DEPARTMENT OF MATHEMATICS

SONARI COLLEGE, SONARI 785690, ASSAM, INDIA

PROPOSED FIVE YEAR PLAN OF THE DEPARTMENT (2023-2028)

About the Department: Sonari College, having a single stream of arts, started its glorious flight with the feathered wing of science (stream) in 1984. This year, the Department of Mathematics at Sonari College was established along with the other four science departments. Md. Alim Ahmed, the subject teacher in mathematics at B.P.B.M. H.S. School, Sonari, offered his honorary service to the department and taught the first batch of students in the H.S. 1st year class. After one year, Mr. Tankeswar Baruah joined the department, and he retired on July 31, 2020, as head of the department. Mr. Bhupen Chandra Dihingia, Mr. Muhidhar Chetia, and Mr. Manuranjan Konwar were appointed in 1989, 1992, and 1997, respectively. But unfortunately, Mr. Muhidhar Chetia expired on September 16, 2020. Dr. K. Dehingia joined the department on December 1, 2021. The year 1992 appears to be remarkable to the department, as in this year, the science stream of the college was brought under the Deficit-Grant-in-Aid system of the government. In 1993–94, major courses were introduced. Since then, the department has been producing several graduate students. At present, the department has the following courses of study:

1. A four-year degree course in Mathematics under FYUGP (Dibrugarh University)
2. A three-year degree course in Mathematics under CBCS (Dibrugarh University)

N.B.: The department does not offer any non-major programmes.

Objective: To Provide graduate students an opportunity to develop a deep understanding and enjoyment of Mathematics, to carry out original research, to become effective teachers and communicators and to prepare themselves for their future careers.

Mission of the Department: To establish an atmosphere of creative endeavour that supports interdisciplinary collaborations, innovative projects, significant research, and informal discussions that mutually benefit students, faculty, and the community at large.

Vision of the Department: The vision of the department is to promote and support a comprehensive, innovative, and dynamic learning environment. To assist students in acquiring a conceptual understanding of the nature and structure of Mathematics, its processes, and applications.

Proposed Five-year Plan: This Five-year Plan presents a bold vision which will make the department intensely better in all aspects of its mission. A vibrant department of mathematics plays a critical role in major research. Mathematics is the language of interdisciplinary collaboration in the sciences, engineering, and beyond. The activities of our department are linked with disciplines across the scientific, engineering, and business communities. To meet

the needs of students, faculty, administration, and communities served by the Department of Mathematics, the faculty has developed the following list of goals, objectives, and strategies.

Low lying fruit - Research Outputs

Research in core areas of mathematics has historically anticipated important developments in other areas, often by decades. We are now seeing a more rapid interaction between research at the core of mathematics and applications in many fields. It is therefore critical that we remain committed to basic research in mathematics. Our First aim is to get the Affiliation for Ph.D. from Dibrugarh University and to get the some major/minor projects from reputed funding agency. Also, each faculty should publish one paper per year in reputed journal and must present a paper in any conference.

Teaching Learning Process

Teaching Learning Process is a Combined process where an educator assesses learning needs, establishes specific learning objectives, develops teaching and learning strategies, implements plan of work, and evaluates the outcomes of the students. The term “lecturing” refers to both planning and delivering a classroom presentation. While the lecture has certain elements in common with a formal speech, a classroom lecture places greater emphasis on the importance of presenter-audience (instructor-student) interaction. The comprehensive course outline enables the students to enhance Computational skills and Mathematical reasoning. The program develops the ability to think critically, logically, and analytically thereby preparing the students to enhanced career opportunities in Industries, Commerce, Education and Research. So, for all the course we will define learning outcomes and objectives. Question papers as well as any components related to grading will be set against the learning outcomes defined in the course handout. Also, in this regard one or two workshops will be organized per academic session.

Contact between Teacher and Students

The relationship between student and teacher plays a large role in the trajectory of a student academic success and social development. Self-study and traditional classroom learning can be used together to help the student to get the most out of his or her learning experience. Together, these methods help students learn and retain information better, helping boost comprehension, grades, and motivation. Using self-study, students can go beyond simply learning what their class textbooks and instructors teach them. By practicing self-study, they are encouraged to further explore topics they are interested in, developing stronger study skills. One of the major advantages of self-study is that students can take control over their own learning. And when students have control, they become even more interested in learning. So, we are planning to have self-study from the next academic year 2023-2024, by assigning a homework from the self-learning component, giving test syllabus 5-10% from the self-learning component and identifying the application and specifying them.

Outreach or Community Services

Outreach for a mathematics department is an activity that enhances the teaching and learning of mathematics outside the department. We are planning to have the following outreach activities to enhance the practical knowledge of the students.

- organizing locally and regionally funded outreach activities such as 1-12 school visits and summer programmes.
- Conducting free Coaching classes JEE for 12^{th} std students.
- Conducting civic awareness programme for village people.
- Conducting workshop for working people and preferably for industry people and SHG.

To Increase the Admission

To effectively attract new students, it's important to first identify prospective student. Introducing the scholarships to the meritorious students as

- 50% for the rank holders in UG for the first semester and remaining semesters will be given provided if the student maintains 75 % or CGPA.
- Programmes for UG students will be conducted every year on National Mathematics Day, National Science Day.

Introduction of New Courses

The Department of Mathematics intends to introduce the Post Graduate course in Mathematics and Add on Courses on Computational skills from the academic year 2025- 2026.

Create Faculty Infrastructure Requirements

- Adequate classrooms have been needed according to the number of new programs introduced in the Department. Separate computer lab is needed to train the students in programming and to teach Lab oriented courses.
- The department primarily focuses on introducing the add on courses in open-source programming such as Python, R, MAPLE, and LATEX for documentation. These software's can be taught as standalone subject or with implementation of Mathematical Applications. In addition to open-source software, it is also necessary to have licensed software such as MATLAB and Mathematica.
- The department is also focussing on having Smart Classrooms for enhanced teaching and flipped classroom for group discussing and research level discussions.

Department Activities

- Mapping of Course Outcomes and Program Outcomes will be taken care for all undergraduate and post graduate level courses.
- Webinars on alternate Saturday will be conducted to enhance the knowledge of students as well as faculties in emerging fields of research.

- Classes will be conducted regularly to encourage the post graduate students to get eligibility in CSIR exam and GATE exam for higher education and research.
- National level Conference will be conducted every year to share the knowledge on research updates and to establish research collaboration with other institute faculty members and researchers.
- FDP will be conducted every year to enhance the knowledge of the faculties related to the updates in the subject domain.
- Once in two years, one international/ national conference will be conducted.