Department of Biochemical Engineering and Biotechnology
Minutes of the Departmental Faculty Board Meeting
(DFB-07/2024-2025)

23/01/2025

The seventh meeting of the *Departmental Faculty Board* for the academic session 2024-2025 was held on **Thursday, January 23th, 2025** at **02:00 PM** in the Committee Room of the Department.

The following members were present during the meetings:

Prof. Ritu Kulshreshtha, Chairperson
Prof. Prashant Mishra
Prof. KJ Mukherjee
Prof. Shilpi Sharma
Prof. Ravikrishnan Elangovan
Prof. Ashish Misra
Prof. Lucinda Doyle
Prof. Priti Sinha
Prof. Anjan Roy
Prof. Jatin Panwar
Prof. Amit Das, Convener

Item 1: Confirmation of minutes of the 6th DFB meeting held on 9th January, 2025
*The minutes of previous meeting (DFB-06 of 2024-25) held on **9th January, 2025** were confirmed as circulated.*

Item 2: BAP agenda regarding PhD admission
DFB discussed the UGC proposal regarding using NET – PhD admission as a PhD entrance criterion. The DFB reviewed the newly introduce category 3 in the NET, which is exclusive for PhD admission. DFB did not agree with the proposal and did not consent to the inclusion of category 2 (NET-LS) and category 3 (NET – PhD admission) of the NET exam for admissions to the PhD program run by DBEB.

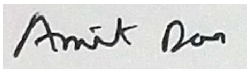
Item 3: 99c plan
The DFB discussed the recent discovery that CPWD has been following some old plans for common facilities and faculty offices in 99c. DFB recommended that we should share slightly updated map of the first and second floors. DFB recommended that these maps should supersede the old maps. DFB also suggested that the ground floor instrumentation room as proposed in the current plan may be altered into a PG teaching lab. Prof Ravi is requested to coordinate the planning of microscopy room on the first floor. Prof AR and Prof AD are requested to coordinate the planning of the seminar room and faculty lounge-committee rooms.

Item 4: MTech and MSR program
Prof AR presented the proposed MTech program and Prof Lucinda presented the proposed MSR program. The format of the templates of these programs, as recommended by the DFB, are attached as annexure 1 and 2.

Item 5: Updates on the purchases under the UpGrad program

DFB discussed the list of purchases to be made through the 1 cr received under the UpGrad program. Prof Priti shared the list of equipment and buyers (annexure 3).

The meeting ended with a vote of thanks to the chairperson.



Amit Das,
DFB Convener

Annexure 1: MTech Programme Template

1. Name of the Programme and Code	MTech in Biomolecular and Bioprocess Engineering, BEM
2. Degree (UG/PG)	PG
3. Minimum Duration of the Programme (Specify for FT and PT, if applicable)	2 years / 4 semesters (FT)
4. Maximum Duration of the Programme (Specify for FT and PT, if applicable)	6 semesters (FT)
5. Capacity (Max. Student Strength) of the Programme	30
6. Number of Regular Faculty Members Involved as Teaching Faculty in the Programme	18
7. Minimum Credit Requirements for the Degree	63

8. Articulate the Program Learning Outcomes (PLO)

PLO1: Knowledge and understanding of biomolecules

PLO2: Engineering of biomolecules nucleic acids, proteins, carbohydrates and lipids

PLO3: Exposure to quantitative aspects of biological processes

PLO4: Engineering solutions for downstream processing and scale-up

PLO5: Bioinformatics for addressing key problems

PLO6: Ability to effectively synthesize and communicate ideas, embrace teamwork and demonstrate scientific temperament, integrity, personal and professional responsibility.

