

## Department of Biochemical Engineering and Biotechnology

Dated: 17<sup>th</sup> July 2013

Minutes of the 1<sup>st</sup> Departmental Faculty Board Meeting (2013-2014) held on 15<sup>th</sup> July 2013 at 11.00 am in the Departmental Committee Room (I-230). Following members were present:

1.	Prof. T. R. Sreekrishnan	Chairman
2.	Prof. M. N. Gupta	Member
3.	Prof. G. P. Agarwal	Member
4.	Prof. Saroj Mishra	Member
5.	Prof. A. K. Srivastava	Member
6.	Prof. P K Roychoudhury	Member
7.	Dr. D. Sundar	Member
8.	Dr. Ritu Kulshreshtha	Member
9.	Dr. Ravikrishnan Elangovan	Member
10.	Dr Preeti Srivastava	Member
11.	Dr Ziauddin Ahmmad	Member
12.	Dr. Shilpi Sharma	Member Convenor

1. Confirmation of minutes of 5<sup>th</sup> DFB meeting (2012-2013) held on 15<sup>th</sup> March 2013 and special DFB meeting held on 14<sup>th</sup> May 2013.

Minutes of both the meetings were confirmed with the following addition to Item no 18 (Any other item:

- Updating the websites - The Chairman once again requested all the faculty members to update their website as soon as possible.
- e- procurement of the equipments - Professor A. K. Srivastava informed the DFB members that from next year all the purchases of value ` 10 Lakh and above will be through e-procurement, where in the quotation will be invited through website, vendors will submit it online, opening, technical compliance and finalization of the bid will also be online through the indenter whose digital signature will be authenticated by the Institute. The final processed e-file will then be sent to Audit / Stores for review and processing. Mr. Inderjeet Store Supdt has already been given the desired training to facilitate e-procurement from next financial year.
- The departmental vision document was modified as in Annexure I.

2. Matters arising out of above meeting.

- *Item No 2 (minutes of 5<sup>th</sup> DFB meeting)*: With respect to Dr Ravikrishnan's email regarding departmental Ph.D. selection, it was decided a special DFB meeting be held in the first fortnight of August 2013 to deliberate on the issue.

3. Allotment of courses to newly joined faculty members

Allotment of courses was modified as in Annexure II. Prof. M. N. Gupta was allotted half of BEL101 and one third of BEL830. Time-table I/c was requested to modify the details accordingly on WBAMS.

*(Act: Time table I/c)*

4. Comments / feedback on proposal to float new elective course by the School of Biological Sciences (SBL714 Plant Biotechnology and Human Health).

The proposal put forth was discussed by the board and the following comments made:

- Title should be a more focused. Present title is misleading with respect to the content of the course.
- Overlap in courses can not be judged as topics 7, 10 and 11 are ambiguous, without details of the sub-topics.
- Sound references need to be added.
- Nutraceuticals should be emphasized.

Head was requested to communicate the same to concerned authorities.

*(Act: Head)*

5. Postdoctoral fellowships at IIT Delhi

Head informed the board of the decision of offering post doctoral fellowships at IIT Delhi. Based on the rule for distribution of PDFs to various departments (faculty strength), DBEB has been allotted two positions. PDFs are to be attached to a research group instead of individual faculty members. Online advertisement for the recruitment of PDFs will be put up by the Dean (Faculty) in consultation with Head of Departments / Centres / Schools.

6. Nomination for the award of Doctorate Degree Honoris Causa at Convocation 2013

Faculty members were requested by the Head to come up with names of eminent scientists and personalities to be awarded Doctorate Degree Honoris Causa at the 49<sup>th</sup> Annual Convocation 2013.

#### 7. Introduction of 3-year part time M.Tech. programme

Head apprised the board of the recently Senate approved revised proposal regarding introduction of 3-year part-time M.Tech programme with enhanced assistantship @Rs 15000/- p.m. These students may be asked to put in upto 20 hrs per week for laboratory work (teaching assistantship). The departments were requested to identify the number of such positions required for managing their labs (within sanctioned M.Tech/M.S.(R) slots of the department). In case the provision exists for offering such assistantship to M.S.(R) students of the department, it was decided to avail the same, keeping in mind the number of vacant slots.

