MULTIMEDIA UNIVERSITY®

COORDINATION FORM & TEACHING PLAN

A. Trimester: 1, 2017 / 2018

B. SUBJECT INFORMATION

1.	**Name of Subject/Module**	**SOFTWARE ENGINEERING FUNDAMENTALS**
2.	**Subject Code**	**TSE2101**
3.	**Name of Subject Coordinator(s)**	**DR. CHUA FANG FANG**
4.	**Date of Meeting**	**15th May and 16th June 2017**
5.	**Venue of Meeting**	**FCIBR4018**

C. LIST OF TEACHING STAFF CONTACT DETAILS:

Name	Room Number	Email Address	Tel. No.	Signature	Date
DR.CHUA FANG FANG	FCIBR4018	ffchua@mmu.edu.my	0383125406		
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D. SUBJECT LEARNING OUTCOMES

LO	SUBJECT LEARNING OUTCOMES	Domain	Level
LO1	Identify software engineering paradigm/model to solve the problems based on domain problems correctly.	Cognitive	1
LO2	Apply software project management, software engineering, software quality assurance and software configuration management processes during development of software.	Cognitive	3
LO3	Produce good documentation and specifications in software engineering.	Cognitive	3
LO4	Demonstrate the use of notation and techniques in performing software requirement analysis, design, coding, testing and maintenance phases.	Cognitive	3

E. ASSESSMENT METHODS

Assessment	Percentage
Assignment	40%
Test	10%
Final Exam	50%

F. MAPPING OF ASSESSMENT TO LO

No.	Assessment Components	LO1	LO2	LO3	LO4
1.	**Assignment**	X	X	X	X
2.	**Test**	X		X	X
3.	**Final Exam**	X		X	X
4.					
5.					

G. Details of Assessment Components

Assessment component	Details of topic coverage	Format	Total marks	Weight
Assignment	• All topics covered	• Written and Presentation	40	40%
Test	• Lecture 1-7	• Written	10	10%
Final Exam	• All topics covered	• Written	50	50%

H. READING MATERIALS

Textbook	Roger S Pressman & Bruce R. Maxim, Software Engineering: A Practitioner's Approach, 8th Edition. McGraw Hill, 2015
Reference Book	Ian Sommerville, Software Engineering, 10th Edition, Pearson, 2015

I. LESSON PLAN

WEEK	DATE	TOPICS	Activities (Hours)			REMARKS (Class Replacement/ Public Holiday)
			E-Learning	Lecture & Tutorial	Lab	
1.	3 July-9July	Introduction to Software Engineering Define Software, Software Engineering Software Engineering Domains Software Categories		Lecture (60 minutes) (Lecture 01) Q&A (60 minutes) (Tutorial 01)	-Students are to form into group of 4/5. -Discussion on the project title and clarify queries. -Each group is to provide a group name -Group leader to provide a list of names of members in the group and role(s) of each member -Fill in the cooperative group contract	Cooperative Group Contract
2.	10 July – 16 July	Software Process Agile Development Project management with Scrum Project Management Concepts Project Planning, Scheduling and Control		Lecture (60 minutes) (Lecture 02) Q&A (60 minutes) (Tutorial 02) -Discussion on other software development models or processes. -Students to debate on the pro and con of doing project using Agile/Scrum method.	-Discussion on technical requirements such as programming language, platform and other tools to be used for development (30 minutes) -Role playing as Scrum Master, requirements engineer, architect, developer, tester and so on. -Each group is to plan out the tasks to be carried out for each member in the group and the timeline for requirement gathering, design/development/testing and so on based on Agile/Scrum method (30 minutes) -Each member in the group to orally present what his/her role is in the	Oral presentation Project plan -participation in class activities

