

**REGULATIONS FOR
CHOICE BASED CREDIT SYSTEM (CBCS)
OF
CENTRE FOR BIOTECHNOLOGY
(M. Sc. Medical Biotechnology Course)**

UNDER

**PRAVARA INSTITUTE OF MEDICAL SCIENCES
DEEMED UNIVERSITY**



**TO BE IMPLEMENTED FROM ACADEMIC SESSION
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1. **Preamble** Centre for Biotechnology, a constituent unit of Pravara Institute of Medical Sciences- Deemed University is gearing up with several initiatives towards academic excellence, quality improvement & administrative reforms. In a view of this, semester system is already introduced & as per UGC circular no. D. O.No. F.1-1/2012(Secy) grading system & credit system is initiated.

The Choice Based Credit System (CBCS) enables a student to obtain a degree by accumulating required number of credits prescribed for that degree. The number of credits earned by the student reflects the knowledge or skill acquired by him/her. Each course is assigned with a fixed number of credits based on the contents to be learned. The student also has choice in selecting courses out of those offered by institute. The grade points earned for each course reflects the student's proficiency in that course.

2. **Scope**
1. The CBCS is applicable to all full-time Post Graduate Programs of study approved by the Academic Council.
 2. The learning and evaluation is on Semester pattern.
 3. It permits the students to learn in their own pace.
 4. It will also permit the student to choose electives from a wide range of elective subjects.

3. **Definitions**

Academic Year Two consecutive (one odd + one even) semesters constitute one academic year

Choice Based Credit System (CBCS)

The CBCS provides choice for students to select from the prescribed courses (core, elective or minor or soft skill courses).

Credit Based Semester System (CBSS)

Under the CBSS, the requirement for awarding a degree or diploma or certificate is prescribed in terms of number of credits to be completed by the students.

Credit

A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of

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practical work/field work per week.

Contact hours will include all the modes of teaching and it includes forms like lectures / tutorials / laboratory work / fieldwork or other forms.

In each of the courses, credits will be assigned on the basis of the number of lectures / tutorials / laboratory work and other forms of learning required for completing the course contents in maximum 18 week schedule.

The instructional days as worked out by the UGC for one academic year are 180 working days i.e. 90 days per semester.

Credit Point	It is the product of grade point and number of credits for a course.
Cumulative Grade Point Average (CGPA)	It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.
Grade Point	It is a numerical weight allotted to each letter grade on a 10-point scale.
Letter Grade	It is an index of the performance of students in a said course. Grades are denoted by letters O, A+, A, B+, B and F.
Programme	“Programme” means a set of required number of semesters leading to award of a UG or PG degree/diploma of PIMS-DU.
Semester Grade Point Average (SGPA)	It is a measure of performance of work done in a semester. It is ratio of total credit points secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.
Semester	“Semester” means a term consisting of a minimum of 450 contact hours distributed over 90 working days spread over 18 weeks of five-day duration each and five contact hours per day.($18 \times 5 \times 5 = 450$) Depending upon the duration, each academic year will be divided into two semesters. Semesters will be known as either odd semesters or even semester. The odd semester from August to December will be semesters I, III, V, VII or IX depending upon the programme duration and similarly the semester from January to July will be semesters II, IV, VI or VIII.

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4. Introduction of Course

Course Structure The Course Structure shall prescribe the minimum eligibility, Semester wise list of courses, total credits for each program, including, Theory, Practical, Project work and Viva- voce examinations, etc.

Detailed syllabus for all courses offered by the institute shall be prepared in a specific number of units along with full details of Text Books, Reference Books, Web based resources, Reference Reprints of papers, e-Books etc. relevant to the course and printed made available to teachers and students.

The Course Structure and Syllabus of each PG programme shall be approved and recommended by the Committee to Board of Studies (BOS) and then the Academic Council.

Course Usually referred to, as 'papers' is a component of a programme. All courses need not carry the same weight. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures/ tutorials/laboratory work/ field work/ outreach activities/ project work/ vocational training/viva/ seminars/ term papers/assignments/ presentations/ self-study etc. or a combination of some of these.

Course Code Each course shall have a title and course code. The course code shall consist of two alphabets - representing the degree & level of the course, and three numerals. The first numeral stands for year of the course, the second & third numerals stands for number of paper. For example, **BP 201** stands for Biotechnology Postgraduate course, for 2nd year with paper one.

Core Course Core courses are those, knowledge of which is deemed essential for students registered for a particular Programme. Core courses shall be spread over all the semesters.

