

For 2year PG programme having Major practicum component

Class: M.Sc Botany Semester-1 Session:2025-2026

| Course code | Course title                                          | Total              |
|-------------|-------------------------------------------------------|--------------------|
| CC-11       | Biology and diversity of Fungi ,Algae and Bryophyta   | 60 + CCE<br>40=100 |
| CC-12       | Biology and Diversity of Pteridophyta and Gymnosperms | 60+CCE<br>40=100   |
| PC-11       | Practical based on CC 11                              | 60+ CCE<br>40=100  |
| PC-12       | Practical based on CC-12                              | 60+ CCE<br>40=100  |

**Part A: Introduction**

|   |                               |                                                                                                                                                                          |
|---|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Course code                   | CC11                                                                                                                                                                     |
| 2 | Course Title                  | Biology and diversity of Fungi ,Algae and Bryophyta.                                                                                                                     |
| 3 | Coursetype                    | Core course                                                                                                                                                              |
| 4 | Prerequisite                  | To study this course, a student may be admitted to a 2 year PG programme after completing 3 year Bachelor Degree, subject to eligibility conditions of that PG programme |
| 5 | Course Learning outcome(CLOs) | The students will be able to identify and classify fungi and algae,bryophyta .<br>They will be acquainted with algal and fungal                                          |

|   |              |                                                       |
|---|--------------|-------------------------------------------------------|
|   |              | technology and its application in various industries. |
| 6 | Credit value | 6credits                                              |
| 7 | Total marks  | Max marks(40+ 60=100) Minimum passing marks=40        |

**Part B: Content of the course**

| Units | Topics                                                                                                                                                                                                                                                                                                                                                                                                 | No. of Lectures |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| I.    | <p>Algae and Bryophyta in Indian traditional knowledge. Contributions of Indian scientists M O P Iyenger and TV Desikachari in Algae, K C, Mehata in Fungi, Shiv Ram Kashyap in Bryophyta, Microbes in Indian Gyan parampara, Brief account of Virus and bacteria. Traditional fermented food beverages.</p> <p><b>Activity:</b> Preparation of chart for ancient work on lower plants.</p>            | 15              |
| II.   | <p><b>Mycology 1:</b> General characters, and thallus organization, mode of nutrition (saprophytic, parasitic, symbiotic) and reproduction. Modern Classification of fungi, Economic importance of fungi in Industry.</p> <p>Fungal diseases in plants: Wart disease of Potato. Green ear disease of Bajra. Black rust of Wheat.</p> <p><b>Activity:</b> Industrial visit for mushroom cultivation</p> | 15              |
| III.  | <p><b>Mycology 2:</b></p> <p>General account of Mastigomycotina and Zygomycotina.</p> <p>Diagnostic features and general account of Ascomycotina, Basidiomycotina and Deuteromycotina.</p> <p>Morphology and anatomy of Mycorrhiza, importance of</p>                                                                                                                                                  | 15              |

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|     | mycorrhizae in agriculture, Parasexual cycle in fungi.<br><b>Activity:</b> Group discussion on parasexual cycle of fungi                                                                                                                                                                                                                                                                    |    |
| IV. | <b>Algae 1:</b> General characters, diversified habitats (terrestrial, freshwater, marine); thallus organization, cell ultra-structure; criteria of classification(pigments, reserve food, flagella); economic importance (as food, feed, industry, algal blooms and bio-fertilizer,bio-fuel).<br><b>Activity :</b> Visit to various Lake ,ponds to know the diversified habitats of Algae. | 15 |
| V.  | <b>Algae2:</b> Salient features, classification, reproduction and economic importance of Chlorophyta, Charophyta and Xanthophyta.<br><br>Salient features, classification, reproduction and economic importance of Bacillariophyta, Phaeophyta and Rhodophyta.<br>Techniques in commercial cultivation of Algae<br><b>Activity:</b> Collection and preservation of locally available Algae  | 15 |
| VI. | <b>Bryophyta:</b> General characters, distribution, classification of bryophytes. Ecological importance of Bryophytes. General account of Marchantiales ,Jungermanniales, Sphagiales Funariales and Polytrichales.<br><b>Activity:</b> Group discussion on Industrial application of bryophytes.                                                                                            |    |

