

NATIONAL BOARD OF ACCREDITATION

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

Program Name : Ceramic Engineering	Discipline : Engineering & Technology
Level : Under Graduate	Tier : 1
Application No : 10645	Date of Submission : 02-06-2025

PART A- Profile of the Institute

A1.Name of the Institute : NATIONAL INSTITUTE OF TECHNOLOGY, ROURKELA	
Year of Establishment : .	Location of the Institute:
A2. Institute Address :NATIONAL INSTITUTE TECHNOLOGY	
City:ROURKELA	State:Odisha
Pin Code:769008	Website:www.nitrkl.ac.in
Email:REGISTRAR@NITRKL.AC.IN	Phone No(with STD Code):0661-2472050
A3. Name and Address of the Affiliating University (if any) :	
Name of the University : NIL	City:
State :	Pin Code:
A4. Type of the Institution : NIT	
A5. Ownership Status :	

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

- No. of UG programs: **16**
- No. of PG programs: **35**

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	Architecture	UG	Architecture	2013	--	Architecture
2	Engineering & Technology	UG	Artificial Intelligence and Data Science	2024	--	Computer Science and Engineering
3	Engineering & Technology	PG	Biomedical Engineering	2007	--	Biotechnology and Medical Engineering
4	Engineering & Technology	UG	Biomedical Engineering	2007	--	Biotechnology and Medical Engineering
5	Engineering & Technology	UG	Biotechnology	2007	--	Biotechnology and Medical Engineering
6	Engineering & Technology	PG	Biotechnology	2007	--	Biotechnology and Medical Engineering
7	Engineering & Technology	UG	Ceramic Engineering	1994	--	Ceramic Engineering
8	Engineering & Technology	PG	Ceramic Engineering (Integrated/Dual)	2010	--	Ceramic Engineering
9	Engineering & Technology	UG	Chemical Engineering	1963	--	Chemical Engineering

10	Engineering & Technology	PG	Chemical Engineering	1981	--	Chemical Engineering
11	Engineering & Technology	PG	Chemical Engineering (Integrated/Dual)	2010	--	Chemical Engineering
12	Engineering & Technology	UG	Civil Engineering	1961	--	Civil Engineering
13	Engineering & Technology	PG	Communication and Networks	2012	--	Electronics and Communication Engineering
14	Engineering & Technology	PG	Computer Science and Engineering	1995	--	Computer Science and Engineering
15	Engineering & Technology	UG	Computer Science and Engineering	1986	--	Computer Science and Engineering
16	Engineering & Technology	PG	Control and Automation	2010	--	Electrical Engineering
17	Engineering & Technology	PG	Cryogenic and Vacuum Technology	2013	--	Mechanical Engineering
18	Engineering & Technology	UG	Electrical Engineering	1961	--	Electrical Engineering
19	Engineering & Technology	UG	Electronics & Communication Engineering	2004	--	Electronics and Communication Engineering
20	Engineering & Technology	UG	Electronics & Instrumentation Engineering	1987	--	Electronics and Communication Engineering
21	Engineering & Technology	PG	Electronics & Instrumentation Engineering	2010	--	Electronics and Communication Engineering
22	Engineering & Technology	PG	Electronics Systems & Communication	2003	--	Electrical Engineering
23	Engineering & Technology	PG	Energy and Environmental Engineering	2018	--	Chemical Engineering
24	Engineering & Technology	PG	Environmental Engineering	2023	--	Civil Engineering
25	Engineering & Technology	UG	Food Processing and Engineering	2013	--	Food Processing and Engineering
26	Engineering & Technology	PG	Food Processing and Engineering	2018	--	Food Processing and Engineering
27	Engineering & Technology	PG	Geotechnical Engineering	1971	--	Civil Engineering
28	Engineering & Technology	PG	Industrial Ceramics	2012	--	Ceramic Engineering
29	Engineering & Technology	UG	Industrial Design	2010	--	Industrial Design
30	Engineering & Technology	PG	Industrial Design	2013	--	Industrial Design
31	Engineering & Technology	PG	Information Security	2007	--	Computer Science and Engineering
32	Engineering & Technology	PG	Machine Design & Analysis	1970	--	Mechanical Engineering
33	Engineering & Technology	PG	Manufacturing and Automation Engineering	1970	--	Mechanical Engineering
34	Engineering & Technology	UG	Mechanical Engineering	1961	--	Mechanical Engineering
35	Engineering & Technology	UG	Metallurgical & Materials Engineering	1963	--	Metallurgical and Materials Engineering

