








Minutes of the Meeting of Board of Studies
B. Tech Chemical Technology-Biochemical Engineering held on July 11, 2022
Department of Biochemical Engineering
School of Chemical Technology
HBTU, Kanpur

A meeting of the BoS members was held on July 11, 2022 at 1:00 PM for B. Tech Chemical Technology- Biochemical Engineering to review the course structure and detailed syllabus as per NEP 2020.

The following members were present during the meeting:

1	Mr. Brajesh Singh, Head, Biochemical Engineering Deptt., HBTU, Kanpur	Chairman	
2	Dr. Dr. Aroop K. Dutta, Director, Excel Matrix Biological Devices Pvt. Ltd., Hyderabad	Member	
3	Dr. Gauri Shankar, Ex Prof. & Head, BE Deptt., HBTU, Kanpur	Member	
4	Dr. A. K. Srivastava Prof., Deptt. of Biochemical Engg. & Biotech., IIT, Delhi	Member	
5	Dr. Sadhana Sachan, Deptt. of Chemical Engineering, MNIT, Allahabad	Member	
6	Dr. S. K. Srivastava, School of Biochemical Engineering, IIT(BHU), Varanasi	Member	
7	Dr. Lalit Kumar Singh, Associate Professor, Biochemical Engineering Deptt., HBTU Kanpur	Member	
8	Mr. Pravin Kumar Sachan, Guest Faculty, Biochemical Engineering Deptt., HBTU Kanpur	Member	
9	Dr. Dilip Kumar, Guest Faculty, Biochemical Engineering Deptt., HBTU Kanpur	Member	
10	Mr. Shashikant, Guest Faculty, Biochemical Engineering Deptt., HBTU Kanpur	Member	
11	Mr. Mohit Kumar Yadav, Guest Faculty, Biochemical Engineering Deptt., HBTU Kanpur	Member	

Following member could not attend the meeting:-


Mr. Vikas Katiyal, Asstt. V. P. Biologics Manufacturing Mylan, Bangalore & *DR. A. K. Dutta, Excel Matrix*
 Chairman BoS, Mr. Brajesh Singh, welcomed all the members and invitees in the meeting and appraised the members with previous revision held on July 20, 2020. Following agenda was taken up for discussion and decision.

1. Discussion and decision on structure of B. Tech. Program as per NEP 2020

After a long deliberation and discussion following changes are made in I semester

Total credits of semester I courses changed from 20 to 22
A course Engg. Chemistry has been replaced by Engg. Physics.
A course Mathematics -I has been replaced by Engineering Mathematics-I.
A course Electronics & Instrumentation Engineering has been replaced by Introduction to Electrical Engineering.
A course Computer Concept & Programming has been replaced by Introduction to Mechanical Engineering.
A course (ESC) Workshop Practice has been replaced by (HSMC) Professional Communication.
Non Credit course Environmental & Ecology has been removed.

After a long deliberation and discussion following changes are made in II semester

Total credits of semester II courses changed from 20 to 22.
A course Engg. ~~Physics~~ has been replaced by Engg. ~~Chemistry~~ 
A course Mathematics-II has been replaced by Introduction to Computer Science & Engineering.
A course Electrical Engineering has been replaced by Introduction to Electronics Engineering.
A course Engineering Mechanics has been replaced by Introduction to Civil Engineering.
A course English Language Composition has been replaced by Introduction to Chemical Engineering & Chemical Technology.
A course Professional Communication has been replaced by Workshop Practice.

After a long deliberation and discussion following changes are made in III semester

Total Credits of semester III changes from 22 to 24.
A course Mathematics -III has been replaced by Engineering Mathematics-II.
A course Material Energy Balance has been replaced by new course Fundamental of Life Processes.
A course Microbiology has been replaced by Biochemistry.
A course Microbiology lab has been replaced by Biochemistry lab.
A course Organizational Behaviour has been replaced by Industrial Economics & Management.
A non credit course Cyber Security has been replaced by credit course Chemical Process Calculations.

After a long deliberation and discussion following changes are made in IV semester

Total credits of semester IV changes from 22 to 24.
A course Biochemistry has been replaced by new course Industrial Microbiology.
A course Engg. Economics & Management has been replaced by Microbiology Lab.
A non credit course Indian Constitution has been replaced by OEC-I Principles of Biochemical Engineering.



After a long deliberation and discussion following changes are made in V semester

Total credits of semester V changes from 22 to 24.

A course Molecular Biology & Genetic Engineering has been replaced by new course Environmental Biotechnology.

A course Bioinformatics has been replaced by new course Biofuel and Bioenergy.

A new lab course Bioprocess Engg. Laboratory added as PCC.

After a long deliberation and discussion following changes are made in VI semester

Total credits of semester VI changes from 22 to 24.

