

| Attachment no. 3 | | Course program of the third cycle of studies | | |
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| 1. | Course title | NOVEL AND FUNCTIONAL FOOD | | |
| 2. | Code | ITHN - 05 | | |
| 3. | Student program | <i>Innovative technologies on food and nutrition</i> | | |
| 4. | Organiser of the student program (unit, institute, department) | Faculty of Technology and Technical Science - Veles | | |
| 5. | Degree (first, second, third cycle) | Third cycle | | |
| 6. | Academic year/ semester | 1 / II | Number of ECTS credits | 5 |
| 8 | Professor | Red. Prof. D-r Dragan Damjanovski Vonr. Prf. D-r Valentina Pavlova Doc. D-r Daniela Nikolovska - Nedelkovska | | |
| 9 | Preconditions for enrolling on the course | II (second) cycle of studies | | |
| 10 | Objectives of the course program (competences) | Adopting advanced knowledge about the attributes of the functional food as an important source of specific nutrients of vital importance to the organism, as well as the role of these nutrients in reducing the risk of developing certain diseases. The student acquires knowledge about the attributes of new types of food (novel food), according to the contemporary definition and classification, as well as knowledge of the innovative techniques and technologies used for the production of novel foods. | | |
| 11 | Contents of the course program | History, development and definition of functional food, novel food, bioactive components, GMOs. Role of different types of functional food in the contemporary diet: - Unmodified and unprocessed food (whole food), - Enriched products, increased quantity of existing nutrients (fortified food) and addition to new nutrients and bioactive components (enriched food), - Modified products (altered food), replacement of existing ones with new improved components. | | |

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| | | <p>Biologically active food components and their role in the preservation of health (carotenoids, food fibers, phenolic compounds, functional lipids, probiotics, prebiotics ...). Bioavailability of biologically active components in food.</p> <p>Functional food and prevention of some diseases. Functional food and digestive tract. Functional foods and diseases of the heart and blood vessels. Functional food and cancer. Functional foods and acute infections.</p> <p>Opportunities for production of new types of products as a result of the development of modern biotechnology and other innovative technologies.</p> <p>Genetically modified foods as part of novel food. Organic food.</p> <p>Legislation on functional and novel food.</p> | | | |
| 12 | Methods of studying | | | | |
| 13 | Total available time fund | | 5 x 30 = 150 classes | | |
| 14 | Distribution of the available time | | 50 + 30 + 40 + 30 = 150 | | |
| 15 | Forms of teaching activities | | 15.1 | Lectures- theoretical instruction | 50 |
| | | | 15.2 | Exercises (laboratory, auditorium), seminars, teamwork | 30 |
| 16. | Other forms of activities | | 16.1 | Project exercises | 40 |
| | | | 16.2 | Independent exercises | 30 |
| 17. | Methods of assessment | | | | |
| | 17.1. | Tests | | | 80 points |
| | 17.2. | Seminar work / project, presentation written and oral | | | 10 points |
| | 17.3. | Activity and participation | | | 10 points |
| 18 | Assessment criteria (points/grade) | | Up to 50 points | | 5 (five) (F) |
| | | | from 51 to 60 points | | 6 (six) (E) |
| | | | from 61 to 70 points | | 7 (seven) (D) |
| | | | from 71 to 80 points | | 8 (eight) (C) |
| | | | from 81 to 90 points | | 9 (nine) (B) |
| | | | from 91 to 100 points | | 10 (ten) (A) |

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| 19. | Condition for getting a signature and taking the final exam | | | | |
| 20. | Teaching language | | | | |
| 21 | Method of monitoring the quality of teaching | | | | |
| 22. | Literature | | | | |
| | 22.1. | Compulsory literature | | | |
| | | Number | Author | Title | Publisher / Year |
| | | 1. | Gopinadhan Paliyath, Marica Bakovic, Kalidas Shetty | Functional Foods, Nutraceuticals and Degenerative Disease Prevention | Wiley-Blackwell, UK, 2011 |
| | | 2. | G.R. Gibson, M.W. Williams | Functional foods | CRC Press, Woodhead Publishing Limited, Boca Raton, Boston, New York, |
| | | 3. | Margot Skinner, Denise Hunter | Bioactives in Fruit – Health Benefits and Functional Foods | Wiley-Blackwell, UK, 2013 |
| | | 4. | Rotimi E. Aluko | Functional Foods and Nutraceuticals | Springer, LLC 2012 |
| | | 5. | Simon Wright, Diane McCrea | Handbook of organic food processing and production, 2nd Edition | CRC Press, 2000 |
| | | 6. | Sibel Roller | Genetically Modified Foods: Threat or Opportunity? | Food Technol. Biotechnol. 39 (4) 259–263 (2001) |
| | | 7. | | Selected papers on appropriate subjects | |
| | 22.2. | Additional literature | | | |
| | | Number | Author | Title | Publisher / Year |
| | | 1. | John Shi, G. Mazza, Mare Le Maguer | Functional food, Biochemical and processing aspects | CRC Press, 2002 |
| | | 2. | Robert. E.C. Wildman | Nutraceuticals and functional foods | CRC Press, 2001 |
| | | 3. | Leah Coles | Functional foods: The Connection Between Nutrition, Health and Food Science | Apple Academic Press, CRC Press, 2014 |