

## Course Syllabus

1	<b>Course title</b>	Fruit and Vegetable Technology
2	<b>Course number</b>	603729
3	<b>Credit hours (theory, practical)</b>	3 (theory)
	<b>Contact hours (theory, practical)</b>	3 hrs/wk
4	<b>Prerequisites/corequisites</b>	-
5	<b>Program title</b>	Food science and technology
6	<b>Program code</b>	037
7	<b>Awarding institution</b>	The University of Jordan
8	<b>School</b>	Agriculture
9	<b>Department</b>	Department of Nutrition and Food Technology
10	<b>Level of course</b>	Postgraduate – MSc
11	<b>Year of study and semester (s)</b>	2019, Fall and summer semesters
12	<b>Final Qualification</b>	Based on grades
13	<b>Other department (s) involved in teaching the course</b>	None
14	<b>Language of Instruction</b>	English and Arabic
15	<b>Date of production/revision</b>	Feb., 2020

### 16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.

**Prof Maher Al-dabbas ( course coordinator)**

### 17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.

Dept head office, Ex. 22422 email; [m.aldabbas@ju.edu.jo](mailto:m.aldabbas@ju.edu.jo)

Office hrs: every day 12-14

### 18. Course Description:

This course introduces students to the current status technologies based on fruits and vegetables; parameters that determine quality, improving storage life and quality, processing technologies and issues related to food safety; basic techniques in the preliminary processing of fruits and vegetables and their products.

## 19. Course aims and outcomes:

### A- Aims:

The aim of this course is to educate and train students in the field of fruit and vegetable processing. This is an important subject since the country economy depends mainly on the agriculture sector and processing of fruits and vegetables is of vital importance. Many of the graduates from the Nutrition and Food Science Department may have a chance to work in fruit and vegetable processing plants available in the country or in any other Arab states. This course forms part of the technology oriented courses that make students acquainted with the various sectors in food industry. The aim of this product technology course is to provide insight into specific product and process related factors in processing of fruits and vegetables.

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to

### A. Knowledge and Understanding:

**A1.** The students acquire knowledge of the different physiological, physical, chemical and nutritional properties of fruits and vegetables.

**A2.** The students acquire insight in the various chemical and biochemical changes which can occur during processing and which can influence the functional properties of the possible end properties

**A3.** The students acquire insight into specific product and process related factors in the processing of fruits and vegetables.

**A4.** The students know how fruits and vegetables are industrially processed. They learn various ways of designing and monitoring processing chains with the emphasis on how quality, safety, authenticity, etc. of raw materials, processes and products are preserved.

### B. Intellectual Analytical and Cognitive Skills:

**B1-** To be knowledgeable with the different physiological, physical, chemical and nutritional properties of fruits and vegetables

**B2-** Develop a detailed understanding regarding the various chemical and biochemical changes which can occur during processing and which can influence the functional properties of the possible end properties

**B3-** To be knowledgeable with specific product and process related factors in the processing of fruits and vegetables.

**B4-** Develop a detailed understanding regarding the quality, safety, authenticity, etc. of raw materials, processes and products are preserved.

### C. Subject- Specific Skills:

**C1-** Apply and analyze the proper conditions needed for the different physiological, physical, chemical and nutritional properties of fruits and vegetables

**C2-** Applicable for solving problems associated with the chemical and biochemical changes which can occur during processing and which can influence the functional properties of the possible end properties

**C3-** Apply and analyze the proper conditions needed for specific product and process related factors in the processing of fruits and vegetables.

**C4-** Applicable for solving problems associated with the application of quality, safety, authenticity, etc. of raw materials, processes and products are preserved.

### D. Transferable Key Skills:

**D1-** Gain basic knowledge related to the proper conditions needed for the different physiological, physical, chemical and nutritional properties of fruits and vegetables

**D2-** Know how to solve problems associated with the chemical and biochemical changes which can occur during processing and which can influence the functional properties of the possible end properties factors in the processing of fruits and vegetables.

