

Department of Biochemical Engineering and Biotechnology

Minutes of the meeting of Departmental Research Committee (DRC) (DRC-05/2014-2015)

April 27, 2015

The fifth meeting of *Departmental Research Committee* (DRC) for the academic session 2014-2015 was held on **Friday, April 24, 2015** at **3:30 PM** in the Committee Room (I-230) of the Department.

The following members were present:

Prof. Prashant Mishra (*Chairman*)
Prof. V.S. Bisaria
Prof. T.R. Sreekrishnan
Prof. Atul Narang
Dr. Shilpi Sharma
Dr. Ritu Kulshreshtha
Dr. D. Sundar (*Convener*)

Item No. 1 - To confirm the minutes of the 4th meeting of the DRC for the session 2014-2015 (DRC-04/2014-2015) held on March 18, 2015.

The Minutes of the DRC meeting No. 4/2014-2015 were confirmed as circulated.

Item No. 2 - To report the matters arising from minutes of Meeting No. 04/2014-2015 and action taken.

Item # in DRC Meeting No. 04/2014-2015	Brief description	Gist of the decision of the DRC	Action taken / Present status
3	Allotment of projects for 2014 Dec-entry PhD students	Approved the allotment of PhD projects	Allotment decision notified
4	PhD written Comprehensive Exam conducted during January 27-28, 2015	Results finalized	Results notified
5	Synopsis of the PhD thesis submitted by Ms. Pooja Singh (2011BEZ8425)	Synopsis was approved and a panel of examiners was recommended	Forwarded to Dean Academics
6	Comprehensive Examination and Research Plan of the PhD student Ms. Sonam Takkar (2013BEZ8030)	Approved	Forwarded to Dean Academics
10	Nominations for the award of Distinction in Doctoral Research to students who successfully defended their PhD thesis in the year 2014	The Committee finalized the list of students in order of merit.	Forwarded to Dean Academics
12	Application for MSR program, received from a Foreign National Student Mr. Dhiraj Kumar Das, under Self Financing Scheme	The applicant was found to be ineligible	Forwarded to Dean Academics
14	Consideration of project proposals submitted by faculty members	Recommended	Forwarded to IRD
15a	Nomination of one senior PhD student for presentation during the Research Scholar's Day on April 10, 2015	Recommended the name of Ms. Tenzin Kenzom (2009BEZ8511)	Recommendation forwarded to Dean Academics and Ms. Tenzin Kenzom presented a poster on April 10, 2015
15c	Project proposals submitted by Drs. Ritu Kulshreshtha and Ravikrishnan Elangovan	Recommended, if no comments were received in stipulated 10 days time from the date of circulation	Proposal of Dr. Ritu Kulshreshtha has been forwarded to IRD

Item No. 3 - Comprehensive Examination and Research Plan of the following PhD students:

Sl.	Student	Entry Number	Supervisor(s)
1	Manisha Lamba	2013BEZ7506	ZA
2	Jaspreet Kaur Dhanjal	2013BEZ8509	DS

The Plan of Work for Ph.D. submitted by the above students were discussed, and based on the recommendations of the respective SRCs, they were approved.

(Action: Chairman DRC to forward the Form w/ enclosures to Dean - Academics)

Item No. 4 - Application received from PhD student Ms. Anamika Singh (2011BEZ8228) for extension of Scholarship for one more year starting July 2015.

The Committee discussed and recommended the application of Ms. Anamika Singh (2011BEZ8228) for extension of Institute Assistantship for six months starting July 2015.

(Action: Chairman DRC to forward the request to Dean - Academics)

Item No. 5 - Application received from Ms. Varsha Ashok Walvekar (2014BEY7525) for availing 'DAAD Sandwich-Model scholarship'.

The Committee after discussion ratified the application of Ms. Varsha Ashok Walvekar (2014BEY7525) for availing DAAD Sandwich-Model Scholarship. The Committee noted that the Chairman DRC had earlier sent her recommendations to the Dean (Academics) and the application has been forwarded by the Institute for favorable consideration of DAAD.

