

**Course title / code: INNOVATIVE FOOD TECHNOLOGY AND TECHNICS / 03S20-IFTAT**

ECTS credit allocation (and other scores): 2.5

Semester: summer

Level of study: ISCED-7 - second-cycle program EQF-7

Branch of science: Agricultural sciences

Language: English

Number of hours per semester: 15h lectures / 45h classes

Course coordinator/ Department and e-mail: dr Adriana Łobacz / Department of Dairy Science and Quality Management, [adriana.lobacz@uwm.edu.pl](mailto:adriana.lobacz@uwm.edu.pl)

Type of classes: classes and lectures

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## **SUBSTANTIVE CONTENT**

**CLASSES:** Field classes in milk, meat and cereals processing plants. Technology and technics of microencapsulation of plant oils. Production of functional juices and jelly products with participation of popular and little-known vegetables and fruits, and its quality evaluation. Application of functional additives in technology of jelly plant products (colorants, jellying agents) – quality assessment of the obtained products. Innovative meat and dairy products – evaluation of their composition, physicochemical analyses and sensory attributes (laboratory). Innovative methods of thermal treatment used for meat products (steam oven, sous-vide) and their impact on product characteristics.

**LECTURES:** Product, process and organizational innovations in particular branches of food industry. Profitable and questionable innovations in food processing from the point of view producer and consumer (chosen examples). Innovations in meat, dairy and plant raw materials production and technology. Application of innovative techniques for processing and evaluation of raw materials and products quality. Trends in food science in the aspect of processing raw materials of plant and animal origin. Processing technology in modification of functional properties of food products (chosen examples). The influence of processing technology on the content and changes of bioactive compounds in food descended from plant material (chosen examples). Functional additives - their present and potential use in production of designed food.

**Learning purpose:** Transferring knowledge about innovative food technology and technics in food industry (dairy, plant, meat). Familiarize students with the information about the importance and functions of innovations in particular branches of food industry. Developing skills in differentiating of innovations in food industry as well as skills in analyzing the quality of innovative food products.

## **ON COMPLETION OF THE STUDY PROGRAMME THE GRADUATE WILL GAIN:**

**Knowledge:** student knows the definition of 'innovation' and understands the meaning of the product, process and organizational innovations in food production; student has the knowledge about trends in the processing of raw materials of plant and animal origin and the impact of processing methods on food quality.

**Skills:** student is able to qualitatively analyze the innovative food products of animal and plant origin; student can make a report and conclusions on the basis of obtained results and observations.

**Social Competencies:** - student can organize the work in a group and is ready to perform different function in it.

**Basic literature:**

1) Different authors - student's choice, Trends in Food Science & Technology ISSN 0924-2244 , wyd. Elsevier Ltd, 2017-2019 ; 2) Smith J., Charter E., Functional Food Product Development, wyd. WILEY-BLACKWELL. A John Wiley & Sons, Ltd., 2010 ; 3) De la Rosa L.A., Alvarez-Parrilla E., Gonzalez-Aguilar G.A., Fruit and Vegetable Phytochemicals. Chemistry, Nutritional Value, and Stability, wyd. WILEY-BLACKWELL. A John Wiley & Sons, Ltd., 2010 ; 4) El., Miladic K., Badric W., Sala M., Ait Addi E. H., Casabianca H., Mousadik A. El., Hartmann D., J., Essential oils: From extraction to encapsulation, wyd. International Journal of Pharmaceutics, 2015, t. 483 (1-2), s. 220-243; 5) Gösta Bylund, Dairy processing handbook, ISBN 10: 9176111326 , wyd. Tetra Pak Processing Systems AB, 2015 ; 6) Heinz G., Hautzinger P., Meat Processing Technology for Small – to Medium - Scale Producers , wyd. Food and Agricultural Organization of the United Nations, Regional Office for Asia and the Pacific, 2007

**Supplementary literature**

1) , Information, scientific articles and book connected with the course (domestic and foreign databases - ScienceDirect, ResearchGate etc.)

The allocated number of ECTS points consists of: 62 contact hours with an academic teacher: Student's independent work: 38