KONGUNADU ARTS AND SCIENCE COLLEGE

(AUTONOMOUS)

COIMBATORE – 641 029

DEPARTMENT OF BOTANY
PG DIPLOMA PROGRAMME IN BIODIVERSITY

CURRICULUM AND SCHEME OF EXAMINATIONS

(CBCS)

(2026 – 2027 onwards)

KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
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PROGRAMME OUTCOMES (PO)

PO 1

- The programme gives insight knowledge into the area of biodiversity with scientific information. It creates interest among the students towards nature and its protection of biodiversity heritage.

PO2

- Understanding the principles and concepts of biodiversity is the most needed for all the sections of people. This programme helps to improve the production as well as the betterment of man's holistic development and welfare.

PO3

- The programme is aimed to know the structure of biodiversity, its functional role, services and possible management practices to be followed according to the locality and region. Students will be able to acquire vast knowledge in the field of biodiversity.

PO4

- This programme will be helpful to realize the serious consequences of climate change and its impact on environment, resources, health and economy.The action plan formulated at national and international levels to manage the biodiversity will also be known.

PO5

- Students will able to know the technological approach to conserve the species of both flora and fauna.

PO6

- Students can able to equip the knowledge acquired through this programme to solve problems related to biodiversity services and conservation.

PO7

- Students can learn the values and ethics of wildlife conservation and to know the policies and laws employed in biodiversity management.

PO8

- Students can learn the techniques for biotic community and ecosystem analysis and get knowledge about ecosystem in selected communities/protected areas.

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO1

- Students will learn about the measures and compare the levels of biodiversity between the areas and realize current threats to biodiversity.

PSO2

- Students will be able to understand the role and principles of operation of different types of protected areas.

PSO3

- Students will acquire knowledge on the opportunities and challenges in community based conservation and evaluate conservation trade-offs between competing interests.

PSO4

- Students will be aware of the relevant legislation and recent initiatives taken for ecosystem management.

PSO5

- Students will be able to analyze the range of options for biodiversity conservation which can be employed according to conditions prevailed.

KONGUNADU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)
COIMBATORE – 641 029

Programme Name: PG Diploma Programme in Biodiversity

Curriculum and scheme of Examination under CBCS
(Applicable to the students admitted during the Academic Year 2026-2027 and onwards)

Semester	Subject Code	Title of the Paper	Instruction hours /cycle	Exam Marks			Duration of Exam (hours)	Credits
				CIA	ESE	Total		
I	**26PDB101**	**C.P.1. Introduction to Biodiversity**	2	25	75	**100**	3	**2**
	26PDB102	**C.P.2. Values, Uses and Loss of Biodiversity**	2	25	75	**100**	3	**2**
	26PDB103	**C.P.3. Conservation and Management of Biodiversity**	2	25	75	**100**	3	**2**
	26PDB1CL	**C.Pr.1. Biodiversity - I**	2	40	60	**100**	3	**2**
		Total	**8**			**400**		**8**
II	**26PDB204**	**C.P.4. Biodiversity Prospecting and Indigenous Knowledge System (IKS) and Biotechnology for Biodiversity**	2	25	75	**100**	3	**2**
	26PDB205	**C.P.5. Wildlife Biology and Conservation Policies and Law**	2	25	75	**100**	3	**2**
	26PDB2CM	**C.Pr.2. Biodiversity - II**	2	40	60	**100**	3	**2**
	26PDB2Z1	**Project & Viva-Voce**	2	20	80	**100**	-	**2**
		Total	**8**			**400**		**8**
		Grand Total	**16**			**800**		**16**

Note:

CBCS - Choice Based Credit System
CIA - Continuous Internal Assessment
ESE - End of Semester Examinations

Tally Table

S. No.	Subject	No. of Subjects	Total Marks	Credits
1.	Core – Theory	05	500	10
2.	Core Practical	02	200	4
3.	Project	01	100	2
	Grand Total	08	800	16

- 25% CIA is applicable for all subjects
- A **Field Trip** preferably relevant to the course should be undertaken during the course

Teaching Pedagogy

Smart Class Room/Powerpoint presentation/Seminar/Quiz/Discussion/Flipped Classroom/Peer Learning/Experimental Learning/Blended learning

Flipped Classroom

Preamble:

- Under flipped classroom model, students review foundational content before class, with class time dedicated to practice, discussion, and problem – solving where the role of the teachers will be facilitating discussions and enabling students to embark on a holistic learning perspectives

Work instructions:

- One flipped session / unit is made mandatory and the course In-charge shall identify and specify the topic to be covered in the flipped session in the lesson plan.
- Detailed session plans must be intimated to all students at least one week in advance.
- Curated content such as LORs, video lectures, animations, and other relevant digital content shall be provided to students in advance to facilitate effective preparation for the flipped classroom session.