9. Map PLOs with Institute Learning Outcomes (ILOs) of the Degree

[*Indicate '1' for weak, '2' for good, and '3' for excellent relation. Leave the cell blank to indicate no relation*]

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
ILO1	3	3	3	3	3	2
ILO2	2	2	2	2	2	3

10. Number of Programme Core Credits	48
11. Number of Programme Elective Credits	9
12. Number of Open Credits	6
13. Number of Project Core Credits	18+3+3

14. Details of Creative Expression and Ethical Reasoning (CEER) Component in the Programme [Only for UG]

Number of Credits Assigned	
Courses Involved and Credits Accounted [*e.g., If one module in AMLXXX with contact hours YY satisfies Z credits, then write AMLXXX (Z credits)*]	1. xxx (Z1 credits) 2. xxx (Z2 credits) 3. ...

15. Details of Emerging Trends (ETT) Component in the Programme [Only for UG]

Number of Credits Assigned	
Courses Involved and Credits Accounted [*e.g., If one module in AMLXXX with contact hours YY satisfies Z credits, then write AMLXXX (Z credits)*]	1. xxx (Z1 credits) 2. xxx (Z2 credits) 3. ...

16. Details of Environment and Sustainability (E&S) Component in the Programme [Only for UG]

Number of Credits Assigned	
Courses Involved and Credits Accounted [*e.g., If one module in AMLXXX with contact hours YY satisfies Z credits, then write AMLXXX (Z credits)*]	1. xxx (Z1 credits) 2. xxx (Z2 credits) 3. ...

17. Details of Research/Technical Communication Component in the Programme [Only for PG]

Number of Credits Assigned	
Courses Involved and Credits Accounted	1. MTP PART-I (6 credits) 2. MTP PART-II (12 credits)

18. Details of Professional Ethics Component in the Programme [Only for PG]

Number of Credits Assigned	1 Credit
Courses Involved and Credits Accounted	We will develop a 1 Credit Course (Tentatively: Professional practices and Ethics in Biotechnology)

19. Details of External Connect Component in the Programme [Only for PG]

Number of Credits Assigned	3 Credits
Courses Involved and Credits Accounted	1. Summer Internship (3 credits) 2. Biosphere (0 credit)

20. List of prescribed courses in all baskets (BS, GE, DC/PC, DE/PE, …)

Program Core:

Course codes	Name of course	L-T-P	Credits
BBL771	Microbial Biochemistry and Molecular Biology	3-0-2	4
BBL772	Data Analytics and Informatics in Biotechnology	2-0-2	3
BBL773	Applied Mathematics for Biochemical Engg.	3-0-0	3
BBL774	Biomolecular Engineering	3-0-2	4
BBL775	Bioreaction Engineering	3-0-3	4.5
BBL731	Bioseparation Engineering	3-0-3	4.5
BBD855	MTP PART-I	0-0-12	6
BBD856	MTP PART-II	0-0-24	12
BBN857	SUMMER INTERNSHIP/ MINOR PROJECT	0-0-6	3 (NGU) NON GRADED
BBD858	WINTER TEAM-BASED CORNERSTONE PROJECT	0-0-6	3 (GRADED)
BBV751	Professional Ethics Course	1-0-0	1

Program Electives:

Course codes	Name of course	L-T-P	Credits
BBL734	Metabolic Regulation & Engineering	3-0-0	3
BBL735	Genomics and Proteomics	2-0-2	3
BBL736	Dynamics of Microbial Systems	3-0-0	3
BBL737	Instrumentation and Analytical Methods in Bioengineering	2-0-2	3
BBL741	Protein Science & Engineering	3-0-0	3
BBL742	Biological Waste Treatment	3-0-2	4
BBL745	Combinatorial Biotechnology	3-0-0	3
BBL746	Current Topics in Biochemical Engineering and Biotechnology	3-0-0	3
BBL747	Bionanotechnology	3-0-0	3

