UNIVERSITI SAINS MALAYSIA

SCHOOL OF COMPUTER SCIENCES
SEMESTER I, ACADEMIC SESSION 2022/2023

Course Code	CSE341	
Course Title	Software Design and Architecture	
Course Lecturer	Professor Madya Dr. Zurinahni Zainol Dr. Nor Athiyah Abdullah	
E-mail/Tel. No/Room No.	zuri@usm.my / 04-653 3640 / Room 714 athiyah@usm.my / 04-653 4644 / Room 608	
Course Units	3	
Student Learning Time	120	
Breakdown of Assessments	Examinations	50% [2 hours]
	Coursework	50%
Coursework Evaluation Basis	Tests	20% [2 x 1 hour]
	Assignments	30% [Assign. 1 15% + Assign. 2 15%]
Type of Course	Core	
Class hour	Monday, 1.30 – 2.50 pm @ CS Auditorium, Level 2, PPSKOMP	
	Wednesday, 12.00 – 1.20 pm @ CS Auditorium, Level 2, PPSKOMP	

Learning Outcomes

CPT341/3 – Software Design and Architecture		PO	Final Exam	Test	Assignment/Project etc.
BIL.	HASIL PEMBELAJARAN KURSUS		Percentage	Percentage	Percentage
1.	Explain the concepts of software architecture, software design, software structures, viewpoints and styles	PO1	15%	5%	10%
2.	Follow suitable design styles, patterns and notations based on design strategies and methods	PO2			10%
3.	Evaluate design quality and techniques that appropriate to the system requirements	PO3	35%	15%	10%
	Total Marks		50%	20%	30%
	Overall Percentage		50%	50%	

Course Synopsis	This course introduces concepts and strategies for software design and architecture. The discussion of the course focuses on software architecture, its structure, viewpoints and styles. This includes the study on design patterns, and families of programs and frameworks. Besides, it highlights software design issues that include software design fundamentals and other issues such as concurrency and distribution of components. The course also introduces evaluation techniques for design process to ensure high quality of design and architecture in the developed software.
Main References	1. Bass, L., Clements, P., & Kazman, R., Software Architecture in Practice, Fourth Editic 2. Clements, P., Bachman, F., Bass, L., Garlan, D., Ivers, J., Little, R., Merson, P., Nord 3. Sommerville, I., Software Engineering, 10th Edition, Pearson, 2015.

No	Topics	References	Week	Instructor	Coursework activities
0	Course Overview			ZZ	
1	1. **Software Architecture** 1.1. What is software architecture? 1.2. Why is software architecture important? 1.3. The many contexts of software architecture 1.4. Architecture views 1.5. Architecture styles	R1 Chap. 1-3 R2 Chap. P.1-P.4	1 2 3	ZZ	Assignment 1 starts (Week 2)
2	2. **Software Architecture Styles & Patterns** 2.1. Module views 2.2. A tour of some module styles 2.2.1. Decomposition style 2.2.2. Uses style 2.2.3. Generalization style 2.2.4. Layered style 2.2.5. Aspects style 2.2.6. Data model 2.3. Architectural Patterns	R2 Chap. 1-2 R1	4 5	ZZ	
3	3. **Software Design Issues** 3.1. Software design fundamentals 3.2. Other issues in software design	R3 Chap.6-7	6 7	ZZ	Test 1 (Week 7) Assignment 1 ends (Week 7)
4	4. **Software Design Quality Analysis and Evaluation** 4.1. Software quality attributes 4.2. Software quality analysis and evaluation techniques 4.3. Software design measures	R1. Chap. 4-14 R3 Chap.6-7	9 10 11	NAA	Assignment 2 group formation (Week 8) - Padlet Assignment 2 starts (Week 9)
5	5. **Software Design Notations** 5.1. Structural descriptions (static views) 5.2. Behavioral descriptions (dynamic views)	R3 Chap.6-7 R2 Chap. 6-8	12 13	NAA	
6	6. **Software Design Strategies and Methods** 6.1. General strategies 6.2. Design methods	R3 Chap.6-7	14 15	NAA	Test 2 (Week13) Assignment 2 ends (Week 15)

CLASS POLICY

- **All assignments MUST be submitted before or on the specified date**. Late submission of assignments without any reasons and without permission from the lecturer(s) will not be accepted. The grade for late submission (even with permission) will be reduced as determined by the lecturer(s).
- **Tests will be conducted on the specified dates while quizzes may be conducted spontaneously** without prior notice. Replacement of tests or quizzes will only be allowed if students are sick and have medical certificate (MC) or exemption letter for university activities.
- Tests 1 and Test 2 will be conducted physically. If students run into any issues, they need to inform the instructor within the first 15 minutes and provide the necessary proof to qualify for a re-take test. If a student is caught cheating, he/she will get a F grade.
- The attendance to lectures will be taken. **If the performance of attendance is less than 70% the student will be barred from sitting for the final exam.**
- **Students who copied or plagiarized other's work or let their work be copied or plagiarized will get an automatic F grade** for the work, test or the whole coursework component as determined by the lecturer(s). The said student may be barred from sitting for final exam and reported to the university's disciplinary board. We believe honesty is the best policy and we are strictly enforcing the anti-plagiarism policy to train you to become graduates of high integrity.