



## Template of Course Specification

Faculty: CIT  
Department: IT  
Program: BIT

I. General information about the course:						
1.	Course Title:	Software quality Assurance				
2.	Course Code and Number :	SE323				
3.	Credit Hours: 3	Lecture	Seminar/Tutorial	Practical	Training	Total
		3	--	--	--	3
4.	Study Level and Semester:	Level 3 / Semester 7				
5.	Pre-requisites (if any):	Software Engineering (CS325)				
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				
0.	Prepared by :	Course Facilitator (wadee alqubati)				
1.	Approval date :					
2.	Approved by:	Department				

II. Course Description:
<p>This Course is designed to cover the concepts, Components, metrics, and models in software quality assurance. It presents a framework for software quality assurance and discuss individual components in the framework such as planning, reviews, testing, configuration management, and so on. It also discusses metrics and models for software quality as a product, in process, and in maintenance. The course will include case studies and hands on experiences. Students will develop an understanding of software quality and approaches to assure software quality .</p>
III. Course Aims
<p><b>This Course aims to:</b></p> <ol style="list-style-type: none"> <li>1. Make students Identify &amp; control the main IT resources and infrastructure needed in digital world.</li> <li>2. Describe the business perspectives of Information Technology &amp; Information Systems.</li> <li>3. Explain and compare the major systems defining the digital firms in global market</li> <li>4. Provide skills to develop a suitable IT-IS infrastructure using new trends and technologies.</li> <li>5. Train students to Monitor IT infrastructure &amp; IT strategies and apply IT Solutions in an organization.</li> </ol>

<b>VI. Course Intended Learning Outcomes (CILOs) :</b>	
<b>Knowledge and Understanding:</b>	
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:
<b>A1.</b> Understand the principles and theories of mathematics, programming, algorithms and its complexities.	
<b>A2.</b> Distinguish between selected canonical forms of operating systems and computer hardware, architecture and organization.	
<b>A3.</b> Understand the use and impact of Information and Communication Technology (ICT) by recognizing the concepts of enterprise information management and networking.	
<b>A4.</b> 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.	
<b>A5.</b> Recognize the social, professional, legal, ethical, and cultural issues involved in the use of computer technology.	

<b>Intellectual Skills :</b>	
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:
<b>B1.</b> Determine and analyze criteria, specifications and requirements appropriate to specific computing problems and formulate strategies to solve them.	
<b>B2.</b> 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.	
<b>B3.</b> 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.	

<b>B4.</b> Criticize systems in terms of general quality attributes and possible tradeoffs presented within the given problem.	
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<b>Professional and Practical Skills</b>	
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:
<b>C1.</b> Apply fundamental concepts of computer science, software engineering, human-computer interaction, science and mathematics in the modeling and design of computer systems.	
<b>C2.</b> 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.	
<b>C3.</b> Operate computing equipment and software systems effectively and efficiently.	
<b>C4.</b> Evaluate software process and artifacts in terms of software quality and models.	

<b>Transferable (General) Skills :</b>	
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:
<b>D1.</b> 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.	
<b>D2.</b> Teamwork: Be able to work effectively as a member of a development team.	
<b>D3.</b> Numeracy skills: Understand and explain the quantitative dimensions of a problem.	
<b>D4.</b> Self-management skills: Manage one's own learning and development, including time management and organizational skills.	
<b>D5.</b> Professional development skills: Keep abreast of current developments in the discipline to continue one's own professional development.	

## 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. Know IT infrastructure essential components	Lectures	Written Exam
a2. Understand IT Strategies & IT Solutions development process	Group Discussions	Observation
	Lab sessions	Report/Screen shots
	Brain Storming	Viva/Direct Questions
		Quiz

### Second: Alignment of Intellectual Skills CILOs

Intellectual Skills CILOs	Teaching Strategies	Assessment Strategies
b1. Identify technical, business, management components, security & ethical challenges of the global system, different IT Strategies	Lectures	Written test Quizzes
b2. Analyze the drawbacks, requirements, decision making scenarios and suggest the best optimal solution	Lab sessions	Lab technical report
b3. Explore New Emerging Trends & Technologies, available IT Solutions suitable to enhance organization's performance	Case study	Report
	Assignment	

