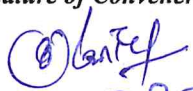
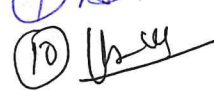


# FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)

## DEPARTMENT OF BOTANY

### COURSE CURRICULUM

| PART- A: Introduction                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| Program: Bachelor in Life Sciences<br>(Diploma / Degree/Honors)                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                          | Semester - III                                                                                                                                                                                                                                          | Session: 2024-2025                         |
| 1                                                                                                                                                                                                                                                                              | Course Code                                                                                                                                                                                                                                                                                                                                                              | BOSC-03 T                                                                                                                                                                                                                                               |                                            |
| 2                                                                                                                                                                                                                                                                              | Course Title                                                                                                                                                                                                                                                                                                                                                             | Archegoniate and Fossils                                                                                                                                                                                                                                |                                            |
| 3                                                                                                                                                                                                                                                                              | Course Type                                                                                                                                                                                                                                                                                                                                                              | Discipline Specific course (DSC)                                                                                                                                                                                                                        |                                            |
| 4                                                                                                                                                                                                                                                                              | Pre-requisite (if, any)                                                                                                                                                                                                                                                                                                                                                  | As per program                                                                                                                                                                                                                                          |                                            |
| 5                                                                                                                                                                                                                                                                              | Course Learning Outcomes (CLO)                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"><li>➤ students will be familiar with amphibians and reptiles plants</li><li>➤ progressive evolution in plants</li><li>➤ relics of past plants</li><li>➤ diversity in plants</li><li>➤ development of seeds.</li></ul> |                                            |
| 6                                                                                                                                                                                                                                                                              | Credit Value                                                                                                                                                                                                                                                                                                                                                             | 3 Credits                                                                                                                                                                                                                                               | Credit = 15 Hours - learning & Observation |
| 7                                                                                                                                                                                                                                                                              | Total Marks                                                                                                                                                                                                                                                                                                                                                              | Max. Marks: 100                                                                                                                                                                                                                                         | Min Passing Marks: 40                      |
| PART -B: Content of the Course                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                            |
| Total No. of Teaching-learning Periods (01 Hr. per period) - 45 Periods (45 Hours)                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                            |
| Unit                                                                                                                                                                                                                                                                           | Topics (Course contents)                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                         | No. of Period                              |
| I                                                                                                                                                                                                                                                                              | <b>Bryophyta:</b><br>Morphology, structure, reproduction and life history, distribution, classification, evolution of gametophytes and sterilization of sporogenous tissue. General account of- Riccia, Marchantia, Anthoceros and Funaria , Economic and ecological importance of bryophytes.                                                                           |                                                                                                                                                                                                                                                         | 12                                         |
| II                                                                                                                                                                                                                                                                             | <b>Pteridophytes:</b><br>Morphology, anatomy and reproduction, classification, evolution of stele, heterospory, telome theory and origin of seed habit, general account and life history of of Psilotum, Lycopodium, Sellaginella, Equisetum Pteris, Marsilea                                                                                                            |                                                                                                                                                                                                                                                         | 11                                         |
| III                                                                                                                                                                                                                                                                            | <b>Gymnosperm :</b><br>Characteristics of Gymnosperms, the vessel - less & fruitless seed plants, Classification of Gymnosperm; Polyembryony in Gymnosperms and its role; Distribution of Gymnosperm in India; Economic importance of Gymnosperm. General account of Cycas, Pinus, Gnetum Concepts of living fossil (Cycas & Ginkgo); Angiospermic characters of Gnetum. |                                                                                                                                                                                                                                                         | 11                                         |
| IV                                                                                                                                                                                                                                                                             | <b>Fossil:</b><br>Fossil and fossilization, types of fossils Geological time table<br><b>Brief account of the families of Pteridospermales –Rhynia, Calamites.</b><br><b>General Account and Affinities - Cycadeoidales Pentoxylales and Cordaitales</b>                                                                                                                 |                                                                                                                                                                                                                                                         | 11                                         |
| Keywords                                                                                                                                                                                                                                                                       | Archegonia, seedless, heterospory, fossils                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                         |                                            |
| Signature of Convener & Members (CBoS) :                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                            |
| <div><br/><br/></div> |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                            |

① R. S. Rao  
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 ⑩ R. S. Rao



## PART-C: Learning Resources

### Text Books, Reference Books and Others

#### Text Books Recommended –

1. Puri, P. (1980) Bryophytes, Atma Ram and Sons, Delhi.
2. Vashishtha, B. R. (2005) Pteridophytes S. Chand and Co., Delhi.
3. Bhatnagar, S. P., Moitra, A. (1996) Gymnosperms, New Age International Pvt. Ltd., New Delhi.