A course Down Stream Processing has been replaced by new course Downstream Techniques in Bioprocesses.

A course Environmental Biotechnology has been replaced by course Enzyme Engineering and Technology.

A course Fermentation Technology has been replaced by new lab course Fermentation & Enzyme Technology lab.

A course Bioreaction Engineering has been replaced by new PEC-I.

1. Process Equipment Design
2. Process Modeling & Simulation
3. Process Optimization

A course (OEC Maths) Operation Research replaced by new course Microbial Technology (OEC-III).

After a long deliberation and discussion following changes are made in VII semester

Total credits of semester VII changes from 22 to 24.

A course Enzyme Engineering & Technology has been replaced by PEC-II.

1. IPR & Biosafety Regulation
2. *Metabolic Engg.*
3. Food Biotechnology

PEC-I has been replaced by PEC-III.

1. Plant Cell Biotechnology
2. Bioreactor Design
3. Molecular Biology & Genetic Engineering

PEC-II has been replaced by PEC-IV.

1. Membrane Application in Bioprocessing
2. Animal Cell Culture
3. Immuno Technology

OEC (Biochemical) Principles of Biochemical Engineering has been replaced by (HSMC) Business Analytics.

Project has been replaced by Minor Project.

After a long deliberation and discussion following changes are made in VIII semester

PEC-III has been replaced by PEC-V.

1. Instrumentation and Control in Bioprocess
2. Protein Science & Engineering
3. Biomaterial Science and Engineering



OEC (Biochemical) Biotechnology Entrepreneurship has been replaced by TEFR Seminar shifted from VII to VIII semester.

2. Discussion /modification/improvement in the elective courses to increase the basket to make the syllabus of Biochemical Engineering department more flexible.

Name of open elective offered by Biochemical Engineering.

Open elective no. I - Principles of Biochemical Engineering.

Open elective no. III -Microbial Technology.

Basket of the elective is now enriched by inducting the new courses namely-

PEC-I

1. Process Equipment Design
2. Process Modeling & Simulation
3. Process Optimization

PEC-III

1. Bioreactor Design
2. Molecular Biology & Genetic Engineering

PEC-IV

1. Membrane Application in Bioprocessing
2. Animal Cell Culture
3. Immuno Technology

PEC-V

1. Protein Science & Engineering

The title names of various courses and practical laboratory works were discussed and the recommended course titles are mentioned in the course structure.

3. Discussion and decision on empanelment of paper setter examiners for Laboratory/Project/Theory courses.

List of recommended examiners .paper setters from academia and industry is attached as Annexure-II

4. Any other matter with permission of chairperson.



A bunch of courses for minor degree in Biochemical Engineering for the students of other departments of not less than 20 credits is recommended as follows.

HARCOURT BULTER TECHNICAL UNIVERSITY KANPUR
SCHOOL OF CHEMICAL TECHNOLOGY
DEPARTMENT OF BIOCHEMICAL ENGINEERING
Courses for Minor Degree
B. Tech. in Biochemical Engineering
(Applicable from Session 2022-2023 for new entrants)

S. No.	Course Type	Course Title	Subject Code	Credits	Sessional Marks				ESE	Total Marks	Offered in sem
					MSE	TA	Lab	Total			
1.	PCC	Fundamental of Life Processes	TBE-251	3 (3-0-0)	30	20	-	50	50	100	III
2.	PCC	Industrial Microbiology	TBE-252	3 (3-0-0)	30	20	-	50	50	100	IV
3.	PCC	Environmental Biotechnology	TBE 351	4 (3-0-2)	15	20	15	50	50	100	V
4.	PCC	Bioprocess Engg.	TBE 353	3 (3-0-0)	30	20	-	50	50	100	V
5.	PCC	Downstream Techniques in Bioprocesses	TBE 352	4 (3-0-2)	15	20	15	50	50	100	VI
6.	PCC	Enzyme Engineering and Technology	TBE 356	3 (3-0-0)	30	20	-	50	50	100	VI
Total Credits				20							

Drafting / revision of detailed syllabus of various courses offered by Biochemical Engineering department assigned to teacher concerned of the department. They are advised to submit the detailed syllabus of II, III and Final year within month for discussion in the next meeting of the BoS.

An module of Biochemical Engineering component in the I year course (w.e.f. 2022-23) namely Introduction to Chemical Engineering and Chemical Technology (ECT-15-) recommended as follows:-

MODULE

Syllabus of this module of 7 periods will be prepared by the concerned faculty members. They are advised to submit the detailed syllabus within month for discussion in the next meeting of the BoS.

There being no matter, Chairman BoS thanked all members and invitees for their important and useful inputs in improving the course syllabus as per NEP2020.

The meeting ended with vote of thanks to the chair