

Report on the

Academic Audit

for the year 2023

of

St. Xavier's College (Autonomous)

30 Mother Teresa Sarani

Kolkata 700016

Date:

20th April, 2023 21th April, 2023 24th April, 2023 25th April, 2023



ACADEMIC AUDIT 2023

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ACADEMIC AUDIT 2023

1. INTRODUCTION

St. Xavier's College, Kolkata, founded in 1860, has been functioning as an autonomous College under the University of Calcutta, since 2006. In July 2014 it was declared a "College of Excellence" and in July 2015 "Special Heritage Status" was bestowed upon it. Now, the College has autonomy in its academic administration and has been continuously upgrading the curricula and infrastructure in order to improve the quality of education. Through its distinctiveness as an academic institution over a long period of time, the authorities of the College believe in continuous improvement even though it has NAAC Accreditation Grade A⁺⁺ with a score of 3.77 CGPA on a scale of 4 from NAAC in 2017. The College has secured 8th position NIRF Ranking 2022 and consistently within top 10 since 2019. The authorities in line with one of its mission "to raise the realm of good to great to greater, through continuous quality assessment" have voluntarily started the academic audit since 2013 to look into its strengths and weakness and identify the scope of further improvement.

Principled on the motto "NIHIL ULTRA" meaning "NOTHING BEYOND" and with the vision to promote a society based on love, freedom, liberty, justice, equality and fraternity, St. Xavier's College aims to form young men and women of competence, commitment, compassion and conscience - men and women for and with others. This is the ideology of Jesuit Education. This enables students to herald social change - national and global. The College aims to inculcate the highest intellectual standards through rigorous academic commitment and discipline. Students are inspired to aspire to higher levels of academic achievement by mastering the subjects they have chosen to study. The College stands committed to make teaching and learning "Student Centric" which makes the students think, analyze and work independently by inculcating original and creative thinking. Currently the College is offering 21 UG, 13 PG and 7 Doctoral programmes. I am proud to announce that as part of our expansion plan, M.Sc. in Data science was introduced in the academic year 2021-22. Recently the College has got approval for running Doctoral programmes in English and Bengali. The College has also got the permission for offering PhD programme in Political Science from the parent university – awaiting the formalities to be completed. More PG & Doctoral programmes have been planned to offer in near future.



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2. <u>AUDIT COMMITTEE</u>

The Audit Committee is comprised of the following members:

- 1. Prof. Dipankar Sinha Professor, Department of Political Science, University of Calcutta
- 2. Prof. Rajib Dasgupta Professor, Department of Commerce, University of Calcutta
- 3. Professor (Dr.) Siddhartha Sankar Saha Professor & Head, Department of Commerce, Former Dean, Commerce, Social Welfare and Business Management and Former Director, IQAC, University of Calcutta
- 4. Prof. Amlan Chakraborty Professor,
 A. K. Choudhuri School of Information Technology, University of Calcutta
- 5. Prof. Sanjoy Guha Roy Professor,
 Department of Botany,
 West Bengal State University.
- 6. Dr. Amrita Sen Associate Professor and Deputy Director, UGC-HRDC, University of Calcutta.



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3. OBJECTIVE & SCOPE OF THE AUDIT

The Principal, Rev. Dr. Dominic Savio SJ outlined the broad objectives of the academic audit as an independent assessment of the College by an external peer team. Accordingly, the audit team decided to look into the prevailing situation at the College along the following aspects in course of the audit both at its main campus at 30 Mother Teresa Sarani (Park Street) as well as its Raghabpur Campuses. They also visited the Ajoy Nagar Campus where Educational Multimedia Research Centre (EMRC), run by the College, is situated.

Scope

- Methodology of teaching and learning conducted for the different courses run by the College
- Functioning of the Laboratories and Computer Facilities
- Status of facilities like solar power generation, rain water harvesting, etc.
- Examination and Evaluation system
- > Activities of the Internal Quality Assurance Cell, Academic Council and PhD cell.
- Central Library and Goethals Library.
- Sports Office and wellness Centre.
- International and National collaborations.
- Outreach Programmes conducted by the College including the NCC and NSS Programmes.
- > Preparations for implementing National Education Policy 2020.
- Alumni/ae and their contributions to the College
- > Opportunities and Scope of improvements in the major functional areas

The team is empowered and expected to express views and give suggestions for the improvement of the systems being followed by the College.

4. <u>METHODOLOGY</u>

At the introductory meeting (held on 20.04.23) with the Principal, the Vice Principals, Coordinator - IQAC, Member Secretary Academic Council, the Controller of Examinations, Deans, Honourary Secretary of the Alumni Association and other officials, a presentation was made by the Principal which gave a general and broad profile of the facilities and activities of the College. The new facilities added and the new campuses that are in the process of being developed also found mention.



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The Audit team began their visit on April 20, 2023 and spent three more days on Campus. The team visited various departments and made inspection of the facilities like Solar Power Generation and Rain Water Harvesting system. They had interactions with the faculty and students of each department and also with the support staff. Visits to the laboratories, Computer facilities, the Library and some of the other facilities of the College were accommodated in the schedule to enable the Audit Committee to acquire relevant firsthand information. They also had separate discussions with the Principal, the Vice Principals and the Deans as administrators. The audit team had elaborate discussion with the Controller and the Assistant Controllers for a detailed assessment of the examination and evaluation process. The team visited the Ajay Nagar campus and Raghabpur campus during their audit. The team also inspected the Central Research facility and recently added Instrumentation Facility for Biological Science. The team also visited the Hostel and had a detailed discussion with the Honourary Secretary, Alumni Association.

Based on the information/data gathered from the available documents and the interactions with the different stakeholders of the institution, the Audit Committee has made a sincere endeavour to put forward certain views, observations and recommendations in the body of this report with expectations that these recommendations, when implemented, will best serve the interest of the College as intended.

5. <u>BRIEF PROFILE OF THE COLLEGE</u>

Establishment and Purpose

The College was founded on 16th January 1860 and was affiliated to University of Calcutta in 1862. Since its establishment the College has made remarkable strides in the field of Education in India over 158 years of its existence, based on the tenets commitment, care and service in preparing "Men and Women for others". The Vision of St. Xavier's College is "To promote a society based on love, freedom, liberty, justice, equality and fraternity". It has strived to promote a Human Society together with the contributions of its alumni in various walks of life. It is living up to its value statement of "providing education with human face".

Awards and Accolades

While reputation has grown over the years, formal recognition first came in 2003 from the National Assessment Accreditation Council (NAAC) as an "A" grade College. Ever since the College has earned the following status:

- College with Potential for Excellence (CPE) in May 2006 (By UGC)
- ✤ Autonomous status granted by the UGC in July 2006



College of Excellence; ISO 9001:2015 Certified; College with Special Heritage Status

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- ✤ Declared a College of Excellence in 2014 by UGC
- Special Heritage status in July 2015
- Assessment as an Autonomous College by NAAC in January 2017 and awarded an "A⁺⁺" grade with a CGPA of 3.77 out of 4.00
- ISO 9001:2015 Certification in 2019
- College securing 8th position NIRF Ranking 2022 and consistently within top 10 since 2019.

New Horizons

The College has several campuses including the main Park Street Campus, Raghabpur Campus, the residential campus (Twin Hostel – Fr. Leeming Boys' Hostel and Mother Teresa Girls' Hostel) for its students at AJC Bose Road and Loyola House at Salt Lake. Educational Multimedia Research Centre (EMRC) on the E M Bypass Campus has been equipped with gadgets and amenities and is ready to house the research activities. A media hub and research centre has been proposed to be established in this campus. A full-fledged Entrepreneur Development Cell will also be established in this campus. The College has already started a number Post Graduate Courses and Ph.D. Programmes and is planning to upgrade the other undergraduate courses to Post Graduate Courses and the Post Graduate departments to Research departments. The College has also made itself ready for implementation of the new curriculum suggested by the National Education Policy 2020 from the Academic Year 2023-24.

Management

The College has five Decision Making Bodies:

- Founder Body
- Governing Body
- ✤ Academic Council
- Board of Studies
- Finance Committee

The various aspects of the Academic affairs and administration of the College are organized and looked after by 33 committees constituted by the Members of the Management and Faculty. In some of these committees, representatives of the students and alumni are also present.

Reaching Out

The College encourages students' participation in fest seminars and cultural activities of diverse array throughout the year and also motivates students to participate voluntarily in social and Outreach Programmes. The NSS, NCC and Sports Departments have



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distinguished themselves through participation at the State and National levels while the Outreach Programmes have extended support to nine remote villages. The College also runs Computer Courses at four centers for the underprivileged.

