



UNIVERSITI TEKNOLOGI MARA

SCE551: SCHOOL SCIENCE

Course Name (English)	SCHOOL SCIENCE APPROVED
Course Code	SCE551
MQF Credit	3
Course Description	This course reviews in detail the science curriculum as specified in the Malaysian Standard Curriculum for Secondary Schools Science. It encompasses the various components of the curriculum including its philosophy, goals and objectives. Students will examine the thematic contents of the curriculum from the perspectives of (i) learning outcomes (ii) key scientific concepts, (iii) suggested learning activities, and (iv) assessment. Exploration of students' misconceptions in various major ideas in science will be emphasized.
Transferable Skills	Written and Verbal Communication
Teaching Methodologies	Lectures, Demonstrations, Discussion, Presentation, Debates
CLO	<p>CLO1 Illustrate in-depth understanding of the Malaysian Standard and Integrated Curriculum for Secondary School Science.</p> <p>CLO2 Evaluate critically the four main components of Malaysian Integrated Curriculum for Secondary School Science from the perspectives of (i) the learning outcomes (ii) the content (iii) suggested learning activities and (iv) the assessments.</p> <p>CLO3 Evaluate possible misconceptions of students in science learning.</p> <p>CLO4 Organize specific science lesson grounded on guided discovery principle.</p>
Pre-Requisite Courses	No course recommendations
Topics	
1. Introduction to Malaysian Standard and Integrated Science Curriculum for Secondary 1.1) National Science Education Philosophy, Goals and Objectives. 1.2) Scientific and Thinking Skills. 1.3) Scientific Attitudes and Noble Values	
2. Lecture 2 & 3 2.1) Misconceptions in Science 2.2) Embedding Values in Science Lesson 2.3) Approaches in Teaching Science 2.4) Questioning Techniques and Skills	
3. Critical examination of Form 1 & 2 syllabus 3.1) Coverage of the themes 3.2) Number and arrangement of the topics 3.3) Learning objectives and learning outcomes 3.4) Scientific key concepts 3.5) Common experiments 3.6) Possible misconceptions across the topics	
4. Critical examination of Form 3 syllabus. 4.1) Coverage of the themes 4.2) Number and arrangement of the topics 4.3) Learning objectives and learning outcomes 4.4) Scientific key concepts 4.5) Common experiments 4.6) Possible misconceptions across the topics	

<p>5. Implementation and Assessment of Lower Secondary Science</p> <p>5.1) Discussion of selected topics</p> <p>5.2) Suggested teaching strategies and learning activities</p> <p>5.3) Assessments</p> <p>5.4) Demonstration of suggested teaching strategies, learning activities and the assessments on selected topics.</p>
<p>6. Critical examination of general science syllabus for Form 4.</p> <p>6.1) Coverage of the themes</p> <p>6.2) Number and arrangement of the topics</p> <p>6.3) Learning objectives and learning outcomes</p> <p>6.4) Scientific key concepts</p> <p>6.5) Common experiments</p> <p>6.6) Possible misconceptions across the topics</p>
<p>7. Critical examination of general science syllabus for Form 5.</p> <p>7.1) Coverage of the themes</p> <p>7.2) Number and arrangement of the topics</p> <p>7.3) Learning objectives and learning outcomes</p> <p>7.4) Scientific key concepts</p> <p>7.5) Common experiments</p> <p>7.6) Possible misconceptions across the topics</p>
<p>8. Implementation and Assessment of General Science Form 4 and 5.</p> <p>8.1) Discussion of selected topics</p> <p>8.2) Suggested teaching strategies and learning activities</p> <p>8.3) Assessments</p> <p>8.4) Demonstration of suggested teaching strategies, learning activities on selected topics and the assessment.</p> <p>8.5) Relation of topics to the lower secondary science syllabus.</p>
<p>9. Critical examination of syllabus of Form 4 (Biology/Physics/Chemistry)</p> <p>9.1) Coverage of the themes</p> <p>9.2) Number and arrangement of the topics</p> <p>9.3) Learning objectives and learning outcomes</p> <p>9.4) Scientific key concepts</p> <p>9.5) Common experiments</p> <p>9.6) Possible misconceptions across the topics</p>
<p>10. Critical examination of syllabus of Form 5 (Biology/Physics/Chemistry)</p> <p>10.1) Coverage of the themes</p> <p>10.2) Number and arrangement of the topics</p> <p>10.3) Learning objectives and learning outcomes</p> <p>10.4) Scientific key concepts</p> <p>10.5) Common experiments</p> <p>10.6) Possible misconceptions across the topics</p>
<p>11. Implementation and Assessment Major Based (Biology/Physics/Chemistry)</p> <p>11.1) Discussion of selected topics</p> <p>11.2) Suggested teaching strategies and learning activities</p> <p>11.3) Assessments</p> <p>11.4) Demonstration of suggested teaching strategies, learning activities on selected topics and the assessment.</p> <p>11.5) Relation of topics to the lower secondary science syllabus.</p>
<p>12. Presentation on Students' Misconception in Science (1)</p> <p>12.1) Addressing misconception on particular science concept</p> <p>12.2) Presentation and critiques on tangible products</p>
<p>13. Presentation on Students' Misconception in Science (2)</p> <p>13.1) Addressing misconception on particular science concept</p> <p>13.2) Presentation and critiques on tangible products</p>
<p>14. Teaching Science in Malaysia: Issues and challenges</p> <p>14.1) Issues and challenges in the implementation of the science curriculum in Malaysia.</p> <p>14.2) Students' reflection on Malaysian Integrated Curriculum for Secondary School Science: The strengths and weaknesses.</p>

