UNIVERSITI TEKNOLOGI MARA

CSC783: COMPONENT BASED SOFTWARE ENGINEERING

Course Name (English)	COMPONENT BASED SOFTWARE ENGINEERING APPROVED
Course Code	CSC783
MQF Credit	3
Course Description	The course begins by discussing fundamental issues in building large scale systems. It then describes that these systems can be configured from the 'federation' of software components. The potential benefits of component-based such as reduce time-to-market, improve quality, reliability, ease of maintenance and flexibility are also discussed.
Transferable Skills	- Demonstrate practical and contemporary knowledge of relevant professional, ethical and legal frameworks. -Demonstrate analytical skills using technology.
Teaching Methodologies	Lectures, Case Study, Presentation, Self-directed Learning, Journal/Article Critique
CLO	CLO1 Identify fundamental issues in building large scale systems CLO2 Describe that the large systems can be configured from the 'federation' of software components. CLO3 Evaluate potential benefits of component-based such as reduce time-to-market, improve quality, reliability, ease of maintenance and flexibility
Pre-Requisite Courses	No course recommendations

Topics
1. OVERVIEW 1.1) A Brief History of the component-based software engineering (CBSE) 1.2) The characteristics of CBSE
2. COMPONENT-ORIENTED PROGRAMMING 2.1) Requirements 2.2) Challenges 2.3) Problems
3. COMPONENT-BASED SOFTWARE DEVELOPMENT PROCESS 3.1) User Requirements 3.2) Evaluate components - search or develop 3.3) Integrate and Test
4. SOFTWARE ARCHITECTURE 4.1) What is Software Architecture? 4.2) Presentation of CBSE architecture
5. PATTERNS AND FRAMEWORK 5.1) What is Pattern? 5.2) What is Framework? 5.3) How to represent a system by using patterns and framework
6. COMPONENT INTEGRATION 6.1) Principles of component integration 6.2) Designing component integration
7. COMPONENT TESTING 7.1) Testing Plan 7.2) Top Down 7.3) Bottom Up 7.4) Sandwich

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Discussion	Discussion on Project 1	5%	CLO1
Discussion	Continue discussion on Project 1	5%	CLO1
Discussion	Discussion on Project 2	5%	CLO2 , CLO3
Discussion	Continue discussion on Project 2	5%	CLO2 , CLO3
Presentation	Presentation of Project 1 - description in terms of: What is the project? What is its input, process and output?	5%	CLO1
Presentation	Presentation of Project 1 - comparison of existing similar projects (5 products based on literature review)	5%	CLO1
Presentation	Presentation of Project 1 - components of Project 1. Identify which component will be developed and which component is taken from others'. Present the design.	5%	CLO1 , CLO3
Presentation	Presentation of the running system.	5%	CLO1 , CLO3
Presentation	Presentation of Project 2 - description in terms of: What is the project? What is its input, process and output?	5%	CLO2 , CLO3
Presentation	Presentation of Project 2 - comparison of existing similar projects (5 products based on literature review)	5%	CLO2 , CLO3
Presentation	Presentation of Project 2 - components of Project 2. Identify which component will be developed and which component is taken from others'. Present the design.	5%	CLO2 , CLO3
Presentation	Presentation of the running system.	5%	CLO1 , CLO2 , CLO3

Reading List

Reference Book Resources

- **Mahdi Derakhshanmanesh 2015, *Model-Integrating Software Components: Engineering Flexible Software Systems*, Springer [ISBN: 978-365809645]**
- **Heungsun Hwang, Yoshio Takane 2014, *Generalized Structured Component Analysis: A Component-Based Approach to Structural Equation Modeling*, 1st Ed., Chapman and Hall/CRC [ISBN: 978-14665929]**
- **Ian Gordon 2011, *Essential Software Architecture*, 2nd Ed., Springer [ISBN: B00F777Z2M]**
- **Cheeseman, J. & Daniels, J. 2013, *Component- Oriented Development and Assembly: Paradigm, Principles, and Practice using Java*, 1st Ed., Auerbach Publications [ISBN: 978-14665809]**
- **Somaia Zabihi 2014, *Component-Based Software Development: Exemplified by an Inventory Management System for Herat University, Afghanistan*, 1st Ed., LAP LAMBERT Academic Publishing [ISBN: 978-365957866]**

Article/Paper List	This Course does not have any article/paper resources
Other References	This Course does not have any other resources