



Module Description Analytical Chemistry

Module designation	Analytical Chemistry
Module code	23G03110202
Semester(s) in which the module is taught	2 nd semester
Person responsible for the module (lecturers)	<ul style="list-style-type: none">❖ Prof. Dr. Ir. Meta Mahendradatta❖ Dr. rer.nat. Ir. Zainal, STP., M.Food.Tech.❖ Dr. Februadi Bastian, STP., M.Si.❖ Sunrixon Carmando Yuansah, S.TP., M.T.P.
Language	Indonesian language
Relation to curriculum	Compulsory course
Teaching methods	Lecture
Workload	Total workload (estimated): <ul style="list-style-type: none">❖ 27 hours of lecture❖ 32 hours of exercise❖ 32 hours of independent study
Credit points	2 credit points = 3.24 ECTS
Required and recommended prerequisites for joining the module	Basic Chemistry
Module objectives/ Intended Learning Outcomes (ILO)	ILO 5. Applies the principles of food science and technology, statistics, and computer science to implement good manufacturing practices in food industry management (C2)
	CLO 1. Able to factually understand classical chemical analysis methods (gravimetry, volumetry, potentiometry, cation-anion, extraction) CLO 2. Able to understand factually related to chemical analysis methods (Spectrophotometry (UV-VIS, HPLC, GC-MS, AAS, FTIR)
Content	<ul style="list-style-type: none">❖ Analytical error theory❖ Sampling technique❖ Classical analytical chemistry: Cation identification and Anion identification❖ Classical analytical chemistry (conventional method): gravimetry, titrimetry (acid-base, redox, deposition,



	complexometry), electrochemical methods (conductometry and potentiometry), extraction systems ❖ Analytical chemistry instrumentation: Basics of spectrophotometry, HPLC, GC, AAS, and FTIR																														
Examination form	Writing (essay)																														
Study and examination requirements	Examination requirements: Attendance above 80% ❖ Individual assignments: 17% ❖ Case study: 33% ❖ Midterm exam: 25% ❖ End of semester test: 25% Grading: <table><tr><th>Numerical range</th><th>Letter grade</th><th>Conversion value</th></tr><tr><td>85 - 100</td><td>A</td><td>4.00</td></tr><tr><td>80 - < 85</td><td>A-</td><td>3.75</td></tr><tr><td>75 - < 80</td><td>B+</td><td>3.50</td></tr><tr><td>70 - < 75</td><td>B</td><td>3.00</td></tr><tr><td>65 - < 70</td><td>B-</td><td>2.75</td></tr><tr><td>60 - < 65</td><td>C+</td><td>2.50</td></tr><tr><td>50 - < 60</td><td>C</td><td>2.00</td></tr><tr><td>40 - < 50</td><td>D</td><td>1.00</td></tr><tr><td>< 40</td><td>E</td><td>0.00</td></tr></table> <i>If student(s) receives(s) a score below 40, student(s) must retake the course</i>	Numerical range	Letter grade	Conversion value	85 - 100	A	4.00	80 - < 85	A-	3.75	75 - < 80	B+	3.50	70 - < 75	B	3.00	65 - < 70	B-	2.75	60 - < 65	C+	2.50	50 - < 60	C	2.00	40 - < 50	D	1.00	< 40	E	0.00
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40 - < 50	D	1.00																													
< 40	E	0.00																													
Reading list	1. Belitz, H.-D. W. Grosch und P. Schieberle, 2001. Lehrbuch der Lebensmittelchemie, Springer-Verlag, Berlin, Heidelberg, New York. 2. Potter, N.N. and J.H. Hotchkiss, 1998. Food Science, 5th Ed. Springer Science+Business Media, Inc., New York. 3. Schwedt, Georg., 2005. Taschenatlas der Lebensmittelchemie. Wiley-Vch Verlag, Weinheim. 4. Walstra, P. Physical Chemistry of Foods. 2003. Marcell Dekker, Inc. New York 5. Kusnandar, F. 2010. Food Analysis. IPB Press.																														
Date of last amendment	23 August 2025																														