#### Text Books Recommended –

4. Sporne, K. K. (1991) The Morphology of Gymnosperm. B. I. Publishing Pvt. Ltd., Bombay.
5. Stewart, W. N. and Ruthwell, G. W. (1993) Paleobotany and the Evolution of Plants. Cambridge Univ. Press, UK.
6. Singh, H. (1978) Embryology of Gymnosperms; Encyclopedia of Plant Anatomy X. Gebruder Bortraeger, Berlin.

### Online Resources–

- e-Resources / e-books and e-learning portals
- [www.swayam.ac.in](http://www.swayam.ac.in)
- [www.ignou.ac.in](http://www.ignou.ac.in)
- [www.egyankosh.ac.in](http://www.egyankosh.ac.in)
- [www.iitm.ac.in](http://www.iitm.ac.in)
- [www.eskillindia.org](http://www.eskillindia.org)
- [www.eshiksha.mp.gov.in](http://www.eshiksha.mp.gov.in)
- [www.vlab.co.in](http://www.vlab.co.in)
- [www.internshala.com](http://www.internshala.com)
- [www.ndl.iitkgp.ac.in](http://www.ndl.iitkgp.ac.in)

### Online Resources–

#### e-Resources / e-books and e-learning portals

- <https://studv.com/learn/lesson/bryophytes-characteristics-examples.html>
- [https://bio.libretexts.org/Bookshelves/Introductory\\_and\\_General\\_Biology/Book%3AGeneral\\_Biology\\_\(Boundless\)/26%3A\\_Seed\\_Plants/26.02%3AGymnosperms/26.2A%3A\\_Characteristics\\_of\\_Gymnosperms](https://bio.libretexts.org/Bookshelves/Introductory_and_General_Biology/Book%3AGeneral_Biology_(Boundless)/26%3A_Seed_Plants/26.02%3AGymnosperms/26.2A%3A_Characteristics_of_Gymnosperms)
- [https://www.google.com/search?q=fossils&scasv=09379ecd0b6efd91&rlz=1C1CHBD\\_enIN1091IN1093&sxsrf=ACQVn09ytizqRGwbydx-p0sOZFEXGRnmfcw%3A1713546819943&ei=Q6YiZvefOde5vr0PtMuvqAg&og=fossils&gs\\_l=Egxd3Mtd2l6LXNlcAiB2Zvc3NpbHMqAggAMg0QABiABBixAxdGloFMgoQLhiABBhDGIoFMgUQABiABDIFEAAyGAQvBRAAGIAEMgoQABiABBhDGIoFMgUQABiABDIFEAAyGAQvBRAAGIAEMgoQABiABEihKIAAWPIUcAB4AJABAjgBgwKgAYcLqgEFMC41LjK4AQHIAQD4AQGYAggAukLwgIKECMYGAQYJxiKBclCBBAjGCFCAhEQLhiABBixAxiRaxiDARjHAcICCBAAGIAEGLEDwglKEAAyGAQYFBiHAggDAJIHBTauMv40AofSWw&scient=gws-wiz-serp](https://www.google.com/search?q=fossils&scasv=09379ecd0b6efd91&rlz=1C1CHBD_enIN1091IN1093&sxsrf=ACQVn09ytizqRGwbydx-p0sOZFEXGRnmfcw%3A1713546819943&ei=Q6YiZvefOde5vr0PtMuvqAg&og=fossils&gs_l=Egxd3Mtd2l6LXNlcAiB2Zvc3NpbHMqAggAMg0QABiABBixAxdGloFMgoQLhiABBhDGIoFMgUQABiABDIFEAAyGAQvBRAAGIAEMgoQABiABBhDGIoFMgUQABiABDIFEAAyGAQvBRAAGIAEMgoQABiABEihKIAAWPIUcAB4AJABAjgBgwKgAYcLqgEFMC41LjK4AQHIAQD4AQGYAggAukLwgIKECMYGAQYJxiKBclCBBAjGCFCAhEQLhiABBixAxiRaxiDARjHAcICCBAAGIAEGLEDwglKEAAyGAQYFBiHAggDAJIHBTauMv40AofSWw&scient=gws-wiz-serp)
