

# **Bengal Institute of Technology**

(C-6294)

Tech Town, Basanti Highway, Kolkata – 700150,

West Bengal, India

IIC ID: IC201912466

# Institution's Innovation Council 4.0 Annual Report 2021-2022



# A. About IIC-Bengal Institute of Technology

The IIC cell is setup in the institute toinspire the imaginative potential of our student society to work on new ideas and innovation and assist them to create start-ups and entrepreneurial ventures. The Institution's Innovation Council at Bengal Institute of Technology focuses on creating a complete ecosystem to foster the culture of Innovation across the campus from ideas generation to pre-incubation, incubation and after graduation as successful start-ups. IIC is set up to inspire the innovative energy of our students to work on new ideas and promote them to create start and entrepreneurial ventures.

#### Vision:

To provide the needs of students as well as faculty entrepreneurs with innovative ideas of social relevance and thereby propagating a culture of entrepreneurship in the campus this will encourage our education system and thereby expanding the national economic and social advancement.

#### Mission:

To produce a system with the required infrastructure that can empower students and faculty to innovate and prototype their ideas with industrial standards and support from Government, industry and reputed academic institutions around the world and help them to actualise their potentials.

# **Objectives of IIC BIT:**

- Students/Faculty associated with IICs will have exclusive opportunity to participate in various Innovation related initiatives and competitions organized from institution level to international level.
- Meet/Interact renowned Business Leaders and top-notch academicians.
- Opportunity to nurture and prototype new ideas.
- Mentoring by industry Professionals.
- Experiment with new technologies.

## B. Brief mention of key functionaries at the IIC Institute

Head of the Institution: Prof. (Dr) Narayan Chandra Ghosh, Principal, BIT

President : Dr Arpita Chakraborty
Vice President : Dr Tapan Kumar Pal
Convener : Debalina Barik

#### **Faculty Coordinators of IIC Council:**

Serial No.	Name	Department	Designati	on Position
1	Sandipan Sahu	CSE/IT	Assistant Professor	ARIIA Coordinator, Member
2	Moutan Mukhopadhyay	CSE/IT	Assistant Professor	NISP Coordinator, Member

3	Shovon Nandi	ECE	Assistant Professor	NIRF Coordinator, SDA Coordinator
4	Dr SauravKanti Sarkar	Biotechnology	Assistant Professor	Start up Activity Coordinator,Member
5	Debasish Pradhan	Basic Science	Assistant Professor	Member
6	Bulbul Mukherjee	CSE/IT	Assistant Professor	IPR Activity Coordinator, IIC Calendar activity Coordinator
7	Antara Mukherjee	ECE	Assistant Professor	Internship Activity Coordinator, Member
8	Banani Raychowdhury	Biotechnology	Assistant Professor	Innovation Activity Coordinator, Member
9	Tripti Majumdar	CSE/IT	Assistant Professor	Social Media Coordinator, Member

# **External Members of IIC Council:**

Name	Organization	Role	Member
Partha Dasgupta	Ascentspark Software Private Limited	Members	Start-up/ Alumni Entrepreneur
Krishnendu Ghosh	IDBI Bank Ltd.	Members	Bank/Investor
Satanik Roy	hyperXchange	Members	Start-up/ Alumni Entrepreneur
Hiralal Singh	HBHR Consultancy	Members	Expert from nearby Industry/Industry association/ Ecosystem Enablers
Sayantan Mookherjee	221BBaker Street	Members	Start-up/ Alumni Entrepreneur

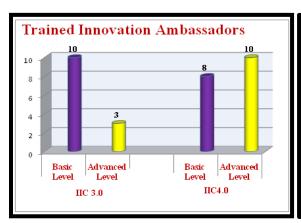
# **Innovation Ambassadors:**

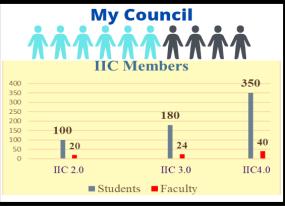
Sl. No	Name	Department	Course Completed
1	Shovon Nandi	ECE	Advance Course
2	Rajesh Roy	Basic Science	Advance Course
3	Ajanta Palit	ECE	Advance Course
4	Bulbul Mukherjee	CSE/IT	Advance Course
5	Tripti Majumdar	CSE/IT	Advance Course

