NATIONAL BOARD OF ACCREDITATION

Data Capturing Points of the Program Applied for NBA Accreditation– Tier I/II UG (Engineering) Institute Programs

Program Name : Biotechnology	**Discipline**: Engineering & Technology
Level : Under Graduate	**Tier**: 1
Application No: 10755	**Date of Submission**: 25-06-2025

PART A- Profile of the Institute

A1.Name of the Institute: HERITAGE INSTITUTE OF TECHNOLOGY	
Year of Establishment : 2001	Location of the Institute: NEAR RUBY HOSPITAL ON EMBYEPASS
A2. Institute Address:CHOWBAGA ROAD,ANANDAPUR P.O.-EAST KOLKATA TOWNSHIP	
City:Kolkata	State:West Bengal
Pin Code:700107	Website:WWW.HERITAGEIT.EDU
Email:ADMIN@HERITAGEIT.EDU	Phone No(with STD Code):033-66270614
A3. Name and Address of the Affiliating University (if any):	
Name of the University : Maulana Abul Kalam Azad University of Technology,	City: Nadia
State : West Bengal	Pin Code: 741249
A4. Type of the Institution: Deemed University	
A5. Ownership Status: Self financing	

A6. Details of all Programs being Offered by the Institution:

- No. of UG programs: **13**
- No. of PG programs: **7**

Table No. A6.1: List of all programs offered by the Institute.

Sr.No.	Discipline	Level of program	Name of the program	Year of Start	Year of Closed	Name of The Department
1	Computer Application	PG	Master in Computer Applications	2003	--	Computer Application
2	Engineering & Technology	PG	Applied Electronics & Instrumentation Engineering	2006	--	Applied Electronics and Instrumentation Engineering
3	Engineering & Technology	UG	Applied Electronics & Instrumentation Engineering	2001	--	Applied Electronics and Instrumentation Engineering
4	Engineering & Technology	UG	Biotechnology	2002	--	Biotechnology
5	Engineering & Technology	PG	Biotechnology	2007	--	Biotechnology
6	Engineering & Technology	UG	Chemical Engineering	2002	--	Chemical Engineering
7	Engineering & Technology	UG	Civil Engineering	2011	--	Civil Engineering
8	Engineering & Technology	UG	Computer Science and Business System	2020	--	Computer Science and Business System
9	Engineering & Technology	UG	Computer Science and Engineering	2001	--	Computer Science and Engineering
10	Engineering & Technology	PG	Computer Science and Engineering	2006	--	Computer Science and Engineering

11	Engineering & Technology	UG	Computer Science and Engineering (Artificial Intelligence & Machine Learning)	2021	--	Computer Science and Engineering (Artificial Intelligence and Machine Learning)
12	Engineering & Technology	UG	Computer Science and Engineering (Data Science)	2021	--	Computer Science and Engineering (Data Science)
13	Engineering & Technology	UG	Computer Science and Engineering (Internet of Things and Cyber Security including Blockchain Technology)	2022	--	Computer Science and Engineering (Internet of Things and Cyber Security including Blockchain Technology)
14	Engineering & Technology	UG	Electrical Engineering	2012	--	Electrical Engineering
15	Engineering & Technology	UG	Electronics & Communication Engineering	2001	--	Electronics and Communication Engineering
16	Engineering & Technology	PG	Electronics & Communication Engineering	2009	--	Electronics and Communication Engineering
17	Engineering & Technology	UG	Information Technology	2001	--	Information Technology
18	Engineering & Technology	UG	Mechanical Engineering	2011	--	Mechanical Engineering
19	Engineering & Technology	PG	Renewable Energy	2016	--	Chemical Engineering
20	Engineering & Technology	PG	VLSI	2011	--	Electronics and Communication Engineering

A7. Programs to be considered for Accreditation vide this Application:

Table No. A7.1: List of programs to be considered for accreditation.