36	Engineering & Technology	PG	Metallurgical and Materials Engineering	1970	--	Metallurgical and Materials Engineering
37	Engineering & Technology	PG	Metallurgical and Materials Engineering (Integrated/Dual)	2010	--	Metallurgical and Materials Engineering
38	Engineering & Technology	PG	Microwave & Radar Engineering	2018	--	Electronics and Communication Engineering
39	Engineering & Technology	PG	Mining Engineering	2013	--	Mining Engineering
40	Engineering & Technology	UG	Mining Engineering	1979	--	Mining Engineering
41	Engineering & Technology	PG	Mining Engineering (Integrated/Dual)	2010	--	Mining Engineering
42	Engineering & Technology	PG	Power Electronics & Drives	2007	--	Electrical Engineering
43	Engineering & Technology	PG	Power Systems Engineering	2017	--	Electrical Engineering
44	Engineering & Technology	PG	Signal & Image Processing	2012	--	Electronics and Communication Engineering
45	Engineering & Technology	PG	Software Engineering	2010	--	Computer Science and Engineering
46	Engineering & Technology	PG	Structural Engineering	1971	--	Civil Engineering
47	Engineering & Technology	PG	Thermal Engineering	2005	--	Mechanical Engineering
48	Engineering & Technology	PG	Transportation Engineering	2010	--	Civil Engineering
49	Engineering & Technology	PG	VLSI Design & Embedded Systems	2005	--	Electronics and Communication Engineering
50	Engineering & Technology	PG	Water Resource Engineering	2010	--	Civil Engineering
51	Management	PG	Masters in Business Administration	2010	--	Management

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
Industrial Design	No	Industrial Design	UG
Mechanical Engineering	No	Mechanical Engineering	UG
Mining Engineering	No	Mining Engineering	UG
Civil Engineering	No	Civil Engineering	UG
Ceramic Engineering	No	Ceramic 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 ACCREDITED
1	Ceramic Engineering	UG	1994 / --	15	Yes	2007	40	2007	NA	Granted accreditation for 3 years for the period (specify period)	2022	2025	4

Sanctioned Intake for Last Five Years for the Industrial Ceramics	
Academic Year	Sanctioned Intake
2024-25	40
2023-24	43
2022-23	44
2021-22	43
2020-21	43
2019-20	38

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 :	R.Mazumder
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)	40	43	44	43	43	38	37
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	38	40	43	43	43	38	34
N2=Number of students admitted in 2nd year in the same batch via lateral entry including leftover seats	0	0	0	0	0	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	0	0	0	5	7	3	1

Total number of students admitted in the program (N1 + N2 + N3 + N4) - excluding those admitted through multiple entry and exit points.	38	40	43	48	50	41	35
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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)	40	38	0	95.00
2023-24 (CAYm1)	43	40	0	93.02
2022-23 (CAYm2)	44	43	0	97.73

Average $[(ER1 + ER2 + ER3) / 3] = 95.25 \approx 20.00$

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).	50.00	41.00	37.00
B=No. of students who graduated from the program in the stipulated course duration	47.00	34.00	32.00
Success Rate (SR)= (B/A) * 100	94.00	82.93	86.49

Average SR of three batches $((SR_1 + SR_2 + SR_3)/3)$: 87.81

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)
Mean of CGPA or mean percentage of all successful students(X)	7.19	6.95	8.01
Y=Total no. of successful students	39.00	43.00	47.00
Z=Total no. of students appeared in the examination	39.00	43.00	47.00
API $[X*(Y/Z)]$	7.19	6.95	8.01

Average API $[(AP1+AP2+AP3)/3]$: 7.38

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)	6.99	7.57	7.85
Y=Total no. of successful students	43.00	47.00	47.00
Z=Total no. of students appeared in the examination	43.00	47.00	47.00
API $[X * (Y/Z)]$	6.99	7.57	7.85

Average API $[(AP1 + AP2 + AP3)/3]$: 7.47

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)	7.51	7.63	7.56
Y=Total no. of successful students	47.00	47.00	38.00
Z=Total no. of students appeared in the examination	47.00	47.00	38.00
API [X*(Y/Z)]:	7.51	7.63	7.56

Average API [(AP1 + AP2 + AP3)/3] : 7.57

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	47.00	38.00	37.00
X=No. of students placed	46.00	36.00	34.00
Y=No. of students admitted to higher studies	0.00	0.00	1.00
Z= No. of students taking up entrepreneurship	1.00	0.00	0.00
Placement Index(P) = (((X + Y + Z)/FS) * 100):	100.00	94.74	94.59