- [https://www.google.com/search?q=fossils&scasv=09379ecd0b6efd91&rlz=1C1CHBD\\_enIN1091IN1093&sxsrf=ACQVn09ytizqRGwbydx-p0sOZFEXGRnmfcw%3A1713546819943&ei=Q6YiZvefOde5vr0PtMuvqAg&og=fossils&gs\\_l=Egxd3Mtd2l6LXNlcAiB2Zvc3NpbHMqAggAMg0QABiABBixAxdGloFMgoQLhiABBhDGIoFMgUQABiABDIFEAAyGAQvBRAAGIAEMgoQABiABBhDGIoFMgUQABiABDIFEAAyGAQvBRAAGIAEMgoQABiABEihKIAAWPIUcAB4AJABAjgBgwKgAYcLqgEFMC41LjK4AQHIAQD4AQGYAggAukLwgIKECMYGAQYJxiKBclCBBAjGCFCAhEQLhiABBixAxiRaxiDARjHAcICCBAAGIAEGLEDwglKEAAyGAQYFBiHAggDAJIHBTauMv40AofSWw&scient=gws-wiz-serp](https://www.google.com/search?q=fossils&scasv=09379ecd0b6efd91&rlz=1C1CHBD_enIN1091IN1093&sxsrf=ACQVn09ytizqRGwbydx-p0sOZFEXGRnmfcw%3A1713546819943&ei=Q6YiZvefOde5vr0PtMuvqAg&og=fossils&gs_l=Egxd3Mtd2l6LXNlcAiB2Zvc3NpbHMqAggAMg0QABiABBixAxdGloFMgoQLhiABBhDGIoFMgUQABiABDIFEAAyGAQvBRAAGIAEMgoQABiABBhDGIoFMgUQABiABDIFEAAyGAQvBRAAGIAEMgoQABiABEihKIAAWPIUcAB4AJABAjgBgwKgAYcLqgEFMC41LjK4AQHIAQD4AQGYAggAukLwgIKECMYGAQYJxiKBclCBBAjGCFCAhEQLhiABBixAxiRaxiDARjHAcICCBAAGIAEGLEDwglKEAAyGAQYFBiHAggDAJIHBTauMv40AofSWw&scient=gws-wiz-serp)
- [https://www.google.com/search?q=pteridophytes&scasv=09379ecd0b6efd91&rlz=1C1CHBD\\_enIN1091IN1093&sxsrf=ACQVn0-V0lp75QZG3sbfKrfitXB0GPdZvA%3A1713546628592&ei=hKUiZuvFI9q-juMPkr-DkAY&og=pter&gs\\_l=Egxd3Mtd2l6LXNlcAiBHB0ZXlqAggAMg0QABiABBixAxdGloFMgoQABiABBhDGIoFMgUQABiABBhDGIoFMgoQABiABBhDGIoFMgUQABiABDIKEAAyGAQYQxiKBTINEC4YgAOYsQMYQxiKBTIFEC4YgAOvChAAGIAEGEMYigUyChAAGIAEGEMYigVIihQAFixCnAAeACQAQCYAfQBoAGIBqoBBTtuMi4yuAEBvAEAEAEbmaIEoALgBsiCChAjGIAEGCcYigXCAgQQIXgnwgIKEC4YgAOYQxiKBZgDAJIHBTauMi4voAfOSg&scient=gws-wiz-serp](https://www.google.com/search?q=pteridophytes&scasv=09379ecd0b6efd91&rlz=1C1CHBD_enIN1091IN1093&sxsrf=ACQVn0-V0lp75QZG3sbfKrfitXB0GPdZvA%3A1713546628592&ei=hKUiZuvFI9q-juMPkr-DkAY&og=pter&gs_l=Egxd3Mtd2l6LXNlcAiBHB0ZXlqAggAMg0QABiABBixAxdGloFMgoQABiABBhDGIoFMgUQABiABBhDGIoFMgoQABiABBhDGIoFMgUQABiABDIKEAAyGAQYQxiKBTINEC4YgAOYsQMYQxiKBTIFEC4YgAOvChAAGIAEGEMYigUyChAAGIAEGEMYigVIihQAFixCnAAeACQAQCYAfQBoAGIBqoBBTtuMi4yuAEBvAEAEAEbmaIEoALgBsiCChAjGIAEGCcYigXCAgQQIXgnwgIKEC4YgAOYQxiKBZgDAJIHBTauMi4voAfOSg&scient=gws-wiz-serp)
- [https://bio.libretexts.org/Bookshelves/Introductory\\_and\\_General\\_Biology/Book%3AGeneral\\_Biology\\_\(Boundless\)/26%3A\\_Seed\\_Plants/26.02%3AGymnosperms/26.2A%3A\\_Characteristics\\_of\\_Gymnosperms](https://bio.libretexts.org/Bookshelves/Introductory_and_General_Biology/Book%3AGeneral_Biology_(Boundless)/26%3A_Seed_Plants/26.02%3AGymnosperms/26.2A%3A_Characteristics_of_Gymnosperms)

