



Chowgule Education Society's

# Parvatibai Chowgule College of Arts and Science (Autonomous)

Accredited by NAAC with Grade 'A+'

Best Affiliated College-Goa University Silver Jubilee Year Award



## PROSPECTUS OF SELF-FINANCED

Undergraduate Programmes

2023-2024

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## **Introduction**

Parvatibai Chowgule College of Arts and Science founded in 1962 is a premier educational institution in the State of Goa, offering courses at the Graduate and Postgraduate levels as well as Ph.D. programmes. Parvatibai Chowgule College is accredited by NAAC with Grade 'A+' (CGPA of 3.27 on a 4-point scale in the 4<sup>th</sup> cycle). The College was adjudged by Goa University as the "Best Affiliated College", at the time of its Silver Jubilee celebrations in the year 2009. It was also conferred with the "Best Educational Institute" award by Business Goa in 2014.

Having been conferred with the Autonomous status by University Grants Commission in June 2014, this College became the first Autonomous college in the State of Goa. In the National Institutional Ranking Framework conducted by the Ministry of Human Resource Development (MHRD), Govt. of India for colleges across the country, our College was ranked in the Rank Band of 101-150 in the year 2018, followed subsequently by being in the Rank Band of 151-200 in the years 2019 and 2021. In 2017, the College was awarded 'DBT Star College Scheme' by Department of Biotechnology (DBT), Ministry of Science and Technology, Government of India, being the first College in Goa to receive grants under this prestigious scheme. Our College is honoured with the 'Best Internship Partner' award by Goa Rugby Union at the Goa Rugby Awards 2018. Our College is categorized as 'Band A' institution (Rank between 06-25) in category of "Institutes and Colleges (Govt. and Govt. Aided)" in Atal Ranking of Institutions on Innovation Achievement (ARIIA) 2020 announced by MHRD, Government of India, in 2020.

Our College has also been rated at '4.5 Star' for undertaking various activities prescribed by Innovation Cell, Ministry of Education, Government of India to promote innovation and start-ups in campus during the IIC Calendar Year, 2019-20 and accordingly selected as a Mentor Institute under the Mentor-Mentee Program 2021-22 of IIC, MIC. Our College is the only college selected as Mentor Institute in the entire state of Goa.

The College is directed by its mission and vision to seek higher distinctions and impart quality education with innovative curriculum, appropriate teaching-learning-evaluation methodologies, twenty-first century technologies and better infrastructure.

The College adopts the National Education Policy 2020 for Undergraduate Programmes in Arts and Science in the disciplines of Languages, Social Sciences, and Sciences based on the Curriculum and Credit Framework for Undergraduate Programme (CCFUP) by the University Grants Commission (UGC) from the Academic Year 2023-2024.

The NEP 2020 states, “Assessments of educational approaches in undergraduate education that integrate the humanities and Arts with Science, Technology, Engineering and Mathematics (STEM) have consistently shown positive learning outcomes, including increased creativity and innovation, critical thinking and higher-order thinking capacities, problem-solving abilities, teamwork, communication skills, more in-depth learning and mastery of curricula across fields, increases in social and moral awareness, etc., besides general engagement and enjoyment of learning”.

Further, it also recommends that “the undergraduate degree will be of either 3 or 4-year duration, with multiple exit options within this period, with appropriate certifications, e.g., a UG certificate after completing 1 year in a discipline or field including vocational and professional areas, or a UG diploma after 2 years of study, or a Bachelor’s degree after a 3-year programme. The 4-year multidisciplinary Bachelor’s programme, however, shall be the preferred option since it allows the opportunity to experience the full range of holistic and multidisciplinary education in addition to a focus on the chosen major and minors as per the choices of the student.

However, as of now as per DHE guidelines College is offering only 3 years programme.

Since its inception, the college has always been at the forefront in educational innovation. Presently the college offers undergraduate, postgraduate, postgraduate diploma, diploma, certificate courses and Ph.D. programmes in the Arts, Science and the Vocation streams. Today, the College offers twenty-two undergraduate and six postgraduate programmes, some of these courses are unique in Goa.

The various Aided Programmes offered at the undergraduate level in the Arts Stream are: *English, French, Hindi, Konkani, Marathi, Economics, Geography, History, Philosophy, Psychology, and Sociology*. Aided Programmes in the Science Stream are: *Botany, Chemistry, Computer Science, Geography, Geology, Mathematics, Physics and Zoology*.

