BHARATI VIDYAPEETH

(DEEMED TO BE UNIVERSITY), PUNE, INDIA

Learning Outcomes based Curriculum Framework

(LOCF)

For

M.Sc. Microbiology

(CBCS- 2018 COURSE)

Faculty of Science

(To be implemented from June 2018)

Table of Contents

BHARATI VIDYAPEETH

(DEEMED TO BE UNIVERSITY), PUNE, INDIA

CHOICE BASED CREDIT SYSTEM (2018 course)

M.Sc. Microbiology

(Introduced from Academic Year 2018 – 2019)

1. Preamble-

Completion of graduation course in Microbiology simply provides a platform for basic understanding of the subject. Inventions, innovations and technology have revolutionized and enriched the Microbiology subject. The demand of skilled manpower requires thorough knowledge of the subject. It also demands for incorporating latest knowledge and advanced technologies to fulfill the changing needs of society. The public private sector prefers the experienced manpower. Considering this, M.Sc. Microbiology CBCS-2018 course is designed to provide through and updated knowledge of the subject which makes easy entry of the students in public private sector. Uniqueness of the course is of having 6 months mandatory research projects. During the period students are getting an opportunity to work in nationally and internationally acclaimed research institutes and industries. This generates skilled human resources as per the demands of the society. The course has other research elements including scientific writing, writing research projects, preparing publications, preparing research posters for the conferences and the entire process also generates innovative minds to work in the capacity of scientists.

2. Introduction:

In the increasingly globalized society, it is important that the younger generation especially the students are equipped with knowledge, skills, mindsets and behaviors which may enable them to perform their duties in a manner so that they become important contributors to the development of the society. This will also help them to fully utilize their educational training for learning a decent living so that the overall standard of their families and surroundings improve leading to development of welfare human societies. To achieve this goal, it is imperative that their educational training is improved such that it incorporates the use of newer technologies, use of newer assessment tools for mid-course corrections to make sure that they become competitive individuals to shoulder newer social responsibilities and are capable of undertaking novel innovations in their areas of expertise. In the face of the developing knowledge society, they are well aware about the resources of self-development using on-line resources of learning which is going to be a major component of learning in the future. The learning should also be a continuous process so that the students are able to re-skill themselves so as to make themselves relevant to the changing needs of the society. In the face of this need, the educational curricula, teaching learning processes, training, assessment methods all need to be improved or even re-invented.

3. Learning Outcomes based approach to Curriculum Planning:

Learning Outcome based approach to curriculum planning (LOCF) is almost a paradigm shift in the whole gamut of higher education such that it is based on first and foremost identifying the outcomes of the learning required for a particular subject of study, and then planning all components of higher education so as to achieve these outcomes. The learning outcomes are the focal point of the reference to which all planning and evaluation of the end learning is compared and further modifications are made to fully optimize the education of the individuals in a particular subject. For the subject of Microbiology the outcomes are defined in terms of the understanding and knowledge of the students in microbiology and the practical skills the students are required to have to be competitive microbiologist so that they are able to play their role as microbiologist wherever required in the society such as the diseases caused by the microbes, their diagnosis and remedies;

the role of microbiologists in the biotechnology industry and how they may be able to fit the bill in the industry. The students are also trained in such a way that they develop critical thinking and problem solving as related to the microbiology. The curriculum developed and the teaching and the evaluation tasks are such that the students are able to apply their knowledge and training of microbiology to solve the problems of microbiology as these exist or appear from time to time in the society. The curriculum envisions that the student, once post graduate as specialists in a discipline, have an important role to play in the newer developments and innovations in the future in the subject for advancement of the discipline.

4. Postgraduate Attributes in Microbiology:

- Broaden the outlook and attitude, develop the current skills and abilities, learn new one to excel in studies and career, grow into responsible global citizens.
- Contour the academic career of the students, make them employable, enhance research acumen and encourage the participation in co-curricular and extracurricular activities.
- Instill skills and abilities to develop a positive approach and be self-contained to shape one's life and also that of colleagues and peers.
- Demonstrate behavioral attributes for the enhancement of soft skills, socialistic approach and leadership qualities for successful career and nurture responsible human being.
- Provide highly skilled and knowledgeable human resources for agricultural sector, food industry, dairy industry, medical and paramedical field, pharmaceutical, space research and research institutes.