Name of the Department	Having Allied Departments	Name of the Program	Program Level
Electronics and Communication Engineering	Yes	Electronics & Communication Engineering	UG
Applied Electronics and Instrumentation Engineering	Yes	Applied Electronics & Instrumentation Engineering	UG
Biotechnology	No	Biotechnology	UG
Chemical Engineering	No	Chemical Engineering	UG

Table No. A7.2: Allied Department(s) to the Department of the program considered for accreditation as above.
Cluster ID. Name of the Department (in table no. A7.1) Name of allied Departments/Cluster (for table no. A7.1)

No Record

PART-B: Program information

B1. Provide the Required Information for the Program Applied For:

Table No. B1: Program details.
A. List of the Programs Offered by the Department:

SR.NO.	PROGRAM NAME	PROGRAM APPLIED LEVEL	YEAR OF START / YEAR OF CLOSED	SANCTIONED INTAKE	INCREASE/DECREASE INTAKE (if any)	YEAR OF INCREASE/DECREASE	CURRENT INTAKE	YEAR OF AICTE APPROVAL	AICTE/COMPETENT AUTHORITY ARROVAL DETAILS	ACCREDITATION STATUS	FROM	TO	NO. OF TIMES PROGRAM ACCREDIT
1	Biotechnology	UG	2002 / --	30	Yes	2003	60	2003	Eastern/1-44641721976/2025/EOA	Granted accreditation for 3 years for the period (specify period)	2022	2025	5

List of the Allied Departments/Cluster and Programs:

B2. Detail of Head of the Department for the program under consideration:

A. Name of the HoD :	Srabanti Basu
B. Nature of appointment:	Regular
C. Qualification:	Ph.D

B3. Program Details

Table No.B3.1: Admission details for the program excluding those admitted through multiple entry and exit points.

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	2024-25 (CAY)	2023-24 (CAYm1)	2022-23 (CAYm2)	2021-22 (CAYm3)	2020-21 (CAYm4)	2019-20 (CAYm5)	2018-19 (CAYm6)
N=Sanctioned intake of the program (as per AICTE /Competent authority)	60	60	60	60	60	60	60
N1=Total no. of students admitted in the 1st year minus the no. of students, who migrated to other programs/ institutions plus no. of students, who migrated to this program	57	54	48	54	59	60	59
N2=Number of students admitted in 2nd year in the same batch via lateral entry including leftover seats	0	0	3	3	1	0	0
N3=Separate division if any	0	0	0	0	0	0	0
N4=Total no. of students admitted in the 1st year via all supernumerary quotas	2	3	3	3	0	2	0
Total number of students admitted in the program (N1 + N2 + N3 + N4) - excluding those admitted through multiple entry and exit points.	59	57	54	60	60	62	59

CAY= Current Academic Year. CAYm1= Current Academic Year Minus 1 CAYm2= Current Academic Year Minus 2. LYG= Last Year Graduate. LYGm1= Last Year Graduate Minus 1. LYGm2= Last Year Graduate Minus 2.

B4. Enrolment Ratio in the First Year

Table No. B4.1: Student enrolment ratio in the 1st year.

Year of entry	N (From Table 4.1)	N1 (From Table 4.1)	N4 (From Table 4.1)	Enrollment Ratio [(N1/N)*100]
2024-25 (CAY)	60	57	2	98.33

2023-24 (CAYm1)	60	54	3	95.00
2022-23 (CAYm2)	60	48	3	85.00

Average [(ER1 + ER2 + ER3) / 3] = 92.78≡ 20.00

B5. Success Rate of the Students in the Stipulated Period of the Program

Table No.B5.1: The success rate in the stipulated period of a program.

Item	(2020-21) LYG	(2019-20) LYGm1	(2018-19) LYGm2
A*= (No. of students admitted in the 1st year of that batch and those actually admitted in the 2nd year via lateral entry, plus the number of students admitted through multiple entry (if any) and separate division if applicable, minus the number of students who exited through multiple entry (if any).	61.00	62.00	60.00
B=No. of students who graduated from the program in the stipulated course duration	49.00	59.00	58.00
Success Rate (SR)= (B/A) * 100	80.33	95.16	96.67

Average SR of three batches ((SR_1+ SR_2+ SR_3)/3): 90.72

B6. Academic Performance of the First-Year Students of the Program

Table No.B6.1: Academic Performance of the First-Year Students of the Program.