6	Debalina Barik	CSE/IT	Basic Course
7	Tapan Kumar Pal	Bio-Tech	Basic Course
8	Antara Mukherjee	ECE	Basic Course
9	Kuntala Das	ECE	Basic Course
10	Souvik Dey	ECE	Basic Course
11	Subhra Sarkar	CSE/IT	Basic Course
12	Dwaipayan Chakraborty	Basic Science	Basic Course

# C. Portfolio of the Institute:

Total No. of IIC Members :350
Total No. of IAs :20
Total No. of faculty Mentors :15
Pre-Incubation Units, If any :Yes
Incubation Units, If any :No
IP Facilitation Unit, If any :Yes





The IIC Calendar Activities are distributed in four quarters. Every quarter comprises IIC Calendar activity, MIC Driven Activity, Self-Driven activityand Special Day Celebration activities. IIC Calendar activity and Self driven activities are planned and conducted by the IIC members for the benefit of its students and faculty members.



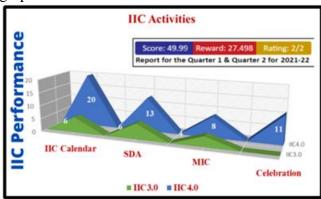
# D. Facilities, Infrastructure of Pre-Incubation & Innovation and Entrepreneurship available in the campus:

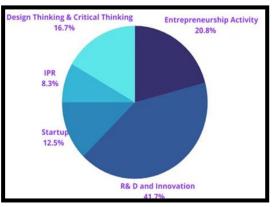
To carry out the activities recommended by IIC, several cells have been formed in the institute, like:

- Innovation Cell
- ☐ Entrepreneurship & Development Cell (EDC)
- ☐ Start up cell
- ☐ IPR cell
- ☐ Maker's Space
- Incubation Cell
- □ NISP cell
- ☐ Innovation Ambassador Cell

# E. Highlight IIC activities:

Activities conducted through out the year under different categories have been shown through graphs as well as table.





Serial No.	Events Conducted in IIC 4.0	Type	Quarter
1	My Story - Motivational Session by Successful Entrepreneur/Start-up founder.	IIC Calendar Activity	Quarter I
2	Workshop on "Entrepreneurship and Innovation as Career Opportunity"	IIC Calendar Activity	Quarter I
3	My Story - Motivational Session by Successful Innovators.	IIC Calendar Activity	Quarter I
4	India Startup Day	Celebrations	Quarter I
5	National Education Day	Celebrations	Quarter I
6	Discovering Myself- an Entrepreneurial Journey (NISP)	Self-driven Activity	Quarter I

7	A Three Days Workshop on IoT using Arduino	Self-driven Activity	Quarter I
8	Middleware a pillar in modern day application Integration	Self-driven Activity	Quarter I
9	Interfacing with Raspberry Pi	Self-driven Activity	Quarter I
10	Workshop on Design Thinking, Critical thinking and Innovation Design	IIC Calendar Activity	Quarter II
11	Workshop on Entrepreneurship Skill, Attitude and Behavior Development	IIC Calendar Activity	Quarter II
12	Orientation Session on IIC4.0 & Features	MIC driven Activity	Quarter II
13	E-Symposium on Building Innovation Ecosystem in Educational Institutions- Day 1 (11th Jan 2022)	MIC driven Activity	Quarter II
14	E-Symposium on Building Innovation Ecosystem in Educational Institutions- Day 2 (12th Jan 2022)	MIC driven Activity	Quarter II
15	National Energy Conservation Day(India)	Celebrations	Quarter II
16	National Pollution Control Day	Celebrations	Quarter II
17	National Science Day	Celebrations	Quarter II
18	Cloud Computing - Benefits and Trends	Self-driven Activity	Quarter II
19	Session on Achieving Problem-Solution Fit & Product-Market Fit	IIC Calendar Activity	Quarter II
20	National Innovation Day	Celebrations	Quarter I
21	Hands-on Deeplearning	Self-driven Activity	Quarter II
22	Genz Tech-A-Thon	Self-driven Activity	Quarter II
23	Field/Exposure Visit to Pre-incubation units such as Fab lab, Makers Space, Design Centres, City MSME clusters, workshops etc.	IIC Calendar Activity	Quarter II
24	Pitching Event for PoCs developed & linkage with Innovation Ambassadors for mentorship support	IIC Calendar Activity	Quarter II
25	Exposure and field visit for problem identification	IIC Calendar Activity	Quarter I
26	Tech Quiz	Self-driven Activity	Quarter II
27	Demo Day/Exhibition/Poster Presentation of Business Plan/Prototype developed & linkage with Innovation Ambassadors for mentorship support.	IIC Calendar Activity	Quarter III
28	Workshop on Prototype/Process Design and Development - Prototyping	IIC Calendar Activity	Quarter III
29	Field/Exposure Visit to Incubation Unit/Patent Facilitation Centre/Technology Transfer Centre	IIC Calendar Activity	Quarter III

