



# Government Science College Gadchiroli

Chamorshi Road, Gadchiroli  
Maharashtra -442605



**VISION DOCUMENT**

## **PREAMBLE**

Gadchiroli is situated in the south-eastern part of Maharashtra state. Gadchiroli district shares its boundaries with Chattisgad and Telangana states. The district is categorized as tribal and undeveloped, with farming as the main occupation. Forests cover more than 79.36% of the hilly geographical of the district. Gadchiroli district is characterized by a large share of tribal population and suffer from severe gaps in educational infrastructure development. Gadchiroli is one of the 90-odd districts that are affected by Left Wing Extremism. As a result, the higher education infrastructure in the Gadchiroli district is inadequate and at a lower level than the rest of the areas.

A majority of students drop out after completing primary or secondary education and help parents in farming. Low levels of higher education literacy situation arose in the Gadchiroli district on account of absence of good education facilities. In Gadchiroli district most of the colleges are operated on non-grant basis. Very few colleges have post graduate courses and all are run on non-grant basis. The colleges imparting graduation and post graduate courses are located in Aheri, Armori, Wadasa or in Gadchiroli city. In these colleges hostel facilities are not available. Further pursuing the higher studies in these colleges are expensive as they are operated on non-grant basis. This resulted in to high dropout rates in college students belonging from remote areas. Similarly due to lack of basic amenities like roads, water and power, the higher education, however, remains a distant dream for students from Gadchiroli especially villages like Nelgunda, Binagunda, Bhatpar and others. Therefore, there is urgent need to bridge the gap in higher education literacy levels between the general population students and tribal students, through facilitating enrolment of tribal students for higher education. Similarly there is urgent need to work on literacy rate, gross enrolment ratio, dropout rates and Gender Parity Index of tribal education.

## **INSTITUTE AT A GLANCE**

Government Science College Gadchiroli is a degree college in Gadchiroli district Maharashtra, India. The College is established on 11/09/1987 and run by Government of Maharashtra, Department of Higher and Technical Education, Mumbai (M.S.). It is the only Government College in this remote/tribal place of Gadchiroli running under-graduate and post graduate courses in sciences. The college has been under the jurisdiction of the Gondawana University, Gadchiroli. The college offers basic courses like Botany, Chemistry, Computer Science, Physics and Zoology at under-graduate level. The college offers Masters Degree in Botany, Chemistry and Zoology on non-grant basis. Students from Aashti, Gondpimpri, Dhanora, Chamorshi and other remote areas pursuing graduate and post graduate degree in college. As Government Science College is only Government College in Gadchiroli district, students are relying on this College for pursuing the higher education. In this context Government Science College have to play an important role in improving the higher education status in Gadchiroli district. Considering the role of Government Science College in improving the quality of teaching, learning and research, college prepared the roadmap for next five years.

### **UG/PG/PhD programs offered**

<b>Sr. No.</b>	<b>Title of program</b>	<b>Level</b>	<b>Duration (years)</b>	<b>Yea of starting</b>	<b>Sanctioned annual intake</b>
<b>1</b>	B.Sc. (Physics, chemistry, mathematics)	Under graduate	3 years	1987	180
<b>2</b>	B.Sc. (Physics, chemistry, Computer Science)	Under graduate	3 years	2012	180
<b>3</b>	B.Sc. (Chemistry Botany Zoology)	Under graduate	3 years	1987	360
<b>4</b>	M.Sc. Botany	Post-graduate	2 years	2012	44
<b>5</b>	M.Sc. Chemistry	Post-graduate	2 years	2012	44

## **OUR TEACHING PHILOSOPHY AND GOALS**

### **Our overall teaching philosophy is based on two principles,**

- (a) instruction and interactive teaching which strongly influence student-learning outcomes; and
- (b) Assessment procedures strongly influence student acquisition of knowledge.

### **Our goal**

Our goal is to facilitate the learning process, focusing on subject matter in area of expertise, using convention and advanced teaching tools available. Therefore, we wish to employ various strategies that will extend the teaching well beyond the lecture hall.

### **To achieve the our goals and support our philosophy,**

- (a) new pedagogy tools like flipped classroom, research based pedagogy tools, cross over learning, learning through augmentation, incidental learning, computational thinking, learning by doing science with remote laboratories, and embodied learning will be employed
- (b) Learning management system, use Ed-tech sites and open learning tools will be employed to improve the learning environment in the college.

