



**UNIVERSITI TEKNOLOGI MARA**

**SCE560: SCIENCE TEACHING METHODOLOGIES**

<b>Course Name (English)</b>	SCIENCE TEACHING METHODOLOGIES <b>APPROVED</b>
<b>Course Code</b>	SCE560
<b>MQF Credit</b>	3
<b>Course Description</b>	This course enables students to appreciate and put into practice the various theories relevant to the teaching and learning of science as evidenced from recent science education literature. Students are encouraged to translate the theories discussed into their teaching practices wherever and whenever appropriate. KSSM science content is used as a mean of providing a context for acquiring, developing, and practicing the innovative science-classroom instructional skills created. In short, students will be aspired to be an effective science facilitator in the cognitive, the affective, and the practical domains of science.
<b>Transferable Skills</b>	Team Work, Personal Development
<b>Teaching Methodologies</b>	Lectures, Microteaching, Discussion, Presentation
<b>CLO</b>	CLO1 Apply various teaching approaches and strategies in the teaching of science CLO2 Organize innovative and creative science lesson(s) based on varying teaching approaches in the teaching of science CLO3 Critically evaluate the teaching aids that use to teach various science topics
<b>Pre-Requisite Courses</b>	No course recommendations
<b>Topics</b>	
<b>1. The Theories of Teaching and Learning of Science</b> 1.1) • Cognitivism 1.2) • Constructivism 1.3) • Behaviorism	
<b>2. Questioning Techniques for Active Learning</b> 2.1) • Socratic Method 2.2) • Lead Questioning Activities	
<b>3. Instructional &amp; Learning Aid(s)</b> 3.1) • Creating Learning Aid(s) for a specific topic	
<b>4. 21st Century Science Classroom</b> 4.1) N/A	
<b>5. Inquiry &amp; Problem-Based Learning in the Science Classroom</b> 5.1) N/A	
<b>6. Gamification in Science Learning</b> 6.1) N/A	
<b>7. Entertainment Approach in Science Learning</b> 7.1) N/A	
<b>8. Teaching Science through 'Fieldtrip, Fieldwork &amp; Project'</b> 8.1) N/A	
<b>9. Microteaching</b> 9.1) N/A	

<b>Assessment Breakdown</b>	<b>%</b>
Continuous Assessment	100.00%

<b>Details of Continuous Assessment</b>	<b>Assessment Type</b>	<b>Assessment Description</b>	<b>% of Total Mark</b>	<b>CLO</b>
	Assignment	Classroom Activities (Socratic Method), Presentation and Discussion on context related to the teaching of science and teaching materials	10%	CLO3
	Assignment	Video Reflection (Critically evaluate the teaching aids that use to teach various science topics )	10%	CLO3
	Assignment	Classroom Activities (Socratic Method), Presentation and Discussion on context related to the teaching of science and teaching materials	20%	CLO1
	Assignment	Classroom Activities (Socratic Method), Presentation and Discussion on context related to the teaching of science and teaching materials	20%	CLO2
	Individual Project	Microteaching Task (teaching approaches and strategies, innovative and creative science lesson and the use of teaching aids)	10%	CLO2
	Individual Project	Microteaching Task (teaching approaches and strategies, innovative and creative science lesson and the use of teaching aids)	10%	CLO3
	Individual Project	Microteaching Task (teaching approaches and strategies, innovative and creative science lesson and the use of teaching aids)	20%	CLO1

<b>Reading List</b>	<b>Recommended Text</b>	<b>Reference Book Resources</b>
	<ul style="list-style-type: none"> <li>• <b>Bennett, J. 2014, <i>On Teaching Science: Principles and Strategies That Every Educator Should Know</i>, Big Kid Science</b></li> <li>• <b>Janet Eberhardt, T. J. 2016, <i>Problem-Based Learning in the Life Science Classroom, K–12</i>, NSTA Press Book</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>De Silva, Eugene 2014, <i>Cases on Research-Based Teaching Methods in Science Education</i>, IGI Global</b></li> <li>• <b>Aaron J. Sickel, Stephen B. Witzig 2017, <i>Designing and Teaching the Secondary Science Methods Course: An International Perspective.</i>, Springer</b></li> <li>• <b>Koch, J. 2010, <i>Science stories: Science methods for elementary and middle school teachers.</i>, CA: Wadsworth Cengage Learning</b></li> <li>• <b>Sunita Joshi and Sharma, A. 2008, <i>Micro Teaching: A practical approach</i>, Delhi: Authors Press.</b></li> <li>• <b>Bass, J.E, Contant, T. L. and Carin, A.A. 2008, <i>Methods for teaching science as inquiry.</i>, 10th Edition Ed., New York: Allyn &amp; Bacon.</b></li> <li>• <b>Buxton, C.A. and Provenzo, E.F. 2011, <i>Teaching science in elementary and middle school: A cognitive and cultural approach</i>, California: Sage Publications, Inc</b></li> </ul>
<b>Article/Paper List</b>	This Course does not have any article/paper resources	
<b>Other References</b>	This Course does not have any other resources	