"Your talent is God’s gift to you, how you use it, is your gift to God"
Central Department of Biotechnology

Tribhuvan University, Kirtipur

Contextual

The development of Biotechnology is embracing almost every sector of human civilization. All the developed and developing countries are heading towards this diverse discipline in a very short span of time which has created unique opportunities not only for the exploitation of biological systems for the benefit of mankind, but also for undertaking research to explore the fundamental life processes. Presently it has found wide applications in the areas as diverse as Agriculture, Animal husbandry, Medicine, Pharmacology, Environmental management, Biosensors, Bioelectronics and diagnostics, Bioinformatics and Computational Biology, Biomedical Engineering, Body’s and Cell’s Bio-signatures, Microarray Technologies, Prediction and Molecular Simulation, Drug Discovery, Gene Regulation and Transcriptomics, Bioinformatics and computational biology and in industries making biotechnological products. In a country like Nepal, where the concept of biotechnology based industries is limited and biotechnology is immature with limited number of skilled human resources making it difficult to develop biotechnological research and industries. Furthermore, analysts have predicted that biotechnology will be one of the most important applied sciences of the 21st century.

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Industrialized countries and even some developing countries have already benefited from the advancement of Biotechnology improving production and environment friendly products from plants, animals and microorganism; producing cost effective new pharmaceuticals; using more efficient disease diagnosis and treatment; effective criminal investigation methods etc. Nepal being rich in natural resources has all possibilities to break the ice. So with the joint hands of efficient manpower in the field of biotechnology and proper national strategies along with enthusiasm of using the knowledge acquired in this field can make it possible to harness the benefit of the accumulated knowledge.

Tribhuvan University (TU) is the premier university in Nepal, which provides courses in diverse disciplines at various levels. Considering the potentialities of modern biotechnology, TU established Central Department of Biotechnology in 2008, anticipating leading role in the fulfillment of national demand on the manpower and also to start innovative researches in various fields of biotechnology. The course curriculum of master level in biotechnology has been formulated considering the need of the current nation’s requirement as well as to meet the international standard in the subject under the Institute of Science and Technology.

The aim of this program is to produce high level manpower in the field of biotechnology required in the country and at global level. Yearly hundreds of biotechnology undergraduates and graduates leave Nepal for higher studies.
If the nation or government could make an effort on setting up a biotechnology based laboratory and industry, not only the student but also those who are abroad will be benefited in the sense that they will have enough space to come back here, thus making an attempt in brain gain rather than brain drain and of course the national economy and development will be flashed

**Intents of the program**

*Upgrade the Central Department of Biotechnology as an Academic Centre of Excellence for the production of competent postgraduate/higher level human resource in the field of biotechnology.*

*Establish a sophisticated and well equipped academic Research Laboratory as a model biotechnology laboratory in Nepal.*

*Conduct innovative national/international research projects in various fields of biotechnology according to specialization of faculties (at least one project-one faculty concept).*

*Contribute in the creation of human resource for the manpower need of the country; develop scientific knowledge and innovative ideas leading to the economic uplift of the nation.*

**Academic Program**

CDBT is envisaged as center of excellence and its focus will remain on post graduate program and research.

**M.Sc. Biotechnology**

The M. Sc. in biotechnology, a four semester (2 years) program of 60 credit hours, initiated by the Tribhuvan University emphasizes both theoretical and practical aspects of different fields of Biotechnology. Research work for M. Sc. Thesis (6 credit hours) is assigned to each student under the supervision of a faculty member and to be completed in the fourth semester. In addition to thesis work, students will be encouraged to work in research institutions and industries to acquire practical knowledge needed for their future careers in the field of Biotechnology. Students are encouraged to send universities and research institution abroad like: Jawaharlal Nehru University (JNU), Centre for Cellular and Molecular Biotechnology (CCMB), Paul Hebert Research Center for DNA Barcoding and Biodiversity (PHRDBB), Institute of Genomics and Integrated Biology (IGIB), Malaysia Saint University (MSU), University of Adelaide Australia (UAA) and so on.

**Admission**

Admission to CDBT is done purely on the basis of merit in the entrance tests, and the score in B.Sc. The admission notification will be announced by Dean’s office of examination through leading newspapers in the country and IOST and CDBT website. The entrance test and academic session will be conducted according to IOST schedule.

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Seats in CDBT are offered to applicants completed Bachelor or equivalent from different discipline of science according to allotted quota of seats.

Eligibility for Admission

Candidates with a Bachelor degree with minimum 50 % in aggregate in Botany, Zoology, Microbiology, Chemistry or Environmental Science, with the chemistry and the biological sciences as major subjects from Tribhuvan University or equivalent degrees from other recognized universities are eligible for admission. Students with Bachelor degree in Biotechnology, Agricultural Science, Biochemistry, Food Technology, and Medicine with appropriate knowledge of chemistry and biological sciences (Botany/Zoology/Microbiology) equivalent to B.Sc. level of TU are eligible for the courses.

