



**Board of Studies (BoS) MSc Plant Biotechnology (M.Sc. PBT), Meeting**  
Department of Biotechnology (DBT),  
TERI School of Advanced Studies (TERI SAS),  
Vasant Kunj, New Delhi

4<sup>th</sup> July 2020  
03:00 pm to 4:30 pm,  
Online Microsoft Team  
TERI SAS, New Delhi

Following members were present in the meeting:

1. Dr. Shashi Bhushan Tripathi (HOD, DBT, TERI SAS, Chairperson, BoS)
2. Prof. Anandita Singh (Professor, DBT TERI SAS)
3. Prof. Ramakrishnan Sitaraman (Professor, DBT TERI SAS)
4. Dr. Chaithanya Madhurantakam (Associate Professor, DBT TERI SAS)
5. Dr. Pallavi Somvanshi (Associate Professor, DBT TERI SAS)
6. Dr. Udit Soni (Program Coordinator M.Sc. PBT DBT TERI SAS, Secretary BoS)
7. Prof. Ashis Kumar Nandi,  
School of Life Sciences, Jawaharlal Nehru University, New Delhi
8. Prof. Shailendra Goel,  
Department of Botany, University of Delhi, New Delhi
9. Dr. Sanjay Saxena, General Manager & HoD – Investment, BIRAC
10. Dr. Manoj Shrivastava, Principal Scientist  
Centre for Environment Science and Climate Resilient Agriculture, ICAR

1. Following agenda points were taken up-

- 1.1. Ph.D. Programme Outline, Department of Biotechnology, TERI School of Advanced Studies, New Delhi Ph.D. Programme Outline.
- 1.2. Course outline of Major Project 4<sup>th</sup> Semester MSc Plant Biotechnology, TERI SAS.
- 1.3. Discussion on approved M.Sc. PBT programme outline (BoS held on 4<sup>th</sup> March 2020)

2. Following are the excerpts of discussions and deliberations in the meeting-

- 2.1. Ph.D. programme coordinator, Department of Biotechnology, Dr. Udit Soni presented an overview of “Draft Ph.D. Programme Outline, Department of Biotechnology, TERI School of Advanced Studies, New Delhi Ph.D. Program

Coordinator also presented “TERI SAS PhD Regulations 2019\_17122019 \_ Edited” and “PhD Programme Common Outline 20062020, TERI SAS”

- 2.2. The salient features of the draft “Ph.D. Programme Outline, Department of Biotechnology, TERI School of Advanced Studies, New Delhi Ph.D” were discussed and reviewed by all members present. Critical suggestions were made, and modifications were incorporated. The modified draft was approved by all the members. The finalised version of “Ph.D. Programme Outline, Department of Biotechnology, TERI SAS” is attached with the minutes of BoS as **Annexure 1, page 3 to 5.**
- 2.3. The course outline for the Major Project (4th Semester) within the MSc PBT programme as drafted during Departmental meeting (DBT) held on 5th December 2019, was presented. The members reviewed the course outline and suggested a few modifications. All the recommendations and suggestions have been incorporated in the final version of the course outline for the Major Project as **Annexure 2, page 6.**
- 2.4. The future plans on programme structure of M.Sc Plant Biotechnology, (approved in BoS 3<sup>rd</sup> March 2020), were discussed Department faculty also shared that informal feedback received from stakeholders and student fraternity in past indicated a need for teaching programmes that do not restrict career avenues of students.
- 2.5. BoS members encouraged and advised the Department faculty to explore possibilities of diversification of the current post-graduate programme in terms of various biotechnology relevant sectors. Following plan of action was discussed by the members-
  - 2.5.1 First:- As per the course structure approved in the earlier BoS held on 4<sup>th</sup> December 2019, multiple courses for Elective 1 and 2 are to be offered to align the program with the CBCS system of UGC, starting with the academic year 2021-22.
  - 2.5.2 Second - The feasibility of diversifying into other streams of Biotechnology was discussed and agreed. It was discussed that one such diversification could be Microbial Biotechnology considering the facilities and expertise at TERI SAS and its parent organisation TERI. Such diversification would require that the existing MSc programme be renamed as "M.Sc. Biotechnology," with specialisations offered in Plant or Microbial Biotechnology. The two streams will share a number of common courses with several discipline-specific courses and/or electives for each specialisation.



Shashi Bhushan Tripathi



**Department of Biotechnology, TERI School of Advanced Studies, New Delhi**

**Ph.D. Programme Outline**

The Department of Biotechnology (DBT), TERI School of Advanced Studies (TERI SAS) offers both master's and doctoral programmes. The department is committed to the furtherance of the scientific enterprise through the establishment of a vigorous research programme, and to contribute to post-graduate level academic programmes to cater to national requirements in basic science, biotechnology, agricultural and environmental applications. Students opting for doctoral (Ph.D.) programme can expect an academically rigorous and interdisciplinary environment and significant emphasis on laboratory work, emphasizing original, creative thinking and research.

