1. **Title:** CREATING RESEARCH ECOSYSTEM

2. **Objectives:**

   a. To promote creativity among students by encouraging free thinking, undertaking learning through experimentation and developing a research mindset.
   b. To establish and institutionalize solid research practices leading to the creation of a unique research culture of the college.

3. **Context:**

The quality of education imparted in an institute of higher education is recognized by its unique research culture. Accordingly, GNC has created a broad policy framework for promoting Research and Development through

- Collaborations and research partnerships with other institutes of higher education, research and industry.
- Creating an environment conducive to free thinking, referencing and inquiring.
- Research oriented teachers inspiring students to be the lifelong learners.
- Providing necessary policy framework, physical infrastructure, financial resources, guidance, support and training to the faculty and students.

4. **The Practice:**

The College implements its own Research Promotion Policy through a separate Research Promotion Committee that focusses on creation of robust Research ecosystem.

Management takes steps to ensure availability of infrastructure and financial support to staff and students alike, to pursue research. Infrastructure facilities such as Computers, e-resources, N-list subscription, laboratories, plagiarism software, SPSS, etc. are available in the research centres that are recognized by the University.

The geographic location of the College supports access to TIFR, BARC, BSE, IIT, ICT, University of Mumbai-research centres and Library.

Under a collaborative project under UGC-DAE-CRS in the Physics Research Centre, research Scholars have access to sophisticated research facilities and equipment in BARC.

The Management sanctions research promotion funds to support research projects and offers monetary awards for papers published.

Teachers from the aided programs avail the Government grants from UGC and University of Mumbai for research projects.

Two Adjunct Professors were approved to guide the Research Supervisors.

Undergraduate students are mentored to develop a research mindset. An undergraduate research program 'Anveshan' supports research by students in disciplines of their choice. They are taught referencing survey of literature, paper writing, presentation skills and encouraged to participate in Research promotion events like 'Avishkar', 'Trishool' organised by the University of Mumbai. Expenses for travel, reprography and data collection are met by the College.

As a part of its active efforts to promote research and innovation, GNC hosted the University of Mumbai's Research Convention 'Avishkar' in 2022-23 in which 859 UG, PG and Ph.D. students from colleges competed in poster and oral paper presentation categories. Over 200 student volunteers and staff from the College were exposed to this Mega Research Convention.

Research Scholars Meet was organized with the support of Royal Society of Chemistry. Eminent Researchers Prof. M.M. Sharma, Dr. Raghunath Mashelkar, Prof. Chidambaram, Economist Dr. Raghu Rajan, journalist Kumar Ketkar have interacted with students.

Research-based assignments are a part of CIE in subjects like Foundation Course.

The College spares no effort to give support of every nature to the students and staff.

5. Evidence of Success:

The efforts of the College to promote and institutionalize the pursuit of Research has shown remarkable impact in terms of research output.

Research Center

- Establishment of Research Centers in 5 Disciplines recognized by University of Mumbai, leading to establishment of Doctoral Programmes.

- 11 students awarded Ph.D. under respective supervision of 7 Guides

Teachers

- 8 teachers completed Ph.D.

- 127 Research Papers published

- 61 teachers engaged actively in research, publications in peer-reviewed hournals and authoring/co-authoring chapters in books

- Dr. Pushpinder Bhatia granted Patent related to Solar Car Parking

- Dr. Neetu Sharma received Best Paper Presented Award by L.S. Raheja of Arts and Commerce sponsored by ICSSR

- 2 teachers availed two years leave for completon of their Ph.D. programme under UGC's Faculty Improvement Programme.

- Over 70 teachers granted leaves to attend Faculty Development Programmes for Research Enhancement

- Teachers adopt Research based teaching pedagogies

Students

- 51 Research based Conferences, Seminars and Workshops have been arranged.

- The Library has an N-List subscription for access to e-journals and e-books, and subscription to 44 periodicals. Teachers provided institutional email IDs to access Online Research Platforms.

- Research Laboratory in Science has common facilities for all disciplines. Besides, there is a common Research Centre dedicated Computers, and Research Tools like SPSS, Plagiarism.

