

Department of Biotechnology

Proforma for submission of progress reports for Annual Review of Colleges supported under Star College Scheme

(Kindly note that the annual report from Point 6 to 10, should not be more than 10 A4 size sheets, with font size 12pt and line spacing 1.5)

1. Name of the College : Sibsagar College
2. Name of Coordinator, designation, : Dr. Dulen Saikia, Associate Professor, Department of Physics,
Address, Phone nos. Sibsagar College, Joysagar-785665
Phone no : 8638747970,9435055085
3. Assessment duration : 01 /04/2019 ---- to --- 31/03/2020 Duration in years : 01
4. Details of Departments Supported

Sl No	Name of Department	Courses (B.Sc./M.Sc./PG Diploma, certificate etc) offered	Regular Faculty members	
			With Ph.D.	Without Ph.D.
			Total =22	
1	Physics	B.Sc and M.Sc	6	2
2	Chemistry	B.Sc	3	3
3	Botany	B.Sc	3	0
4	Zoology	B.Sc	5	0

5. Number & Date of Advisory committee meeting: **To be decided after seeking approval from DBT, New Delhi.**
6. Qualitative improvements due to DBT support. Please highlight 5 salient points (within 500 words).
(You may enumerate 5 minor projects where students were involved and their impact or similar activities and their outcome; this is for representative purpose and coordinator may include details as per his own choice; kindly refrain from providing philosophical data Avoid any introduction. All the justifications must be very crisp like any aspect non-existent pre-STAR Scheme and you achieved after the grant).

Qualitative improvements due to DBT support:

- i) The star college scheme has enriched the curriculum implementation in terms of advanced experimental based learning. With the DBT financial support, all the beneficiary departments viz. Physics, Chemistry, Botany and Zoology have upgraded the laboratory facilities by procuring and installing new instrument to meet up the necessity of new experiments relating


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to newly adopted CBCS syllabus for undergraduate students (core and generic) under Dibrugarh University.

ii) Workshops and Seminar Jointly organized by the departments of Physics, Chemistry, Botany and Zoology :

a) Two days Familiarization workshop on Nanoscience and Biotechnology on 24th and 25th June 2019, Target Group: 3rd SEM and 5th SEM major students (Physics, Chemistry, Botany Zoology). **(Please Annexure-I)**

b) Three days' workshop (summer camp) on "Basic Tools and Techniques on Biotechnology and Nanotechnology" from 1st July to 3rd July, 2019.

Target Group: 3rd SEM and 5th SEM major students (Physics, Chemistry, Botany Zoology). **(Please Annexure-I)**

Students were very much benefited from both the workshop by attending lectures on Biosensors, Bio-electronics and Electronics Nose, Application of Biotechnology in aquaculture, Aqua Culture and Biodiversity, Application of equipment in Biotechnology, Isolation techniques of Microbial culture,

c) A three days National seminar cum workshop on "Application of Nanotechnology and Biotechnology in daily life (NSW-ANBDL)" from 26th September to 28th September, 2019 in Collaboration with IQAC, Sibsagar College, Joysagar. **(Please Annexure-I)**

Students from the star departments presented their project work in the poster session of the national event. Some of the students participated in the project competitions for students. Some of such activity is depicted in Annexure-I. Moreover, students also got an opportunity to interact with eminent scientists from various advanced institutions like, IIT Guwahati, Tezpur Central University, CSIR-NEIST, Jorhat, CPP-IPR-Guwahati, Gauhati University and Dibrugarh University, etc. **(Please Annexure-I)**

iii) Prior to the DBT star college scheme, the field trip, visit to the industry and nearby research institutes were limited to the departments of Botany and Zoology only. However, under the star college scheme, the students of Physics and Chemistry departments are also exposed to new experiences to increase the interests and engagement in science regardless of prior interest in a topic. Curiosity is also helping students to learn information that they don't consider it interesting and important.

Details of the field trip and visit to the research institutes are as below:

a) A group comprising of 24 numbers of B.Sc. 6th SEM (Maj.) students and 15 numbers of M.Sc. 4th SEM (Maj.) students from the department of Physics visited the R & D Laboratory CSIR-NEIST, Jorhat on 13-02-2020. The team was guided by two faculty

members – Dr. Utpal Jyoti Mahanta and Dr. Paragjyoti Gogoi. **For details please See Annexure-II.**

- b) A group comprising of 22 numbers of students from 6th SEM, B.Sc. (Major), Department of Zoology, visited the Sericulture farm in Gaurisagar, Sivasagar, Assam on 20.02.20. The team was guided by two faculty members- Dr. Utpal Sarma and Dr. Imdadur Rahman as in-charges. **For details please See Annexure-II**

- c) Botany:

