, Discussion and laboratory	Achievement Test, Home Duties, testing in laboratory
2.4		Apply modeling languages to create The project model.	Lecture, Discussion and laboratory	Achievement Test, Home Duties, testing in laboratory
3.0		**Interpersonal Skills & Responsibility**		
3.1		Contribute to the production of the project in collaboration with others	Discussion and laboratory	Achievement Test, Home Duties, testing in laboratory
3.2		Implement what it costs in the framework of the action plan for the production or improve the system	Discussion and laboratory	Achievement Test, Home Duties, testing in laboratory
4.0		**Communication, Information Technology, Numerical**		
4.1		Prepare the required documentation or part of the system and the special building code according to the standards writing documents	Discussion and laboratory	Home Duties, observation in laboratory
4.2		Innovates necessary to highlight the system compiler offers.	Discussion and laboratory	Home Duties, observation in laboratory
5.0		**Psychomotor**		

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5.1	NaN		
5.2	NaN		

Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

NQF Learning Domains	Suggested Verbs
Knowledge	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
Cognitive Skills	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
Interpersonal Skills & Responsibility	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write
Communication, Information Technology, Numerical	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize
Psychomotor	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct

Suggested *verbs not to use* when writing measurable and assessable learning outcomes are as follows:

Consider	Maximize	Continue	Review	Ensure	Enlarge	Understand
Maintain	Reflect	Examine	Strengthen	Explore	Encourage	Deepen

Some of these verbs can be used if tied to specific actions or quantification.
Suggested assessment methods and teaching strategies are:

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

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5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Mid-term exam	8	20
2	Quizzes and Assignments	During the semester	10
3	Mid-Tem Lab Exam	10	10
4	Final Lab Exam	15	10
5	Final Exam	At the end of semester	40
6	Attendance	During the semester	10

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

E. Learning Resources

1. List Required Textbooks
I. Somerville, "Software Engineering" Addison Wesley:2010, 9edition.

2. List Essential References Materials (Journals, Reports, etc.)
E. Braude "software engineering modern approaches:, /John Wiley 2010, 2edition.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.
1- MS-project (2003) or up
2- UML 3 or up

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

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2. Computing resources (AV, data show, Smart Board, software, etc.)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G   Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
  ✓ Distribution of a questionnaire for students to know how to achieve the goals in the theoretical
     and practical side.

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor
  ✓ Discussions with colleagues who specialize in teaching methods and means of learning.
 	
  ✓ Self-evaluation of the performance of the teacher.
 	
  ✓ Discussions with other colleagues who taught this course.

3 Processes for Improvement of Teaching
  ✓ Diagnose weaknesses and turn them into strengths.
  ✓ Discussions about the decision and methods of teaching
  ✓ Study the needs of the labor market of college graduates

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Faculty or Teaching Staff: Dr. Mohammed Mahdy Bard

Signature: _____   **Date Report Completed:** _____

Received by: _____   **Dean/Department Head**

Signature: _____   **Date:** _____