**Faculty of Engineering Food Engineering**

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| **Course Title** | **Code** | **ECTS**  **Credit** | **COMU**  **Credit** | **Lecturer** |
| Enzyme Science | ULP-04-009 | **4** | **2** | Assoc. Prof. Emin Yılmaz |
| Fat Technology | ULP-04-010 | **6** | **3** | Assoc. Prof. Emin Yilmaz |
| Food Additives | ULP-04-011 | **4** | **2** | Assist. Prof. Dr. Murat Zorba |
| Food | ULP-04-012 | **5** | **3** | Assist. Prof. Dr. N. Nükhet Demirel Zorba |
| Microbiology |  |  |  |  |
| Food Packaging | ULP-04-013 | **5** | **3** | Assoc. Prof. Dr. Cengiz Caner |
| Food Safety | ULP-04-014 | **4** | **3** | Assist. Prof. Dr. N. Nükhet Demirel Zorba |
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| Material Energy | ULP-04-015 | **3** | **2** | Assoc. Prof. Ayşegül Kırca Toklucu |
| Balance |  |  |  |  |
| Reaction Kinetics | ULP-04-016 | **4** | **2** | Assoc. Prof. Ayşegül Kırca Toklucu |
| of Foods |  |  |  |  |
| Sensory | ULP-04-017 | **3** | **2** | Assoc. Prof. Yonca Yüceer |
| Evaluation of |  |  |  |  |
| Foods |  |  |  |  |
| Technology of | ULP-04-018 | **6** | **3** | Assoc. Prof. Yonca Yüceer |
| Dairy Products |  |  |  |  |
| Toxicology | ULP-04-019 | **4** | **2** | Assist. Prof. Dr. Murat Zorba |
| Improvement Of | ULP-04-043 | **6** | **3** | Assoc. Prof. Dr. Gülgün Yıldız Tiryaki |
| Virgin Oil Quality |  |  |  |  |
| Traditional Foods | ULP-04-044 | **6** | **3** | Assoc. Prof. Dr. Gülgün Yıldız Tiryaki |
| Introduction to the Chemical Analysis of Foods | ULP-04-045 | **6** | **3** | Assoc. Prof. Dr. Gülgün Yıldız Tiryaki |

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| Course Code | ULP-04-009 |  |
| Name of the Course in English | ENZYME SCIENCE | |
| Name of the Course in Turkish | ENZiM BiLiMi | |
| Language of the Course | ENGLISH | |
| Level of the Course | ( x ) Undergraduate | |
| Lecturer | Assoc. Prof. EMiN YILMAZ | |
| ECTS Credit | 4,0 | |
| COMU Credit | 2,0 | |
| Description | Structure, properties and sources of food enzymes, nomenclature and classification of enzymes, enzyme kinetics and inhibition, enzyme purification and immobilization and some important food enzymes . | |

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| Course Code | ULP-04-010 |  |
| Name of the Course in English | Fat Technology | |
| Name of the Course in Turkish | Yağ Teknolojisi | |
| Language of the Course | English | |
| Level of the Course | ( x ) Undergraduate | |
| Lecturer | Assoc. Prof. Emin Yilmaz | |
| ECTS Credit | 6 | |
| COMU Credit | 3 | |
| Description | The sources, chemistry, processing, quality, technology,reactions, authentication and deteriorations of edible fats and oils will be taught by lecture and laboratory experiments. | |

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| Course Code | ULP-04-011 |
| Name of the Course in English | FOOD ADDITIVES |
| Name of the Course in Turkish | GIDA KATKI MADDELERi |
| Language of the Course | ENGLISH |
| Level of the Course | ( x ) Undergraduate |
| Lecturer | Assist. Prof. Dr. MURAT ZORBA |
| ECTS Credit | 4,0 |
| COMU Credit | 2,0 |
| Description | Food additives are described and the purpose and the basic principle of their usage in the food industry are explained . In addition, students are informed on toxicological evaluations, regulations and the classification of the food additives . |

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| Course Code | ULP-04-012 |
| Name of the Course in English | FOOD MICROBIOOLOGY |
| Name of the Course in Turkish | GIDA MiKRIBiYOLOJiSi |
| Language of the Course | ENGLISH |
| Level of the Course | ( x ) Undergraduate |
| Lecturer | Assist . Prof. Dr. N. Nükhet Demirel Zorba |
| ECTS Credit | 5,0 |
| COMU Credit | 3,0 |
| Description | Spoilage or pathogen microorganisms which are found in foods naturally or as a result of contamination and |

properties and growth conditions of these

microorganisms are studied.

