**Course Delivery Plan**

**Department of Nutrition and Food Engineering**

**Semester**: Spring 2021

**Course Code: NFE 323 Credit Hours: 3**

**Course Title: Food Processing and Packaging Engineering**

**Course Rationale:** This course attempts to strengthen the skill raw materials and packaging materials for commercial food items considering and able them competent for the industrial and global perspectives.

**Objective of the course:**

* To enhance knowledge on food processing techniques
* To foster knowledge on different food packaging materials
* To develop skills on manufacturing of packaging materials and food products
* To introduce them the recent development of food packages.

**Learning outcome:**

* Able to gain basic ideas of raw materials and their properties.
* Able to gain knowledge on theoretical and practical aspects of food packaging materials.
* Able to competent them in packaging industry.
* Able to manage a food processing and packaging plant.

**Theory Session Plan (In order of Conduction in the class):**

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| --- | --- | --- |
| **Week No** | **Topics** | **Assessments**  **(ASSN/CT/Mid/Final)** |
| WK 1 | 1. Introduction to Food Packaging | None |
| WK 2 | 1. Food Packaging Machineries | None |
| WK 3 | 1. Food packaging materials (Traditional & Modern) | None |
| WK 4 | 1. Food packaging materials (Traditional & Modern) | Quiz 1 |
| WK 5 | 1. Modified Atmosphere Packaging | None |
| WK 6 | 1. Active Packaging | None |
| WK 7 | 1. Food packaging and Labeling Act | Quiz 2 |
| **WK 8** | **Midterm Exam**  **Syllabus: 1-7** | **Midterm Exam** |
| WK 9 | 1. Quality and shelf life of packaged foods. 2. Testing of packaging materials | None |
| WK 10 | 1. Environmental Impact | Quiz 3 |
| WK 11 | 1. Raw materials and properties | None |
| WK 12 | 1. Raw material handling, Physical Separation, Extrusion, 2. Drying, Evaporation, | None |
| WK 13 | 1. Food Processing Equipment’s | Quiz 4 |
| WK 14 | **16. Review class (If needed)** | None |
|  | **----- Final Exam Week ------**  ***Lecture: 07-16 (Final Exam)*** | **Final Exam** |

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| **Text Books:**   1. Food Packaging and Preservation (theory & practice) by M.Mathlouthi- Elsevier Applied science publisher, London and New york. 2. Packaging foods with plastics by winter A. Jenkins & James P Harrington –Technomic publishing co. Inc, Lancaster. Basel. |
| **References:**   1. Flexible food packaging (Question & Answers) by Arthur Hirsch VNB – Van Nostrand Reinhold, New York (An AVI Book), ISBN 0-442-00609-8 2. Food and Packaging Interactions by Joseph H. Hotchkiss, (ACS symposium series -365, April 5-10, 1987, American chemical society, Washington DC, 1988.) |

**Evaluation Strategy:**

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| **Evaluation Items** | **Marks** |
| Class Participation/ attendance | 7% |
| Quizzes (3) | 15% |
| Assignment | 5% |
| Presentation | 8% |
| Mid-Term | 25% |
| Final | 40% |
| **Total** | **100%** |

**Grading Policy:**

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| --- | --- | --- | --- |
| Letter grades will be awarded as per the rules of DIU as follows: Numerical Grade | Letter Grade | | Grade Point |
| 80% and above | A+ | (A Plus) | 4.0 |
| 75% to less than 80% | A | (A regular) | 3.75 |
| 70% to less than 75% | A- | (A minus) | 3.5 |
| 65% to less than 70% | B+ | (B Plus) | 3.25 |
| 60% to less than 65% | B | (B regular) | 3.0 |
| 55% to less than 60% | B- | (B minus) | 2.75 |
| 50% to less than 55% | C+ | (C Plus) | 2.5 |
| 45% to less than 50% | C | (C regular) | 2.25 |
| 40% to less than 45% | D | (D regular) | 2.0 |
| Less than 40% | F | (F Fail) | 0.0 |

**Course Teacher:**

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Lecturer

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