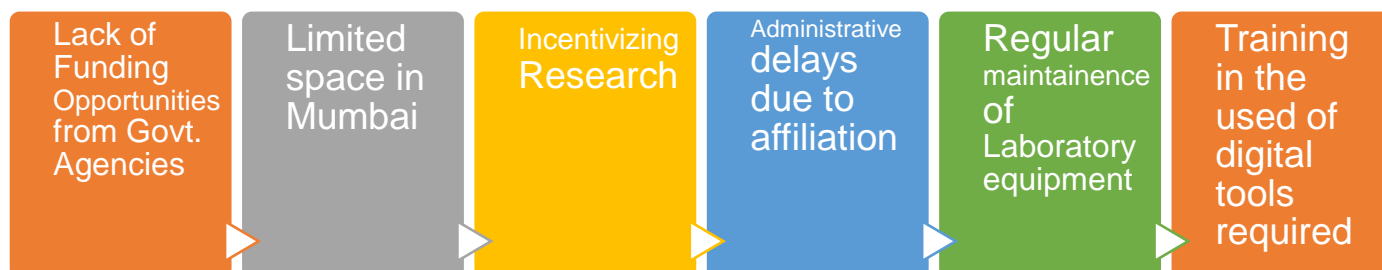- Two teams of students have won prizes at Avishkar Research Convention.

	Previous Cycle	Current Cycle
• Number of Research Publications	• 43	• 104
• Research Projects Sanctioned (by Government Agencies)	• 03	• 23
• Grants Sanctioned (by Government Agencies)	• Rs. 1.54 Lakhs	• Rs. 53.31 Lakhs
• Seed Money for Research Projects by the Management	• NIL	• Rs. 1.14 Lakhs

	Previous Cycle	Current Cycle
• Teachers pursuing Ph.D.	• 05	• 10
• Teachers awarded Ph.D.	• 04	• 15
• Teachers pursuing Post Doctoral Work	• 00	• 01
• Research Guides	• 01	• 09
• Ph.D. awarded by Research Centre	• 00	• 11
• Patent(s)	• 00	• 01

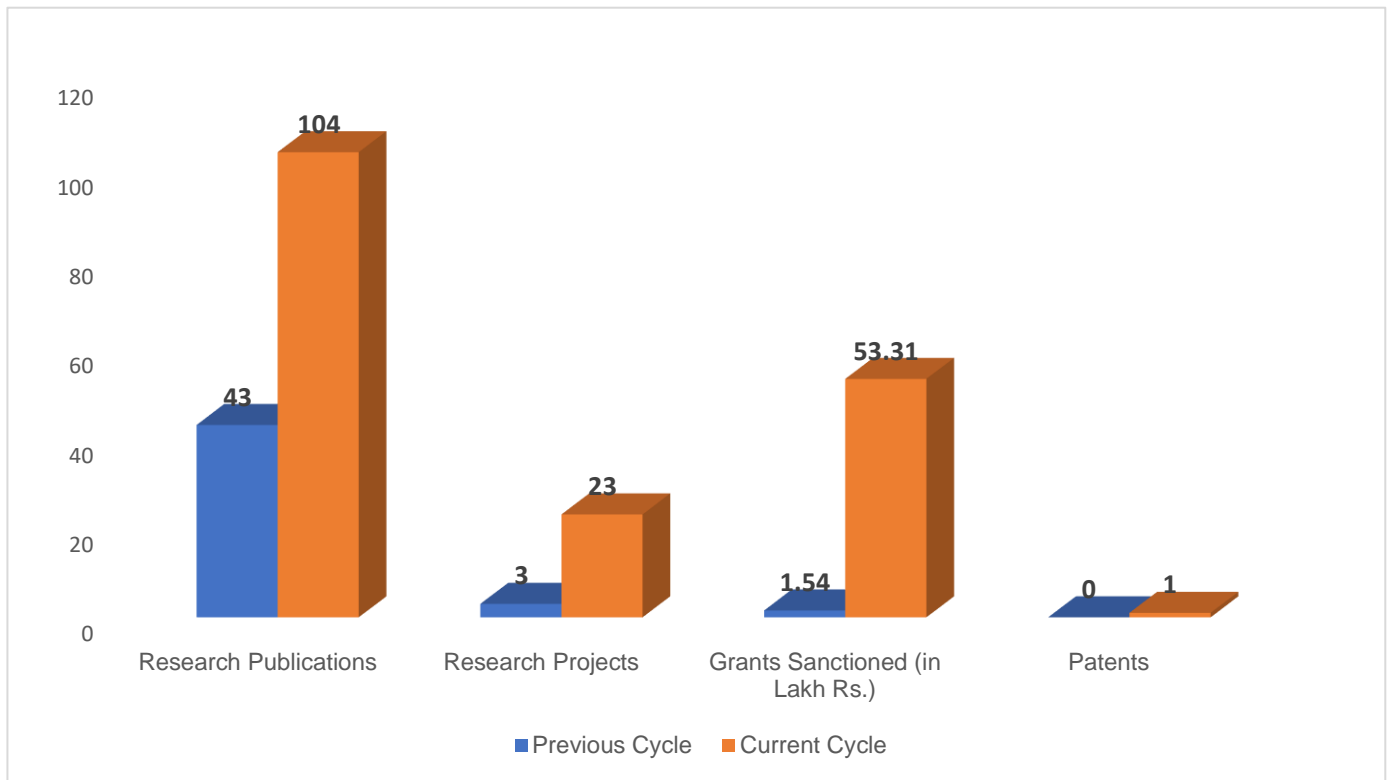|	Previous Cycle	Current Cycle
• Students participating in University of Mumbai Research Conventions	• 00	• 116
• Number of Students completing Projects as part of Internal Projects	• 483	• 1952
• Average Success Rate on Completion of Programme	• 82.91%	• 94.00%
• Student Publications	• 00	• 26
• Research Collaboration	• 02	• 08

