


AMOU UNIVERSITY
“A Vehicle for Peace and Development”
AMOU UNIVERSITY



FACULTY OF COMPUTING AND ICT

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY PROGRAMME

ACADEMIC YEAR 2015/ 2016

COURSE DESCRIPTION

BIT 412	Software Engineering
Contact Hours	39
Pre-requisite	N/A
Purpose/Aim	This course gives an overview of the methodologies and issues involved in large software systems development.
Course Objective (Indicative Learning Outcomes)	<ul style="list-style-type: none"> • By the end of this unit, learner should be able to: Describe the characteristics and challenges of large software projects; Describe Computer-based systems engineering Software processes; Describe various Systems modeling techniques; Describe the Requirements engineering processes; The learner can implement software engineering methodologies and tools.
Course Content	<ul style="list-style-type: none"> • Introduction • Computer-based systems engineering • Software processes • Project management • Software requirements • Requirements engineering processes • Systems models • Software prototyping • Formal specification • Architectural design • Distributed systems architectures • Object-oriented design • Real-time software design • Design with re-use • User interface design • Critical systems • Verification and validation • Managing teams • Software cost estimation • Quality management • Evolution of software • Introduction to CASE tools



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	<p>Lab 1 Implement a prototype for a given specification Given a software design and an intermediate implementation in an iterative development, complete the next iterative implementation.</p> <p>Lab 2 Criticize a given set of documentation for a software product</p> <p>Lab 3 Given the code and specification for a software implementation along with the modified set of specification, modify the code to conform the new specification</p> <p>Lab 4 Describe documentation that would have been useful in performing the modification Given an informal problem statement, or user group with an implementation request, perform a required analysis for the implementation, project and produce a requirement analysis problem</p> <p>Lab 5 Given a set of informal specification produce a set of formal specification for the same problem</p> <p>Lab 6 Do an object-based design and implementation Implement the design for the above lab assignment</p> <p>Lab 7 Given a problem specification and a set of working modules with specification, draw a bottom up design for the problem. Apply as much reuse as possible. Do a top-down design for a given software design</p> <p>Lab 8 Given a design and a partial top-down implementation perform the next step in the implementation</p> <p>Lab 9 Given a software specification, a piece of software and suite of test data, use verification and validation techniques to test the software and record finding</p>	
Learning & Teaching Methodologies	Lectures, tutorials, case studies, computer laboratory exercises	
Instructional Materials/Equipment	Classroom with audio visual aids Computer laboratory CASE tool	
Course Assessment	Type	Weighting (%)
	Final Examination	60



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	Mid Term Examination	20	
	Assignment	10	
	Attendance	10	
	Total	100	
Recommended Reading	Title	Author	Publisher
	Software Engineering (7th Edition)	Ian Sommerville	Addison Wesley (2004)
Additional Reading	Software Engineering	K.K. Aggarwal & Yogesh Singh	New Age International Publishers
	Software Engineering, An Engineering Approach	James F. Peters, Witold Pedrycz, John Wiley	New Age International Publishers
	Software Engineering principles and practice	Waman S Jawadekar,	by The McGraw-Hill Companies
	Software Engineering: A Practitioner's Approach	Roger S Pressman	McGraw-Hill (2004)
Other Support Material	A variety of multimedia systems and electronic information resources as prescribed by the lecturer. Various application manuals and articles, URL search and journals.		