Academic Performance	CAYm1(2023-24)	CAYm2(2022-23)	CAYm3 (2021-22)
X=(Mean of 1st year grade point average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 1st year/10)	8.05	6.90	7.85
Y=Total no. of successful students	57.00	51.00	57.00
Z=Total no. of students appeared in the examination	54.00	48.00	54.00
API [X*(Y/Z)]	8.50	7.33	8.29

Average API[(AP1+AP2+AP3)/3] : 8.04

B7: Academic Performance of the Second Year Students of the Program

Table No.B7.1: Academic Performance of the Second Year Students of the Program.

Academic Performance	CAYm1 (2023-24)	CAYm2 (2022-23)	CAYm3 (2021-22)
X=(Mean of 2nd year grade point average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 2rd year/10)	8.24	7.60	8.19
Y=Total no. of successful students	50.00	56.00	51.00
Z=Total no. of students appeared in the examination	54.00	60.00	57.00
API [X * (Y/Z)]	7.63	7.09	7.33

Average API [(AP1 + AP2 + AP3)/3] : 7.35

B8. Academic Performance of the Third Year Students of the Program

Table No.B8.1: Academic Performance of the Third Year Students of the Program

Academic Performance	CAYm1 (2023-24)	CAYm2 (2022-23)	CAYm3 (2021-22)
X=(Mean of 3rd year grade point average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 3rd year/10)	8.41	7.79	8.25
Y=Total no. of successful students	54.00	49.00	59.00
Z=Total no. of students appeared in the examination	56.00	51.00	59.00
API [X*(Y/Z)]:	8.11	7.48	8.25

Average API [(AP1 + AP2 + AP3)/3] : 7.95

B9. Placement, Higher Studies, and Entrepreneurship

Table No.B9.1: Placement, higher studies, and entrepreneurship details.

Item	LYG (2020-21)	LYGm1(2019-20)	LYGm2(2018-19)
FS*=Total no. of final year students	61.00	60.00	60.00
X=No. of students placed	11.00	9.00	24.00
Y=No. of students admitted to higher studies	25.00	26.00	20.00
Z= No. of students taking up entrepreneurship	0.00	0.00	0.00
Placement Index(P) = (((X + Y + Z)/FS) * 100):	59.02	58.33	73.33

Average Placement Index = (P_1 + P_2 + P_3)/3: 63.56 Placement Index Points:

PART C: Faculty Details in Department and Allied Departments

(Data to be filled in for the Department and Allied Departments)

C1. Faculty details of Department and Allied Departments

Table No.C1: Faculty details in the Department for the past 3 years including CAY

Sr.No	Name of the Faculty	PAN No.	Highest degree	University	Area of Specialization	Date of Joining in this Institution	Experience in years in current institute	Designation at Time Joining in this Institution	Present Designation	The date on which Designated as Professor/ Associate Professor if any	Nature of Association (Regular/ Contract/ Ad hoc)	Currently Associated (Y/N)	In case of NO, Date of Leaving	IS HOD?
1	Srabanti Basu	XXXXXXX33M	Ph.D	University of Calcutta	Biochemistry and Environmental Biotechnology	01/07/2003	21.11	Lecturer	Professor	11/02/2016	Regular	Yes		Yes
2	Dipankar Chaudhuri	XXXXXXX23D	Ph.D	University of California	Bioinformatics and Drug Designing	18/10/2005	19.7	Assistant Professor	Professor	02/08/2017	Regular	Yes		No
3	Tapan Kumar Ghosh	XXXXXXX68K	Ph.D	IIT Kharagpur	Bioreactor and Bioprocess Technology	09/06/2004	20.11	Lecturer	Associate Professor	01/06/2021	Regular	Yes		No
4	Riddhi Goswami	XXXXXXX40H	Ph.D	University of Burdwan	Genetics and Genomics	23/07/2004	20.10	Lecturer	Associate Professor	01/06/2021	Regular	Yes		No
5	Soma Banerjee	XXXXXXX02B	Ph.D	University of Calcutta	Plant Biotechnology and Bioinformatics	10/03/2005	20.3	Lecturer	Associate Professor	01/06/2021	Regular	Yes		No
6	Sudipta Dey Bandyopadhyay	XXXXXXX96A	Ph.D	Jadavpur University	Biochemical Engineering, Bioprocess Technology	01/07/2005	19.11	Lecturer	Assistant Professor		Regular	Yes		No