5. Qualification Descriptors:

The following may serve as the important qualification descriptors for a PG degree in Microbiology:

1. Knowledge of the diverse places where microbiology is involved.
2. Understanding of diverse Microbiological processes.
3. Advanced skills and safety issues related to handling of microbes, Good Microbiological practices etc.
4. Advanced skills in working with microbes such as pilot scale culturing, downstream processes, diagnostics etc.
5. Generation of new knowledge through research projects.

6. Ability to participate in team work through microbiology projects.
7. Ability to present and articulate their knowledge of Microbiology.
8. Knowledge of recent developments in the area of Microbiology.
9. Analysis of data collected through study and projects / dissertations / reviews / research surveys.
10. Ability to innovate so as to generate new knowledge.
11. Awareness how some microbiology leads may be developed into enterprise.
12. Awareness of requirements for fruition of a microbiology-related enterprise.
13. Ability to acquire intellectual property rights.

6. Objectives of the course:

The aim and objectives of the M.Sc. Microbiology course program essentially focus to develop skills of student for a successful career.

A. The course structure emphasizes to put enough efforts in theory as well as laboratory work so as to gain thorough knowledge of the subject.
B. The course includes project work that would develop and nourish the scientific approach and research attitude of the students.
C. Genetic engineering, Biotechnology, Bioinformatics, Immunotherapy are the new horizons of the interdisciplinary subject Microbiology which might provide solutions to various problems of the society. The course work is essentially framed to acquaint the students with all the recent advances in this field.
D. It is compulsory & essential for the students to read research papers, publications and deliver seminars that would better help them to know the recent advances in the subject and also develop the communication skills.
E. The program is designed in such a way that it is essential for the students to read original publications, put enough efforts in laboratory work for practicals and project, be acquainted with all the recent advances in the field like Bioinformatics, drug designing and develop all the skills for a successful career.

7. Programme Outcomes:

At the end of this course the students will be able to:

1. Deliver his/her duties in the medical and paramedical field which will aid the diagnosis of diseases and disorders.
2. Extend his/her duties in the field of biotechnology.
3. Perform duties as research fellows/scientist in biological sciences.
4. Learn desired skills through six months mandatory internship program.

8. Course duration:

The M.Sc. degree course will be of two years duration.

The M.Sc. degree of two years duration has been designed and is to be implemented from the academic year 2018-2019.

9. Eligibility for Admission to M.Sc. (Microbiology) course:

A candidate who has passed the

- Bachelor of Science from any recognized university with Microbiology as Principle subject (Major) or Microbiology (Honors).
- Bachelor of Science from any recognized university with Botany/Zoology/Biochemistry/Biotechnology/Environmental science as major subjects with Microbiology as subsidiary subject.
- Bachelor of Science from any recognized university with Microbiology as one of the subjects.
- The candidate who has secured aggregate of 50% marks (45 % marks in case of SC/ST) in the graduate course as well as in the Microbiology Subject shall be eligible for admission to the First Year M.Sc. degree course.

10. Total Intake capacity: 30

11. Medium of Instruction: English

12. Structure of M.Sc. (Microbiology) CBCS degree program:

The overall structure of the course to be implemented from the academic year 2018-2019 onwards is as follows.

A. The M.Sc. (Microbiology) course will be of 2 years duration. Each year will be of 2 semesters - Thus the entire course will be of 4 semesters.