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| Course Code | ULP-04-013 |  |
| Name of the Course in English | FOOD PACKAGING | |
| Name of the Course in Turkish | GIDA AMBALAJLAMA | |
| Language of the Course | ENGLISH | |
| Level of the Course | ( x ) Undergraduate | |
| Lecturer | Assoc. Prof. Dr. CENGIZ CANER | |
| ECTS Credit | 5,0 | |
| COMU Credit | 3,0 | |
| Description | This advance course covers the packaging concepts and trends in developed countries. Advanced course for food packaging materials: metal, glass, polymeric packaging materials, properties and new development. Theory of permeability and its measurement will review. Food and packaging interactions: permation, sorption and migration. Specific food packaging (meat product,dairy product, fruit and vegetables, bakery etc.) | |

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| Course Code | ULP-04-014 |  |
| Name of the Course in English | FOOD SAFETY | |
| Name of the Course in Turkish | GIDA GUVENLiĞi | |
| Language of the Course | ENGLISH | |
| Level of the Course | ( x ) Undergraduate | |
| Lecturer | Assist. Prof. Dr. N. NILUFER DEMIREL ZORBA | |
| ECTS Credit | 4,0 | |

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| COMU Credit | 3,0 | |
| Description | Basic definitions of food safety and quality related concepts ,quality assurance systems, stages of implement ing ISO 9000 and HACCP systems in food plants, prerequisite program of HACCP systems, GHP, GMP,stages of implementing HACCP system in food plants, relevant documentation and records,  integrat ing HACCP with ISO 9000 system , related national and international regulations and  standards and EU directives related with food will be  discussed . |  |

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| Course Code | ULP-04-015 |
| Name of the Course in English | MATERIAL ENERGY BALANCE |
| Name of the Course in Turkish | MADDE ENERJi DENKLiKLERi |
| Language of the Course | ENGLISH |
| Level of the Course | ( x ) Undergraduate |
| Lecturer | Assoc . Prof. AYSEGUL KIRCA TOKLUCU |
| ECTS Credit | 3,0 |
| COMU Credit | 2,0 |
| Description | Units and dimensions for mass and energy, basic principles for material and energy balances, material and energy balance problems involved with different food processes |

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| Course Code | ULP-04-016 |
| Name of the Course in English | REACTION KINETICS OF FOODS |
| Name of the Course in Turkish | GIDALARDA REAKSIYON KiNETiĞi |
| Language of the Course | ENGLISH |

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| Level of the Course | ( x ) Undergraduate |
| Lecturer | Assoc. Prof. AYSEGUL KIRCA TOKLUCU |
| ECTS Credit | 4,0 |
| COMU Credit | 2,0 |
| Description | Graphical presentation of experimental data, linear equations and calculations of linear regression, reaction rates, theories about reaction rates, factors affecting reaction rates in foods, calculation of kinetic  parameters for reactions in foods (react ion rate constants and half lives), effect of temperature on reaction rates in foods (activation energies and QlO values) |

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| Course Code | ULP-04-017 |
| Name of the Course in English | SENSORY EVALUATION OF FOODS |
| Name of the Course in Turkish | GIDALARIN DUYUSAL DEĞERLENDiRMESi |
| Language of the Course | ENGLISH |
| Level of the Course | ( x ) Undergraduate |
| Lecturer | Assoc. Prof. YONCA YUCEER |
| ECTS Credit | 3,0 |
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| COMU Credit | 2,0 |
| Description | Sensory evaluation is a science that uses human subjects as instruments . Thus, human senses including vision, touch, olfaction, gustation and hearing are used to evaluate the sensory characteristic of foods. The  course covers the importance of sensory evaluation and application methods in food science . |

Course Code ULP-04-018

Name of the Course in English TECHNOLOGY OF DAIRY PRODUCTS Name of the Course in Turkish SÜT ÜRÜNLERi TEKNOLOJiSi Language of the Course ENGLISH

Level of the Course ( x ) Undergraduate

Lecturer Assoc. Prof. YONCA YUCEER

ECTS Credit 6,0

COMU Credit 3,0

Description The course aims to cover production of dairy products including pasteurized and sterilized milk, fermented dairy foods, cheeses, butter, concentrated and dried dairy foods and icecream.