Department	Date, Place and Name of Institution to be visited	Class	No .of beneficiaries	Remark
Botany	Prepared to visit Assam agriculture University, Jorhat on 21 st March,2020	B.Sc., 6 th SEM(Maj)	17 students of 6 th Semester, and 3 faculty members	Please See Annexure-II
<i>Postponed due to the problem of Covid 19 pandemic</i>				

- a) Chemistry:

Department	Date, Place and Name of Institution to be visited	Class	No .of beneficiaries	Remark
Chemistry	Prepared to visit Tezpur University, Tezpur on 16 th March,2020	B.Sc., 6 th SEM(Maj)	40 students of 6 th Semester, and 3 faculty members	Please See Annexure-II
<i>Postponed due to the problem of Covid 19 pandemic</i>				

- iv) Both interdisciplinary and subject related Projects has been assigned to the students and some initial ground work such as literature survey, methodology, finalization of reaction route, optical investigations has been done to carry out the projects. However, it could not be possible to complete all the experimental works because of present pandemic situation.

* For details of the Students Project please see **Annexure-III**

7. Any Novel aspect introduced or planning to introduce during the Scheme duration.

- i) Introduced the provision for online database in the college website about the DBT Star College Scheme, Sibsagar College Joysagar which will include all activities of the four participating Departments viz. about upcoming events, seminar and workshops, students projects, future planning, and minutes of advisory committee meeting.
- ii) Introduction of regular familiarization workshop on the basics of nanotechnology and biotechnology for the 1st Year and 2nd Year B.Sc. students in the month of July in every academic session.
- iii) Assignment of interdisciplinary projects work to the 2nd and 3rd Year B.Sc. students.
- iv) Planning to assign projects to the students in the field of biotechnology and nanotechnology related to the course curriculum which may be a new way of understanding the theoretical concept on the subject in a broad sense.
- v) Planning to provide more hands on training for students on sophisticated instruments related to the field of research in order to promote their research interest and give exposure on research by visiting R & D laboratories in the states.
- vi) Provision for training to the students on “research methodology”, “writing of research papers” and “project dissertation”.

8. Lessons learnt / difficulties faced/suggestions if any, in implementation of the programme and utilization of DBT grant. (Max 3 points within 300 words).

Lessons learnt :

- i) Experimental based learning is more fruitful for better understanding of basic science. Experiential based learning focuses on learner’s potentiality and their skill of doing something. It also helps a lot in gaining conceptual insight as well as practical expertise.
- ii) Participation in seminars, workshops, projects, hands on training, visit to industry and research institutes and interdisciplinary activity helps the students in building up their self-confidence and better understanding of their course curriculum. Such kind of schemes is more effective in enriching the curriculum implementation of the institution.


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- iii) Faculty members of the beneficiary departments also get an opportunity to be involved in various co-curricular activities under the star college scheme to strengthen the understanding of basic sciences at the undergraduate level

Difficulties :

1. We faced difficulties in implementing some of the activities under DBT star college scheme on time due to shrinking of academic working days across the academic institutions of Assam owing to -
 - (i) Suspension of classes from time to time due to mass protests and sabotage that happened against Citizen Amendment Bill/Act (CAB & CAA) during the month of December and January 2020.
 - (ii) Suspension of all classes from 15th march 2020 onwards due to Covid -19 pandemic. It has also created a tough situation for us to comply with all the pre-scheduled activities like lab visit, industry visit, invited talks and lecture programs, etc. under star college scheme. Even, some of the purchase orders for chemicals and other necessary items could not be dispatched after 15th March 2020.
 - (iii) Most of the instruments under DBT star scheme were procured and installed, projects works and new experiments were assigned to the students, but, unfortunately, students could not complete all the assigned projects and new experiments on account of present pandemic situation.

Suggestion:

- a) Our suggestion and request is to extend the period of the DBT star college scheme (1st march 2019 to 31st March 2020) up to December 2020 considering the aspect of present Covid-19 pandemic situation.
- b) Looking at the present pandemic situation of Covid-19, our suggestion and request is to allow us to use the unspent balance allotted for the period “April 2019 to 31st march 2020” in the recurring, travel and contingency head of “DBT Star College Scheme” till December 2020 without being adjusting the same with the next year grant to be received from DBT, New Delhi for the greater benefit of the students.