#### 8. Any other item with the permission of the Chair.

- Allotment of laboratories and TAs (and lab duties) to departmental Ph.D., M.S(R), and MTP students was done as per Annexures III and IV, respectively.
- No comments were received on the templates of UG Core courses MEP100 and MEP101, circulated by Dean, Academics.
- The board approved the request of CRDT to extend the association of Prof T. R. Sreekrishnan as joint faculty in CRDT for the next three years. Head was requested to communicate this to Dean (Faculty). *(Act: Head)*
- The head requested all faculty members, who had timely put forth their requirements for furniture (i.e. by 7<sup>th</sup> May 2013), to proceed with their purchase, as the Institute's approval for the grant has been received.
- It was decided that laptops be procured for Prof. T. R. Sreekrishnan, Prof. Saroj Mishra, Dr. Preeti Srivastava and Dr. Z. Ahmmad from the approved computer grant for financial year 2013-2014.
- The board congratulated Dr. D. Sundar on his recent recognitions in the form of DuPont Young Professor Award (2013) and National Bioscience Award (2012).
- The head informed the board of the schedule for welcome and orientation of new UG and PG students of the department (19<sup>th</sup> July 2013 at 2.30 pm in VI-LT1 for UG students, and 22<sup>nd</sup> July 2013 at 9.30 am in I-230) and requested all faculty members to attend the same.
- The head brought to the notice of the board of BERP's approval of the proposal of constituting an entity within IIT Delhi to host interdisciplinary activity. Two committees have been constituted

for this activity: Technical Scrutiny of the proposals (Chairperson – DD S&P, Convenor – Dean R&D) & Operational Modalities (Chairperson – DD O, Convenor – Dean R&D).

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

**Shilpi Sharma**  
**Convenor**

**All Faculty members**

## Annexure I

### **Department of Biochemical Engineering and Biotechnology**

#### Vision document

The past few decades have seen a major, rather revolutionary, change in our knowledge regarding life forms and our ability to manipulate biological systems. This has translated into major strides in 'Biotechnology', with far-reaching impact on diverse areas such as health-care, diagnostics, agriculture, food, environment and consumer products. These biotechnical innovations are meaningless until and unless their benefits percolate down to the common man. This can happen only if such technologies are taken up for industrial scale production.

The Department offers a unique blend of scientific expertise in applied biological sciences, chemical and biochemical engineering. It strives for application of this expertise to evolve various biotechnological products, processes and services.

It is envisaged that such a **vision can be achieved through:**

- Generation of highly trained human resource capable of quantitative analysis of biological systems to facilitate their role in manning modern bioprocess industries and provide an integrated approach to research and development in biotechnology.
- To continue to evolve research and development programmes **for environmentally sustainable bio-industrial** products & services e.g., bio-energy, **biopolymer**, clean environment and therapeutics.
- Leading global innovations in Bioprocess Technology and Applied Biological Sciences, and facilitate participation in industrial consulting and sponsored research.
- Dissemination of knowledge generated through short term courses, workshops and conferences.

Some of the **focal areas of research** of the department are:

- Bioprocess Engineering
- Cell and Molecular Biotechnology
- Downstream Processing
- Systems and Computational Biology

Stronger faculty interactions and collaborations within department are envisaged.