					project and the tasks to be carried out (30 minutes) -document the project plan (30 minutes)	
3.	17 July – 23 July	Software Requirements Engineering Use Case Diagram, DFD Eliciting Requirements and the various elicitation techniques.	Online learning (Hands-on using Visual Paradigm e.g. use-case diagram, DFD) (40 minutes)	Lecture (60 minutes) (Lecture 03) Q&A (60 minutes) (Tutorial 03) Discussion on the use cases for project	-Eliciting requirements through interviews (60 minutes) -One group to be the requirement engineers (interviewers) and the other group as stakeholders, then swap over the roles (60 minutes)	-participation in the interview -the revised project plan with a list of functional requirements -participation in the debate
4.	24 July – 30 July	Requirements Modelling Scenario-based, Class-based and Behavioural Models.	Online learning (Hands-on using Visual Paradigm e.g. ERD) (40 minutes)	Lecture (60 minutes) (Lecture 04) Q&A (60 minutes) (Tutorial 04)	-model requirements using use case diagrams, ER diagrams (30 minutes) -Each group member to present the use case/ER diagram for peer review (30 minutes) -Revise the project plan to include use case/ER diagrams (60 minutes)	-participation in peer review -the revised project plan with documented requirements
5.	31 July – 6 Aug	Requirements modelling (Web/Mobile Applications) Quality concepts Software Quality Factors.	Youtube /brainstorming on requirement modelling for web/mobile app. (20 minutes)	Lecture (60 minutes) (Lecture 5) Q&A (20 minutes) (Tutorial 5)	Determine the non-functional or quality requirements for the project (30 minutes) Each group member to orally present the quality requirements for the project (60 minutes)	-Oral presentation -the revised project plan with documented quality requirements.

			Youtube/discussion on non-functional requirement or quality requirement (20 minutes)		Revise the project plan to include quality requirements (30 minutes)	
6.	7 Aug – 13 Aug	Design Concepts Data modeling Interface design	Online learning (Hands-on using Visual Paradigm e.g. class diagram, sequence diagram) (40 minutes)	Lecture -design concepts (20 minutes) (Lecture 06) Lecture -Data modeling (20 minutes) (Lecture 06) Lecture -interface design (20 minutes) (Lecture 06) Q&A (20 minutes) (Tutorial 6)	Determine input/output data for the project (30 minutes) Design interface for the project (30 minutes) Oral presentation /Peer review - (class / sequence diagrams, interface design, and data requirements (30 minutes) Revise project plan- include class /sequence diagrams, interface designs (30 minutes)	-Oral presentation (Peer review) -the revised project plan with documented designs -participation in hands-on VP
7.	14 Aug-20 Aug	Design modeling (Web and Mobile Applications) Development and Software Testing Strategies	Youtube/discussion on software testing strategies and techniques for web app (20 minutes) Youtube/discussion on	Lecture (60 minutes) (Lecture 07) Q&A (20 minutes) (Tutorial 7)	Determine development and testing strategies for project (40 minutes) Oral presentation -strategies to be used in development and testing of the project (40 minutes) Revise the project plan to include	Oral presentation Revised project plan with documented development and testing strategies

			software testing strategies and techniques for mobile app (20 minutes)		testing strategies for the project (40 minutes)	
8.	21 Aug-27 Aug	Design Modelling 2 (Design representations of a software) Component-level designs	Hands-on exercises on various software modeling strategies (30 minutes)	Lecture 8 (60 minutes) Q&A (30 minutes) (Tutorial 8)	Component-level design for the project (60 minutes) Oral Presentation on the component-evel design by each group (20 minutes) Revise the project plan to include component level design for the project (40 minutes)	Oral presentation Revised project plan with documented conceptual-level design Participation in conceptual level modeling (presentation)
9.	28 Aug – 3 Sept	Software Quality Assurance McCall's software quality factors Quality standards – ISO, CMM and CMMI	Online reading and YouTube videos on various software quality assurance strategies. Provide examples on sample requirements for each McCall's factor model. (10 minutes)	Lecture 9 (60 minutes) Q&A (30 minutes) (Tutorial 9)	Students to identify strategies to maintain quality of the project. (20 minutes) Discussion and oral presentations of he requirements for each McCall's sub-factors pertaining to the project. dentify the importance of adhering to ISO requirements for the project leveloped. (60 minutes) Revise the project plan to include software quality assurance strategies.	Oral presentation Revised project plan and present the importance of adopting the ISO model for quality assurance purpose. Students required to present examples of the requirements for any two McCall's subs-factors. PUBLIC HOLIDAY: – 31 AUG 2017

