Course Title: **Food and Dairy Science (Fundamentals) Code: FS 0701**

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| **University** | **Benha** |
| **Faculty** | **Faculty of Agriculture** |
| **COURSE SPECIFICATIONS:** | |
| Program of which the course is given | Agricultural Biotechnology program |
| Major or Minor element of Program | Minor |
| Departments offering the Program | Faculty of Agriculture, Benha university |
| Department offering the course | Food technology |
| Academic year / Level | Level 2 first semester |
| Date of specification approval |  |

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| **A- BASIC INFORMATION** | |
| Title | **Food and Dairy Science (Fundamentals)** |
| Code | FS 0701 |
| Credit Hours | 3 Hours |
| Lecture | 2 Hours / week |
| Practical | 2 Hours / week |
| Total: | Hours |

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| **B- PROFESSIONAL INFORMATION** |
| **1 – OVERALL AIMS OF COURSE** |
| ***The overall objectives of this course are:***   1. Fundamental of food and dairy technology course is teaching the students how can use some different methods to preserve any food for short and long time. 2. Students are exposed to some components of food processing, from raw materials handling, chemical reactions and biochemical properties, food processing and sanitation. 3. Fundamental of food and dairy technology course will provide training to a level of competency required of a technical officer in the food industry, the course develops skills in science and technology areas of food product manufacture. The production procedures, efficiencies and production techniques within some food. 4. The course is emphasize the theory and practice of food manufacture covering some product categories. |

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| **2 – Intended Learning Outcomes of Course (ILOs)** |
| **A. Knowledge and Understanding:** |
| ***By the end of the course, students should:***  **1-** understanding the important of food components in human nutrition (i.e. protein, lipids, carbohydrate, minerals, water, enzymes, pigments and flavors.) with an emphasis on chemical and physical changes that occur during the manufacture of a range of food.  2- Explain the functions of major food ingredients in a variety of food systems. 3- 3- Demonstration of quantitative techniques to the determination of composition and quality of food products.  4- Understanding the reactions and functions of food components in food preparation.  5- Understanding some of the main method for preservation such as: chilling, storage, freezing, drying, canning, preservatives (natural and chemicals) and some methods for concentration. |

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| B. Intellectual Skills: |
| ***Successful completion of this course will allow students to:***   1. The student should be solved the problems arising from the preparation and manufacture of food and their related products. The student should be able to analyze data and draw conclusions about food elements and their importance. 2. The student should be able to define the spoilage of foods that are likely to introduce from each source of contamination or deterioration. 3. The student should be able to monitor the preparation and manufacture of food to meet quality standards. The student should be able to develop and implement a preventative maintenance program. 4. The student should be able to evaluate significantly the evidence underlying current theories and hypotheses. The student should be able to evaluate /interpret current scientific research in terms of application to dietetic practice |

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| C. Professional and Practical Skills: |
| ***By the end of this course, students will be able to:***   1. Preparation of industrial solution: sugar, salt, acid. 2. Production different kinds of juice and syrup. 3. Preservation of food by different methods. |

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| D. General and Transferable Skills: |
| 1- Students should be familiar with working in small groups in the practical classes from which they produce individual reports.  2- They will be able to communicate effectively with a wide range of individuals using a variety of means.  3- Plan and organize their time to ensure that all tasks are completed and deadlines met.  4- Utilize problem solving skills in a variety of theoretical and practical situations.  5- Use computers for communication, data handling and word processing.  6- Students should be familiar with writing a case study.  7-Use of new technological tools and ICDL.  8- Access to Web sites.  9- Life-long learning skills.  10- Communicate effectively with a wide range of individuals using a variety of means.  11- Work effectively individuals or as part of a team. |