Peer Learning

Preamble:

- Peer Assisted learning enables students to learn from each other sharing knowledge in a collaborative learning environment.
- Development of leadership skills and student engagement through student to student academic support.
- Reduce drop out/failure rates of the students and create a supportive academic culture where a high performing or trained student assists peers academically.

Work Instructions:

- Course In-charge shall supervise the programme by periodically reviewing its implementation, conducting review meetings, and monitoring the progress reports.
- Course In-charge shall identify 5 to 6 fast learners based on their academic performance in internal and external examinations.
- Course In-charge shall also identify students who require additional academic support and assign 4 to 5 such students to each fast learner to facilitate peer learning.
- This team will operate remedial classes on a peer learning mode as per the following:

  a) One session / week / course and each session shall be for 30 minutes in duration, with follow-up learning activities.

b) The faculty In-charge shall review attendance records and monitor the academic progress of the students.

Blended learning

Preamble:

- Blended learning integrates traditional in class instruction with digital tools exposing students to a myriad options for learning from subject experts across the globe
- It is provided with online learning sessions on recorded videos, lecture captured sessions (included under guided library hours), digital resources, and guided sessions facilitated by internal faculty members and external experts through Zoom meets etc.,

Work Instructions:

- For every course, students will be motivated to attend additional webinar/online courses through any interactive learning tools such as, telepresence systems, podcasts, interactive videos etc. with minimum of 2 sessions/course and maximum of 3 sessions/course.

Components of Continuous Internal Assessment

<table>
<tr><th colspan="2">Components</th><th>Marks</th><th>Total</th></tr>
<tr><td colspan="4">Theory</td></tr>
<tr><td>CIA I</td><td>75</td><td rowspan="2">(75+75=150/10) converted to 15</td><td rowspan="3">25</td></tr>
<tr><td>CIA II</td><td>75</td></tr>
<tr><td colspan="2">Objective Capacity Testing */ Seminar</td><td>5</td></tr>
<tr><td colspan="2">Attendance</td><td>5</td><td></td></tr>
<tr><td colspan="4">Practical</td></tr>
<tr><td colspan="2">CIA Practical</td><td>25</td><td rowspan="3">40</td></tr>
<tr><td colspan="2">Observation Notebook</td><td>10</td></tr>
<tr><td colspan="2">Attendance</td><td>5</td></tr>
<tr><td colspan="4">Project</td></tr>
<tr><td colspan="2">Review</td><td>15</td><td rowspan="3">20</td></tr>
<tr><td colspan="2">Regularity</td><td>05</td></tr>
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</table>

*** Objective Capacity Testing:**

- For the first assessment, questions shall be set from 2 ½ units (25 questions) and evaluation for 5 marks. The assessment shall be conducted through any authentic online platform, one week prior to the commencement of I CIA theory examinations.

- For the second assessment, questions shall be set from 2 ½ units (25 questions) and evaluation for 5 marks. The assessment shall be conducted through any authentic online platform, one week prior to the commencement of II CIA theory examinations.
- The average of the first and second assessment scores shall be considered for the final **5 marks** allocation.

BLOOM'S TAXONOMY BASED ASSESSMENT PATTERN

K1 - Remembering; **K2 -** Understanding; **K3 -** Applying; **K4 -** Analyzing; **K5 -** Evaluating

1. Theory Examination: CIA I & II and ESE: 75 Marks

Knowledge Level	Section	Marks	Description	Total
K1 Q1 to 10	A (Answer all)	10 x 1 = 10	MCQ	75
K1 – K5 Q11 to 15	B (Either or Pattern)	5 x 5 = 25	Short Answers	
K2 - K5 Q16 to 20	C (Either or Pattern)	5 x 8 = 40	Descriptive / Detailed	

2. Practical Examination:

Knowledge Level	Section	Marks	Total
K3 ↕ K5	Experiments	50	60
	Record Work	10	

3. Project Viva Voce:

Knowledge Level	Section	Marks	Total
K3 ↕ K5	Project Report	60	80
	Viva - voce	20	

26PDB101

Programme Code: 05		**PG DIPLOMA PROGRAMME IN BIODIVERSITY**			
C.P. 1 - INTRODUCTION TO BIODIVERSITY					
Batch 2026-2027	**Semester I**	**Hours / Week 2**	**Total Hours 30**	**Credits 2**	**Skill Development**

COURSE OBJECTIVES

- To know the principles and concepts of biodiversity.
- To understand the services of species diversity.
- To acquire knowledge on the role of biodiversity in maintaining ecobalance.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Know the pattern of distribution of biodiversity.
	CO2	Understand various aspects and types of species diversity.
	CO3	Ability to identify global distribution of species richness.
	CO4	Analyze the concept, origin and evolution of biodiversity.
	CO5	Evaluate the functional role of species diversity in an ecosystem

SYLLABUS

UNIT – I **(6 Hours)**

Introduction: Concept and definition. Types of biodiversity – genetic, species ecosystem and landscape diversities. α, β and γ diversity. Pattern diversity.