A noteworthy practice is the publication of magazine in each department providing avenues for self-expression and interaction among students and teachers. The topics and articles are of high standard.

The College authority, in association with the Alumni Association, has carried out several philanthropic activities targeted at victims of COVID and those who suffered in natural calamities like Cyclone (both Amphan and Yash).

Global perspective:

The highly commendable International Exchange Programme that the College is involved in provides enormous scope for exposure to academic programmes abroad for both the teachers and students. Collaborations have been established with Institutions in the United States, Canada and Europe.

Research at St. Xavier's College (Autonomous), Kolkata

Facilities & Laboratories

- Central Research Facility
- Central Instrumentation Facility
- Observatory
- Biotechnology Laboratory
- Microbiology Laboratory
- Chemistry Wet Laboratory
- Data Science Laboratory

Areas of Research Undertaken:

- Genetic and epigenetic regulation of stress signalling
- Primary area of research interest: Cancer biology involving study of 1) intracellular signalling pathways which promote tumour invasion. 2) cell surface receptors (integrins, EGFR) and their roles in tumour biology. 3) the crucial roles played by matrix metalloproteinase e.g. MMP-2, MMP-9 in tumour invasion and metastasis. 4) the anti-tumorigenic and anti-invasive effects of natural compounds in cancers.
 - Gravitational Thermodynamics, Gravitational Waves, Gravitational Collapse



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- Genetic and epigenetic regulation of stress signalling
- Ribosome and protein folding and aggregation
- Structure function elucidation of the transcription regulator involved in flagellar synthesis of pathogenic motile bacteria;
- Structure function elucidation of the ABC transporter involved in nutrient uptake in bacteria
- Structure function studies of proteins.
- Plant Physiology, Biochemistry and Molecular Biology with emphasis on environmental stress
- Primary area of research interest: Cancer biology involving study of
 - a) Intracellular signalling pathways which promote tumour invasion.
 - b) Cell surface receptors (integrins, EGFR) and their roles in tumour biology.
 - c) The crucial roles played by matrix metalloproteinases e.g. MMP-2, MMP-9 in tumour invasion and metastasis.
 - d) The anti-tumorigenic and anti-invasive effects of natural compounds in cancers.
- General Relativity, Cosmology, Relativistic Astrophysics
- Pattern Formation, Porous media, Computational Fluid Flow, Biofilms
- Measurement error: related statistical modelling.
- Physics of Liquid Crystals
- Nonlinear Optics, Photonics and Plasmonics
- Material Physics & Nanoscience, Sports Sc., Physics Education
- Statistical Mechanics and its application in Self Organized systems
- Astroparticle Physics and Cosmology, Synergetics
- Astrophysics of active galactic nuclei, accretion disks and clusters of galaxies, structure formation in the Universe
- Mathematical Physics, Quantum Integrable Systems
- Mathematical Biology: Allometric Scaling, Organic Electronics
- Biosensor, Signal Processing
- Agricultural microbiology, biopesticides, biofertilizers.
- Environmental microbiology, bioremediation, myco and phytoremediation.
- Medicinally important molecules from plant source and their antimicrobial and anticancerous role.
- Contamination of spices and their prevention.
- Soil upgradation to residual microbial consortia.
- Stress biology with respect to heavy metal stress.
- Characterization and identification of bacteria and fungi and ensure proper storage
- Plant metal microbe interaction.
- Preparation of noble metal nanomaterials and their composites in organized media



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- Application of Stochastic search techniques in Physical Chemistry
- Development of Soft computing techniques in solving Eigen problems encountered in Quantum Chemistry
- Location of various maxima, minima and first order saddle points for atomic and molecular clusters, and developing methods to determine reaction paths for such systems.
- Synthesis and reactions of biologically active heterocyclic compounds. Development
 of the required methodology using transition metal catalysts and photochemical
 reactions.
- Measurement error: related statistical modelling.
- Environmental Studies
- Operations Research, Biostatistics, Optimization Techniques
- Bayesian Non Parametric Modelling
- Inference on Count Data
- Open Economy Macroeconomics
- General Equilibrium and International Trade

SXC - Rev. Fr. Franz Goreaux Central Research Facility

Introduction:

The Central Research Facility (CRF) forms an integral part of research activities in the Physical sciences and Biosciences programmes of the college. It is being upgraded every year in terms of procurement of new advanced level instruments and computational facilities and the total assets now amount to more than Rs.3.0 cr. The centre now plans to extend its infrastructure to other Colleges and Institutions.

Major Objectives:

- To encourage and facilitate interdisciplinary research among Faculty (both internal and external) in Chemistry, Microbiology, Physics and Biotechnology
- To encourage UG students to handle sophisticated instruments and carry out experiments under 'Skill-enhancement' module of the CBCS syllabus and projects in PG syllabus.
- Enhancement of infrastructure such that summer trainees and project students (UG / PG) can access the instruments
- To create a centralized server facility equipped with necessary software for theoretical analysis.

The Central Research Facility of St. Xavier's College houses the following laboratories

1. Cold room



Status

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- In determining the crystal structure of the ATPases Flagellar regulatory proteins such as FlrA, FlrC, FlhG and histidine kinase FlrB of *Vibrio cholerae*. Cold room is occasionally used to optimize crystallization trials at 4 degree Celsius. And for protein ligand incubation.
- It is mainly used for protein isolation and purification as a part of our aim to understand function of specific transcription factors during development, and genetic /epigenetic basis of stress signaling.
- RNA extraction and zymogen analysis
- Storage of S-300 sephacryl column and dialysis of crystallin protein
- Keep samples like soil and waste water are stored so that they remain etc. intact for further downstream analysis.

2. Culture Laboratories – fully functional

Plant Tissue Culture Laboratory

Laminar air flow unit

- Maintaining plant for seed propagation and specific experiments.
- Laminar hood is used to ensure sterile environment while performing tissue culture work.
- Growth rack is mostly used for maintaining mutants, transgenic and wild type Arabidopsis plants.
- It is used for transgenic plant culture

Animal Tissue Culture Laboratory

- CO₂ incubator: Used specifically for culture of mammalian cells.
- Biological Safety Cabinet: Used specifically for culture of mammalian cells.
- Water Bath: Used for warming solutions prior to culture.

Inverted Microscope:

- To study the droplet pattern of aqueous Laponite suspension varying the ambient condition.
- Used for visualizing mammalian cells in culture under sterile conditions and for immunocytochemistry experiments involving mammalian cells.

3. General Biology Laboratory

Atomic Absorption Spectrophotometer (PinAacle-500)

• It is used for the detection of Cadmium, Iron, Lead, Arsenic, Nickel and Copper in their individual water and soil samples to specify the metal pollution risks at the sample collection sites.

Growth Chamber and Incubator



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• Growth chamber & BOD incubator shaker is being used for optimizing growth of various microbes and also standardizing their various growth parameters like temperature, optimum humidity, light intensity etc.



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4. Chemistry Laboratory:

- For accurate weighing and preparation of protein samples, buffers at various pH, antibiotic drug solutions, salt solutions, acrylamide stock solutions.
- Designed Synthesis and purification recrystallization of Cu(II) complex with anthracene-azo-oxime.

• Spectral & Electrochemical characterization of the Cu(II) complex. Instruments Used-Rotary evaporator with chiller, Digital Balance, Magnetic stirrer, heating mantle with reflux condenser, UV-Vis Spectrophotometer, Fluorimeter and Cyclic Voltmeter.

5. Science Education Laboratory:

Teaching Purpose:

• Second year U.G. Physics worked on the Vernier Mechanics system & performed serval experiments, testing out Vernier sensors & the logger pro device.

• Department of Chemistry Semester –IV Instrumental Practical (Paper code: CH34511P) used the Labquest interface.

Viscometer

- Fluids of different viscosity like, aqueous solution of different salts, gelatin solution, Laponite solution of different concentrations, tomato ketchup, butter solution etc. are studied.
- Also used to determine whether an unknown solution is Newtonian fluid or Non-Newtonian in nature.

Dehumidifier

• It is used to maintain different ambient condition during crack pattern formation of drying film.

6. Instrumental Laboratory

F-7000 Fluorimeter

- To analyze GFP or GUS expression in plants for assessing stable transgenic lines or during transient activation assays.
- It is used for enzyme assay
- Spectrofluorimeter is used studying Spectroscopic properties of proteins and temperature variation studies in proteins
- BSA-Oleic acid systems have been worked on with Ln-Tc complexes
- BSA-Oleic acid system has been worked on with Ln-Tc and different denaturants link urea/Guanidium hydrochloride
- Fluorescence and phosphorescence studies have been performed with GAPD and quencher molecules currently.
- Measurement of intrinsic fluorescence quenching during protein ligand interaction.