Average Placement Index = (P_1 + P_2 + P_3)/3: 96.44 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	S. Bhattacharyya	XXXXXXXX82M	Ph.D	IIT Kanpur	Ceramic Processing, Structural Ceramic, Bio-ceramics	12/10/1995	29.7	Assistant Professor	Professor	30/06/2006	Regular	Yes		No
2	Arindam Paul	XXXXXXXX64Q	Ph.D	IISc Bangalore	Bio-inspired structural materials, Mechanical Behavior, Composite Materials	04/04/2014	11.1	Assistant Professor	Associate Professor	28/03/2023	Regular	Yes		No
3	Anupam Mishra	XXXXXXXX26F	Ph.D	IISc Bangalore	Electroceramics	22/07/2024	0.9	Assistant Professor	Assistant Professor		Regular	Yes		No

4	R.Sarkar	XXXXXXXX72Q	Ph.D	Jadavpur University	Refractories, Waste Management, Bioceramics	29/07/2009	15.9	Assistant Professor	Professor	02/02/2018	Regular	Yes		No
5	R.Mazumder	XXXXXXXX82N	Ph.D	Jadavpur University	Electroceramics, Materials for Energy, Environment and Nuclear Fusion Reactor	29/10/2007	17.6	Assistant Professor	Professor	28/03/2023	Regular	Yes		Yes
6	S. Bhattacharya	XXXXXXXX70R	Ph.D	Jadavpur University	Processing and Characterization of Ceramics, Structural Ceramics, Ceramic Adsorbents	06/07/2011	13.10	Assistant Professor	Associate Professor	28/03/2023	Regular	Yes		No
7	Sumit Pal	XXXXXXXX39M	Ph.D	Jadavpur University	Glass and Glass Ceramics, Bio Ceramics	02/07/2007	17.10	Assistant Professor	Associate Professor	02/02/2018	Regular	Yes		No
8	S. Dasgupta	XXXXXXXX09Q	Ph.D	Washington State University	Biomaterials, Drug delivery system, Nanostructured Ceramics, Self-assembly of nanoparticles	15/07/2011	13.9	Assistant Professor	Associate Professor	28/03/2023	Regular	Yes		No
9	D. Sarkar	XXXXXXXX12F	Ph.D	NIT Rourkela	Structural Ceramics, Nanocomposite, Refractories	01/07/1998	26.10	Assistant Professor	Professor	02/02/2018	Regular	Yes		No
10	S.K. Behera	XXXXXXXX68B	Ph.D	Lehigh University	Grain-Boundary Engineering, Li-ion Batteries, Graphene, Polymer Derived Ceramics	01/07/2011	13.10	Assistant Professor	Professor	21/04/2023	Regular	Yes		No
11	P. Saha	XXXXXXXX92B	Ph.D	University of Alabama	Light Metal, Ceramics, Batteries, Nanomaterials Synthesis	11/07/2014	10.9	Assistant Professor	Associate Professor	28/03/2023	Regular	Yes		No
12	A. Chowdhury	XXXXXXXX79G	Ph.D	NIT Rourkela	Electroceramics	21/07/2008	16.9	Assistant Professor	Assistant Professor		Regular	Yes		No
13	S.K. Pratihar	XXXXXXXX92D	Ph.D	Jadavpur University	Electroceramics, Solid Oxide Fuel Cells	10/10/1996	28.7	Assistant Professor	Professor	13/02/2020	Regular	Yes		No

14	B.B.Nayak	XXXXXXXX93F	Ph.D	IIT Bombay	Nanomaterials, Magnetic Materials, and Composite Materials	30/06/2006	18.10	Assistant Professor	Professor	13/02/2020	Regular	Yes		No
15	J.Bera	XXXXXXXX47Q	Ph.D	Jadavpur University	Ferrite, Ferroelectrics	19/09/1996	28.7	Assistant Professor	Professor	19/06/2015	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 Department2

Table No.C2.1: Student-faculty ratio.

Description	CAY(2024-25)	CAYm1 (2023-24)	CAYm2 (2022-23)
UG1.B	43	44	43
UG1.C	44	43	43
UG1.D	43	43	38
UG1: Ceramic Engineering	130	130	124
PG1.A	13	13	13
PG1.B	13	13	13
PG1: Ceramic Engineering (Integrated/Dual)	26	26	26
PG2.A	15	15	25
PG2.B	15	25	25
PG2: Industrial Ceramics	30	40	50
DS=Total no. of students in all UG and PG programs in the Department	212	222	226
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= 212	S2= 222	S3= 226
DF=Total no. of faculty members in the Department	15	14	14

Description	CAY(2024-25)	CAYm1 (2023-24)	CAYm2 (2022-23)
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= 15	F2= 14	F3= 14
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= 14.13	SFR2= 15.86	SFR3= 16.14
Average SFR for 3 years	SFR= 15.38		

