

# **KOLHAN UNIVERSITY, CHAIBASA JHARKHAND**



## **Revised Curriculum and Credit Frame Work for SEM - I As per FYUGP, NEP-2020 (U.G. Botany- 2022 Onwards)**

**UNIVERSITY DEPARTMENT OF BOTANY  
KOLHAN UNIVERSITY, CHAIBASA  
WEST SINGHBHUM, JHARKHAND – 833202**

**UNIVERSITY DEPARTMENT OF BOTANY**  
**Kolhan University, Chaibasa**  
**Four-Year Under Graduate Programme (FYUGP)**  
As per Provisions of NEP-2020 to be implemented from Academic Year 2022-23  
**COMPOSITIONS OF BOARD OF STUDIES**

- 1. Dr. Krishna Pyare**  
Head, University Deptt. of Botany  
Kolhan University, Chaibasa
  
- 2. Dr. Salomi Kujur**  
Assistant Professor  
University Deptt. of Botany  
Jamshedpur Women's University, JSR
  
- 3. Mrs. Pushpa Salo Linda**  
Assistant Professor  
Department of Botany  
Jamshedpur Worker's College, JSR
  
- 4. Dr. Vishnu Shankar Sinha**  
Assistant Professor  
Department of Botany  
Tata College, Chaibasa
  
- 5. Dr. Dara Singh Gupta**  
Assistant Professor  
University Deptt. of Botany  
Kolhan University, Chaibasa

**(Dr. Krishna Pyare)**  
**Chairman & Head,**  
**University Deptt. of Botany**  
**Kolhan University, Chaibasa**

## INDEX

Code	Papers	Credits (Th +P)
MDC/ IRC-1	Multi- Disciplinary / Introductory Regular Courses ( Subject – Botany )	3+0

- **For End Semester Examination (ESE 60 Marks , 3 Hrs Exam ) :**

There will be **two** group of question. **Group A is compulsory** which will **contain** three questions. **Question No. 1 will be very short answer types** consisting of five questions of 1 mark each. **Question No. 2 & 3 will be short answer type** of 5 marks each. **Group B will contain descriptive type** five questions of fifteen marks (15) each, out of which any three are to answer.

- **For End Semester Examination (ESE 75 Marks , 3 Hrs Exam ) :**

There will be **two** group of question. **Group A is compulsory** which will contain three questions. **Question No. 1 will be very short answer type** consisting of five questions of 1 mark each. **Question No. 2 & 3 will be short answer type** of 5 marks each. **Group B will contain descriptive type** six questions of fifteen marks (15) each, out of which any four are to answer.

**SEMESTER – I**  
**Multi - Disciplinary / Introductory regular courses – 1**  
**[MDC/IRC –I]**  
**[Credit--03] Subject – Botany**

**Full Mark - 75**

**Time: - 3 Hrs**

**Course Outcomes:-**

- The Student completing this course is able to –
  1. To develop a conceptual understanding of principle and importance of Botany. They will be able to demonstrate knowledge of selected topics of Microbiology, Cytology and Genetics, Plant physiology etc.
  2. To understand the nature and basic concept of lower and higher groups of plants .
  3. To develop understanding of impact of botany and science on society and develop respect for conservation of environment.
  4. To understand the vegetative and reproductive Morphology, Anatomy of root, stem and leaves of angiospermic plant.
  
- **Unit-1:-** Salient features and classification of Microbes **5 Hrs**  
Salient features and classification of plants into major groups –  
Algae, Fungi, Bryophytes, Pteridophytes and Gymnosperms
  
- **Unit-2:-** Morphology of Flowering Plants, root, stem, leaves, fruits, seeds, inflorescence and flowers. Description of some families: - Malvaceae, Solanaceae and Poaceae. **5 Hrs**
  
- **Unit-3:-** Plant Anatomy---Meristematic tissues & Permanent tissues (Internal structure of dicotyledonous and monocotyledonous root and stem), Internal structure of dorsiventral and isobilateral leaves. Secondary growth in dicot stem. **5 Hrs**
  
- **Unit-4:-** Structure of prokaryotic and eukaryotic cells; Plant cell and animal cell; cell envelope; cell membrane, cell wall; cell organelles - structure and function; endoplasmic reticulum, Golgi bodies, lysosomes, vacuoles, mitochondria, ribosomes, plastids & nucleus (ultrastructure and function) . **8 Hrs**
  
- **Unit-5:-** Cell Division and Genetics: - Cell Cycle and Cell Division: Mitosis and Meiosis and their significance. Mendelism--Monohybrid and Dihybrid cross , Test cross & Back cross). **6 Hrs**
  
- **Unit-6:-** Plant Physiology:-Photosynthesis: Importance of Photosynthesis . Photosynthetic Apparatus Dark Reaction & Light Reaction. Respiration: Aerobic,

Anaerobic respiration and Fermentation. Factors affecting Respiration.

**8 Hrs**

- **Chapter-7:-** Environmental Issues - Pollution (Air, Water, Soil, Sound, Thermal & Nuclear Pollution), Climate Change, Green House Effect, Global Warming, Acid Rain, Ozone Layer Depletion, Environmental Protection Acts & Forest Conservation Acts. **8 Hrs**

**Remarks: - No Internal Exam.**

**Reading Suggestions:-**

1. Lee, R.E. (2008). Phycology, Cambridge University Press, Cambridge. 4<sup>th</sup> edition.
2. Wiley, J.M, Sherwood, L.M. and Woolverton, C.J. (2013). Prescott's Microbiology. 9th Edition. McGraw Hill International.
3. Vashishta B.R., Sinha A.K. and Singh V. P. (2008). Botany for Degree Students. Algae. S Chand and Co, New Delhi.
4. Sharma T.A., Dubey, R.C. and Maheshwari, D.K. (1999). A Text Book of Microbiology. S Chand and Co, New Delhi.
5. Sahoo, D. (2000). Farming the ocean: seaweeds cultivation and utilization. Aravali International, New Delhi.
6. Campbell, N.A., Reece, J.B., Urry, L.A., Cain, M.L., Wasserman, S.A., Minorsky P.V. and Jackson, R.B. (2008). Biology, 8th edition. Pearson Benjamin Cummings, USA..
7. College Botany---Vol-I, II and III---Ganguly, Kar & Santra---New Central Book Agency(P)Ltd.
8. Pelczar, M.J. (2001). Microbiology, 5th edition, Tata McGraw-Hill Co, New Delhi.
9. STUDIES IN BOTANY—Vol-I & II—J. N. Mitra, D. Mitra & S. K. Choudhary---Moulik Library Kolkata
10. Botany for Degree Students—Algae----B.R.Vashishta, Dr. A.K. Sinha & Dr. V.P. Singh---S. Chand Publication, Ram Nagar-New Delhi
11. Ecology and Environment---P. D. Sharma—Rastogi Publication-Meerut
12. College Botany-Vol-I, II and III----Mukerjee—New Central Book Agency (P) Ltd.