The various Self -Financed Programmes offered at the undergraduate level are:

1. B.Sc. in Biotechnology
2. B.Voc. in Software Development
3. B.Sc. in Biochemistry (SY & TY)

The various Self-Financed Postgraduate degree programmes offered are *M.Sc. in Analytical Chemistry, M.Sc. in Geoinformatics, M.Sc. in Information Technology, M.A. in Child Psychology and Child Development, M.A. in Geography and M.A. in English*.

The various Postgraduate diploma programmes offered are *Post Graduate Diploma in Computer Applications (PGDCA – Aided Programme)* and Self-Financed programmes are *Post Graduate*

*Diploma in Geoinformatics (PGDGIS) and Post Graduate Diploma in Clinical Genetics and Medical Laboratory Techniques (PGDCGMLT).*

This prospectus provides information, in a nutshell, on these above-listed programmes for the benefit of students who are deciding about taking admission to any of these programmes.

**How to apply for admission:**

To apply for admission, please visit Directorate of Higher Education website <https://dhe.goa.gov.in>  
Complete the online admission form as per instructions provided therein.

For further details and queries:

Email: [sfpadmission@chowgules.ac.in](mailto:sfpadmission@chowgules.ac.in)

# **Bachelor of Science in Biotechnology**

[B.Sc.– Biotechnology]

(Self-Financed)

**Programme Code: UG-BIO**

**Duration: Three Years (Six Semesters)**

## **Objectives of the Programme:**

The overall objectives of B.Sc. Biotechnology programme are to provide students with Core courses in Biochemistry, Microbiology, Cell and Molecular Biology, Fundamental and Molecular Genetics, Enzymology, Immunology, Plant and Animal diversity cum physiology, Human Physiology, Genetic Engineering, Tools and Techniques in Biotechnology, Industrial Biotechnology, Plant and Animal Cell culture, Biostatistics, Bioinformatics, Genomics and Proteomics, Molecular medicine, Forensic sciences, Medical Biotechnology, Pharmacology and Marine Biotechnology. Also, each course has a practical component where students gain hands-on experience of experiments based on concepts learned in theory. Online resources are made available through “Google class room.” The students are also offered with internship programme where students work with pathology laboratories, Pharma/Biopharmaceutical companies and Research institutes. In addition to regular lectures, we also organize guest lectures and alumni talk series on the latest developments in Biotechnology and possible job prospects in the field. The department endeavours to provide a theoretical backbone as we expect our students to be able to apply these concepts thereby developing analytical skills. We want students who are highly motivated to learn new concepts, comfortable in a laboratory setting and most importantly, who have a patient disposition.

## **Eligibility and Selection Procedure:**

A student with a minimum score of 50% (CGPA of 5.3 and above in case of CBCS) at Higher Secondary School Certificate Examination level (preferably with Chemistry and Biology in the curriculum) from a recognized Board/Institute is eligible. Selection of the students for the programme will purely be based on merit due to restricted intake for the programme.

**Total Number of seats (including reserved seats): 30**

**Total Fees for First Year (Semesters 1 and 2): ₹ 82,755/-**

**Total Fees for Second Year (Semesters 3 and 4): ₹ 83,225/-**

**Total Fees for Third Year (Semesters 5 and 6): ₹ 81,225/-**

**\*NOTE: University Registration fee for Students from Other than Goa University (NRI/ICCR/Foreign University): ₹ 3860/-**

\*Additionally, students have to pay examination fees semester-wise, calculated on the basis of credits of the courses they are attempting.

**Credits required for completing the programme:**  
**3 Years Degree: 120**

Sr. No.	Component	Credits Required
		3 Years Degree
1	Component A- Major discipline (B.Sc.-Biotechnology)	60
2	Component B-Minor stream	24
3	Component C-MDC, AEC, VAC, SEC*	32
4	Component D-Internship	04
<b>Total Credits Required</b>		<b>120</b>

\*MDC-Multidisciplinary Course; AEC-Ability Enhancement Course, VAC-Value Added Course, SEC-Skill Enhancement Course.