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Third: Alignment of Professional and Practical Skills CILOs		
Professional and Practical Skills CILOs	Teaching Strategies	Assessment Strategies
c1. Apply the best optimal IT Solutions, IT Strategies to improve the organizational performance	Lab sessions	Technical Report Worksheets
c2. Apply the best of new emerging trends and technologies to benefit organization	Homework	Report + Presentation
c3. Develop a strong application-network controls and secure IT Infrastructure for an organization, the perfect plan in managing projects	Group Discussions	Observations

Fourth: Alignment of Transferable (General) Skills CILOs		
Transferable (General) Skills CILOs	Teaching Strategies	Assessment Strategies
d1. Write project - technical report and present projects/assignments	Grouping Tips Notes Case Study	Presentation  Observation Report

## 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	Introduction: The software quality challenge	1- The uniqueness of software quality assurance 2- The environments for which SQA methods are developed	1	3	a1, a2
2	What is software quality?	1- What is software? 2- Software errors, faults and failures 3- Classification of the causes of software errors 4- Software quality – definition 5- SQA – definition and objectives 6- SQA and software engineering	1	3	a2
3	Software quality factors	1- The need for comprehensive SQ requirements 2- Classifications of software requirements into SQ factors 3- Product operation SQ factors 4- Product revision SQ factors 5- Product transition SQ factors 6- Alternative models of SQ factors 7- Who is interested in the definition of quality requirements? 8- Software compliance with quality factors	1	3	a2
4	components of the SQA system	1- The SQA system – an SQA architecture 2- Pre-project components 3- Software project life cycle components 4- Infrastructure components for error prevention and improvement 5- Management SQA components 6- SQA standards, system certification, and assessment components 7- Organizing for SQA – the human components 8- Considerations guiding construction of an organization's SQA system	1	3	b1, b2
5	Development and quality plans	1- Development plan and quality plan objectives 2- Elements of the development plan 3- Elements of the quality plan 4- Development and quality plans for small projects and for internal projects	1	3	
6	Integrating quality	7- Classic and other software development methodologies	2	6	

	activities in the project life cycle	2- Factors affecting intensity of quality assurance activities in the development process 3- Verification, validation and qualification 4- A model for SQA defect removal effectiveness and cost			
<b>MID TERM EXAM</b>					
7	Software testing – strategies	1- Definition and objectives 2- Software testing strategies 3- Software test classifications 4- White box testing 5- Black box testing	1	3	
8	CASE tools and their effect on software quality	1- What is a CASE tool? 2- The contribution of CASE tools to software product quality 3- The contribution of CASE tools to software maintenance quality 4- The contribution of CASE tools to improved project management	1	3	
9	Project progress control	1- The components of project progress control 2- Progress control of internal projects and external participants. 3- Implementation of project progress control regimes 4- Computerized tools for software progress control	2	6	
10	Software quality metrics	1- Objectives of quality measurement 2- Classification of software quality metrics 3- Process metrics 4- Product metrics 5- Implementation of software quality metrics 6- Limitations of software metrics	1	3	b3, c1, c2
11	Quality management standards	1- The scope of quality management standards 2- ISO 9001 and ISO 9000-3 477 3- Certification according to ISO 9000-3 4- Capability Maturity Models – CMM and CMMI assessment methodology 5- The Bootstrap methodology 6- The SPICE project and the ISO/IEC 15504	2	6	
<b>FINAL EXAM</b>					
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
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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)

الموصف      المراجع      مسؤول البرنامج      رئيس القسم      عميد الكلية  
أ.وديع القباطي      أ.نبيل المخلافي      د. عبدالقادر العبادي

<b>Textbooks-not more than 2</b>
1. (Daniel Galin & Addison Wesley,( 2003), Software Quality Assurance: From Theory to Implementation,4th Edition.
<b>Essential References-not less than 4</b>
1. Efraim Turban , (2011), Information Technology for Managements, 8th Edition, Wiley publications, USA.
2. Ellrn F.Monk , (), Concepts in Enterprise Resource Planning, 2 <sup>nd</sup> Edition.
3. Raymond Mcleod & George P.Schell, (),M.I.S by, 10 <sup>th</sup> Edition, Pearson Prentice Hall, USA.
4. Carroll W. Frenzel & John C. Frenzel, (),Management of IT, 4 <sup>th</sup> Edition, Thomson Course Technology.
<b>Electronic Materials and Web Sites</b>
<a href="http://www.myMISlab.com">www.myMISlab.com</a>