U-2900 UV/VIS Spectrophotometer



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- Measuring Absorbance @ 230,260, 280, 595, 600 nm.
- Used for calculating protein, DNA or RNA concentrations.
- It is used for enzyme assay

Fluorescence Microscope

• Fluorescence microscopy is used for detection of cell damage. Cells are treated with fluorescent dye and then placed under microscope. Healthy cells appear intact while damage cells have ruptured membranes.

Binocular Microscope

• To study the droplet pattern of aqueous Laponite suspension varying the ambient condition.

Lyophilizer

• Currently being used for freeze drying colloidal chitin, plant extracts and bacterial cell pellets which were further used for certain inhibition and degradation processes.

Magcam Camera

• It is used to study the fluid dynamics through droplet evaporation.

7. Networking

- Simulating periodic wetting-drying crack network and studying fluid flow in porous media.
- Application of different algebraic topological tools on both simulated and real physical systems to understand behaviour of different dynamical systems.
- Running in-house codes to study the properties of various oxide clusters (like FeO, MgO etc.).
- Mathematica has been procured, installed and available for the students and faculty for regular use.

INSTALLATION OF NEW INSTRUMENTS UNDER DST-FIST II (2019)

- ➢ Advance HPLC System − Waters
- ➢ Modular Compact Rheometer − Anton Paar
- ➢ Mathematica Software 15 User − Wolfram
- ➢ FTIR Model: Alpha II − Bruker Optics, Germany

I. Fourier Transform infrared Spectrophotometer- FTIR

Make: Bruker Optics GmbH & Co. KG., Germany Model: ALPHA II Key Features:



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A A4 size, 7 Kg weight FTIR having specialized patented permanently aligned Interferometer with Gold coated mirrors for long life and better reflective quality. The specialized ZnSe Beam splitter and ZnSe windows assure immunity to environmental

The specialized ZnSe Beam splitter and ZnSe windows assure immunity to environmenta conditions as such almost zero maintenance in long run.

Optimized Centre Glow technology for Light source allows for continuous stabilized light flux.

High stability against temperature change is possible with DLaTGS detector.

Offers one of the highest Signal to Noise Ratio of 55,000:1

Performance Guard system diagnostics: Continuous electronic monitoring of all spectrometer components, performance, humidity, and temperature

Fully automated test routines for operational and performance qualification (OQ, PQ) and Automatic recognition and individual calibration of Quick Snap modules and ATR-crystal plates.

Full compliance to cGMP/GMP, US, European and Japanese Pharmacopeia and 21 CFR Part11

II. MCR 72 MODULAR COMPACT RHEOMETER

Make: Anton Paar Model: MCR 72 Key Features:

Main Instrument

Measuring head type : Direct current synchronous motor with linear relationship between torque & stator current

Measurement types: Rotational, Oscillatory & Transient

Torque range: 200 µnm to 120mnm or better

Frequency range: 10-3 to 600 rad/s or better

Angular velocity range: 10-3 to 150 rad/s or better

Angular resolution: 614 nrad

Strain sensor: High resolution optical encoder

Gap setting: Fully automatic and force-limited gap-setting function to guarantee an exact and reproducible gap-setting procedure at any time

Connection types: USB, Ethernet, rs232, analog interfaces, pt100 port

In-built lighting controlled through rheometer software: The rheometer should be fitted with an in-built illumination to make the sample trimming and gap setting procedure easier and safer.

Plate/Plate & Cone/Plate Measuring Systems

Parallel plates: 50 mm - smooth surface - steel plate-01 no.

25mm - smooth surface - steel plate-01n0.

Cone geometries: 40/1 - smooth surface - steel cone



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25/2 - smooth surface – steel cone

Temperature control for plate/plate & cone/plate measuring geometriesType: air cooled peltier temperature control (without external circulator)Temperature range:-10 to 215 deg cHeating rate:40 deg c/minute or betterCooling rate:35 deg c /minute or better

III. Waters Advance HPLC System Make: Waters Model: 1525 Binary Gradient HPLC Pump, 2489 UV/Visible Detector Key Features:

1525 Binary Gradient HPLC Pump with Gradient mixer

- Dual pump with gradient system
- Precise stepper motor control (48 steps/ul resolution) of dual reciprocating pistons to ensure pulse free solvent delivery
- Programmable flow rate range: 0.000-10.00 ml/min/pump in 0.01 ml/min increments
- Maximum operating pressure: 6000 psi
- Automatic seal wash and auto- priming
- Flow precision: 0.1% RSD
- Compressibility compensation: Programmable
- Delay Volume: < 200 ul.
- Flow calibration: Programmable
- The flush front panel design and tactile keypad for error-free programming of pump parameter including flow rate, operating pressure limits, compressibility compensation, purge mode, calibration and diagnostics
- Operating pressure limits: Programmable high and low pressure limits, user selectable in psi, bar, kPa.
- The system should be capable to withstand the retention time variations of less than
- 0.1% for highly reproducible peak performance.
- Pressure Ripple <2.0%
- Plunger guiding system: Floating, self-aligning mount
- Primary wetted surface materials: 316
- stainless steel, sapphire, reinforced fluorocarbon polymer seals
- In build gradient mixer
- System has the capability to operate in at least 11 various gradient curve mode including Liner, Step, concave, convex. Exponential etc.

2489 UV/VISIBLE DETECTOR

• Wavelength range: 190 to 700nm



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- Bandwidth: 5 nm
- Wavelength Accuracy: 1nm (via patented Erbium filter)
- Wavelength repeatability: 0.1nm
- Linearity: <5% at 2.5AU propylparaben, 257nm
- Baseline noise, single wavelength: <5x10-6AU, dry cell 230nm, 10Hz, 1.0s
- Baseline noise, dual wavelength: <12x10-6AU, dry cell, 230, 280nm, 1Hz, 2.0s
- Drift: 1x10-4AU/hour
- Measurement range: 0.0001 to 4.0000AU
- Data acquisition: Up to 80Hz
- Light Source: Deuterium arc lamp, warranty: 2000 hours or 1-year warranty (whichever comes first)
- Flow Cell design: Patented Taper Slit.
- Path length: 10mm (analytical cell)
- Cell Volume: 10µL (analytical cell)
- Pressure limit: 1000psi (analytical cell)
- Wetted materials: 316 stainless steel, fused silica, FEP, PEEK
- Power requirements: 100 to 240VAC
- Line frequency: 50 to 60 Hz
- Power consumption: 185VA (normal)
- Outputs: Four outputs (2 analog and 2 event)
- Inputs: Four event inputs
- Operating temperature: 4-40°C (39-104°F)
- Operating humidity: <95%, non-condensing
- Can also be used as Bench-Top UV Spectrophotometer

PROCUREMENT OF NEW INSTRUMENT

Zetasizer Advance Lab Blue

ANNUAL MAINTAINENCE CONTRACT

- Cold Room (4 Degree)
- ➤ F-7000 Fluorimeter
- ➢ U-2900 UV/VIS Spectrophotometer
- Elga Water Plant
- $\blacktriangleright \text{ HP Proliant Server} 2$

Calibration

- ➢ F-7000 Fluorimeter
- ► U-2900 UV/VIS Spectrophotometer
- Atomic Absorption Spectrophotometer (PinAacle-500)
- BOD Incubator Shaker
- ➤ -20 Deep Freezer
- Pressure Gauge (upto 4000 psi)
- Electronic Balance 1mg to 220 gm



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- > Refrigerator
- Digital Balance Sartorious (0.1mg to 120 gm)
- Digital pH Meter
- ➢ Glassware
- Micro Pipette (Single Channel Variable)
- Conductivity Meter (only for 1413 /500/100)
- Digital Temperature Meter

Central Instrumentation Facility - Funded by DBT-BUILDER

The Central Instrumentation Facility has been sponsored by the DBT-BUILDER programme (under DBT, Government of India), which is aimed towards boosting Interdisciplinary and Advanced research in the field of Biological Sciences. The funding is provided to develop an infrastructure for cutting-edge research and with this support the facility now houses instruments worth Rs. 1.56 crores. The procured instruments are all high-end and extremely sophisticated and are primarily used for research in the fields of molecular biology, cellular biology, microbiology and protein chemistry.

