

Anekant Education Society's

**Tuljaram Chaturchand College
Of Arts, Science & Commerce, Baramati.**
Autonomous | Religious Minority Institute

Research Policy document



1. Introduction
2. Vision and Mission
3. Research Objectives
4. Guiding Principles
5. Code of Ethics in Research
6. Plagiarism Policy
7. Initiatives for research
8. Research Themes
9. Common Research Infrastructure

Introduction

Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati, Pune is one of the leading and prestigious colleges in Maharashtra established in 1962. Our motto, 'We for Students' is at the heart of everything we do at the college. The college celebrated its *Golden Jubilee* in 2012. Keeping pace with modern trends in higher education, the college has full fledged UG courses in Arts, Science and Commerce along with PG courses almost in all subjects of different streams as well as Ph. D. Research centers. Beside traditional courses we seek to develop and introduce need based, value added, skill based and career oriented new courses.

The Tuljaram Chaturchand College , Baramati has established Research Committee and in the academic year 2018 established "**Centre for Innovative and Applied Research (CIAR)**" to carry out Innovative, applied and interdisciplinary research. This will be one of the most significant initiatives of the college to make progress in research under the coordination of research centre. The **college** has the three research centers like Botany, Microbiology, Physics , English, Marathi and Economics recognized and affiliated to the Savitribai Phule Pune University, Pune and many more are supposed to get included **in** future. Around 31 students are registered for Ph.D. in above three subjects. College faculty has completed four major projects funded by UGC, DBT & DST, SERB and several Minor projects are funded by UGC and BOD, SPPU, Pune. Currently, research is carried out independently in each department as per available expertise. So there is necessity to coordinate these research activities and promote targeted interdisciplinary research.

There is necessity of undertaking of Innovative and interdisciplinary research projects by faculties from every stream with the outcome in the of solutions, publications and patents. NAAC and other assessment agencies expects involvement each faculty of college in the research activities.

We hope that establishment of separate "**Centre for Innovative and Applied Research (CIAR)**" for research will motivate. And guide faculties and students as well to undertake new projects resulting in quality.

Vision : To make Tuljaram Chaturchand Colege, Baramati reputed, globally competent through research

Mission:

1. To carry out innovation. up scaling and translation of knowledge, approaches. technology and processes related and relevant to Energy. Environmental issues, Biotechnology/Nanotechnology and other need based issues.
2. To improve knowledge through training. technology interventions and value addition in the field of Energy, Environmental issues. Biotechnology/nanotechnology and other need based issues.
3. To motivate and assist for sponsored research and entrepreneurship development.
4. Act as a bridge between Government- Academia- Industry-Society

Research Objectives

To fulfill the vision for research, the college has identified the following major research objectives and strategies.

Objectives

- Endorse /Promote rigorous research and innovation that is relevant to the nation and the society.
- Motivate /Encourage, foster, promote and sustain excellence in research of all faculties
- Enhance existing research areas and develop expertise in emerging fields.
- Facilitate multidisciplinary research.
- Provide facilities to research scholars who are pursuing their research degrees.
- Expand outreach efforts to develop collaborations and strategic, durable research partnerships with other research institutes and

industry sectors for steering, funding and cooperation.

- Develop a suitable enabling research infrastructure and to provide research framework and guidelines to faculty, research scholars and students.
- To make aware and encourage the generation of intellectual capital.
- To ensure integrity, quality and Code of ethics in research
- To inspire socially useful research with potential for commercialization.

Strategies

In order to strengthen **Research culture** following activities are proposed:

- Involvement of students in research activities.
- To apply for major / minor research projects to UGC, University and Other Funding Agencies
- Establishment new research centers and strengthening of the existing ones.
- Organization of training workshops for teachers.
- Establishment of a multidisciplinary research Centre with central equipment facility.
- Provision of funding support for purchase of research equipment.
- Encouragement to faculty and students to attend national/international conferences.
- Organization of national/international conferences.
- Development of linkages with reputed industries and institutions.
- Encouragement for Research paper publication.
- Emphasize on collaborative research.
- Provision of incentives to promote quality research outcomes

Guiding Principles

- Engaging students in research activities provides unique and relevant contextual learning and builds their research skills.
- Generate ideas to pursue both curiosity-driven and solution-based research to address recent fields.

