



## UNIVERSITI TEKNOLOGI MARA

### CMT581: ENVIRONMENTAL POLLUTION

<b>Course Name (English)</b>	ENVIRONMENTAL POLLUTION <b>APPROVED</b>
<b>Course Code</b>	CMT581
<b>MQF Credit</b>	3
<b>Course Description</b>	An understanding of the physical, chemical and biological processes involved during contamination of air, water and soil is essential if society is going to effectively monitor and control the effects of pollution using modern technology and engineering practices. A huge range of pollutants may be released into the environment during everyday domestic, leisure, industrial and commercial activities and many of these contaminants are potentially harmful to human health and the environment. In this module, we will focus on the origins, pathways and consequences of anthropogenic pollutants in the environment as well as discussing the various approaches to pollution control and remediation. Students will use their knowledge and skills to complete assignments that will test the learning outcomes for the module.
<b>Transferable Skills</b>	Receiving and responding to a variety of information sources (e.g. textual, numerical, verbal, graphical) Developing the skills necessary for self-managed and lifelong learning (e.g. working independently, time management and organisation skills) Developing an adaptable and flexible approach to study and work Communicating appropriately to a variety of audiences in written, verbal and graphical forms Using the internet critically as a means of communication and a source of information Recognising and respecting the views and opinions of other team members
<b>Teaching Methodologies</b>	Lectures, Blended Learning
<b>CLO</b>	CLO1 Discuss the concept and principles of various environmental pollutions. CLO2 Analyze the technologies for various environmental pollutions control and mitigation(PLO6) (C4) CLO3 Explain the consequences, risks, and uncertainties of climate change.
<b>Pre-Requisite Courses</b>	No course recommendations
<b>Topics</b>	
<b>1. Ecosystem &amp; Environmental Degradation</b> 1.1) Environment 1.2) Ecosystem 1.3) Components of an ecosystem 1.4) Global environmental crises 1.5) Causes of environmental degradation	
<b>2. Pollutants</b> 2.1) Introduction to Pollution, Pollutants 2.2) Classifications 2.3) Form of release 2.4) Existence in nature 2.5) Nature of disposal 2.6) Cause of pollutions	

<b>3. Air Pollution</b> 3.1) Major air pollutants and their sources 3.2) Smog 3.3) Sulphurous smog 3.4) Photochemical smog 3.5) Haze 3.6) Effects of Smog
<b>4. Air Pollution</b> 4.1) Indoor air pollution 4.2) source of pollutants 4.3) Effects of air pollution 4.4) Control Measures 4.5) National Air Quality Monitoring
<b>5. Water Pollution</b> 5.1) Sources 5.2) Causes of water pollution 5.3) Water pollution control measures 5.4) Effects of water pollution
<b>6. Water Conservation and Management</b> 6.1) Ground water conservation 6.2) Recycling of water 6.3) Reuse of wastewater 6.4) Water treatment for domestic use 6.5) Watershed management 6.6) Government's efforts on water conservation
<b>7. Soil Pollution</b> 7.1) Causes of soil pollution 7.2) Source of soil pollution 7.3) Effects of soil pollution 7.4) Control measures
<b>8. Solid Wastes</b> 8.1) Introduction to waste and types 8.2) Solid waste 8.3) Types of solid waste 8.4) Effects of solid waste 8.5) Waste management concept 8.6) Concept of 3R 8.7) Solid waste management 8.8) waste handling and transport 8.9) Method of disposal
<b>9. Hazardous Waste</b> 9.1) Sources 9.2) Hazardous waste classification 9.3) Rules & regulations 9.4) Transportation & storage 9.5) Hazardous waste management strategy
<b>10. Electronic waste</b> 10.1) Source and health effects 10.2) Toxic Constituents 10.3) E - Waste management and disposal
<b>11. Radioactive Pollution</b> 11.1) Sources 11.2) Effects of radioactive pollution 11.3) Ionizing and non-ionizing radiation 11.4) Accidents at nuclear power plants 11.5) Safe disposal of nuclear wastes 11.6) Preventive/Control measures
<b>12. Noise Pollution</b> 12.1) Noise limits 12.2) Health impacts 12.3) Noise reduction 12.4) Prevention and control of noise pollution
<b>13. Climate Change</b> 13.1) Global warming 13.2) Greenhouse effect 13.3) greenhouse gases 13.4) Global warming – impacts 13.5) Methods to reduce CO <sub>2</sub> in atmosphere 13.6) International conventions to protect environment

**14. Acidification**

- 14.1) Acid rain
- 14.2) Types of acid rain
- 14.3) Causes of acid rain
- 14.4) Chemistry of acid rain
- 14.5) Effects of acid rain
- 14.6) Control measures

**15. Acidification**

- 15.1) Ocean acidification
- 15.2) Effects of ocean acidification
- 15.3) Ocean acidification on calcifying ability
- 15.4) Impact of ocean acidification on cloud formation

**16. End-of-course conclusion**

- 16.1) N/A

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	n/a	15%	CLO3
	Group Project	n/a	15%	CLO2
	Test	n/a	30%	CLO1

Reading List	Recommended Text
	<ul style="list-style-type: none"> <li>• Frank R. Spellman 2017, <i>The Science of Environmental Pollution</i>, 3 Ed., 15, CRC Press United States [ISBN: 9781138626607]</li> <li>• Mark Maslin 2014, <i>Climate Change</i>, 3 Ed., Oxford University Press, USA United States [ISBN: 0198719043]</li> </ul>

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

Other References
<ul style="list-style-type: none"> <li>• Blog Tanja Folnovic 2015, <i>Environmental Pollution</i> <a href="http://blog.agrivi.com/post/environmental-pollution">http://blog.agrivi.com/post/environmental-pollution</a></li> </ul>