30	Workshop on Intellectual Property Rights (IPRs) and IP management for start up	IIC Calendar Activity	Quarter III
31	Creation of e-Repository of e-Learning Sessions on I&E at IIC Institute	MIC driven Activity	Quarter III
32	Refer Institutions & Earn Reward Points	MIC driven Activity	Quarter III
33	National Technology Day	Celebrations	Quarter III
34	World Intellectual Property Day	Celebrations	Quarter III
35	World Earth Day	Celebrations	Quarter III
36	Technical Seminar on Cyber Security & Personal Safety	Self-driven Activity	Quarter III
37	Poster Presentation Event on "Innovative Business Idea"	Self-driven Activity	Quarter III
38	GenZ Tech-A-Thon (A part of Smart India Hackathon)	Self-driven Activity	Quarter III
39	Technical webinar on "APPLICATION OF MACHINE LEARNING & DATA SCIENCE: RESEARCH PERSPECTIVE"	Self-driven Activity	Quarter III
40	Technical webinar on "MOST IMPORTANT MATHEMATICAL TOOLS TO LEARN DATA SCIENCE"	Self-driven Activity	Quarter III
41	Technical webinar on "LEARN DATA SCIENCE WITH PYTHON"	Self-driven Activity	Quarter III
42	Out of the box thinking for problem solving	MIC driven Activity	Quarter IV
43	Building Institute Level YUKTI - National Innovation Repository (NIR)	MIC driven Activity	Quarter IV
44	Participation of IIC Institutions in IIC Regional Meets	MIC driven Activity	Quarter IV
45	IIC Annual Report 2021-22	MIC driven Activity	Quarter IV
46	World Environment Day	Celebrations	Quarter IV
47	World Entrepreneurs Day	Celebrations	Quarter IV
48	Innovation & Entrepreneurship in HEIs for Aatmanirbhar Bharat & Celebrating 75 Years of Independence -Azadi Ka Amrit Mahotsav	Celebrations	Quarter IV
49	Developing Online Repository of Start-ups Developed/incubated and Way forward plan	IIC Calendar Activity	Quarter IV
50	Session on Innovation/Prototype Validation – Converting Innovation into a Start-up or Session on Achieving "Value Proposition Fit" & "Business Fit"	IIC Calendar Activity	Quarter IV

51	Demo Day/Exhibition/Poster Presentation of Start-ups developed & linkage with Innovation Ambassadors for mentorship support.	IIC Calendar Activity	Quarter IV
52	The Solution of Problems associated with Entrepreneur and Start-Up-Ideas.	Self-driven Activity	Quarter IV
53	Innovative Paths of Entrepreneurship: from Mathematics to Start ups	Self-driven Activity	Quarter IV
54	Technical workshop on Entrepreneurial Skill Development on Drone Technology: QuadX	Self-driven Activity	Quarter IV
55	QUIZ SCRIPT- Technical Quiz with Innovative ideas and Entrepreneurial Perspective	Self-driven Activity	Quarter IV
56	Session on Accelerators/Incubation - Opportunities for Students & Faculties - Early Stage Entrepreneurs	IIC Calendar Activity	Quarter IV
57	Session on Angel Investment/VC Funding Opportunity for Early Stage Entrepreneurs.	IIC Calendar Activity	Quarter IV

# F. Achievementsof BIT in IIC4.0 Calendar

# **Faculty Achievements:**

# Prof. Tripti Majumdar

Completed the **Advanced Innovation Ambassador** Program successfully.

# Prof. Bulbul Mukherjee

Completed the **Advanced Innovation Ambassador** Program successfully.

# Prof. Ajanta Palit

Completed the **Advanced Innovation Ambassador** Program successfully.

## Dr. Jyoti Sekhar Banerjee

Prof. (Dr.) Jyoti Sekhar Banerjee has filed two patents along with students.