- Innovations in scientific, social and pedagogical areas through the development of new technologies.
- Research inspires creativity, inculcates scientific temper and supports the socio-economic, cultural development of the community.
- Research and teaching-learning are intrinsically linked and complementary.
- Research engagement supports professional development of faculty and helps them in curriculum development.
- Multidisciplinary research is a learning experience in which the researchers also learn from each other's fields.

Code of Ethics in Research

Code of ethics in research involves the application of fundamental ethical principles to be followed in research activities, including scientific research. Research, education and extension are integral parts of any higher education institute. The reputation of institution depends on quality of research and education. NAAC gives substantial weightage to quality and quantity of research undertaken by faculty and students of the Institute. UGC as well as Savitribai Phule Pune University expect certain ethics followed by institution in their research activities. To fulfill these expectations the college has formulated certain code of ethics for research on the campus. These code of ethics are as follows :

Responsibilities of a Research Investigator: A research investigator or guide must not only put together the research students but also try to assemble an adequate financial and administrative structure to support the research. A supervisor not only provides guidance and advice to individual students in the research but also make them aware of responsibility for the scientific integrity of the whole research activity.

Data and report: Research guide should take all reasonable steps to check the details of experimental procedures and the validity and authenticity of the data

or observations reported by research scholars, including periodic reviews of primary and secondary data as well as reports prepared by scholars. The report of research outcome must be based on accurately recorded data or observations. It will be considered as a breach of research integrity if the reported data fail to support the reported conclusions. The data must be authentic and be based on outcome of original activities of researcher and not from other sources. Any intentional or reckless disregard for the truth in reporting observations may be considered to be an act of research misconduct.

http://www.unipune.ac.in/uop_files/Report-Guidelines_20-5-15.pdf

Ethical policy of UGC on dissection of animals: Every researcher must follow ethical policy on animal dissection given by UGC.

Originality and acknowledgement of sources: The research work that must be original and come from research outcome of researchers. If help is taken from other sources, should be acknowledged properly.

Duplication of Publication: Research articles must be published in UGC notified journals. Researchers should not publish the same research outcome in two different places. If published very good reason must be given and appropriate citation must be made in the later publication to the earlier one and if required, the editor must be explicitly informed.

Disclosure and conflicts of interest: Researchers may use Institution resources such as staff, equipment, information or confidential information with prior permission of Principal or head of the department. Researchers may not use Institution resources for any purpose other than purposes related to teaching, research or service by the Institution, unless prior permission has been obtained by the head of the department and/or the Principal.

Plagiarism Policy

We follow the plagiarism policy decided by UGC and Savitribai Phule Pune University, Pune. This policy is given in following link.

https://www.ugc.ac.in/pdfnews/8864815_UGC-Public-Notice-on-Draft-UGC-Regulations,-_2017.pdf

http://unipune.ac.in/administration_files/pdf/Plagiarism_Policy_University_14-5-12.pdf

The college research committee aware researchers about these policies. According to the guidelines mentioned in Savitribai Phule Pune University circular No. 175/208, UGC notification F. 1-182010 (CPPP-II) dated 23/7/2018. Research committees have right to check plagiarism and all related issues before submission M. Phil./Ph.D. Thesis, Publication of research paper, etc.

IPR

The aim of the Institute's policy on patents, copyrights, and other Intellectual Property is to make available Institute technology to industry and others for the public benefit, while providing recognition to individual inventors and encouraging the prompt and open dissemination of research results. The Committee on Intellectual Property recommends policy guidelines to the administration. Individuals who may be in a position to make, conceive or reduce to practice inventions or otherwise develop intellectual property under sponsored research or other projects (whether or not salary or other support is received from such projects) or through the use of significant administered funds or facilities must sign the Invention and Proprietary Information Agreement. This requirement applies to all employees, students, and stakeholders.

When Intellectual Property is developed by faculty, students, staff, visitors, or others participating in programs using significant funds or facilities, College will own the Intellectual Property. If the material is not subject to a sponsored research or other agreement giving a third party rights, the issue of whether or not a significant use was made of college funds or facilities will be reviewed by the inventor's/author's laboratory director or department head, and a recommendation forwarded to the Coordinator of Research committee and CIAR. The Principal

of the college will make the final decision on this issue and on any dispute or interpretation of policy relating to Intellectual Property.