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9. Key performance indicators

Sl. no	Indicator	Pre-support period: 2018-2019	During /After Support																Remarks							
	No. of students admitted in the session 2018-19.	Physics, = 50 Chemistry = 60 Botany = 50 Zoology = 50 (Some of the admitted students left the institution for other professional courses)																								
1	No. of students appeared in the D.U. Exam	Total = 130																								
		Physics, M = 22				F=8 ; T= 30																				
		Chem., M = 20				F= 20 ; T=40																				
		Botany, M = 13				F= 18; T= 31																				
		Zoology, M = 09				F= 20; T= 29																				
			S	S	OB	G	S	S	OB	G	S	S	OB	G	S	S	OB	G								
		C	T	C		C	T	C		C	T	C		C	T	C										
	Physics	0	2	17	3	0	0	7	1																	
	Chemistry	1	1	12	6	1	3	12	4																	
	Botany	0	0	05	0	0	0	13	3																	
	Zoology	1	1	5	2	2	1	12	5																	
2	No. of students passing out (%) Students Admitted/passing out	Physics: 60% Chemistry: 99% Botany: 84.2 Zoology: 86%								Yet to come																

	(pass %)			
3	Drop-out rates	Physics: 40% Chemistry: 1 % Botany: 30% (Last year only) Zoology: 13.36 %	Yet to come	
4	No. of students opting for MSc	Physics: 17(2019) Chemistry: 20 (2019) Botany: 05(2019) Zoology: 08(2019)	Yet to come	
5	Average marks	Physics: B. Sc.: 65.23% ; M. Sc.: 58% Chemistry: B.Sc.: 65% Botany: B.Sc.: 65% Zoology: B.Sc.: 64%	Yet to come	
6	No. of hands-on experiments being conducted	Physics- Chemistry- Botany- Zoology-	Physics- 04 Chemistry-02 Botany-03 Zoology-01	
7	No. of new experiments introduced	Physics- Chemistry- Botany-01 Zoology-	Physics-16 Chemistry-03 Botany-02 Zoology-02	
8	Publications (Scopus indexed) /patents, if any	Physics-03 Chemistry-02 Botany- Zoology-	Physics- Chemistry- Botany- Zoology-	
9	Training received by faculty	Physics-01 Chemistry-01	Nil	

10	Exhibitions/ seminars/training courses conducted	Nil	Collaborative events from the beneficiary Departments (Physics, Chemistry, Botany & Zoology): Exhibition:01 Seminar :01 Familiarization workshop :01 Summer Hands on Training courses: 01 Chemistry Student seminar-01-	Annexure -I
11	Books/journals subscribed from grants	NA	NA	
12	Outreach activities (Popular lectures)	Nil	Nil	
13	Colleges mentored to apply for DBT Star College grants	Nil	0	
14	Invited lectures)		Physics-08 Chemistry-15 Botany-06 Zoology-05	Annexure -I

- Proofs (S. No. 6-14 not more than 5 pages, 1.5 line spacing 11 times roman font size) to be provided duly attested by Principal and Coordinator.


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10. Self-evaluation

Department	*Objective (as stated in proposal)	% achieved	Reasons for underachievement / If achieved, state in quantitative metrics
Physics	1. Awareness programme, workshop, seminar to popularize the benefits of biotechnology and nano-biotechnology among the student community.	90% Achieved	1.8
	2. To increase capabilities of core instrumentation resources by procuring new equipment and upgrading of existing facilities	100% Achieved	2
	3. Intensification in interdisciplinary approach with other departments of institute for small research projects, expert lectures, visits, training and awareness programmes.	80% Achieved	1.6
	4. Student project as per the DBT Objective	70% achieved	1.4
	5. Hands – on Training program for student/ faculty	50% achieved	1


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Chemistry	<p>1. Awareness program /workshop/seminar to popularize nano-biotechnology.</p> <p>2. Hands – on Training program for student/ faculty</p> <p>3. To increase capabilities of core instrumentation resources by producing new equipment and upgrading existing facilities :</p> <p>4. Hands on training for analysis of medicinal plants, synthesis of nanomaterials from plant extract.</p> <p>5. Student project as per the DBT objective</p>	<p>90% Achieved</p> <p>60% Achieved</p> <p>80% Achieved</p> <p>90% achieved</p> <p>70% achieved</p>	<p>1.8</p> <p>1.2</p> <p>1.6</p> <p>1.8</p> <p>1.4</p>
Botany	<p>1. Additional Practical Introduced</p> <p>2. Seminar, Workshops, Summer camps, Hands on training, etc.</p> <p>3. Project work</p> <p>4. Site visit</p>	<p>60%</p> <p>70%</p> <p>60%</p> <p>00%</p>	<p>1.2</p> <p>1.4</p> <p>1.2</p> <p>Planned to visit the Plant Pathology Lab. Of AAU, Jorhat, Fund was also released, But not completed due to COVID19 Pandemic.</p>
Zoology	<p>1. Additional practical introduced</p>	<p>50%</p>	<p>1.0</p>

	2. Organize seminar summer camp, workshop cum hands on training programme	50%	1.0
	3. Project works	50%	1.0
	4. Site visit	50%	1.0

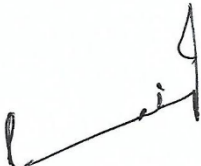
* For quantitative analysis you may fix five objective (max) each having 2 marks and accordingly can calculate the matrix.


15/07/2020
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Course Coordinator

(With Seal)




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