7	Nandan Kumar Jana	XXXXXXX54D	Ph.D	University of Calcutta	Genetic Engineering, Proteomics	02/03/2007	18.3	Lecturer	Associate Professor	01/06/2021	Regular	Yes		No
8	Kakali Mukherjee	XXXXXXX18L	Ph.D	University of Calcutta	Molecular Biology, Food Biotechnology	30/07/2007	17.10	Lecturer	Assistant Professor		Regular	Yes		No
9	Ruplekha Chatterjee	XXXXXXX87H	Ph.D	University of Calcutta	Microbiology, Enzyme Technology	28/07/2009	15.10	Lecturer	Assistant Professor		Regular	Yes		No
10	Bhaswati Chakraborty	XXXXXXX97H	Ph.D	Jadavpur University	Biochemical Engineering, Bioprocess Technology	14/05/2008	17	Lecturer	Assistant Professor		Regular	Yes		No
11	Sonali Hazra Das	XXXXXXX63K	M.Tech	Maulana Abul Kalam Azad University of Technology, (formerly West Bengal University of Technology)	Microbiology, Environmental Biotechnology	11/01/2012	13.5	Assistant Professor	Assistant Professor		Regular	Yes		No
12	Plaban Chaudhuri	XXXXXXX61H	M.Tech	Jaypee University of Information Technology	Biochemistry, Immunology	01/07/2011	13.11	Assistant Professor	Assistant Professor		Regular	Yes		No
13	Debasmita Chatterjee	XXXXXXX43H	Ph.D	Jadavpur University	Genetics, Human Genomics	02/11/2020	4.7	Assistant Professor	Assistant Professor		Regular	Yes		No

Table No.C2: Faculty details of Allied Departments for the past 3 years including CAY.

C2. Student-Faculty Ratio (SFR)

No. of UG(Engineering) programs in Department including allied departments/ clusters (UGn):
UG1=1st UG program
UGn=nth UG program
B= No. of Students in UG 2nd year (ST)
C= No. of Students in UG 3rd year (ST)
D= No. of Students in UG 4th year (ST)
No. of PG (Engineering) programs in Department including allied departments/ clusters (PGm):
PG1=1st PG program.
PGm=mth PG program
A= No. of Students in PG 1st year
B= No. of Students in PG 2nd year
Student Faculty Ratio **(SFR)** = S/F
S= No. of students of all programs in the Department including all students of allied departments/clusters.
No. of students (ST)=Sanctioned Intake (SA)+ Actual admitted students via lateral entry including leftover seats (L) if any (limited to 10 % of SA)
Students who admitted under supernumerary quotas (SNQ, EWS, etc) will not be considered in calculating SFR value. Those students are exempted.
F=Total no. of regular or contractual faculty members (Full Time) in the Department, including allied departments/clusters (excluding first year faculty (The faculty members who have a 100% teaching load in the first-year courses)).

No. of UG Programs in the Department1 No. of PG Programs in the Department1
Table No.C2.1: Student-faculty ratio.