### Part C: Learning Resources

#### (Textbooks,Reference books, other resources)

1. Alexopoulos, C.J. Mims, C. W. and Blackwel, M; 1996: Introductory Mycology, Thon Wiley and Sons Inc.
2. Clifton, A; 1958: Introduction to Bacteria, McGraw- Hills Book Co. New Delhi.
3. Madigan, M T. Martinko, J. M and Parker Jack; 1 997: Brock Biology of Microorganisms, (8<sup>th</sup> edition) Prentice Hall, N,J. U.S.A



4. Mandahar, C. L.; 1978: Introduction to Plant Viruses. Chand and Co.Ltd. Delhi.
- Mehrotra, RS. and Aneja, RS.; 1998: An Introduction to Mycology. New AgeT ntermediate Press.
5. Rangaswamy, G. and Mahadevan, A; 1999: Diseases of Crop Plants in India (4<sup>th</sup> edition). Prentice Hall of (ndia Ltd. New Delhi.
6. Webster, J.; 1985: Introduction to Fungi Cambridge University Press.
7. Dubey, R C. and Maheshwari, D. K.; 2005: A Text Book of Microbiology, S. Chand Publisher, New Delhi
8. Smith G. M., Cryptogamic Botany Voll (2nd edition)-Tata McGraw-Hill Publishing Company Ltd. Bombay - ew Delhi.
9. Kumar H. D. 1988., Introductory Phycology. Affiliated East-West Press Ltd. New Delhi.
10. Parihar, N.S. 1991., Bryophyta. Central Book Depot. Allahabad
11. Kashyap, 1972., Liver worts of Western Himalayas and Punjab. Research co Publication.
12. Kumar H. D. 1988., Introductory Phycology. Affiliated East-West Press Ltd. New Delhi.
13. Chopra and Kumar, 1988., Biology of Bryophyta: Wiley Eastern Ltd.

Suggestive digital platforms web links

<https://www.ncbi.nlm.nih.gov/books>

<https://bio.libretexts.org/Bookshelves/>

Suggested equivalent online courses:

<https://nptel.ac.in/>

<https://swayam.gov.in/>

<https://www.mooc.orgMOOC.org>

#### Part D-Assessment and Evaluation

**Suggested Evaluation methods**

**Maximum marks:100**

**ContinuousComprehensiveEvaluation(CCE):40marks**



**University Exam(UE)60marks**

|                                                                                                       |                                                                                                               |                 |
|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------|
| <b>Internal assessment:</b><br><b>Continuous</b><br><b>Comprehensive</b><br><b>Evaluation(CCE):40</b> | a)Class test<br>b)Assignmnt/Presentation/Project report<br>c)Appropriate weightage of attendance in the class | <b>40 marks</b> |
| <b>External Assessment</b>                                                                            | <b>Theory paper as per university examination</b>                                                             | <b>60 marks</b> |

**Remarks/Suggestions:**

- 1 .Assessment mode for internal evaluation will be based on the guidelines issued byUGC on:Evaluation reforms in higher educational InstitutionsNov 2019,and pedagogicalApproaches and evaluation reforms2021.
2. Internal assessment will be further distributed as per table given in Appendix 3 of 14(2), as applicable from time to time.
- 3 .The pass percentage will be 40 %(Grade P) both for theory and practicum. A student has to obtain 40%marks in internal as well as in End term examination separately to pass a course.