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| 3. CONTENTS | | | |
| **Topic** | **No. of hours** | **Lectures** | **Practical** |
| Introduction | 3 | 2 | 2 |
| Food manufacture, food spoilage and industrial solutions. | 3 | 2 | 2 |
| Food manufacture in Egypt and Arab countries, and food deficiency. | 3 | 2 | 2 |
| Food components. | 3 | 2 | 2 |
| Food preservation, by chilling, freezing, drying, additives and canning. | 6 | 4 | 4 |
| Cereal technology and bakery products | 3 | 2 | 2 |
| Edible-oil technology | 3 | 2 | 2 |
| Carbonated beverages, juice, and jams. | 3 | 2 | 2 |
| Manufacture of condensed and dried milk. | 3 | 2 | 2 |
| Milk, as food and an agricultural product. | 3 | 2 | 2 |
| Milk chemical composition. | 3 | 2 | 2 |
| Milk production, handling and treatment. | 6 | 4 | 4 |

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| 4. TEACHING AND LEARNING METHODS |
| 1. The main subject areas are covered in the lectures (see syllabus Plan). 2. Laboratory practical / exercises 3. Several student seminar sessions give the opportunity for students to bring questions or discuss any aspects of the course with the tutor. 4. 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 class participation/ 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.  2) Hour examination grades: to assess how progress of the students.  3) Term-paper: to assess student ’ability to understand and figure out an article review of specific subject.  4) Mid-Term examination: to assess how difficult or easy of course subjects taken through the first mid-term to understand and realize by students.  5) Oral Examination: to assess how student’ ability to discuss a problem and suggest an realized solving.  6) Practical/Lab Examination: to assess student’ ability to carry out small experiment, analysis, and discuss the results.  7) Final Examination: to assess how much the student gain totally. |

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| 6. ASSESSMENT SCHEDULE | | |
| No | Assessment | **Week No.** |
| 1 | Periodical exam | 4, 8, 12 |
| 2 | Practical exam | 13 |
| 3 | Oral exam | 13 |
| 4 | Final exam | 14 |

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| 7. WEIGHTING OF ASSESSMENT | | |
| No | Assessment | **%** |
| 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. **Walstra, P., Wouters, J.T. and Geurts, T.J. 2006**. Dairy Science and technology.2nd Ed CRC/Taylorand Francis Group. NY, USA. <http://www.amazon.com/Dairy-Science-Technology-Second-Food/dp/0824727630/ref=sr_1_1?s=books&ie=UTF8&qid=1390949383&sr=1-1&keywords=Dairy+Science+and+technology> 2. [**Vickie A. Vaclavik**](http://www.amazon.com/s/ref=ntt_athr_dp_sr_1?_encoding=UTF8&field-author=Vickie%20A.%20Vaclavik&search-alias=books&sort=relevancerank)**,** [**Elizabeth W. and Christian**](http://www.amazon.com/s/ref=ntt_athr_dp_sr_2?_encoding=UTF8&field-author=Elizabeth%20W.%20Christian&search-alias=books&sort=relevancerank) **2007**. Essentials of Food Science (Food Science Text Series), 3rd edition, Springer. <http://www.amazon.com/Essentials-Food-Science-Text/dp/1461491371/ref=sr_1_2?s=books&ie=UTF8&qid=1390949420&sr=1-2&keywords=Essentials+of+Food+Science> 3. [**Trevor Britz**](http://eu.wiley.com/WileyCDA/Section/id-302479.html?query=Trevor+Britz)**,** [**Richard K. and Robinson**](http://eu.wiley.com/WileyCDA/Section/id-302479.html?query=Richard+K.+Robinson) **2008.** Advanced Dairy Science and Technology. Wiley-Blackwell. <http://www.amazon.com/Advanced-Dairy-Science-Technology-Trevor/dp/1405136189/ref=sr_1_1?s=books&ie=UTF8&qid=1390949453&sr=1-1&keywords=Advanced+Dairy+Science+and+Technology>. |

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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. Hassan El-Tanahey**  **Dr. Hassan Barakat** |
| **Date: / / 2015** | |