Department of Biochemical Engineering and Biotechnology
Minutes of the Departmental Faculty Board Meeting
(DFB-08-09/2024-2025)

20/02/2025

The eighth meeting of the *Departmental Faculty Board* for the academic session 2024-2025 was held across three days: **Thursday, February 13th, 2025** at **03:00 PM, Wednesday, February 19th , 2025 at 11:30 am and February 21st, 2:30 pm** in the Committee Room of the Department.

The following members were present during the meetings:

February 13, 2025	*February 19, 2025*	*February 21, 2025*
Prof. Ritu K., Chairperson	Prof. Ritu K., Chairperson	Prof. Ritu K., Chairperson/Convenor
Prof. TR Sreekrishnan	Prof. KJ Mukherjee	Prof. K J Mukherjee
Prof. Sunil Nath	Prof. Atul Narang	Prof. Preeti Srivastava
Prof. KJ Mukherjee	Prof. Preeti Srivastava	Prof. Ravi K Elangovan
Prof. Atul Narang	Prof Lucinda Doyle	Prof. Anjan Roy
Prof. Preeti Srivastava	Prof. Priti Sinha	Prof. Priti Sinha
Prof Shilpi Sharma	Prof. Anjan Roy	Prof. Jatin Panwar
Prof Ravikrishnan Elangovan	Prof. Jatin Panwar	
Prof Lucinda Doyle	Prof. Amit Das, Convener	
Prof. Priti Sinha		
Prof. Anjan Roy		
Prof. Jatin Panwar		
Prof. Amit Das, Convener		

Item 1: Confirmation of minutes of the 7th DFB meeting held on 23rd January, 2025

*The minutes of previous meeting (DFB-07 of 2024-25) held on **23rd January, 2025** were confirmed as circulated.*

Item 2: UG program template

The main agenda of this meeting was finalizing the UG program template as part of the ongoing curriculum revision. DFB discussed the BS and GE courses that are offered by several academic units and recommended suitable four of them to be included. DFB discussed the departmental core courses in detail following recommendations from separate sub-committees working on biochemical engineering courses and bioscience/biotechnology courses. Several biochemical engineering courses were merged in new BBL courses. The course on heat and mass transfer was recommended to be removed. The respective contents on heat transfer and mass transfer are to be included with Transport Phenomena and Bioseparation Engineering, respectively. Two new courses on Chemical Thermodynamics and Systems Biology are added. The latest version of the template with course names and semester slots to be circulated by Prof Preeti for comments.

Item 3: MTech and MSR program

Prof AR communicated the approval of MTech and MSR program templates by PGCIC (attached as annexure 1 and 2). He mentioned two main updates:

1. *BML 760 offered by CBME will satisfy the Professional Ethics course requirement in the MTech program. This was added to the 2nd semester as CBME is floating it in that semester only.*
2. *A 1 credit seminar course in MSR program, as requirement of a 1 credit of Research Communication course was pointed out.*

Item 5: Update on ChE courses

DFB discussed the recent communication from HOD, ChE regarding their faculty members opting out of teaching our UG students in the chemical engineering courses. Following is their semester-wise phasing our proposal:

Semester	Courses taught by CHE	Courses taught by DBEB
Sem 2, 2024-25	CLL122, CLL 231, CLL251, CLP302	
Sem 1, 2025-26	CLL110, CLP301	CLL261, CLL252
Sem 2, 2025-26	CLL122, CLP302	CLL 231, CLL251
Sem 1, 2026-27	CLL110, CLP301	CLL261, CLL252
Sem 2, 2026-27	CLL122, CLP302	CLL 231, CLL251
Sem 1, 2027-28 New Curriculum		CLL110, CLL261, CLL252, CLP301
Sem 2, 2027-28 New Curriculum		CLL122, CLL 231, CLL251, CLP302

DFB recommended that we could manage taking over CLL261 but until we hire more faculty, ChE should be requested to continue teaching rest of the courses to our old curriculum students. The entire proposal is not feasible for us, because two of our engineering faculty are retiring in next one year or so.

Item 6: JOVE subscription

DFB considered Prof AR's proposal regarding subscribing to the JoVE journal. He mentioned that Chemistry department has already recommended subscription to the Chemistry vertical (priced at $ 20k per annum), and at double the amount ($ 40k per annum) we can get the subscription of the complete journal with access to their educational and research content across all the disciplines. DFB recommended the proposal.

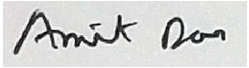
Item 7: Budget 2025-2026

HoD collated the requirement received from all faculty and common lab in-charges. The proposed budget for 2025-2026 is attached as Annexure-4.

