Star College Scheme for Strengthening of Science Education and Training at Undergraduate Level

Scheme and Guidelines

1. Introduction:

DBT is committed to the values of i) Pursuit of excellence ii) Academic and intellectual freedom iii) Creativity and innovation iv) Diversity v) Cooperation and Communication & vi) accountability. DBT has therefore, launched a scheme for improving critical thinking and 'hands on' experimental work at undergraduate (college) level in sciences. It is expected to encourage, more students to take up higher education in science.

DBT will identify colleges with ambition and potential for excellence and provide academic and physical infrastructure for achieving excellence in teaching and unique exposure of students to experimental science. The Star College Scheme is a pan India Scheme that envisages a Star College in every district of the country, thus the Department shall exert dialogues with the State Government and identify colleges that can be considered for support under this Scheme.

It is important to know that the Department has supported over 200 undergraduate colleges across the country in the past 9 years. Apart from financial support, colleges benefit tremendously from guidance received in Advisory Committee Meetings, mentoring, Task Force Meetings and learning from peers in other colleges.

2. Objectives:

- To strengthen the academic and physical infrastructure for achieving excellence in teaching and training.
- To enhance the quality of the learning and teaching process to stimulate original thinking through ‘hands–on’ exposure to experimental work and participation in summer schools.
- To promote networking and strengthen ties with neighboring institutions and other laboratories.
- To conduct specialized training programmes for faculty improvement for optimizing technical capabilities.
- To increase capabilities of core instrumentation resources by procuring new equipment and upgrading of existing facilities.
- To provide access and exposure to students to research laboratories and industries in the country.

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- To help in devising standard curricula and Standard Operating Procedures (SOP's) / kits for practicals.
- To provide better library facility to students and teachers.

3. Desirable criterion to Qualify for support under the Strengthening component of Star College Scheme:

- Minimum 4-5 UG courses in basic science such as botany, zoology, applied life science, microbiology, physiology / biochemistry, biotechnology etc. and 1-2 applied course/PG diploma courses.
- Adequate in-house faculty expertise in each science departments.
- Independent laboratories for practicals to accommodate sanctioned student strength.
- Lecture halls/rooms for theory classes with minimum capacity for sanctioned student strength.
- Basic infrastructure and facilities in laboratories and library, LCD / overhead projection facilities, Computers with internet access.
- To apply, the college must be Government or Government aided, autonomous **included under Section 2(f)/12(B) of UGC Act 1956.**
- Colleges that have been not recommended for support can re-apply to DBT for financial support with appropriate modifications and revisions while those that get discontinued after a round of support are eligible for re-applying only after a cooling period of two years.
- The colleges who have already been supported under this scheme, can apply for addition dept. after completion of one cycle i.e. 3 years of ongoing support.

4. Activities to be performed as part of Star College:

<u>For Students</u>

- Students training via introduction of practicals, prescribed in the curriculum.
- Introduction of conceptual clarity via engaging students in minor projects, either singly or in groups of students not exceeding 4 in number.
- Inclusion of techniques for 'hands - on' training to strengthen concepts taught otherwise via theoretical approach.
- Summer training preferably via engaging students in research projects;
- Visits to neighbouring industries, research institutions or places of academic value.

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- Use of IT in classroom, laboratory and library activities.
- Organising lectures by eminent scientists, career counselling lectures specifically for creating awareness among students about their future career options in science.
- Any other relevant additional information.

For Faculty

- Faculty improvement programme.
- Participation in summer courses for skill upgradation to be able to train students.
- Curriculum change to ensure more, 'hands - on' laboratory work.
- Greater emphasis on communicating research and research process to students.
- Introduce internal review process by students regarding the implementation of various activities under Star College Scheme.
- Feedback from students regarding competence of faculty, adequacy of teaching / laboratory environment and additional needs, if any.
- Any other relevant additional information.

The above activities should culminate in the following **Expected Outcome**:

A. Annual Outcomes:

1. Increase in the number of practicals being conducted individually by the students.
2. Introduction of "hands on training" to enhance conceptual clarity for topics taught previously by theoretical approach.
3. Engaging students in minor research projects.
4. Faculty development programs and laboratory staff training programmes.
5. Involvement of students in scientific writing and journal club activities.