6. Problems Encountered and Resources Required

The following challenges were encountered while incorporating Creating Research Ecosystem as a Best Practice.
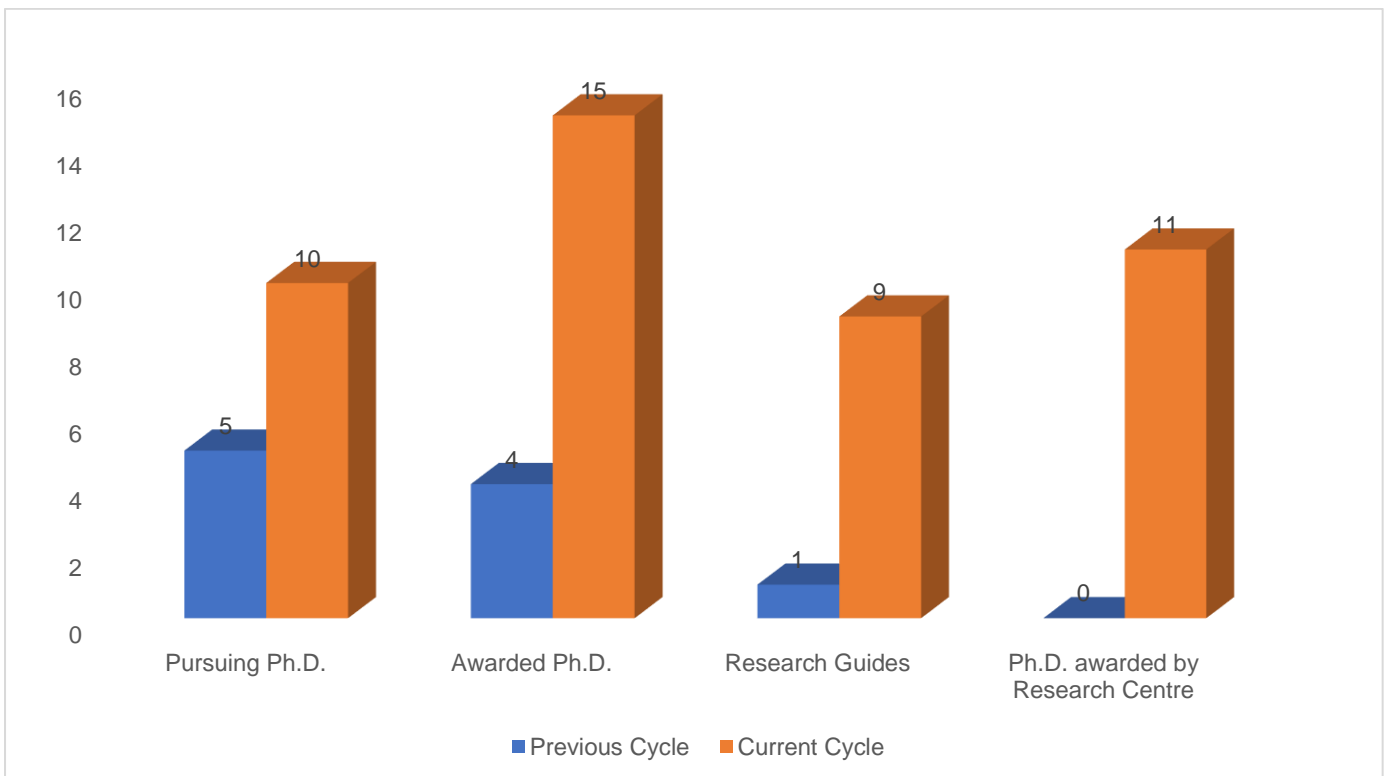
Lack of Funding Opportunities from Govt. Agencies	Limited space in Mumbai	Incentivizing Research	Administrative delays due to affiliation	Regular maintainence of Laboratory equipment	Training in the used of digital tools required

To counter these challenges, the College projects the following needs.