**Programme Overview**

DBT-TERI School of Advanced Studies (TERI SAS) provides an opportunity to Ph.D. students to nurture their independent, analytical and critical thinking. It offers a conducive environment to achieve academic excellence and meet the highest global standards.

The Ph.D. programme offered by DBT-TERI SAS draws its strength from the expertise and areas of interests of its faculty members and its adjunct faculty from TERI, its parent organisation.

The operational aspects of the Ph.D. programme are governed and guided by the provisions laid down in the '***TERI School of Advanced Studies Ph.D. Regulations-2019*** (and its subsequent amendments)".

**Programmes USP**

The Ph.D. Programmes is aimed at enabling the students to exploit their own intellectual potential and generate new knowledge that can lead to solutions to issues of national and international importance. The Ph.D. Programme prepares the students to play an active role in the international academia through their contributions in their chosen field of study.

## **Programme Outcomes**

At the end of Ph.D. programme, the students should be able to:

- Have an in-depth understanding of the nuances of the problem being researched and the literature surrounding it
- Explore frontiers of fundamental, applied and interdisciplinary research as decided by the chosen field of study
- Understand and apply scientific methods, tools and techniques to carry out high quality research work
- Independently plan and execute original research with high ethical standards
- Develop suitable communication and interpersonal skills, critical thinking and problem-solving attitude as appropriate for a Ph.D. student

## **Programmes Structure**

The Programme Structure is same as mentioned in the *PhD. Programme Common Outline* document.

### **Ph.D. Course work structure and requirement**

As mentioned in the '*TERI School of Advanced Studies Ph.D. Regulations-2019*, a minimum of 8 credits and a maximum of 16 credits will have to completed by the Ph.D. students in order to complete their course work which must be completed within the first two semesters of joining the programme. Some courses are mandatory in nature and some are prescribed by the Department Research Committee (DRC)/ Centre Research Committee (CRC) on the recommendations of the Student Research Committee (SRC).

Every Ph.D. student must complete the following mandatory courses.

- a) Research Methodology – 3 Credit Course (Credit only course)
- b) Research and Publication Ethics - 2 Credit course (Credit or audit course)

- c) Quantitative Research Method – Statistics for Life Sciences (3 credits) (or any other course recommended by SRC/DRC listed in “Ph.D. Programmes Common Outline-TERI SAS, Annexure 1, University Wide List of Available Courses Under Quantitative Method Category)

In addition, students can take up courses from the following based on the recommendation of SRC and approval of DRC.

- RPR 213: Nanomaterials: Introduction and applications: 2 credits
- Communication Skills- 1 credit
- Any course from the list of courses offered to M.Sc. Plant Biotechnology Programme or any other course offered by Department of Biotechnology TERI SAS.
- Any other course offered from the list of other Departments and Centres

## Annexure 2

<b>Course title:</b> Major project			
<b>Course code:</b> BBP 104	<b>No. of credits:</b> 24	<b>L-T-P:</b> 0-0-672	<b>Learning hours:</b> 672
<b>Pre-requisite course code and title (if any):</b>			
<b>Department:</b> Department of Biotechnology			
<b>Course coordinator:</b>		<b>Course instructor</b>	
<b>Contact details:</b>			
<b>Course type:</b> Core		<b>Course offered in:</b> Semester 4	
<b>Course objectives:</b>			
<ol style="list-style-type: none"> <li>1. To provide the students an opportunity to work on basic and applied live research projects</li> <li>2. To allow students to apply appropriate technical skill-sets learnt during prior course work</li> <li>3. To promote creativity and innovativeness for solving real life problems</li> <li>4. Create capacities to address research questions using multi-disciplinary approach.</li> </ol>			
<b>Learning outcomes:</b>			
<ol style="list-style-type: none"> <li>1. Students will be able to- <ul style="list-style-type: none"> <li>-define a research problem</li> <li>-design appropriate experiments</li> <li>-undertake data collection and analyse</li> <li>-draw logical inferences -report outcomes in a systematic manner</li> <li>-Innovate solutions to societal problems</li> </ul> </li> <li>2. · Students will be able to work independently and as part of a team.</li> <li>3. · Students will be able to make effective presentations before a diverse audience.</li> <li>4. · Students will acquire transferable problem-solving skills using multi-disciplinary approaches.</li> </ol>			
<b>Employability:</b>			
<ol style="list-style-type: none"> <li>1. Research and Development (academic and industrial sectors)</li> <li>2. Bio-business companies, breweries, seed industries, pharmaceutical companies, dairies, food processing.</li> <li>3. Agro-Industries</li> <li>4. Forensics</li> <li>5. Diagnostic centres</li> <li>6. Regulatory and funding agencies, law firms and knowledge processing offices (KPOs) for Intellectual Property (IP) management.</li> <li>7. Teaching and training (Academic Institutions, Industries, KPOs and NGOs).</li> </ol>			

\* Operational aspects of Major Project are governed and guided by “**Generic guideline Major Project TERI SAS**” and also provide to students.