B. For semester I candidate has to appear for 3 core compulsory theory papers and one core elective theory paper. For semester I the candidate has to complete two practical courses as mentioned in the syllabus. For semester II , the candidate has to appear for 3 core compulsory papers, one core elective paper and one ability enhancement course paper. In semester II two practical courses will be conducted as mentioned in the syllabus. **At the end of both the semesters, practical examination will be conducted for practical courses 1, 2, 3 and 4.**

C. Semester III will be totally for Internship (major project). For semester IV, the candidate has to appear 3 core compulsory papers, one core elective paper, one skill enhancement paper and two practical courses. **At the end semester IV, practical examination will be conducted for practical courses 5 and 6.**

D. Entire M.Sc. course in Microbiology shall be covered in 14 theory papers including Ability enhancement course and Skill enhancement course, 6 practical courses, and an Internship (major project with Dissertation). Each theory paper will be covered in 4 lectures of one hour per week. Each practical course shall be covered in two practical turns of four clock hours per week. Thus, the students will work for each practical on two days of the week, daily for at minimum four hrs.

E. Students will have to complete an Internship program (major project with dissertation) so as to learn research methodology and presentation of work. The Internship (major project/ dissertation) shall carry 200 marks. The students will work for their projects, complete the experimental work in third semester, and complete the writing part of the project in the allotted duration.

Structure of M.Sc. (Microbiology) degree programme

Details with course number and title of the paper The M. Sc.(Microbiology) is of 84 credits and of 2100 marks as maximum.

M.Sc. MICROBIOLOGY

(CBCS-2018 COURSE) SEMESTER-I

Subject Type	Code	Title of the paper	Hrs/ Week	Credits	Exam Hrs	Maximum Marks		
						Internal Assessment	University Examination	Total
Core Compulsory Theory	PGMB 101	Biochemistry	04	04	03	40	60	100
	PGMB102	Immunology	04	04	03	40	60	100
	PGMB103	Genetics and Molecular biology	04	04	03	40	60	100
Core Elective Theory	**Any one from the following:**							
	PGMB104	Microbial Ecology	04	04	03	40	60	100
	PGMB105	Environmental Microbiology	04	04	03	40	60	100
Core Compulsory Practical Course	PGMB111	Practical course 1	08	02	03	40	60	100
	PGMB112	Practical course 2	08	02	03	40	60	100

M.Sc. MICROBIOLOGY
(CBCS-2018 COURSE)

SEMESTER-II

Subject Type	Code	Title of the paper	Hrs/ Week	Credits	Exam Hrs	Maximum Marks		
						Internal Assessment	University Examination	Total
Core Compulsory Theory	PGMB 201	Fermentor Design and Microbial Biotechnology	04	04	03	40	60	100
	PGMB202	Analytical techniques	04	04	03	40	60	100
	PGMB203	Quantitative Biology	04	04	03	40	60	100
Core Elective Theory	**Any one from the following:**							
	PGMB204	Microbial Metabolism	04	04	03	40	60	100
	PGMB205	Physiology and Metabolism	04	04	03	40	60	100
Ability Enhancement Course	PGAEC201	Scientific Writing	02	02	02	20	30	50
Core compulsory Practical Courses	PGMB211	Practical course 3	08	02	03	40	60	100
	PGMB212	Practical course 4	08	02	03	40	60	100

M.Sc. MICROBIOLOGY
(CBCS-2018 COURSE)

SEMESTER-III

Subject Type	Code	Title of the paper	Hrs/ Week	Credits	Maximum Marks		
					Internal Assessment	University Examination	Total
Core Compulsory	PGMB 304 and 305	Internship (Major Research Project). OR in case of national emergencies like Covid pandemics, following alternative has been approved in BOS meeting dt. 02/07/2020. 1. Review Article : 50 marks 2. Field work (Data Collection)/ Online surveys/ Book Review: having subject relevance (Any one from enlisted) 100 marks 3. Evaluation: 50 Marks	08	20	80	120	200

M.Sc. MICROBIOLOGY
(CBCS-2018 COURSE)
SEMESTER-IV

Subject Type	Code	Title of the paper	Hrs/ Week	Credits	Exam Hrs	Maximum Marks		
						Internal Assessment	University Examination	Total
Core Compulsory Theory	PGMB 401	Virology	04	04	03	40	60	100
	PGMB 402	Medical Microbiology	04	04	03	40	60	100
	PGMB 403	Food and Dairy Microbiology	04	04	03	40	60	100
Core Elective Theory	**Any one from the following:**							
	PGMB 404	Advanced Biotechnology	04	04	03	40	60	100
	PGMB 405	Advanced Analytical Techniques	04	04	03	40	60	100
Skill Enhancement Course	PGSEC 401	Exploring Microbial Diversity	02	02	02	20	30	50
Core compulsory Practical Courses	PGMB 411	Practical course 5	08	02	03	40	60	100
	PGMB 412	Practical course 6	08	02	03	40	60	100

13. Rules for the examination:

A. A candidate shall not be admitted to the semester examination unless he / she have satisfactorily kept terms for the courses at the respective department of this university.

B. An application (which must be in the prescribed form and accompanied by the prescribed fee) for admission to any of the examination of M.Sc. (Microbiology Degree course) shall be submitted by respective candidate to the Registrar through the Head of the Institution attended by him / her on or before the prescribed date along with a certificate from the Head of the Institution having attended the course and kept the terms in the various subjects and of having satisfied the other conditions laid down by the university and of being fit candidate for the examination.

C. Assessment pattern:

a. Continuous Internal Assessment :

Theory:

Internal assessment for PG students will be carried out as follow:

Internal assessment for theory papers of 4 credits weightage:

Item	**Maximum marks**
Mid semester (internal) examination	20
Tutorial (as given on paper or through 'Google Classroom'). **Note:** Respective subject teacher may preferably generate Google Classroom and should keep the record of conducted tutorials. Other MOOC platforms as provided by the University are also allowed to conduct tutorials.	10
Attendance	10
Total marks	**40**

Internal assessment for theory papers of 2 credits weightage:

Item	**Maximum marks**
Mid semester (internal) examination	20

Practical: Internal marks for the practical course will be based on the continuous assessment of the daily work, orals, seminars/presentations; Tour/visit reports, class tests, literature review and attendance (**Any two**). Students will be assessed for 40 marks as an internal for each practical course.

For example:

Item	**Maximum marks**
Assessment of daily work (Attendance, Skill, Innovative approach, Timely completing task are the criteria for assessment of daily work.) Note: Practical demonstrator is expected to keep the record of above criteria.	20
Tour / visit report (Note: Practical demonstrator is expected to keep the duly signed visit reports/tour reports for departmental inspection.)	20
Total marks	**40**

b. Semester Examination :

Theory: An University examination will be held at the end of every semester. This Examination in each subject will be of 60 marks for three hours duration and for 30 marks for ability enhancement and skill enhancement courses. For ability enhancement and skill enhancement courses wherever 30 marks are applicable, the examination will be conducted for 2 hours only as a max per paper. The final result of the students in each subject will be based on Final GPA obtained by the students for the internal assessment and University Examination.

Practical: There shall be Annual practical examination of 60 marks/practical course at the end of 2nd and 4th Semester.

The practical examination for the courses PGMB 111, PGMB 112, PGMB 211, and PGMB 212 will be conducted at the end of second semester. Practical examination for courses PGMB 411 and PGMB412 will be conducted at the end of fourth semester.

14. Assessment for Internship (Major Project):

PGMB 304 and PGMB 305 will be assessed as cumulative work. The project shall carry 200 marks. Internship course is of 20 credits. The assessment for the said courses should be carried out as follows;

a. Assessment by Research Guide: The entire project will be assessed by research guide for 60 marks. Criteria used for the assessment are as follow:

(Confidential and to be sent through with signed sealed envelope by research guide)

Sr. No.	Criteria	Maximum Marks	Obtained Marks
1.	Understanding the basic concept of dissertation	**05**	
2.	Fulfillment of Aims and objectives	**05**	
3.	Results, discussion and conclusion	**10**	
4.	Regularity and punctuality	**10**	
5.	Literature Review	**10**	
6.	Fulfillment of Plagiarism norms as per attached certificate	**05**	
7.	Publication of work	**05**	
8.	Potential Applications of the work /Social relevance	**10**	
Total out of 60			

Note: respective research guide should submit weekly progress report to the head of the department through official mail. Signed print copies of the progress report are also accepted.

b. Internal (institutional) assessment of the project:

Internal assessment of the project will be carried out in the Department where the candidate is registered for post graduate degree. This will be carried out as follow:

Item	Marks	Note
Presentation of the plan of work	20	Should be carried out as open defense. Any suggestions if are should be communicated to the guide.
Submission of completed work in the form of CD ROM of dissertation copy along with 2 certified bound copies	20	CD ROM should be submitted to the University where the University may take appropriate decision for forwarding it to Shodhganga.

