Republic of Iraq
Ministry of Higher Education & Scientific Research Supervision and Scientific Evaluation Directorate Quality Assurance and Academic Accreditation International Accreditation Dept.

Academic Program Specification Form For The Academic

University:Diyala
College : Science
Number Of Departments In The College
Biology
Date Of Form Completion :1/10/2021

Dean's Name Date :

/ /

Signature

Dean's Assistant For Scientific Affairs

Date : / /
Signature

The College Quality Assurance And University Performance Manager

Date :

/

/
Signature

Quality Assurance And University Performance
Manager Date : / /
Signature

TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

This Program Specification provides a concise summary of the main features of the program and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the program.

1. Teaching Institution	Diyala University
2. University Department/Centre	Science college / Biology Department
3. Program Title	Industrial Microbiology
4. Title of Final Award	Ph.D. in Biology
5. Modes of Attendance offered	Courses
6. Accreditation	Study Unites
7. Other external influences	Scientific Field Visits
8. Date of production/revision of this specification	1/10/2021
9. Aims of the Program:	
The course aims to provide the necessary information to understand the basic biological sciences of Industrial microorganisms (bacteria, viruses, fungi) and to understand the mechanism of their fermentation to produce products. In addition to theoretical information, the branch is keen to provide students with laboratory techniques related to microbial fermentation.	

10. Learning Outcomes, Teaching, Learning and Assessment Methods:

1- A. Cognitive goals A1. Program specific objectives.

2- To practice laboratory techniques and skills in the field of industrial microbiology.

3- Dealing with laboratory materials, sterilization methods, and processes the microbial fermentation.

4- Learn how to determine the treatment of industrial media .

5- Understand the changes associated with microbial fermentation and know the methods of preserving microorganisms .

B. The skills goals special to the programme :

B1 - To practice laboratory techniques and skills in the field of industrial microbiology.

B2- Dealing with laboratory materials, sterilization methods, and processes the microbial fermentation.

Teaching and Learning Methods:

Meeting theoretical lectures using the available display techniques (projectors)
Conducting practical experiments and learning laboratory skills to cover the practical side of the material

Assessment methods:

Theoretical exams (mid-year + end of the year).
2- Short exams.
3- Practical exam: (oral exam, theory exam, practical information exam)
4- The report.

C. Affective and value goals :

C1. Carrying out the examinations according to the approved methods.

C 2 - Acquisition of laboratory management skills.

C 3- Learn how to deal with co-workers

C4 - Writing the report and knowing how to interpret the results.

D. General and Transferable Skills (other skills relevant to employability and personal development):

D1. Enhance self-learning skills.

D2-Training on electronic technologies to obtain information, Internet technology.

D3-Enhance group learning skills.

D4-Enhance leadership skills and motivate others.

Teaching and Learning Methods:

1- Systematic book.
2- Theoretical lectures.
3- Laboratory instructions.
4- Internet sites.

Assessment Methods:

Include oral and theoretical questions in daily and quarterly exams.
Preparing seminars on the subject of values and emotional goals related to the specialty.

11. Program Structure:				12. Awards and Credits
Level/Year	Course or Module Code	Course or Module Title	Credit rating	
Fourth year	In - Mi	Food Microbiology	-	Bachelor Degree Requires (x) credits

13. Personal Development Planning:
1- Enhance self-learning skills. 2- -Training on electronic technologies to obtain information, Internet technology. 3- Enhance group learning skills. 4- Enhance leadership skills and motivate others.
14. Admission criteria :
Admission is central, and according to instructions
15. Key sources of information about the programme:
1- Systematic book. 2- Theoretical lectures. 3- Laboratory instructions. 4- Internet sites

Curriculum Skills Map

please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed

				Programme Learning Outcomes														
Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transfera Skills (or) Other skil relevant to employabi and personal developm		
				A1	**A2**	**A3**	**A4**	**B1**	**B2**	**B3**	**B4**	**C1**	**C2**	**C3**	**C4**	**D1**	**D2**	**D3**
Fourth year		Food Microbiology		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW.