			Each student to come up with atleast two sample requirements for any two MCall's sub-factors. (20 minutes)		(40 minutes)	(THU) – 1 SEP 2017 (FRI)
10.	4 Sept – 10 Sept	Software Testing Techniques -White box – path testing, loop testing -Black box testing - OO testing -Debugging	YouTube videos on various testing strategies followed by discussions (20 minutes) Brainstorning on test case design for white box and black box testing (40 minutes)	Lecture 10 (40 minutes) Q&A (20 minutes) (Tutorial 10)	Start debugging process (30 minutes) Discussion on the problems and resolution (30 minutes) Each group member to present the problems encountered and the resolutions to it. (40 minutes) Revise the project plan to include debugging process for the project.	Oral presentation on the problems encountered and its resolutions Take part in the debugging process of the project. -Prototype with at least one working functionality
11.	11 Sept – 17 Sept	Software Testing Strategies in general: -Unit Testing, Integration Testing, Validation Testing, System Test -Testing Quality Dimension I,II & III. -Web App Testing Strategies	YouTube videos on various type of testing strategies and how to conduct it, followed by Testing Quality Dimension I,II,III (40 minutes)	Lecture (40 minutes) Lecture 11 Q&A (20 minutes) (Tutorial 11)	Start testing process by creating test cases for the designated project. Each individual to prepare test cases based on the assigned testing strategies. (30 minutes) Individual to conduct the testing using online software tool and present to the group (30 minutes) Each group member to present the problems encountered and the	Oral presentation by explaining the individual test case and how to run the test case using free software testing tool Take part in the FTR and every individual to create a test report of the project.

		-Mobile App Testing Strategies	Brainstorning on what strategies to conduct for Web App Testing and Mobile App Testing (20 minutes)		resolutions to it in the mock Formal Technical Review (FTR). Each group to conduct their own FTR meeting. Testing result is to be reported in the test report. Eg:how many bug found,etc (40 minutes) Revise the project plan to include debugging process for the project.	
12.	18 Sept – 24 Sept	Software Project Management -Identify project metrics -Project Planning Task Set 1: Establish objectives, scope, feasibility & risk. -Project Planning Task Set 2:Estimation Cost and Effort -Project Planning Task Set 3: Develop Project Schedule.	YouTube videos on what and how to identify project metrics, and (40 minutes) Brainstorning on Project Planning Task I,II & III (20 minutes)	Lecture (40 minutes) Lecture 12 Q&A (20 minutes) (Tutorial 12)	Perform into assignment's group. Brainstorming on what is their project metric's resources to be captured by the end of the project:input resource, output resource and result. (40 minutes) Then planning a project task set I (identify scope etc) ,project task set II (estimate cost & effort using task network diagram) & project task set III (develop project schedule). (40 minutes)	Oral presentation by individual, explaining the project metric to be captured in the project. Take part in the brainstorming activity by discussing the planning of the task sets. By using the large white paper, draw the task network diagram and project schedule, and present to the class. Prototype with added working functionality PUBLIC HOLIDAY: – 22 SEP 2017

						(FRI)
13.	25 Sept – 1 Oct	Software Maintenance & Control -What are the changes in software? -What are the Software Configuration process? -How to manage changes? -Software Configuration Management (SCM) activity/process. - Versioning control -What are the Software Maintenance Services to offer?	YouTube videos on what are the changes occur in software, followed by understanding the SCM activities, and how to manage version control. (40 minutes) Brainstorning on what SCM activities to be implemented in the assignment project, and how to manage version control (20 minutes)	Lecture (40 minutes) Lecture 13 Q&A (20 minutes) (Tutorial 13)	Perform into an assignment's group. Brainstorming on the software changes as whole, how software configuration management activities take place, and how to manage version control. (40 minutes) Briefly describe what are the software maintenance services to be offered to the client, by the project team and cost for the services. Write on the paper, and present to the class, or student can use their creativity to present their output of the discussion. Eg: Animation presentation, acting, etc as long as message is understood. (40 minutes)	Oral presentation by individual on explaining related issues in software maintenance. Eg: software changes, SCM activities and version control. Group presentation on the software maintenance services to be offered by the team to the client. Creativity is counted for this part. Prototype with enhanced working functionality
14.	2 Oct – 8 Oct	Revision -Wrap up the whole process of software engineering. Q&A on any part of software engineering issues.	YouTube videos on the whole process of software engineering. (40 minutes)	Lecture (40 minutes) Lecture 1- 13 Q&A (20 minutes) (Tutorial 1-13)	Project presentation and assessment.	Project presentation and assessment. Final working prototype with video