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Group Project	Students are required to work in a group of 4 or 5 to produce a science lesson book. To do so, the group must first identify the science theme of the lesson book the intended to create. Once the members of the group have agreed to the theme, each member can start to work individually in completing the specific chapter that has been assigned to him/her. Once the students have done on their individual chapter, they are required to work in group to compile the chapters. The compiled work must be vetted for language and format before printing. The final product that should be submitted should be a lesson book that resembles the books that available in the market.	10%	CLO1
	Group Project	Students are required to work in a group of 4 or 5 to produce a science lesson book. To do so, the group must first identify the science theme of the lesson book the intended to create. Once the members of the group have agreed to the theme, each member can start to work individually in completing the specific chapter that has been assigned to him/her. Once the students have done on their individual chapter, they are required to work in group to compile the chapters. The compiled work must be vetted for language and format before printing. The final product that should be submitted should be a lesson book that resembles the books that available in the market.	20%	CLO4
	Group Project	Students are required to work in a group of 3 or 4 (max). For the first part of the assignment, the groups will have to identify one misconception from within the Biology/Physics/Chemistry (compulsory) subject. Once the misconception is identified, students will need to conduct literature search on the misconception. Also, students ought to examine textbooks – particularly to scrutinize language use, diagrams, charts and other aspects of conceptual presentation – for possible sources of the misconceptions. For the second part of the assignment, students need to come out with a creative product like a magazine/ comic/ courseware or any form of products that the students	40%	CLO3
	Presentation	In a group, students are required to choose a science topic, analyze the scope of the topic, submit PowerPoint and short written reports, as well as engage in a 45 minute to 1-hour lead discussion. students will demonstrate a critical awareness of the content, critical, and creative analysis of a relevant issue, and display their conceptual understanding of the topic presented. Each group need to present two times for the entire 14 weeks	10%	CLO1
	Presentation	In group, students are required to choose a science topic, analyze the scope of the topic, submit power point and short written report, as well as engage in a 45 minute to 1 hour lead discussion. students will demonstrate a critical awareness of the content, critical and creative analysis of a relevant issue, and display their conceptual understanding of the topic presented. Each group need to present two times for the entire 14 weeks.	20%	CLO2

Reading List	Reference Book Resources	<ul style="list-style-type: none"> • Curriculum Development Divison, <i>Current school science textbooks: From 1-6</i> • Osborne, R., and Freyberg 1989, <i>Learning in Scince</i>, Hienemann, Ed., , [ISBN:] • Ministry of Education Malaysia 2009, <i>Intergrated Curriculum for Secondary School S</i>, Ed., , Curriculum Specification Curriculum Developme [ISBN:] • Driver, R., Guesne, E., and Tiberghien 1985, <i>Childrens Ideas in Science</i>, Ed., , Open University Press, Milton Keynes [ISBN:] • Ministry of Education Malaysia 2009, <i>Intergrated Curriculum for Secondary School S</i>, Ed., , Curriculum Specification Curriculum Developme
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	