**Course structure for B.Sc. in Biotechnology**

SEMESTER	MAJOR DISCIPLINE CORE COURSES	INTERNSHIP	MINOR STREAM COURSES	MDC (ARTS)	AEC	VAC	SEC	NUMBER OF CREDITS
CREDITS	60	4	12 (Core) +12(Voc)	9	8	6	9	120
(I)	UG-BIO-101: Biomolecules		Minor Course selection from Zoology/Botany/Chemistry	UG-BIO-MDC1: Food and Fermentation technology	01:02 CREDITS	02 VAC:04	UG-BIO-SEC1: Mushroom cultivation	20
(II)	UG-BIO-102: Basic Microbiology		Minor Course selection from Zoology/Botany/Chemistry	UG-BIO-MDC2: Basics of Biodiversity	01:04 CREDITS	01 VAC:02	UG-BIO-SEC2: Elementary tools for visualisation of biological data	20
		INTERNSHIP: 04 CREDITS (EXIT: CERTIFICATE)						
(III)	UG-BIO-201: Molecular and Cell Biology UG-BIO-202: Enzymology		Minor Course selection from Zoology/Botany/Chemistry	UG-BIO-MDC3: Composting technology	01:02 CREDITS		UG-BIO-SEC3: Biostatistics	20
(IV)	UG-BIO-204: Immunology UG-BIO-205: Molecular Genetics UG-BIO-206: Basics of Plant and Animal Sciences UG-BIO-207: Tools and Techniques in Biotechnology		Vocational Course selection from Zoology/ Botany/ Chemistry					20
		INTERNSHIP: 04 CREDITS (EXIT: DIPLOMA)						
(V)	UG-BIO-301: Concepts in Genetic Engineering UG-BIO-302: Environmental Biotechnology UG-BIO-303: Plant Biotechnology	INTERNSHIP:04	Vocational Course selection from Zoology/ Botany/ Chemistry					20
(VI)	UG-BIO-304: Industrial Biotechnology UG-BIO-305: Bioinformatics UG-BIO-306: Animal Cell culture PROJECT (from Major discipline)		Vocational Course selection from Zoology/ Botany/ Chemistry					20

**Legend:**

*Voc: Vocational Course*

*AEC: Ability Enhancement Course*

*MDC: Multi Disciplinary Course*

*VAC: Value Added Course*

*SEC: Skill Enhancement Course*

For additional information contact:

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# **Bachelor of Vocation in Software Development**

(BVoc in SD)

(Self-Financed)

**Programme Code: CSD**

**Duration: Three Years (Six Semesters)**

## **Objectives of the Programme:**

BVoc in Software Development is a unique program with the aim to produce individuals equipped with all the skills that are required for employability in various domains of the IT industry. The program offers a blend of skills education, professional education and general education required for all round development of the individual in the field of software development. It is a three years degree program with exit options at the first year with diploma certificate, second year with advanced diploma certificate and BVoc degree at the completion of three years.

**Total Number of Seats (including reserved seats): 30**

A student from Vocational/Arts/Science/Commerce Stream at Higher Secondary School Certificate Examination level from a recognized Board/Institute is eligible. Selection of the students for the programme will purely be based on merit due to restricted intake for the programme.

**\*Total Fees for First Year (Semesters 1 and 2) : ₹ 77,255/-**

**\*Total Fees for Second Year (Semesters 3 and 4) : ₹ 71,225/-**

**\* Total Fees for Third Year (Semesters 5 and 6) : ₹ 63,725/-**

**\*NOTE: University Registration fee for Students from Other than Goa University (NRI/ICCR/Foreign University): ₹ 3860/-**

\*Additionally, students have to pay examination fees semester-wise, calculated on the basis of credits of the courses they are attempting.

## **Credits required for completing the B.Voc. in Software Development programme: 180**

<b>Sr. No.</b>	<b>Nature of Courses</b>	<b>Credits Required</b>
1	Skill Development Courses (18 credits per semester)	108
2	General Courses (12 credits per semester)	72
	<b>Total Credits Required</b>	<b>180</b>