Item No. 6 - Formation of Student's Research Committee (SRC) for the following PhD students:

Sl.	Student	Entry Number	Supervisor
1	Aditya Prakash Soni	2014BEZ8264	ZA
2	Pooja Murarka	2014BEZ8265	PS
3	Vidhi Malik	2014BEZ8267	DS
4	Sonia Gupta	2014BEZ8391	ZA

The Committee discussed and constituted the SRC for Ms. Pooja Murarka (2014BEZ8265) and Ms. Vidhi Malik (2014BEZ8267) as given in **Annexure 1**.

However, the constitution of SRC for Mr. Aditya Prakash Soni (2014BEZ8264) and Ms. Sonia Gupta (2014BEZ8391) was deferred for consideration at the next meeting. The Committee decided to seek a fresh list of SRC members who are actively involved in research related to the PhD topic.

(Action: Dr. Ziauddin Ahammad)

Item No. 7 - Formation of Student's Research Committee (SRC) for the MSR student Ms. Pravita Singh (2014BEY7506).

The Committee discussed and constituted the SRC as given in **Annexure - 1**.

Item No. 8 - Consideration of project proposals submitted by the Departmental Faculty, for funding from national agencies:

Sl.	Project Title	Project Investigators	Funding Agency
1	Scale-up of the bio-pesticide (Azadirachtin & related limonoids) production by plant cell/hairy root cultivation of <i>Azadirachta indica</i>	AK. Srivastava (PI) TR. Sreekrishnan (Co-PI)	DBT (CFP – Biosystems & Bioprocess Engg)
2	Development of production protocols and scale up for fuel (Butanol) & Chemicals (1,3-propanediol) from renewable resources (Glycerol)	AK. Srivastava (PI) TR. Sreekrishnan (Co-PI)	DBT (CFP – Biosystems & Bioprocess Engg)
3	Metabolic engineering of <i>Zymomonas mobilis</i> for production of malic acid	VS. Bisaria (PI) Preeti Srivastava (Co-PI)	DBT (CFP – Biosystems & Bioprocess Engg)

The Committee discussed and recommended the above proposals to be forwarded to Dean (R&D) for onward transmission to the funding agency.

(Action: Respective PIs)

Item No. 9 - Application for PhD program, received from a Ethiopian Government Sponsored student Mr. Eyob Chukalo Chutulo, under Self Financing Scheme.

On scrutiny of the application, the Committee found Mr. Eyob Chukalo Chutulo to be a potential candidate. Since the candidate appeared to have a varied interest and diverse background, it was decided to interview him over Skype on May 15, 2015 to find out his specific research interests and suitability, before any decision can be taken by the DRC on his candidature.

(Action: Convener DRC)

Item No. 10 - Admissions for the PhD and MSR Programs (2015-2016, 1st Semester).

The Chairman informed the committee about the schedule for PG admissions for 2015-2016, 1st Semester. Dr. Shilpi Sharma briefed the Committee on the number of PhD applications received and based on this data it was decided to hold an entrance test followed by personal interview for PhD on May 14, 2015 (Thursday). Based on the details of MSR applications presented by Dr. Ritu Kulshreshtha, it was decided to conduct only personal interview for MSR candidates on May 15, 2015 (Friday). Prof. Atul Narang and Dr. Ritu Kulshreshtha will coordinate the setting of question paper for the PhD entrance examination. The conduct of written examination and evaluation of answer scripts will be managed by a Committee consisting of Dr. Shilpi Sharma, Dr. Ritu Kulshreshtha, Dr. Preeti Srivastava, Dr. Z. Ahammad and Dr. Ravi Elangovan. All the departmental faculty were requested to be available on May 14 & 15, 2015 to participate in the conduct of entrance test and interview. The shortlisting criteria approved by the Committee for admission to PhD and MSR programs are given in **Annexure 2 and 3**.

The schedule for the PhD and MSR admissions were finalized as given below:

	Day	Time	Activity
1	May 14, 2015 (Thursday)	8:30 AM	All the shortlisted candidates for the PhD program will report to Block VI – LT1 for the written test
2		9:00 – 10:00 AM	Written test for PhD program
3		< 12 noon	Announcement of list of qualified candidates for the interview for PhD program
4		12:30 PM onwards	Verification of original documents of the candidates who have been shortlisted for the interview for PhD program
5		1:00 PM onwards	Interview for candidates who have qualified in the PhD written admission test
6	May 15, 2015 (Friday)	9:00 AM onwards	Verification of original documents of the candidates who have been shortlisted for the interview for MSR program
7		9:30 AM onwards	Interview for candidates who have qualified in the MSR written admission test

Item No. 11 - Matters for information of the DRC.