Initiatives for research

The Principal of the College, IQAC, CIAR and Research Committee of the Tuljaram Chaturchand College, Baramati keenly involved and proactive to promote research culture amongst the faculty and students. College has CIAR and research coordination committee which along with the IQAC looks after all the requirements for the research work carried out in the college. The CIAR and Research committee has recommended few reforms such as providing seed money for research work, improvement of existing research facilities, purchase of instruments as well as journals and books, besides publish research compendium for inculcating research culture in college.

- a) CIAR encourages every department of the college to submit project proposals to funding agencies. The teachers are encouraged to take up research projects and provided support for applying to different funding agencies as well as for effective implementation of the sanctioned research projects. College facilitates timely auditing and submission of utilization certificate to the funding authorities.
- b) Research ambiance is upholding via establishing the linkages and collaborations with academic and research institutes.
- c) College is attentive for starting as well as smooth running of the recognized research centers in respective departments by fulfilling all administrative procedures as per SP Pune University norms for maintaining the research culture.
- d) CIAR has taken efforts for submitting the proposals to various funding agencies including UGC, SPPU, DBT, SERB and DST.
- e) College also provides all the infrastructural support as well as seed money to PG Students for conducting mini research projects, One Lack Rupees has provided to each Science department and that of Commerce and Arts are 50 and 20 thousands respectively.
- f) College encourages and sponsor the faculty as well as students to

attend research events and to publish research articles in peer reviewed journals.

- g) College also provides seed money as Travel grand/ Registration fees/ Publication charges to the students and Teachers.

Under this scheme teacher is alluded to attend 1 national and 1 international Conference / Seminar / Workshop

For national Conference / Seminar / Workshop either Registration or Travel or 2000/ will be sanctioned.

For International Conference / Seminar / Workshop, either registration or Travel or 25000/ will be sanctioned, provided that no any other grand received from any funding agencies for the same purpose.

The maximum 2000/ will be sanctioned as publication charges per paper

- h) College aids the faculty, research scholars and project students for their research analysis and guidance from various reputed national institutes, industries and universities.
- i) College also organizes scientific events viz. conferences, seminars and workshops to acquire updated knowledge and skill of the researchers. Regular lectures of well-known experts are arranged and staff and students are stimulated to interact with them.
- j) Teachers and students are encouraged and motivated by to undertake research activities like projects and participation in AVISHKAR. AVISHKAR. Activity is coordinated by ARC of the college.
- k) The college felicitates achievers in the research field. FIP, duty leave for presenting research papers, attending workshops, etc. are provided. College promotes the faculty as well as students to attend conference, seminars; encourage them to publish research articles.
- l) College organizes scientific events viz. conferences, seminars and workshops to provide sound platform to researchers of the college to update their skills, present their findings and interact with external

experts and participants.

- m) Various activities including 'Science Exhibition', workshop on 'Research Methodology' are organized regularly by the college.
- n) The college has formed separate MOU committee, which provides Adequate support to student and faculties.

Research Themes

1) CIAR :

To begin with the CIAR has focused on mainly four major global problems such as A) Energy B) Water Resources. C) Environment and D) Health Care.

Following are the major programmes planned in four different categories of research with thrust on Nanotechnology and more than fifteen major research projects will be formulated and submitted to national & international funding agencies.

I) Energy:

- Nanotech enabled solar thermal power station.
- Solar sea water desalination.
- Application of Nanomaterials in solar thermal energy storage.
- Pervoskite solar cells for photovoltaic conversion.

II) Water Resources:

- Electro-Chemical Synthesis, Characterization and Testing of Silver Nano-Particles for Cloud Precipitation. (Major Research Project Submitted to Ministry of Earth Sciences, New Delhi)
- Nobel metal nanoparticles for water purification.
- Atmospheric nanoscience and cloud precipitation.

III) Environment:

- Application of Nanotechnology in waste water treatment.
- Nanotech solar assisted drinking water resources.
- Nanotechnology for parasitic plant control.
- Microbial nanoformulation.