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| Course Code | Ulp-04-019 |
| Name of the Course in English | TOXICOLOGY |
| Name of the Course in Turkish | TOKSiKOLOJi |
| Language of the Course | ENGLISH |
| Level of the Course | ( x ) Undergraduate |
| Lecturer | Assist. Prof. Dr. Murat Zorba |
| ECTS Credit | 3,0 |
| COMU Credit | 2,0 |
| Description | Toxicology as scientific branch is generally introduced and then some toxicological terms such as toxin, toxication, toxicity are described. All stages for the toxins from entrance to organism to excretion from organism are mentioned in the aspect of both toxins and organisms. The nature, source and format ion of the toxic substances in foods,their harmful effects and the |

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| Course Code | | ULP-04-043 |
| Name of the course in English  . | | Improvement Of Virgin Olive Oil Quality |
| Name of the course in Turkish | | Naturel Zeytinyağı Kalitesinin İyileştirilmesi |
| Language of the course | | English |
| Level of Course | | ( x ) Bachelor's *I* Undergraduate  ( ) Master  ( ) Doctorate |
| Lecturer **(Department; Phone number; e-mail)** | | Assoc. Prof. Dr. Gülgün YILDIZ TİRYAKİ  (Engineering Faculty Food Engineering Department; +90 **286 218 2608; gtiryaki@comu.edu.tr)** |
| ECTS Credits | | 6 |
| COMU Credits | | 3+0 |
| Description |  | Introduction  * Olive Ripening * Olive Harvesting * Transporting and Storing The Olives Prior To Processing The Olives Into Oil * Storing The Oil * Machinery Cleaning and Maintenance * The By-Products of Oil Processing (vegetable water and pomace) * Analysis and Classification of Virgin Olive Oi1 * Recent Advances in Olive Oil Technology * Student Presentations on Selected Topics. |

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| Course Code ' | ULP-04-044 |  |
| Name of the course in English | Traditional Foods | |
| Name of the course in Turkish | Geleneksel Gıdalar | |
| Language of the course | English | |
| Semester (autumn *I* spring)  Yarıyıl (Güz *I* Bahar) | Spring  Bahar | |
| Level of Course | ( X ) Bachelor's *I* Undergraduate  ( ) Master  ( ) Doctorate | |
| Lecturer (Department; Phone number; e-mail) | Assoc.Prof.Dr. Gülgün YILDIZ TİRYAKİ  (Engineering Faculty Food Engineering Department; +90 286 218 2173; gtiryaki@comu.edu.tr) | |
| ECTS Credits | 6 | |
| COMU Credits | 3+0 | |
| Description  •' | Course Subjects: Educate students to demonstrate an extensive knowledge with particular emphasis on:  Introduction to traditional foods. Nutritional importance of traditional foods. Traditional foods in Turkey . \ Production and different prosessing techniques of chosen special and tradition foods. To evaluate possibility of prosess improvement. Contributions of traditional foods to cultural tourism and to the economy of the region. Quality parameters, quality control and analyses, related layouts/regulations. Student presentations on selected topics.  Leaming outcomes: To give detailed information on traditional foods and to teach the importance of them in terms of culture. In addition, to gain experience on traditional food review study.· | |

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| Course Code |  |  | ULP-04-045 |
| Name of the course in English | | | Introduction to the Chemical Analysis of Foods |
| Name of the course in Turkish | | | Gıdaların Kimyasal Analizine Giriş |
| Language of the course | | | English . |
| Semester (autumn *I* spring)  Yarıyıl (Güz *I* Bahar) | | | Autumn  Sonbahar |
| Level of Course | | | ( x ) Bachelor's *I* Undergraduate  ( ) Master  ( ) Doctorate |
| Lecturer (Department; Phone number; e-mail) | | | Assoc. Prof. Dr. Gülgün YILDIZ TİRYAKİ  (Engineering Faculty Food Engineering Department; +90 286 218  2173; gtiryaki@comu. edu.tr) |
| ECTS Credits | | | 6 |
| COMU Credits | | | 3+o |
| Description |  | | Course Subjects: Introduction to food analysis, Goverment |
|  |  | | Regulations and Recommendations Related to Food Analysis, |
|  |  | | Sampling and sample preparation, Evaluation of analytical data and |
|  |  | | reliability of analysis, Chemical composition and characteristics of |
|  |  | | foods, Titratable acidity and pH, Moisture and total solids analysis, |
|  |  | | Ash analysis, Mineral analysis, Crude fat analysis, Protein analysis, |
|  | .' | | Carbohydrate analysis, Fiber analysis, Vitamin analysis, Student presentations on selected topics. |
| Learning Outcomes: Provide a knowledge on analytical methods |
| used to elucidate the composition of foods, their chemical and |
| physical properties as well as to investigate their authenticity . |
| Apply this knowledge with particular emphasis on analytical |
| chemistry to·food analysis by providing various examples for |
| individual food commodity types. |