The Chairman informed the Committee about the submission of PhD thesis by the following students:

Sl.	Student	Supervisor	Title of the Thesis	Submission Date
1	Tenzin Kenzom (2009BEZ8511)	Saroj Mishra Preeti Srivastava	Engineering of laccase of <i>Cyathus bulleri</i> for decolorization of complex dyes	March 20, 2015
2	Pooja Singh (2011BEZ8425)	Preeti Srivasatava	Improved biodesulfurization of persistent organosulfur compounds	April 22, 2015

Item No. 15 - Any other item with the permission of the Chair.

- a) *Project proposal titled 'Whole cell catalyzed biotransformation for synthesis of fructooligosaccharides' submitted by Prof. Saroj Mishra (as PI) with Profs. G.P. Agarwal and Subhash Chand (as Co-PIs) for funding from DBT under the CFP Biosystems & Bioprocess Engineering.*

The Committee discussed and recommended the proposal to be forwarded to Dean (R&D) for onward transmission to the funding agency.

(Action: Prof. Saroj Mishra)

- b) *A note received from Prof. A.K. Srivastava for constitution of SRC for the PhD student Mr. Raju Kumar (2014BEZ8266)*

The constitution of SRC for Mr. Raju Kumar (2014BEZ8266) was deferred for consideration at the next meeting. The Committee decided to seek a fresh list of SRC members who are actively involved in research related to the PhD topic.

(Action: Prof. A.K. Srivastava)

- c) *Application received from PhD student - Mr. Sunil Kumar (2011BEZ8480) requesting for extension of Institute Assistantship starting July 01, 2015.*


The Committee discussed the application received from Mr. Sunil Kumar (2011BEZ8480) and noted that his earlier request for award of Institute Assistantship starting January 2015, upon expiry of his CSIR-SRF, was recommended as a special case (kindly refer to Item # 7 of minutes of DRC meeting 02/2014-15). The Committee decided to seek details of all the fellowship/project assistantship, etc availed by the student from the date of completion of his post graduation degree till date.

(Action: Mr. Sunil Kumar)

- d) *Discussion on M.Tech projects floated by Departmental Faculty.*

The DRC Convener informed that 46 M.Tech projects have so far been received from the faculty members. All the projects were discussed and approved for floating to the students as given in **Annexure 4**. The Committee recommended that request for a particular project should not be entertained if the student has not discussed with the concerned faculty. It was further decided that the students should be advised to give their choice of three projects only after discussing them with respective faculty members, latest by May 08, 2015. Depending on the choices given by the students and the feedback received from faculty members, the students will be offered any project of their choice. The allotment of projects will be taken up in the Moderation Committee meeting scheduled on May 12, 2015.

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


D. SUNDAR
DRC Convener

Distribution

All DRC members and other DBEB Faculty (by email)

Cc: DRC File

Student's Research Committee (SRC) for PhD students

Student	Chairman, DRC or his nominee	One expert in the field from the Department	One Institute faculty expert, preferably in the concerned area, from outside the Department to which the student belongs	Supervisor
Pooja Murarka (2014BEZ8265)	Saroj Mishra	Ritu Kulshreshtha	Tapan Chaudhuri Kusuma School of Biological Sciences IIT Delhi	Preeti Srivastava
Vidhi Malik (2014BEZ8267)	Shilpi Sharma	Ritu Kulshreshtha	Ashok Patel Kusuma School of Biological Sciences IIT Delhi	D. Sundar

(Action: Respective Supervisors to send the filled-in form to Chairman DRC for forwarding to Dean Academics)

Student's Research Committee (SRC) for MSR student

Student	Chairman, DRC or his nominee	One expert in the field from the Department	Another faculty expert	Supervisor
Pravita Singh (2014BEY7506)	GP Agarwal	TR Sreekrishnan	Ziauddin Ahammad	Atul Narang

Admission to PhD Program in Department of Biochemical Engineering and Biotechnology

Short-listing criteria (2015-2016 Semester 1)

The candidates must have first class in all examinations starting from 10+2 up to the qualifying exam and they must meet the following criteria based on their qualifying exam degree.

