PART- A:	Introduction		
Program: Bachelor in Life Science *(Diploma / Degree/Honors)*		**Semester - III**	**Session: 2024-2025**
1	Course Code	BOSE- 01 T	
2	Course Title	**Natural resources and management**	
3	Course Type	**Discipline specific Elective (DSE)**	
4	Pre-requisite (if, any)	*As per program*	
5	Course Learning. Outcomes (CLO)	At the end of this course, the students will be able to ➤ Understand natural resources and their sustainable utilization. ➤ Knowledge on land, water, energy, and forest resources. ➤ Students will learn about the practices of natural resource management. ➤ Knowledge on the international and national efforts of natural resource management.	
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	**Natural resources** ➤ Definition and types. ➤ Natural resources' conservation Role of an individual in conservation of natural recourses, Significance, ➤ Sustainable utilization of resources' : Concept, approaches economic, ecological, and socio-cultural activities.	12
II	**Land and freshwater resources** ➤ Land as a resource ➤ Soil erosion and desertification ➤ Soil degradation and management. ➤ Forest resources use and over exploitation, deforestation ➤ Water resources, use and overutilization of surface and ground water ➤ Fresh Marine and estuarine ecosystems; ➤ Wetlands threats and management strategies	11
III	**Biological Resources** ➤ Biodiversity-definition and types ➤ Value of biodiversity ➤ Biodiversity at global, national an regional levels ➤ Threats; Management strategies; ➤ Bioprospecting. IPR; CBD; National Biodiversity Action Plan). ➤ Forests: Cover and its significance (with special reference to India); ➤ Major and minor Forest products; ➤ Renewable and non-renewable sources of energy.	11
IV	**Contemporary practices in resource management** ➤ National and international efforts in resource management and conservation. ➤ Waste management practices ➤ Natural resource Accounting ➤ Environmental impact assesement EIA ➤ Geographical information System GIS ➤ Participatory Appraisal of naturl Resource ➤ Ecological Footprint with emphasis on carbon footprint,	11
Keywords	**Resources, Biodiversity, Resources management, IPR, CBD.**	

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended –

1. Vasudevan, N. (2006). Essentials of Environmental Science. Narosa Publishing House, New Delhi.
2. Singh, J. S., Singh, S.P. and Gupta, S. (2006). Ecology, Environment and Resource Conservation. Anamaya Publications, New Delhi.

Reference Books Recommended –

1, Rogers, P.P., Jalal, K.F. and Boyd, J.A. (2008). An Introduction to Sustainable Development. Prentice Hall of India Private Limited, New Delhi.

Online Resources–

- ➢ e-Resources / e-books and e-learning portals
- ➢ https://www.sciencedirect.com/topics/social-sciences/natural-resource
- ➢ https://efaidnbmnnnibpcajpcglclefindmkaj/https://egyankosh.ac.in/bitstream/123456789/66166/2/Unit4.pdf
- ➢ https://efaidnbmnnnibpcajpcglclefindmkaj/https://www.ers.usda.gov/webdocs/publications/41964/30289_biological.pdf?v=0#:~:text=16-,What%20Are%20Biological%20Resources%3F,forests%2C%20and%20other%20natural%20lands.
- ➢ http://surl.li/spcdd
- ➢ https://shorturl.at/ewyIP
- ➢ https://shorturl.at/cimoF

Online Resources–

- ➢ e-Resources / e-books and e-learning portals
- ➢ www.swayam.ac.in
- ➢ www.ignou.ac.in
- ➢ www.egyankosh.ac.in
- ➢ www.iitm.ac.in
- ➢ www.eskillindia.org
- ➢ www.eshiksha.mp.gov.in
- ➢ www.vlab.co.in
- ➢ www.internshala.com
- ➢ www.ndl.iitkgp.ac.in

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

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

Name and Signature of Convener & Members of CBoS:

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FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)

DEPARTMENT OF BOTANY

COURSE CURRICULUM

PART- A:	Introduction		
Program: **Bachelor in Life Science** *(Diploma / Degree/ Honors)*		**Semester - III**	Session: **2024-2025**

1	Course Code	BOSE -01 P	
2	Course Title	**Lab course -01 (Natural resources and management)**	
3	Course Type	**Laboratory course**	
4	Pre-requisite (if, any)	*As per program*	
5	**Course Learning. Outcomes (CLO)**	*at the end og then of the sesn* O To understand natural resources and their sustainable utilization. O Acquire knowledge on land, water, energy, and forest resources. O Students will learn about the practices of natural resource management. O Acquire knowledge on the international and national efforts of natural resource management.	
6	Credit Value	1 Credits	*Credit =30 Hours Laboratory or Field learning/Training*
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20

PART -B: Content of the Course

Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)

Module	Topics (Course contents)	No. of Period
Lab./Field Training/ Experiment Contents of Course	1) To compare protected and unprotected grassland stands using community coefficients 2) To estimate IVI of the species in a woodland using point centered quarter method. 3) To find out important grassland species using chi square test. 4) Scientific visits to a protected area, a wet land, a mangrove, NBPGR, BSI, CSIR, ICAR labs and a recognized botanical gardens or a museum. 5) To determine diversity indices (Shannon Wiener, concentration of dominance, species richness, equability and B diversity. 6) Field survey of a part of town or city to make the students aware of the diversity of plants in urban ecosystems. 7) Estimation of solid waste generated by a domestic system (biodegradable and non biodegradable) and its impact on land degradation. 8) Collection of data on forest covers of specific area. 9) Measurement of dominance of woody species by DBH (diameter at breast height) method. 10) Calculation and analysis of ecological footprint. 11) Ecological modeling.	30
Keywords	Community coefficient, IVI, diversity indices	

Signature of Convener & Members (CBoS) :

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended –

1. A Handbook of Human Resource Management Practice
2. Environmental and Natural Resource Economics_ A Contemporary Approach
3. Sustainable Management of Natural Resources_ Mathematical Models and Methods (Environmental Science and Engineering Environmental Science)

Online Resources–

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

1) https://shorturl.at/uIMTW
2) https://shorturl.at/yFJM3

Online Resources–

- ➢ e-Resources / e-books and e-learning portals
- ➢ www.swayam.ac.in
- ➢ www.ignou.ac.in
- ➢ www.egyankosh.ac.in
- ➢ www.iitm.ac.in
- ➢ www.eskillindia.org
- ➢ www.eshiksha.mp.gov.in
- ➢ www.vlab.co.in
- ➢ www.internshala.com
- ➢ www.ndl.iitkgp.ac.in

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 (By Course Teacher)	Internal Test / Quiz-(2): 10 & 10 Assignment/Seminar +Attendance - 05 Total Marks - 15	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against **15** Marks
End Semester Exam (ESE): 35	Laboratory / Field Skill Performance: On spot Assessment A. Performed the Task based on lab. work - 20 Marks B. Spotting based on tools & technology (written) – 10 Marks C. Viva-voce (based on principle/technology) - 05 Marks	Managed by Course teacher as per lab. status

Name and Signature of Convener & Members of CBoS:

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