



## UNIVERSITI TEKNOLOGI MARA

### CSC783: COMPONENT BASED SOFTWARE ENGINEERING

<b>Course Name (English)</b>	COMPONENT BASED SOFTWARE ENGINEERING <b>APPROVED</b>
<b>Course Code</b>	CSC783
<b>MQF Credit</b>	3
<b>Course Description</b>	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.
<b>Transferable Skills</b>	- Demonstrate practical and contemporary knowledge of relevant professional, ethical and legal frameworks. -Demonstrate analytical skills using technology.
<b>Teaching Methodologies</b>	Lectures, Case Study, Presentation, Self-directed Learning, Journal/Article Critique
<b>CLO</b>	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
<b>Pre-Requisite Courses</b>	No course recommendations
<b>Topics</b>	
<b>1. OVERVIEW</b> 1.1) A Brief History of the component-based software engineering (CBSE) 1.2) The characteristics of CBSE	
<b>2. COMPONENT-ORIENTED PROGRAMMING</b> 2.1) Requirements 2.2) Challenges 2.3) Problems	
<b>3. COMPONENT-BASED SOFTWARE DEVELOPMENT PROCESS</b> 3.1) User Requirements 3.2) Evaluate components - search or develop 3.3) Integrate and Test	
<b>4. SOFTWARE ARCHITECTURE</b> 4.1) What is Software Architecture? 4.2) Presentation of CBSE architecture	
<b>5. PATTERNS AND FRAMEWORK</b> 5.1) What is Pattern? 5.2) What is Framework? 5.3) How to represent a system by using patterns and framework	
<b>6. COMPONENT INTEGRATION</b> 6.1) Principles of component integration 6.2) Designing component integration	
<b>7. COMPONENT TESTING</b> 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	<ul style="list-style-type: none"> <li>• Mahdi Derakhshanmanesh 2015, <i>Model-Integrating Software Components: Engineering Flexible Software Systems</i>, Springer [ISBN: 978-365809645]</li> <li>• Heungsun Hwang, Yoshio Takane 2014, <i>Generalized Structured Component Analysis: A Component-Based Approach to Structural Equation Modeling</i>, 1st Ed., Chapman and Hall/CRC [ISBN: 978-14665929]</li> <li>• Ian Gordon 2011, <i>Essential Software Architecture</i>, 2nd Ed., Springer [ISBN: B00F777Z2M]</li> <li>• Cheeseman, J. &amp; Daniels, J. 2013, <i>Component- Oriented Development and Assembly: Paradigm, Principles, and Practice using Java</i>, 1st Ed., Auerbach Publications [ISBN: 978-14665809]</li> <li>• Somaia Zabihi 2014, <i>Component-Based Software Development: Exemplified by an Inventory Management System for Herat University, Afghanistan</i>, 1st Ed., LAP LAMBERT Academic Publishing [ISBN: 978-365957866]</li> </ul>
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	