## **VISION MISSION AND STRATEGIES**

### **Vision**

- To be the educational institute of excellence in the field of Science education in tribal area
- To be an innovative and responsive to the educational and self-development needs of the tribal communities

To ensure the learning opportunities and promote the leadership, professional temperament and civic responsibilities among the tribal communities

To contribute to society through the pursuit of education, learning, and research at the highest levels of excellence.

### **Mission**

- To provide excellent education integrated with ethics, values, equality, compassion and social responsibilities
- To implement the student centric programmes which encourage the tribal students to excel in higher education
- To provide excellent teaching and perform quality research

### **Strategies**

- Utilizing resources effectively to enhance the quality of teaching and learning
- Reaching out to more students in tribal area
- Collaborating with national institutes, Universities and industries to enhance the research environment

## **SWOT analysis**

### **Strengths**

- Campus- Green, spacious and pollution free Campus, Hostel facility, playground, canteen facility, etc.
- Well- equipped laboratories and Library facilities
- Positive Campus environment –the high morale among employees; the quality of teachers, and cooperation among the faculty and staff; and the overall positive teaching learning environment
- Quality Academic Programs and Student Services–Strong administrative support for academic programs and student support
- High enrollment- High demand ratio and enrollment in graduate and post graduate courses

### **Weakness**

- Student's quality - relatively low quality students as compared to rest of the Maharashtra due to tribal and naxal affected area.
- Employment rates - Low graduation and post-graduation employment rates due to non-industrial area.
- High student-teacher ratio – High student teacher ratio in most of the departments
- High staff and faculty turnover/transfer rate – Few permanent staff and large number of contract hour basis teachers. Most of the Contract hour basis teachers are fresh M.Sc. passed with limited experience in teaching.

### **Opportunities**

- The biodiversity of Gadchiroli area seems to be very good source for life-sciences and medicinal field researchers.
- Our students are preparing for various competitive examinations.
- As the area is tribal, the student will get the chance to serve for them.
- The appointment of new teachers to reduce the high student-teacher ratio seems to be essential and our students may be benefited.
- Campus interview by private sector.

### **Threats**

- Economic status of students- a poor economic status of students
- Financial support-
- No staff to start hostels
- Expenditure management- keeping the cost of college running affordable
- Poor Academic Preparation–a challenge that students are not prepared to perform college-level work; need for remedial classes
- Limitations in getting funding- University doesn't have the 12B & 2f status of UGC therefore faculty in college could not apply for extra mural funding from UGC (Major/Minor projects).
- Physics and zoology research laboratories are not recognized by the Gondwana University, yet.



## Five year plan for institutional development

### **Institutional Development plan Government Science College Gadchiroli**

#### **Vision**

#### **Primary Goal**

- Increase the Gross Enrollment Ratio (GER)
- Reduce the dropout ratio
- Provide multiple learning tools
- Training no longer be defined by Time and Place

#### **Needs**

#### **Internal needs**

- Incorporation of Modern Pedagogy tools
- Professional Development of teachers
- Integration of technology in teaching
- Optimization teaching-learning Environment
- Improvement in Training Indicators-Skilled personnel development

#### **Action Plan**

#### **Support and Progression**

- Effective Student mentoring
- Innovative Academic support
- Superior Technical support
- Career Guidance
- Improvement in Intelligence and Emotional Quotient (IQ and EQ)

#### **Infrastructure Development**

- Improvement in Library resources
- Enhancement and improvement in Laboratory infrastructure
- Improvement in Computer Laboratories
- Learning Management System

#### **Research and Innovation**

- Improvement in Research by post graduate students
- Improvement in research by Ph.D. students
- Training courses and immersive training
- Development of state of art Instrumentation facility
- Advice and consultation

#### **Outcomes**

#### **Outcome's Impact**

- Increased GER in Higher education
- Increased learning outcome of students
- Academic and non-academic reforms
- Improvement in Employability of students
- Enhancement in research and consultancy activities
- Strengthen and sustain well performing activities

## **1.Increase in the Gross Enrolment Ratio (GER)**

Gross Enrollment Ratio (GER), a key indicator in higher education, and needs to go up in areas like Gadchiroli. India has a very huge demographic advantage and we need to provide the finest teaching – learning environment to nurture the productivity of youth.

