

Parvatibai Chowgule College of Arts and Science
(Autonomous)
DEPARTMENT OF COMPUTER SCIENCE

New Programme

**BACHELOR OF VOCATION (B.VOC.) IN SOFTWARE
DEVELOPMENT**

(To be introduced from the Academic Year 2017-2018)

The College shall adopt the ordinance OA-23 of Goa University with certain amendments. The Bachelor of Vocation(B.Voc.) in Software Development shall be governed under AO-6 of our College.

AO-6. ORDINANCE RELATING TO THE DEGREE IN BACHELOR OF VOCATION (B.Voc.) IN SOFTWARE DEVELOPMENT (Effective from the Academic Year 2017-2018)

AO-6.1. Introduction

It has been a long felt necessity to align higher education with the emerging needs of the economy so as to ensure that the graduates of higher education system have adequate knowledge and skills for employment and entrepreneurship. The higher education system has to incorporate the requirements of various industries in its curriculum, in an innovative and flexible manner while developing a holistic and well groomed graduate.

The University Grants Commission (UGC) has launched a scheme on skills development based higher education as part of college/university education, leading to Bachelor of Vocation (B.Voc.) Degree with multiple exits such as Diploma/Advanced Diploma under the National Skills Qualifications Framework(NSQF).The B.Voc.programme is focused on universities and colleges providing undergraduate studies which would also incorporate specific job roles along with broad based general education. This would enable the graduates completing B.Voc.to make a meaningful participation in accelerating India's economy by gaining appropriate employment, becoming entrepreneurs and creating appropriate knowledge.

The proposed vocational programme in Software Development will be a judicious mix of skills, professional education related to Software Development and also appropriate content of general education. It is designed with the objective of equipping the students to cope with the emerging trends and challenges in the Software Development environment.

AO-6.2. Objectives

- To provide judicious mix of skills relating to a profession and appropriate content of General Education.

- To ensure that the students have adequate knowledge and skills, so that they are ready to work at each exit point of the programme.
- To provide flexibility to the students by means of pre-defined entry and multiple exit points.
- To integrate NSQF within the undergraduate level of higher education in order to enhance employability of the graduates and meet industry requirements. Such graduates apart from meeting the needs of local and national industry are also expected to be equipped to become part of the global workforce.
- To provide vertical mobility to students coming out of 10+2 with vocational subjects.

AO-6.3. Nomenclature of the Course

The nomenclature of the course shall be Diploma/Advanced Diploma/B.Voc Degree in Programmes as decided from time to time. The Programmes shall be in keeping with NSQF.

AO-6.4. Duration and NSQF level of the Programme

The duration of the Programme shall be as given in the table below.

Nomenclature	Duration	NSQF Level
Diploma	Two Semesters	Level 5
Advanced Diploma	Four Semesters	Level 6
B. Voc Degree	Six Semesters	Level 7

AO-6.5. Eligibility

Any candidate who has passed the HSSC or its equivalent, in any stream from Goa Board of Secondary and Higher Secondary Education or equivalent is eligible for admission to the First Semester.

AO-6.6. Admission

- Admission shall be based on the merit list prepared by the College
- The fee structure shall be as decided by the College, from time to time.

AO-6.7. Programme Structure

The B.Voc. Programme shall comprise credits for Skill-based Courses and General Education as per the following table:

Nomenclature	Duration	Skill-based Credits	General Education Credits	Total Credits
Diploma	Two Semesters	36	24	60
Advanced Diploma	Four Semesters	72	48	120
B.Voc. Degree	Six Semesters	108	72	180

One Credit shall be equivalent to 15 hours for theory, workshops/labs and tutorials, 30 hours for internship/field work and self-learning, based on e-content or such other.

AO-6.8. Scheme of Examination

AO-6.8.1. Modes of Evaluation

There shall be two modes of evaluation of the academic performance of the students offering the B.Voc. Course : Continuous Assessment (CA) and Semester End Examination (SEE), hereafter mentioned as CA and SEE respectively. A student shall be required to appear for CA as well as SEE.

AO-6.8.2. Continuous Assessment

(a)The CA (Continuous Assessment) shall be conducted in a given Semester using alternate modes of evaluation such as assignment, seminar presentation, orals, demonstration, written etc. Generally, CA for a given course shall be conducted by the teacher/s teaching that course. CA shall not be conducted for the Practical component of a paper. The schedule for the CA shall be notified to the students in advance. The marks of CA shall be communicated to the students within Ten Days after the conduct of the CA. The teachers are expected to submit the marks of CA to the examination cell at least two weeks before the commencement of SEE (Semester End Examination).

(b)(i) The CA tests shall carry 40% of maximum marks allotted for the course i.e. 40 marks for papers without practicals and 30 marks for papers with practicals.

(ii) A teacher may assess a student more than the mandatory 2 modes of assessment. Two of the best performance of the students in such an instance is to be considered.

