

Course Description Form

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| 1. Course Name: | |
| Care and storage | |
| 2. Course Code: | |
| | |
| 3. Semester / Year: | |
| First semester (fall) / 2023–2024 \ 4st | |
| 4. Description Preparation Date: | |
| 1/2/2024 | |
| 5. Available Attendance Forms: | |
| Presence | |
| 6. Number of Credit Hours (Total) / Number of Units (Total) | |
| 2 theoretical hours + 3 practical hours (75 hours) / 3.5 units | |
| 7. Course administrator's name (mention all, if more than one name) | |
| Name: Dr.Qaswaa yousif jameel dr.qaswaa_yousif@uomosul.edu.iq Email: Rowa adil hameed ruaa.alrashdi@uomosul.edu.iq | |
| 8. Course Objectives | |
| Theoretical –Enable the student to understand and comprehend what is related to the care and storage of fruits and vegetables – Enabling the student to know the most important methods of preserving crops and means of protecting them Stores –Enabling the student to become familiar with the most important methods of storage – Enabling the student to understand the most important physiological changes that occur in fruits Cold stores –The student can judge the types of agricultural crops and their readiness damage and its speed | Practical Enabling the student to become familiar with the most important laboratory methods In conducting physical, chemical and sensory tests for foods In all stages of manufacturing and storage |
| 9. Teaching and Learning Strategies | |
| Theoretical: - Interactive lecture - Brainstorming - Dialogue and discussion | Practical: Interactive lecture -Discussion, dialogue, brainstorming -Conducting laboratory experiments |

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| - Assigning reports -Conducting monthly and daily examinations | -Assigning reports -Conducting daily and monthly examinations |
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10. Course Structure

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|------|--------------|---|--|--|--------------------------------------|
| 1 | 2Theoretical | Theoretical: B1:Explains a concept to the student Care and storage of fruits Chemical and physiological composition of fruits and vegetables | THEORETICAL chemical and physiological composition For fruits and vegetables. | THEORETICAL audio methods, Writing on the board Direct dialogue Style | Shortexams, assignments, discussions |
| | 3Practical | Practical A1:student gets to know Chemical composition of fruits | PRACTICAL Study of the chemical composition of fruits | PRACTICAL Assigning tasks and reports | Shortexams, assignments, discussions |
| 2 | 2Theoretical | THEORETICAL C1:Explains to the student the most important differences in the chemical composition between the different types of vegetables and fruits. | THEORETICAL Refrigerated storage of fruits and vegetables | THEORETICAL audio methods, Writing on the board Direct dialogue Style | Shortexams, assignments, discussions |
| | 3Practical | PRACTICAL c1:The student learns how to estimate moisture. | PRACTICAL Moisture estimation | PRACTICAL Assigning tasks and reports | Shortexams, assignments, discussions |
| 3 | 2Theoretical | THEORETICAL B2:The student is classified according to diabetes in fruit. | THEORETICAL Segregation of fruits according to the growth curve of the fruit | THEORETICAL audio methods, Writing on the board | Shortexams, assignments, discussions |

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| | | | | Direct dialogue Style | |
| | 3Practical | PRACTICAL a2:The student recognizes how to estimate acidity. | PRACTICAL Acidification | PRACTICAL Assigning tasks and reports | Shortexams, assignments, discussions |
| 4 | 2Theoretical | THEORETICAL A1:The student recognizes the mechanic of picking genie and grading before storing fruit and vegetables. | THEORETICAL Classification of sugars in fruit | THEORETICAL audio methods, Writing on the board Direct dialogue Style | Shortexams, assignments, discussions |
| | 3Practical | PRACTICAL B1:The student's goal at categorizing carbohydrates. | PRACTICAL Classification of carbohydrate vehicles | PRACTICAL Assigning tasks and reports | Shortexams, assignments, discussions |
| 5 | 2Theoretical | THEORETICAL C2:Explains to the student the changes that occur in pectins in fruit fruits during storage. | Theoretical Pectins in fruit | THEORETICAL audio methods, Writing on the board Direct dialogue Style | Shortexams, assignments, discussions |
| | 3Practical | PRACTICAL a3:The student recognizes ways. Diabetes analysis | PRACTICAL Diabetes analysis methods | PRACTICAL Assigning tasks and reports | Shortexams, assignments, discussions |
| 6 | 2Theoretical | THEORETICAL C3:Suggest a method for student Suitable for making fruits More fruits and vegetable Palatability through preservation On flavor and volatile substances in fruits | THEORETICAL Fruit and flying materials fruits | THEORETICAL audio methods, Writing on the board Direct dialogue Style | Shortexams, assignments, discussions |