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Science college / Diyala University
2. University Department/Centre	Biology
3. Course title/code	Industrial Microbiology
4. Modes of Attendance offered	Online and attendance
5. Semester/Year	Semester
6. Number of hours tuition (total)	30 hr.
7. Date of production/revision of this specification	1/10/2021
8. Aims of the Course:	
The course aims to provide the necessary information to understand the basic biological sciences of Industrial microorganisms (bacteria, viruses, fungi) and to understand the mechanism of their fermentation to produce products. In addition to theoretical information, the branch is keen to provide students with laboratory techniques related to microbial fermentation.	

9· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Cognitive goals:

A1. To obtain basic information in Industrial Microbiology.

A2- Providing a broad base of knowledge and understanding of Industrial Microbiology.

A3 - Develop the skills of obtaining information.

A4 - Encourage and train the student on how to deal with scientific facts.

A 5 - Encouraging students to conclude and interpret results and how to present and discuss them.

B. The skills goals special to the course:

B1. Transferred general and qualifying skills (other skills related to employability and personal development).

B2- Enhancing self-learning skills.

B3-Training on electronic technologies to obtain information, Internet technology.

B4-Enhance group learning skills.

Enhance leadership skills and motivate others.

Teaching and Learning Methods:

1- Systematic book.
2- Theoretical lectures.
3- Laboratory instructions.
4- Internet sites

Assessment methods:

Include oral and theoretical questions in daily and quarterly exams.
Preparing seminars on the subject of values and emotional goals related to the specialty.

C. Affective and value goals:

C1. Transferred general and qualification skills (other skills related to employability and personal development).

C2- Enhancing self-learning skills.

C3-Training on electronic technologies to obtain information, Internet technology.

C4-Enhance group learning skills.

C5-Enhance leadership skills and motivate others.

10. Course Structure					
Week	Hours	Teaching Method	Unit/Module or Topic Title	ILOs	Assessment Method
1	2	Practical and theoretical lecture	**Introduction of industrial microbiology**	-	Monthly and oral exams, daily exams and preparing reports
2	2	Practical and theoretical lecture	**Basic rules for industrial fermentation**	-	Monthly and oral exams, daily exams and preparing reports
3	2	Practical and theoretical lecture	**The primers used in industrial fermentation**	-	Monthly and oral exams, daily exams and preparing reports
4	2	**Practical and theoretical lecture**	**General principles of anaerobic fermentation**	-	Monthly and oral exams, daily exams and preparing reports
5	2	Practical and theoretical lecture	**Probiotics**	-	Monthly and oral exams, daily exams and preparing reports
6	2	Practical and theoretical lecture	**Production of antibiotics**	-	Monthly and oral exams, daily exams and preparing reports
7	2	Practical and theoretical lecture	**Brewing process**	-	Monthly and oral exams, daily exams and preparing reports
8	2	Practical and	**Wine Production**	-	Monthly and oral exams, daily exams

		theoretical lecture			and preparing reports
9	2	Practical and theoretical lecture	**Lactic acid fermentation**	-	Monthly and oral exams, daily exams and preparing reports
10	2	Practical and theoretical lecture	**Bread fermentation**	-	Monthly and oral exams, daily exams and preparing reports
11	2	Practical and theoretical lecture	**General principles of aerobic fermentation**	-	Monthly and oral exams, daily exams and preparing reports
12	2	Practical and theoretical lecture	**Citric acid production**	-	Monthly and oral exams, daily exams and preparing reports
13	2	Practical and theoretical lecture	**Lipids production**	-	Monthly and oral exams, daily exams and preparing reports
14	2	Practical and theoretical lecture	**Single cell proteins (SCP) production**	-	Monthly and oral exams, daily exams and preparing reports
15	2	Practical and theoretical lecture	**Exam**	-	Monthly and oral exams, daily exams and preparing reports

11. Infrastructure:

1. Books Required reading:	**Microbiology in industrial and biotechnology**
2. Main references (sources)	**Food and Industrial Microbiology**
A- Recommended books and references (scientific journals, reports…).	**Journal of industrial microbiology and biotechnology**
B-Electronic references, Internet sites…	**Journal of industrial microbiology and biotechnology**
12. The development of the curriculum plan	
Introducing modern technologies. - Add 20% annually of modern information to theoretical and practical lectures and keep pace with development. Enhance self-learning skills.