Course Description Form

1. Course Name:

Technology of dates and sugar

2. Course Code:

TEDS368

3. Semester / Year:

First semester (fall) / 2023-2024

4. Description Preparation Date:

1/9/2024

5. Available Attendance Forms:

Presence

6. Number of Credit Hours (Total) / Number of Units (Total)

30theoretical hours + 45 practical hours (75 hours) / 3.5 units

7. Course administrator's name (mention all, if more than one name)

Name: A. Prof. Dr. Basmaa Saaduldeen Sheet and Afkar Yahya
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8. Course Objectives

Theoretical	**Practical:**
- Enabling students to know the economic and industrial importance of sugar. - Enabling students to learn about sugar sources and methods of extraction. - Illustration for students of the most important uses molas and liquid sugar. - Familiarize students with the types of dates and the chemical composition. - Familiarize students with the stages of manufacture liquid milk and children's food - Help students understand the subject and how to benefit from it in the future after graduation. - Developing students' study skills	• Assign students to group work, such as conducting various tests and discovering their skills. • Enabling students to gain knowledge through independent work. • Assign students to write a report on each experiment.

9. Teaching and Learning Strategies

Theoretical:	**Practical:**
- Interactive lecture - Brainstorming - Dialogue and discussion - Practical exercises - Using educational videos on YouTube to operate equipment not available in the department - Using PowerPoint slides - Asking inferential questions during discussions various aspects of education.	• Assign students to group work, such as conducting various and discovering their skills. • Enabling students to gain knowledge through independent work. • Assign students to write a report on each experiment.

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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Theoretical 3 Practical	**THEORETICAL:** **a1:**The student understands the economic and industrial importance sugar, its sources, and properties. **b1:** The student explains the composition of sugar and how it is produced. **PRACTICAL:** **c1:** The student applies various methods manufacturing sugar and date products as well as various laboratory tests.	**THEORETICAL:** The economic and industrial importance of sugar **PRACTICAL:** Methods for estimating moistur	**THEORETICAL:** Auditory methods, writing on the board and direct dialogue method **PRACTICAL:** Assigning tasks and reports	**THEORETICAL:** Quick and monthly exams, homework assignments and discussions **PRACTICAL:** Quick exams, homework assignments, practical training
2	2 Theoretica 3 Practical	**THEORETICAL:** **a1:**The student understands the economic and industrial importance sugar, its sources, and properties. **b1:** The student explains the composition of sugar and how it is produced. **PRACTICAL:** **c1:** The student applies various methods manufacturing sugar and date products as well as various laboratory tests.	**THEORETICAL:** Sugar beet, its properties and chemical composition **PRACTICAL:** Calculating percentage of total solids, soluble solids and insoluble solids	**THEORETICAL:** Auditory methods, writing on the board and direct dialogue method **PRACTICAL:** Assigning tasks and reports	**EORETICAL:** Quick and monthly exams, homework assignments and discussions **PRACTICAL:** Quick exams, homework assignments, practical training
3	2 Theoretic 3 Practical	**THEORETICAL:** **a1:**The student understands the economic and industrial importance sugar, its sources, and properties.	**THEORETICAL:** Production stages: Receiving, Storage, Beets cleaning	**THEORETICAL:** Auditory methods, writing on the board and direct dialogue method	**THEORETICAL:** Quick and monthly exams, homework

		b1: The student explains the composition of sugar and how it is produced. **PRACTICAL:** **c1:** The student applies various methods manufacturing sugar and date products as well as various laboratory tests.	**PRACTICAL:** Ash estimation	**PRACTICAL:** Assigning tasks and reports	assignments and discussions **PRACTICAL:** Quick exams, homework assignments, practical training
4	**2 Theoretic** **3 Practical**	**THEORETICAL:** **a1:**The student understands the economic and industrial importance sugar, its sources, and properties. **b1:** The student explains the composition of sugar and how it is produced. **PRACTICAL:** **c1:** The student applies various methods manufacturing sugar and date products as well as various laboratory tests.	**THEORETICAL:** Manufacturing stages: cutting, extraction and purification **PRACTICAL:** Types of Incineration (wet and dry)	**THEORETICAL :** Auditory methods, writing on the board and direct dialogue method **PRACTICAL:** Assigning tasks and reports	**THEORETICAL :** Quick and monthly exams, homework assignments and discussions **PRACTICAL:** Quick exams, homework assignments, practical training
5	**2 Theoretic** **3 Practical**	**THEORETICAL:** **a1:**The student understands the economic and industrial importance sugar, its sources, and properties. **b1:** The student explains the composition of sugar and how it is produced. **PRACTICAL:** **c1:** The student applies various methods manufacturing sugar and date products	**THEORETICAL:** Manufacturing stages: Shortening, color, concentration and crystallization **PRACTICAL:** Estimating raw sugars using Polarimeter	**THEORETICAL :** Auditory methods, writing on the board and direct dialogue method **PRACTICAL:** Assigning tasks and reports	**THEORETICAL:** Quick and monthly exams, homework assignments and discussions **PRACTICAL:** Quick exams, homework assignments, practical training

		as well as various laboratory tests.			
6	**2 Theoretic** **3 Practical**	**THEORETICAL:** **a1:**The student understands the economic and industrial importance sugar, its sources, and properties. **b1:** The student explains the composition of sugar and how it is produced. **PRACTICAL:** **c1:** The student applies various methods manufacturing sugar and date products as well as various laboratory tests..	**THEORETICAL** Sugar production from sugarcane **THEORETICAL** Estimating soluble solids in molasses	**THEORETICAL:** Auditory methods, writing on the board and direct dialogue method **PRACTICAL:** Assigning tasks and reports	**THEORETICAL:** Quick and monthly exams, homework assignments and discussions **PRACTICAL:** Quick exams, homework assignments, practical training
7	**2 Theoretic** **3 Practical**	**THEORETICAL:** **a1:**The student understands the economic and industrial importance sugar, its sources, and properties. **b1:** The student explains the composition of sugar and how it is produced. **PRACTICAL:** **c1:** The student applies various methods manufacturing sugar and date products as well as various laboratory tests	**THEORETICAL** Using molasses and liquid sugar **PRACTICAL:** Identifying molasses problems	**THEORETICAL:** **Auditory methods, writing on the board and direct dialogue method** **PRACTICAL:** Assigning tasks and reports	**THEORETICAL:** Quick and monthly exams, homework assignments and discussions **PRACTICAL:** Quick exams, homework assignments, practical training
8	**2 Theoretic** **3 Practical**	**THEORETICAL:** **a1:**The student understands the economic and industrial importance sugar, its sources, and properties. **b1:** The student explains the	**THEORETICAL** Dates, their importa and varieties Ripening stages	**THEORETICAL:** Auditory methods, writing on the board and direct dialogue method	**THEORETICAL:** Quick and monthly exams, homework assignments and discussions

		composition of sugar and how it is produced. **PRACTICAL:** **c1:** The student applies various methods manufacturing sugar and date products as well as various laboratory tests	**PRACTICAL:** The basis of vinegar production	**PRACTICAL:** Assigning tasks and reports	**PRACTICAL:** Quick exams, homework assignments, practical training
9	**2 Theoretic** **3 Practical**	**THEORETICAL:** **a1:**The student understands the economic and industrial importance sugar, its sources, and properties. **b1:** The student explains the composition of sugar and how it is produced. **PRACTICAL:** **c1:** The student applies various methods manufacturing sugar and date products as well as various laboratory tests	**THEORETICAL:** Components and composition of the date fruit **PRACTICAL:** Vinegar production methods, both ancient and moder	**THEORETICAL:** Auditory methods, writing on the board and direct dialogue method **PRACTICAL:** Assigning tasks and reports	**THEORETICAL:** Quick and monthly exams, homework assignments and discussions **PRACTICAL:** Quick exams, homework assignments, practical training
10	**2 Theoretic** **3 Practical**	**THEORETICAL:** **a1:**The student understands the economic and industrial importance sugar, its sources, and properties. **b1:** The student explains the composition of sugar and how it is produced. **PRACTICAL:** **c1:** The student applies various methods manufacturing sugar and date products as well as various laboratory tests	**THEORETICAL:** Date Manufacturing **PRACTICAL:** Detecting Fraud in Vinegar	**THEORETICAL:** Auditory methods, writing on the board and direct dialogue method **PRACTICAL:** Assigning tasks and reports	**THEORETICAL:** Quick and monthly exams, homework assignments and discussions **PRACTICAL:** Quick exams, homework assignments, practical training

