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| **Title and Code** of the subject:  **Nutrition Knowledge, MTBE7038A** | **ECTS Credit Points: 3** |
| **Type** of the subject: optional | |
| **Ratio of theory and practice** (credit%) 100 % theoretical, 0 % practical | |
| **Type and number of classes per semester**: 28 hours lecture per **semester**  Number of teaching hours per week : 2 lectures + 0 practice | |
| **Type of exam**: **colloquium** | |
| **Subject in the curriculum**: **6th semester** | |
| **Preliminary requirements:** MTBE7006A General and Inorganic Chemistry; MTBE7003A Food Physics | |

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| **Summary of content - theory**: |
| Course objectives:  The subject is some basic knowledge area, how the human body will take up the components of the food. The recommended daily intake levels of food components will be discussed. The efficiency of kitchen technology on the nutrient content and on the digestibility of foods will also be discussed. Students will get a general overview and examples, what “functional food” means. The aim of the subject is to provide the students knowledge how the most suitable food raw materials and kitchen techniques can be chosen by preparing foods.  **Schedule:**  1st week: The definition of nutrition. Basic kitchen operations and tools. Chemical composition of food raw materials  2nd week: Energy content of foods, energy needs of the human organisms. Some important recommendations  3rd week: Amino acids and proteins in foods from different origin. Quantity needs and quality issues  4th week: Carbohydrates: structure and role of mono-, di- and oligosaccharides; functions of polysaccharides of plants and animals/human beings  5th week: Carbohydrates and dietary fibers. Recommendations for quantity and quality. Sugar replacers (sweeteners), their advantages and disadvantages and to-solve-problems.  6th week: Lipoids and lipids. Essential and conditionally essential fatty acids, omega-3 fatty acids. Their recommended intake amounts and sources  7th week: Structure of protein building amino acids. Definition of non-essential, essential and conditionally essential amino acids. Amid and peptide bonds. Protein structures and shapes. Protein complementation, protein quality  7th week: Water soluble vitamins – their structure, chemical composition, physiological role, symptoms of hypo- and avitaminosis. RDA values  8th week: Fat soluble vitamins (The “DEKA” vitamins) – their structure, chemical composition, physiological role, symptoms of hypo- and avitaminosis, reason and symptoms of hypervitaminosis. Night blindness, rickets. Natural sources of A-, D-, E- and K-vitamins  9th week: Energy metabolism. Synthesis of ATP molecules: Reactions and energetic results of citric acid cycle (Szent-Györgyi - Krebs cycle) and the sequential oxidative phosphorylation processes  10th week: Energy balances and body weight regulation. Basal metabolic rate (BMR), basal energy expenditure (BEE), resting metabolic rate (RMR), resting energy expenditure (REE), standard metabolic rate (SMR)  11th week: Structure and functions of gastro-internal hormones  12th week: Cholesterols and their problems.  13th week: Lactose intolerance: reason and symptoms. Geographical differences of lactose intolerance. Possible solutions  14th week: Vegan diet. Anaemia, iron deficiency and symptoms. Effect of “fashion diets” on the human body |
| ***Compulsory literature:***  Tarabella, Angela – Burchi, Barbara (2016): Aware Food Choices: Bridging the Gap Between Consumer Knowledge About Nutritional Requirements and Nutritional Information. Springer Verlag, Berlin, Heidelberg. ISBN-13: 978-3-319-23856-2 |
| **Competencies gained** *(acc. to the Regulation on training and outcome requirements)* |
| 1. **Knowledge**   Students learn about the general and specific characteristics of Nutrition knowledge, its boundaries, its directions of development, and their attachment to related subjects.   1. **Ability**   Students are able to develop effective self-education, to plan and organize one's own learning, and to find the necessary resources for this.   1. **Attitude:**   Student has a strong professional identity and professionalism that she/he can take for professional and wider social community.   1. **Autonomy and responsibility:**   Committed to food quality, safety, and environmentally friendly solutions, supporting the health of the individual and society. |

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| **Responsible lecturer:**  **Assoc. Professor Dr. habil. Imre Vágó, CSc, deputy head of Institute** |
| **Other lecturer:** - |
| **Form of examination:**  **Oral (preferred) and/or written** (only if the subject is signed) |
| **Requirement(s) to get signature:**  Attendance at lectures is not compulsory, but highly recommended!  As an individual activity, all of the students have to complete and present to the other students two power point presentations. The theme of it will be jointly decided by the student and the lecturer. Form and content of presentations will be discussed by the group members, and will be accepted or denied. The denied presentation must be repeated. Requirement to get signature is, two accepted .ppt-presentations. |