BBL749	Cancer Cell Biology	3-0-3	4.5
BBL750	Genome Engineering	2-0-2	3
BBL751	Bio-Enterpreneurship	2-0-0	2
BBL752	Microbial Ecology	3-0-0	3
BBL754	Optics with Life Sciences	3-0-0	3
BBL757	Electromicrobiology and Bioelectrochemical Systems	3-0-0	3
BBL756	Plasmid Biology	3-0-0	3

21. Nominal Semester-wise Academic Plan:

SEMESTER	COURSES							CREDITS
I	BBL771 (3-0-2)	BBL772 (2-0-2)	BBL773 (3-0-0)	PE# (0.5-0-1)	PE-1 (3-0-0)	OE-1 (3-0-0)	TP/RP*	17+/-1
WINTER	TEAM-BASED CORNERSTONE PROJECT							3
II	BBL775 (3-0-3)	BBL731 (3-0-3)	BBL774 (3-0-2)		PE-2 (3-0-0)		TP/RP	15
SUMMER	INTERNSHIP / MINOR PROJECT							3
III	BBD855 MAJOR PROJECT PART I (0-0-12)				PE-3 (3-0-0)	OE-2 (3-0-0)	TP/RP	12
IV	BBD856 MAJOR PROJECT PART II (0-0-24)						TP/RP	12

*: Teaching/Research Practicum
#: Professional Ethics course (1 credit, NGU?) (e. g., VEV739, VEV740, etc.)

22. Average Contact Hours per Faculty *per Week,* for this Programme	(54/18=) 2 hours per week per faculty
23. Average Credit Students per Faculty per Semester, for this Programme	(15*30)/18 = 25

24. If the program is a revision of an existing program, please list the major changes made.	Addition of Open Elective courses, professional ethics course, summer internship/minor project, and winter team-based cornerstone project.
25. Please elaborate on,	
a) how flexibility for the students has increased?	The program now involves 6 credits of Open Electives, which the students can break up between 1st and 3rd semester. In addition, the students now have the flexibility to use their summer after 1st year towards an Industrial Internship or a Minor Project.
b) how engagement and interaction with the student have increased?	We have now included winter team-based cornerstone project of 3 credits where the students will work in team. Further, they participate and get to interact with their peers in our annual event 'Biosphere'. In addition, we organize multiple industry trips.
c) how hands-on learning is emphasized in the program?	The number of hours dedicated to lab component is high, at total of 6 credits (4 hours in 1st semester and 8 hours in 2nd semester). In addition, students will do M.Tech Project worth 18 credits over a period of 2 semesters, a team based cornerstone project of 3 credits, and a summer internship of 3 credits.

Annexure 2: MSR Programme Template

26. Name of the Programme and Code	M.S.(R.) in Biochemical Engineering and Biotechnology, BEY
27. Degree (UG/PG)	PG
28. Minimum Duration of the Programme (Specify for FT and PT, if applicable)	2 years (FT)
29. Maximum Duration of the Programme (Specify for FT and PT, if applicable)	3 years (FT)
30. Capacity (Max. Student Strength) of the Programme	30
31. Number of Regular Faculty Members Involved as Teaching Faculty in the Programme	18
32. Minimum Credit Requirements for the Degree	60
33. Articulate the Program Learning Outcomes (PLO) PLO1: Knowledge and understanding of biomolecules and engineering thereof PLO2: Knowledge and understanding of common equipment used in biotechnology and biochemical engineering research PLO3: Exposure to quantitative aspects of biological processes and data analysis PLO4: Knowledge and understanding of bioinformatics for addressing key problems PLO5: Ability to effectively synthesize and communicate ideas, embrace teamwork and demonstrate scientific temperament, integrity, personal and professional responsibility.	

