

Module Handbook

Module Name :	Pharmaceutical Biotechnology
Module Level :	Bachelor
Abbreviation, if applicable :	BIT302
Sub-heading, if applicable :	
Courses included in the module, if applicable :	
Semester / term :	2 / Third year
Module coordinator(s) :	Prof. Dr. Sukardiman, MS
Lecturer(s):	Prof.Dr. Gunawan Indrayanto
	Prof. Dr. Sukardiman, MS
	Prof.Dr.Sugiyanto,MS
	Dr.Mulja Hadi Santosa
Language :	Bahasa Indonesia
Classification within the curriculum :	Compulsory Course / Elective Studies
Teaching format / class hours per week during the semester :	100 minutes lectures, 13 lecture classes/semester
Workload	Total 22 hours a semester
Cedit Points :	2
Requirements :	
Learning goals/competencies :	<p>Knowledge</p> <ul style="list-style-type: none"> – To understand the concept of pharmaceutical biotechnology
	<p>Skills</p> <ul style="list-style-type: none"> – Critical thinking, comperhensive, valid scientist-academically. – Active to access a new primary information and discuss it also make a decission by scientist-academically
	<p>Competence</p> <ul style="list-style-type: none"> – To understand and able to apply the concept of the meaning, history and scope of biotechnology – To understand and able to apply the concept of basic metabolism to biotechnology – To understand and able to apply the concept of the production of the drug by the method – To understand and able to apply the concept of the production of medicinal substances by plant biotechnology methods – To understand and able to apply the concept of biotechnology to clean up pollutants and other harmful substances from the environment

	<ul style="list-style-type: none"> - To understand and able to apply the concept of the production of medicinal substances by biotechnological means mammalian cells - To understand and able to apply the concept of the isolation, purification, immobilization and application of enzymes for the production of drugs - To understand and able to apply the concept of cell fusion and genetic engineering in biotechnology
Content :	Pharmaceutical Biotechnology Course presents the material terms of the definition and scope of biotechnology; understanding the system in vitro and fermentation machine and optimization to microorganisms, plant cells, mammals cells; the notion of genetically engineered cell fusion; biotechnology applications and technologies and biotransformation enzymes for the production of medicinal materials; downstream processes and methods of production optimization.
Study/exam achievements :	<p>Student is considered to be competent and pass if at least get 50% of maximum mark of the exams based learning.</p> <p>Final score is calculated as follow : 50% Exam I + 50% Exam II</p> <p>Final index is defined as follow : A : ≥ 75 AB : 70 – 74,9 B : 65 – 69,9 BC : 60 – 64,9 C : 55 – 59,9 D : 40 – 54,9 E : <40</p>
Forms of Media :	LCD projector, Internet access
Literature :	<ol style="list-style-type: none"> 1. Trevan et al. 1993. Biotechnologie: Die Biologischen Grundlagen, Springer Verlag 2. Rehm HJ and Reed. G. 1993. Biotechnology. VCH 3. Mantell SH, Matthews JA, McKee RA. 1985. Principle of plant biotechnology. Blackwell Scientific Publication 4. Gamborg OL, Phillips GC. 1995. Plant Cell , Tissue and Organ Culture. Springer 5. Desmond S. and Nicholl T. 1994. Introduction to genetic engineering. CambridgeUniversity Press

	6. Suelter C.H.. 1990. Experimentelle Enzymologie. Gustav Fischer Verlag
	7. Demain Arnold L. and Solomon Nadine A.. 1986. Manual of Industrial Microbiology and Biotechnology. American Society for Microbiology Washington, D. C
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