B. Consolidated outcome after the sanctioned tenure (3years):

1. Increase in the admission cut off percentage and decrease in the dropout rates of students.
2. Increase in the faculty generated resources viz extramural research grants from other funding agencies to strengthen the Star College Scheme efforts.
3. Number of colleges or schools mentored from underprivileged areas.
4. Number of colleges mentored to write grants for Star Scheme support and their outcome.
5. SOPs developed, lab manuals created and uploaded on website or submitted to DBT.

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5. Nature of Financial Assistance:

One time non-recurring grant of Rs. 10.00 lakhs per science department, recurring grant of Rs. 3.00 lakhs per science department per year for a period of three years, subject to satisfactory annual review, and Rs. 1.00 lakh, Rs. 2.00 lakhs and Rs. 3.00 lakhs subject to their departments for mentoring and monitoring per college and Rs. 1.00 lakh per year under contingency head will be provided. Scheme encourages purchase of multiple copies of routine equipment required for science practicals in UG courses within ceiling of Rs. 1 lakhs. For purchase of equipments costing more than one lakh and up to three lakhs, prior approval of DBT is required.

7. How to Apply:

Application are invited online via Epromis Portal (please refer advertisement), duly signed and stamped hardcopy version of the proposal submitted via EproMIS may be sent to: **Dr. Garima Gupta Scientist 'E' Star College Scheme, HRD Division, Department of Biotechnology, Ministry of Science and Technology, Block- 3, 5th Floor, CGO Complex, Lodhi Road, New Delhi-110003**

8. Mode of Selection:

Applications will be invited through advertisement on DBT website, direct correspondence with potential colleges, nominations by vice chancellors etc. in a specified format. Consideration will be given to regional requirements, women's colleges, autonomous colleges etc. Applications will be screened by task Force and site visit, if required, will be undertaken to arrive at final decision. Decision of Task Force will be final.

9. Parameters to Measure Success:

DBT will measure progress of star colleges by following parameters:

- Substantial increase in proportion of 'hands on' experimental work by students.
- Increased access of undergraduate students to laboratory and bioinformatics infrastructure.
- Improvement in access to sciences related journals.
- Summer schools.
- Percentage of students pursuing PG science education.
- Measure effectiveness on the basis of feedback from students, faculty and employers of students.

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PART- C: Budget requirement

Strengthening Component:

S.No.	Head	Amount in lakhs/year (` in lakhs)	Remarks
1.	Non-recurring One time per department.	10.00	
2.	Recurring for 3 years each department.	3.00	
3.	Contingency per year	1.00	
4.	Travel + Mentoring	3.00	Upto 4 depts. 1 lakh 4 to 8 depts. 2 lakhs 8 to 12 depts. 3 lakhs

Star Status Component:

S. No.	Head	Amount in lakhs/year (` in lakhs)	Remarks
1.	Non-recurring One time per department.	15.00	
2.	Recurring for 3 years each department.	5.00	
3.	Contingency per year	1.00	
4.	Travel	3.00	Upto 4 depts. 1 lakh 4 to 8 depts. 2 lakhs 8 to 12 depts. 3 lakhs

Instructions for Filling Proforma

1. Proposals should clearly highlight list of new practicals, student projects, visits by students and faculty improvement programs etc. to be introduced in existing courses by participating departments.

2. Complete postal address with email ID and phone/mobile numbers of Principal and coordinator for the program should be mentioned in A6 & A12 column

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3. Application are invited online via Epromis Portal (please refer advertisement), duly signed and stamped hardcopy version of the proposal submitted via EproMIS may be sent to:

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Scientist 'E'
Program Officer, Star College Scheme
Department of Biotechnology,
Ministry of Science & Technology, GoI
Block-3, 5th Floor, Room No.-510
CGO Complex,
Lodi Road, New Delhi – 110003

Email: garima.g@nic.in

4. Consolidated proposal having details of all participating departments should be submitted. Department wise separate copies of proposal will not be accepted.
5. Applicant colleges to visit the DBT website to take cognizance of Star College scheme guidelines and develop the proposals accordingly.
6. **Curriculum/ syllabus should be submitted only with the soft copy to avoid bulking the proposal.**
7. Incomplete applications or those that are not prepared as per the instructions, shall not be entertained.