34. Map PLOs with Institute Learning Outcomes (ILOs) of the Degree

[*Indicate '1' for weak, '2' for good, and '3' for excellent relation. Leave the cell blank to indicate no relation*]

	PLO1	PLO2	PLO3	PLO4	PLO5
ILO1	3	3	3	3	2
ILO2	2	2	2	2	3

35. Number of Programme Core Credits	13
36. Number of Programme Elective Credits	2
37. Number of Open Credits	
38. Number of Project Core Credits	3

39. Details of Creative Expression and Ethical Reasoning (CEER) Component in the Programme [Only for UG]

Number of Credits Assigned	
Courses Involved and Credits Accounted [*e.g., If one module in AMLXXX with contact hours YY satisfies Z credits, then write AMLXXX (Z credits)*]	4. xxx (Z1 credits) 5. xxx (Z2 credits) 6. ...

40. Details of Emerging Trends (ETT) Component in the Programme [Only for UG]

Number of Credits Assigned	
Courses Involved and Credits Accounted [*e.g., If one module in AMLXXX with contact hours YY satisfies Z credits, then write AMLXXX (Z credits)*]	4. xxx (Z1 credits) 5. xxx (Z2 credits) 6. ...

41. Details of Environment and Sustainability (E&S) Component in the Programme [Only for UG]

Number of Credits Assigned	
Courses Involved and Credits Accounted [*e.g., If one module in AMLXXX with contact hours YY satisfies Z credits, then write AMLXXX (Z credits)*]	4. xxx (Z1 credits) 5. xxx (Z2 credits) 6. ...

42. Details of Research/Technical Communication Component in the Programme [Only for PG]

Number of Credits Assigned	
Courses Involved and Credits Accounted [*e.g., If one module in AMLXXX with contact hours YY satisfies Z credits, then write AMLXXX (Z credits)*]	Thesis Project (42 credits)

43. Details of Professional Ethics Component in the Programme [Only for PG]

Number of Credits Assigned	1
Courses Involved and Credits Accounted [*e.g., If one module in AMLXXX with contact hours YY satisfies Z credits, then write AMLXXX (Z credits)*]	VEV739/VEV740

44. Details of External Connect Component in the Programme [Only for PG]

Number of Credits Assigned	
Courses Involved and Credits Accounted [*e.g., If one module in AMLXXX with contact hours YY satisfies Z credits, then write AMLXXX (Z credits)*]	3. Summer Internship (3 credits) 4. Biosphere (0 credit) (Annual department event)

45. List of prescribed courses in all baskets (BS, GE, DC/PC, DE/PE, …)

Program Core:

Course codes	Name of course	L-T-P	Credits
BBL737	Instrumentation and Analytical Methods in Bioengineering	2-0-2	3
BBL771	Microbial Biochemistry and Molecular Biology	3-0-2	4
BBL772	Data Analytics and Informatics in Biotechnology	2-0-2	3
BBL773	Applied Mathematics for Biochemical Engg.	3-0-0	3
BBDXX2	INTERNSHIP/ MINOR PROJECT	0-0-6	3

Program Electives:

Course codes	Name of course	L-T-P	Credits
BBL731	Bioseparation Engineering	3-0-3	4.5
BBL734	Metabolic Regulation & Engineering	3-0-0	3
BBL735	Genomics and Proteomics	2-0-2	3
BBL736	Dynamics of Microbial Systems	3-0-0	3
BBL741	Protein Science & Engineering	3-0-0	3
BBL742	Biological Waste Treatment	3-0-2	4
BBL745	Combinatorial Biotechnology	3-0-0	3
BBL746	Current Topics in Biochemical Engineering and Biotechnology	3-0-0	3
BBL747	Bionanotechnology	3-0-0	3
BBL749	Cancer Cell Biology	3-0-3	4.5
BBL750	Genome Engineering	2-0-2	3

BBL752	Microbial Ecology	3-0-0	3
BBL754	Optics with Life Sciences	3-0-0	3
BBL757	Electromicrobiology and Bioelectrochemical Systems	3-0-0	3
BBL774	Biomolecular Engineering	3-0-2	4
BBL775	Bioreaction Engineering	3-0-3	4.5
BBL756	Plasmid Biology	3-0-0	3

