	UNIVERSITAS PADJADJARAN FACULTY OF MATHEMATICS AND NATURAL SCIENCES MASTER PROGRAM IN CHEMISTRY	COURSE CODE: D20B.128

Module designation	Advanced Enzymology
Semester(s) in which the module is taught	2
Lecturers	1. Prof. Toto Subroto 2. Prof. Ukun M.S. Soedjanaatmadja
Medium of instruction	English and Indonesian
Relation to curriculum	Mandatory Elective Courses Biomolecular Health and Food Sciences Master of Science in Chemistry
Teaching methods	Lecture and discussion
Workload	Total workload: 53.42 hours **CLASS** Lecture : 18.36 hours Tutorial : 3.35 hours Assignment : 1 hours Assesment : 5.01 hours Independent Study : 26.7 hours
Credit points	2 (2-0) 2 Credits = 3.62 ECTS

Required and recommended prerequisites for joining the module	1. Structure and Function of Biomolecules 2. Metabolism and Genetics Information

Module objectives/intended learning outcomes	1. Students are able to master the basic principles of enzymology and apply their knowledge of chemistry in the fields of chemistry of biological and non-biological natural products as well as environmental chemistry (C3) 2. Students are capable of applying various engineering methods, separation, isolation, and characterization techniques for enzymes (C3) 3. Students are able to analyze the properties of enzymes, which include structure, function, kinetics, activity, and enzyme performance (C3)

Contents	The Advanced Enzymology course is a subject that covers various aspects of enzyme molecules as biocatalysts and reaction specificity, regulatory enzymes, enzyme kinetics, transformation of the Michaelis-Menten equation, enzymes with two/multiple substrates, inhibitors, and enzyme working mechanisms. It includes preparative methods to preserve enzyme activity, enzyme separation and purification, characterization, and the application of biophysical and molecular biology methods to study enzyme structure and function. The course also involves discussions on recent articles regarding new enzyme research and enzyme engineering.

Examination forms	Test, Presentation, and Assignment
Study and examination requirements	Minimum attendance at lectures is 80%. Final score is evaluated based on quiz (10%), individual assignment (20%), mid semester exam (35%), and end semester exam (35%).
Reading lists	1. Nelson, D.L. & Cox, M.M. (2013) Lehninger: Principles of Biochemistry, 6th ed. Worth, New York 2. Brewer, J.M. & Ashworth, R.B. 1979. Experimental Technique in Biochemistry, Prentice-Hall, Inc. New Jersey. 3. Illanes, A. (2008) Enzyme Biocatalyst: Principles and Applications.Springer New York 4. Scopes,R.K. (1994) Protein Purification Principles and Practices, 3rd ed. Springer, New York 5. Sambrook, J., Fritsch, E.F. & Maniatis, T. 1989. Molecular Cloning. A Laboratory Manual. 2nd ed. 1-3. Cold Spring Harbor Laboratory Press. USA.