Selection Criteria

The candidates will be selected on the basis of merit, which will be assessed by:

1. The percentage of the marks secured in Bachelor Degree (20%).
2. The marks secured in the entrance test conducted by the Central Department (80%).

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Tuition Fee

Tuition fee at CDBT is highly subsidized Following is the fee structure payable by students.

Admission:
- Admission fee: Rs. 10,000.00
- Deposit (Refundable): Rs. 10,000.00
- Development: Rs. 5000.00
- Miscellaneous: Rs. 5000.00
- Tuition fee (Rs. 35000 x 4 semesters): Rs. 1,40,000.00
- T.U. fee and others (per semester): Rs. 7000.00

Note: Other fees may apply as decided by the University Campus, Kirtipur.

Rationale

Nepal is very rich in its natural resources. Biotechnology is the subject which utilizes the resources for the betterment of nature and living kinds. So, there are plenty of rooms to execute researches and generate place to work for skilled manpower. Employment generating education is the indispensable at present time. The graduates of Biotechnology, if properly supported by nation, can create thousands of jobs and serve for the economic development of the nation. The process in future leads to inception of country based industries generating jobs to those youths of Nepal who are investing their strength outside the country for little money. **Yearly hundreds of biotechnology undergraduates/ graduates leave Nepal for higher studies.** If nation could make effort on setting up a biotechnology based laboratory and industries, those who are abroad will have enough space to come back here.

The M. Sc. level students with Biotechnology will be major actors in different activities of the development that are concerned with human welfare. They can contribute in research and development areas of basic science and biotechnology which can play a role for economic growth of nation for the prosperity of the people. The students/ Ph. D scholars after completion of the course can contribute in various important fields like agriculture, medicine, Pharmaceuticals, forensic, animal science, forestry, food and bioinformatics based companies and in production and service industry.

Faculty and Staff

The Department is provision for 13 faculties and 12 administrative staff. Besides these faculties, visiting faculties are being hired from outside according to need of specific subjects teaching. New efficient caliber enthusiastic faculties provisioned in the university management will be recruited in coming days.

International support in equipment

- Alexander von Humboldt Foundation, Germany
- Third World Academy of Science (TWAS), Italy
- CDBT-KRRIB bio prospecting collaborative project

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Provision for Scholarship

Central Department of Biotechnology Scholarship

CDBT offers scholarship to meritorious students on the basis of aggregate marks secured in semester examination. The scholarships cover full/partial semester fee. One such scholarship must be given to topper among female candidates. There are altogether three such scholarships.

Three other partial scholarships funded by Fulbright professor Lakshmaiah Shreerama.

Gold medal

Student securing the top position in M.Sc. Biotechnology degree of TU will granted by a Gold medal “Drs. Rekha & Lakshmaiah Shreerama Gold medal”, established by Fulbright Professor Laksmaiah Shreerama.

Hostel Facility

Hostel accommodation is provided to outstation students on TU fee.

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Provision for Thesis/Research work in foreign countries

Students are encouraged to send at universities and research institution abroad for their thesis/project work. The department has provisioned to send the students in different Universities and Research centers including Jawaharlal Nehru University (JNU) Delhi India, Centre for Cellular and Molecular Biotechnology (CCMB) Hyderabad, Paul Hebert Research Center for DNA Barcoding and Biodiversity (PHRDBB) Aurangabad, Institute of Genomics and Integrated Biology (IGIB) Delhi, Malaysia Saint University (MSU), University of Adelaide Australia (UAA) and so on.

Instrument facilities

The department is equipped with all basic equipments necessary for M.Sc. biotechnology practical works. Some major equipment installed in the department are ELISA plate reader and washer, Thermal cycler, Spectrophotometer, Gel documentation set, CO2 incubator, Laminar flows, Growth chambers, Electrophoresis set, Homogenizer, Fermenter, Phase Contrast Microscope, Fluorescent microscope with photograph facility, inverted microscope, -80, -40, and -20° C refrigerator, general microscope with photograph facility, Nanodrop, RT-PCR machine, Lyophilizer and many more (Table, Equipments).

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Seminars/Talk Programs

All students must attend and take active participation in seminars and talk programs organized by the department. Departmental participation in organizing national and international seminar is important part for upgrading the student’s scientific knowledge.

If you have any question regarding the admission process or anything about CDBT, TU, you can consult any of student volunteers/Alumni.

For further information log on to the CDBT website, www.biotechtu.edu.np Or contact the admission office, CDBT, TU, Kirtipur, 009-77-4336221

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