## PART -D: Assessment and Evaluation

### Suggested Continuous Evaluation Methods:

Maximum Marks: 100 Marks

Continuous Internal Assessment (CIA): 30 Marks

End Semester Exam (ESE): 70 Marks

|                                                                        |                                                                                                                                                                                           |                                                                                                             |
|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>Continuous Internal Assessment (CIA): 30</b><br>(By Course Teacher) | Internal Test / Quiz-(2): 20 +20<br>Assignment / Seminar - 10<br>Total Marks - 30                                                                                                         | Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 30 Marks |
| <b>End Semester Exam (ESE): 70</b>                                     | Two section – A & B<br>Section A: Q1. Objective – 10 x1= 10 Mark; Q2. Short answer type- 5x4 =20 Marks<br>Section B: Descriptive answer type qts., 1out of 2 from each unit-4x10=40 Marks |                                                                                                             |

Name and Signature of Convener & Members of CBoS:

① Rhoar  
② Lunde  
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# FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)

## DEPARTMENT OF BOTANY COURSE CURRICULUM

| <b>PART- A: Introduction</b>                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                 |                                                               |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| <b>Program:</b> Bachelor in Life Sciences<br>(Diploma / Degree/Honors)           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Semester - III</b>                                                                                                                                                                                           | <b>Session: 2024-2025</b>                                     |
| 1                                                                                | Course Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>BOSC-03</b>                                                                                                                                                                                                  |                                                               |
| 2                                                                                | Course Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Lab. Course-03 (Archegoniate and Fossils)</b>                                                                                                                                                                |                                                               |
| 3                                                                                | Course Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Laboratory course</b>                                                                                                                                                                                        |                                                               |
| 4                                                                                | Pre-requisite (if, any)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>As per program</b>                                                                                                                                                                                           |                                                               |
| 5                                                                                | Course Learning Outcomes (CLO)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | At the end of the course students will be familiar<br>> with amphibians and reptiles plants<br>> progressive evolution in plants<br>> relics of past plants<br>> diversity in plants<br>> Development of seeds. |                                                               |
| 6                                                                                | Credit Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>1 Credits</b>                                                                                                                                                                                                | <b>Credit =30 Hours Laboratory or Field learning/Training</b> |
| 7                                                                                | Total Marks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Max. Marks: 50</b>                                                                                                                                                                                           | <b>Min Passing Marks: 20</b>                                  |
| <b>PART -B: Content of the Course</b>                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                 |                                                               |
| <b>Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                 |                                                               |
| Module                                                                           | Topics (Course contents)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                 | No. of Period                                                 |
| Lab./Field Training/ Experiment Contents of Course                               | <b>Bryophyta:</b> Comparative study of the anatomy of vegetative and reproductive parts of <i>Marchantia</i> , <i>Pellia</i> , <i>Anthoceros</i> , <i>Notothylus</i> , <i>Funaria</i> , <i>Polytrichum</i> .<br><b>Pteridophyta:</b> Comparative study of the anatomy of vegetative and reproductive parts of <i>Psilotum</i> , <i>Lycopodium</i> , <i>Selaginella</i> , <i>Equisetum</i> , <i>Gleichenia</i> , <i>Pteris</i> , <i>Ophioglossum</i> , <i>Isoetes</i> .<br><b>Gymnosperms:</b> Comparative study of the anatomy of vegetative and reproductive parts of <i>Cycas</i> , <i>Ginkgo</i> , <i>Cedrus</i> , <i>Abies</i> , <i>Picea</i> , <i>Cupressus</i> , <i>Araucaria</i> , <i>Cryptomeria</i> , <i>Taxodium</i> , <i>Podocarpus</i> , <i>Agathis</i> , <i>Taxus</i> , <i>Ephedra</i> and <i>Gnetum</i> .<br>▪ Collection of various gymnospermic plant materials.<br>▪ Field work – as far practicable conveniently.<br><b>Fossil:</b> Study of important fossil gymnosperms from prepared photographs, slides and specimens. |                                                                                                                                                                                                                 | <b>30</b>                                                     |
| Keywords                                                                         | Archegonia, venter, bryophytes, pteridophytes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                 |                                                               |