**Part A: Introduction Theory paper**

|   |                               |                                                                                                                                                                                      |
|---|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Course code                   | CC12                                                                                                                                                                                 |
| 2 | Course Title                  | <b>Biology and Diversity of Pteridophyta and Gymnosperms</b>                                                                                                                         |
| 3 | Coursetype                    | Core course                                                                                                                                                                          |
| 4 | Prerequisite                  | To study this course, a student may be admitted to a 2 year PG programme after completing 3 year Bachelor Degree, subject to eligibility conditions of that PG programme             |
| 5 | Course Learning outcome(CLOs) | The students will be able to identify and classify Bryophyta,Pteridophyta,Gymnosperm<br>Comprehend concepts in the evolution of plants<br>Identify the economic importance of plants |
| 6 | Credit value                  | 6credits                                                                                                                                                                             |
| 7 | Total marks                   | Max marks(40+ 60=100) Minimum passing marks=40                                                                                                                                       |

**Part B:Content of the course**

| Units | Topics                                                                                                                                                                               | No of lectures |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| I.    | History and evolution of pteridophytes<br>Contribution of Indian scientists D D Pant and Birbal Sahni<br>General introduction of pteridophytes . Peculiar features, similarities and | 15             |



|      |                                                                                                                                                                                                                                                                                                                                                                   |    |
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|      | <p>dissimilarities with bryophytes and gymnosperms.</p> <p>Origin and evolution of Pteridophytes</p> <p><b>Activity:</b> Chart and models in origin and Evolution of Pterodophyta</p>                                                                                                                                                                             |    |
| II.  | <p><b>Pteridophyta-1:</b> Evolution of stele, Heterospory and origin of seed habit.</p> <p>General account of Psilophytopsida, Psilopsida, Lycopsidea</p> <p><b>Activity:</b> Quiz on homosporous and heterosporous Pterodophyta</p>                                                                                                                              | 15 |
| III. | <p><b>Pterodophyta-2.</b> Morphology, anatomy, reproduction and phylogeny of Lycopsidea, Sphenopsida and Pteropsida.</p> <p>Brief study of the following form genera Rhynia, Lepidodendron and calamites.</p> <p>Apospory and Apogamy in pteridophyta</p> <p><b>Activity:</b> Group discussion on Paleobotany</p>                                                 | 15 |
| IV.  | <p><b>Gymnosperms1:</b> General characters, morphology, anatomy and reproduction of Gymnosperms. Diversity and distribution of Gymnosperm.</p> <p>Classification of gymnosperms (D D Pant, 1957, Sporne, 1965, Stewart, 1983, Christenhusz, 2011), Economic importance of Gymnosperm.</p> <p><b>Activity:</b> Chart preparation on distribution of gymnosperm</p> | 15 |
| V.   | <p><b>Gymnosperm2:</b> Geological time scale, Types of fossil and fossilization process. Fossil gymnosperms.</p> <p>General account of order Pteridospermales, Cordaitales and Cycadeoidales</p> <p><b>Activity:</b> Group discussion on Fossil gymnosperms</p>                                                                                                   | 15 |
| VI.  | <p><b>Gymnosperm 3:</b> General account of Cycadales, Ginkgoales and Coniferales.</p> <p>Morphology, anatomy, reproduction and inter relationship of, Ephedrales, Welwitschiales and Gnetales</p> <p>Evolution of Gymnosperms</p> <p><b>Activity :</b> Comparative Chart preparation on similarities and dissimilarities of</p>                                   | 15 |

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|  | living orders of gymnosperms |  |
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### **PartC: Learning Resources**

(Textbooks,Reference books, other resources)