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 = $2.5 \times [(10X + 4Y) / RF]$
2024-25(CAY)	15	0	10.00	37.50
2023-24(CAYm1)	14	0	11.00	31.82
2022-23(CAYm2)	14	0	11.00	31.82

C4. Faculty Cadre Proportion

- Faculty Cadre Proportion is 1(RF1): 2(RF2): 6(RF3)
- RF1= No. of Professors required = $1/9 * \text{No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per C2 of this documents:}$.
- RF2= No. of Associate Professors required = $2/9 * \text{No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per section C2 of this documents:}$.
- RF3= No. of Assistant Professors required = $6/9 * \text{No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per section C2 of this documents:}$.
- 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	8.00	2.00	5.00	7.00	2.00
2023-24	1.00	8.00	2.00	5.00	7.00	1.00
2022-23	1.00	6.00	2.00	3.00	7.00	5.00
Average	RF1=1.00	AF1=7.33	RF2=2.00	AF2=4.33	RF2=7.00	AF2=2.67

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)

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	NA	NA	NA	NA	0.00

(CAYm2)

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	NA	NA	NA	NA	0.00

(CAYm3)

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	NA	NA	NA	NA	0.00

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	42	36	13
2	No. of peer reviewed conference papers published	12	11	0
3	No. of books/book chapters published	1	2	0

C7. Sponsored Research Project

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

(CAYm1)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25
Prof Ritwik Sarkar		Ceramic Engineering	Development of gradient refractory : A new approach to refractory lining	CSIR, GOI	3 years	19.00
Prof Sunipa Bhattacharya		Ceramic Engineering	Fabrication of granule-shaped porous clay adsorbent for mitigating heavy metal ions from contaminated water	SERB	3 years	44.00
						Amount received (Rs.):63.00

(CAYm2)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25
Prof Ranabrata Mazumder		Ceramic Engineering	Fundamental and technological aspects of transition element doped (Ba,Ca)(Zr,Ti)O ₃ (BCZT) based semiconducting ferroelectrics for novel photo-ferro/piezocatalytic application	UGC-DAE-CSR	3 years	12.00
						Amount received (Rs.):12.00

(CAYm3)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25
Prof Partha Saha		Ceramic Engineering	Development of polypyrrole coated Mg alloys for degradable fracture fixation devices	DST Core grant	3 years	38.76
Prof Partha Saha		Ceramic Engineering	Development of nano-structured Si-Void-C yolk/shell architecture for high-performance Li-ion battery anode	DST Nanomission	3 years	88.00
Prof R.Mazumder		Ceramic Engineering	Fabrication & Characterization of Li4SiO4 pebbles by novel freeze granulation technique	BRNS	3 years	38.00
Prof A.Paul		Ceramic Engineering	Tough biomimetic composite inspired by abalone nacre architecture for lightweight multilayered armour application.	DST-Imprint	3 years	78.00
Prof Shantanu Kumar Behera		Ceramic Engineering	Nanostructured Silicon-Carbon hybrid anodes with high rate capability & cyclic stability for Lithium Ion batteries	SERB	3 years	79.00
Prof A.Paul		Ceramic Engineering	Development of tough biomimetic Alumina Composite inspired by Abalone Nacre Architecture.	SERB	3 years	60.00
Prof R.Sarkar		Ceramic Engineering	Use of nano Carbon black in the Development of Low Carbon containing Alumina-Carbon refractories	CSIR	3 years	16.00
Prof D.Sarkar		Ceramic Engineering	Mechanochemical milling and low temperature sintering of nanostructured MgAl2O4	SERB	3 years	43.00
						Amount received (Rs.):440.76

Total Amount (Lacs) Received for the Past 3 Years: 515.76

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)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25
Prof Debasish Sarkar		Ceramic Engineering	Development and Standardization of Castable for Sponge Iron	Passary Minerals Pvt Ltd, Rourkela	2 years	5.20
Prof Debasish Sarkar		Ceramic Engineering	Upgradation and standardization of steel making refractories	Maithan. Ceramic Limited, Chirkunda, Jharkhand	2 years	5.20
						Amount received (Rs.):10.40

(CAYm2)

(CAYm3)

Total amount (Lacs) received for the past 3 years: 10.40

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)

(CAYm3)