## Shashi Bhushan Tripathi

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**From:** Anandita Singh  
**Sent:** 05 July 2020 13:56  
**To:** Chaithanya Madhurantakam; Udit Soni; TERI SAS-DBT  
**Subject:** Re: Minutes draft BoS 4th July 2020

I agree with the usage of the term Microbial Biotechnology

Get [Outlook for Android](#)

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**From:** Chaithanya Madhurantakam <chaithanya.madhurantakam@terisas.ac.in>  
**Sent:** Sunday, July 5, 2020 1:18:42 PM  
**To:** Anandita Singh <asingh@terisas.ac.in>; Udit Soni <udit.soni@terisas.ac.in>; TERI SAS-DBT <dbt@terisas.ac.in>  
**Subject:** RE: Minutes draft BoS 4th July 2020

Dear Colleagues

I think its fine. I have added only a comment.  
Use of Microbial Biotechnology instead of Industrial Microbiology may have broader coverage.

Best  
Chaithanya

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**From:** Anandita Singh <asingh@terisas.ac.in>  
**Sent:** Sunday, July 5, 2020 11:43 AM  
**To:** Udit Soni <udit.soni@terisas.ac.in>; TERI SAS-DBT <dbt@terisas.ac.in>  
**Subject:** Re: Minutes draft BoS 4th July 2020

Dear All,  
I have looked into the minutes. More or less, these were well documented. I have elaborated the discussion points on future plans for MSc programme structure. I think these discussion points should be retained in interest of documentation. We may forget a year later, the genesis of certain ideas.

Anandita

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**From:** Udit Soni <[udit.soni@terisas.ac.in](mailto:udit.soni@terisas.ac.in)>  
**Sent:** 04 July 2020 21:46  
**To:** TERI SAS-DBT <[dbt@terisas.ac.in](mailto:dbt@terisas.ac.in)>  
**Subject:** Re: Minutes draft BoS 4th July 2020

PFA

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**From:** Udit Soni  
**Sent:** Saturday, July 4, 2020 4:56 PM  
**To:** TERI SAS-DBT <[dbt@terisas.ac.in](mailto:dbt@terisas.ac.in)>  
**Subject:** Minutes draft BoS 4th July 2020

Please review/edit and find attachment.

Sincerely  
Udit Soni



## Shashi Bhushan Tripathi

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**From:** Chaithanya Madhurantakam  
**Sent:** 05 July 2020 13:19  
**To:** Anandita Singh; Udit Soni; TERI SAS-DBT  
**Subject:** RE: Minutes draft BoS 4th July 2020  
**Attachments:** Minutes BoS\_4th July 2020 draft\_AS\_CM.docx

Dear Colleagues

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Chaithanya

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Anandita

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**Sent:** 04 July 2020 21:46  
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**To:** TERI SAS-DBT <[dbt@terisas.ac.in](mailto:dbt@terisas.ac.in)>  
**Subject:** Minutes draft BoS 4th July 2020

Please review/edit and find attachment.

Sincerely  
Udit Soni

## Shashi Bhushan Tripathi

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**From:** Head Investment <investment@birac.nic.in>  
**Sent:** 08 July 2020 23:56  
**To:** Shashi Bhushan Tripathi  
**Subject:** Re: Minutes of BoS held on 4th July 2020

Dear Shashi,

The minutes are fine.