UNIT - II **(6 Hours)**

Species diversity status: Species inventory – problems and monitoring. Current diversity status of flora and fauna at global and national levels. Centers of diversity – mega biodiversity centers, biodiversity hotspots.

UNIT - III **(6 Hours)**

Species diversity history and indices: History and origin of species*. Diversity indices based on species – species richness, abundance and dominance. Comparisons of species diversity of various sites – species/area relationships, spatial patterns of species diversity. Global distribution of species richness – latitudinal, altitudinal and rainfall gradients and other factors.

UNIT - IV **(6 Hours)**

Agrobiodivesity: Introduction. Origin and evolution of cultivated species diversity – act of domestication, geography of domestication, dispersal and diversification. Diversity in domesticated species – land races, advanced cultivars, wild relatives of cultivated plants, wild plants, and feral plants.

26PDB101

UNIT - V **(6 Hours)**

Ecosystem types and services: Classification, measuring ecosystem diversity, major ecosystems of world – forests, grasslands, deserts, fresh water, wetlands and marine. Functional role of species diversity in ecosystems.

*** Self study**

TEXT BOOKS

1. K.V. Krishnamurthy. (2018). An advanced textbook on biodiversity oxford of IBH publishing Co. Pvt. Ltd. New Delhi.
2. D.R. Harris and G.C. Hillman. (1989). Introduction. In: Harris, D.R. and Hillman, G.C. (Eds.). Foraging and Farming: the Evolution of Plant Exploitation. Unwin Hyman, London, pp. 1-8.
3. P.D. Sharma. Ecology and Environment, Eastogi Publications, Murur.
4. Kelvin J. Gasten and John.I. Spicer. (2013). Biodiversity on Introduction. Black well Publishing company USA.

REFERENCE BOOKS

1. R. Thomas. (2012). Genetic Diversity. *In:* Goombridge, E. (Ed.). Global Biodiversity. Status of the Earth's Living Sources. Chapman & Hall, London, pp. 1-6.
2. A.E. Magurran. (2010). Ecological Diversity and its Measurement. Princeton Univ. Press, Princeton, NJ.
3. E.C. Pielou (1975). Ecological Diversity. John Wiley and Sons. New York. NY.

WEB RESOURCES

1. https://www.who.int/news-room/fact-sheets/detail/biodiversity
2. https://www.researchgate.net/publication/294876262_Biodiversity_Concept_threats_and_conservation
3. https://www.worldwildlife.org/resources/explainers/what-is-biodiversity/
4. https://agrobiodiversity.uniag.sk/
5. https://www.nwf.org/Educational-Resources/Wildlife-Guide/Understanding-Conservation/Ecosystem-Services

MAPPING

PSO / CO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	H	H	S	M
CO2	S	M	H	M	H
CO3	H	S	H	S	S
CO4	H	H	M	S	M
CO5	S	H	S	H	H

S - Strong **H** - High **M** - Medium **L** – Low

Content prepared by (Based on Inputs) Dr. D. Moorthy Signature of the Course in-charge	Signature of the HOD

26PDB102

Programme Code: 05	**PG DIPLOMA PROGRAMME IN BIODIVERSITY**				
C.P.2 - VALUES, USES AND LOSS OF BIODIVERSITY					
Batch	**Semester**	**Hours / Week**	**Total Hours**	**Credits**	**Skill Development**
2026-2027	**I**	**2**	**30**	**2**	

COURSE OBJECTIVES

- To know the value of biodiversity.
- To understand the valuation methods of species content.
- To gain knowledge on the factors of species loss.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1	CO1	Gain knowledge on the aesthetic values of bioresource
↕	CO2	Understand the role of several factors on biodiversity loss
	CO3	Apply knowledge to prevent the loss of biodiversity
	CO4	Analyze the feasible ways to reduce ecosystem loss
K5	CO5	Evaluate ecosystem biodiversity loss and their control measures

SYLLABUS

UNIT - I **(6 Hours)**

Values of biodiversity: Consumptive and productive uses, social, ethical, aesthetic and other values. Economic valuation of biodiversity. Biodiversity and tourism.

UNIT - II **(6 Hours)**

Valuing the biodiversity: Methods – outline on basics of MaCArthur, 1997, Changes in productivity method, contingent valuation method, hedonic pricing method, travel cost method.

UNIT - III **(6 Hours)**

Loss of genetic diversity: Factors causing loss of genetic diversity – Founder effects, demographic bottlenecks, genetic drift, inbreeding depression.