#### Teaching:

- Increased student strength (especially in Ph.D. and M.S(R) programmes) is targeted.
- Introduction of new courses bridging biological and engineering sciences is planned.
- Development of 8 semester B.Tech. programme and 4 semesters M.Tech programmes

- Proposed areas for M.Tech level programmes:
  - Biochemical Engineering and Biotechnology
  - Environmental Biotechnology

### **International Presence:**

- Transfer of knowledge created in the department through short-term courses, workshops and conferences at national & international levels to society at large.
- Participation in competitions on international platform
- Collaborative research programmes with internationally acclaimed institutes and Universities
- Exchange programmes for students and faculty members with Universities and Institutes of international repute having common mandates

### **Faculty recruitment:**

Targeted recruitment (e.g. Bioprocess Engineering, Cell and Molecular Biotechnology, Downstream Processing, Systems and Computational Biology) corresponding to newer proposed programmes. Each area of teaching and research is planned to be strengthened by recruiting faculty in respective areas.

### **Industrial collaboration:**

- To carry out research & development for any national industry in the area of biotechnology or pharmaceutical technology.
- To design joint projects with the industry where our students are engaged.

## Annexure II

### Courses to be offered by DBEB in 1<sup>st</sup> Semester 2013-14

Slot	Course Code	Description	L-T-P	Course Credits	Coordinator/ Associated Faculty
P	BEC 450	Colloquium	0-3-0	3.0	RK
P	BED 800	Major Project	0-0-80	40.0	AN
P	BED 851	Major Project – Part 1 (BB)	0-0-12	6.0	RK
P	BED 852	Major Project – Part 2 (BB)	0-0-28	14.0	RK
P	BED 853	Major Project – Part 1 (BB)	0-0-8	4.0	RK
P	BED 854	Major Project – Part 2 (BB)	0-0-32	16.0	RK
E	BEL 101	Biochemistry	3-1-3	5.5	PM / MNG
F	BEL 103	General Microbiology	3-0-3	4.5	VSB / SS
C	BEL 110	Molecular Cell Biology	3-0-0	3.0	SS / TC / PS
C	BEL 301	Bioprocess Engineering	3-0-0	3.0	AN
E	BEL 403	Enzyme Engineering and Technology	3-0-2	4.0	RE / SC
D	BEL 412	Immunology (DE 4)	3-0-2	4.0	RK
H	BEL 413	Modeling and Simulation of Bioprocesses (DE 5)	3-0-2	4.0	AKS
F	BEL 416	Membrane Applications in Bioprocessing (DE 5)	3-0-0	3.0	GPA
C	BEL 701	Biotechnology Resource Planning	2-0-0	2.0	VSB / SC
B	BEL 714	Protein Science and Engineering (PE 3)	3-0-0	3.0	SM / DS
D	BEL 715	Biological Waste Treatment (PE 4)	3-0-2	4.0	TRS / ZA
B	BEL 717	Animal Cell Technology (PE 3)	3-0-2	4.0	PKRC
H	BEL 719	Current Topics in Biochemical Engg and Biotech (PE 4)	3-0-0	3.0	PS
J	BEL 722	Genomics & Proteomics (PE 5)	3-0-0	3.0	DS / PS
H	BEL 810	Enzyme and Microbial Technology	3-0-0	3.0	RE
J	BEL 820	Downstream Processing	3-0-0	3.0	GPA / AN / ZA
F	BEL 830	Microbial Biochemistry	3-0-0	3.0	SM / MNG
E	BEL 850	Advanced Biochemical Engineering	3-0-4	5.0	ZA / TRS
N	BEN 150	Introduction to Biochemical Engineering and Biotechnology	0-0-4	2.0	TRS
F	BEP 303	Design of Bioprocesses	0-1-3	2.5	RE
P	BEP 840	Laboratory Techniques in Microbial Biochemistry	0-0-4	2.0	PM
E	BER 350	Professional Practices (BB)	0-1-2	2.0	VSB
P	BES 350	Independent Study (BB)	0-3-0	3.0	VSB
P	BET 450	Practical Training (BB)	0-0-0	0.0	AN / DS

Note: The first name in the last column is the Coordinator for the course.

