FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28) DEPARTMENT OF ZOOLOGY

Course Curriculum

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cell. Evo Photoautot	Spontaneous Generation (Abiogenesis or Autogenesis), Theory of Biogenesis: Redi's Experiment and Pasture's Experiment. Modern Theory: Origin of Universe: Big Bang Hypothesis in Brief, Origin of Solar System and The Earth: Nebular hypothesis, Atomosphere and Eneargy Sources on Primitive Earth, Biochemical Origin of Life: Oparin and Haldane Theory, Chemogeny: Formation of simple and complex organic compounds (Stanely Miller and Ure's Experiment), Formation of Coacervates, Nucleic Acids. Biogeny: Origin of primitive prokaryotic cell. Evolution of modes of Nutrition: Chemohetertrophs, Anaerobic and Aerobic Photoautotrophs. Evolution of Eukaryotes.					
reference to Definition Trinomial Structure Millipora, Gorgonia. Significar Salmon fi	Systematics & Unique attributes of Invertebrate and Vertebrate animals with special reference to Coelentrata, Mollusca and Pisces: Definition and difference between Invertebrate and Vertebrate. Nomenclature: Binomial and Trinomial Nomenclature and International code of Nomenclature Corals: Meaning of Coral, Structure of Coral polyp, Coral Skeleton, Types of corals: Hydrozoan Coral, Example-Millipora, Octocorallian Coral, Example-Alcyonium, Hexacorallian Corals, Example-Gorgonia. Torsion in Mollusca: Definition, Mechanism of Torsion, Effects of Torsion, Significance of Torsion. Pisces: Migration in fishes: Catadromous: Eel fish and Anadromous: Salmon fish and Parental care in fishes: By nest formation, Coiling round eggs, Attachment to body, Integumentary cups, Shelter in mouth, Brood pouch, Mermaids purses, Viviparity.					
III Unique attr Parental Amphibia Axolotal Identificat	Unique attributes of Vertebrate animals with special reference to Amphibia & Reptilia: Parental care in Amphibia: by Nest, by Nursery or Shelter and by Parents Neoteny in Amphibia: Definition, Partial and Total Neotony, Factors Affecting Neotony, Examples-Axolotal larva, Necturus and Siren. Reptilia: Venomous & Non-venomous Snakes: Identification, Poison apparatus: Poison Glands, Poison ducts and Fangs, Biting Mechanism.					
IV Unique attr Birds: Flig Special Cl Archaeopte Echidna ar Whale and	Unique attributes of Vertebrate animals with special reference to Aves and Mammals: Birds: Flight Adaptation, Migration and Perching Mechanism, Flightless Birds (Morphology and Special Characters of Emu, Ostrich and Penguins), Discuss-Birds are glorified reptiles: Archaeopteryx. Monotremes or Egg laying mammals: Morphology and Special Characters of Echidna and Duck bill platypus. Aquatic Mammals: Morphology and Special Characters of Whale and Dolphin. Mammals: Flying Mammals: Morphology and Special Characters of Bat.					
eywords Origin of lif	fe, Invertebrate,	, Vertebrate, Coral.	s, Torsion, parental care, N	eotony, Fangs, Aves, Mammals		
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PART-C: Learning Resources

Text Books Recommended

- E. J. W. Barrington, Invertebrate structure and function, English Language Book Society UK
- Robert Barnes, Invertebrate Zoology, Robert Barnes IVth edition Holt Saunders International Edition Japan
- Park Haswell, Marshall and Williams, A textbook on Zoology Invertebrate, AITBS Publishing and Distributers, Delhi
- Park Haswell, Marshall and Williams, A textbook on Zoology Vertebrate, AITBS Publishing and Distributers, Delhi

Reference Books Recommended

- Prof R. L. Kotpal, Protozoa to Echinodermata, Rastogi Publication Meerut
- E.L. Jordan, Dr. P. S. Verma, Invertebrate Zoology, S. Chand Publications, New Delhi
- N. Arumugam, N. C. Nair S. Invertebrate Zoology, Saras Publication.
- N. Arumugam, N. C. Nair S. vertebrate Zoology, Saras Publication.
- Barrington E. J. W., Invertebrate Structure and Function, Nelson London
- Barnes, R. D., Invertebrate Zoology -Saunders Philadelphia
- R. L. Kotpal, Invertebrate, Rastogi Publications
- R. L. Kotpal, Vertebrate, Rastogi Publications
- H. S. Bhampah, KavitaJuneja, Recent trends in vertebrates vol 1 9, Anmol Publication
- S. N. Prasad, Life of invertebrates, Vikash Publication House Pvt Ltd New Delhi
- G. S. Sandhu, HarshwardhanBhagskar Advanced invertebrate zoology –Campus books international