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

**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	Unit Operation Lab	2	Jaw crusher Double roll- crusher Ball mill (without lining) Ball mill (with lining) Sieve shaker Planetary mixer Hydraulic press	6 hours per we	Gopinath Behera	Technical Assistant SG-	Diploma in Ceramic Eng
2	Chemical Analysis Lab	2	Hot air oven, hot plate stirrer, laboratory hot water bath, vacuum pump, centrifuge, flame photometer, pH-meter, distillation apparatus	6 hrs per week	Priyabrata Sahoo	Technician	Diploma in Ceramic Eng
3	High Temperature Processing Lab	6	Chamber furnace, Raising hearth furnace, Pit furnace	6 hrs per week	Priyabrata Sahoo	Technician	Diploma in Ceramic Eng
4	Instrumental Characterization Lab	6	Dilatometer, DSC-TG, Zeta-Sizer, Rheometer, UV-Visible Spectroscopy, Optical Microscope	6 hrs per week	Priyabrata Sahoo	Technical Assistant	Diploma in Ceramic Eng
5	Refractory Technology Lab	5	Compression Testing Machine 50T & 200T, Planetary Mixer, Sieve Shaker, Hot Air Oven	6 hrs per week	Susil Kr. Sahu	Senior Technical Assistæ	AME- Indian Institute of
6	MATLAB and Simulink Lab	1	Mathwork's matlab and Simulink, Number of computer: 28	6 hrs per week	Nishant Kumar	Technical Assistant	Diploma in Ceramic Eng
7	Glass Technology Lab	5	Fiber Elongation Viscometer (upto 500oC), Instrument for Sink & Float Comparator, Flame Photometer, Strain Viscomer, Optical Flat	6 hrs per week	Priyabrata Sahoo	Technician	Diploma in Ceramic Eng
8	Whiteware Technology Lab	5	Bench Vice, Anderson Pipette, Remi Spindle Stirrer, Atterberg Index, Brookfield Viscometer, Vicat Needle Apparatus, Glass Furnace 1400oC	6 hrs per week	Gopinath Behera	Technical Assistant SG-	Diploma in Ceramic Eng
9	Cement Technology Lab	4	Compression Testing Machine 50T, Planetary Mixer, Sieve Shaker	6 hrs per week	Susil Kr. Sahu	Senior Technical Assistæ	AME- Indian Institute of

10	Mechanical Testing Lab	6	Universal Testing machine- 10 KN (Tinius- Olsen), Universal Testing machine- 10 KN (Zwick- Roell)	6 hrs per week	Priyabrata Sahoo	Technician	Diploma in Ceramic Eng
11	Ceramography and Microscopy Lab	5	Automatic polishing unit, Optical microscope	6 hrs per week	Nishant Kumar	Technical Assistant	Diploma in Ceramic Eng
12	Electroceramic Lab	4	Hioki LCR Meter, Automatic PE Loop Tracer, Piezometer, DC Poling Unit	6 hrs per week	Arvind Kumar	Senior Technical Assistæ	AME- Indian Institute of
13	Finite Element Analysis Lab	1	Ansys software, No of PCs= 28	6 hrs per week	Nishant Kumar	Technical Assistant	Diploma in Ceramic Eng
14	Equipment Design Laboratory	1	Auto CAD	6 hrs per week	Nishant Kumar	Technical Assistant	Diploma in Ceramic Eng
15	XRD Laboratory	5	XRD	14 hrs per wee	Arvind Kumar	Senior Technical Assistæ	AME- Indian Institute of
16	Surface Area Analysis Laboratory	1	BET	14 hrs per wee	Gopinath Behera	Technical Assistant SG-	Diploma in Ceramic Eng
17	FESEM Lab	5	FESEM (Nova- Nano) with EDX, Sputter Coater	14 hrs per wee	Shiv Kr. Verma	Technical Assistant	AME- Indian Institute of

D2. Safety Measures in Laboratories

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

Sr. No	Laboratory Name	Safety Measures
1	Unit Operation Lab	1. Students should conduct the experiments with safety shoes. 2. Whenever required hand gloves and eye protecting goggles are provided. 3. The dedicated fire-extinguisher is kept ready for the laboratory.
2	Chemical Analysis Lab	1. An apron or lab coat is worn when performing laboratory experiments. 2. Gloves are used when handling toxic or hazardous agents. 3. Unused chemicals should not be put back in the original container. 4. The fume hood should be used for chemicals tagged as volatile or flammable. 5. Students must aware about different safety symbols related to chemical experiment. 6. Long Hair must be tied back. 7. Students are advised not to wear loose clothing and dangling jewellery in the laboratory. 8. Students are advised not to wear sandals or open-toed shoes. The footwear should completely cover the foot.
3	High Temperature Processing Lab	1. All electrical points and earthing of the electrical connections of the furnaces must be checked regularly. 2. Students are not allowed to operate the high temperature furnaces without the presence of lab technical assistant/faculty in-charge
4	Instrument Characterization Lab	1. Asbestos gloves to be used for taking out sample from furnace. 2. Electrical connections to be checked before switching 3. . X-Ray machine door to be cleaned before running the sample