Prof. Ritu Kulshreshtha also shared two urgent requirements of the equipments -

a) *Request received from Prof. Priti Sinha for purchase of photon counter and accessories. While DFB approved her purchase it was noted that the equipment may not be purchased by 31st March as it requires customization. Thus, the requirement for Prof. Priti's lab has been added to the next years's budget.*
b) *Request received from Prof. Ritu Kulshreshtha for her CO2 incubator which has been non-functional even after repair after the floods and now again requires repair. Since her group is having 10 PhD students + 2 Joint IITD-UQ students+ 1 SIRE student+2 MTechs she requested if the Department approves of her urgent request to Dean planning for purchase of CO2 incubator worth ~6 Lakhs. The DFB approved of her request to be forwarded to Dean Planning.*

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



Amit Das,
DFB Convener

Annexure 1: BEM 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)	3 years / 6 semesters (FT)
5. Capacity (Max. Student Strength) of the Programme	20
6. Number of Regular Faculty Members Involved as Teaching Faculty in the Programme	18
7. Minimum Credit Requirements for the Degree	61

8. Articulate the Program Learning Outcomes (PLO)

PLO1: Ability to apply knowledge and training in interdisciplinary areas related to biomanufacturing and biotechnology to tackle and solve industry-level problems.

PLO2: 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**
ILO1	3	2
ILO2	2	3

10. Number of Programme Core Credits (non-project)	25
11. Number of Programme Elective Credits	6
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	2 credits
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. BML7060 (2 credits)

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

Number of Credits Assigned	24 credits
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. Summer Internship (3 credits) 2. Project (18 credits) 3. BBL7046 (3 credits)

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

Number of Credits Assigned	6 credits
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. BBL7042 (3 credits) 2. BBL7052 (3 credits)

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

Number of Credits Assigned	24 credits
Courses Involved and Credits Accounted	1. MTP PART-I (6 credits) 2. MTP PART-II (12 credits) 3. Cornerstone Project (3 credits) 4. Summer Internship (3 credits)

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

Number of Credits Assigned	2 Credits
Courses Involved and Credits Accounted	BML7060 (2 credits)

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
BBL7071	Microbial Biochemistry and Molecular Biology	3-0-2	4
BBL7072	Data Analytics and Informatics in Biotechnology	2-0-2	3
BBL7073	Applied Mathematics for Biochemical Engg.	3-0-0	3
BBL7074	Biomolecular Engineering	3-0-2	4
BBL7075	Bioreaction Engineering	3-0-3	4.5
BBL7031	Bioseparation Engineering	3-0-3	4.5
BBD8055	MTP PART-I	0-0-12	6
BBD8056	MTP PART-II	0-0-24	12
BBN8057	SUMMER INTERNSHIP/ MINOR PROJECT	0-0-6	3 (NGU) NON GRADED
BBD8058	WINTER TEAM-BASED CORNERSTONE PROJECT	0-0-6	3 (GRADED)
BML7060	Biomedical Ethics, Safety and Regulatory Affairs	2-0-0	2

Program Electives:

Course codes	Name of course	L-T-P	Credits
BBL7034	Metabolic Regulation & Engineering	3-0-0	3
BBL7035	Genomics and Proteomics	2-0-2	3
BBL7036	Dynamics of Microbial Systems	3-0-0	3
BBL7037	Instrumentation and Analytical Methods in Bioengineering	2-0-2	3
BBL7041	Protein Science & Engineering	3-0-0	3
BBL7042	Biological Waste Treatment	3-0-2	4
BBL7045	Combinatorial Biotechnology	3-0-0	3
BBL7046	Current Topics in Biochemical Engineering and Biotechnology	3-0-0	3
BBL7047	Bionanotechnology	3-0-0	3
BBL7049	Cancer Cell Biology	3-0-3	4.5
BBL7050	Genome Engineering	2-0-2	3
BBL7051	Bio-Enterpreneurship	2-0-0	2
BBL7052	Microbial Ecology	3-0-0	3
BBL7054	Optics with Life Sciences	3-0-0	3
BBL7057	Electromicrobiology and Bioelectrochemical Systems	3-0-0	3
BBL7056	Plasmid Biology	3-0-0	3

21. Nominal Semester-wise Academic Plan:

SEMESTER	COURSES						CREDITS
I	BBL7071 (3-0-2)	BBL7072 (2-0-2)	BBL7073 (3-0-0)	PE-1 (3-0-0)	OE-1 (3-0-0)	TP/RP*	16
WINTER	TEAM-BASED CORNERSTONE PROJECT (starts)						
II	BBL7075 (3-0-3)	BBL7031 (3-0-3)	BBL7074 (3-0-2)	CornerStone Project (0-0-6)	BML7060 (2-0-0) (profesionalethics)	TP/RP	18
SUMMER	INTERNSHIP / MINOR PROJECT						3
III	BBD8055 MAJOR PROJECT PART I (0-0-12)			PE-2 (3-0-0)	OE-2 (3-0-0)	TP/RP	12
IV	BBD8056 MAJOR PROJECT PART II (0-0-24)					TP/RP	12