1. Bhatnagar, S.P. and Moitra, A; 1996: Gymnosperms. New Age International Pvt. Ltd., New Delhi.Singh H.; 1978: Embryology of Gymnosperms, Encyclopedia of Plant Anatomy
  - 2.X. Gebruder Bortraeger, Berlin.Sporne K R; 1991: The Morphology of Gymnosperms; Hutchinson Univ. Library; London.
  - 3.Foster A S. and Gifford E. M; Comparative morphology of vascular Plants; Vakils, feffer, and Simons Private Ltd. Bombay.
  4. Chamberlain; Gymnosperms -Structure and Evolution; CBS Publishers and Distributors Delhi.
  5. Shukla A C. and Mishra S. P.; Essentials of Paleobotany; Vikas Publishing House Pvt. Ltd. Delhi-Bombay:-6angalore-Calcutta-Kanpur.
  6. Sporne K.R..1991:The morphology of Pteridophyta
  - 7.. <https://www.ebookselibrary.com>  
Suggestive digital platforms web links
  1. [https://archive.org/details/fundamentalsofbo0000unse\\_z7a4/page/58/mode/2up](https://archive.org/details/fundamentalsofbo0000unse_z7a4/page/58/mode/2up)
  2. <https://www.unanijournal.com/articles/94/3-1-11-206.pdf>
- Suggested equivalent online courses:
- <https://www.mooc.org>
- <https://swayam.gov.in>
- <https://nptel.ac.in>

### **Part D-Assessment and Evaluation**

Suggested Evaluation methods

Maximum marks:100

ContinuousComprehensiveEvaluation(CCE):40marksUniversityExam(UE)60marks

|                                                                        |                                                                                                                     |          |
|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------|
| Internal assessment:<br>Continuous Comprehensive<br>Evaluation(CCE):40 | a)Class test<br>b)Assignmnt/Presentation/Project<br>report<br>c)Appropriate weightage of attendance<br>in the class | 40 marks |
| External Assessment                                                    | Theory paper as per university<br>examination                                                                       | 60 marks |

Remarks/Suggestions:

- 1 .Assessment mode for internal evaluation will be basedon the guidelines issued byUGC on:Evaluation reforms in higher educational InstitutionsNov 2019,and pedagogicalApproaches and evaluation reforms2021.
2. Internal assessment will be further distributed as per table given in Appendix 3 of 14(2), as applicable from time to time.
- 3 .The pass percentage will be 40 %(Grade P) both for theory and practicum. A student has to obtain 40%marks in internal as well as in End term examination separately to pass a course.



For 2 years PG programme

(Scheme B-1)

Botany Core (Practicum) Syllabus

M.Sc.I Sememester

| Part A :Introduction |                               |                                                                                                                                                                                                                                                                                                   |                          |
|----------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Program 2 years PG   |                               | Class- M.Sc.                                                                                                                                                                                                                                                                                      | Sem 1                    |
|                      |                               | Session 2025-2026                                                                                                                                                                                                                                                                                 |                          |
| 1                    | Course code                   | PC11                                                                                                                                                                                                                                                                                              |                          |
| 2                    | Course Title                  | Biology and diversity of Fungi ,Algae and Bryophyta.                                                                                                                                                                                                                                              |                          |
| 3                    | Coursetype                    | Practicum course                                                                                                                                                                                                                                                                                  |                          |
| 4                    | Course Learning outcome(CLOs) | <p>The students will be able to identify and classify fungi and algae, bryophyta.</p> <p>By engaging in these practical exercises students can gain a deeper understanding of unique characteristics, life cycle, and ecological roles and economic importance of algae, bryophyta and fungi.</p> |                          |
| 5                    | Credit value                  | Pratical-04                                                                                                                                                                                                                                                                                       |                          |
| 6                    | Total marks                   | Max marks:100)<br>University Exam:60<br>CCE:40                                                                                                                                                                                                                                                    | Minimum passing marks=40 |