UNIT - IV **(6 Hours)**

Loss of species diversity: Processes responsible for species extinction – Deterministic processes, stochastic processes. Population size as a critical factor in species extinction – minimum viable population and population viability analysis. Climate change finger print on Biodiversity. Threatened species – definition. IUCN threatened categories and unknown categories.

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UNIT - V **(6 Hours)**

Loss of ecosystem diversity: Factors affecting ecosystem degradation and loss. Loss in diversity of major ecosystems – tropical forests, grasslands, inland wetlands, coastal ecosystems, arctic and alpine ecosystems, temperate forests systems, arid and semiarid lands, open oceans. Projected scenario for biodiversity loss.

*** Self study**

TEXT BOOKS

1. K.V. Krishnamurthy. (2018). An advanced textbook on biodiversity: Principles and practices. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi.
2. N. Myers. (2000). The new millennium: An ecology and economy of hope. Curr. Sci. 78: 686-693.
3. J. MacArthur. (2004). The economic valuation of biodiversity, its implications and importance in bioresource planning, and initiations for its regular use in planning conservation projects in India. *In:* Pushpangandan, P., Ravi, K. and Santhosh, V. (Eds.). Conservation and Economic Evaluation of Biodiversity. Vol. 2. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi, pp. 335-354.
4. A. Balmford, G.M. Mace and J.R. Ginsberg. (2013). The challenges to conservation in a changing world putting process on the map. *In:* Mace, G.M., Balmford, A. and Ginsberg, J.R. (Eds.). Conservation in a Changing World. Cambridge University Press, Cambridge, pp. 1-28.

REFERENCE BOOKS

1. J.B. Hughes, G.C. Daily and P.R. Ehrlich. (1997). Population diversity: its extinction. Science 278: 689-691.
2. R. Lande and G.F. Barrowclough. (1987). Effective population size, genetic variation, and their uses in population management. *In:* Soule, M.J. (Ed.). Viable Populations for Conservation. Cambridge University Press, Cambridge, pp. 87-124.

WEB RESOURCES

1. https://www.who.int/news-room/fact-sheets/detail/biodiversity

2.https://www.researchgate.net/publication/286745237_The_Values_of_Biodiversity_An_Introduction

3.https://sciencemediacentre.es/en/genetic-diversity-has-decreased-more-600-species-last-three-decades

4.https://www.biologydiscussion.com/biodiversity/loss-of-biodiversity/10-major-causes-for-the-loss-of-biodiversity/8394

5. https://ncert.nic.in/textbook/pdf/lebo113.pdf

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MAPPING

PSO / CO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	H	H	S	H
CO2	H	S	H	H	M
CO3	H	S	M	H	S
CO4	S	M	H	S	H
CO5	H	S	H	H	S

S - Strong **H** - High **M** - Medium **L** – Low

Content prepared by (Based on Inputs) Dr. D. Moorthy Signature of the Course in-charge	Signature of the HOD

26PDB103

Programme Code: 05	**PG DIPLOMA PROGRAMME IN BIODIVERSITY**				
C.P. 3 - CONSERVATION AND MANAGEMENT OF BIODIVERSITY					
Batch	**Semester**	**Hours / Week**	**Total Hours**	**Credits**	**Skill Development**
2026-2027	**I**	**2**	**30**	**2**	

COURSE OBJECTIVES

- To know the methods of conservation of species.
- To gain knowledge in the area of ecosystem conservation.
- To know the various laws of biodiversity conservation.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Gain knowledge on species conservation methods
	CO2	Understand the prevailing laws for the conservation of biodiversity both at national and international levels
	CO3	Apply various strategic plans for the conservation of biodiversity
	CO4	Analyze novel ideas for the conservation ecosystem
	CO5	Evaluate ideas on international biodiversity laws and regulations

SYLLABUS

UNIT - I **(6 Hours)**

Practice of Conservation: Current practice in conservation. Conservation of genetic diversity. Conservation of species diversity – categories of species for conservation – threatened species, directly harvested plants, indicator species, umbrella species, keystone species, charismatic species and recreational species.

UNIT - II **(6 Hours)**

Methods of quantification: Qualitative Characteristics, Raunkiaer's Life forms. Quantitative Characteristics- Frequency, Density, Abundance, Basal area, different types of quadrates, different types of transects. Estimation of phytoplankton and zooplankton. Methods for sampling Invertebrates. Bird census.

UNIT - III **(6 Hours)**

Recent advances: Inventorization of species. Monitoring. Molecular approaches - DNA based marker technique. Plant documentation – Herbarium and E-herbarium. Computer based identification system. Biodiversity Information - Management and Communication.