• Title of the invention: "ELECTRONIC USER FEES COLLECTION SYSTEM AT TOLL PLAZA FOR UNIDIRECTIONAL ROADS"

[Application No.202031018593 A]

Name of Inventor: 1) Rohit Roy 2) Prodyumna Chatterjee 3) Sagnick Biswas 4) SayakSaha 5)

Jyoti Sekhar Banerjee 6) Ravi Ranjan

Date of filing of Application :30/04/2020

Publication Date: 12/06/2020

• Title of the invention: "INTELLIGENT WATER METERING SYSTEM"

[Application No.202031054081 A]

Name of Inventor: 1) Dr. Jyoti Sekhar Banerjee 2) Sagnick Biswas 3) Labhvam Kumar Sharma 4) SayakSaha 5) Ravi Ranjan

Date of filing of Application: 11/12/2020

Publication Date: 05/02/2021

• A Cloud Based Distributed Intelligent Colorimeter System for Predicting the Purity of Color of Any Object, German Patent and Trade Mark Office,

Date of Registration: 30.6.22, Class Type: Utility Model, File Number: 20 2022 103 464.8

# Dr. Arpita Chakraborty

- Under Prof. Arpita Chakraborty's supervision a team (Team: Start-Up Overflow) of students took part in the **Grand Finale of SIH 2022**, **Software edition**.
- Under Prof. Arpita Chakraborty's supervision a team (Team: Uninox) of students took part in "Toycathon" organized by MHRD.
- Under Prof. Arpita Chakraborty's supervision a Team: Uninox bagged 2<sup>nd</sup> prize (Rs.15,000 cash prize) in "Virtual Toy Hackathon" organized by Techno India Group (TIG).
- She has published many papers with students also.
  - O S. Guhathakurata, S. Saha, S. Kundu, A. Chakraborty, J. S. Banerjee, "South Asian Countries Are Less Fatal Concerning COVID-19: A Fact-finding Procedure IntegratingMachine Learning & MCDM Technique". Journal of The Institution of Engineers (India): Series B, Springer, https://doi.org/10.1007/s40031-021-00547-z, 2021, (Scopus).
  - **O** S. Guhathakurata, S. Kundu, **A. Chakraborty**, J. S. Banerjee, "A Novel Approach to Predict COVID-19 Using Support Vector Machine". In Data Science for COVID-19, Elsevier (press), 2021, (**WoS, Scopus**).
  - **O** J. Chattopadhyay, S. Kundu, **A. Chakraborty**, J. S. Banerjee, "Facial expression recognition for human computer interaction", New Trends in Computational Vision and Bio-inspired Computing: Selected works presented at the ICCVBIC 2018, Springer, 1181-1192, 2020, (**WoS, Scopus**).
  - **O** S. Guhathakurata, S. Saha, S. Kundu, **A. Chakraborty**, J. S. Banerjee, "A New Approach to Predict COVID-19 using Artificial Neural Networks". In Cyber-Physical Systems: AI and COVID-19, Elsevier (press), 2021, (**WoS, Scopus**).
  - **O** S. Biswas, L.K. Sharma, R. Ranjan, S. Saha, **A. Chakraborty**, J. S. Banerjee, "Smart Farming & Water Saving Based Intelligent Irrigation System Implementation using the Internet of Things",In Recent Trends in Computational Intelligence Enabled Research, Elsevier (press), 2021, (**WoS, Scopus**).

#### Prof. Debalina Barik

- Judged a Debate Competition for an IIC Event.
- O Judged an Essay Competition for an IIC Event
- O Published a paper. Details are as follows:-

**D. Barik**, S.K.Guha and S. Phani"Study of Fake News Detection Techniques using Machine Learning" In International Conference on Information and Communication Technology for Intelligent Systems, ISSN Number - 2190-3018, Series: https://www.springer.com/series/8767 (*In press*), 2022.

## **Students' Achievements:**

## **Team Brogrammers1**

They had won the **Smart India Hackathon 2022 (SIH-2022)** for the problem statement GM750 under the Ministry of Culture.

#### SuvroneelNathak

- 1. First Prize and Recommendation Letter in Edge CA 2021, Techno Salt Lake.
- 2. Participated in Competitive Coding Heist by PrepBytes &EonClub.
- 3. Editor Of The Month June 2021.

#### Ishita Chanda

Got 1st Position in Quad-X organized by Tech Fest of Bengal Institute of Technology.