**D3-** Know how to apply the principles of quality, safety, authenticity, etc. of raw materials, processes and products

## 20. Topic Outline and Schedule:

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
<b>The nutritive value of fruit and vegetables and factors affecting their quality</b>	1 <sup>st</sup> & 2 <sup>nd</sup> wk	Prof. Maher Al-Dabbas	A1, B1, C1 and D1	Discussion and feedback	<p>1. Alsaed, A. K. (2010). Fruit and vegetables Processing. Scientific Research Council, University of King Saud, Saudi Arabia, pp 500 (Arabic).</p> <p>2. Salunkhe, D.; Bolin, H. and Reddy, N. (1991). Storage, Processing and Nutritional Quality of Fruits and Vegetables, Vol. I. Fresh Fruits and Vegetables; Vol. II. Processed Fruits and vegetables. 2<sup>nd</sup>. CRC Press, Inc, Boston.</p> <p>3. Jongen, W. (2002). Fruit and vegetable processing. Woodhead Publishing Limited, Cambridge, England.</p>
<b>Post harvest physiology of fruit and vegetables</b>	3 <sup>rd</sup> & 4 <sup>th</sup> wks	Prof. Maher Al-Dabbas	A2, B2, C2 and D2	Discussion and feedback	<p>1. Alsaed, A. K. (2010). Fruit and vegetables Processing. Scientific Research Council, University of King Saud, Saudi Arabia, pp 500 (Arabic).</p> <p>2. Salunkhe, D.; Bolin, H. and Reddy, N. (1991). Storage, Processing and Nutritional Quality of Fruits and Vegetables, Vol. I. Fresh Fruits and Vegetables; Vol. II. Processed Fruits and vegetables. 2<sup>nd</sup>. CRC Press, Inc, Boston.</p> <p>3. Jongen, W. (2002). Fruit and vegetable processing. Woodhead Publishing Limited, Cambridge, England.</p>
<b>Harvesting, grading and packaging of fruit &amp; vegetables</b>	5 <sup>th</sup> & 6 <sup>th</sup> wks	Prof. Maher Al-Dabbas	A1, A3, B3, C3 and D3	Assignment + quiz	<p>2. Salunkhe, D.; Bolin, H. and Reddy, N. (1991). Storage, Processing and Nutritional Quality of Fruits and Vegetables, Vol. I. Fresh Fruits and Vegetables; Vol. II. Processed Fruits and vegetables. 2<sup>nd</sup>. CRC Press,</p>

					<p>Inc, Boston.</p> <p>3. Jongen, W. (2002). Fruit and vegetable processing. Woodhead Publishing Limited, Cambridge, England.</p> <p>4. Woodroof, J. and Luh, B. (1986). Commercial Fruit processing, 2nd edition; Champan &amp; Hall, London..</p>
<b>Sensory and objective quality evaluation of fruit and vegetables</b>	7 <sup>th</sup> & 8 <sup>th</sup> wks	Prof. Maher Al-Dabbas	A3, B3, C3 and D3	Term paper-discussion	<p>5 Luh, B. and Woodroof, J. (1988). Commercial vegetable processing, 2nd edition; Champan &amp; Hall, London.</p> <p>6. Downing, D. L. (1989). Processed apple product. Van Nostrand Reinhold, New York.</p> <p>Nelson, P. E. and Tressler, D. K. (1980). Fruit and vegetable juice processing technology. 3<sup>rd</sup> edition, AVI publishing Company, Westport, Connecticut.</p>
<b>Minimally processed fruit and vegetables (M PFV)</b>	9 <sup>th</sup> & 10 <sup>th</sup> wks	Prof. Maher Al-Dabbas	A2, A3, B2 B3, C3, C4 D2	Midterm exam, discussion	Current literature such as papers presented in International symposium on processing of fruit and vegetables.
<b>Tomato, potato, olive and olive oil processing</b>	11 <sup>th</sup> & 12 <sup>th</sup> wks	Prof. Maher Al-Dabbas	A1-A4, B1-B4, C1-C4, D1-D3	Presentatio n and discussion	<p>Woodroof, J. and Luh, B. (1986). Commercial Fruit processing, 2nd edition; Champan &amp; Hall, London.</p> <p>Luh, B. and Woodroof, J. (1988). Commercial vegetable processing, 2nd edition; Champan &amp; Hall, London.</p>
<b>New trends in the storage of fruit and vegetables</b>	13 <sup>th</sup> -15 <sup>th</sup> wks	Prof. Maher Al-Dabbas	A1-A4, B1-B4, C1-C4, D1-D3	Presentatio n and discussion	Current literature such as papers presented in International symposium on processing of fruit and vegetables.

## 21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

**Lectures, presentations, discussion with assignments strengthen through panel discussion. Creative thinking through questions given during lectures and ability of solving and analysing problems related to each topic.**

## 22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

**Exams, Quizzes, presentations, term papers, discussion and ability to analyze problems using on the spot questions or requirement of assignments.**

## 23. Course Policies:

A- Attendance policies: **Attendance sheet for each lecture**

B- Absences from exams and handing in assignments on time: **Make up if there is an official excuse, assignment not accepted after specified date.**

C- Health and safety procedures: **Well seated without any drink on lecture**

D- Honesty policy regarding cheating, plagiarism, misbehaviour: **Subjected to students punishment committee**

E- Grading policy: **According to average and University policy**

F- Available university services that support achievement in the course: **Requested before the course and available or provided on request.**

## 24. Required equipment: ( Facilities, Tools, Labs, Training....)

Suitable lecture room equipped with needed tools like data show

## 25. References:

Required book (s), assigned reading and audio-visuals:

References available in library, text and handled sheets, movies related to specific subjects may be provided

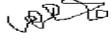
Recommended books, materials, and media:

References, scientific articles through university website and main Arabic reference are given with this course outline

**26. Additional information:**

None

Name of Course Coordinator: Prof Maher Al-Dabbas. Signature:  Date: 27<sup>th</sup>, Feb., 2020

Head of curriculum committee/Department: - Prof Maher Al-Dabbas Signature: 

Head of Department: Prof Maher Al-Dabbas Signature: 

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- -Signature: -----