Elective Courses Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the subject of study or which provides an extended scope or which enables an exposure to some other subject/domain or nurtures the candidate's proficiency/ skill is called an Elective Course.

Project work/Dissertation work is a special course involving application of knowledge in solving / analyzing /exploring a real life situation / difficult problem. A project work up to 2-4 credits is called Minor Project work. A project work of 6 to 8 credits is called Major

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Project Work. Dissertation work has given 12 credits.

5. Evaluation-marks & grading system

Evaluation will be done on a continuous basis. The Student's performance in a course will be evaluated by assigning a letter grade.

All subjects in a PG programme shall carry an Internal Assessment component to the extent of 30 marks and End Semester for 70 marks.

For each course the passing marks will be 50% aggregate.

Internal Assessment

A schedule of Internal Assessment tests shall be prepared at the very beginning of the semester. Internal Assessment marks shall be displayed within a week from the date of conduct of examination and all corrected answer papers shall be given back to students with comments, if any. It is mandatory for all students to participate in all the Internal Assessment tests and in various course-work related activities for award of the above marks.

End Semester/ University Examination

1. An End Semester examination shall be conducted for all courses offered in the institute. The duration of the end semester examination shall be for 3 hours.
2. A schedule of End Semester examinations be prepared by the university and displayed by the institute at least one- month ahead of the conduct of the examination.
3. No student who has less than 75% attendance in any course shall be permitted to attend the end-semester examination and he shall be given grade of FA-failure due to lack of attendance. He shall be asked to repeat that course the next time it is offered.

6. Grading System

After adding the internal marks (max. 30%) & external marks (max. 70%), the marks secured by a student form maximum 100 will be converted into letter grade. The grade point are the numerical equivalent of letter grade assigned to a student in the 06 point scale as given below:

% Marks Range	Grade Point	Grade
80 & Above	10	O (Outstanding)
75-80	9	A+ (Excellent)
60-74	8	A (Very Good)
55-59	7	B+ (Good)
50-54	6	B (above Average)
Less than 50	0	F (Fail)

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A student obtaining Grade F shall be considered failed and will be required to reappear in the examination.

Backlog: at any given point of time student can have maximum 2 backlogs.

7. Computation of SGPA & CGPA

Performance in a semester will be expressed as a Semester Grade Point Average (SGPA).

Cumulative performance of all the semesters together will reflect performance in the whole programme and it will be known as Cumulative Grade Point average (CGPA). Thus CGPA is the real indicators of a student's performance.

The formula for calculation of SGPA & CGPA is given below:

(i) 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, i.e

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

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.

For eg.,

Course	Course I	Course II	Course III	Course IV	Practical Course
Credit	4	4	4	4	8
Numerical Grade	7	6	7	5	6

$$\text{SGPA} = \frac{7 \times 4 + 6 \times 4 + 7 \times 4 + 5 \times 4 + 6 \times 8}{4 + 4 + 4 + 4 + 8} = 148 / 24 = 6.16$$

(ii) 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, i.e.

$$\text{CGPA} = \frac{\sum(C_i \times S_i)}{\sum C_i}$$

where S_i is the SGPA of the i th semester and C_i is the total number of credits in that semester.

For eg., consider the SGPA's obtained by a student in four semesters along with total credits in each semester is given below:

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Semester	First	Second	Third	Fourth
SGPA	6.75	6.00	7.25	8.25
Total Credit	24	24	24	24

$$\text{CGPA} = \frac{(6.75 \times 24) + (6.00 \times 24) + (7.25 \times 24) + (8.25 \times 24) + (2 \times 4)}{24 + 24 + 24 + 24 + 4}$$

$$= 162 + 144 + 174 + 198 + 8 / 100$$

$$= 695 / 100$$

$$\text{CGPA} = 6.95$$

Extra Credits

Extra Credits may be awarded to a student for achievements in extra & co-curricular activities carried outside the regular class hours, as decide by the university. These credits shall not be counted while considering the minimum credits for completing the programme.

The extra credits will include following activities :

Summer Training/ Workshop/ Mini project = 2 credits

Co & Extra Curricular Activity (Open elective) = 2 credits

1. Poster/ Paper presentation

2. Participation in Conference/ seminar/ CME

3. Extension activities

8. Grade Card or Certificate

Based on the grades earned, a grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester and CGPA earned till that semester.