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UNIT - IV **(6 Hours)**

Conservation of species and ecosystem: *In-situ* conservation - Protected areas, biosphere reserves and national parks. Animal and ecological significance. Home gardens. *Ex-situ* conservation - Germplasm collections, botanic gardens, seed banks, test tube gene banks, pollen banks, field gene banks, DNA banks. *In-vitro* conservation methods. Ecosystem restoration. Social approaches to conservation – sacred grooves and sthalavrikshas*.

UNIT - V **(6 Hours)**

Legislations: Role of educational institutions in biodiversity conservation. IUCN, UNEP, UNESCO, WWF, ICSU, FAO, CAB International, WCMC, ISBI, CBD. Biodiversity legislation and conservations – International biodiversity laws. Conservation on biological diversity. Trade related intellectual property rights.

*** Self study**

TEXT BOOKS

1. K.V. Krishnamurthy. (2018). An advanced textbook on biodiversity: Principles and practices. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi.
2. R.S. Ambasht. (1988). Text book of Plant Ecology. Lanka Publishers, Varanasi.
3. P.D. Sharma. Ecology and Environment. Rastogi Publications, Meerut.
4. D.R. Given. (1984). Monitoring and science – the next stage in threatened plant conservation in New Zealand. In: Given, D.R. (Ed.). Conservation of Plant Species and Habitats. Nature Conservation Council, Wellington, New Zealand, pp. 83-102.
5. Kumar and Asige (2007) Biodiversity, Principles and Conservation Students edition. India.
6. U. Kumar. (2012) Biodiversity Principles and Conservation Agriobios (India)

REFERENCE BOOKS

1. R. Lande (1988). Genetics and demography in biological conservation. Science 241: 1455-1460.
2. J.A. McNeely, K.R. Miller, W.V.Reid, R.A. Mittermeier and T.B. Werner. (1990). Conserving the World's Biological Diversity, IUCN, Gland, Switzerland.
3. K.N. Ganeshaiah, K. Uma Shaanker and K.S. Bawa. (2001). Conservation of forest genetic resources of a region: combining species-centered and ecosystem based approaches. *In:* Uma Shankar, R., Ganeshaiah, K.N. and Bawa, K.S. (Eds.). Forest Genetic Resources: Status, Threats and Conservation Strategies. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi, pp. 273-281.
4. E. Ayenus and 24 others. 1999. International ecosystem assessment. Science 286: 685-686.

26PDB103

WEB RESOURCES

1.https://www.researchgate.net/publication/287090006_Traditional_conservation_practices_biodiversity_conservation_and_ecosystems
2. https://www.fs.usda.gov/pnw/pubs/pnw_gtr443.pdf
3. https://moef.gov.in/uploads/2019/06/redd-bk4.pdf
4. https://pdfs.semanticscholar.org/e5ca/2354610cb1cccbf94390000653f37062e5c7.pdf
5. https://www.who.int/news-room/fact-sheets/detail/biodiversity

MAPPING

PSO / CO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	H	H	S	H
CO2	H	S	H	H	M
CO3	H	M	S	H	S
CO4	S	H	M	H	S
CO5	H	H	S	H	S

S - Strong **H** - High **M** - Medium **L** – Low

Content prepared by (Based on Inputs) Dr. D. Moorthy Signature of the Course in-charge	Signature of the HOD

PDB9

26PDB1CL

Programme Code: 05	**PG DIPLOMA PROGRAMME IN BIODIVERSITY**				
CORE PRACTICAL -1 - BIODIVERSITY - I					
Batch 2026-2027	**Semester I**	**Hours / Week 2**	**Total Hours 30**	**Credits 2**	**Skill Development**

COURSE OBJECTIVES

- To learn the techniques for plant community analysis.
- To know the complexity and diversity of plant communities.
- To have the knowledge on endangered animals in protected areas.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K3 ↕ K5	CO1	Apply inherent knowledge on conservation of biodiversity in protected areas.
	CO2	Investigate and analyze the status of biodiversity.
	CO3	Acknowledge endangered species diversity and to offer conservational strategic plans
	CO4	Acquire knowledge on ecological status of plants in selected communities
	CO5	Quantitatively evaluate plant communities in selected areas.

SYLLABUS

LIST OF PRACTICALS

1. To know the ecological status of plants in the communities, the field experiments to be done in the natural vegetation are: a) IVI, b) dominance index c) diversity index d) similarity index.
2. To know the animal status with particular reference to tiger and Nilgiri thar – census techniques involved will be studied.
3. To know the richness of birds, aquatic ecosystems are studied using bird census techniques.
4. Field visits to protected areas for biodiversity conservation.