Qualifying exam	Acceptable majors	General Category	OBC (Non-creamy layer)	SC/ST & PD
B. Tech.	Biochemical Engineering / Chemical Engineering / Biotechnology	(i) B.Tech 70% or 7.5/10 CGPA (ii) Valid JRF or GATE score of min. 600 in Life Sciences or Biotechnology or Chemical Engg.	(i) B.Tech 70% or 7.5/10 CGPA (ii) Valid JRF or GATE score of min. 550 in Life Sciences or Biotechnology or Chemical Engg	(i) B.Tech 65% or 7.1/10 CGPA (ii) Valid JRF or GATE score of min. 500 in Life Sciences or Biotechnology or Chemical Engg.
M. Tech.	Biochemical Engineering / Chemical Engineering / Biotechnology/ Bioinformatics (with Biotech / Pharmaceutical Biotechnology in B.Tech/B.Pharm/ M.Sc.)	(i) M.Tech 70% or 7.5/10 CGPA (ii) GATE score not required	(i) M.Tech 70% or 7.5/10 CGPA (ii) GATE score not required	(i) M.Tech 60% or 6.75/10 CGPA (ii) GATE score not required
M. Sc.	Biotechnology / Life Sciences / Biochemistry/ Biophysics/Bioinformatics (with Biotech in B.Sc)/ Environmental Sci (with Biotechnology in B.Sc)/ Chemistry/ Biotechnology / Microbiology/ Genetics / Biosciences/ Botany (with Microbiology) / Zoology (with Microbiology)	(i) M.Sc. 60% or 6.75/10 CGPA (ii) GATE score 600 or valid JRF	(i) M.Sc. 60% or 6.75/10 CGPA (ii) GATE score 550 or valid JRF	(i) M.Sc. 55% or CGPA 6.25/10 (ii) GATE score 500 or valid JRF

For B.Tech graduates from IITs

In respect of B.Techs from IITs graduating with a CGPA of 8.0 or above, the requirement of qualification through a national examination is waived off.

For students from Centrally Funded Technical Institutions (CFTI)

Students from CFTIs (Centrally Funded Technical Institutions - IIT's, NIT's, IIIT's, etc) having CPI/CGPA 7.00 (at 10.00 scale) at the end of 3rd year are also eligible for admission to PhD. The requirement of qualification through a national examination is waived off.

For Part-Time and Sponsored (full-time) candidates

- All candidates should have a minimum experience of two years.
- The minimum qualification for these candidates is the same as for full-time candidates, except that the requirement for qualifying in a national examination is waived off.

Admission to MSR Program in Department of Biochemical Engineering and Biotechnology

Short-listing criteria (2015-2016 Semester 1)

The candidates must have first class in all examinations starting from 10+2 up to the qualifying exam and they must meet the following criteria based on their qualifying exam degree.

Qualifying exam	Acceptable majors	General Category	OBC (Non-creamy layer)	SC/ST & PD
B. Tech.	Biochemical Engineering / Chemical Engineering / Biotechnology	(i) B.Tech 70% or 7.5/10 CGPA (ii) Valid JRF or GATE score of min. 600 in Life Sciences or Biotechnology or Chemical Engg.	(i) B.Tech 70% or 7.5/10 CGPA (ii) Valid JRF or GATE score of min. 550 in Life Sciences or Biotechnology or Chemical Engg	(i) B.Tech 65% or 7.1/10 CGPA (ii) Valid JRF or GATE score of min. 550 in Life Sciences or Biotechnology or Chemical Engg.
B. Tech. (from IITs)	Biochemical Engineering / Chemical Engineering / Biotechnology	In respect of B.Techs from IITs graduating with a CGPA of 8.0 or above, the requirement of qualification through a national examination is waived off.		

For Part-Time and Sponsored (full-time) candidates

- All candidates should have a minimum experience of one year.
- The minimum qualification for these candidates is the same as for full-time candidates, except that the requirement for qualifying in a national examination is waived off.