Online Resources-

- ➤ https://www.coursera.org/lecture/emergence-of-life/4-5-invertebrates-successes-of-life-without-a-backbone-WQHqS
- > https://www.shiksha.com/online-courses/introduction-to-biology-biodiversity-course-courl5385
- > https://www.youtube.com/watch?v=k121Qv6loBA
- > https://www.youtube.com/watch?v=uK-Xx OCYcI
- https://www.youtube.com/watch?v=vybbBil5Elk
- https://www.voutube.com/watch?v=WxMSckEeio4

7 https://www.youtube.com/watch:v-wxivisekeei04									
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	Internal Test / Quiz-(2): 20 +20	Better marks out of the two Test / Quiz +							
Assessment (CIA):	Assignment / Seminar - 10	obtained marks in Assignment shall be							
(By Course Teacher)	Total Marks - 30	considered against 30 Marks							
End Semester	Two section – A & B								
	Section A: Q1. Objective $-10 \text{ x1} = 10 \text{ Mark}$; Q2. Short answer type- $5x4 = 20 \text{ Marks}$								
	Section B. Descriptive answer type ats	1 out of 2 from each unit-4x10=40 Marks							

Signature of Convener & Members (CBoS:

July Dayson from

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28) DPARTMENT OF ZOOLOGY COURSE CURRICULUM

P	ART	- A: I	ntroductio	n				
Program: Bachelor in (Certificate / Diploma / De				Semester - I	Session: 2024-2	025		
1	T	rse Code	ZOGE - 01P	I	,			
2	Cou	rse Title	Life on Earth and Unique Attributes of Animal Kingdom					
3	Cou	rse Type	General Elective					
4	Pre-	requisite (if, any)	As per Program					
5	Outcomes (CLO)		After successfully completing this course, the students will be able to- ➤ To demonstrate comprehensive understanding of the current theories and hypotheses regarding the origin of life on Earth, ➤ Understand diversity of life forms ➤ Identify some distinctive invertebrate and vertebrate animals ➤ Apply this Understanding to broader context of life					
7		lit Value l Marks	1 Credits Max. Marks:		ratory or Field learning/I			
	RT -		nt of the Co		Min Passing Marks:	20		
-					ode: 30 Pariode (30 Hours	\		
Module Total No. of learning-Training / performance Periods: 30 Periods (30 Houndary Topics (Course Contents)				No. of Period				
 Study of origin of life through chart and models Study of different Invertebrates and Vertebrates animals through models and museum specimens in the laboratory with details of biogeography and diagnostic features: Millipora, Alcyonium, Gorgonia, Hippocampus, Ichthyophis (Female), Alytes (Male), Axolotal larva, Necturus, Siren, Cobra, Viper (pit & Pitless), Sea Snake, Rattle Snake, Archaeopteryx, Emu, Ostrich and Penguins, Echidna and Duck bill platypus, Whale, Dolphin, Bat. Preparation and Demonstration of Key for Identification of Venomous and Non-venomous snakes. Study of Coral Reefs through Models, Photographs Study of Fossils through chart/ Models An "Animal album or Practical Record" containing sketches, photographs, cut outs, with appropriate write up about the above mentioned taxa. Study of some videos to develop understanding and acquired knowledge on the animals salient features as mentioned above. Group discussion/Viva or Seminar presentation on related topics mentioned in Theory paper. 						30		
Keyı	words	ords Museum specimens, Invertebrates, Vertebrates, Venomous and Non-venomous, Seminar						
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Learning Resources PART-C:

Text Books, Reference Books and Others

Text Books Recommended -

- S.S. Lal, Practical Zoology, Invertebrate. 12th Edition Rastogi Publications, Meerut. o New Delhi.
- A manual of practical Zoology. Dr. P.S Verma, S. Chand Publication, New Delhi Reference Books Recommended -
 - > Park Haswell, Marshall and Williams, A textbook on Zoology Invertebrate, AITBS Publishing and Distributers, Delhi
 - > Park Haswell, Marshall and Williams, A textbook on Zoology Vertebrate, AITBS Publishing and Distributers, Delhi

Online Resources-

- http://ndl.iitkgp.ac.in/he_document/swayamprabha/swayam_prabha/gc5ua6m873i?e=3|*|||
- > https://www.voutube.com/watch?v=JUdp3U6A1EA

Total Marks -

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

15

Continuous Internal Assessment (CIA): (By Course Teacher)

Internal Test / Quiz-(2): 10 & 10 Assignment/Seminar +Attendance - 05

Better marks out of the two Test / Quiz + obtained marks in Assignment shall be

considered against 15 Marks

End Semester Exam (ESE):

Laboratory / Field Skill Performance: On spot Assessment

Managed by

A. Performed the Task based on lab. work

- 20 Marks

Course teacher

B. Spotting based on tools & technology (written) - 10 Marks as per lab. status C. Viva-voce (based on principle/technology)

- 05 Marks

Name and Signature of Convener & Members of CBoS: