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**Department of Food Technology**

**College of Agricultural Engineering Sciences**

**University of Salahaddin**

**Subject:** **Sugar and Confectionery**

**Course Book – *3rd* Stage (Second Semester)**

**Lecturer's name: Assist professor Dr. Seerwan Ahmed Abdullah & Mrs. Srwa Ramathan**

**Academic Year: 2022/2023**

**Course Book**

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| **1. Course name** | Sugar and Confectionary |
| **2. Lecturer in charge** | Assist prof. Dr Seerwan Ahmed Abdullah  |
| **3. Department/ College** | Food Technology- College of Agricultural Engineering Sciences |
| **4. Contact** | e-mail: serwan.abdullah@su.edu.krdTel: +964-7501199223 |
| **5. Time (in hours) per week**  | Theory and Practice ( 2 x 3 hrs)  |
| **6. Office hours** | 30 hrs |
| **7. Course code** | N. |
| **8. Teacher's academic profile**  | * <https://academics.su.edu.krd/profile-admin/index.php?p=dashboard>
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| **9. Keywords** | Sugar-cane and Sugar beet manufacture, Physical &chemical properties of sugar, Role of sugars in food industry, caramel, candies, chocolate and other products  |
| **10. Course overview:**Sugar-cane and sugar- beet as sugar raw materials, and manufacture of granulated sugar and Liquid sugars. Properties of granulated sucrose and liquid sugars. Invert sugar and their characteristics. This course is about the role of sugar in the food industry as well as describes the terms of its chemical and physical properties**.** Studies of the chemical aspects of sugar include those on **sweetness and flavor**, the **reactions of sucrose and invert sugar**, caramel formation, antioxidant effect, and the effect of sugar on the curdling of milk, and gel formation, Physical properties of sugar discussed here are osmotic pressure, crystallization and solubility, hygroscopicity, thermodynamic properties, viscosity, grain size, bulk handling, and such miscellaneous properties as stickiness and thermal and electrical conductivity**,** as well as the cooking or processing techniques on the quality of the finished products. |
| **11. Course objective:**Upon completion of sugar and confectionery, students will have learned to:* To understand all stages of sugarcane and sugar beet production
* To study the methods of manufacturing of sugar confectionery such as caramel, candies, chocolate, gum and other products.
* The student will learn how to package and display their candies.
* To know the physiochemical properties of raw materials to produce the best quality of products
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| **12. Student's obligation**1. Attendance is required and will influence course grade.
2. **Silent your mobile or turned off will be better** in class
3. All graded assignments, quizzes, and exams will be returned to students.
4. The course is graded on an absolute grading policy.
5. **Quizzes:** In-class quizzes (typically10-15 minutes) will be one problem or several conceptual questions given at the beginning of the lecture. The material covered on the quiz will come from the previous lectures, homework. The quiz will be closed books and notes. Every week in previous class

**Exams:** One Mid-term and Final exam will be given during the semester. The exams will be  Closed books and notes. |
| **13. Forms of teaching**White board, Data show, and YouTube  |
| **14. Assessment scheme**1. Mid-term exam (Theory) 15 points
2. Mid-term exam (Practice) 35 points
3. Final exam (Theory) 50 points
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| **15. Student learning outcome:**Students understanding the science of sugar and what happen at various stages of the cooking and cooling processes. Students learn how to make sugar confectioneries, such as marshmallow, caramels with salted butter, chocolate caramels, nougats, lollipops, and gummies. Students will also learn how to properly package their candies and how to display them.  |
| **16. Course Reading List and References‌:**1. W. P. Edward. (2000). The Science of sugar confectionery.
2. Journals, Internet
3. Sugar beet , White sugar, FAO, 2013
4. You Tube

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| **17**. **The Topics will be covered (Theory)**

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| **Weeks** | **Modules** |
| **Week-1** | Introduction, syllabus and general information |
| **Week 2-3** | Sugar cane and sugar beet production |
| **Week 4** | Chemical structure of sugar beet |
| **Week 5** |  Types of Sugar and artificial sugar |
| **Week 6** | First-Mid Term |
| **Week 7** | Gelatin in Confectionery |
| **Week 8** | Chocolate Manufacture |
| **Week 9** | Sugar Glasses in the Chemistry of Boiled Sweets |
| **Week 10** | Fondant |
| **Week 11** | Fudge |
| **Week 12** | Gums |
| **Week 13** | Caramels, nougats & lollipops |
| **Week 14** | Review and Wrap-up |
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|  | **18. Practical Topics will be covered** |

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| **No.** | **Title of the Subjects** |
| **Week 1** |  |
| **Week 2** |  |
| **Week 3** |  |
| **Week 4-5** |  |
| **Week 6** |  |
| **Week 7** |  |
| **Week 8-9-10** |  |
| **Week 11** |  |
| **Week 12** |  |
| **Week 13** |  |
| **Week 14** |  |
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| **19. Examinations:** **Q1:A.** Match the words in list A with appropriates words in list B, by phrase or equation

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| --- | --- | --- |
| No. | A | B |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |
| Q2:  |  |  |
| Q3: |  |  |

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| **20. Extra notes****Students activity, Report, Quiz, and share in class**  |
| **21. Peer review** .‌‌  |