## **Annexure III**

### **Allotment of Labs to Ph.D. students**

<b>S.No.</b>	<b>Students</b>	<b>Title of the Project</b>	<b>Supervisor (s)</b>	<b>Laboratory</b>
1	Arpita 2012BEZ 8188	Investigating the functional expression of laccase by metal ion replacements.	Prof. Saroj Mishra	BRL
2	Anees K 2012BEZ 8192	Biosynthesis of aleuritic acid in Indian lac insect, <i>Kerria lacca</i> and its <i>in vitro</i> production	Prof. V. S. Bisaria & Dr. Preeti Srivastava	BRL
3.	Himanshu Singh 2012 BEZ8189	The development and evaluation of UF/MF membrane for separation of low molecular weight organic molecules (e.g. polyols, acid etc.) from fermentation broth	Prof. G. P. Agarwal	Downstream Processing lab
4.	Ashwani Gautam 2011BEZ 8481 (PT)	Maximizing expression of GCSF in <i>Pichia pastoris</i> through an integrated gene dosage and media optimization strategy	Prof. Saroj Mishra	Pilot Plant

### **Allotment of Labs to M.S. (R) students**

<b>S.No.</b>	<b>Students</b>	<b>Title of the Project</b>	<b>Supervisor (s)</b>	<b>Laboratory</b>
1	Anshul Sharma (2012 BEY 7515)	Developing an integrated approach to production and separation for a therapeutic protein in <i>Pichia pastoris</i> .	Prof. Saroj Mishra	Pilot Plant
2	Sunil Singh (2012BEY 7516)	Evaluation of microbial community structure and function in pesticide contaminated soil using molecular markers	Dr. Shilpi Sharma	Metagenomics
3	Augustine Cletus (2012BEY 7518)	Preparation of synthetic thick filament from chicken skeletal muscle	Dr. R. Elangovan	Molecular Motors Lab
4	Raju Kumar (2012 BEY 7519)	Scale up of PHB production using <i>Azohydromonas australica</i>	Prof. A. K. Srivastava	Process Lab



## Allotment of Labs to MTP students

Name	Project title	Supervisor	Laboratory
Kanika Khanna (2008BB50012)	The Role of Intergenic Spacing in Transcriptional Control of the <i>lac</i> Operon	AN	RNA II/ Bioscience
Shachi Mittal (2008BB50029)	In vitro examination of the different attributes of Granulocyte Colony Stimulating Factor (GCSF) on safety and efficacy of drug	VSB	Pilot Plant
Abhishek Persad (2008BB50002)	Create PAT based process control scheme for <i>Pichia pastoris</i> fermentation	RE	Molecular motors
Rohit Sharma (2008BB50024)	Studies on repressor-effector-operator interactions in <i>E. coli</i> .	AN	RNA II/ Bioscience
Vaibhav Yadav (2008BB50035)	Studies on newer reactor designs for cultivation of hairy root cultures on inert solid supports	AKS	Plant Cell Lab (I-27)
Ishita Goel (2008BB50010)	Studies on newer reactor designs for PHB production	AKS	Process Lab (I-106)
Ankita Vij (2008BB50004)	Studies on newer reactor designs for cultivation of Plant cells on inert solid support	AKS	Plant Cell Lab (I-27)
Sakshi (2008BB50025)	Non-target effects of bioinoculants in rhizosphere	SS	Metagenomics
Charu Mehta (2008BB50008)	Expression of Lac Repressor as a Function of the Cell Cycle	AN	RNA II / Bioscience
Mayank Goel (2008BB50039)	Development of practical multi-stage ultrafiltration strategy for protein fraction to achieve high purity and high yield	GPA	Downstream Processing lab
Devansh (2008BB50009)	Study on remediation of Cr by SRBs in a batch Bioreactor	GPA	Waste treatment
Shruti Singhla (2008BB50038)	Evaluation of Constitutive and Starvation Promoters for Protein Expression in <i>E. coli</i>	AN	RNA II / Bioscience
Sandesh Lokhande (2008BB50027)	Studies on the dynamics of origin proximal loci of <i>Rhodococcus erythropolis</i> PR4	PS	RNA I
Nikita Gupta (2008BB50020)	Isolation of strains capable of hydrolyzing $\alpha$ -amino- $\epsilon$ -caprolactam to lysine	PK	To be decided
Mayank Gupta (2008BB50017)	Comparative study of ethanol fermentation using different wild type and recombinant strains	GPA	Process lab
Jasraj (2008BB50011)	Study of low pressure limiting flux (for high MW proteins): The causes and their effects on low MW protein transmission using experimental approach	GPA	Downstream Processing lab
Saundarya Baghel (2008BB50028)	Improvement of specificity of lipase using computational and biochemical approach.	PM	Protein Engg Lab
Divyansh (2008BB50040)	Studies on biodegradability of magnets from Magnetotactic bacteria	PM	Enzyme Engg Lab
Kanwarbir (2008BB50013)	Development of glucose/ HbA1C biosensor(s) using nanomaterials	PM	Enzyme Engg Lab
Surabhi Yadav (2008BB50032)	Studies on the enrichment of selected probiotic population in continuous culture using prebiotic agents	SS	Process lab
Lalit (2008BB50015)	Purification and stabilization of recombinant human erythropoietin	PM	Protein Engg Lab
Ramesh Jat (2008BB50023)	Characterization of pSJ12, a new plasmid isolated from waste water metagenome	PS	RNA I
Abhishek Agarwal (2008BB50001)	Cloning and expression of $\alpha$ -glucosidase of a <i>Microbacterium</i> isolate in <i>Escherichia coli</i> .	SM	BRL
Anurag Sinha (2008BB50005)	Isolation and characterization of microorganisms for biodegradation of asphaltene	PS	RNA I