Equipment Type	Name of Particulars	Year of	Cost of	
	(Model/Make)	Purchase	Equipment (Rs.)	
	QUANT STUDIO 5.0			
REALTIME PCR	MAKE:THERMO,	2021	11,81,894.00	
KEALTIME PCK	Cat.A28569 SUPP: PATEL	2021	11,01,074.00	
	CHEM			
	MULTISCAN SKYHIGH			
	WITH TC CU , Cat.			
NANOSPEC	A51119700DPC	2021	6,99,993.00	
	MAKE:THERMO , SUPP:			
	PATEL CHEM			
	LEICA DM4B,WITH			
	LEICA DFC3000DIGITAL			
	CAMERA, LED1 FL			
FLUORESCENCE	LIGHT AND LASX	2021	18,00,750.00	
MICROSCOPE	MULTI CHANNEL	2021	18,00,750.00	
	MAKE:LEICA , SUPP:			
	DHR HOLDING INDIA			
	PVT. LTD.			

List of instruments harboured in the Central Instrumentation Facility



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			1	
	CRYO CUBE ULT			
	FREEZER F440n WITH			
	5KVA SERVO			
-80°CFREEZER	STABILIZER	2021	5,61,750.00	
	MAKE: EPPENDORF,			
	SUPP: EPPENDORF			
	INDIA PVT. LTD			
	5810R WITH ROTOR			
REFRIGERATED	AND ADAPTER			
CENTRIFUGE	MAKE: EPPENDORF,	2021	5,98,500.00	
CENTRIFUGE	SUPP: EPPENDORF			
	INDIA PVT. LTD			
	FP 8300 JASCO WITH			
	PLATE READER FMP			
FLUORESCENCE	825,QUARTZ CELL ,PC-		21,50,000.00	
SPECTROMETER	SPECTRA MANEGER	2021		
SPECIKOWEIEK	VER.2.15B			
	MAKE:JASCO, SUPP:			
	BDS ANALYTICAL			
EDL C	AKTA PURE25L FPLC	2021	20 16 265 00	
FFLC	CYTIVA ,	2021	20,10,303.00	
	AFFINITY I T C LOW			
	VOL. GOLD CELLS	2022	62 65 212 00	
AFFINITYTIC	WATERS PVT LTD, TA	2022	05,05,515.00	
	INSTRUMENTS			
	CL 2 TYPE, MODEL:	2021	2 28 000 00	
BIO SAFETY	BSFII-A2	2021	2,38,000.00	
FPLC AFFINITY ITC	BDS ANALYTICAL AKTA PURE25L FPLC CYTIVA , AFFINITY I T C LOW VOL. GOLD CELLS WATERS PVT LTD, TA INSTRUMENTS CL 2 TYPE, MODEL:	2021 2022 2021	20,16,365.00 63,65,313.00 2,38,000.00	

Education Multimedia Research Centre (EMRC)

Educational Multimedia Research Centre (EMRC)-KOLKATA is one of the 19 media centers in the country established by the UGC, New Delhi for the proliferation of education through information and communication technology.

Though EMRC Kolkata produces educational programmes of all genre- syllabus oriented, instructional ones and enrichment programmes in documentary format, the mandate presently is mostly to make Massive Open Online Courses (MOOC) for the SWAYAM platform.



Status

ACADEMIC AUDIT 2023

EMRC Kolkata, also engages in regular research projects, conducts workshops and seminars and also has lectures on demand for students of remote areas through the multicast facility of EDUSAT platform.

The present activities of EMRC can be classified as:

- a) Pre-Production: Helping resource persons to make and upload MOOC proposal in SWAYAM INFLIBNET.
- b) Production: Shooting the video of Lecture Program.
- c) Post Production: Preparing the Graphics, Editing the modules, getting the Academic review & Technical Review done.
- d) Online uploading: Uploading courses in SWAYAM Platform
- e) Budgeting: Preparing Resource Person Budget + Production budget (according to the guidelines of CEC)
- f) Research, Seminars and workshops: Undertaking research projects and conducting seminars and workshops in collaboration with colleges and universities.
- g) Translation More than 40 courses are being translated in Bangla.

Astronomical Observatory

Fr. Lafont Observatory, one of the oldest in the sub-continent, set up in 1865 by Rev. Eugene Lafont S. J., who is considered as the "Father of Modern Science in India". In November 1865 the observatory predicted about an impending severe cyclonic storm, thereby saving hundreds of lives. Recently the observatory has been upgraded by spending more than Rs. 1 Crore. The inauguration took place on 10th March 2014. It is definitely one of the oldest and biggest set up in an educational campus, which needs a special mention.

Table 1:	Departments	in	the	College
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Stage	Discipline	Departments
UG	Arts	B.A. in English
		B.A. in Bengali
		B.A. in Sociology
		B.A. in Political Science
		B.A. in History
		B.A. General
	Science	B.Sc. in Mathematics
		B.Sc. in Physics
		B.Sc. in Chemistry
		B.Sc. in Microbiology
		B.Sc. in Economics

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		B.Sc. in Statistics
		B.Sc. in Computer Science
		B.Sc. in Mass Communication and Videography
	Commerce	B.Com.
	Management	BMS
	Education	B.Ed.
PG	Arts	M.A. in English
		M.A. in Bengali
		M.A. in Sociology
		M.A. in Political Science
		M.A. in Education
	Science	M.Sc. in Physics
		M.Sc. in Microbiology
		M.Sc. in Economics
		M.Sc. in Computer Science
		M.Sc. in Data Science
		M.Sc. in Biotechnology (5-year integrated)
		M.Sc. in Multimedia (5-year integrated)
	Commerce	M.Com.
Doctoral	Arts	Ph.D. in Bengali
		Ph.D. in English
		Ph.D. in Political Science
	Science	Ph.D. in Physics
		Ph.D. in Microbiology
		Ph.D. in Computer Science
		Ph.D. in Biotechnology
	Commerce	Ph.D. in Commerce

 Table 2: Student Strength in 2021-22

Sl. No Department Name	1 St Year	2 nd Year	3 rd year	4 th Year	5 th Year	Total	
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ACADEMIC AUDIT 2023

1	B.Com. (Morning)	781	689	718	-	-	2188
2	B.Com. (Evening)	649	438	475	-	-	1562
3	B.Com. (Raghabpur)	75	58	62	-	-	195
4	BMS	171	148	157	-	-	476
5	B.Sc. Physics	47	43	38	-	-	128
6	B.Sc. Chemistry	63	38	42	-	-	143
7	B.Sc. Statistics	76	55	52	-	-	183
8	B.Sc. Economics	80	61	63	-	-	204
9	B.Sc. Computer Science	68	48	50	-	-	166
10	B.Sc. Mathematics	93	27	64	-	-	184
11	B.Sc. Microbiology	66	56	46	-	-	168
12	B.Sc. Mass Communication	68	40	58	-	-	166
13	B.A. English	81	62	55	-	-	198
14	B.A. Political Science	70	49	44	-	-	163
15	B.A. Sociology	53	65	61	-	-	179
16	B.A. Bengali	10	16	15	-	-	41
17	B.A. Bengali (Raghabpur)	29	35	43	-	-	107
18	BA - General	58	43	51	-	-	152
19	BA - General (Raghabpur)	48	50	80	-	-	178
20	B.A. History (Raghabpur)	37	34	44	-	-	115
21	B.A. Pol. Sc. (Raghabpur)	21	-	-	-	-	21
22	M. Sc. Physics	52	48	-	-	-	100
23	M. Sc. Computer Science	50	57	-	-	-	107
24	M. Sc. Microbiology	50	43	-	-	-	93
25	M. Sc. Biotechnology	52	51	37	36	39	215
26	M.Sc. Multimedia	61	58	56	50	15	240
27	M.Com.	86	73	-	-	-	159
28	M.A. English	84	46	-	-	-	130
29	M.A. Pol. Sci.	46	19	-	-	-	65
30	M.A. Sociology	34	29	-	-	-	63
31	M.A. Bengali	28	20	-	-	-	48
32	M. Sc. Economics	58	35	-	-	-	93
33	M.A. Education	17	-	-	-	-	17
34	M.Sc. Data Science	-	-	-	-	-	0
35	B.Ed.	100	95	-	-	-	195

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ACADEMIC AUDIT 2023

36	Ph.D.	16	16	17	15	17	81
37	Others (COP)	188					188
Total							8711

Table 3: Ph.D. Scholars with Teaching Assignment in 2021-22

Sl. No.	Department	Number of Scholars
1	Biotechnology	16
2	Physics	11
3	Microbiology	31
4	Commerce	35