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| | 3Practical | PRACTICAL E1:Determines the most common systems for measuring food colors | PRACTICAL Food colour measurement systems | PRACTICAL Assigning tasks and reports | Shortexams, assignments, discussions |
| 7 | 2Theoretical | THEORETICAL C4:The student is aware of the most important changes that occur in crop yields as they are cold-stored. | THEORETICAL Vitamins in fruits and vegetables. | THEORETICAL audio methods, Writing on the board Direct dialogue Style | Shortexams, assignments, discussions |
| | 3Practical | PRACTICAL b2:The student's perfect. Understood. Food dyes | PRACTICAL Estimation of food dyes | PRACTICAL Assigning tasks and reports | Shortexams, assignments, discussions |
| 8 | 2Theoretical | THEORETICAL A2:The student recognizes the most important changes in mineral salts during the storage of fruits and vegetables. | THEORETICAL Metal salts in fruits and vegetables. | THEORETICAL audio methods, Writing on the board Direct dialogue Style | Shortexams, assignments, discussions |
| | 3Practical | PRACTICAL b3:Applying what you know about chemical reaction dyes, laboratoryly. | PRACTICAL Chemical reaction dyes | PRACTICAL Assigning tasks and reports | Shortexams, assignments, discussions |
| 9 | 2Theoretical | THEORETICAL B3:The student rules on efficiency. Storage methods on quality Food dyes in Fruit and vegetables. | THEORETICAL Food dyes in fruit. And green. | THEORETICAL audio methods, Writing on the board Direct dialogue Style | Shortexams, assignments, discussions |

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| | 3Practical | PRACTICAL c2:It calculates the proportion of carrots in vegetables | PRACTICAL Estimation of carotene rat | PRACTICAL Assigning tasks and reports | Shortexams, assignments, discussions |
| 10 | 2Theoretical | THEORETICAL A3:Students recognize the most important organic acids found in fruits and vegetables. | THEORETICAL Organ acids. | THEORETICAL audio methods, Writing on the board Direct dialogue Style | Shortexams, assignments, discussions |
| | 3Practical | PRACTICAL c3:It's practically a division of Vitamins to totals by source | PRACTICAL Vitamins and their species. | PRACTICAL Assigning tasks and reports | Shortexams, assignments, discussions |
| 11 | 2Theoretical | THEORETICAL B4:Student masters a way of Fat classification and distribution In the fruits of industrial crops | THEORETICAL Fat in crops Industrial | THEORETICAL audio methods, Writing on the board Direct dialogue style | Shortexams, assignments, discussions |
| | 3Practical | PRACTICAL B4:The student can appreciate the ascorbic acid | PRACTICAL Methods of estimation of ascorbic acid | PRACTICAL Assigning tasks and reports | Shortexams, assignments, discussions |
| 12 | 2Theoretical | THEORETICAL E1:Sets out the student's main ways of picking fruit, sorting, phasing and packing | THEORETICAL Pick, sort, draw and load. | THEORETICAL audio methods, Writing on the board Direct dialogue Style | Shortexams, assignments, discussions |
| | 3Practical | PRACTICAL C4:Shows the ablutimetric method to estimate vitamins. | PRACTICAL Vitamin estimation ablutimetric method. | PRACTICAL Assigning tasks and reports | Shortexams, assignments, discussions |