Signature of Convener & Members (CBoS) :

① Rhoan  
 ② Rhoan  
 ③ Rhoan  
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## PART-C: Learning Resources

### Text Books, Reference Books and Others

#### Text Books Recommended –

1. The Practical Fossil Finder (Practical Handbook) Hardcover – 1 October 1991 by Steve Parker (Author) Publishers Facts On File Inc
2. Practical Botany (Part I) ISBN #:81-301-0008-8 Sunil D Purohit, Gotam K Kukda & Anamika Singhvi Edition:2013 Apex Publishing House Durga Nursery Road, Udaipur, Rajasthan (bilingual).
3. Pandey S.K. (2012). Quick Concept of Botany. Publisher LAP LAMBERT Academic Publishing GmbH & Co. KG, Germany (ISBN: 978-3-8484-3104-5).
4. Dubey, R. C. and Maheshwari. D.K. 2012. Practical Microbiology, S. Chand & Company, Pvt. Ltd., New Delhi.
5. Pandey. B.P. 2014 Modern Practical Botany, (Vol-I) S. Chand and Company Pvt. Ltd., New Delhi.

#### Reference Books Recommended –

1. Principles of Paleontology Edition 3 Paperback–1 January 2006 by Arnold Miller, Michael Foote Publishers - W.H.Freeman & Co Lt

#### Online Resources–

##### > e-Resources / e-books and e-learning portals

- > [www.swayam.ac.in](http://www.swayam.ac.in)
- > [www.ignou.ac.in](http://www.ignou.ac.in)
- > [www.egyankosh.ac.in](http://www.egyankosh.ac.in)
- > [www.iitm.ac.in](http://www.iitm.ac.in)
- > [www.eskillindia.org](http://www.eskillindia.org)
- > [www.eshiksha.mp.gov.in](http://www.eshiksha.mp.gov.in)
- > [www.vlab.co.in](http://www.vlab.co.in)
- > [www.internshala.com](http://www.internshala.com)
- > [www.ndl.iitkgp.ac.in](http://www.ndl.iitkgp.ac.in)

#### Online Resources–

##### > e-Resources / e-books and e-learning portals

1. <https://efaidnbmnnnibpcajpcgclefindmkaj/https://egyankosh.ac.in/bitstream/123456789/69611/1/Unit-9.pdf>
2. <https://www.encyclopedia.com/science/encyclopedias-almanacs-transcripts-and-maps/fossil-and-fossilization>
3. <https://palaeobotany.org>

## PART -D: Assessment and Evaluation

### Suggested Continuous Evaluation Methods:

Maximum Marks: 50 Marks

Continuous Internal Assessment (CIA): 15 Marks

End Semester Exam (ESE): 35 Marks

|                                                                 |                                                                                                                         |                                                                                                                |
|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Continuous Internal Assessment (CIA): 15<br>(By Course Teacher) | Internal Test / Quiz-(2): 10 & 10                                                                                       | Better marks out of the two Test / Quiz<br>+ obtained marks in Assignment shall be considered against 15 Marks |
|                                                                 | Assignment/Seminar +Attendance - 05<br>Total Marks - 15                                                                 |                                                                                                                |
| End Semester Exam (ESE): 30                                     | Laboratory / Field Skill Performance: On spot Assessment                                                                |                                                                                                                |
|                                                                 | A. Performed the Task based on lab. work - 20 Marks                                                                     | Managed by Course teacher as per lab. status                                                                   |
|                                                                 | B. Spotting based on tools & technology (written) – 10 Marks<br>C. Viva-voce (based on principle/technology) - 05 Marks |                                                                                                                |

Name and Signature of Convener & Members of CBoS:

① [Signature]  
② [Signature]  
③ [Signature]  
④ [Signature]  
⑤ [Signature]  
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