5	Refractory Technology Lab	1. Use of mask to avoid health hazards from dust and fine particles 2. Use of safety equipment, blue glass, asbestos gloves during use of furnaces and high temperature operations 3. Precautions related to electrical equipment 4. Use of rubber gloves for mixing, weighing, processing of refractory batches
6	MATLAB and Simulink Lab	1. Turn off the system after work is over 2. Turn off the ups after work 3. Detach the internet cable after work 4. Do not download any software without consulting 5. In case of malfunction immediately consult faculty
7	Glass Technology Lab	1. No one is allowed without shoes 2. No one is allowed with silk or any fire catching dresses 3. No one is allowed to touch the hot glass 4. Do not take any decision without lab assistant and faculty in-charge 5. Furnaces, molten salt bath must be operated in presence of faculty or lab assistant
8	Whiteware Technology Lab	1. All electrical points are checked regularly. 2. Standard Precautionary measures are taken while handling glassware and hot ovens. 3. Disposal of waste clay is not done in lab sink. 4. While stirring clay slip care is taken to prevent spillage of clay slips on the floor
9	Cement Technology Lab	1. During using Vicat apparatus, (i) the needle needs to be wiped properly after every test, (ii) plunger needs to be released gently after the needle is brought to touch the surface of the mould. 2. During preparation of cement-sand mortar cubes, mould to be properly filled during vibration to avoid the air gaps. The sides of prepared cubes on which testing to be done, should be parallel. 3. During determination of soundness of the cement sample by Le-Chatelier apparatus, the top glass plate should be placed (on cement) in such a way so that no air bubbles should be entrapped in between the plate and cement sample.
10	Mechanical Testing Lab	1. All electrical points of the UTM need to check regularly 2. Earthing of the UTM to be proper and also need to check in a periodic basis 3. For carrying out the compression test of highly brittle specimens, a small cart-board box to be placed around the specimens, top and bottom platens to avoid the scattering of the broken pieces.
11	Ceramography and Microscopy Lab	1. Masks to be used at all time during use of colloidal abrasives. 2. Caution against moving parts (e.g. Grinding wheels)
12	Electro-Ceramic Lab	1. Wear shoes during operation of high voltage apparatus 2. Proper discharging of the high voltage apparatus need to be performed before touching the sample holder 3. Status of the earthing of electrical line need to be checked regularly 4. Measurement leads should have good shielding (often connected to guard potential), and be as short as possible 5. Extra Precaution need to be taken during operation of the furnace and handling sample holder for electrical measurement.
13	Finite Element Analysis Lab	1. Laboratories will be conducted in the stipulated time each week in presence of laboratory instructor, laboratory assistant. The experiments will be distributed by the Lab instructor to each individual student/or in group to organize and complete the task within the allocated time. 2. Students should come to the laboratory before time and take their respective sit and switch on the PC. 3. At the end of the laboratory duration ensure that the PC, UPS, are switched off. 4. No student should attempt unauthorized experiment in the laboratory. If any experiment requires more than stipulated time for doing the analysis, a prior permission from the lab instructor and lab assistant must be obtained to access the computational laboratory. A student must not use the laboratory in absence of the laboratory instructor or assistant.
14	Equipment Design Laboratory	1. Shut down of each computer is ensured 2. Switching off of UPS is cross checked 3. Other electrical accessories in classroom must be switched off after completion of the lab

15	FESEM Lab	1. Equipment's earthing must be proper. 2. The machine is kept on a vibration-free base and electromagnetic coupling free base. 3. Room temperature should always be below 24oC.
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D3. Project Laboratory/Research Laboratory

Sl. No.	Name of the Laboratory	Name of the Important Equipment/Facilities	Utilization
1.	Magnetic Ceramic materials synthesis and characterization lab	<ol style="list-style-type: none"> 1. Equipment for chemical synthesis 2. LCR meter 	Research scholars, PG projects, UG projects (Open for 24*7)
2.	Solid Oxide Fuel Cell Laboratory	<ol style="list-style-type: none"> 1. Conductivity Measurement 2. Laboratory Fume Hood 3. Gas Chromatography (GC) 4. DC Conductivity Measurement 5. Conductivity relaxation measurement (atmospheric condition) 6. Calcination Furnace (1000°C) 7. Laboratory Scale Chamber Furnace (1600°C) 8. Laboratory Scale Chamber Furnace (1200°C) 9. Drying Oven (250°C) 10. Probe- sonicator 	Research scholars, PG projects, UG projects (Open for 24*7)
3.	Refractory Research Lab	<ol style="list-style-type: none"> 1. High Temperature Furnace 2. Hydraulic (pellet making) press 3. Hobeert plantry mixer 4. Analytical balance (4th decimal) 5. Balance (up to 16Kg) 6. Vacuum Pump 7. Hot plat stirrer 4. Hot Oven (250°C) 5. Attritor mill 	Research scholars, PG projects, UG projects (Open for 24*7)

