



**UNIVERSITI TEKNOLOGI MARA**

**PST334: ELASTOMERIC MATERIALS**

<b>Course Name (English)</b>	ELASTOMERIC MATERIALS <b>APPROVED</b>
<b>Course Code</b>	PST334
<b>MQF Credit</b>	2
<b>Course Description</b>	This course covers the studies of Rubber Material which also known as an elastomeric materials. The Rubber Materials which are discussing in this section include Natural Rubber, general purpose synthetic rubber, special purpose synthetic rubbers and thermoplastic rubbers. It will cover the composition, manufacture, structure, properties, commercially available grades and their applications.
<b>Transferable Skills</b>	Students should be able to: 1. Demonstrate professional and scientific skills, knowledge and competencies.
<b>Teaching Methodologies</b>	Lectures
<b>CLO</b>	<p>CLO1 State the various types of elastomeric materials being produced industrially. (C1,P1,A1)</p> <p>CLO2 Explain the various methods of producing commercially available elastomer materials.</p> <p>CLO3 Identify the structure-properties relationship of various elastomeric materials</p> <p>CLO4 Identify the industrial applications of elastomers in relation to their physical, chemical and mechanical properties.</p>
<b>Pre-Requisite Courses</b>	No course recommendations
<b>Topics</b>	
<p><b>1. 1.0 Introduction</b>            1.1) 1.1 The historical development of rubber technology.            1.2) 1.2 Markets and application of rubbery materials.</p>	
<p><b>2. 2.0 Natural Rubber</b>            2.1) 2.0 Natural Rubber            2.2) 2.1 Chemistry and structure.            2.3) 2.2 Structure-Properties relationship            2.4) 2.3 Applications</p>	
<p><b>3. 3.0 Synthetic Rubbers</b>            3.1) 3.1 General purpose synthetic rubbers.            3.2) 3.1.1 Synthetic Polyisoprene Rubbers (IR)            3.3) 3.1.2 Styrene Butadiene Rubbers (SBR)            3.4) 3.1.3 Polybutadiene Rubbers (BR)            3.5) 3.1.4 Isobutene-Isoprene Rubbers/ Butyl Rubbers (IIR)            3.6) 3.1.5 Ethylene-Propylene Rubbers (EPM and EPDM)            3.7) 3.2 Special purpose synthetic rubbers            3.8) 3.2.1 Chloroprene Rubbers (CR)            3.9) 3.2.2 Acrylonitrile-Butadiene (Nitrile) Rubbers (NBR)            3.10) 3.2.3 Silicone Rubbers (Q)</p>	
<p><b>4. 4.0 Thermoplastic Elastomers</b>            4.1) 4.1 Thermoplastic Natural Rubber (TPNR)            4.2) 4.2 Polyurethane Rubbers (TPU)</p>	

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	ASSIGNMENT 1	10%	CLO1 , CLO2 , CLO3 , CLO4
	Assignment	ASSIGNMENT 2	10%	CLO1 , CLO2 , CLO3 , CLO4
	Test	TEST 1	20%	CLO1 , CLO2
	Test	TEST 2	20%	CLO3 , CLO4

Reading List	Recommended Text	<ul style="list-style-type: none"> <li>• Colin W. Evans, 1981, <i>Practical Rubber Compounding and Processing</i>, London: Applied Science Publishers Ltd.</li> <li>• J.A Brydson, 1988, <i>Rubber Material and their Compound.</i>, North London; Elsevier Applied Science Publis</li> <li>• Azemi Samsuri, 2009, <i>An Introduction to Polymer Science and Rubber</i>, UPENA,</li> <li>• D.C Blakely, 1983, <i>Synthetic Rubbers: Their Chemistry and Techno</i>, North London, Applied Science Publishers Ltd.</li> </ul>
	Reference Book Resources	<ul style="list-style-type: none"> <li>• J.A Brydson, 1978, <i>Rubber Chemistry</i>, London; Applied Science Publishers Ltd,</li> <li>• H.J. Stern, 1967, <i>Rubber : Natural and Synthetic</i>, London : Maclaren And Sons Ltd.,</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	