MAPPING

PSO / CO	**PSO1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO1	S	H	S	M	S
CO2	S	M	H	S	H
CO3	H	H	M	H	H
CO4	S	H	S	M	S
CO5	S	H	M	S	H

S - Strong **H** - High **M** - Medium **L** – Low

Content prepared by (Based on Inputs) Dr. D. Moorthy Signature of the Course in-charge	Signature of the HOD

26PDB204

Programme Code: 05	PG DIPLOMA PROGRAMME IN BIODIVERSITY				
C.P.4 - BIODIVERSITY PROSPECTING AND INDIGENOUS KNOWLEDGE SYSTEM (IKS) AND BIOTECHNOLOGY FOR BIODIVERSITY					
Batch	**Semester**	**Hours / Week**	**Total Hours**	**Credits**	**Skill Development**
2026-2027	**II**	**2**	**30**	**2**	

COURSE OBJECTIVES

- To know the ethnic communities of India and their role in bioresource management.
- To understand the bioprospecting of natural bioresources.
- To gain knowledge on the role of biotechnology in processing biogoods.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1	CO1	Gain indigenous knowledge of ethnic groups on species conservation
↕	CO2	Understand the database of biodiversity
	CO3	Explore knowledge on principles and major objectives of community forest management systems
	CO4	Apply biotechnological tools for the management of biodiversity
K5	CO5	Determine technological skills for determining variations in biodiversity

SYLLABUS

UNIT - I **(6 Hours)**

Ethnic Community and Biodiversity: Indigenous and ethnic communities of India. Cultural and ethnic diversity in Tamil Nadu. Environmental conservation and sustainable uses of natural resources by ethnic societies. Important plant genetic resources conserved by ethnic people in India.

UNIT - II **(6 Hours)**

Bioprospecting: Introduction, IKS, biopiracy. IPRs and ownership of traditional knowledge - issues, Traditional Resource Rights (TRR), Local efforts to date.

UNIT - III **(6 Hours)**

Traditional Societies and Protected areas: Territorial demarcation of traditional societies - introduction. Community forest management. Indigenous people and Protected areas.

UNIT - IV **(6 Hours)**

Biodiversity database: Community biodiversity register. Database and networks on IKS. Community controlled research. Center for farmers rights. Participatory approach in biodiversity management. Role of Women, NGOs*.

UNIT - V **(6 Hours)**

Biotechnology and Biodiversity: Monitoring DNA - diversity, PCR based techniques. Use of molecular (DNA) markers to detect plant diversity. Animal biotechnology - recent trends - reproductive technology - artificial insemination, embryo transfer, *in vitro* fertilization. Cloning - DNA cloning, embryo cloning, adult DNA cloning, therapeutic cloning.

*** Self study**

26PDB204

TEXT BOOKS

1. K.V. Krishnamurthy (2004). An advanced textbook on biodiversity: Principles and practices. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi.
2. S.K. Jain. (1987). A manual of ethnobotany. Scientific Publishers, Jodhpur.
3. Rajiv, K. Sinha and Shweta Sinha. Ethnobotany. Surabhi Publications, Jaipur.
4. F. Duff. (1997). Overview of the UNEP/GEF Biodiversity Data Management Project (BDM). *In:* Hawksworth, D.L., Kirk, P.M. and Dextre Clarke, S. (Eds.). Biodiversity Information: Needs and Options. CAB International, Wallingford, UK, pp. 115-123.

REFERENCE BOOKS

1. W. Amaral. (2001). Characterization, evaluation and conservation of forest genetic resources: The potential and limitation of new biotechnology tools. *In:* Uma Shankar, R., Ganeshaiah, K.N. and Bawa, K.S. (Eds.). Forest Genetic Resources: Status, Threats and Conservation Strategies. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi, pp. 115-125.
2. M. Lakshikumaran, P.S. Srivastava and A. Singh. (2001). Applications of molecular marker technologies for genetic analysis and assessment of genetic diversity in forest tree species. *In:* Uma Shankar, R., Ganeshaiah, K.N. and Bawa, K.S. (Eds.). Forest Genetic Resources: Status, Threats and Conservation Strategies. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi, pp. 153-191.
3. P.L. McCarty. (1983). *In situ* bioremediation of chlorinated solvents. Curr. Opinions Biotech. 4: 323-330.

WEB RESOURCES

1.https://www.opensciencepublications.com/fulltextarticles/JPSR-2349-2805-12-288.html
2.https://www.researchgate.net/publication/394036487_Integrating_Indigenous_Knowledge_into_Biodiversity_Conservation_Strategies
3. https://www.dsti.gov.za/images/pdfs/IKS_Policy%20PDF.pdf
4.https://jsdafrica.com/Jsda/Vol15No8Winter2013B/PDF/Integration%20of%20the%20Indigenous%20Knowledge...and%20Political%20Factors.Zuena%20Ruheza.pdf
5.https://www.researchgate.net/publication/321134444_BIOTECHNOLOGY_AND_BIODIVERSITY_CONSERVATION