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| <b>Part:B:Content of the course</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |
| Total No of Lectures-Tutorial-practicals(08 Hours per week<br>L-T_P:0-0-120(Total hours)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |
| A. Assgnments/Practice/Survey/Fieldwork                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | No of<br>Hours:120 |
| B.List of practicals to be performed in the laboratory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |
| 1. Study of Algal material with suitable examples<br>2. Study of Mycological material with suitable examples<br>3. Study on Bryophyta material with suitable examples<br>4. Study of fungal plant diseases.<br>5. Exercise on cultivation of algae.<br>6. To isolate, pure culture and identify common fungal species.<br>7. Preparation of fungal culture media .<br>8. Study of bryophytes as bioindicators of air and water pollution.<br>9. Study on economic importance of bryophytes.<br>10. To study diferent types of pigments present in algae.<br>11. Microsccopic observation and identification of algal specimens. |                    |
| <b>Part C: Learning Resources</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |
| <b>(Textbooks, Reference books, other resources)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |
| Suggested Readings:<br>➤ Bendre, Ashok and Kumar, Ashok (1981) Practical Botany-2, Rastogi Publications,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |

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- Alexopoulos, C.J. Mims, C. W. and Blackwel, M; 1996: Introductory Mycology, Thon Wiley and Sons Inc.
- Melhotra R S and K Raneja, An introduction to mycology, 1990
- Pandey B P, College botany Volume 1, 2014, S Chand publication
- Vaishshta B R, Sinha Ak, Kumar A. Botany for degree students: Bryophyta, S. chand
- Goutam A, Avasthi S. Methods in fungal biology : A manual of Laboratory protocols, Scientific publishers, 2019
- Gupta V, Tuohy M. Laboratory Protocols in Fungal biology, Springer, 2<sup>nd</sup> edn.
- Sundara Rajan . Practical manual of Algae, Anmol Publication, 2000

Suggestive digital platforms web links

<https://www.ncbi.nlm.nih.gov/books>

<https://bio.libretexts.org/Bookshelves/>

Suggested equivalent online courses:

<https://nptel.ac.in/>

<https://swayam.gov.in/>

<https://www.mooc.org> MOOC.org

#### Part D-Assessment and Evaluation

Suggested Evaluation methods

Maximum marks: 100

Internal Assessment (CCE): 40

External assessment (UE): 60

|                                               |                                                     |          |
|-----------------------------------------------|-----------------------------------------------------|----------|
| Internal assessment:                          | a) Class test                                       | 40 marks |
| Continuous Comprehensive Evaluation (CCE): 40 | b) Assignment/Presentation/Project report           |          |
|                                               | c) Appropriate weightage of attendance in the class |          |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                               |          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|----------|
| External Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Practical paper as per university examination | 60 marks |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Grand total                                   | 100      |
| <p>Remarks/Suggestions:</p> <p>1 .Assessment mode for internal evaluation will be based on the guidelines issued by UGC on: Evaluation reforms in higher educational Institutions Nov 2019, and pedagogical Approaches and evaluation reforms 2021.</p> <p>2. Internal assessment will be further distributed as per table given in Appendix 3 of 14(2), as applicable from time to time.</p> <p>3 .The pass percentage will be 40 %(Grade P) both for theory and practicum. A student has to obtain 40% marks in internal as well as in End term examination separately to pass a course.</p> |                                               |          |

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**For 2 years PG programme**  
**(Scheme B-1)**  
**Botany Core (Practicum) Syllabus**  
**M.Sc.I Sememester**

| Part A :Introduction |                               |              |                                                                                                                                                                                                                                                                                                                                                                        |                          |
|----------------------|-------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Program 2 years PG   |                               | Class- M.Sc. | Sem 1                                                                                                                                                                                                                                                                                                                                                                  | Session 2025-2026        |
| 1                    | Course code                   |              | PC12                                                                                                                                                                                                                                                                                                                                                                   |                          |
| 2                    | Course Title                  |              | Biology and Diversity of Pterodophyta and Gymnosperms                                                                                                                                                                                                                                                                                                                  |                          |
| 3                    | Coursetype                    |              | Practicum course                                                                                                                                                                                                                                                                                                                                                       |                          |
| 4                    | Course Learning outcome(CLOs) |              | After completing the course students will able to identify and classify the Pteridophyta and gymnosperms.They can understand their morphology, anatomy, and reproduction, and appreciate their evolutionary significance and economic importance. Students will also develop skills in practical techniques like slide preparation, microscopy, and fossil analysis. . |                          |
| 5                    | Credit value                  |              | Practical-04                                                                                                                                                                                                                                                                                                                                                           |                          |
| 6                    | Total marks                   |              | Max marks:100)<br>University Exam:60<br>CCE:40                                                                                                                                                                                                                                                                                                                         | Minimum passing marks=40 |

