

'B.K. BIRLA COLLEGE (AUTONOMOUS), KALYAN
Affiliated to University of Mumbai

**MINUTES OF THE MEETING OF THE BOARD OF STUDIED IN. BIOTECHNOLOGY
HELD ON 15TH MAY 2021 AT 12.30 PM ON THE ONLINE PLATFORM OF MS TEAMS.**

The following members attended the meeting:

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| (1) Dr. Meeta Bhot | Chairperson |
| (2) Dr. Annika Durve Gupta | Member |
| (3) Dr. Shivani Kakkar Khanna | Member |
| (4) Dr. Manish Petkar | Industry Representative |
| (5) Dr. Annamma Anil Odaneth | Special Invitee |
| (6) Mr. Aaron Dsouza | Student Alumni |

The faculty from the Department of Biotechnology-Dr. Minal Trivedi and Ms. Darshana Rajput also attended the meeting. Director Dr. Naresh Chandra, Prin. Dr. Avinash Patil, HOD Zoology Dr. Geeta Unnikrishnan, Dr. Sonal Tawde, Dr. Sonali Patil, Dr. Vandana Gupta were also present for the meeting.

The agenda for the meeting was as follows:

1. ITEM NO. 1

To discuss about syllabus to be revised M.Sc. (Semester III and IV) Biotechnology for the academic year 2021-22 and to take suggestions regarding the new topics/ units and practical to be added to improve the existing syllabus.

2. ITEM NO. 2

To discuss two new courses- M.Sc. in Industrial Biotechnology and 5-year Integrated Course in Biotechnology- to be implemented for academic year 2021-22.

3. ITEM NO. 3

Appreciation of Board of Studies members who contributed to prepare syllabus

4. ITEM NO. 4

Any other item with the permission of the Chair.

Dr. Meeta Bhot, Co-Ordinator of the Biotechnology department and Chairperson of the meeting welcomed the members and introduced them.



ITEM NO. 1

To discuss about syllabus to be revised and modified M.Sc. (Semester III and IV) Biotechnology for the academic year 2021-22 and to take suggestions regarding the new topics/ units and practical to be added to improve the existing syllabus.

The detail syllabus was discussed modified for M.Sc. (Semester III and IV) Biotechnology. Valuable inputs/ suggestions for better syllabus given by all the invitees.

Semester wise suggestions given by members are as follows:

1. Dr. Annamma Anil Odaneth emphasized keeping the syllabus simple yet interesting. She mentioned the need for clearing basic concepts of the students and emphasize more on the practical aspects.
2. Dr. Manish Petkar suggested to plan visits to industries/ institutes and to keep lectures on the same topics to make the concepts clearer. He suggested to introduce Fermentation production of Biosurfactants in M.Sc. (Sem IV) Unit II.
3. Mr. Aaron Dsouza suggested calling various companies to give demos on basic techniques like chromatography etc. He suggested to keep a 2-dimensional approach i.e., bookish as well as practical knowledge of the subject should be given to the students. He emphasized giving theoretical as well as practical knowledge on instruments like BET, TEM, SEM, FTIR, XRD.

The respective subject topic changes were discussed and approved.

1. Sem III-
Paper 1/unit 1- XRD, TEM, SEM, BET to be included.
Paper 1/ unit 2- Cytotoxicity and genotoxicity; Cell toxicity mechanisms and method of analysis; Toxicity of nanoparticles in vivo.
Paper 2/ Unit 4- Omics technology
2. Sem IV-
Paper 1/unit 2- Molecular Farming- Improvement in Carbohydrates, Proteins, Lipids, Plantibodies, Edible vaccines, Molecular markers in plants: RAPD, AFLP, ISSR, SSR markers, marker-based applications-trait selection, eco-TILLING
Paper 2/Unit 1- Structure of Biofilm – Extracellular polymeric substances, Biofilm architecture. Stages in formation of Biofilm. Microbial interactions in Biofilms (Quorum sensing), Need for formation of Biofilms by microorganisms, Microorganisms commonly associated with biofilms on indwelling medical devices. Response of biofilms to host defense mechanisms & antimicrobial agents Recent advances in biofilm management.
Paper 2/ Unit 2- Diseases, Diagnosis, and Treatment for H1N1, MERS, SARS, Swine flu, COVID-19, Nipah virus, Ebola virus, Coronavirus– Structure, Disease caused, Mode of infection, Treatment, Vaccine.
Paper 3/ Unit 3- In silico Drug design
Paper 4/Unit 1- Fermenter design- mechanically agitated, Pneumatic and hydrodynamic fermenters large scale animal and plant cell cultivation. Aeration and agitation in

bioprocess. Industrial substrates and stoichiometry. Kinetics of microbial growth, substrate utilization, and product formation. Gas exchange and mass transfer: O₂ transfer, critical oxygen concentration, determining the oxygen uptake rate.