		Note: Any work having conflicts of interest with respect to intellectual properties should not be published without permission of respective guide.
Total marks:		**40**

University Evaluation:

University evaluation will be carried out for 100 marks. This will be conducted as open defense presentation. For the purpose candidate is allowed to present the work through LCD Projector or any other alternative as available in the institute. In case of national emergencies, online presentation is allowed. For the purpose the candidate is allowed to use online meeting apps as allowed by the central government. For the purpose of the evaluation the University will appoint two examiners. One examiner will be external having adequate research experience and minimum qualification as Ph.D. For the purpose any senior academician / senior scientist working in institutes of national and international reputes / senior person working in industry / Entrepreneur with minimum qualification of Ph.D. in Microbiology may be appointed. Another examiner will be appointed from the institute where, the candidate has registered for his/her post graduate degree. Minimum qualification of the internal examiner should be Ph.D. in Microbiology.

Evaluation by external examiner: (University document)

External examiner as appointed above will evaluate the dissertation of the candidate for 60 marks. Following criteria should be used for evaluation purpose by external examiner.

Sr. No.	**Criteria**	**Maximum Marks**	**Obtained Marks**
1.	Understanding the basic concept of dissertation	**05**	
2.	Fulfillment of Aims and objectives	**05**	
3.	Results, discussion and conclusion	**10**	
4.	Regularity and punctuality	**10**	
5.	Literature Review	**10**	
6.	Fulfillment of Plagiarism norms as per attached certificate	**05**	
7.	Publication of work	**05**	
8.	Potential Applications of the work /Social relevance	**10**	
Total out of 60			

Evaluation by internal examiner: (University document)

External examiner as appointed above will evaluate the dissertation of the candidate for 40 marks. Following criteria should be used for evaluation purpose by external examiner.

Sr. No.	Criteria	Maximum Marks	Obtained Marks
1.	Understanding the basic concept of dissertation	**05**	
2.	Fulfillment of Aims and objectives	**05**	
3.	Results, discussion and conclusion	**05**	
4.	Regularity and punctuality	**05**	
5.	Literature Review	**05**	
6.	Fulfillment of Plagiarism norms as per attached certificate	**05**	
7.	Publication of work	**05**	
8.	Potential Applications of the work /Social relevance	**05**	
Total out of 40			

Thus, internship (major project), PGMB 304 and PGMB 305 will be assessed for total of 200 marks.

15. Alternative to internship (major project) in case of national emergencies like Covid pandemics:

In case of national emergencies like Covid pandemics, following alternative has been approved in BOS meeting dt. 02/07/2020 with following references:

References:

1. Letter no. UNI/2020/Baithak/vishi 1/4131A dt. 8th May 2020, Pg. no. 6, clause no. 5
2. UGC Guidelines on Examinations and Academic Calendar for the Universities in View of COVID-19 Pandemic and Subsequent Lockdown dt. April 2020, pg. no. 6 and 7, clause no 10.

1. Review article: 50 Marks

2. Field work/Online Surveys related to needs of society having subject relevance/Book review: 100 Marks,

3. Evaluation: 50 Marks,

Total= 200 marks

Note: Here, in case of national emergencies or lockdown period students are allowed to work from home and the work done under above titles will be considered for evaluation and grading purposes.