(c)Students who fail to appear for any of the CA in a course due to a genuine reason shall be given another opportunity on a date pre-determined by the concerned teacher of that course.

(d) A student who does not appear for the mandatory two CA's of a course shall not be eligible to answer the SEE of that course.

AO-6.8.3. Semester End Examination

(a) The SEE (Semester End Examination) shall be conducted at the conclusion of a given Semester. SEE shall cover the course of studies prescribed for the respective semester.

(b) A candidate who has successfully fulfilled the requirements of a course shall be deemed eligible to appear for the SEE of that course. A candidate who fails to fulfill these

condition(s) will have to ensure that they are suitably completed to re-appear at the examination of the course.

(c)A tentative schedule of SEE examination, evaluation, declaration of results etc. shall be prepared by the Examination Cell of the college, preferably at the beginning of each academic year for all semesters and shall be notified to students. Setting of the question papers, evaluation of answer-scripts shall be done by the teacher/s of the particular course. The declaration of results shall be done by the college.

(d) Assessment of answer-scripts of SEE of Semesters-I to Semester-VI shall be organized by the college. The assessment of the SEE answer scripts at the Semesters I to VI shall be done by the teacher/s of the particular course.

(e) The pattern of question paper(s) to be set for the SEE in a given course shall be decided by the college. Similarly, for assessment of practicals, the number of laboratory exercises, marks distribution for each exercise and other relevant details shall be decided by the Board of Studies in that subject.

(f) The Schedule of the Examination and the setting of question paper(s) for SEE for Semester -I to Semester-VI shall be done centrally by the college. There shall be no objective type of questions at SEE. Photocopies of the key shall be given to the examiners assessing the papers. In case of descriptive type of answers, only important points to be expected may be highlighted. The assessment of the SEE at Semesters I to VI shall be done centrally at the College.

(g) The duration of SEE theory paper carrying 60 or 45 marks shall be of two hours and the theory paper carrying 30 marks shall be of one and half hour duration.

AO-6.8.4. Scheme of evaluation for course (Theory)

(a) A theory paper carrying 100 marks shall have CA component of 40 marks and SEE component of 60 marks. For a 75 marks theory course, CA component shall be 30 marks and SEE component shall be 45 marks. A theory course carrying 50 marks shall have CA component of 20 marks and SEE component of 30 marks.

(b) A student shall be required to appear in a minimum of two CAs and SEE so that the result in a course may be declared. A Course shall have a 'single passing-head' based on the combined performance at CAs and SEE. Fractional marks shall be rounded off to the nearest integer only at the time of calculating the Course grade.

(c) A student shall be required to score a minimum of 40% marks in CA and SEE components combined in each non practical course, subject to scoring at least 30 percent of marks both in CA and SEE components individually, to obtain a minimum Grade P.

(d) A student shall be required to score a minimum of 40% marks in CA and SEE components combined, subject to scoring at least 30 percent of marks both in CA and SEE components individually, and a minimum of 40% marks in practical component in each course with practical component, to obtain a minimum Grade P.

(e) Marks scored by the student in CA shall be carried forward even if he/she fails in the

course.

AO-6.8.5. Scheme of evaluation for course (Practical)

(a) No separate examination(s) in laboratory exercises shall be conducted for courses having practical(s) component. Each experiment/laboratory work carried out by the student shall be assessed by the teacher/s during the regular practical. Marks shall be allotted for journal/lab record book, field work and oral/viva voce. The teacher concerned will decide the distribution of marks under different heads.

(b) For assessing the candidate's performance in the assigned experiment, the examiner shall take into account the planning, the procedure and the technique followed by the candidate along with the readings/observations, the results and the presentation.

(c) In oral examination, the examiner(s) shall assess the knowledge of the candidate in the course as well as the experiment(s) performed by the candidate.

(d) Record of the marks obtained by the candidate shall be maintained by the respective department for Semesters I to VI, in a sealed envelope for a minimum period of 3 years.

(e) The practical assessment shall be treated as an independent head of passing.

(f) A candidate may be permitted, strictly on medical or other genuine grounds, to perform practical(s) missed, at the end the course.

AO-6.8.6. General Guidelines for Project Work

(a) A student registered for the three years B.Voc. Degree programme shall be required to carry out a project in the subject during the Semesters-V and Semester-VI, and submit the Project Report at the end of Semester-V and Semester-VI for evaluation.

(b) During the Semesters-V and Semester-VI, candidates of B.Voc. shall be assigned work for completing the Project in the area/field of subject/s. Project work and the Report shall be based on field work/library work /laboratory work or on-the-job training or similar work assigned by the teacher on a topic identified by the latter.

(c) Project work shall be assigned to a single student or to a group of up to 5 students. The teacher shall be assigned one or more such groups according to the requirement of the subject. Two contact hours per week shall be considered as teaching work load for a group of 5 students in Semesters-V and Semester-VI.