Projects being floated for M.Tech Major Project (MTP)

Sl.	Project Title	Supervisor 1	Supervisor 2
1	Development of magnetic tweezers to trap magnetically labeled cells	Ravikrishnan E	
2	Printing of protein micro-array using desktop printer	Ravikrishnan E	
3	Studies on newer reactor designs for cultivation of plant cells on inert solid support	AK Srivastava	
4	Studies on newer reactor designs for cultivation of hairy root cultures on inert solid support	AK Srivastava	
5	Studies on newer reactor designs for Bio-polymer production	AK Srivastava	
6	Mass production of shikimic acid in bioreactors	AK Srivastava	
7	Mass propagation of callus in new bio reactor designs for shikimic acid production	AK Srivastava	
8	To study the synergistic effect of two pretreatment methods of lignocellulosic residues	VS Bisaria	
9	Effect of additives on enzymatic hydrolysis of lignocellulosic substances.	VS Bisaria	
10	Assessment of plant growth promoting potential of a few bioinoculants	VS Bisaria	Shilpi Sharma
11	Survivability of bioinoculants in rhizosphere	Shilpi Sharma	
12	Probiotic potential in India food	Shilpi Sharma	
13	Isolation and identification of proteins induced by sulfur starvation	Preeti Srivastava	
14	Localization of chromosomal loci in <i>Rhodococcus erythropolis</i> PR4	Preeti Srivastava	
15	Development of a shuttle bacterial one hybrid system	Preeti Srivastava	
16	Study of Ethanol production on xylose using <i>Pichia stiptis</i>	GP Agarwal	
17	Characterization of SRBs consortia used for heavy metal ions remediation	GP Agarwal	
18	Fouling Studies during Microfiltration of Treated Waste Water.	GP Agarwal	
19	Membrane based processing of Molasses.	GP Agarwal	
20	Processing of fermented sweet sorghum hydrolysate	GP Agarwal	
21	Revisiting the characterized genes numbers of <i>Saccharomyces cerevisiae</i>	GP Agarwal	
22	Evolution study of the single cell organisms chromosome wise	GP Agarwal	
23	Effectiveness of a computational design tool for targeted genome editing	D. Sundar	
24	Structural insights into the mode of action of secondary metabolites from Ashwagandha	D. Sundar	
25	To study corona effect on nanoparticles	Prashant Mishra	
26	Antimicrobial effect of nanoformulations	Prashant Mishra	
27	To study the substrate specificity of Amidase	Prashant Mishra	
28	Bioimprinting of Lipases	Prashant Mishra	
29	Scalable enzyme purification process	MN Gupta	Prashant Mishra
30	Microwave and ultrasonic-assisted biocatalysis	MN Gupta	Prashant Mishra
31	Isolation of mitochondria and their visualization by fluorescence microscopy	Sunil Nath	
32	Measurement of ion transport of fumarate in the bacterial flagellar motor	Sunil Nath	

Contd.....

Projects being floated for M.Tech Major Project (MTP)

(continuation from previous page)

Sl.	Project Title	Supervisor 1	Supervisor 2
33	Developing methods for monitoring microRNA levels <i>in vivo</i>	Ritu Kulshreshtha	
34	Developing methods for microRNA inhibition	Ritu Kulshreshtha	
35	A deeper look at souring and anaerobic reactor failures	TR Sreekrishnan	
36	Granulation properties of hydrogen producing dark fermentation bacteria	TR Sreekrishnan	
37	CO ₂ sequestration through the anaerobic route	TR Sreekrishnan	
38	Investigating the role of N-terminus residues in laccase functioning	Saroj Mishra	
39	Effect of gene dosage on production of Granulocyte Colony Stimulating Factor	Saroj Mishra	
40	Biological pretreatment of lignocellulose	PK Roychoudhary	
41	Separation of monoclonal antibodies for treatment of breast cancer from cell culture broth	PK Roychoudhary	
42	Performance comparison of sponge reactor and activated sludge process to treat domestic sewage	Ziauddin Ahammad	
43	Treatment of coke oven effluent using microbial fuel cell	Ziauddin Ahammad	
44	Treatment of domestic sewage using algal bioreactor	Ziauddin Ahammad	
45	Fungal production of the platform chemical 6-pentyl-alpha pyrone	Atul Narang	
46	Estimation of intracellular cAMP level in <i>E. coli</i>	Atul Narang	

Pre-requisite for certain projects

Project Number	Pre-requisite elective course completion
Project # 18, 19	BEL416 – Membrane Applications in Bioprocessing
Project # 20	BEL416 – Membrane Applications in Bioprocessing BEL715 – Biological Waste Treatment
Project # 21, 22, 23, 24	BEL418 – Bioinformatics