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| 13 | 2Theoretical | THEORETICAL A4:Students recognize kinds of ways to grow and its relations In the phenomenon chlamyctic. | THEORETICAL Damage to agricultural cr at Storage | THEORETICAL audio methods, Writing on the board Direct dialogue style | Shortexams, assignments, discussions |
| | 3Practical | c5: Shows how the chromotocravi paper is. | PRACTICAL Cromotokravy, paper | PRACTICAL Assigning tasks and reports | Shortexams, assignments, discussions |
| 14 | 2Theoretical | THEORETICAL B5:The student is aware of the sources of stimulation of maturity in fruits and the effect of growth combinations. | THEORETICAL Factors affecting breathing speed | THEORETICAL audio methods, Writing on the board Direct dialogue Style | Shortexams, assignments, discussions |
| | 3Practical | PRACTICAL c6:Shows how the chromotocravi is, the thin layer, and a visit. Scientific | PRACTICAL Cromotocravi, the thin layer. | PRACTICAL Assigning tasks and reports | Shortexams, assignments, discussions |
| 15 | 2Theoretical | THEORETICAL A1:The student recognize the kinds of ways to grow fruit and its relationship v Clamcteric phenomenon. | THEORETICAL Field visit to a storage warehouse Fruit and vegetables, rep By watching the student of the visit in question. | THEORETICAL audio methods, Writing on the board Direct dialogue Style | Shortexams, assignments, discussions |
| | 3Practical | PRACTICAL b5:The student collects information on the effect certain transactions on the maturity of fruit and vegetable crops. | PRACTICAL The effect of some transactions on maturity Fruit and vegetable crops | PRACTICAL Assigning tasks and reports | Shortexams, assignments, discussions |

11. Course Evaluation

| No. | Evaluation methods | Evaluation date (one week) | Grade | Relative |
|-----|--------------------|----------------------------|-------|----------|
|-----|--------------------|----------------------------|-------|----------|

| | | | | weight % |
|-----------|--------------------------------|---------------------------------|-------------|-----------------|
| 1 | Report 1 | fourth week | 2.5 | 2.5 |
| 2 | Report 2 | fifth week | 2.5 | 2.5 |
| 3 | (1)Quiz | sixth week | 2 | 2 |
| 4 | (2)Quiz | fourteenth week | 2 | 2 |
| 5 | (3)Quiz | fifteenth week | 1 | 1 |
| 6 | Mid 1 | sixth week | 7.5 | 7.5 |
| 7 | Mid2 | Eleventh week | 7.5 | 7.5 |
| 8 | theoretical exams Final | Final semester exams | 40 | 40 |
| 9 | Practical field project | The fifteenth week | 5 | 5 |
| 10 | Seminars | The third and fifth week | 2 | 2 |
| 11 | Practical (1) Quiz | The first week | 1 | 1 |
| 12 | Practical (2) Quiz | fourth week | 0.5 | 0.5 |
| 13 | Practical (3) Quiz | The fourteenth week | 6.5 | 6.5 |
| 15 | Final practical test | Final semester exams | 20 | 20 |
| | Total | 100 | %100 | %100 |

11. Learning and Teaching Resources

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| Required textbooks (curricular books, if any) | A book of care and storage of fruits and vegetables |
| Main references (sources) | |
| Recommended books and references (scientific journals, reports...) | Many articles and research published in Springer, Elsevier, SPRINGER NATURE |
| Electronic References, Websites | World Health Organization and American Food and Drug Organization |

Instructor of theoretical part

Qaswaa yousif jameel

Instructor of practical part

Rowa adil hameed

Chairman of the scientific committee

Prof. Dr. Moafak mahmood ahmed

Head of the department of Food science

Prof. Dr. Sumaya khalaf badawi