Explanation:

1. Review Article: 50 marks

The criteria for awarding the marks are as follow:

Sr. No.	Criteria	Maximum Marks
1.	Selection of the topic considering social relevance	**05**
2.	Well organized abstract/ introduction	**05**
3.	Survey of the topic selected as evidenced through references	**10**
4.	Discussion of current developments in a selected field/ topic	**10**
5.	Summarizing significant findings of the present study	**05**
6.	Literature Review and the use of software like Mendeley to keep flexibility for publication and referencing style.	**05**
7.	Fulfillment of Plagiarism norms as per attached certificate	**05**
8.	Publication of work	**05**
Total marks = 50		

2. Field work (Data Collection)/ Online surveys: having subject relevance (Any one from enlisted) 100 marks

Sr. No.	Criteria	Maximum Marks
1.	Selection of the topic considering social relevance	**10**
2.	Method followed for data collection	**10**
3.	Statistical analysis of the data	**40**
4.	Well organized abstract/ introduction	**05**
5.	Reference work	**10**
6.	Discussion of current developments in a selected field/ topic	**10**
7.	Summarizing significant findings of the present study	**05**
8.	Fulfillment of Plagiarism norms as per attached certificate	**05**
9.	Publication of work	**05**
Total marks = 100		

OR

3. Book review: having subject relevance (Any one from enlisted) 100 marks

Sr. No.	Criteria	Maximum Marks
1.	Name of the author and book with relevant details of publisher and publication	**05**
2.	Relevant information about the author like who the author is and where he/she stands in the genre or the field of enquiry.	**05**
3.	Context of the book	**10**
4.	Brief discussion about the theme of book	**30**
5.	Strengths and weaknesses of the book	**20**
6.	Highlighting parts of the book by selecting particular chapter/ theme for the justification of review	**10**
7.	Concluding remarks about books overall perspective, argument and purpose	**10**
8.	Plagiarism check report	**10**
Total marks = 100		

4. Evaluation: 50 Marks

Internal evaluation for the alternative that is, submitting review article and field work /survey / book review will be carried out as follow:

Online presentations through central government approved apps	Maximum marks
Presentation based on review article (1)	10
Presentation based on field work/ survey / book reviews (2 presentations each of 20 marks)	40
Total marks	50

IMP Note: The candidate has to submit the project report before the deadlines notified by the department. The candidate who fails to submit the project report may re-submit the same in a subsequent semester examination for evaluation purpose. The project work activities must be duly supported by documentary evidences and those should be endorsed by the HOD or the guide. All forthcoming UGC notifications regarding promotion of academic integrity and prevention of plagiarism in higher education institutions will be binding to the students. Submitted thesis by the students will be evaluated by, 'Departmental Academic Integrity Panel (DAIP)' and will be certified to be eligible for further evaluation as mentioned above.

Award of the Grade will be based on the following criteria.

c. **Rules regarding ATKT** to second year M.Sc. Microbiology course.

A student will be allowed to keep terms at the second year of the M.Sc. course if her / his terms for the first year have been granted as per university rules.

16. Standard of passing:

For all courses, both University Examinations (UE) and Internal Assessments (IA) constitute separate heads of passing. In order to pass in such courses and to earn the assigned credits, the learner must obtain a minimum grade point of 5.0 (40% marks) at UE and also a minimum grade point of 5.0 (40 % marks) at IA.

If a student fails in IA, the learner passes in the course provided he/she obtains a minimum of 25 % in IA and GPA for the course is at least 6.0 (50% in aggregate). The GPA for a course will be calculated only if the learner passes at the UE.

A student who fails at UE in a course has to reappear only at UE as a backlog candidate and clear the head of passing. Similarly, a student who fails in a course at IA has to reappear only at IA as a backlog candidate and clear the head of passing.

The 10 point scale grades and grade points according to the following table:

Range of Marks (out of 100)	Grade	Grade point
$80 \leq$ Marks ≤ 100	O	10
$70 \leq$ Marks < 80	A^+	9
$60 \leq$ Marks < 70	A	8
$55 \leq$ Marks < 60	B+	7
$50 \leq$ Marks < 55	B	6
$40 \leq$ Marks < 50	C	5
Marks < 40	D	0

The performances at UE and IA will be combined to obtain the grade point average (GPA) for the course. The Weights for performances at UE and IA shall respectively be 60 % and 40 %. GPA is calculated by adding the UE marks out of 60 and IA marks will be out of 40. The total marks out of 100 are converted to grade point, which will be the GPA.

