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| **Subject** | Nutritional Supplements | | | |
| **Type** | **Semester** | **ECTS** | **Code** |
| Elective (E) | 5 | 3 | 130ASU803 |
| **Course Lecturer** | Prof. Asoc. Dr. Ibrahim Mehmeti, Dr.Sc. Nora Hasani | | | |
| **Course Assistant** |  | | | |
| **Course Tutor** |  | | | |
| **Aims and Objectives** | To provide knowledge on:   * International and national legislation on the use of food additives. * The role of additives in improving the properties of food products and the advantages and risks of their impact on health. * Characteristics of food additives related to their physical and chemical properties, as well as their use in the food industry. * Different purposes of additives: food additives, flavourings, flavourings, sweeteners, antimicrobials, emulsifiers. | | | |
| **Learning Outcomes** | Acquiring knowledge on the use of additives in food products and their implications greet the man.  After completing the course, the student earns basic qualifications necessary for the proper use of additives in the food industry. | | | |
| **Course Content** | **Course Plan** | | | **Week** |
| Introduction to Food Additives: Definition, types and additives, benefits of additives, risk of additives; Evaluation of receiving food additives: Scope and purpose of evaluating the acquisition of food additives, the regulation of maximum levels of food additives, international and national legislation on the use of food additives | | | 1 |
| Antioxidants: Chemistry of antioxidants; Types of antioxidants: Mechanisms of action of antioxidants; Structure and activity of antioxidants; Factors affecting antioxidant activity; Quality assessment of dietary antioxidants; How Safe are Food Antioxidants? | | | 2 |
| Emulsifiers: Mechanisms of action of food emulsifiers; Their role in food; Classification of emulsifiers; Types of food emulsifiers; Quality and analysis of food emulsifiers; Foods containing emulsifiers | | | 3 |
| Stabilizers, Tires, Thickeners and Gelatinizing Agents as Food Additives: Introduction to Stabilizing, Thickening, and Gelatinizing Agents; Polysaccharides: Protein-based food stabilizers; Quality control of food stabilizers and thickeners | | | 4 |
| Sweeteners: Introduction to sweeteners; Characteristics of sweeteners; Intensity of sweeteners in foods; Wholesale food sweeteners; Quality assurance and control | | | 5 |
| Spices, flavouring agents and enhancers: Introduction to flavourings and flavouring agents; Classification of food flavourings; Food flavouring chemistry; Quality control of the aroma compounds; Analytical methods for the analysis of food aromatics | | | 6 |
| **Colloquium 1** | | | 7 |
| Food Acidity and Acid Regulators: What are Nutrient Acids and Acid Regulators? Types of nutritional acids; Uses of nutritional acids  Test 1 | | | 8 |
| The food colours and the colour retention agents: Why add colorants in foods? Food colour classification; Overview of colours; Chemistry of colorants for food; Quality assurance of food colours | | | 9 |
| Agents to prevent coagulation (hardness), anti-foaming and polishing:); Clotting phenomena: Clotting mechanisms; Classification of ant mixing agents; Foam sources in food processing; Characteristics of anti-depressant agents; Anti-shrinkage mechanisms and foam destabilization; Synthetic dumplings; Natural Dummies; Introduction to polishing agents; Polishing mineral hydrocarbons | | | 10 |
| Minerals and mineral salts: The importance of minerals and mineral salts; Inorganic mineral salts; Organic mineral salts | | | 11 |
| Dietary Supplements: Introduction to Dietary Supplements; Classification of vitamins; Vitamin A (retinol); Vitamin D (calciferol); Vitamin E; Vitamin K; Vitamin B; Vitamin C (L-ascorbic acid) | | | 12 |
| Conservatives: Natural food preservatives; Traditional methods of food preservation; Artificial preservatives; Modern food preservation techniques; Food preservation safety concerns; Analytical methods for the determination of storage waste  Test 2 | | | 13 |
|  | **Colloquium 2** | | | 14 |
|  | Final test | | | 15 |
| **Literature/References** | Titus A. M. Msagati, Chemistry of Food Additives and Preservatives, Published 2013 by John Wiley & Sons, Ltd.  A. Larry Branen, P. Michael Davidson, Seppo Salminen, John H. Thorngate III, Food Additives, Copyright C 2002 by Rlarcel Ilekker, Inc.  H.-D. Belitz · W. Grosch · P. Schieberle, Food Chemistry, 2009 Springer-Verlag Berlin Heidelberg  Jim Smith and Lily Hong-Shum, Food Additives Data Book, First published 2003 by Blackwell Science Ltd  C.D.Berdanier, JDwyer, E.B.Feldman,Handbook of Nutrition and Food, Secon edition, CRC Press, 2008.  Hans Konrad Biesalski, Peter Grimm;Pocket Atlas of Nutrition**,** Thieme, Stuttgart -New York, 2006.  M. J. Lewis , Physical Properties of Foods and Food Processing Systems, 1987 Woodhead Publishing Limited Cambridge England, Reprinted 2002,2006 | | | |
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