4.	Laboratory for Ceramic processing and Engineering	<ol style="list-style-type: none"> 1. Nanoscale powder synthesis (wet & dry) 2. Lyophilizer Refrigerated Centrifuge (267K) 3. Planetary macro mill (WC, Al₂O₃, ZrO liner) 4. Warm Press (340°C, 25T) 5. Controlled Atmosphere Furnace (2200oC, Ar, N₂, Vacuum) 6. High Temperature Furnaces (1800°C, 1650°C, 1100°C) 7. Policing facilities for Discs and Truncated Sphere 8. Policing Unit 9. Harness Tester 10. Tundish Model 11. Computational Facilities 	Research scholars, PG projects, UG projects (Open for 24*7)
5.	Luminescent Materials Laboratory (LML)	<ol style="list-style-type: none"> 1. Autoclave (230°C, 200 bar, Capacity- 200mL) 2. Laboratory Scale Chamber Furnace (1600°C) 3. Laboratory Scale Chamber Furnace (1200°C) 4. Drying Oven (250°C) 5. Fume Hood 6. UV Source for luminescence colour 7. Centrifuge (10000 rpm) 	Research scholars, PG projects, UG projects (Open for 24*7)
6.	Laboratory for New Ceramics (Lancer)	<ol style="list-style-type: none"> 1. Freeze Dryer (-80°C; 2x10³mBar) 2. SPEX Mill 3. Laboratory Scale Tube Furnace (1400°C) 4. Laboratory Scale Tube Furnace (1550°C) 5. Cross-linking Furnace (600°C) 6. Potentiostat- Galvanostat 	Research scholars, PG projects, UG projects (Open for 24*7)

7.	Biomaterials Processing and Bio Characterization Laboratory	<ol style="list-style-type: none"> 1. BOD Incubator 2. Ultrasonic Probe 3. Chemical Synthesis Attachments 4. Lyophilizer 5. Resistive Heating Furnace 6. Centrifuge Machine 7. Oven 8. pH meter 9. Hydraulic Press 10. Condensation Unit 	Research scholars, PG projects, UG projects (Open for 24*7)
8.	Bio Inspired Advanced Materials Lab (BioIAM Lab)	<ol style="list-style-type: none"> 1) Freeze Dryer (-110°C; 2x10⁻³ mBar) 2) Universal Testing Machine (10 kN, Zwick-Roell) 3) Resonant Frequency Damping Analyzer 4) Laboratory scale Hydraulic pellet making Press 5) Hot plate magnetic stirrer 6) Ultrasonicator bath 7) Weighing Balance (3 decimal) 8) pH meter 9) Low temperature muffle furnace (1000 °C) 10) High Temperature Laboratory Chamber Furnace (1600 °C) 11) Laboratory scale Fume Hood 	Research scholars, PG projects, UG projects (Open for 24*7)
9.	Ceramic Adsorbent Laboratory	<ol style="list-style-type: none"> 1. High Temperature Furnace (1400°C) 2. Ion meter 3. Shaker 4. Hot Air Oven 5. Syringe Pump 6. Analytical Balance 7. Hot plate stirrer 8. Vacuum pump 9. Hydraulic pellet press. 	Research scholars, PG projects, UG projects (Open for 24*7)