Table 4: Faculty Strength in 2021-22

Sl. No	Departments	Full Time	Part Time	Guest / Visiting	Total
1	Bengali	5			5
2	Hindi	1		1	2
2	Education	14	1	1	16
3	Management	7		1	8
4	Biotechnology	10		1	11
5	Chemistry	7			7
6	Commerce (M + E)	66	12		78
7	Computer Science	10			10
8	Economics	7			7
9	English	9			9
10	History	1	1		2
11	Journalism	1		1	2
12	Mass Commutation	4		4	8
13	Film Studies				0
14	Mathematics	7			7
15	Microbiology	9	1	1	11
16	Multimedia	9			9
17	M. Com.	3	10		13
18	Physics	14		2	16
19	Political Science	7	2		9

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20	Sociology	8			8
21	Statistics	6	1		7
22	Environmental Studies	1			1
23	Bengali (Raghabpur)	7	2		9
24	Commerce (Raghabpur)		4		4
25	Political Science (Raghabpur)	2	2		4
26	History (Raghabpur)	2	2		4
27	Communicative English	1		4	5
28	Data Science				0
29	Games & Sports	1			1
30	Social Work	3			3
31	Girls Hostel	3			3
32	Administrative	2			2
33	Central Library	1			1
34	COE	1			1
35	COUNSELING		5		5
36	Cultural Activities	1			1
	Total	230	43	16	289

6. <u>OBSERVATIONS</u>

The Audit Team members expressed their deep satisfaction over various aspects of the college. They opined that the College had potential for further improvement and could be a Model College in India. Observations made by the Audit Team are given below:

CONTROLLER'S OFFICE

- Well-appointed staff strength (NEP implementation will necessitate rethink in staff structure).
- Target days for result publication-60.
- Supplementary Exams for Semester 5 and 6 in undergraduate level and for Semester 3 and 4 for Post Graduate Level.
- Plagiarism check for projects with very steep threshold.
- 20% scripts examined by external examiner.



Status

ACADEMIC AUDIT 2023

• Moderators change every TWO years.

Areas of Improvement:

- 14 Departments failed to meet the result publication deadline in the last result publication. This can be looked into.
- A cause finding exercise may be carried out for alarming increase in Supplementary in post covid off-line examination results.

RAIN WATER HARVESTING

Highlights:

- The underground tank stores the rainwater, which has a large capacity of 35000 litres.
- This tank also stores the excess water in case the overhead tanks overflow, which might be otherwise wasted.
- This water is used to maintain the greenery of the campus.

Areas of Improvement:

- Quality check of the water, should be done periodically at least in an interval of 3 months.
- There should be a process to collect the data of storage amount/day and utilization/day at least during the days of rainfall to estimate the effectiveness of the facility in water-reuse.

SOLAR POWER GENERATION

Highlights:

- The generated power contributes to the grid.
- The panels and the facility is well maintained.

Areas of Improvement:

- Considering the large usage of power, the college needs more solar panel installations.
- It seems that the solar power gets stored in battery and then connects to grid, direct grid connectivity can be better for cost effectiveness and maintenance.
- Data for the solar energy generation with timestamp needs to be collected which can be a great data for research as well as for the industry installations, considering the strategic position of the college in the city.

STATISTICS & DATA SCIENCE



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ACADEMIC AUDIT 2023

Highlights:

- Good Faculty Profile
- Teachers are dedicated to teaching
- NEP Planning has been initiated
- The Master's Program in Data Science is an excellent program for the department.
- The department has organized good workshops.
- Strong Alumni Profile

Areas of Improvement:

- Industry representatives should be stronger in the Board of Studies, especially considering the Data Science Course.
- Teachers should focus on writing research papers in UGC-CARE/Scopus/SCI indexed journals.
- UG syllabus should be designed in consultation with PG department considering NEPbased syllabi.
- The planning for the Master's project is still not initiated and needs to be done ASAP. Data Science is a big domain so the project verticals need to be finalized.
- Collaboration with other departments except Computer Science is missing.
- International Collaboration is lacking.
- Industry Collaboration should be expedited as Data Science is the core PG course.

COMPUTER SCIENCE

- Faculty Count is good
- Teachers are dedicated to teaching
- Courses both UG and PG is well structured
- The Ph.D. program exists.
- Has good industry connect
- Strong Alumni Profile
- The department has organized good workshops and there was a good representation of industry in these workshops.
- Bridge course for PG students who have a BCA background.
- Collaborating with multiple departments of the college such as Statistics, Commerce, and Biotechnology.



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ACADEMIC AUDIT 2023

Areas of Improvement:

- International Collaboration is very less.
- Teachers should focus on writing research papers in UGC-CARE/Scopus/SCI-indexed journals.
- The department should have more outreach activities in the digital transformation domain for the various societal problems.
- The department has a Ph.D. program, but the department's research profile is not well stated in the presentation. The department should come up with research domains in cutting-edge technologies and applications.
- International Collaboration is lacking.
- Industry Collaboration should be expedited as Data Science is the core PG course.

ENGLISH

Highlights:

- Dynamic faculty.
- Good teacher-student ratio.
- Use of films as out-of-the-box pedagogical approach.
- Some evidence of Scopus-indexed articles.
- Reasonably strong Ph.D. programme.

Areas of Improvement:

- Need to take initiative for introducing departmental journal.
- Faculty should publish much more in UGC CARE listed/Scopus-indexed journals.
- Should introduce students' blogs.
- Tweak the syllabus to reflect current global emphasis on gender and race.
- Should develop senior-junior interface among existing students.

POLITICAL SCIENCE

- Good combination of senior and young faculty members.
- Syllabus reasonably balanced with theoretical and empirical concerns.
- Spadework for post-NEP syllabus being done.



Status

ACADEMIC AUDIT 2023

- Holds periodic seminars, webinars and conferences on relevant themes.
- Publishes departmental journal.

Areas of Improvement:

- Should take initiative for the ISSN tag for the departmental journal.
- Faculty should publish in UGC CARE listed/Scopus-indexed journal.
- May introduce students' blogs.

MICROBIOLOGY

Highlights:

- Student centric Research with UG students publishing in journals with impact factor (Clarivate).
- Paper presentation of students especially UG, in Indian Science Congress, etc.
- Commendable Student achievements and progression to premier national and international institutes.
- Patent by students.
- Outreach program with Village Farmers (Ghoramara) with in-house developed fertilizer having microbial consortia.
- Extramural funding, viz. DBT grants.
- Significant Consultancy inflows.

Areas of Improvement:

- Revive Institutional Bio-Safety Committee (DBT) with immediate effect.
- Laboratory SPACE Problem.
- Journal to be care listed.
- Collaborate Journal Publication with some publishing house.
- Ph.D. intake dependent on scholarships.
- Syllabus Revision (NEP related).
- Corporate tie-ups.

BIOTECHNOLOGY



Status

ACADEMIC AUDIT 2023

- Syllabus revised in 2023.
- Commendable Student's progression.
- High percentage of students qualifying in NET and equivalent examinations in Life Sciences.
- Students encouraged to read reviews/papers on teacher assigned topic related to syllabus and then discuss the same in the class moderated by the teacher, similar to that of class audit.

Areas of Improvement:

- Revive Institutional Bio-Safety Committee (DBT).
- Laboratory SPACE Problem.
- Ph.D. Scholarships.
- Corporate tie-ups.
- Lack of Consultancy Projects.

Note:

For both departments some arrangements to be made for Scholars to stay overnight in campus/laboratory for monitoring experiments that need 24X7 monitoring.

MASS COMMUNICATION & VIDEOGRAPHY. (FILM STUDIES & JOURNALISM)

Highlights:

- Apple lab with iMac and software.
- Reasonably good set up for Practical.
- Good classroom infrastructure.
- Commendable Student achievements.
- Career progression commendable.
- Well stocked digital library.
- Film club and Film societies.

- Exact data about the alumni.
- Space crunch.
- Should Start PG Program.
- Need more faculties



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ACADEMIC AUDIT 2023

- Record maintenance of meetings need to be more organized. (Uniform College Practice Required).
- Internships to be given more effort.
- Journals in collaboration with other publishers to be brought out.
- Tie ups and collaborations needed to bring funds.

MULTIMEDIA

Highlights:

- Robust integrated 5-year PG Program.
- NEP ready.
- Excellent Infrastructure.
- Apple lab iMac and software.
- Good Faculty.
- Well placed students.

Areas of Improvement:

- Ph.D. qualification needed for Faculty members.
- Else starting Doctoral program in future may not be possible.
- More collaborative publication required.
- Data regarding alumni not maintained.

Note:

One Single School to bring both the departments under one roof. Cross utilization of Faculty members will benefit and create better synergies.

ECONOMICS

Highlights:

- Good career progression of students.
- All India rankings.
- Internal Evaluation (CIA) very strict.
- External Paper setter QP is aligned to the syllabus coverage.