46. Nominal Semester-wise Academic Plan

SEMESTER	COURSES					CREDITS
I	BBL771 (3-0-2)	BBL772 (2-0-2)	BBL773 (3-0-0)	BBL737 (2-0-2)	TP/RP*	13
II	PE-1		PE#		TP/RP*	2
SUMMER	INTERNSHIP / MINOR PROJECT					3
III	THESIS PROJECT				TP/RP*	42
IV	THESIS PROJECT				TP/RP*	

*: Teaching/Research Practicum
#: Professional Ethics Course

47. Average Contact Hours per Faculty *per Week,* for this Programme	1.2 h
48. Average Credit Students per Faculty per Semester, for this Programme	50

49. If the program is a revision of an existing program, please list the major changes made.	Addition internship/ minor project and increase in credits for thesis project
50. Please elaborate on,	
d) how flexibility for the students has increased?	The students now have the flexibility to use their summer after 1st year towards an industrial internship or a minor project.
e) how engagement and interaction with the student have increased?	We have revamped and expanded our annual department event 'Biosphere'.
f) how hands-on learning is emphasized in the program?	The number of hours dedicated to lab component is high, at total of 6 credits. In addition, students will a summer internship/minor project of 3 credits.

Annexure 3: UpGrad buyers' list

FLUID MECHANICS LAB				PROCESS CONTROL LAB				BIOPROCESS and BIOSEPARTION LAB		
Equipment Name	Quantity	Buyer		Equipment	Qunatity	Buyer		Equipment	Quantity	Buyer
Bernoulli's apparatus	1	AR		Temprature Sensor	5	JP		Peristaltic pump for CSTR	4	KJM
Reynolds apparatus	1	AR		Flow rate sensors	5	JP		Temperature Controlled jacket vessel for CSTR setup	2	KJM
Flow metering Devices (Venturi meter, Orifice meter, Rotameter)	1	AR		Pressure sensors	10	JP			TOTAL	600000 Rs.
Darcy's apparatus	1	AR		Syringe pumps	2	JP		Drum filter for Continuous filteration	1	KJM
Packed bed reactor	1	AR		Control valves	10	JP		Multi stage counter current extractors	1	KJM
Fluidized bed reactor	1	AR		Breadboards	10	JP		UV and RI detectors	1	KJM
Viscometer (Non-Newtonian)	1	KPS		Power Supply	2	JP			TOTAL	837298 Rs.
Ostwald Viscometer (Newtonian)	2	KPS		Arduino	4	JP				
Microfluidic equipments				Data Acquision Card	2	JP				
11.1 Syringe pumps	3	KPS		Tools and misc items		JP				
11.2 Plasma cleaner	1	KPS								
11.3 Vacuum pump for Plasma cleaner	1	KPS			TOTAL	518000 Rs.				
11.4 Hot plate	2	KPS								
11.5 Desiccator 300	2	KPS								
11.6 Vacuum Pump for desiccator	2	KPS								
11.5 Spin coater +Vacuum pump	1	AD								
Micropipette	One set	AD								
Mini Centrifuge	2	LED								
Vortex mixer	2	LED								
Magnetic Stirrer	2	LED								
Refrigerator (4 degree)	1	PS								
High precision Weighing balance	1	PS								
Table top centrifuge	1	PS								
UPS	1	PS								
Double distilled water unit	1	PS								
Votage stabilizer	2	PS								
Tensiometer	1	PS								
Pressure gauge	2	KPS								
Peristaltic pump	2	KPS								
Stop wateches	10	KPS								
Oven	1	KPS								
Heating units	1	KPS								
Tools and fittings		KPS								
	TOTAL	8044702 Rs.								
FM	8044702									
PC	518000									
BP/BS	1437298									
TOTAL	10000000									
NOTE: THE QUANTITY REQURED MAY VARY BASED ON THE AVAILABILITY OF FUNDS										