

Minutes of Meeting: BOS of Biotechnology Department held on 25th February, 2014 for approval of Credit/Course Structure of B.Sc in Biotechnology and M.Tech. in Biotechnology, Credit/Course Structure and Syllabus of M.Sc. in Microbiology Programmes.

A meeting of Board of Studies (BOS) of Biotechnology Department, School of Engineering and Technology (SET), Sharda University was held on 25th February 2014.

The BOS was organized to discuss and make changes in the Course Structure and Credit Distribution of the B.Sc and M.Tech programmes of Biotechnology Department, and Course Structure, Credit Distribution and Syllabus of MSc programme in Microbiology to be adopted from the Academic Session 2013-14.

After incorporation of the relevant suggestions, the syllabi have been modified by the Internal Members of the BOS of Department of Biotechnology following the recommendations and advices of the External Members of BOS.

External Members:

- 1) Dr. V. K. Baranwal
Indian Agricultural Research Institute, New Delhi
- 2) Dr. V. K. Tiwari
Dabur Research Foundation, Sahibabad, Ghaziabad

Internal Members:

- 1) Dr. Simendra Singh
- 2) Prof. Rita Singh
- 3) Dr. Shahana Majumder
- 4) Dr. Amit Kumar Singh
- 5) Dr. Pankaj Taneja
- 6) Mrs. Monika Jain
- 7) Ms. Rajni Jaiswal

Simendra Singh 25/2/2014

Recommendations by External Members of BOS of Biotechnology Department

B.Sc. in Biotechnology

Course structure approved without any modification.

M.Tech. in Biotechnology (Specialization in Animal Biotechnology)

Course structure approved without any modification.

M.Tech. in Biotechnology (Specialization in Plant Biotechnology)

1. Subject: Agriculture Biotechnology
Change course title to "Biotechnology in Agriculture"

M.Sc. in Microbiology

1. Subject: Infection and Immunity
Change course title to "Infection, Immunity and Diagnostics"
Make one Unit on toxins and their diagnostics

Simendra Singh 25/2/2014

Program Template for SHARDA Website:

Name of School: School of Engineering and Technology

Name of the Department: Biotechnology

Name of the Program: M.Tech (Animal Biotechnology)

Eligibility to Program: B. Tech

Brief Overview of the Program: The department of biotechnology is committed to conduct cutting-edge multidisciplinary original research in plant, animal, medical, industrial and environmental biotechnology. The program aims to train and transform students into thinking bioengineers, and scientists who are able to integrate theoretical knowledge with practical applications in diverse areas of Animal Biotechnology.

I. Course Scheme :

| S.No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------------|--|---|---|---|---------|
| Term 1 | | | | | | |
| 1. | BTY601 | Analytical Instruments for Biotechnology | 3 | 1 | 0 | 4 |
| 2. | BTY602 | Enzyme Technology | 3 | 1 | 0 | 4 |
| 3. | BTY603 | Applied Genetic Engineering | 3 | 0 | 0 | 3 |
| 4. | BTY604 | Advances in Bioprocess Engineering | 3 | 0 | 0 | 3 |
| 5. | BTY605 | Molecular Cell Biology | 3 | 0 | 0 | 3 |
| 6. | | Technical Presentation-I | 0 | 0 | 4 | 2 |
| 7. | | Practical (Enzyme & Genetic Engineering Lab) | 0 | 0 | 4 | 2 |
| | Credits in Term 1 | | | | | 21 |
| Term 2 | | | | | | |
| 1. | BTY607 | Immunotechnology | 3 | 0 | 0 | 3 |
| 2. | BTY608 | Cell Signaling | 3 | 0 | 0 | 3 |
| 3. | BTY606 | Applied Bioinformatics | 3 | 0 | 0 | 3 |
| 4. | | Departmental Elective | 3 | 0 | 0 | 3 |

| | | | | | | |
|--------|-------------------|--------------------------------------|---|---|----|----|
| 5. | | Open Elective | 3 | 0 | 0 | 3 |
| 6. | | Term paper | 0 | 2 | 0 | 2 |
| 7. | BTP616 | Practical (Animal Biotechnology Lab) | 0 | 0 | 4 | 2 |
| | Credits in Term 2 | | | | | 19 |
| Term 3 | | | | | | |
| 1. | | Seminar | 0 | 0 | 4 | 2 |
| 2. | | Project | 0 | 0 | 8 | 4 |
| 3. | | Dissertation Part-I | 0 | 0 | 20 | 10 |
| | Credits in Term 3 | | | | | 16 |
| Term 4 | | | | | | |
| 1. | | Dissertation Part-II | 0 | 0 | 32 | 16 |
| | Credits in Term 4 | | | | | 16 |

Total Credits: 72

Minimum Credits essential for the Program:

II. Syllabus for the Courses:

Term 1

BTY601 (Analytical Instruments for Biotechnology):

To develop understanding of the principles, instrumentation, operation and applications of different analytical, separation and diagnostic techniques used in the fields of Biochemistry, Molecular Biology and Biotechnology.

BTY602 (Enzyme Technology):

This course covers fundamentals to applications necessary for the useful exploitation of enzymes both as tools for the enzymatic analyses and as biocatalysts in the biotransformations on the unique structural-functional properties of enzymes and its industrial and research utilization.

BTY603 (Applied Genetic Engineering):

To develop understanding of the principles, instrumentation, operation and applications of different analytical, separation and diagnostic techniques used in the fields of Biochemistry, Molecular Biology and Biotechnology.

BTY604 (Advances in Bioprocess Engineering):

The course concentrates on bioprocess engineering and bioreactor operation. A considerable part is devoted to the growth analysis using process analytical technology and the evaluation of process data in connection to the generally used cultivation principles.

BTY605 (Molecular Cell Biology):

In this course students will learn about the structure/function relationships of proteins and nucleic acids through to the molecular mechanisms behind immunology, genetic engineering and cancer. It is ideal for students who have an interest in studying biological systems at the molecular and cellular levels, encompassing areas that are at the forefront of science and technology today.

Term 2

BTY606 (Applied Bioinformatics):

To acquire an advanced knowledge of bioinformatics tools used for designing and analyzing *in silico* experiments and different techniques used for molecular modeling.

BTY607 (Immunotechnology):

The course will allow students to acquire a fundamental working knowledge of the basic principles of immunology; to begin to understand how these principles apply to the process of immune function; and to develop the ability to solve problems in clinical immunology by making use of existing tools and techniques.

BTY608 (Cell Signaling):

To understand how communication takes place between different cells in the body. To elucidate the signal transduction pathways involved in several diseases which is important to define the new target for drug development.

BTP616 (Animal Biotechnology Lab):

To learn methods of cell isolation from tissues and determine enzyme activity and inhibition of different proteins.

Term 3

Dissertation Part-I

Term 4

Dissertation Part-II