Description	CAY(2024-25)	CAYm1 (2023-24)	CAYm2 (2022-23)
UG1.B	60	63	63
UG1.C	63	63	61
UG1.D	63	61	60
UG1: Biotechnology	**186**	**187**	**184**
PG1.A	18	18	18
PG1.B	18	18	18
PG1: Biotechnology	**36**	**36**	**36**
DS=Total no. of students in all UG and PG programs in the Department	222	223	220
AS=Total no. of students of all UG and PG programs in allied departments	0	0	0
S=Total no. of students in the Department (DS) and allied departments (AS)	**S1=** 222	**S2=** 223	**S3=** 220
DF=Total no. of faculty members in the Department	13	13	13
AF= Total no. of faculty members in the allied Departments	0	0	0
F=Total no. of faculty members in the Department (DF) and allied Departments (AF)	**F1=** 13	**F2=** 13	**F3=** 13
FF=The faculty members in F who have a 100% teaching load in the first-year courses	0	0	0
Student Faculty Ratio (SFR)=S/(F-FF)	**SFR1= 17.08**	**SFR2= 17.15**	**SFR3= 16.92**
Average SFR for 3 years	**SFR= 17.05**		

C3. Faculty Qualification

- Faculty qualification index (FQI) = 2.5 * [(10X +4Y)/RF] where
- X=No. of faculty members with Ph.D. degree or equivalent as per AICTE/UGC norms.
- Y=No. of faculty members with M. Tech. or ME degree or equivalent as per AICTE/ UGC norms.
- RF=No. of required faculty in the Department including allied Departments to adhere to the 20:1 Student-Faculty ratio, with calculations based on both student numbers and faculty requirements as per section C2 of this documents: (RF=S/20).

Table No.C3.1: Faculty qualification.

Year	X	Y	RF	FQ = 2.5 x [(10X + 4Y) / RF)]
2024-25(CAY)	11	2	11.00	26.82
2023-24(CAYm1)	11	2	11.00	26.82
2022-23(CAYm2)	11	2	10.00	29.50

C4. Faculty Cadre Proportion

- Faculty Cadre Proportion is 1(RF1): 2(RF2): 6(RF3)
- RF1= No. of Professors required = 1/9 * No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per C2 of this documents:.
- RF2= No. of Associate Professors required = 2/9 * No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per section C2 of this documents:.
- RF3= No. of Assistant Professors required = 6/9 * No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per section C2 of this documents:.
- Faculty cadre and qualification and experience should be as per AICTE/UGC norms.

Table No.C4.1: Faculty cadre proportion details.

Year	Professors		Associate Professors		Assistant Professors	
	Required RF1	Available AF1	Required RF2	Available AF1	Required RF3	Available AF3

2024-25	1.00	2.00	2.00	4.00	7.00	7.00
2023-24	1.00	2.00	2.00	4.00	7.00	7.00
2022-23	1.00	2.00	2.00	4.00	7.00	7.00
Average	RF1=1.00	AF1=2.00	RF2=2.00	AF2=4.00	RF2=7.00	AF2=7.00

C5. Visiting/Adjunct Faculty/Professor of Practice

Table No. C5.1: List of visiting/adjunct faculty/professor of practice and their teaching and practical loads.

(CAYm1)

(CAYm2)

(CAYm3)

C6. Academic Research

Table No. C6.1: Faculty publication details.

S.No.	Item	2023-24 (CAYm1)	2022-23 (CAYm2)	2021-22 (CAYm3)
1	No. of peer reviewed journal papers published	8	8	10
2	No. of peer reviewed conference papers published	0	0	0
3	No. of books/book chapters published	0	2	7

C7. Sponsored Research Project

Table No. C7.1: List of sponsored research projects received from external agencies.

(CAYm1)

(CAYm2)

(CAYm3)

Total Amount (Lacs) Received for the Past 3 Years: NIL

Note*:

- Only sponsored research projects will be considered. Infrastructure-based projects will not be considered here.

C8. Consultancy Work

Table No. C8.1: List of consultancy projects received from external agencies.

(CAYm1)

(CAYm2)

(CAYm3)

Total amount (Lacs) received for the past 3 years:

Note*:

- Only consultancy projects will be considered. Infrastructure-based projects will not be considered here.

C9. Institution Seed Money or Internal Research Grant to its Faculty for Research Work

Table No. C9.1: List of faculty members received seed money or internal research grant from the Institution.

