



UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Department of Computer Science and Electronics

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Bachelor in Computer Science

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MODULE HANDBOOK

Module name	Introduction to Software Quality Assurance
Module level	Undergraduate
Code	MII-3504
Courses (if applicable)	Introduction to Software Quality Assurance
Semester	Odd
Contact person	Dr. techn. Khabib Mustofa, M.Kom.
Lecturer	Dr. techn. Khabib Mustofa, M.Kom.
Language	Bahasa Indonesia
Relation to curriculum	1. Undergraduate degree program, compulsory, 5th semester. 2. International undergraduate program, compulsory, 5th semester.
Type of teaching, contact hours	1. Undergraduate degree program: lectures, < 60 students, 2. International undergraduate program: lectures, < 30 students.
Workload	1. Lectures: 3 x 50 = 150 minutes (2 hours 30 menit) per week. 2. Exercises and Assignments: 3 x 60 = 180 minutes (3 hours) per week. 3. Private study: 3 x 60 = 180 minutes (3 hours) per week.
Credit points	3 credit points (sks).
Requirements according to the Examination regulations	A student must have attended at least 75% of the lectures to sit in the exams.
Recommended prerequisites	Software Engineering Method - MII 2503
Learning outcomes (course outcomes) and their corresponding PLOs	After completing this module, a student is expected to: CO1 be able to understand and explain the software development processes and its project management. CO2 be able to understand and explain the concept of software qualities: QA, QC, software quality factors, software quality metrics and costs of software quality CO3 be able to understand the concept of verification, validation and software testing CO4 be able to perform a quality assurance on a simple software by doing various approach of passive verification and validation: formal verification, program inspection, walkthrough, review CO5 be able to perform various software testing approach on simple software: unit test, integration test, regression test and usability testing on desktop, internet or mobile based applications

	PLO		CO1	CO2	CO3	CO4	CO5																																																	
	Program Learning Outcome (PLO)	PLO1				√																																																		
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		PLO3			√		√																																																	
		PLO4				√	√																																																	
PLO5					√	√																																																		
Contents	(a) Introduction to Software Project Management (b) The concept of software quality: Quality assurance (QA), vs quality control (QC), software quality factors, Software quality metrics and costs of software quality (c) Pre-project Software Quality Component (d) Validation, verification and software testing: the main principles of software testing, types of testing (e) Formal verification: model checking, theorem proving, equivalence checking, symbolic execution, model-based testing. (f) Program Inspection, Walkthroughs and Reviews (g) Unit Testing, Integration Testing, Regression Testing and System Testing (h) Usability Testing (i) Testing for Web-based and Mobile Applications																																																							
Study and examination requirements and forms of examination	The evaluation is done in 3 forms, namely: <ol style="list-style-type: none"> 1. Trial/Exam, either midterm or semester exam, 2. Five tasks: three individual tasks, two group tasks; including individual or group assignments to be completed within a certain timeframe, and team project 3. Two quizzes, once before midterm exam and once after midterm exam, with a short answer form. Assessment is done using benchmark assessment, with the aim of measuring the level of student understanding related to the target and class rank.																																																							
Media employed	LCD, blackboard, and websites.																																																							
Assessments and Evaluation	<table border="1"> <thead> <tr> <th>Type</th> <th>Percentage</th> <th>CO1</th> <th>CO2</th> <th>CO3</th> <th>CO4</th> <th>CO5</th> </tr> </thead> <tbody> <tr> <td>Quiz</td> <td>10%</td> <td></td> <td>√</td> <td>√</td> <td></td> <td></td> </tr> <tr> <td>Individual Task</td> <td>15%</td> <td>√</td> <td></td> <td>√</td> <td></td> <td>√</td> </tr> <tr> <td>Group Task</td> <td>25%</td> <td></td> <td></td> <td></td> <td>√</td> <td>√</td> </tr> <tr> <td>Midterm Exam</td> <td>25%</td> <td>√</td> <td>√</td> <td>√</td> <td></td> <td></td> </tr> <tr> <td>Final Exam</td> <td>25%</td> <td></td> <td></td> <td>√</td> <td>√</td> <td>√</td> </tr> <tr> <td>Total</td> <td>100%</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>							Type	Percentage	CO1	CO2	CO3	CO4	CO5	Quiz	10%		√	√			Individual Task	15%	√		√		√	Group Task	25%				√	√	Midterm Exam	25%	√	√	√			Final Exam	25%			√	√	√	Total	100%					
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Reading List	<ol style="list-style-type: none"> 1. Daniel Galin, 2004, Software Quality Assurance from Theory to Implementation, Pearson - Addison Wesley 2. 2. Myers,G.J., Badgett, T., and Sandler, C. , 2012, The Art of Software Testing, John Willey & Sons 																																																							

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