Course Specifications

General Information

Course name	Applied Microbilogy
Course number	BIOL4336
Faculty	
Department	
Course type	College Needs
Course level	4
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

1 - 1- Wulf Crueger and Anneliese Crueger (1986): Biotechnology: A text book of industrial microbiology 2- A. N. Glazer, H. Nikaido. Microbial Biotechnology: Fundamentals of Applied Microbiology, 2nd ed.

2 - the use of microbial, animal und plant cells ant their materials such as enzymes to biosynthesis, breakdown or transform of different materials.

Intended Learning Outcomes

Intellectual Skills	* Mechanisms of biodegradation , biotransformation and biosynthesis
	* Scaling up
Professional Skills	* Scale up
	* To understand the use of microbial, animal and plant cells and their materials such as enzymes to biosynthesis, breakdown or transform of different materials. aseptically
	* To deal with large amounts of microorganisms
General Skill	* effectively team work for intensive learning
	* effectively team work for intensive learning

Course Contents

1 - Introduction to applied microbiology
2 - Screening of new metabolites Microbe as living factory for macromolecules
3 - Strain development
4 - Substrates for industrial fermentation
5 - Methods of large-scale fermentation
6 - Product recovery
7 - Waste water treatment
8 - Amino acids production
9 - Microbial insecticides
10 - Metal leaching
11 - Single cell protein production
12 - CO2 Production
13 - Organic acids production
14 - Antibiotic production

Teaching and Learning Methods

1 - Lecures, Revision and Discussion sections and Student presentation

Teaching and Learning Methods for the Disabled Students

1 - non

Students Assessment

Assessment Method	TIME	MARKS
First hour exam	60minutes	15
Second hour exam	60minutes	15
Practical part	60minutes	20
Final exam	120minutes	50

Books and References

Essential books	Wulf Crueger and Anneliese Crueger (1986): Biotechnology: A text book of industrial microbiology
Recommended books	A. N. Glazer, H. Nikaido. Microbial Biotechnology: Fundamentals of Applied Microbiology, 2nd ed.