### **Primary Goal and strategies to achieve the goal**

#### **1. Improve GER in Higher Education**

- Increase the number of post graduate courses
- Increase the intake capacity of courses

#### **2. Reduce the dropout ratio**

- Enhancing and improving teaching and learning environment
- Address the issues related to dropout ratio

#### **3.Offer multiple learning tools to reach out every student's need**

- Learning adapts to each student instead of each student trying to adapt to college
- Teaching-learning no longer defined by time and place

For inclusion and success of under-represented students in the post graduate, research and the Career-related programs, the Government Science College wish to convert the existing non-grant and self-finance B.Sc. and M.Sc. courses in to fully aided graduate and post graduate courses. Similarly college wish to start the new post graduate courses in Computer Science, Physics and mathematics. As the economy of Gadchiroli district is based on agriculture, we wish to start two new courses viz. Agricultural Biotechnology, Fisheries and Industrial Microbiology. We believe that Gross Enrollment ratio will increase by offering the new courses and increasing the intake strength of students. To make higher education affordable to tribal community, the existing non grant and self finance courses need to be run on grant in aid basis. After introducing the new courses and increasing the intake capacity the number of students which will enrolled for post graduate courses will be increase substantially.

## **Reduction in the Dropout ratio**

In Gadchiroli dropout rate in higher education is very high as compared to other areas in Maharashtra. The dropout rate is higher because of inadequate facilities of transport and hostel and socioeconomic background. The dropout rate could be controlled by reaching out to tribal community, providing academic and support facilities at convenient and affordable rates, counseling of students, providing career and technical education orientation and consultation, providing multiple ways for graduation and use of technology to engage students.

## **Offering multiple learning tools**

Because of multiple reasons students unable reach the college every day. In this context learning management systems and open resources and online courses will help the students to cover up the missed syllabus. Government Science College campus is Wifi enabled and internet facilities are available in college campus. Online Learning management systems, creation of open resources and online courses will be established to cater the student's academic needs.

## **2. Need to improve the Learning –teaching environment**

Over the years, through various initiatives, Government Science College made education accessible to all stakeholders in tribal area. The need of time is to ensure that students remain enrolled, and learn, so that they become empowered and productive citizens, who can be the key participants in nation-building and growth-linked economic development. Only investing in education institutional premises is not enough, these will become centres of learning only if the students and teachers connect, and interest in teaching and learning is enhanced using appropriate pedagogy. College will use modern pedagogy tools such as flipped classrooms, research based pedagogy tools cognitive thinking, context learning in teaching. College will encourage teachers to participate in orientation, refresher, SYAYAM courses and MOOC courses. College will employ the innovative assessment methods such as concept maps, concept tests and constructive alignment in teaching.

### **Internal needs and strategies to address these issues**

#### **1. Incorporation of modern pedagogy tools in teaching**

- Flipped classrooms, Learning through argumentation, Research based pedagogy tools, cognitive thinking, context learning, computational thinking

#### **2. Improvement in quality of teachers and professional development of teachers**

- Orientation, refresher, short term courses and workshops for teachers

#### **3. Integrate technology, soft skills in teaching and learning**

- Learning management systems, EdTech sites

#### **4. Innovative assessments**

- Concept maps, concept tests, constructive alignment

## **3. Support and progression**

The curriculum courses are developed by Gondwana University and college follows the rules and regulation laid by University while conducting courses. College provides students the extracurricular opportunities. College will take initiatives in effective mentoring through semi-structured guidance, orientation and advice. College decided to provide innovative academic support and superior technical support to students to teaching-learning environment more comfortable and effective. Through Career guidance cell, job opportunities and other relevant information will be conveying to students. A competitive examination center will be opened for preparation of MPSC and UPSC examination. Along with intelligent quotient, emotional quotient plays important role in success of students. College will take initiative to improve the emotional quotient of students.

