MODULE HANDBOOK

Module Name	Food Chemistry
Module level	Bachelor
Abbreviation, if applicable	
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	7 /Fourth Year
Module coordinator(s)	Dr. Prima Retno Wikandari, M.Si.
Lecturer(s)	Prof. Dr. Lenny Yuanita, M.Si. Mirwa Adiprahara, S.Si., M.Si.
Language	Indonesian
Classification within the Curriculum	Compulsory Course
Teaching format/class hours per week during the semester:	2 hours lecturers (50 min per hours)
Workload:	1CU for bachelor degree equal to 3 workhours per week or 170 minutes (50'face to face learning. 60'structured learning, and 60' independent learning). In one semester, cources are conducted in 14 weeks (excluding mid and end-term exam). Thus, 1CU equals to 39.67 workhours per semester. 1CU equals to 1.587 ECTS
Credit points:	2 SCU x 1.59 =3.18 ECTS
Prerequisites course(s):	Biochemistry Structure and Function of Biomolecules
Targeted learning outcomes:	**CLO 1**. Students capable to demonstrate knowledge related to theoretical concepts about structure, composition, and properties of food ingredient as well as the basic principle of the chemical and physical changes of food ingredients during processing and storage. **CLO 2.** Able to apply the knowledge in the field of food chemistry obtained, and have the initiative in solving community issues in the food sector **CLO 3.** Applying logical, critical, systematic and innovative thinking in the context of development or implementation of food science, that regards and applies humanities in accordance with food chemistry in solving problems **CLO 4.** Capable to make decisions based on data/information in order to complete their responsibility assignment and evaluate the performance that has been done both individually and in groups, have an entrepreneurial spirit with environmental insight
Content:	**Introduction** scope of food chemistry, food composition, structure and properties, the positive and negative effect of food processing, the types of food processing

	Structure and properties of food a. structure of amino acid, peptide and protein, amfoter, salting out, salting in, protein solubility, swelling, gelling, foaming, emulsifier b. structure of mono, di and polisacharide, dietary fiber, FOS, inuline, solubility, mutaroation, gelling, emulsifier, stabilizer, thickening, edible film c. structure saturated and unsaturated fatty acid, visible and unvisible fat, saponified and unsaponified lipid (serebrosida, sfingomilein, plasmogen, ester sterol), boiling point, melting point, cristal structure, plasticity, emulsifier **Functional foods**: bioactive peptides, short chain fatty acids, poliunsaturated fatty acids, antioxidant, FOS, inuline **Changes during processing and storage** **a.** Denaturation. , hydrolisis, cross link, maillard reaction peptide formation. b. autooksidasi, hidrogenasi, trans fatty acid, ranciditas c. carbohidrat hydrolisis, dehidation, caramelisation, maillard, swelling **Food additive** a. Definition, types and funntion BTM b. Regulation **Problems solving in mall nutrition and mall consumption** a. Protein mall nutrition b. Effect of mall consumption of lipid and carbohydrate to hyperglycemia and hypercholesrerolemik c. Effect of trans fatty acids, free radical, autooxidation **Propose a pilot project of functional food product as an entrepreunerally spirit**
Study / exam achievements:	Students are considered to be competent and pass if at least get 55 Final score is calculated as follows: 20% participation + 30% assignment + 20% middle exam (UTS) & 30% final exam (UAS) Table index of graduation • A = 4 (85 ≤-≥ 100) • A- = 3,75 (80 ≤-< 85) • B+ = 3,5 (75 ≤- < 80) • B = 3 (70 ≤-< 75) • B- = 2,75 (65 ≤-<75) • C+ = 2,5 (60 ≤-<65) • C = 2 (55 ≤-<60) • D = 1 (40 ≤-<55)

	• E = 0 (0 ≤-<40)
Media:	Computer, LCD, White board
Learning Methods	Individuals assignment, group assignment, discussion, presentation.
Literature:	de Man, John M. 1990. Principle of Food Chemistry, 2 nd ed. An AV1 book, Van Nostrang aReinhold, New York Fennemas, Food Chemistry 2007. 4 th Edition, edited by Srinivasan Damodaran, CRC Press .