*: Teaching/Research Practicum

22. Average Contact Hours per Faculty *per Week,* for this Programme	((19+20+15+24)*2)/(4*18) = 2.17
23. Average Credit Students per Faculty per Semester, for this Programme	(15*20*2)/18 = 33

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: BEY 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	5
31. Number of Regular Faculty Members Involved as Teaching Faculty in the Programme	All DBEB faculty members (18)
32. Minimum Credit Requirements for the Degree	64
33. Articulate the Program Learning Outcomes (PLO) PLO1: Ability to integrate knowledge of biomolecules, bioinformatics, and biochemical engineering with expertise in quantitative data analysis to address and solve key research challenges in biotechnology and biochemical engineering. PLO2: 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
ILO1	3	2
ILO2	2	3

35. Number of Programme Core Credits (non-project)	13
36. Number of Programme Elective Credits	6
37. Number of Open Credits	0
38. Number of Project Core Credits	42 (thesis) + 3 (summer internship/minor project)

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

Number of Credits Assigned	3 credits
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. BML7060 (2 credits) 2. BBQ 70XX (1 credit)

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

Number of Credits Assigned	48 credits
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. Summer Internship (3 credits) 5. Project (42 credits) 6. BBL7046 (3 credits)

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

Number of Credits Assigned	6 credits
Courses Involved and Credits Accounted	3. BBL7042 (3 credits) 4. BBL7052 (3 credits)

[*e.g., If one module in AMLXXX with contact hours YY satisfies Z credits, then write AMLXXX (Z credits)*]	

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

Number of Credits Assigned	46 credits
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. BBQ 70XX (1 credit) 2. Thesis project (42 credits) 3. Summer internship/minor project (3 credits)

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

Number of Credits Assigned	2 credits
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. BML7060 (2 credits)

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

Number of Credits Assigned	3 credits
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
BBL7071	Microbial Biochemistry and Molecular Biology	3-0-2	4
BBL7072	Data Analytics and Informatics in Biotechnology	2-0-2	3
BBL7073	Applied Mathematics for Biochemical Engg.	3-0-0	3
BBDXXXX	INTERNSHIP/ MINOR PROJECT	0-0-6	3
BML7060	Biomedical Ethics, Safety and Regulatory Affairs	2-0-0	2
BBQ 70XX	Seminar Course	0-0-2	1

Program Electives:

Course codes	Name of course	L-T-P	Credits
BBL7037	Instrumentation and Analytical Methods in Bioengineering	2-0-2	3
BBL7031	Bioseparation Engineering	3-0-3	4.5
BBL7034	Metabolic Regulation & Engineering	3-0-0	3
BBL7035	Genomics and Proteomics	2-0-2	3

BBL7036	Dynamics of Microbial Systems	3-0-0	3
BBL7041	Protein Science & Engineering	3-0-0	3
BBL7042	Biological Waste Treatment	3-0-2	4
BBL7045	Combinatorial Biotechnology	3-0-0	3
BBL7046	Current Topics in Biochemical Engineering and Biotechnology	3-0-0	3
BBL7047	Bionanotechnology	3-0-0	3
BBL7049	Cancer Cell Biology	3-0-3	4.5
BBL7050	Genome Engineering	2-0-2	3
BBL7052	Microbial Ecology	3-0-0	3
BBL7054	Optics with Life Sciences	3-0-0	3
BBL7057	Electromicrobiology and Bioelectrochemical Systems	3-0-0	3
BBL7074	Biomolecular Engineering	3-0-2	4
BBL7075	Bioreaction Engineering	3-0-3	4.5
BBL7056	Plasmid Biology	3-0-0	3

46. Nominal Semester-wise Academic Plan

SEMESTER	COURSES					CREDITS
I	BBL7071 (3-0-2)	BBL7072 (2-0-2)	BBL7073 (3-0-0)	PE-1 (3-0-0)	TP/RP*	13
II	PE-2 (3-0-0)		BML7060 (2-0-0)	BBQ70XX (0-0-2)	TP/RP*	6
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	(11 lecture hours per week + [8 practical hours, 2 tutorial hours per week* 2 cycles] + 42 project hours per week per semester /18) = 3.6 h per week per faculty
48. Average Credit Students per Faculty per Semester, for this Programme	(5 students*30 credits per semester/18 faculty) = 8.4

49. If the program is a revision of an existing program, please list the major changes made.	Addition of professional ethics course, 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. Also, based on feedback of students and discussion in the faculty board, we have reduced the number of core courses from 4 to 3.
e) how engagement and interaction with the student have increased?	We have revamped and expanded our annual department event 'Biosphere'. Here students participate and get to interact with their peers.
f) how hands-on learning is emphasized in the program?	The number of hours dedicated to hands on research component is high at 42 project credits. In addition, students will a summer internship/minor project of 3 credits.