



UNIVERSITI TEKNOLOGI MARA

AGR626: POST HARVEST HANDLING & PROCESSING

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| <b>Course Name (English)</b>   | POST HARVEST HANDLING & PROCESSING <b>APPROVED</b>   |
| <b>Course Code</b>   | AGR626   |
| <b>MQF Credit</b>  | 3  |
| <b>Course Description</b>  | no description provided  |
| <b>Transferable Skills</b>   | knowledge, leadership, communication, teamwork   |
| <b>Teaching Methodologies</b>  | Lectures, Blended Learning, Field Trip, Case Study   |
| <b>CLO</b>   | <p>CLO1 State, discuss and relate knowledge on influence of crop physiology and maturity on produce's fresh post-harvest quality, primary processing, packaging and improving the preservation of fresh and semi-processed products.</p> <p>CLO2 Identify, differentiate and interpret observations related to type of losses and inefficiencies in post-harvest handling, processing, and utilization of their bio-waste.</p> <p>CLO3 Communicate to peers verbally and to the facilitator in writing, through critical and systematic thinking of activities related to the whole or specific post-harvest handling components; and description of products and by-products produced from important plantation and horticulture crops.</p> |
| <b>Pre-Requisite Courses</b>   | No course recommendations  |
| <b>Topics</b>  |  |
| <b>1. Introduction</b><br>1.1) 1.1 Factors limiting production of plantation and food crops in Malaysia.<br>1.2) 1.2 Postharvest pipeline – components and processes involved<br>1.3) 1.3 importance of value - adding, and factor affecting quality and preservation after harvest  |  |
| <b>2. Harvesting &amp; in – Field Handling</b><br>2.1) 2.1 Influence of in – field cropping practices on produce quality<br>2.2) 2.2 Influence of crop maturity on quality and preservation<br>2.3) 2.3 Harvesting techniques & mechanized handling in agricultural crops<br>2.4) 2.4 In – field collection and transportation |  |
| <b>3. Postharvest Physiology</b><br>3.1) 3.1 Structure and composition<br>3.2) 3.2 Composition and nutritional value<br>3.3) 3.3 Physiological development<br>3.4) 3.4 Chemical changes during maturation<br>3.5) 3.5 Changes during ripening and senescence<br>3.6) 3.6 Physiological disorders                               |  |
| <b>4. Mill operations (plantation crop)</b><br>4.1) 4.1 Palm crude extraction<br>4.2) 4.2 Rubber processing<br>4.3) 4.3 Cocoa processing<br>4.4) 4.4 Paddy milling   |  |
| <b>5. Packinghouse operations (horticultural crops)</b><br>5.1) 5.1 In – store handling<br>5.2) 5.2 Fruit and vegetable processing<br>5.3) 5.3 Medical crops processing<br>5.4) 5.4 Processing dried products  |  |

**6. Storage**

- 6.1) 6.1 Storage methods (dry & wet products)
- 6.2) 6.2 Importance of temperature and humidity management
- 6.3) 6.3 Cooling methods and cold chain

**7. Packaging and Marketing**

- 7.1) 7.1 Roles & type of packaging
- 7.2) 7.2 Bulk, retail & controlled atmosphere packaging
- 7.3) 7.3 Safety, standards & traceability
- 7.4) 7.4 Refrigerated transport and marketing

**8. Waste Utilization**

- 8.1) 8.1 Waste utilization of effluents from plantation mills
- 8.2) 8.2 Utilizing fruit and vegetable wastes

| Assessment Breakdown  | %      |
|-----------------------|--------|
| Continuous Assessment | 60.00% |
| Final Assessment      | 40.00% |

| Details of Continuous Assessment | Assessment Type | Assessment Description | % of Total Mark | CLO  |
|----------------------------------|-----------------|------------------------|-----------------|------|
|                                  | Presentation    | VIRTUAL PRESENTATION   | 20%             | CLO3 |
|                                  | Test            | ONLINE TEST            | 20%             | CLO1 |
|                                  | Written Report  | n/a                    | 20%             | CLO1 |

| Reading List       | Recommended Text   |
|--------------------|--|
|                    | <ul style="list-style-type: none"> <li>Adel A. Kader 2002, <i>Postharvest Technology for Horticultural Crops.</i>, UC Davies Publication 3311</li> </ul>   |
| Article/Paper List | Recommended Article/Paper Resources  |
|                    | <ul style="list-style-type: none"> <li>Robert Shewfelt, Stanley E. Prussia and Steve Taylor 1993, <i>Postharvest Handling</i>, Academic Press, 878</li> <li>L. R. Verma and V. K. Doshi 2000, <i>Postharvest Technology of Fruits and Vegetables: General concepts and principles</i>, MPH pub., 1194</li> <li>Arthey and P. R. Ashurst 1996, <i>Fruits Processing</i>, Chapman &amp; Hall, 576</li> </ul> |
|                    | Reference Article/Paper Resources  |
|                    | <ul style="list-style-type: none"> <li>A. Chakraverty, A. S. Mujumdar, H. S Ramasamy 2013, <i>Handbook of Postharvest Technology: Cereals, Fruits, Vegetables, Tea and Spices.</i>, CRC press, 912</li> <li>W. J. Florkowski, R. L. Shewfelt, B. Brueckner and S. E. Prussia 2009, <i>Postharvest Handling: A Systems Approach</i>, Elsevier Inc, 435</li> </ul>   |
| Other References   | This Course does not have any other resources  |