

COURSE OUTLINE

Subject & Code: Rubber Technology SKV 4513
Total Lecture Hours: 42 Hours

Synopsis:

This course is designed to provide a basic overall understanding on rubber and latex technology. It will concentrate on the introduction to latex, production of latex concentrate and latex processing. For rubber technology, it will also cover the introduction to natural rubber and synthetic rubbers, rubber compounding, rubber processing technology and vulcanization technology.

Learning Outcomes:

At the end of the course, the student should be able to apply the knowledge with a greater understanding in various rubber and latex engineering industries.

Generic Skills Addressed: Life-long learning

COURSE OUTLINE

Week	Topic	Learning Outcome
1	Introduction to latex <ul style="list-style-type: none"> • Definition and basic properties of latex • Latex stabilization 	<i>It is expected that students will be able to:</i> <ul style="list-style-type: none"> • Understand the definition and basic properties of latex • Describe latex stabilization
2 & 3	Production of latex concentrate <ul style="list-style-type: none"> • Introduction and significant of latex concentration • Types of latex concentrate • Properties and testing of latex concentrate • Significant of latex handling and storage 	<i>It is expected that students will be able to:</i> <ul style="list-style-type: none"> • Understand the significant of latex concentration • Describe methods of manufacturing latex concentrate • Identify types of latex concentrate • Determine the properties and testing of latex concentrate • Identify the significant of latex handling and storage
4 & 5	Latex processing <ul style="list-style-type: none"> • Introduction • Methods of preparation of latex compounding ingredients • Preparation of latex formulation • Industrial latex processing 	<i>It is expected that students will be able to:</i> <ul style="list-style-type: none"> • Identify the categories of compounding ingredients • Recognize and describe methods of preparation of latex compounding ingredients • Describe preparation of latex formulation • Explain the industrial latex processing
6&7	Vulcanization Technology <ul style="list-style-type: none"> • Introduction and significant of vulcanization • Types of vulcanization • Properties and physical testing of vulcanizates • Evaluation of rate and state of cure using vulcanization testing 	<i>It is expected that students will be able to:</i> <ul style="list-style-type: none"> • Understand the definition and significant of vulcanization • Recognize and describe types of vulcanization • Identify the properties and physical testing of vulcanizates • Evaluate the rate and state of cure using vulcanization testing
8	Mid Term Break	
9&10	Introduction to Rubber <ul style="list-style-type: none"> • Definition and structure of natural rubber • Physical properties of natural rubber • Types of rubber sheets and modified forms of natural rubber 	<i>It is expected that students will be able to:</i> <ul style="list-style-type: none"> • Understand the definition and structure of natural rubber • Describe the physical properties of natural rubber • Identify types of rubber sheets and modified forms of natural rubber
11&12	Rubber Compounding <ul style="list-style-type: none"> • Introduction • Ingredients of rubber compounding Effect of temperature on cell growth • Method of rubber compounding 	<i>It is expected that students will be able to:</i> <ul style="list-style-type: none"> • Understand the definition and ingredients of rubber compounding • Identify and demonstrate method of rubber compounding
13&14	Rubber Processing Technology <ul style="list-style-type: none"> • Introduction • Equipment using in rubber processing • Types of rubber processing 	<i>It is expected that students will be able to:</i> <ul style="list-style-type: none"> • Understand the definition and equipment using in rubber processing • Describe and explain types of rubber processing; calendering, extrusion and injection.

15	Revision Week						
16-18	Examination Week						
<p>Teaching Methodology:</p> <p>References: Students are strongly advised to refer to at least one of the following texts:</p> <ol style="list-style-type: none"> 1. Ciesielski, A., " An Introduction to Rubber Technology", Rapra Techonology Limited, UK, 1999. 2. Tinker, A. J. & Jones, K. P., " Blends of Natural Rubber". Capman & Hall, London, 1998. 3. Brown, R.P. & Butler, T., " Natural Ageing of Rubber", Rapra Technology Limited, UK, 2000. <p>Assessment:</p> <table> <tr> <td>Test 1:</td> <td>25%</td> </tr> <tr> <td>Test 2:</td> <td>25%</td> </tr> <tr> <td>Final :</td> <td>50%</td> </tr> </table> <p>*Test 1 and Test 2 will be tentatively held in Week 5 and Week 12 respectively.</p>		Test 1:	25%	Test 2:	25%	Final :	50%
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Test 2:	25%						
Final :	50%						