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ACADEMIC AUDIT 2023

- Inadequate faculty strength for a PG Department.
- NEP readiness required.
- Journals or volumes to be published in collaboration with renowned publishers.

CHEMISTRY

Highlights:

- Good Equipment facility and its utilization by students and faculty members.
- Good publication profile of faculty members.
- UG students' publication in Scopus indexed impact factor journals.
- Syllabus oriented to expose students to instrumentation skills in applied interdisciplinary developing applications

Areas of Improvement:

- Syllabus upgradation needs to be initiated.
- Faculty strength in Inorganic is less.
- The overall presentation of the department highlighting Key Features and State-of-the-Art Practices to be done.
- Outreach program on SDG goals such as Environment, Food Quality and Security, and Human Health needs to be planned.
- International Collaboration is lacking.
- Industry Collaboration is lacking.
- IPR generation needs to be focused.

PHYSICS

Highlights:

- Good faculty strength and research profile of the faculty members
- Department has Astronomy Centre for research, training and outreach program.
- Virtual Laboratory has been developed.
- Ph.D. Program exists and PhD alumni present their work to current students
- UG students publish in Scopus indexed journals
- Strong Alumni Profile.
- Good Outreach programs.



Status

ACADEMIC AUDIT 2023

- The faculties are not able to spend time on research. (Some of faculty members may spend some more time on research)
- National and International Collaboration needs to be enhanced.
- Ph.D. areas need to be highlighted in the presentation document. (Ph.D. areas need to be highlighted)
- The virtual lab is only limited to students of the college; it can be made accessible to other institutes too.
- Student research publications need to be highlighted in the departmental presentation
- Linux based computational facility and HPC either cloud-based/ on premise is lacking.
- IPR generation needs to be focused.

MATHEMATICS

Highlights:

- Good faculty strength and research profile of the faculty members
- Good presentation document
- Faculties have contributed in writing popular text books.
- Strong Alumni Profile.
- UG students publish in Scopus indexed impact factor journals
- Good student progression for higher studies to reputed institutions
- Teacher enrichment workshops held (viz. IISER, Mohali)
- UG Student Seminars encouraged

Areas of Improvement:

- Applied Concepts such as coding theory, cryptography, and quantum computing are not included in the special papers
- National and International Collaboration needs to be enhanced.
- Student research publications need to be highlighted in the departmental presentation
- Programs like Olympiad could be a good avenue for the department.

BENGALI

Observations:

- Innovative course structure and pedagogy, with stress on literature-society interface and translation.
- Skill- and industry-orientation with focus on book publishing and computer application.



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ACADEMIC AUDIT 2023

Areas of Improvement:

- Need to address lack of publications in UGC CARE listed/Scopus-indexed journals.
- Should look for funded research projects.
- Better documentation of academic events and activities required.

SOCIOLOGY

Observations:

- Energetic faculty.
- Existence of one research project.
- Impressive number of academic events, including seminars and lectures.
- Having student-centric publication in the form of a magazine.
- Faculty contribution to MOOC.

Areas of Improvement:

- Need to explore more funded projects (such as from the ICSSR) from India and abroad.
- Improve documentation of academic events and activities, including virtual links.
- Faculty required to publish in UGC CARE listed/Scopus-indexed journals.
- Should introduce students' blogs.
- Should develop senior-junior interface among existing students.

BA GENERAL and COMMUNICATIVE ENGLISH

Observations:

- Syllabus varied and multidisciplinary with impressive balance.
- Everyday orientation in pedagogy.
- Strong extracurricular activities including sports.

Areas of Improvement:

• May explore the scope of introducing sports management as a field of study.

COMMERCE (MORNING)

Observations:



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ACADEMIC AUDIT 2023

- Largest and very well renowned Commerce department in the country.
- Reasonably good number of faculties with Ph.D.
- Student-Teacher collaborative publications.
- Good placements.
- Fin Lab.
- Reputed alumni.
- Good mentoring structure.
- Excellent college hours.
- Excellent co-curricular activities.
- Student participation in case discussion.
- Faculty publication commendable.
- Excellent NSS.
- Good number of entrepreneurial aspirations from each batch.
- Student Appraisal process properly followed.

Areas of Improvement:

- Hostel seats may be increased.
- Collaboration with reputed publisher for journal publication needed.
- Case repository needed.
- In NEP ready structure college needs to think how to offer certain minor or Skill Development programmes that a student may choose to study offered by other departments keeping in mind the difference in college hours.
- Fund generation insufficient.
- More corporate collaborations needed for fund inflow.
- Consultancy to be encouraged.

RAGHAVPUR CAMPUS

Observations:

- Locational Advantage to do many outreach programmes.
- Good infrastructure.
- Rainwater harvesting.
- PG program in History and Bengali.
- Ph.D. Program in Bengali.



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ACADEMIC AUDIT 2023

- Projects undertaken by History Department.
- Bengali department has the greatest number of Ph.D. qualified Faculty.
- PC culture.
- Training of villagers.
- Vocational training facility in the anvil.
- Counselling to be started.
- 70% Girl students.
- Student mapping done.
- Medium of instruction: Bilingual.
- Special effort for teaching English communication, presentation skills, etc. to the students.
- Planned sports academy.

- Entry to the campus is a barrier to admission.
- Absence of Hostel for Girls preventing outstation applicants.
- Inadequately stocked library.
- Library journal display rack needed.
- Utilization of Fin Lab of Kolkata Campus.
- Greater interaction with Kolkata Campus.
- Ramp access for differently abled.
- Under-utilization of intake capacity.
- Need effort for greater visibility of the programs in nearby villages and schools.
- More scholarships needed to enable inclusive learning for local socio-economically disadvantaged students.
- More Alumni effort to be directed in this campus.
- Departments need to highlight their achievement and Challenges properly for NAAC.
- Publications to be encouraged.
- Faculty research infrastructure needed.
- Syllabus last revised 2018.
- Student Intake relaxation in Commerce Department necessitates Bridge Course in Mathematics to reduce supplementary in the subject.
- SHD to be created during admission session to help, counsel and submit application.
- Girl student sanitary health concerns to be properly counselled and guided. Sanitary Napkin dispensing machines to be installed.
- Alumni (Raghabpur Campus) record to be properly maintained.



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ACADEMIC AUDIT 2023

- NEP readiness will require more options to be given to students.
- Improvement of common facilities for students needed.
- Industry connects, especially media and publication houses for Political Science and Bengali department is weak.
- E-scrap and E-waste management should be attended.
- Internet and Wi-Fi connect for entire campus.

CENTRAL LIBRARY

Observations:

- Impressive collection of books.
- Meticulous organization, impeccable maintenance, with perfect ambience for reading.
- Successful use of state-of-the-art technology for transactions.
- Open access for students.
- Extensive provision of computers and tabs for users.
- Dedicated space for researchers.
- Strong system of plagiarism checks.
- Use of RFID indicating cutting-edge detection.

Areas of Improvement:

- Number of journals can be increased.
- Some cases of 'mixing' of books of with different numbers in the stacks need to be rectified.
- Need to have gender-specific database of users.
- Requirement of Thomson B2B database.
- Need to visualise better service to the disabled users.
- Require to explore possible linkages with libraries of reputed higher academic institutions abroad and India.

Ph.D. CELL

Observations:

• Functioning well.



Status

ACADEMIC AUDIT 2023

- Need to keep track of the Calcutta University Ph.D. Regulations (2022) and make relevant additions and alternations.
- Regarding the RAC, should strictly follow the stipulated designations of the External
- Members (Professors and Associate Professors only).

IQAC

Observations:

- Reflects concerted efforts, with well-defined structure.
- Achievement in being the mentor vide the "Paramarsh" scheme for mentoring other institutions regarding the NACC.
- Timely submission of AQAR.

Areas of Improvement:

- Need more regular updating of the College website.
- Should ensure perfect matching of information and data in both physical and virtual documents.
- Every piece of information to be backed up by evidences as per Standard Operating Procedures.
- Requires more rigorous documentation of review process for quality enhancement.

ACADEMIC COUNCIL

Observations:

• Functioning well. Resolutions well drafted, updated regularly and maintained meticulously.

Areas of Improvement:

• May consider more automated system.

OBSERVATORY

Highlights:

• Unique feature of the college, essential for (Astro) Physics students. What is to be appreciated is its 'open for all' approach, which includes school students.



Status

ACADEMIC AUDIT 2023

Areas of Improvement:

• May initiate some form training and/or awareness generation programmes.

GOETHALS LIBRARY

Highlights:

- A truly remarkable archive that will be of immense value to any scholar.
- The range of the collection is impressive, comprising both textual and non-textual archives.