11	2 Theoretic 3 Practical	**THEORETICAL:** **a1:**The student understands the economic and industrial importance sugar, its sources, and properties. **b1:** The student explains the composition of sugar and how it is produced. **PRACTICAL:** **c1:** The student applies various methods manufacturing sugar and date products as well as various laboratory tests.	**THEORETICAL** Date Manufacturin **PRACTICAL:** Methods for Estimating Total and Reducing Sugars	**THEORETICAL:** Auditory methods, writing on the board and direct dialogue method **PRACTICAL:** Assigning tasks and reports	**THEORETICAL:** Quick and monthly exams, homework assignments and discussions **PRACTICAL:** Quick exams, homework assignments, practical training
12	2 Theoretic 3 Practical	**THEORETICAL:** **a1:**The student understands the economic and industrial importance sugar, its sources, and properties. **b1:** The student explains the composition of sugar and how it is produced. **PRACTICAL:** **c1:** The student applies various methods manufacturing sugar and date products as well as various laboratory tests	**THEORETICAL** The most important processing industries for dates **PRACTICAL:** Methods for estimating non-reducing sugars in dates	**THEORETICAL:** Auditory methods, writing on the board and direct dialogue method **PRACTICAL:** Assigning tasks and reports	**THEORETICAL:** Quick and monthly exams, homework assignments and discussions **PRACTICAL:** Quick exams, homework assignments, practical training
13	2 Theoretic 3 Practical	**THEORETICAL:** **a1:**The student understands the economic and industrial importance sugar, its sources, and properties. **b1:** The student explains the composition of sugar and how it is	**THEORETICAL** The most important processing industri for dates	**THEORETICAL:** Auditory methods, writing on the board and direct dialogue method	**THEORETICAL:** Quick and monthly exams, homework assignments and discussions

		produced. **PRACTICAL:** **c1:** The student applies various methods manufacturing sugar and date products as well as various laboratory tests.	**PRACTICAL:** Molasses theories	**PRACTICAL:** Assigning tasks and reports	**PRACTICAL:** Quick exams, homework assignments, practical training
14	**2 Theoretic** **3 Practical**	**a1:**The student understands the economic and industrial importance sugar, its sources, and properties. **b1:** The student explains the composition of sugar and how it is produced. **PRACTICAL:** **c1:** The student applies various methods manufacturing sugar and date products as well as various laboratory tests. extract sugar from molasses and memorizes extraction method.	**THEORETICA:L** The most important processing industri for dates **PRACTICAL:** How to extract sugar from molasse	**THEORETICAL:** Auditory methods, writing on the board and direct dialogue method **PRACTICAL:** Assigning tasks and reports	**THEORETICAL:** Quick and monthly exams, homework assignments and discussions **PRACTICAL:** Quick exams, homework assignments, practical training
15	**2 Theoretical** **3 Practical**	**THEORETICAL:** **d1:** Documents the equipment and machinery he/she has observed in sugar and date production and yeast production laboratories. **PRACTICAL:** **e1:**The student participates identifying a problem and attempting to	**THEORETICAL** A scientific visit to sugar and yeast factory **PRACTICAL:** Solving a problem	**THEORETICAL :** Report Writing Method **PRACTICAL:** Assigning a Report	**THEORETICAL:** Discussion about the visit **PRACTICAL:** Discussion the problem and how solve it

		solve it with his/ classmates, such as presence of smooth rough crystals w sugar crystallizes..			

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

t	Evaluation methods	Evaluation date (one week)	Grade	Relative weight %
1	Report 1	Fourth week	2.5	2.5
2	Report 2	Eighth week	2.5	2.5
3	Quiz (1)	Sixth week	2	2
4	Quiz (2)	Ninth week	2	2
5	Quiz (3)	Fifteenth week	1	1
6	Semester Exam (1)	Sixth week	7.5	7.5
7	Semester Exam (2)	Twelfth week	7.5	7.5
8	Final theoretical test	Final Semester Exams	40	40
9	Practical field project	Fifteenth week	5	5
10	Field Assessment	Third and fifth week	2	2
11	Practical Quiz (1)	First week	1	1
12	Practical Quiz (2) Quiz	Fourth week	0.5	0.5
13	Practical Quiz (3) Quiz	Fourteenth week	1	1
14	assignment of duties, discussions	Weeks 2,3,5,6,7,8,9,10,11,12,13	5.5	5.5
15	Final Practical Test	Final Semester Exams	20	20
	Total	100	%100	%100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Dates and Sugar Technology, 2019 Author: dr. Adnan Wahab al-Muzaffar Ministry of Higher Education and Scient Research/Iraq
Main references (sources)	Palm Dates, by: Dr. Abdul Jabbar Al-Bakr
Recommended books and references (scientific journals, reports...)	The feasibility of producing apple molasses as a economic marketing alternative to poor fruit lo in Suwayda d. Safwan Abu Assaf and others, 2015
Electronic References, Websites	https://t.me/agricultural_eng

Theoretical subject teacher

A.Prof.Dr. Basmaa Saaduldeen Sheet

Practical subject teacher

Afkar yahya

Chairman of the scientific committee

Dr. Taha Muhammad Taqi

Head of the department of Food science

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