IV) Health Care:

- Nanocomposites for Wound dressing applications.
- Cancer Nanotechnology: Painless treatment of Cancer.
- IVF: In vitro Fertilization.
- Probiotics as promising anti-cancer agent.
- Application of nanotechnology in food microbiology.

Lab Supervisors:

1. Nanoscience and Nanotechnology: Chemistry

- I. Mr.S.R.Kale - Head of Dept.
- II. Mr.S.T.Salunke
- III. Dr.Mr.Y.N.Indulkar
- IV. Dr.R.S.Bhondwe

2. Material Science and Renewable Energy Resources: Physics

- I. Dr.P.C.Pingale- Head of Dept.
- II. Dr A.E Kalange
- III. Dr R D Klæ
- IV. Dr.R.T.Sapkal
- V. Dr S.B Kulkarni
- VI. Dr. V. S. Mohite

3. Nanomicrobiology (Environment): Microbiology

- I. Dr.S.T. Pawar : Head of Dept.
- II. Dr.M. H. Gajbhiye
- III. Dr. Y.R. Mulay
- IV. Mr.Doshi D. V.

4. Atmospheric Nanoscience and Nanobiosensors (Water Resources): Electronics

- I. Dr.Deshpande J.D. – Head of Dept.
- II. Mr. Yelpale V.T.
- III. Mr. Gawade S.H.
- IV. Dr. S.N. Patil
- V. Dr Mrs Pawar P S

5. Health Care Nanobiotechnology : Zoology

- I. Mr. S.P. Chordiya : Head of Dept.
- II. Dr Dr. V.B. Nale
- III. Mr. Bose G. S.
- IV. Dr Gayakwad

6. Nanobotany and Plant Stem Cell: Botany

- I. Principal. Dr.C.V.Murumkar-
- II. Dr.S.J.Chavan : Head of Dept.

III. Dr.B.S.Mali

IV. Dr.M.B.Kanade

V. Dr.A.B.Telave

2) Research Centers : Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati has following Recognized Research Centers of S. P. Pune University:

A) Physics

B) Botany

C) Microbiology

D) English

E) Marathi

F) Economics

Sr	Name of the PhD Guide	Name of the Department	Research Areas
1	Dr Kalange A. E./	Physics	Material Science/ BioPhysics
2	Dr Kale R D	Physics	Materials Science
3	Dr R T Sapkal	Physics	Materials Science / Theoretical Physics
4	Dr Chavan S J	Botany	
5	Dr Mali B S	Botany	
6	Dr Kanade M B	Botany	
7	DR Telve A B	Botany	
8	Dr Bhosale K S	Botany	
9	Dr Chitle R D	Botany	
10	Dr Sakdeo B M	Botany	
11	Dr Sonavanve A S	Botany	
12	Dr Avchar B K	Botany	
13	Dr Tapkir S R	Marathi	
14	Dr Gosavi S.	Marathi	
15	Dr Nemade R	Marathi	

16	Dr Mane S B	English	
17	Dr Patil S K	Economics	Agri and International
18	Dr Dhumal R N	Economics	Labour economics
19	Dr Kamble C P	Economics	Public finance

Collaborations and Linkages :

Common Research Infrastructure:

Central facility Centre (CFC)

Tuljaram Chaturchand College is devoted to good quality frontier research in all fields. To fulfil the thrust of international standards the central facility centre was established. Dr Bhondwe R S is working as Coordinator of the **Central facility Centre (CFC)**

CFC is one of the most dedicated centre for research, it have following four major sophisticated instruments under one roof .

- 1) Fourier transform infrared spectrophotometer (**FTIR**)
- 2) High performance liquid chromatography (**HPLC**)
- 3) Atomic Absorption Spectrophotometer (**AAS**)
- 4) UV-Visible (**UV**)
- 5) DFT and Simulation

FTIR is mostly used for functional group detection of organic compounds, Inorganic complexes, plant extracts, nanoparticle formation etc. HPLC is used for analysis of constituents from natural products as well as contents from agrochemicals, Main function of AAs is to detect metal concentration and it's used for waste water analysis and soil analysis. UV is used for measurement of absorbance of different complexes.

CFC provides analysis facility to students from TC College and students, research scholars and faculty from nearby colleges with minimum charges.

Besides this demonstration and hands on training is also given to PG student from various disciplines according to their regular course and curriculum.