Areas of Improvement:

- Proper curation is essential.
- We strongly suggest applying for external funds such as the Endangered Archives Project (British Library).
- Get experts to help with preservation and digitization of this invaluable archive.
- Physical books are needed to be preserved in digital form for long term research purpose.

B.COM (EVENING), BMS AND M.COM DEPARTMENT MEET

Highlights:

- Teachers are dedicated for teaching.
- Teachers should focus on writing on research papers in UGC- CARE listed Journal.
- Department should take initiative for publishing research based peer reviewed referred Journal as department has Ph. D programme.
- UG syllabus should be designed in consultation with PG Department together considering NEP based syllabi.
- Proper documents are to be maintained for all activities/ achievements in the department.

Department of Education



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ACADEMIC AUDIT 2023

- Faculty with multidisciplinary orientation.
- Matured students with varied disciplinary backgrounds.
- Research Journal with ISSN.
- Student magazine.
- Good number of co-curricular activities.

Areas of Improvement:

- Need to create better data base.
- Faculty need to write articles in UGC CARE listed/SCOPUS-indexed journals.
- Need to have concrete NEP-compliant course structure/s.
- May promote senior-junior student interface.
- May start students' blog.
- Should look for greater inter-departmental pedagogical collaborations.
- Strong placement and counselling drives for students.
- For NAAC purposes provide more quantitative evidence of achievements, student outcomes, employment, gender ratio, and faculty-teaching ratio.

Students: Very mature and articulate. Wonderful evidence of critical thinking. Their demands include the following:

- Rationalization of course structure with elimination of "irrelevant" courses.
- Much more practice-oriented curricula.
- Greater number of workshops and seminars dealing with cutting-edge themes.
- Specific attention to students changing streams and encountering difficulties in learning.
- Need to address problems arising out of conducting surveys in schools and acquiring certificates.
- Need for a pre-survey short orientation programme for students.
- Immediate introduction of courses dealing with finance and economics.
- Introduction of computer/digital training relevant to the discipline.
- More exposure to current textbooks and changing texts
- Attention to diversity of school boards
- Urgent need for Placement Cell and counselling
- Hands on and not only theoretical knowledge of computer softwares and LMS
- Workshops and seminars
- Urgent Observation of experts: current survey forms for school student surveys apparently do not have mandatory consent of guardians. This exposes the Education Department to



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possible Litigation and breach of ethics. Any survey involving minors must have consent of legal guardian

ENTREPRENEURSHIP DEVELOPMENT CELL

Highlights:

- Initially set up with DST funding in 2003.
- Excellent initiatives and programs to harness and pitch startup ideas to potential venture capitalists.
- Orientation programs undertaken to make students aware of the cell.
- Programs conducted throughout the year to motivate students.
- Providing Prototype development funds.
- Student outreach programs, adopting villages, conducting camps, etc.
- Creating startup firm.
- Creating Entrepreneurship Development Fund.
- Setting up Institution's Innovation council.

Areas of Improvement

- Organize brainstorming sessions to procreate more ideas and out of box thinking.
- Maintain follow up and keep data regarding conversion of ideas chosen by venture capitalists into real funding and their progression.
- There is no funding at present from any external source. Initiative should be taken to explore the probable government and private funding.
- Office restructuring and display of prototypes.

FINANCE LABORATORY

Highlights:

- State of the art facility.
- Plan for Bloomberg live database
- Installed with Statistical software and access to databases like Prowess, Capital Line, etc.

Areas of Improvement

- Capacity utilization.
- More courses to be offered in collaboration with various industries / stock exchanges.



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- Focus on revenue generation.
- Offer Career Oriented Programs.
- Offer workshops for employees from Industry.
- Alignment with curriculum would be a requirement with NEP in the anvil.
- Make the laboratory more inclusive by offering it to students from Raghabpur campus.

SPORTS

Highlights:

- Adequate sports events being organized.
- Commendable achievements by students in University, State and National level.
- Records maintained as per NAAC requirement.

Areas of Improvement

- Though it has been mentioned that funds are NOT a problem, still we felt that a separate BUDGET for sports department is necessary.
- Exclusive database for mapping progression of Students admitted in sports quota.

COMPUTER CENTRE

Highlights:

- Excellent set-up.
- Impressive upgrade regularity.
- Courses with joint certification with industry in the anvil.
- One-year Diploma course (It is however incorporated under COP department).

Areas of Improvement:

- Should focus more on revenue generation.
- Need to offer more employment ready programs
- Alignment with NEP curriculum with require more SPACE and Manpower.

CENTRAL RESEARCH FACILITY



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- State of the Art Instruments.
- Well utilized by students/faculty for research as evidenced by excellent research paper output (62 publications and 02 patents) and also by students doing their practical classes.

Areas of Improvement:

- Re-organize the hierarchical structure keeping into consideration Central Instrumentation Facility, Observatory and other Departmental Laboratories (Tissue culture, etc.) by amalgamating all verticals into a single facility enabling better resource utilization and avoiding duplication of efforts.
- Instrument wise Log book to be maintained.
- Power back up for -80° Machine.
- Visible disconnect between researchers and faculty in enabling access to instruments that are purchased under separate institutional grants like DBT builder. After all everything is college property.
- Better synergies can be generated through proper integration.

EDUCATIONAL MULTIMEDIA RESEARCH CENTRE

Highlights:

- Award winning documentaries.
- Recognized Thrice as Best EMRC in India.
- State of the art facilities.

Areas of Improvement:

- MOOC becoming more relevant in Post NEP era, manpower shortage will be felt.
- Inadequate effort in bringing aboard Course coordinators from institutes across Kolkata. Better networking and concerted effort required in this regard.
- EMRC needs more visibility in institutions across Kolkata.
- MOOCs in Bengali to be introduced with UGC stressing on Mother-tongue oriented teaching.
- College and EMRC should take up the once foregone initiative to start a channel for better dissemination of knowledge.
- Access for Differently abled people in the campus missing.



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- Better planning of office layouts can save overheads.
- Acute staff shortage.

PLACEMENT CELL

Highlights:

- Placements done for maximum no. of applicants
- Minimum salary 3 lakhs p.a.
- Large database of employers maintained
- Largest proportion of students placed from Commerce & allied streams

Areas of Improvement:

- Analyses of placements to be done subject/discipline wise per year
- Best practices to be identified
- To highlight alumni involvement/ help in enabling placements.

NCC CELL

Highlights:

- Oldest NCC unit in the country documented in *Chronicles of a Century* published by ANO of the unit
- Excellent track record; 1/3rd (50-52 cadets) appear for C certificate examinations and 10-15% get Alpha grade. Till date 17 cadets selected as Commissioned Officers in armed forces (2002-2021)
- Cadets regularly participate in Republic day parade at New Delhi, Youth exchange program, etc.
- Citations received from Coast Guard and Army (Bihar regiment)
- Governor's medal

Areas of Improvement:

• Brochure/Flyer to be prepared for distribution highlighting achievements of the unit

NSS DEPARTMENT



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Highlights:

- Cell functioning since inception of concept of NSS (1969)
- Run by full time staff exclusive to NSS Cell
- Doing excellent extension and outreach work
- Broadly 3 types of activities: Regular (Awareness sessions on COVID, Child Rights and Protection, Human trafficking, etc.), Annual (Awareness on AIDS, Gender issues, Shishu Mela, Children's Day celebration, etc.) and Special (Handicrafts Fair, Science awareness for Underpriviledged students, Participation in Unnat Bharat Abhygyan)

Areas of Improvement:

• Surveys to be done on the impact of the projects launched which would help understand the transformation in the socio economic and educational condition of the target group over a period of time.

CENTRAL INSTRUMENTATION FACILITY

Highlights:

- Commendable effort by concerned faculty members in bringing extramural institutional fund for development of CIF
- State-of-art sophisticated instruments

Areas of Improvement:

- AMC to be extended after 2023
- Access to Ph.D. students from allied departments NOT to be restricted.
- Holding of workshops (both in-house and external) to train in use of these instruments
- If possible, access of instruments to external personnel from other HEIs on payment basis

MEETING WITH B.A., B.SC., M.A. AND M.SC. STUDENTS

- Field work is needed.
- Much time is needed to complete the syllabus.



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- Mentoring system is appropriately going on.
- Dissertation is required for BA general.
- Students don't like one-month vacation.
- Much attention is needed for teaching in few subjects.
- Industry visit will be resumed.
- Audio system is to be operated properly.
- Lab time may be extended for project work.
- Industry exposure is required for M.Sc. course.
- Full coverage of syllabus is required.
- Application oriented teaching and practical exposure are needed for M.Sc. students.
- Apart from STATA, other statistical packages are to be made available.
- Placement for students are to be improved.
- More number of library books are required to be made available.