MAPPING

PSO / CO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	H	M	S	H
CO2	S	H	S	M	S
CO3	H	S	S	H	H
CO4	S	H	M	S	H
CO5	S	S	H	H	H

S - Strong **H** - High **M** - Medium **L** – Low

Content prepared by (Based on Inputs) Dr. D. Moorthy Signature of the Course in-charge	Signature of the HOD

26PDB205

Programme Code: 05		**PG DIPLOMA PROGRAMME IN BIODIVERSITY**			
C.P.5 - WILDLIFE BIOLOGY AND CONSERVATION POLICIES AND LAW					
Batch	**Semester**	**Hours / Week**	**Total Hours**	**Credits**	**Skill Development**
2026-2027	**II**	**2**	**30**	**2**	

COURSE OBJECTIVES

- To understand the values and ethics in wild life conservation.
- To know the diversity and importance of avian fauna.
- To gain knowledge on issues in wildlife conservation.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K1 ↕ K5	CO1	Understand the values and ethics of wildlife conservation
	CO2	Acquire knowledge on the diversity of avian ecology
	CO3	Assess community based approaches for the conservation of wild life
	CO4	Analyze current issues in protection and conservation of forest and wildlife
	CO5	Enumerate skills and knowledge on laws concerning forest

SYLLABUS

Unit - I **(6 Hours)**

Values and Ethics in Wildlife Conservation: Definitions (Instrumental value; Intrinsic value; Ecocentrism; Religious traditions and conservation) and ethics in conservation. Field Techniques: For planktons, invertebrates (insects/arachnids) and vertebrates (amphibian, reptiles, aves and mammals), Line/belt transects, Quadrat sampling, Point count, Scan sampling, Focal sampling, Time constraints sampling, Population indices, Introduction of Wildlife telemetry, Remotely triggered Camera Trapping Avian acoustics and identification based on calls.

Unit - II **(6 Hours)**

Avian ecology: Avian community ecology and habitat selection. Sexual selection in birds. Bird migration. Bird census techniques, Migratory flyways, threats to migrant populations. Sampling designs for population estimation: Population estimation methods, Distance based Sampling Methods, Mark-Recapture for Closed Population, Indices, and Estimation of Demographic parameters.

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Unit - III **(6 Hours)**

Current issues in wildlife conservation with case studies: Community based conservation approach, Impact of climate change on species diversity, Compensate payment for environmental services, Human-wildlife conflict, Poaching, illegal trading, Conflict management.

Unit - IV **(6 Hours)**

Protection of Forests and Wildlife Forest Law in India: - Forestry in British and Post British India, Forest as a source of Revenue, Forest Protection and Sustainable use of Forests: Judicial Perspective ,The Indian forest Act, 1927, The Forest (Conservation) Act, 1980, The Forest (Conservation) Rules, 1981,2003, The Environment (Protection) Act, 1986, Ozone Depleting Substances (Regulation)Rules, 2000. Wildlife laws in India - The Wildlife (Protection) Act, 1972; The Wildlife (Protection) Rules, 1995; The Wildlife (Protection) Amendment Act, 2002, Conservation and Management of wildlife in India: Court Decisions; Ecotourism and Forest Protection*.

Unit - V **(6 Hours)**

Laws Concerning Forest: Wildlife and People - The Circular Concerning Joint Forest Management, 1990; Panchayats Extension to Scheduled Areas (PESA) Provisions of the Panchayats Act, 1996; Forest Right Act, 2006; Recognition of ZOO Rules, 1992; International Laws and Policies Concerning Biodiversity; Gaps in Present Laws and Polices with respect to Biodiversity Conservation.

*** Self study**

TEXT BOOKS

1. K.V. Krishnamurthy. (2018). An advanced textbook on biodiversity: Principles and practices. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi.
2. P.D. Sharma. (1994). Ecology and Environment. Rastogi Publications, Meerut.
3. R.S. Ambasht. (1988). Text book of Plant Ecology. Lanka Publishers, Varanasi.
4. B.B. Hosetti. (2003). Wildlife Management in India, Pointer Publishers, Jaipur
5. T.I. Khan. (1999). Global Biodiversity Conservation Measures, Pointer Publishers, Jaipur.
6. T.I. Khan. (2001). Global Biodiversity and Environmental Conservation, Pointer Publishers, Jaipur

REFERENCE BOOK

1. A. Rosenecraz. (1995). Environmental law and policy in India: Cases, materials and statutes. *In*: Armin Rosenecraz, Shyam Divan, Martha L Noble. (Report Eds). N M Tripathi Pvt. Ltd, Bombay, India, pp 555.
2. P. Leela Krishnan. (1999). Environmental law in India. Butterworth's, New Delhi, India, p. 194.
3. M.T. Cirelli. (2002). Legal Trends in Wildlife Management, FAO Legislative Study No. 74.