(CAYm1)

(CAYm2)

Faculty name	Project title/ Support for Activity	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25	Amount Utilized(Lacs) i.e. 15,25,000=15.25	Outcomes of the project
Dr. Debasmita Chatterjee	Apoptotic property of Nymphaea cerulea flower extract on Leukaemia cell line	3 years	6.50	6.28	Preparation of Anti-cancer agent (on the process), Publications
			Amount received (Rs.): 6.50		

(CAYm3)

Faculty name	Project title/ Support for Activity	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25	Amount Utilized(Lacs) i.e. 15,25,000=15.25	Outcomes of the project
Dr. Debasmita Chatterjee	Comparative study on cytokine regulation on SARS C0V-2 Spike Protein	3 years	12.00	11.00	Preparation of 'iAttos', 1 patent and 5 publications
			Amount received (Rs.): 12.00		

Total amount (Lacs) received for the past 3 years : 18.50

PART D: Laboratory Infrastructure in the Department

(Data to be filled in for the Department)

D1. Adequate and Well-Equipped Laboratories, and Technical Manpower

Table No.D1.1: List of laboratories and technical manpower.

Sr. No	Name of the Laboratory	Number of students per set up(Batch Size)	Name of the Important Equipment	Weekly utilization status(all the courses for which the lab is utilized)	Technical Manpower Support		
					Name of the Technical staff	Designation	Qualification
1	Biochemstry Lab	30	Hot ar oven, Table top centrifuge, Water bath, Auto analyzer, Spectrophotomter, Binocular miscroscope	12 hours	Munmun De	Technical Assistant	Diploma
2	Immunlogy Lab	30	ELISA reader,	12 hours	Munmun De	Technical Assistant	Diploma
3	Molecular Biology Lab	30	Deep Freezer, Incubator cum shaker, Refigerator, Table Top centrifuge, Autoclave	12 hours	Chayan Banerjee	Technical Assistant	M.Sc.

4	Recombinant DNA Technology Lab	30	Thermal Cycler, Gel electrophoresis, microcentrifuge, Stirrer with hot plate, UV trabsilluminator	12 hours	Chayan Banerjee	Technical Assistant	M.Sc.
5	Microbiology Lab	30	Binocular microscope (3 nos.), Laminar airflow, Weighing Balance, Incubator cum shaker, -40degree deep freezer	12 hours	Subhasree Sengupta	Technical Assistant	Ph.D
6	Food Biotechnology Lab	30	Binocular miscroscope (2 nos.), Laminar airflow, Floor shaker, Magnetic Stirrer, Microwave	12 hours	Subhasree Sengupt	Technical Assistant	Ph.D
7	Plant Tissue Culture Lab	30	Laminar airflow, Autoclave, Shaker, WEighing balance, pH meter, Double distillation unit, Hot plate	12 hours	Sharmistha Mukherjee	Technical Asssitant	M.Sc.
8	Genetics Lab	30	Binocular Miscroscope (5 nos.), Vertical laminar airflow, microwave, hot air oven, Fine Balance, Incubaor	12 hours	Sharmistha Mukherjee	Technical Assistant	M.Sc.
9	Fermentation Technology Lab	30	Visible Spectrophotometer, Fine balance, Laminar sirflow, Incubator cum shaker, Autoclave, Water bath cum shaker, Refrigerator	12 hours	Chandralekha Dasgupta	Technical Assistant	B.Tech.
10	Bioreactor Design Lab	30	Fermentor, Airlift bioreactor, Bubble Column bioreactor, mPacked bed bioreactor, Air compressor, Microcentrifuge, Turbidity meter, Table	12 hours`	Chandralekha Dasgupta	Technical Assistant	B.Tech.
11	R&D Lab	30	UV spectrophotometer, Lypholizer, pH meter, cold centrifuge, Heating mantle, Table Fermentor, Environmental Shaker, Environmental Incubator	12 hours	Abhishek Mukherjee	Technical Assistant	Ph.D

D2. Safety Measures in Laboratories

Table No. D2.1: List of various safety measures in laboratories.