MEETING WITH B.COM (EVENING), BMS, AND M.COM STUDENTS

Highlights:

- Much time is needed to complete the syllabus.
- Mentoring system is appropriately going on.
- Much attention is needed for teaching in few subjects.
- Full coverage of syllabus is required.
- Application oriented teaching and practical exposure are needed.
- More number of library books are required to be made available.

MEETING WITH SUPPORT STAFF

- Soft skills training is required.
- Computer based training is needed.
- Library space is required to be enhanced.
- E-book and physical book portal may be merged together.
- Training for Library science is needed.
- Full ERP is required.
- Wellness facility is to be provided l.



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• Controller department may be segregated between confidential Section and general students Section.

MEETING WITH ALUMNI AND PARENTS

Highlights:

- Some memorial lectures may be organized on regular basis.
- Minimum one Chair Professor post may be created.
- Alumni award may be provided to the students in convocation.
- All forms of contributions to the College are to be documented for NAAC evaluation.

HOSTEL

Highlights:

- Well placed norms for Hostel entry timings.
- Comfortable rooms.
- Clean and hygienic washrooms.
- Well curated food menu.
- Access for differently abled.

Areas of Improvement:

- Transparent entry requirements.
- More Emergency Exit signage.
- Fire Extinguisher Identification.
- Sanitary Napkin Vending Machine in Girls Hostel was unplugged. Also there was no Incinerator.
- The wire of the Electric Iron needs to be changed.
- Boys Hostel was more organized.
- Feedback mechanism of the students missing.
- Computer with online Central Library access needed in the event of no laptop or exigencies.
- Dinner/Lunch Dishes were found chipped and cracked.



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MEETING WITH B.COM (MORNING) STUDENTS

Highlights:

- Much time is needed to complete the syllabus.
- Mentoring system is appropriately going on.
- Much attention is needed for teaching in few subjects.
- Full coverage of syllabus is required.
- Application oriented teaching and practical exposure are needed.
- More number of library books are required to be made available.
- Please add your observation and finalize.

INTERNATIONAL STUDIES

Highlights:

- None of the colleges in India has a Department of International Studies
- Government Collaborations.

7. <u>GRATITUDE</u>

The Committee members feel honoured and take this opportunity to express sincere thanks and gratitude to the College Authorities for the invited to conduct the audit. They would also like to express their heartfelt thanks to all the faculty members and support staff for their wholehearted cooperation along with the hospitality that has been extended to them during the audit conducted over four days.



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8. <u>SCHEDULE FOR ACADEMIC AUDIT</u>

Day 1 – 20.04.2023 (Thursday)

Time		Venue								
10:00 	Ι	Room 15 1 st Floor								
Time	Schedule Venue Time Schedule					Venue				
10:30 - 11:30	Visit to Controllers' Office	1st Floor			10:3	0 – 11:30	Visit to Facilities – Solar Power Generation, Rain Water Harvesting, etc.		College Premises	
	11:30 – 13:00 Departmental Visits									
Time	Schedule	Venue	Venue Time Schedule Venue Time Schedule				Venue			
11:30 	Statistics & Data Science	4th Floor MCV 4	11:30 – 12:15	English		R. K. Hall 2 nd Floor	11:30 	Micro- Biology	4th Floor	
12:15 13:00	Computer Science	4th Floor	12:15 – 13:00	Politic Sciend		R. K. Hall 2 nd Floor	12:15 13:00	Biotechn ology	4th Floor	
13:00 14:00	Lunch									



ACADEMIC AUDIT 2023

	14.00 – 10.15 Departmental Visits									
Time	Schedule	Venue	Time	Schedule	Venue	Time	Schedule	Venue		
14:00 	Mass Communica tion, Film Studies and Journalism	4th Floor	14:00 	Chemistry	4 th Floor MCV 4	14:00 	Bengali	R. K. Hall 2 nd Floor		
14:45 15:30	Multimedia	Jubilee Building	14:45 15:30	Physics	2nd Floor R. K. Hall Lab	14:45 15:30	Sociology	R. K. Hall 2 nd Floor		
15:30 - 16:15	Economics	Room 15A 1 st Floor	15:30 16:15	Mathematics	Room 15 1 st Floor	15:30 16:15	B.A. General	R. K. Hall 2 nd Floor		

14:00 – 16:15 Departmental Visits

Day 2 – 21.04.2023 (Friday)

Time	Schedule	Venue	Time	Schedule	Venue
10:00 - 11:00Meeting with selected faculty members of B.Com (Morning)Room 15 1st Floor10:00 - 11:00Department			10:00 _ 11:00	Visit to Central Library	Library
			11:00 12:30	Visit to PhD Cell, IQAC Office and Academic Council Office	R. K. Hall 2 nd Floor
11:00 – 17:	:00 Visit to Raghabpur Ca	12:30 - 13:00	Observatory	4 th Floor	
		13:00 - 14:00	Lunc	h	

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14:00 	Visit to Goethals Library	Chapel Building
15:00 - 16:00	Meeting with selected faculty members of B.Com (Evening), BMS and M.Com Departments	R. K. Hall 2nd Floor
16:00 16:30	Meeting with VP, Commerce Evening and BMS	Commerce Evening Office

Day 3 - 24.04.2023 (Monday)

Time	Schedule	Venue	Time	Sch	edule	Venue	Time	Schedule	Venue
	Education		10:00		ement l and	Jubilee	10:00 - 10:30	EDC	Jubilee Building
10:00 	Department (including meeting with	Education Building	_ 11:00	Ν	CC rtments	Building	10:30 11:00	Visit to Finance Lab.	Jubilee Building
	students)		11:00 - 11:30	NSS Department		Jubilee Building	11:00 - 11:30	Sports Departme nt	Room 15A 1 st Floor
11:30	Visit to Wellness	Education	ucation 11:30		sit to ntral	4th Floor	11:30	Computer	Chapel
12:00	Centre, ICT Room	Building	12:00		mental cility	40111001	12:00	Centre	Building
12:00 - 13:00	Meeting with B.A. / B.Sc. /M.Sc. Students 1 st Floo		-	= 12.00 - 13.00		Visit to Central Research Facility		Chapel Building	
13:00 - 14:00	Lunch								
14:00	14:00 – 17:00 Visit to EMRC			00 – 14:45 Meeting with B. (Evening), M.Co BMS Studen		Com and R. K. 2nd E			

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14:45 - 15:30	Meeting with Support Staff	R. K. Hall 2nd Floor	
15:30 - 16:30	Meeting with Alumni and parents	R. K. Hall 2nd Floor	

Day 4 – 25.04.2023 (Tuesday)

Time	Schedule	Venue	Time	Schedule	Venue			
10:00 - 10:45	Meeting with B.Com (Morning) Students	Room 15 1 st Floor	10:00	Visit to College	Hostel			
11:00 - 11:30	Meeting with VP, Commerce, Morning	Commerce Morning Office	11:30	Hostel	Hoster			
11:30 - 12:00	Meeting with Dean of International Studies	Room 15 1st Floor	11:30 12:00	Meeting with VP, Arts & Science	Room 15A 1st Floor			
12:00 - 12:30	Meeting with VP, Education	Room 15 1st Floor	12:00 - 12:30	Meeting with Honorary Secretary, Alumni Association	Alumni Room			
12:30 - 13:00	Meeting with Fr. Principal							
13:00 - 14:00	Lunch							
14:00 - 15:30	Preparation of Report							
15:30 - 16:00		Exit Meeting						



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ACADEMIC AUDIT 2023

9. SIGNATURES:

Prof. Dipankar Sinha Dipankar Sinha Professor of Political Science University of Calcutta

25 4 2023

Prof. Amlan Chakraborty-Director A. K. Choudhury School of IT University of Calcutta

Sanjy Suberty

Prof. Sanjoy Guha Roy

Dr. Sanjoy Guha Roy Professor of Botany West Bengal State University Barasat, Kolkata - 700 126, W.B.

Rev. Dr. Dominic Savio SJ Principal Date - 25 4125

Principal St. Xavier's College (Autonomous) Kolkata

jib Dargun

Prof. Rajib Dasgupta

PROPESSOR DEPT. OF COMMERCE UNIVERSITY OF CALCUTTO

20/25/09/2023

Prof. Siddhartha Sankar Saha

HEAD Department of Commerce University of Calcutta

Dr. Amrita Sen

Dr. AMRITA SEN Associate Professor & Deputy Director UGC-HRDC, University of Calcutta