Paper 4/ Unit 2- Beer and Wine: introduction, manufacturing/ processing, spoilage, Dextran

Paper 4/ Unit 4- Nutraceuticals and functional foods Definition, characteristic features, and classification, phytonutraceuticals, Prebiotics and Probiotics, Sources (with examples e.g. microbes, plants, algae, animals), food security, food preservation, Chemopreservation Food. processing (animal and sea food), food packaging, Applications of nutraceuticals in human health and nutrition- health effects of commonly used. nutraceuticals and functional foods (case studies),

It was resolved as under,

“Resolved that to discuss about syllabus to be revised and modified for M.Sc. (Semester III and IV) Biotechnology for the academic year 2021-22 and to take suggestions regarding the new topics/ units and practical to be added to improve the existing syllabus be noted.”

ITEM NO. 2

To discuss two new courses- M.Sc. in Industrial Biotechnology and 5-year Integrated Course in Biotechnology- to be implemented for academic year 2021-22.

All the members discussed and appreciated initiative taken for the beginning of the two courses M.Sc. in Industrial Biotechnology and 5-year Integrated Course in Biotechnology which were proposed for the academic year 2021-22. The following suggestions were provided by the BOS.

- To be focused on the topic that is essential as the syllabus seems to be very exhaustive.
- Suggested to refer syllabus of different Universities for Integrated Biotechnology course and to check the minimum requirement for teaching Integrated Biotechnology course and implement that so that students get recognition outside.
- To include Case study for Bioanalytical techniques in Integrated F.Y.B.Sc (Sem II) Biochemistry II paper Unit III.
- Rearrangement of the Unit I (Cloning enzymes and Vectors) of Paper III (Genomics and Molecular Biology) Sem V.
- Combine Unit 1 (Cloning enzymes and Vectors) and Unit III (Tools in Molecular Biology) of Paper III (Genomics and Molecular Biology) in T.Y.B.Sc (Sem V).
- Introduce different cloning system in Paper III (Genomics and Molecular Biology) in T.Y.B.Sc (Sem V).
- Add New sequencing tools in Unit IV (Gene sequencing and editing) in paper III T.Y.B.Sc (Sem V).
- Rearrangement of Paper IV (Marine Biotechnology) Unit I (Marine Biotechnology: Introduction & Bioprospecting) of T.Y.B.Sc (Sem V).
- Add Principles of Environmental Biotechnology in T.Y.B.Sc (Sem VI) Paper IV (Environmental Biotechnology and bioinformatics) Unit I (Renewable sources of Energy).

- Restructuring of Unit III (Introduction to Computers and Biological Databases) of Paper IV (Environmental Biotechnology and bioinformatics) T.Y.B.Sc.
- Add Indian Rules and Regulations for Biosafety, Different Bodies taking care of Biosafety in India in Unit IV (Biosafety in Biotechnology) Paper V (Applied component -Biosafety) of T.Y.B.Sc.
- In M.Sc Part 1 (Sem VII) Paper IV (Unit IV) (Biochemical techniques and Biosafety) add introduction and principles of Biophysics.
- Restructuring of M.Sc part II (Sem IX) Paper II (Bioinformatics) Unit I (Biological databases).
- Add Microbial genome analysis, Meta genome analysis, Current sequencing tools in M.Sc part II (Sem IX) Paper II (Bioinformatics) Unit II (Genomics).
- Rearranging M.Sc part II (Sem X) Paper II (Medical Microbiology and Developmental Biology) Unit I (Chromosomal Disorders and Biofilms).

The suggestion provided were implemented

It was resolved as under,

“Resolved that to discuss two new courses- M.Sc in Industrial Biotechnology and 5 year Integrated Course in Biotechnology- to be implemented for academic year 2021-22 be noted.”

ITEM NO. 3

Appreciation of Board of Studies members who contributed to prepare syllabus.

The Chairperson reported the members about the efforts of all the members of Board of Studies to prepare the syllabus of the subject of Biotechnology for the academic year 2021-22. Director Dr. Naresh Chandra and Prin. Dr. Avinash Patil also expressed their appreciation and insisted that further interactions should be continued to make the syllabus more proper.

It was resolved as under,

“Resolved that the Appreciation of Board of Studies members who contributed to prepare syllabus be noted.”

There being no other matter, the meeting was concluded with a vote of thanks to the chair.