Sr. No	Laboratory Name	Safety Measures
1	Molecular Biology & Recombinant DNA Technology	1. All the students must wear gloves while handling hazardous chemicals. 2. Gloves should also be worn during DNA isolation to avoid contamination. 3. All students must wear goggles while view DNA bands Agarose Gel through UV Transilluminator.
2	Plant tissue culture & Genetics	1. Autoclave should be handled with utmost caution. 2. All students should work carefully under the Laminar airflow cabinet. A first-aid kit is always kept handy.
3	Biochemistry & Immunology	1. Acids, chemicals and other reagents should be handled very carefully. 2. Pipetting should be done with utmost care. 3. Glassware should be handled with caution.
4	Microbiology & Food Biotechnology	1. All microbial strains should be handled very carefully to avoid any infection. 2. Pathogenic strains are avoided during laboratory experiments.
5	Fermentation Technology & Environmental Engineering	1. All bioreactors should be used following proper manual. 2. Working condition of pumps and compressors should be checked periodically. Do not immerse hot glassware in cold water. The glassware may break. 3. Do not place hot apparatus directly on the laboratory desk. Always use an insulated pad. Allow plenty of time for hot apparatus to cool before touching it.

6	Bioinformatics	1. All computers are used with specific User ID and Password. 2. Malware and spyware should be avoided while using internet. 3. No anonymous or pirated programme should be downloaded.

D3. Project Laboratory/Research Laboratory

The Department of Biotechnology, HITK has set up a state-of-the-art research centre - **Swami Vivekananda Centre for Advanced Biomedical Research** - with an effort to study the effect of different medicines on chronic human diseases at genetic level with a multidisciplinary approach. High precision equipments like RT-PCR (Bio-Rad USA), UV-Visible Spectrophometer (Agilant Inc. USA), cold centrifuge (Systronics USA), -80°C Deep Freezer (Blue Star) and Biosafety Cabinet have been installed. There is also a full-fledged Animal Tissue Culture analysis section with a CO_2 incubator with several disease cell lines for in-depth analysis. Initially, we have focused on finding genetic correlations between treatment failure cases with successful cases of Hypertension, Type-2 Diabetes Mellitus, Parkinsonism and Rheumatoid Arthritis. We hope to find the answers to several critical questions related to genetic alterations in human diseases and reduce the sufferings in the public health domain. Some of the current major research focus areas of the lab are as follows:

·Study of gene expression on gingival tissue as a postmortem interval indicator (PMI).

·Study of mRNA gene expression among Diabetic Periodontitis patients.

·Study of different bacterial and viral genes obtained from artifacts and ecofacts of Chandraketugarh, West Bengal.

·Anti-bacterial efficacy study of *Nymphaea cerulea* (Blue Lotus) extract against Multi-drug resistant (Extended Spectrum β-Lactamase – ESBL) *Escherichia coli* by gene expression assay.

·Culture and 16 S rRNA gene sequencing of bacteria isolated from Bakreswar Hot Water Spring.

·Study on Adenovirus gene expression from nasal swab sample.

·Anti-cancer effect of *Cassia fistula* flower on Leukaemia Cell line (THP1).

·Anti-cancer effect of *Nymphaea cerulea* (Blue Lotus) flower on Hepato-cellular Carcinoma Cell line (HepG2) and Leukaemia Cell line (THP1).

·Explore the cellular mechanisms of leukaemia cell death by blue lotus extract.

The laboratory has published the following research papers in the last 4 years:

2024- 2025

1. Paira K, Chatterjee D, Ghosh S, Goswami P, Das S. Ultra-Diluted Gelsemium Sempervirens a Known Dna Topoiso-merase i (Top i) Inhibitor Exerts Protective Action Against Sars-Cov-2 Rbd Induced Cytokine Dysregulation. Trends in Immunotherapy. 2025 Mar 28;9(2):1-2.
2. Chatterjee D, Paira K, Das S. Death of THP-1 leukaemia cells by Cassia fistula flower extract. Bulletin of Pharmaceutical Sciences Assiut University. 2025 Jun 1;48(1):481-96.

