



UNIVERSITI TEKNOLOGI MARA

BCT497: ADHESIVE AND COATING TECHNOLOGY

Course Name (English)	ADHESIVE AND COATING TECHNOLOGY APPROVED
Course Code	BCT497
MQF Credit	3
Course Description	This course exposed the students to the various types of adhesives, jointing and coating systems used in the composite industry. Usage of hardware in modern construction will also be discussed. The selection and assembly process, focusing on ways to enhance strength, aesthetic value, and functionality of bio-composite products will be discussed.
Transferable Skills	Be able to make a proper selection from wide variety of adhesive and coating materials for use and application in different environment
Teaching Methodologies	Lectures, Practical Classes
CLO	CLO1 Define and describe the theories of adhesion CLO2 Identify and explain the different types of adhesives and coating materials used to bond and coat bio-based composites (exterior and interior) CLO3 Demonstrate understanding on characteristic of bonding process CLO4 Describe and differentiate operations involved in bonding process for specific types of adhesives and applications CLO5 Identify and evaluate adhesives properties CLO6 Determine and analyze bonded products performance CLO7 Summarize and discuss the relevance of adhesion to adhesive bonding and coating problems
Pre-Requisite Courses	No course recommendations
Topics	
1. Introduction to Adhesives and Adhesion 1.1) Introduction 1.2) Theories of adhesive and adhesion	
2. Development of Wood Adhesives 2.1) Natural Adhesive 2.2) Synthetic Adhesive 2.3) Thermosetting adhesive 2.4) Thermoplastic adhesive	
3. Synthetic adhesives 3.1) Phenol formaldehyd 3.2) Resol/novolacs 3.3) Resocinol formaldehyde 3.4) Urea formaldehyde 3.5) Copolymer of formaldehyde 3.6) Melamine formaldehyde	
4. Thermoplastic adhesives 4.1) Polyvinyl acetate 4.2) Polyvinyl alcohol 4.3) Hot melts 4.4) Elastomeric adhesive 4.5) Non-conventional adhesives	

<p>5. Selection guide for adhesives</p> <p>5.1) Adhesive selection criteria 5.2) Materials to be bonded 5.3) Stress the bonded assembly will have to resist 5.4) Bond exposure and required durability 5.5) Condition required for bonding 5.6) Economic considerations</p>
<p>6. Commonly used composites adhesives</p> <p>6.1) Hot press adhesives 6.2) Radio-frequency curing adhesives 6.3) Cold- press adhesives 6.4) Cold-press emulsion adhesives 6.5) Radio-frequency emulsion adhesives</p>
<p>7. General handling precautions for adhesives</p> <p>7.1) General guidelines 7.2) Transport and storage 7.3) Place of work 7.4) General handling guidelines 7.5) Protective clothing</p>
<p>8. Types of joints</p> <p>8.1) Finger joint 8.2) Scarf joint 8.3) Lap joint 8.4) Butt joint 8.5) Other new technologies in joint system</p>
<p>9. Use of hardware in composite systems and construction</p> <p>9.1) Mechanical fasteners 9.2) Decorative hardware 9.3) Lock catches/bed fittings 9.4) Knockdown fittings 9.5) Sliding door/drawer runners 9.6) Office furniture fittings 9.7) Build in kitchen system 9.8) Furniture support system 9.9) Shop fittings and domestic wall unit</p>
<p>10. Coating, Fundamental types of surface coatings</p> <p>10.1) Introduction 10.2) Fundamental types of surface coatings 10.3) Lacquer type 10.4) Varnish type 10.5) Paint and enamels 10.6) Powder coating</p>

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Assignments will be periodically given to assess the learning progress. These assessments will cover classroom and outside reading assignments.	5%	CLO2 , CLO4 , CLO6
	Lab Exercise	Ten laboratory exercise will be conducted throughout the course and a report shall be submitted for each laboratory exercise	20%	CLO5 , CLO6 , CLO7
	Quiz	Quizzes will be periodically given to assess the learning progress. These assessments will cover classroom and outside reading assignments.	5%	CLO1 , CLO2 , CLO4 , CLO5
	Test	Three test will be given throughout the course	30%	CLO1 , CLO2 , CLO3 , CLO4 , CLO5 , CLO6

Reading List	This Course does not have any book resources
Article/Paper List	This Course does not have any article/paper resources
Other References	This Course does not have any other resources