Vaibhav Morwal (2008BB50034)	Study of bacterial flagellar filament compliance	RE	Molecular Motors Lab
Avinash (2008BB50008)	Development of amperometric biosensor	RE	Molecular Motors Lab
Ashwin Shrikumar (2008BB50007)	In vitro motility assay using skeletal muscle myosin II	RE	Molecular Motors Lab
Shivkesh (2008BB50030)		SM	BRL Plant Cell Culture
Bhaskar Ananth (2008BB50022)		VSB	Waste Treatment Lab
Tanuj Kumar (2008BB50033)		ZA	
		PKRC	Bioseparation Animal Cell culture
Vikrant		PKRC	

## Annexure IV

### **Allotment of teaching assistantship and lab duties to MTP students (Sem I, 2013-12014)**

<b>Name</b>	<b>Project title</b>	<b>Supervisor</b>	<b>Course / faculty</b>
Kanika Khanna (2008BB50012)	The Role of Intergenic Spacing in Transcriptional Control of the <i>lac</i> Operon	AN	BEL403 / SC
Shachi Mittal (2008BB50029)	In vitro examination of the different attributes of Granulocyte Colony Stimulating Factor (GCSF) on safety and efficacy of drug	VSB	BEL403 / SC
Abhishek Persad (2008BB50002)	Create PAT based process control scheme for <i>Pichia pastoris</i> fermentation	RE	BEL413 / AKS
Rohit Sharma (2008BB50024)	Studies on repressor-effector-operator interactions in <i>E. coli</i> .	AN	BEL 301 / AN
Vaibhav Yadav (2008BB50035)	Studies on newer reactor designs for cultivation of hairy root cultures on inert solid supports	AKS	Process Lab / AKS
Ishita Goel (2008BB50010)	Studies on newer reactor designs for PHB production	AKS	Process Lab / AKS
Ankita Vij (2008BB50004)	Studies on newer reactor designs for cultivation of Plant cells on inert solid support	AKS	BEL413 / AKS
Sakshi (2008BB50025)	Non-target effects of bioinoculants in rhizosphere	SS	SS
Charu Mehta (2008BB50008)	Expression of Lac Repressor as a Function of the Cell Cycle	AN	RK
Mayank Goel (2008BB50039)	Development of practical multi-stage ultrafiltration strategy for protein fraction to achieve high purity and high yield	GPA	GPA
Devansh (2008BB50009)	Study on remediation of Cr by SRBs in a batch Bioreactor	GPA	GPA
Shruti Singhla (2008BB50038)	Evaluation of Constitutive and Starvation Promoters for Protein Expression in <i>E. coli</i>	AN	RK
Sandesh Lokhande (2008BB50027)	Studies on the dynamics of origin proximal loci of <i>Rhodococcus erythropolis</i> PR4	PS	BEL 301 / AN
Nikita Gupta (2008BB50020)	Isolation of strains capable of hydrolyzing $\alpha$ -amino- $\epsilon$ -caprolactam to lysine	PK	PK
Mayank Gupta (2008BB50017)	Comparative study of ethanol fermentation using different wild type and recombinant strains	GPA	GPA
Jasraj (2008BB50011)	Study of low pressure limiting flux (for high MW proteins): The causes and their effects on low MW protein transmission using experimental approach	GPA	GPA
Saundarya Baghel (2008BB50028)	Improvement of specificity of lipase using computational and biochemical approach.	PM	PM
Divyansh (2008BB50040)	Studies on biodegradability of magnets from Magnetotactic bacteria	PM	PM
Kanwarbir (2008BB50013)	Development of glucose/ HbA1C biosensor(s) using nanomaterials	PM	PM
Surabhi Yadav (2008BB50032)	Studies on the enrichment of selected probiotic population in continuous culture using prebiotic agents	SS	SS
Lalit (2008BB50015)	Purification and stabilization of recombinant human erythropoietin	PM	PM
Ramesh Jat (2008BB50023)	Characterization of pSJ12, a new plasmid isolated from waste water metagenome	PS	PS