17. Formula to calculate Grade points (GP):

Suppose that, "*Max*" is the maximum marks assigned for an examination or evaluation based on which GP will be computed. In order to determine the GP, set x= *Max*/10 (since we have adapted 10 point system).Then GP is calculated by the formula as shown as below.

Range of Marks at the evaluation	Formula for the grade point
$8x \leq$ Marks $\leq 10x$	10
$5.5.x \leq$ Marks $< 8x$	Truncate (Marks/x) + 2
$4x \leq$ Marks $< 5.5x$	Truncate (Marks/x) + 1

Two kinds of performance indicators, namely the Semester Grade point average (SGPA) and the Cumulative Grade Point Average (CGPA) shall be computed at the end of each term. The SGPA measures the cumulative performance of a learner in all courses in a particular semester, while the CGPA measures the cumulative performance in all courses since his/her enrolment. The CGPA of learner when he/she completes the programme is the final result of the learner.

The SGPA is calculated by the formula $SGPA = \frac{\sum Ck \text{ X } GPk}{\sum Ck}$, where C_k is the credit value assigned to a course and GP_k is the GPA obtained by the learner in the course. In the above, the sum is taken over all the courses that the learner has undertaken for the study during the semester, including those in which he/she might have failed or those for which he/she remained absent. **The SGPA shall be calculated up to two decimal place accuracy**.

The CGPA is calculated by the formula $CGPA = \frac{\sum Ck \text{ X } GPk}{\sum Ck}$, where C_k is the credit value assigned to a course and GP_k is the GPA obtained by the learner in the course. In the above, the sum is taken over all the courses that the learner has undertaken for the study from the time of his/her enrolment and also during the semester for which CGPA is calculated, including those in which he/she might have failed or those for which he/she remained absent. **The CGPA shall be calculated up to two decimal place accuracy.**

The Formula to compute equivalent percentage marks for specified CGPA:

% Marks (CGPA) =	10 x CGPA- 10	If $5.00 \leq$ CGPA ≤ 6.00
	5 x CGPA+ 20	If $6.00 \leq$ CGPA ≤ 8.00
	10 x CGPA - 20	If $8.00 \leq$ CGPA ≤ 9.00
	20 x CGPA -110	If $9.00 \leq$ CGPA ≤ 9.50
	40 x CGPA- 300	If $9.50 \leq$ CGPA ≤ 10.00

18. AWARDS OF HONOURS:

A student who has completed the minimum credits specified for the program shall be declared to have passed in the program. The final result will be in terms of letter grade only and is based on the CGPA of all courses studied and passed. The criteria for the award of honors are given below.

Range of CGPA	Final Grade	Performance Descriptor	Equivalent Range Of Marks (%)
$9.50 \leq CGPA \leq 10.00$	O	Outstanding	$80 \leq Marks \leq 100$
$9.00 \leq CGPA \leq 9.49$	A^+	Excellent	$70 \leq Marks < 80$
$8.00 \leq CGPA \leq 8.99$	A	Very Good	$60 \leq Marks < 70$
$7.00 \leq CGPA \leq 7.99$	B^+	Good	$55 \leq Marks < 60$
$6.00 \leq CGPA \leq 6.99$	B	Average	$50 \leq Marks < 55$
$5.00 \leq CGPA \leq 5.99$	C	Satisfactory	$40 \leq Marks < 50$
CGPA below 5.00	F	Fail	Marks Below 40

19. Format of the transcript:

Transcript will be provided to the candidate as per Bharati Vidyapeeth (Deemed to be University), Pune rules and respective amendments as implemented by the university.

20. Grade/ class improvement:

The rules regarding the improvement of grade/class of M. Sc. Course will be as per notification of Bharati Vidyapeeth (Deemed to be University), Pune.

21. Verification and revaluation:

There is provision for verification and revaluation of the result. A student can apply for the verification and revaluation of the result within the two weeks from the declaration of the results with the prescribed fee. The verification and revaluation shall be done as per the existing rules of the University.