MODUL	FOOD 1W.2	COURSE TITLE	BIOPROCESS ENGINEERING	ECTS	7
FACULTY COORDINATOR	prof.dr hab. Z.Krejpcio	DEPARTMENT	DEPARTMENT OF BIOTECHNOLOGY AND FOOD MICROBIOLOGY		
TEACHER		PROF. DR TOMASZ JANKOWSKI, DR RADOSŁAW DEMBCZYŃSKI, DR WOJCIECH BIAŁAS			
VOLUME (H)	60		PERSONAL WORK (H)	110	
LECTURE (H)	LAB (H)	PLACEMENT (H)	PROJECT (H)	OTHER MODALITIES (H)	
15	45	0	0	5	

EVALUATION	
EVALUATION MODALITES	
ORAL INDIVIDUAL REPORT	
WRITEN INDYVIDUAL REPORT	
FINAL ORAL EXAM	
FINAL WRITTEN EXAM	100%
COMMENTS OF EVALUATION	

TEACHING METHODS

Multimedial lectures

Laboratory team exercises

Oral reports on laboratory exercises with group discussion

SEMESTER (WINTER/SUMMER)	LANGUAGE
WINTER	ENGLISH

OBJECTIVES

Tis course will provide an introduction to the fundamentals of biochemical and bioprocess engineering. Both upstream and downstream operations and equ

At the and of the course studens will be able to: understand the basic role of engineering in bioprocessing applications; recognize and explain the basic featu

CONTENTS

1. Introduction to Bioprocess Engineering; general bioprocess scheme, examples of bioprocesses of different complexity, characteristic features of an industr

2. Bioreactor/fermentor configuration; basic pronciples of bioreactor, technological functions, classification.

3. Bioprocess monitoring and control; instrimentation for bioreactor, control systems, bioreactor operating parameters, sensors and biosensors - principles a

4. Downstream equipment overview; harvesting of cell with centrifugation, dead-end filtration and membrane separation processes.

5. Modes of bioreactor operation; introduction to bioprocess kinetics, batch, fed-batch, and continuous processes.

6. Fermentation with immobilized cells; advantages and disadvantages of cell immobilization, characteristic features of cell immobilized systems, techniques

PRE-REQUISES	BASIC MICROBIOLOGY; INTRODUCTION TO FOOD ENGINEERING;