AO-6.8.7. Assessment of Project Work

(a)The assessment of the project paper shall be done equally by Project Supervisor/Guide for 50 percent of marks and departmental Faculty Panel consisting of two or more departmental faculty members, other than the Project Supervisor/Guide, for 50 percent of marks. The Supervisor/Guide shall assess the project as per the guidelines defined in the project manual of the College. The student/s shall make a presentation of the work before the Faculty Panel and other students of the Department. The Faculty Panel shall assess the work

for 50 percent marks and the average of marks awarded by members of the Faculty Panel shall be considered

(b) The grade point of the project paper shall be based on the total marks scored from assessments by Project Supervisor and the Faculty Panel. A student shall earn allotted credits for the project paper on obtaining a minimum Grade P.

AO-6.8.8. Internship Training

The candidate shall be required to obtain a certificate from the firm indicating that he/she has satisfactorily completed the required training and shall submit an Internship Report to the Guide/ Teacher In-charge, who shall be a faculty member.

(a) CA shall be conducted by the internal faculty, and shall include an assessment of the Final Internship Report by the Guide/ Teacher In-charge, who shall be a faculty member.

(b) SEE shall comprise an evaluation of the Report and a viva-voce.

AO-6.8.9. Procedure for preparing Results

i. Marks, Grades and Grade Points:

Absolute grading method shall be adopted for awarding grades in a course. Under the absolute grading, the marks are converted to grades based on pre-determined class intervals. To implement the grading method, a 10-point grading system shall be used.

ii. The following table gives the conversion of marks, grade points and letter grades to indicate the performance of the candidate in each course at the undergraduate level.

Range of percentage scored	Grade Points	Letter Grade	Grade Description
85 – 100	10	O	Outstanding
75 – < 85	9	A+	Excellent
65 – < 75	8	A	Very Good
55 – < 65	7	B+	Good
50 – < 55	6	B	Above Average
45 – < 50	5	C	Average
40 – < 45	4	P	Pass
0 – < 40	0	R	Reappear
Absent	0	Ab	Absent

iii. A student obtaining Grade R/Ab in a course shall be required to reappear for the examination in that course.

iv. Computation of SGPA and CGPA:

The following procedure shall be used to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

The performance of a student in a semester is indicated by a number called SGPA. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student,

$$\text{SGPA}(\text{Si}) = \frac{\text{Sum of the product of the number of credits with the grade points scored in a semester}}{\text{Total number of credits in that semester}}$$

$$\text{SGPA}(\text{Si}) = \frac{\sum (C_i \times G_i)}{\sum C_i}$$

where C_i is the number of credits of the i th course and G_i is the grade point scored by the student in the i th course in each semester. Here, $i = 1, 2, 3, \dots, n$, represent the number of courses in which a student is registered in the concerned semester.

The SGPA is rounded upto two decimal places.

Illustration of Computation of SGPA :

Course	Credit	Grade Letter	Grade Point	Credit Point = (Credit x Grade Point)
Course 1	4	A	8	4 x 8 = 32
Course 2	4	B+	7	4 x 7 = 28
Course 3	4	B	6	4 x 6 = 24
Course 4	4	A+	9	4 x 9 = 36
Course 5	4	B	6	4 x 6 = 24
	20			144

Thus, $\text{SGPA} = 144/20 = 7.2$

The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme,

$$\text{CGPA} = \frac{\text{Sum of the product of the total number of credits in a semester with its grade point average}}{\text{Total number of credits in the entire programme}}$$

$$\text{CGPA} = \frac{\sum (C_j \times S_j)}{\sum C_j}$$

where S_j is the SGPA of the j th semester and C_j is the total number of credits in that semester.

$j = 1, 2, 3, \dots, m$, represent the number of Semesters of an entire programme for which the CGPA is to be calculated.

$$\text{Percentage} = \text{CGPA} \times 10$$

The CGPA is rounded up to two decimal places

Illustration of Computation of CGPA

Semester	Credit	SGPA	Credit x SGPA
Semester I	20	7.2	20 X 7.2 = 144
Semester II	20	6.8	20 X 6.8 = 136
Semester III	20	7.4	20 X 7.4 = 148
Semester IV	20	6.6	20 X 6.6 = 132
Semester V	20	7.0	20 X 7.0 = 140
Semester VI	20	6.4	20 X 6.4 = 128
	120		828

Thus, CGPA=828/120=6.9 (Grade: B+)

v. The Undergraduate Degree shall be awarded according to the following classification.

CGPA	Grade	Classification of Final Result
9.0-10	O	Outstanding
8.0-8.99	A+	Excellent
7.0-7.99	A	Very Good
6.0-6.99	B+	Good
5.5-5.99	B	Above average
4.5-5.49	C	Average
4.0-4.49	P	Pass

AO-6.8.10. Award of Diploma, Advanced Diploma and B.Voc. Degree

All such persons who have undergone the prescribed courses and have passed the qualifying examinations shall be awarded the Diploma/Advanced Diploma/B.Voc. Degree.