#### Course Title: Horticulture 6 (Post harvest Technology)

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| **University** | **Benha** |
| **Faculty** | **Faculty of Agriculture** |
| **COURSE SPECIFICATIONS:** |
| Program of which the course is given | **Agricultural Biotechnology** |
| Major or Minor element of Program |  |
| Departments offering the Program | **All departments** |
| Department offering the course | **Horticulture department** |
| Academic year / Level | **Level 3** |
| Date of specification approval |  |

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| **A- BASIC INFORMATION**  |
| Title  | Horticulture 6 (Post harvest Technology) |
| Code | HO 0206 |
| Credit Hours  | 4 Hours / week |
| Lecture | 2 Hours / week |
| Practical | 2 Hours / week  |
| Total: | 56 Hours / semester |

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| **B- PROFESSIONAL INFORMATION** |
| **1 – OVERALL AIMS OF COURSE** |
| This course aims to Provide the student with * The different information and skills on handling of horticultural crops for marketing.
* The physiological changes after harvest of horticultural crops.
* How to prolong the storage period of fruits of horticultural crops.
* The different information about the storage and export of horticultural crops.
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| **2 – Intended Learning Outcomes of Course (ILOs)** |
| **A. Knowledge and Understanding:** |
| ***By the end of the course, students should:**** Remind the morphological structure, type and chemical composition of fruits and the changes that occur during growth and maturity in horticultural crops.
* Mention packing, grading, washing and waxing processes in the fruits of horticultural crops.
* Understand the methods of storage and use some safety treatments to increase the storability of fruits.
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| B. Intellectual Skills: |
| ***Successful completion of this course will allow students to:**** Distinguish the markers of maturity in the fruits of horticultural crop.
* Choose the appropriate methods for harvesting, packaging and pre-cooling to reduce the losses in horticultural crops.
* Identify optimum storage conditions to maintain the fruit quality of horticultural crops during storage.
* Evaluate the problems related to processing, packaging, marketing and export and try to solve it.
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| C. Professional and Practical Skills: |
| * Apply some post-harvest treatments of horticultural crops.
* Measuring the respiration rate in the fruits of horticultural crops.
* Determine the chemical composition in the fruits of various horticultural crops
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| D. General and Transferable Skills: |
| * Working in a team.
* Respect the ethics and etiquette of the job.
* Using the computer and Internet.
* Communicate effectively with others.
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| 3. CONTENTS |
| **Topic** | **No. of hours** | **Lectures** | **Practical** |
| Morphology and structure of fresh fruits and vegetables | 4 | 2 | 2 |
| Composition and nutritional value of vegetables and fruits | 4 | 2 | 2 |
| Physiology and biochemistry of horticulture products | 8 | 4 | 4 |
| Physiological response to temperature and humidity | 8 | 4 | 4 |
| Maturity, ripening in relation to horticulture products quality | 4 | 2 | 2 |
| Harvesting, transportation and packing management | 8 | 4 | 4 |
| De-greening and control of ripening | 4 | 2 | 2 |
| Plant growth regulators | 4 | 2 | 2 |
| Technologies of storage | 4 | 2 | 2 |
| Physiologic pathologic diseases | 4 | 2 | 2 |

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| 4. TEACHING AND LEARNING METHODS |
| 1. The main subject areas are covered in the lectures (see syllabus Plan).
2. Several student seminar sessions give the opportunity for students to bring questions or discuss any aspects of the course with the tutor.
3. Students are given a topic to research in small groups which they report as an oral presentation. Collective feedback on the strengths and weaknesses of the presentations are provided.
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| 5. STUDENT ASSESSMENT METHODS |
| ***Students will be evaluated by attendance, fulfillment and effort in exercises and presentations, and examination grades:***1) Laboratory work: to assess the ability of students to understand and perform small laboratory experiments. |

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| 6. ASSESSMENT SCHEDULE |
| No | AssessmentAssessment | **Week** |
| 1 | Periodical exam  | 4, 8 th weeks |
| 2 | Practical exam | 14 th week |
| 3 | Oral exam | 15 th week |
| 4 | Final exam | 16 th week |

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| 7. WEIGHTING OF ASSESSMENT |
| No | AssessmentAssessment | **%** |
| 1 | Periodical exam  | 15% |
| 2 | Practical exam | 15% |
| 3 | Oral exam | 10 % |
| 4 | Final exam | 60 % |
| TOTAL | 100 % |

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| 8. LIST OF REFERENCES |
| 1. **Kader, A.A., Kasmire, R.F., Mitchelle, F.G., Reid, M.S., Sommer, N.F. and Thompson, J.F. 2002.** Post-harvest technology of horticultural crops. Dev. Agroc. Publ, University of California, CA, USA.

[http://www.amazon.com/Postharvest-Technology-Horticultural-Crops-3rd/dp/1879906511/ref=sr\_1\_2?s=books&ie=UTF8&qid=1390947901&sr=1-2&keywords=Post-harvest+technology+of+horticultural+crops](http://www.amazon.com/Postharvest-Technology-Horticultural-Crops-3rd/dp/1879906511/ref%3Dsr_1_2?s=books&ie=UTF8&qid=1390947901&sr=1-2&keywords=Post-harvest+technology+of+horticultural+crops) 1. **Thompson, A.K. 2003.** Fruit and vegetable harvesting, handling and storage. Blackwell Publ. oxford, UK.

[http://www.amazon.com/Fruit-Vegetables-Harvesting-Handling-Storage/dp/1405106190/ref=sr\_1\_1?s=books&ie=UTF8&qid=1390947970&sr=1-1&keywords=Fruit+and+vegetable+harvesting%2C+handling+and+storage](http://www.amazon.com/Fruit-Vegetables-Harvesting-Handling-Storage/dp/1405106190/ref%3Dsr_1_1?s=books&ie=UTF8&qid=1390947970&sr=1-1&keywords=Fruit+and+vegetable+harvesting%2C+handling+and+storage) |

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| 9. FACILITIES REQUIRED FOR TEACHING AND LEARNING |
| 1. Teaching aids/ materials: e.g. boards – overhead projector – data-show projector – stationary.. etc.
2. Teaching room/hall.
3. Computers.
4. Facilities for site visits etc., which are necessary for teaching the course.
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| **Course Coordinators:**  | **Prof. Dr. Issam A. Hassaballa****Dr. Hamed E. M. El-Badawy** |
| **Date: / / 2015** |