2023- 2024

3. Chatterjee D, Paira K, Das S. Comparative action of alternative medicines Arsenicum Album 30CH and Phosphorus 30CH for balancing cytokines gene expressions in SARS-CoV-2 spike protein induced pathological changes. Bulletin of Pharmaceutical Sciences Assiut University. 2024 Jun 1;47(1):321-33.
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PART E: First Year faculty and financial Resources

(Data to be filled in for the first year course faculty and budget allocation and utilization)

E1. First Year Student-Faculty Ratio (FYSFR)

Table No. E1.1: FYSFR details.

Year	Sanctioned intake of all UG programs (S4)	No. of required faculty (RF4= S4/20)	No. of faculty members in Basic Science Courses & Humanities and Social Sciences including Management courses (NS1)	No. of faculty members in Engineering Science Courses (NS2)	Percentage= No. of faculty members ((NS1*0.8) + (NS2*0.2))/(No. of required faculty (RF4)); Percentage=((NS1*0.8) + (NS2*0.2))/RF
2022-23(CAYm2)	1020	51	42	67	92
2023-24(CAYm1)	1020	51	42	68	93
2024-25(CAY)	1020	51	40	68	89

E2. Budget Allocation, Utilization, and Public Accounting at Institute Level

Table No. E2.1: Budget and actual expenditure incurred at Institute level.

Items	Budgeted in 2024-2025	Actual Expenses in 2024-2025 till	Budgeted in 2023-2024	Actual Expenses in 2023-2024 till	Budgeted in 2022-2023	Actual Expenses in 2022-2023 till	Budgeted in 2021-2022	Actual Expenses in 2021-2022 till
Infrastructure Built-Up	0	0	0	0	0	0	0	0
Library	2000000	1527000	2000000	1286000	4500000	1523000	1500000	1715000
Laboratory equipment	13500000	14931000	13500000	10552000	5000000	11811000	2500000	3539000
Teaching and non-teaching staff salary	391800000	378009000	372500000	362743000	370500000	346368000	338000000	337655000
Outreach Programs	500000	594000	500000	642000	500000	812000	500000	495000
R&D	6000000	5404000	6000000	5372000	5000000	5578000	5000000	4252000
Training, Placement and Industry linkage	4700000	4258000	4500000	4013000	1700000	1096000	500000	400000
SDGs	500000	364000	700000	650000	400000	335000	200000	239000
Entrepreneurship	700000	666000	500000	504000	0	0	0	0
Others, specify	114300000	101513000	100000000	106463000	97100000	92409000	79300000	70632000

Total	**534000000**	**507266000**	**500200000**	**492225000**	**484700000**	**459932000**	**427500000**	**418927000**

E3. Budget Allocation, Utilization, and Public Accounting at Program Specific Level

Table No. E3.1: Budget and actual expenditure incurred at program level.

Items	**Budgeted in 2024-2025**	**Actual Expenses in 2024-2025 till**	**Budgeted in 2023-2024**	**Actual Expenses in 2023-2024 till**	**Budgeted in 2022-2023**	**Actual Expenses in 2022-2023 till**	**Budgeted in 2021-2022**	**Actual Expenses in 2021-2022 till**
Laboratory equipment	500000	443000	500000	334000	2000000	1693000	100000	114000
Software	200000	183000	100000	52000	100000	46000	100000	137000
SDGs	50000	18000	50000	32000	50000	17000	50000	13000
Support for faculty development	600000	695000	50000	25000	50000	34000	50000	0
R & D	500000	507000	500000	776000	1000000	926000	2000000	1910000
Industrial Training, Industry expert, Internship	250000	180000	100000	89000	100000	39000	100000	15000
Miscellaneous	500000	578000	1000000	985000	1000000	1043000	200000	237000
Total	**2600000**	**2604000**	**2300000**	**2293000**	**4300000**	**3798000**	**2600000**	**2426000**