Best regards,

**Dr. Sanjay Saxena**  
**General Manager & Head (Investment)**



**Biotechnology Industry Research Assistance Council**

**(A Government of India Enterprise)**

**1st floor, MTNL Building, 9, CGO Complex, Lodhi Road, New Delhi-110003**

**Tel. +91 011 24389600 | Fax. +91 011 24389611**

**Website: [www.birac.nic.in](http://www.birac.nic.in)**

**जैव प्रौद्योगिकी उद्योग अनुसंधान सहायता परिषद**

**(भारत सरकार का उपक्रम)**

**पहली मंजिल, एमटीएनएल बिल्डिंग, 9, सीजीओ कॉम्प्लेक्स, लोधी रोड, नई दिल्ली -110003**

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**वेबसाइट: [www.birac.nic.in](http://www.birac.nic.in)**

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**From:** "shashi tripathi" <shashi.tripathi@terisas.ac.in>  
**To:** shailendragoel@gmail.com, "ashis nandi" <ashis\_nandi@yahoo.com>, manojshrivastava31@gmail.com, "Head Investment" <investment.birac@gov.in>, dbt@terisas.ac.in  
**Sent:** Wednesday, July 8, 2020 12:36:08 PM  
**Subject:** Fw: Minutes of BoS held on 4th July 2020

Dear BoS Members,

Thank you very much for your kind suggestions during the last BoS meeting. The minutes are attached for your kind approval by email.

Sincerely,  
Shashi Bhushan Tripathi



## Shashi Bhushan Tripathi

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**From:** Ashis Nandi <ashis\_nandi@yahoo.com>  
**Sent:** 08 July 2020 16:20  
**To:** Shailendra Goel; manojshrivastava31@gmail.com; Head Investment; TERI SAS-DBT; Shashi Bhushan Tripathi  
**Subject:** Re: Minutes of BoS held on 4th July 2020

The minutes look fine. Two small points/queries.

1. Annexure 1 "

Any other course offered from the list of other Departments and Centres" . May by you can include that "except the courses that are already taken during M.Sc."

2. Your major research project, annexure-2, is for one semester or two semesters? I forgot that. If it runs only for one semester, then you think of stretching into two semesters, so that students can do some considerable amount of work.

In case it runs through two semesters, you may think of dividing the credits into two halves with a mid-term evaluation (of 6 to 8 credits or so). That gives some kind of pressure from the beginning. Otherwise, students take very lightly at the beginning and start becoming serious only in the 4th semester. Please ignore my suggestions if there are any feasibility or technical issues.

Regards

Ashis

Ashis Kumar Nandi, Ph.D.

Professor

415, School of Life Sciences

Jawaharlal Nehru University

New Delhi 110067, India

[https://www.jnu.ac.in/content/ashis\\_nandi](https://www.jnu.ac.in/content/ashis_nandi)

E-mail: ashis\_nandi@yahoo.com ; ashis\_nandi@mail.jnu.ac.in

Phone: +91-11-2670-4152 (office)

On Wednesday, July 8, 2020, 12:36:14 PM GMT+5:30, Shashi Bhushan Tripathi <shashi.tripathi@terisas.ac.in> wrote:

Dear BoS Members,

Thank you very much for your kind suggestions during the last BoS meeting. The minutes are attached for your kind approval by email.

Sincerely,

Shashi Bhushan Tripathi

## **Shashi Bhushan Tripathi**

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**From:** Manoj Shrivastava <manojshrivastava31@gmail.com>  
**Sent:** 08 July 2020 12:47  
**To:** Shashi Bhushan Tripathi  
**Cc:** Shailendra Goel; Ashis Nandi; Head Investment; TERI SAS-DBT  
**Subject:** Re: Fw: Minutes of BoS held on 4th July 2020

Approved, please proceed.

Regards

Manoj

On Wed, 8 Jul 2020 at 12:36, Shashi Bhushan Tripathi <[shashi.tripathi@terisas.ac.in](mailto:shashi.tripathi@terisas.ac.in)> wrote:

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Sincerely,  
Shashi Bhushan Tripathi

--

Dr. Manoj Shrivastava  
Principal Scientist  
Centre for Environment Science and Climate Resilient Agriculture (CESCRA)  
Nuclear Research Laboratory (NRL)  
Indian Agricultural Research Institute  
New Delhi-110012, India  
Email: [manojshrivastava@iari.res.in](mailto:manojshrivastava@iari.res.in)  
[manojshrivastava31@gmail.com](mailto:manojshrivastava31@gmail.com)  
Phone (O) +91-11-25843588 Ext 4765  
(M) 09810707679

## Shashi Bhushan Tripathi

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**From:** Shailendra Goel <shailendragoel@gmail.com>  
**Sent:** 09 July 2020 10:54  
**To:** Shashi Bhushan Tripathi  
**Subject:** Re: Fw: Minutes of BoS held on 4th July 2020

I think, minutes are in order. I approve.

On Wed, Jul 8, 2020 at 12:36 PM Shashi Bhushan Tripathi <[shashi.tripathi@terisas.ac.in](mailto:shashi.tripathi@terisas.ac.in)> wrote:

Dear BoS Members,

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Sincerely,  
Shashi Bhushan Tripathi

--

Shailendra Goel  
Department of Botany  
University of Delhi  
Delhi 110007