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**PRAVARA INSTITUTE OF MEDICAL SCIENCES
(DEEMED UNIVERSITY)
RULES AND REGULATIONS
FOR THE
INDEPENDENT MASTER OF SCIENCE PROGRAM IN MEDICAL
BIOTECHNOLOGY**

1. General:

These rules and regulations are framed as per the directives of UGC and P.I.M.S. – Deemed University.

2. Faculty:

This course will be under The Faculty of Allied Health Sciences.

3. Nomenclature of Degree:

Master of Science Degree in Medical Biotechnology (M.Sc.)

4. Conditions for admission to the independent Master of Science Program in Medical Biotechnology:

4.1 Candidates who have passed the B.Sc. examination with minimum 50% marks (45% for the candidates belonging to SC/ST/OBC) in Microbiology/ Biochemistry/ Chemistry/Life Sciences (Zoology/ Botany) Physics with Biophysics specialization from any Statutory University in India or its equivalent.

4.2 Candidates who have appeared for and are expecting their results on or before 31st May of year of admission, of the respective final qualifying examinations.

5. Duration of the Program:

Duration of this program will be two calendar year.

6. Selection of Students for the independent Master of Science Program in Medical Biotechnology:

6.1 The selection of the students will be based on the merit of the marks obtained in the B.Sc. examination from any Statutory University in India or its equivalent

7. Program Objective:

7.1 Candidates will be trained in the advance and current art of medical biotechnology and in the skills of research methodologies, critical evaluation, problem recognition and problem solving in science.

7.2 Candidates will have:

1. Hands-on experience of handling most of the commonly used experimental protocols in molecular biology, genetics, protein and nucleic acid chemistry
2. Experience of independently designing, executing, observing and interpreting the results of experiments and build a hypothesis.

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ASSESSMENT OF COURSE (M.Sc. (Independent) Medical Biotechnology)						
EVALUATION SCHEME (THEORY)						
Semester I						
Semester	No. of subjects	Theory	Marks			
			Theory	Practical	Viva	Total
Sem I	4	100 per paper (70+30)	400	150	50	600
Sem II	4	100 per paper (70+30)	400	150	50	600
Sem III	4	100 per paper (70+30)	400	150	50	600
Sem IV	2	100 per paper (70+30)	200	150	50	400
	1 (Project)	100 (Dissertation) + 25 + 25 (Synopsis & Final Presentation)	150		50	200

Grand Total = Sem. I + Sem. II + Sem.III + Sem. IV
i.e. 600M + 600M + 600M + 600M = 2400Marks
600 M (100 each theory + 150 practical/project + 50 viva (Internal 10 marks + external 40 marks at university examination))

SEMESTER EXAMINATION PATTERN = 70:30 (70 EXTERNAL + 30 INTERNAL)

Internal Examination includes two tests

Test One (Mid Sem.) + Test Two (Preliminary examination) = 30 Marks

- 5 questions out of 6 questions
- Questions can be sub divided

External Examination (University Examination) = 70 Marks

Total = 30 (Internal Examination) + 70 (University Examination)

- 5 questions out of 6 questions
- Questions can be sub divided

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EVALUATION SCHEME (PRACTICAL)

All subjects having practical course will be evaluated as a single paper during that semester.

Internal Examination includes one practical test of 150 marks which will be converted to 30 marks + 10 Marks Viva + 10 Marks Journal Club = 50 Marks

External practical examination (University Examination) = 100Marks

1 long question of 50 marks

2 short questions of 20 marks each

1 minor question of 10 marks

Total = 50 marks(Internal Examination) + 100 marks (University Examination) =150 Marks

Viva voce = 10 marks (Internal Viva) + 40 marks (University Viva)= 50 Marks

Practical examination mark system:

Internal (50 Marks) + University (100 Marks) + Viva (50Marks) =200 Marks

PASSING SCHEME

- External University examination of 50% out of 70 marks
- Internal examination of 50% out of 30 marks
- Eligibility to appear to the final university examination is 50%

GRADES AND GRADE POINTS

% Marks Range	Grade Point	Grade
80 & Above	10	O (Outstanding)
75-80	9	A+ (Excellent)
60-74	8	A (Very Good)
55-59	7	B+ (Good)
50-54	6	B (above Average)
Less than 50	0	F (Fail)
	Ab	Absent

Formula to calculate SGPA (Si) = $\sum (Ci \times Gi) / \sum Ci$

Formula to calculate CGPA = $\sum (Ci \times Si) / \sum Ci$

Transcript (Format): Based on Letter grade, grade points and SGPA and CGPA, the authority may issue the transcript for each semester and a consolidated transcript indicating the performance in all semester.