Ananth (2008BB50022)		ZA	ZA
Abhishek Agarwal (2008BB50001)	Cloning and expression of $\alpha$ -glucosidase of a <i>Microbacterium</i> isolate in <i>Escherichia coli</i> .	SM	SM
Anurag Sinha (2008BB50005)	Isolation and characterization of microorganisms for biodegradation of asphaltene	PS	PS
Tanuj Kumar (2008BB50033)		PKRC	PKRC
Vaibhav Morwal (2008BB50034)	Study of bacterial flagellar filament compliance	RE	RE
Avinash (2008BB50008)	Development of amperometric biosensor	RE	RE
Ashwin Shrikumar (2008BB50007)	In vitro motility assay using skeletal muscle myosin II	RE	RE
Shivkesh (2008BB50030)		SM	SM
Bhaskar		VSB	VSB

Students are requested to meet concerned faculty members at the earliest.

**Allotment of TAs to Ph.D. & M.S. (R) students (Sem I, 2013-2014)**

<b>S. No.</b>	<b>Students</b>	<b>Course / Lab / Faculty</b>
1	Neeti	BEL101 / Prof. Prashant Mishra
2	Pooja Singh	BeL101 / Prof. Prashant Mishra
3.	Surbhi Goel	BEL101 / Prof. Prashant Mishra
4.	Ritesh Aggarwal	BEL840 / Prof. Prashant Mishra
5	Arpita	BEL714 / Prof. Saroj Mishra
6	Tenzin Kenzom	BRL / Prof. Saroj Mishra
7	Rahul Agrawal	BEL412 / Dr. Ritu Kulshreshtha
8	Neha Nagpal	BEL412 / Dr. Ritu Kulshreshtha
9	S. Bhuvanesh	BEL850 / Dr. Ziauddin Ahmmad
10	Swati Shalini	Plant Cell Culture Lab / Prof. A. K. Srivastava
11	Anveshika Aditya	Plant Cell Culture Lab / Prof. A. K. Srivastava
12	Pragya Gupta	BEL103 / Dr. Shilpi Sharma
13	Akanksha Mehrotra	BEL103 / Dr. Shilpi Sharma
14	Khushboo Rastogi	BEP303 / Dr. R. Elangovan
15	Augustine Cletus	BEP303 / Dr. R. Elangovan

TAs are requested to meet concerned faculty members at the earliest.