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| <b>Part:B:Content of the course</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |
| Total No of Lectures-Tutorial-practicals(08 Hours per week<br>L-T_P:0-0-120(Total hours)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |
| B. Assgnments/Practice/Survey/Fieldwork                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | No of<br>Hours:120 |
| B.List of practicals to be performed in the laboratory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |
| 1.Monographic study of Pteridophyta material with suitable examles<br>2. Monographic study of Gymnosperm material with suitable examples<br>3. Exercise on study of fossils pteridophyta.<br>4. Exercise on study of fossils gymnosperms.<br>5.Study of male and female cone of Pteridophyta<br>6. Study of male and female cone of Gymnosperms.<br>7. To observe pollengrains of gymnosperms and their role in pollination.<br>8. To study the wood samples of gymnosperms.<br>9. Study the distribution and habitat of different pteridophytes in a local area.<br>10. To identify different types of vascular tissue (Xylm and Phloem) in the stem.<br>11. To study different types of stele in Pteridophytes. |                    |
| <b>Part C: Learning Resources</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |
| <b>(Textbooks,Reference books, other resources)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |



**Suggested Readings:**

- Parihar N S .Biology and morphology of Pteridophytes Central Book Depo
- Rashid A. An introduction to pteridophytes: Diversity and differentiation Vikas publishing House
- Vaishishta PC. Botany for degree of Gymnosperms, S Chand publication.
- Mosisa Daba. Cryptogamic Botany Laboratory Manual, Lap Lambert Academic press, 2020
- Dhaka TS, Chouhan R, Mourya SS. Pteridophyta, Gymnosperms and angiosperms, Pragati Prakashan, 2020
- Singh Sanjay .Gymnosperm and Paleobotany ,Campus Book International, 2008

**Suggestive digital platforms web links**

<https://www.ncbi.nlm.nih.gov/books>

<https://bio.libretexts.org/Bookshelves/>

**Suggested equivalent online courses:**

<https://nptel.ac.in/>

<https://swayam.gov.in/>

<https://www.mooc.org> MOOC.org

**Part D-Assessment and Evaluation**

**Suggested Evaluation methods**

Maximum marks: 100

Internal Assessment (CCE): 40

External assessment (UE): 60

|                                               |                                                     |          |
|-----------------------------------------------|-----------------------------------------------------|----------|
| Internal assessment:                          | a) Class test                                       | 40 marks |
| Continuous Comprehensive Evaluation (CCE): 40 | b) Assignment/Presentation/Project report           |          |
|                                               | c) Appropriate weightage of attendance in the class |          |



|                     |                                               |          |
|---------------------|-----------------------------------------------|----------|
| External Assessment | Practical paper as per university examination | 60 marks |
|                     | Grand total                                   | 100      |

Remarks/Suggestions:

- 1 .Assessment mode for internal evaluation will be based on the guidelines issued by UGC on: Evaluation reforms in higher educational Institutions Nov 2019, and pedagogical Approaches and evaluation reforms 2021.
2. Internal assessment will be further distributed as per table given in Appendix 3 of 14(2), as applicable from time to time.
- 3 .The pass percentage will be 40 %(Grade P) both for theory and practicum. A student has to obtain 40% marks in internal as well as in End term examination separately to pass a course.

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