**Course Structure of B.Voc in Software Development - Component A**

NSQF level/ Semester	Course Code	Course Title	Component	Course Credit
Skill Development Qualification Pack - Junior Software Developer(SSC/Q0508)				
Level 4  /  Semester 1	General Education Component			
	SD – G8	Environmental Studies	Theory	4
	SD – G9	Business Communication	Theory	4
	SD – G10	Accounting for non accountant	Theory	4
	Skill Component			
	CSD-SK3	Introduction to programming	Theory & Practicals	6
	CSD-SK7	Database Management System	Theory & Practicals	6
	CSD-SK5	Content Management System	Theory & Practicals	6
	Total Credits for Semester			30
Skill Development Qualification Pack - Web Developer (SSC/Q0503)				
Level 5  /  Semester II	General Education Component			
	SD – G6	Academic Writing	Theory	4
	SD – G1	Language Paper - I	Theory	4
	SD – G11	Entrepreneurship	Theory	4
	Skill Component			
	CSD-SK1	Computer organisation and operating System	Theory & Practicals	6
	CSD-SK2	Web Designing	Theory & Practicals	6
	CSD-SK6	Multimedia	Theory & Practicals	6
	Total Credits for Semester			30
Skill Development Qualification Pack - Application Developer - Web & Mobile (SSC/Q8403)				
Level 6  /  Semester III	General Education Component			
	SD-G20	Reasoning technique	Theory	4
	SD-G21	Mathematical foundation of Computer Science	Theory	2
	SD-G13	Personality Development	Theory	4
		Internship	OJT	2

	Skill Component			
	CSD-SK7	Object oriented programming	Theory & Practicals	6
	CSD-SK9	Server Side programming	Theory & Practicals	6
	CSD-SK8	Computer networks	Theory & Practicals	6
	Total Credits for Semester			30
Skill Development Qualification Pack - Application Developer - Web & Mobile (SSC/Q8403)				
	General Education Component			
Level 6 / Semester IV	SD-G17	E-Commerce	Theory	4
	SD-G22	Creative Thinking	Theory	2
	SD-G23	Advance Quantitative Technique	Theory	4
		Internship	OJT	2
	Skill Component			
	CSD-SK10	Web Development Framework	Theory & Practicals	6
	CSD-SK11	Software Engineering	Theory & Practicals	6
	CSD-SK12	Mobile Application Development	Theory & Practicals	6
	Total Credits for Semester			30
	Skill Development Qualification Pack - Application Architect - Web & Mobile (SSC/Q8402)			
Level 7 / Semester V	General Education Component			
	SD-G14	Digital Marketing	Theory	4
	SD-G15	Organisational Behaviour	Theory	4
	SD-G16	Maths for Competitive Exams	Theory	4
	Skill Component			
	CSD-SK14	Software Testing	Theory & Practicals	6
	CSD-SK13	Data Structures	Theory & Practicals	6
		Project		6
	Total Credits for Semester			30

Skill Development Qualification Pack - Application Architect - Web & Mobile (SSC/Q8402)				
<b>Level 7</b>  <b>Semester VI</b>	<b>General Education Component</b>			
	SD-G19	Human Computer Interface	Theory	4
	SD-G18	Independent Studies	Theory	4
	SD-G17	E-Commerce	Theory	4
	<b>Skill Component</b>			
	CSD-SK15	Network Security	Theory & Practicals	6
	CSD-SK16	Cloud Computing	Theory & Practicals	6
		Project		6
	<b>Total Credits for Semester</b>			<b>30</b>

For additional information contact:  
 Mr. Mitendra Alve [mda000@chowgules.ac.in](mailto:mda000@chowgules.ac.in)

## **Campus Discipline and a Conducive Environment**

The College is making concerted efforts to provide relevant education of global standards in a disciplined and conducive environment. For this purpose the college follows policies pertaining to the Library, Academic Integrity and avoidance of Plagiarism, Prevention of Sexual Harassment, Information Technology and Information Systems Security, Intellectual Property Rights. These policies are available on the college website. Students are required to abide by these policies. These policies and following regulations are some building blocks of this environment and all students are required to take note of them and follow them.

### **Computers Usage Rules**

College encourages students to use laptops and to bring their personal laptops to the class. Students can also use the Computer Lab. Users must be fully aware of the usage rules and the IT protocol of the College. Disciplinary action will be taken against violators.

### **Vehicle Parking Rules**

The College is not responsible for the safety of vehicles parked at the vehicle parking area of the college.

Persons must vacate the parking space after parking the vehicles. The college is also NOT responsible if the vehicle is towed away if parked in 'No Parking Area'.

### **Stand against Ragging**

The college strictly follows the anti-ragging policy of Goa University. Whoever directly or indirectly commits, participates in, abets or instigates others to violation shall be suspended/expelled/rusticated and shall be liable to pay a fine.

### **Important Note**

*The Principal may amend the admission rules at his discretion. The Principal's decision in all matters related to admission shall be final.*



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