# Souvagya Ghosh

- 1. Got 1st Position in Quad-X organized by Tech Fest of Bengal Institute of Technology.
- 2. Got 3<sup>rd</sup> Position in Circuit Quiz organized by Tech Fest of Bengal Institute of Technology.

## **G.** Selected best Innovations & images:

# **FUNDED PROJECT:**

Project Name: IMPLEMENTATION OF IOT BASED INTELLIGENT IRRIGATION SYSTEM FOR SMART FARMING & WATER SAVING

Institution of Engineers (India) (Kolkata)

2019-2021 (Completed)

Role: Guide

GRANT\_NUMBER: UG2020026, 2019

#### **INNOVATIVE PROJECTS:**

Innovative Projects have been done under several categories like: Hardware, Software, Biotechnology based projects, Autonomous robots based projects, and Drone based Projects.





# H. Few Patents and Start ups founded & under processing as of now:

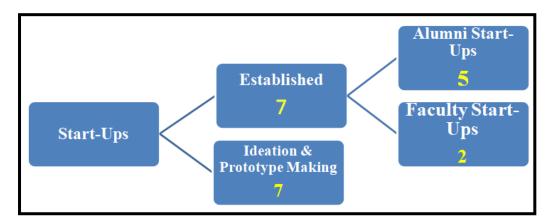
# **PATENTS:**

- 1. **Electronic User Fees Collection System at Toll Plaza for Unidirectional Roads**, The Indian Patent Office Journal No. 24/2020, Application number: 202031018593 A 2.
- 2. **Intelligent Water Metering System**, The Indian Patent Office Journal No. 06/2021, Application number: 202031054081 A
- 3. A Cloud Based Distributed Intelligent Colorimeter System for Predicting the Purity of Color of Any Object, German Patent and Trade Mark Office, Date of Registration: 30.6.22, Class Type: Utility Model, File Number: 20 2022 103 464.8

- 4. A process for preparing Herbal yogurt (dahi) with enhanced nutritive values and rich in antioxidant content. Applied for patent dated 11.08.2003. Indian Patent no. 721/CAL/02. Accepted.
- 5. 5. A Process for preparing storage stable, Low-fat and Low-cholesterol Goat meat. Applied for patent dated 10.11.04. Indian Patent No. 221577, Application No. 703/KOL/2004. Accepted in 25.06.2008.

# **START UPs:**

Both students and faculty members have taken the initiative of initiating start up ideas. Few have already been established, and others have been under mentoring.



The names of the students whose Start ups got established already and their corresponding links are given in the following table:

Student's Name	Start Up Organization Name	Domain of Start Up	Linkedin link/ Website link
Abhijeet Barman	Merit Academy	Edutech Consultancy with Offline JEE- NEET Classes	https://www.f6s.com/ er.abhijitbarman
Belal Ahmed	CrypWave – Fleapo	E-commerce solutions	https://in.linkedin.co m/in/belalahmad20
Partha Dasgupta	Ascentspark Software Pvt. Ltd.	Mobile and Web application development and business automation solutions	https://in.linkedin.co m/in/ascentspark
Sayantan Mookherjee	221 B Baker ST	Business Consulting and Services	https://in.linkedin.co m/in/cyan- mookherjee-90510

# I. List worth mentioning Technologies Developed at the institute:

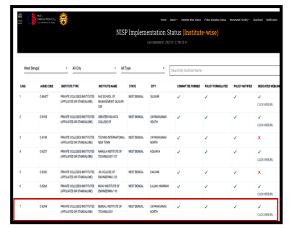
- Title of the invention: "ELECTRONIC USER FEES COLLECTION SYSTEM AT TOLL PLAZA FOR UNIDIRECTIONAL ROADS"
- Title of the invention: "INTELLIGENT WATER METERING SYSTEM"
- Title of the invention: "AN ONLINE QR-BASED TICKETING SYSTEM FOR GOVERNMENT MONUMENTS, WITH CROWD PREDICTION."
- Title of the invention: "KARNA & GAURI: A KID-TO-KID LEARNING"
- Title of the invention: "HERBAL PEEL OFF MASK"

# J. Participation in Innovation & Entrepreneurship Initiatives:

The college has been a continuous rank holder in the National Institutional Ranking Framework (NIRF) organized by the Ministry of Education (MoE), Government of India, for the assessment years 2016, 2018, and 2020 for earning its excellence in the teaching-learning processes and research practices.