10.	Ceramic Composites Laboratories	<ol style="list-style-type: none"> 1. Hot Air Oven (250°C) 2. Muffle Furnace (1000°C) 3. Vacuum Filtration (5 ltr.)- 2 nos 4. Electric chamber furnace 1400 oC 5. Research centrifuge 6. Precision weighing balance Three digit precision after decimal. 	Research scholars, PG projects, UG projects (Open for 24*7)
11.	Melting and Casting Laboratory for Light Metal Development	<ol style="list-style-type: none"> 1. Bottom pouring type Squeeze casting machine for light metal development (900°C) 2. Induction Furnace (1500°C) 3. Crucible Furnace (1200°C) 4. Controlled Atmosphere Tube Furnace (1200°C) 	Research scholars, PG projects, UG projects (Open for 24*7)
12.	Metallography laboratory	<ol style="list-style-type: none"> 1. Grinding-Polishing Unit 2. Hot Mounting Press 3. Optical Microscope 4. UTM for Non-Ferrous Alloys 5. Muffled Furnace 6. Vacuum Oven 7. Drying Oven 8. Precision Sectioning Saw 	Research scholars, PG projects, UG projects (Open for 24*7)
13.	Next generation Energy-Storage Device Research Lab	<ol style="list-style-type: none"> 1. Glove Box (MBraun Inc.) 2. Arbin LBT Multichannel Battery Tester 3. Autolab Potentiostat/Galvanostat 4. Fumehood 5. Doctor-Blade for electrode preparation 6. Crimping Unit for coin cell fabrication 7. Die Punch 8. Rolling Mill for electrode calendaring 	Research scholars, PG projects, UG projects (Open for 24*7)
14.	Laboratory for Conventional and Non- Conventional Ceramics	<ol style="list-style-type: none"> 1. Hot Air Oven (300°C) 2. Lab Centrifuge 3. Raising Hearth Furnace (1400°C) 4. Hydrothermal Bomb 5. Distillation Unit hlass 	Research scholars, PG projects, UG projects (Open for 24*7)

15.	Materials for Energy and Environment Research Lab	<ol style="list-style-type: none"> 1. Freeze Granulation Unit 2. UV-VIS Photocatalytic Reactor 3. Fumehood 4. High Temperature Furnace 5. High Power Ultrasonicator 6. Freeze Dryer 7. Extruder Spherodizer 8. High Pressure Reactor 9. Thermal Evaporator 10. RF-DC Sputtering Unit 11. Pebble crush tester 	Research scholars, PG projects, UG projects (Open for 24*7)
16.	Glass Laboratory	<ol style="list-style-type: none"> 1. Freeze drier 2. Oven 3. Furnace 1350oC 4. Fume hood 5. BOD incubator 6. Ultrasonic cleaner 7. Hydraulic press 8. Molten Salt Bath 9. Autoclave 10. Flame Photometer 	Research scholars, PG projects, UG projects (Open for 24*7)
17.	Ceramic Processing Laborator	30 TON Uniaxial Hydraulic Press (Carver)	Research scholars, PG projects, UG projects (Open for 24*7)
18	Ceramic and Glass Studio	Spray Gun for Glaze Application High Shear Mixer Electrical Potter's wheel	PG projects, UG projects (Open for 24*7)
19	XRD Laboratory (CIF)	XRD Instrument	Research scholars, PG projects, UG projects (Open for 24*7)
20	Surface area Measurement Laboratory (CIF)	BET	Research scholars, PG projects, UG projects (Open for 24*7)
21	Mechanical Testing Lab	Universal Testing machine- 10 KN (Tinius- Olsen)	UG and PG sessional Labs, Research scholars PhD work, PG projects, UG projects

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)	911	46	44	44	96
2023-24(CAYm1)	908	45	45	71	112
2024-25(CAY)	916	46	55	93	136

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	2682	0	1523.95	1523.95	2424.33	2424.33	1997.22	806.72
Library	450	0	375.42	375.42	181.40	181.40	422.30	422.30
Laboratory equipment	361.60	0	261.63	261.63	514.77	514.77	455.48	455.48
Teaching and non-teaching staff salary	17925	289.86	16293	16293	14520	14316.92	11845.96	11806.60
Outreach Programs	0	0	0	0	0	0	0	0
R&D	679	12.49	662.56	662.56	330.71	330.71	311.49	311.49
Training, Placement and Industry linkage	0	0	0	0	0	0	0	0
SDGs	0	0	0	0	0	0	0	0
Entrepreneurship	0	0	0	0	0	0	0	0
Others, specify	11208	125.23	10742.06	9715.64	9842.45	9700.61	7901.50	7899.64
Total	33305.60	427.58	29858.62	28832.20	27813.66	27468.74	22933.95	21702.23

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
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Laboratory equipment	738433.00	738433.00	5008342.00	5008342.00	1923886.00	1923886.00	844857	844857
Software	0	0	0	0	0	0	9080	9080
SDGs	0	0	0	0	0	0	174214	174214
Support for faculty development	2438911.00	2438911.00	74538.00	74538.00	719502.00	719502.00	996798	996798
R & D	20705415.00	20705415.00	5649766.00	5649766.00	3634143.00	3634143.00	16065342	16065342
Industrial Training, Industry expert, Internship	1590000.00	1590000.00	0	0	1764437.00	1764437.00	0	0
Miscellaneous Expenses*	20865.00	20865.00	15948.00	15948.00	24699.00	24699.00	5169	5169
Total	25493624.00	25493624.00	10748594.00	10748594.00	8066667.00	8066667.00	18095460	18095460