WEB RESOURCES

1.https://resolve.cambridge.org/core/services/aop-cambridge core/content/view/AB1ED27851AEC667B83E7E568D1FC000/9781316941218c9_p213-237_CBO.pdf/wildlife_politics_values_and_ethics.pdf

2.https://www.researchgate.net/publication/369801608_Avian_Ecology_and_Diversity_Population_Monitoring_and_Conservation_Introduction_to_the_Special_Issue

3. https://www.geojournal.net/uploads/archives/6-1-36-997.pdf

4.https://www.elr.info/sites/default/files/files-pdf/india_update_2013_09_vol4_issue2_web.pdf

5. https://forest.and.nic.in/WebPages/ActsRules.html

MAPPING

PSO / CO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	M	S	S	M
CO2	H	H	M	H	H
CO3	S	H	S	M	S
CO4	S	M	M	S	H
CO5	M	S	H	H	H

S - Strong **H** - High **M** - Medium **L** – Low

Content prepared by (Based on Inputs) Dr. D. Moorthy Signature of the Course in-charge	 Signature of the HOD

26PDB2CM

Programme Code: 05		**PG DIPLOMA PROGRAMME IN BIODIVERSITY**			
CORE PRACTICAL -2 – BIODIVERSITY - II					
Batch 2026-2027	**Semester II**	**Hours / Week 2**	**Total Hours 30**	**Credits 2**	**Skill Development**

COURSE OBJECTIVES

- To learn the various field techniques for analysis the flora and fauna.
- Acquire knowledge on handling for instruments in biodiversity.
- To inherit knowledge on wildlife conservation.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K3 ↕ K5	CO1	Apply inherent knowledge on *in vitro* biotechnological techniques in conservation of biodiversity.
	CO2	Investigate and analyze the avian community.
	CO3	Acknowledge endangered species diversity and to offer conservational strategic plans
	CO4	Acquire knowledge on protection of forest and wildlife forest conservation laws
	CO5	Gain knowledge on vegetation types and conservation measures through field visits

SYLLABUS

LIST OF PRACTICALS

1. Line transect – Determination of frequency of flora in the surrounding areas.
2. Belt transect - Determination of frequency and density of flora in the surrounding areas.
3. Mapping Tree Species Diversity - Vegetation pattern analysis.
4. Determination of relative abundance of birds (Point count method).
5. Traditional knowledge on biodiversity conservation – Interaction with tribal communities.
6. Remote sensing technology for mapping vegetation/ ecosystem - Demonstration only.
7. Field visit - Report preparation on vegetation types, conservation measures undertaken in biosphere reserves/ national parks/ sanctuaries etc.

MAPPING

PSO / CO	**PSO1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO1	S	H	S	M	S
CO2	S	M	H	S	H
CO3	H	H	M	H	H
CO4	S	H	S	M	S
CO5	S	H	M	S	H

S - Strong **H** - High **M** - Medium **L** - Low

Content prepared by (Based on Inputs) Dr. D. Moorthy Signature of the Course in-charge	Signature of the HOD

26PDB2Z1

Programme Code: 06		**PG DIPLOMA PROGRAMME IN BIODIVERSITY**			
PROJECT & VIVA – VOCE					
Batch 2026-2027	**Semester II**	**Hours / Week 4**	**Total Hours 60**	**Credits 2**	**Skill Development**

COURSE OBJECTIVES

- To gain knowledge on species diversity at plant and animal level in natural vegetations.
- To learn the techniques used to sample the vegetation.
- To understand the modern methods in conservation of species.

COURSE OUTCOMES

On successful completion of the course, the students will be able to

K3 ↕ K5	CO1	Develop local-specific management strategies for the sustainable utilization and conservation of bioresource.
	CO2	Analyze the population structure of flora in natural vegetation.
	CO3	Evaluate problems relevant to conservation of floral and faunal biodiversity
	CO4	Examine the sample size of the vegetation in a given study area
	CO5	Evaluate the population size of various wild animals in a forest.

Group project work will be allotted to students under the supervision and guidance of the faculty members during II Semester. Project works related with survey and population studies of plants and animals, management of bioresources and conservation of flora and fauna will be allotted to the students based on the lot system. The students shall do their projects under their supervisors and submit their dissertations at the end of II Semester. Both the Internal and External Examiners shall jointly evaluate the project reports submitted by the students.

Guidelines for the Distribution of Marks

CIA	Review -	15	**20**
	Regularity	05	
ESE	Project Report	60	**80**
	Viva – Voce	20	
	Grand Total		**100**

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MAPPING

PSO / CO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	S	M	S	S	M
CO2	H	S	M	H	M
CO3	S	H	S	S	S
CO4	S	M	M	S	H
CO5	S	H	M	S	H

S - Strong **H** - High **M** - Medium **L** - Low

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