- ☐ Establishment of Institution's Innovation Council (IIC) as per the norms of Innovation Cell, Ministry of HRD, Govt. of India during IIC Calendar year **2018-19**
- Participating in the Atal Ranking of Institutions on Innovation Achievement (**ARIIA**) (ARI-C-6294) for the last 4 years and currently is in the "**Band Promising**" category.
- The institution also adopted National Innovation and Start-up Policy (**NISP**), formed the working committee and **NISP policy formulation has been approved**.





**Important NISP Policies adopted** 

Updated in the Website & verified by MOE

We have participated in the Smart India Hackathon (SIH) from its inception. 2 Teams had participated in the SIH Grand Finale of 2022 Software Edition. And our team Brogrammers1 had won the Smart India Hackathon 2022 (SIH-2022) for the problem

**statement GM750 under the Ministry of Culture**under the mentorship of Prof Nilarun Mukherjee.









Our students S.Biswas, R. Ranjan, S. Saha, and L. K. Sharma, **Joint Winners**, **Bengalathon**, **2020 conducted by Department of Information Technology and Electronics**, **Govt. of West Bengal** under the mentorship of Dr. Jyoti Sekhar Banerjee.



# **K.Social media& Connections:**

Social media	Link
Facebook Link	https://www.facebook.com/bitcollegetechno
Twitter Link	https://twitter.com/bitcollegetechn?s=08
Linkedin Link	https://www.linkedin.com/school/bengal-institute-oftechnology/
Instagram Link	https://instagram.com/bit_kolkata?igshid=YmMyMTA2M2Y=

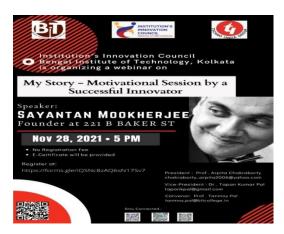
# L. Testimonials:

## **Text Testimonials:**



2. "IIC-BIT is doing a fantastic job of keeping the innovative vibe moving. The participants come away from each workshop with renewed enthusiasm for their work."

.....Mr Sayantan Mookherjee





4. "I'm really proud to get an opportunity to deliver workshop in BIT. I'm completely blown away by such a lovely audience of thoughtfulness and their dedication to this workshop. I also want to appreciate and value your perspective as it means a lot."

.....Mr Ankur Biswas



5. "I'm overwhelmed with the activities of IIC BIT and wish them great activities further. Faculties are motivating enough and innovative students are assets of IIC BIT."

...... Mr Sabyasachi Mukhopadhyay



## Video Testimonial Links:

1. Dr. Mahendra Prasad Agasty, Convener, SIT; Mentor of IIC BIT

 $\underline{https://drive.google.com/file/d/1I43POEzmjvcFXtvIN3S5o9DfZMJhaSEg/view?usp=sharing}$ 

2. Dr. N. C. Ghosh, Principal (Head of the Institute), BIT

https://drive.google.com/file/d/1rkokPuwSo3OTfro0OhGWY1fsi\_Ag3vUh/view?usp=sharing

# M. Some of the Glimpses of IIC4.0 Events:



**Introduced STAR CHAMP Award by IIC4.0 BIT** 



**Internal HackathonSIH22** 



**Judges of Internal SIH22 Hackathon** 





Students were demonstrating projects in Internal SIH22







Winners of Internal SIH 2022





**Conduction of Council Meeting** 

Felicitating Guest (a successful Entrepreneur) after



**Celebration of World Environment Day** 





Participation in MIC conducted events by Faculties and Students





Celebration of World Entrepreneurship Day





Prize distribution program to motivate the students



Participation in Regional Meet (ERO) & delivered speech in track 1(IIC related Activities) as one of the best performing IICs





**Celebration of National Technology Day** 





Event on Cyber security & Personal safety

Celebration of World Intellectual Day



Celebration of World Earth Day









Observed Azadi ka Amrit Mahotsav as one of the Celebration Activities

# N. Contact:

Website:	https://www.bitcollege.in/
College address:	1 no. Govt. Colony (on Basanti Highway),Kolkata-700150, West Bengal, India
Corporate address:	EM-4/2, Sector-V, Salt Lake, Kolkata-700091, West Bengal, India
Contact:	+91-6292219053 / 6292219054

# - END OF REPORT -

## **BROCHURE**