<b>V. Course Policies (To be determined by Faculty Deanship):</b>	
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) :

## Template of Course Syllabus

Faculty : **TIC**

Department: **IT**

Program : **BIT**

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 :	Advanced IT				
2.	Course Code and Number :	IT313				
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):	IT221 - Information Technology Management				
6.	Co-requisites (if any):	IT121 - Fundamentals of I.T IS223 - System Analysis and Design				
7.	Program in which the course is offered:	BIT				
8.	Teaching Language:	English				
9.	Instruction location:	N/A				

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## I. Course Description

This Course is designed to cover the main IT infrastructure, IT resources within organizations and describe managerial aspects of IT infrastructure & resources in organizations. Also covers the global systems, new emerging trends & technologies in IT & IS, IT Controls & security issues.

## II. Course Aims:

This course aims to:

1. Make students Identify & control the main IT resources and infrastructure needed in digital world.
2. Describe the business perspectives of Information Technology & Information Systems.
3. Explain and compare the major systems defining the digital firms in global market
4. Provide skills to develop a suitable IT-IS infrastructure using new trends and technologies.
5. Train students to Monitor IT infrastructure & IT strategies and apply IT Solutions in an organization

## III. Course Intended Learning Outcomes (CILOs) :

1. a1. Know IT infrastructure essential components, types of Information Systems, services, support & needs
2. a2. Understand IT Strategies & IT Solutions development process, essential communication networks, Mobile Computing Technology & Mobile Enterprise Applications, wireless revolution in today's business world
3. b1. Identify technical, business, management components, security & ethical challenges of the global system, different IT Strategies
4. b2. Analyze the drawbacks, requirements, decision making scenarios and suggest the best optimal solution
5. b3. Explore New Emerging Trends & Technologies, available IT Solutions suitable to enhance organization's performance
6. c1. Apply the best optimal IT Solutions, IT Strategies to improve the organizational performance
7. c2. Apply the best of new emerging trends and technologies to benefit organization
8. c3. Develop a strong application-network controls and secure IT Infrastructure for an organization, the perfect plan in managing projects
9. d1. Write project - technical report and present projects/assignments

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IV. Course Contents				
Theoretical Aspect:				
No.	Course Units	Sub-topics	Week due	Contact Hours
1.	Unit-1	1. Introduction – Overview of IT Management concepts 2. Telecommunications, the Internet, and Wireless Technology Advanced 3. Mobile Computing & M-Commerce Advanced	Week 3	9
2.	Unit-2	4. Development Process – Developing Business/IT Strategies 5. Development Process – Developing Business/IT Solutions 6. Enhancing/Supporting Decision Making	Week 6	9
3.	Unit-3	7. IT Controls, Asset Protection, and Security 8. Security & Ethical Challenges 9. Managing Global Systems	Week 9	9
4.	Unit-4	10. Managing Projects	Week 11	6
5.	Unit-5	11. New Emerging Trends & Technologies	Week 13	6
		12. Revision	Week 14	3
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"> <li>1. Lectures</li> <li>2. Group Discussions</li> <li>3. Case study</li> <li>4. Assignment</li> <li>5. Homework</li> <li>6. Brain Storming</li> </ol>

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

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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
SKOOB TXET James A. O'Brien & George M. Marakas, (2011), Enterprise Information Systems, 13th Edition, Mc. Graw Hill, USA.
K.C.Laudon & J.P.Laudon, (2012), Managing the Digital Firm, 12th Edition, Pearson Prentice Hall, USA.
SECNEREFER Efraim Turban , (2011), Information Technology for Managements, 8th Edition, Wiley publications, USA.
Ellrn F.Monk , ( ), Concepts in Enterprise Resource Planning, 2nd Edition.
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Electronic Materials and Web Sites: <a href="http://www.myMISlab.com">www.myMISlab.com</a>

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