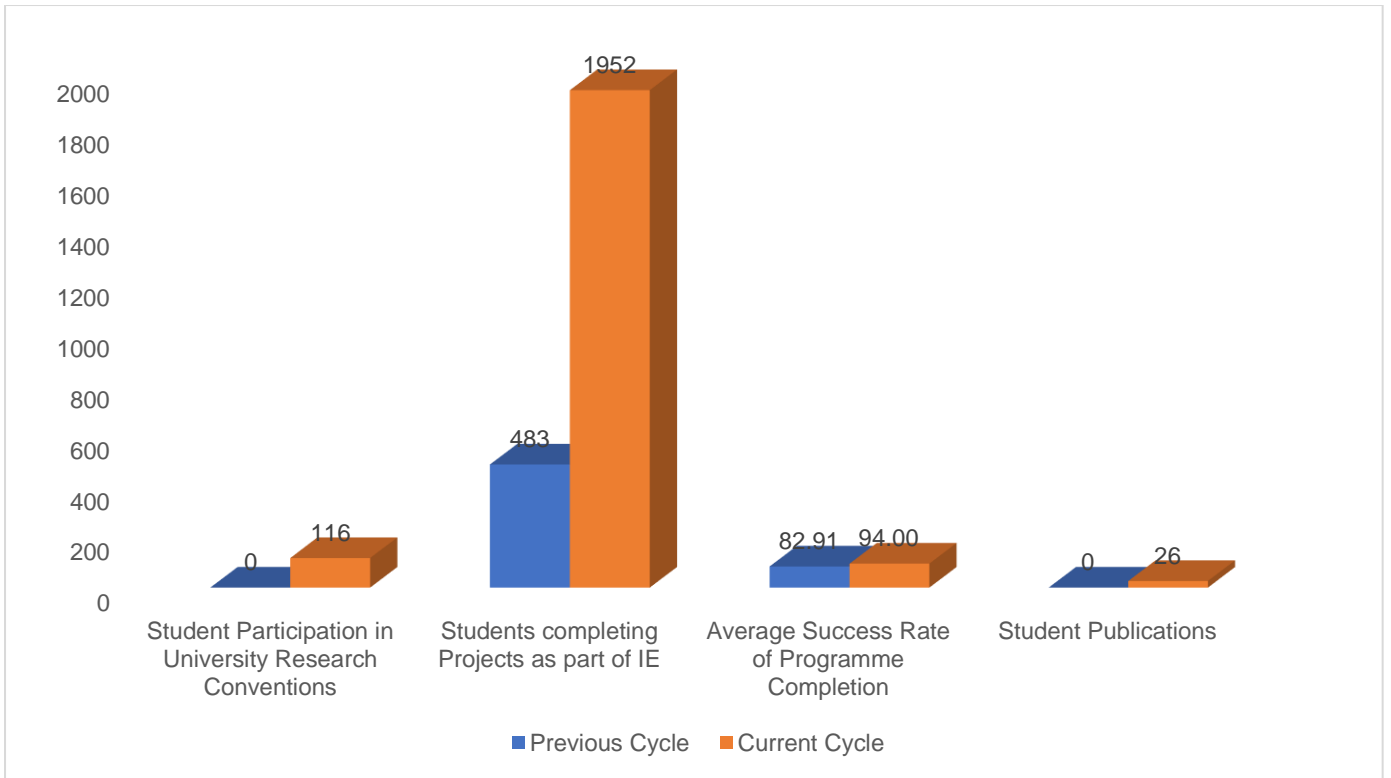| Tap industry and research funding agencies for financial grants	Mobilize funds through donations from well-wishers	Collaborate with neighbour instutes	Training of students in mainenance of instruments and digital tools	Attain Autonomy to streamline administrative delays

Comparison between number of research publications, research projects, grants sanctioned (in lakh Rs.) and patents for the previous cycle and current cycle

Comparison between number of teachers pursuing Ph.D., awarded Ph.D., Research Guides and Ph.D. Awarded by the College Research Centre

Comparison between Students' Research Related Activities for Previous Cycle and Current Cycle