### **Support and Progression**

#### **1. Effective student Mentoring**

- Semi structured guidance, orientation, advice

#### **2. Innovative Academic support**

- Group study, academic help, guidance

#### **3. Superior technical support**

- Use of computer technology for teaching and learning, media centers

#### **4. Career guidance**

- Competitive examination section

#### **5. Improvement in Intelligence and Emotional Quotient (IQ and EQ)**

- EdTech sites and Tools to improve IQ and EQ



#### **4. Infrastructure development**

Well-equipped laboratories and facilities like extracurricular workshops, libraries, halls, games equipment, assembly area and proper sanitation facilities will be developed to improve the teaching and learning environment. Extra-curricular activities are also a key component in sustaining a youngster's interest at college. Therefore college will create requisite sporting facilities and avenues for cultural events, which together contribute to building a student's life skills and personality. College will try to transform college to meet the aspirational needs of the new generation students. College will mainly focus on improving the infrastructure of library resources, laboratory infrastructure and computer resources in the college. Library resources will be improved by digitalization of library, purchasing new books, increasing rare book collection, establishing the scientific resource center. Laboratories will be improved by purchasing new equipments ICT for demonstration of dissections and purchase of models and other experiment resources.

##### **Infra structure development**

###### **1. Improvement in library resources**

- E resource center, OPAC, Digitalization of library SOUL software
- Rare book collection
- Scientific information resource center

###### **2. Improvement in Laboratory infrastructure**

- Purchase of new Instruments
- ICT for demonstration of dissection
- Models and other available laboratory resources

###### **3. Enhancement in software and hardware resources in Computer laboratory**

- Purchase of computational softwares required for basic and applied science
- Servers and workstations to improve the computational facilities
- Establishment of Learning and management systems

#### **5. Research and Innovation**

Research, both basic and applied, is fundamental to the mission of the Government Science College. Government Science college wishes to establish the interdisciplinary research centre with essential core facilities and emboldens innovation and economic development through strategic partnering with various research institutes, Universities and industry. The long term goal of Government Science College is to facilitate interdisciplinary research that will conserve the tribal knowledge and provide innovative solutions to challenges of tribal area. Research that will be undertaken at the Government Science College, will primarily focused to address the contemporary issues related to tribal communities by linking the interdisciplinary knowledge to tribal knowledge. Thus, the Government Science College seeks to integrate academic rigor with technically sound and socially relevant research for tribal communities.

##### **Research and Innovation**

###### **1. Improvement in the research environment**

- Improve the participation and quality of research pursued by graduate and post graduate students

###### **2. Training courses and immersive training**

- Development of training sessions and workshops

###### **3. Instrumentation facility**

- Development of sophisticated instrumentation facility

###### **4. Advice and consultation**

- Advice and consultation services to local community

In Vidarbha region instrument facilities are not adequate and need state of art instrumentation facilities to conduct quality research to address the burning issues in the tribal areas. College wishes to establish the Instrumentation center to support research activities of the researchers of Vidarbha region by providing advice, technical assistance and access to advanced scientific equipment. This includes education and training for graduate, post graduate and researchers. Important secondary purposes are to support the research activities of other colleges in Gondwana Universities, and to assist local business ventures in solving sophisticated scientific problems. We wish to create the environment which will help local communities in a number of purposes, such as: Identification of problems, Assistance with the development of a problem solving plans, Interpretation of results and Access to equipment not available from other sources.

## **SHORT TERM GOALS**

1. Starting post graduate courses in Physics, Mathematics, Fisheries, Agriculture biotechnology and Industrial Microbiology
2. Up-gradation of Infrastructure facilities by purchasing instrument and equipment for academic, cultural and sports activities
3. Language laboratory and smart classroom establishment
4. Conducting the courses using MOODLE and SWAYAM

## **LONG TERM GOALS**

1. Acquiring the special knowledge and skills to improve teaching and learning
2. Acquiring the interdisciplinary knowledge
3. Overall development of academic faculty and administrative staff in quest of excellence in higher education

## **Roadmap**

<b>Year</b>	<b>Activities</b>
<b>2020</b>	Up-gradation of Botany, Chemistry, Zoology Higher learning Centers with state of art research facilities
<b>2021</b>	Starting new Post Graduate courses in Physics, Mathematics, Computer Sciences and Fisheries
<b>2022</b>	Acquire specialized knowledge and skills to improve teaching and research
<b>2023</b>	Acquire interdisciplinary knowledge to fulfill emerging needs of students and society
<b>2024</b>	Starting of Innovation and incubation center