DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY

CIRCULAR NO.ACAD/NP/B.Sc.-Ist Yr./SEM.-I & II/157/2013

It is hereby notified for information of all concerned that, on the recommendations of the Boards of Studies, Ad-hoc Boards, and Faculty of Science, the **Academic Council at its meeting held on 25-03-2013** has accepted the **following revised syllabi for B.Sc. First Year progressively under the Faculty of Science** :-

Sr. No.	*Revised Syllabus*	
[1]	***B.Sc. [Physics]***	***Semester- I & II,***
[2]	***B.Sc. [Dairy Science & Technology]***	***Semester- I & II,***
[3]	***B.Sc. [Industrial Chemistry]***	***Semester- I & II,***
[4]	***B.Sc. [Geology]***	***Semester- I & II,***
[5]	***B.Sc. [Chemistry]***	***Semester- I & II,***
[6]	***B.Sc. [Botany]***	***Semester- I & II,***
[7]	***B.Sc. [Electronics] Science***	***Semester- I & II,***
[8]	***B.Sc. [Fisheries]***	***Semester- I & II,***
[9]	***B.Sc. [Microbiology]***	***Semester- I & II,***
[10]	***B.A. [Statistics]***	***Semester- I & II,***
[11]	***B.Sc. [Statistics]***	***Semester- I & II,***
[12]	***B.Sc. [Zoology]***	***Semester- I & II,***
[13]	***B.Sc. [Textile and Interior Decoration]***	***Semester- I & II,***
[14]	***B.Sc. [Home Science]***	***Semester- I & II,***
[15]	***B.A. / B.Sc. [Mathematics]***	***Semester- I & II.***

This is effective from the **Academic Year 2013-2014** and onwards.

These **syllabi are available on the University Website www.bamu.net**

All concerned are requested to note the contents of this circular and bring the notice to the students, teachers and staff for their information and necessary action.

University Campus,
Aurangabad-431 004.
REF.NO.ACAD/NP/B.SC.-IST YEAR/
Sem-I & II/2013/5132-541
A.C.S.A.I.No.327[9].

Date:- 08-05-2013.

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Director,
Board of College and University Development.

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Copy forwarded with compliments to :-

1] **The Principals, affiliated concerned Colleges,**
Dr. Babasaheb Ambedkar Marathwada University.

2] The Director, University Network & Information Centre, UNIC, with **a request to upload the above all syllabi on University Website [www.bamu.net].**

Copy to :-

1] The Controller of Examinations,

2] The Superintendent, [B.Sc. Unit],

3] The Superintendent, [B.A. Unit],

4] The Superintendent, [Eligibility Unit],

5] The Programmer [Computer Unit-1] Examinations,

6] The Programmer [Computer Unit-2] Examinations,

7] The Director, [E-Suvidha Kendra], in-front of Registrar's Quarter,
Dr. Babasaheb Ambedkar Marathwada University,

8] The Public Relation Officer,

9] The Record Keeper,
Dr. Babasaheb Ambedkar Marathwada University.

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DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

Syllabus of

Fishery Science

B. Sc. First Year

(Semester I and II)

(Effective from June 2013 and onwards)

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.

FISHERY SCIENCE

Syllabus

B. Sc. I (Semester I and II)

(Revised Syllabus effective from June 2013)

Semester	Course Code	Paper	Title of Paper	Periods	Marks
I	Fish. Sci. 101	I	Morphology and Taxonomy	45	50
I	Fish Sci.102	II	Anatomy and Physiology	45	50
I	Fish Sci.103	III	Practical based on Theory paper I and II	45	50
II	Fish Sci.104	IV	Fish Ecology and Adaptation	45	50
II	Fish Sci.105	V	Fish Pathology and Parasitology	45	50
II	Fish Sci. 106	VI	Practical based on Theory paper IV and V	45	50

Dr. M. G. Babare

(Chairman B.O.S. in Fishery Sci.)

B. Sc. I (Fishery Science)

Semester I

Course Code – Fish Sci. – 101.

Morphology and Taxonomy

Paper No. - I

Total Periods – 45

Marks – 50

Unit – A **15 Periods**

1) **Introduction and external character of Fishes.**
2) **Fins and Locomotion:**

   Fins and locomotion, Types of locomotion, speed of travels.
3) **Median and Paired fins:**

   Types of caudal fins, pectoral and pelvic fins and their origin, gill arch theory and fin fold theory.

Unit – B **15 Periods**

1) **Epidermis and Exo-skeleton:**

   Structure and functions of the skin, types of scales and their functions.
2) **Origin and Evolution of fishes:**

   Introduction, origin of cartilaginous and bony fishes, Evolution of fishes.
3) **General Characters, Identification and systematic position of fishes among chordates.**

Unit – C **15 Periods**

1) **Broad outline of classification of fishes :**

   Introduction, Classification (Berg, Romer Berlin and Aram Bourg, Green Wood et al. Oul lander and line and plough et. al)
2) **Cyclostomes :**

   Petromyzontia, Mysxinodea, Lampreys and Hag Fishes. Affinities of cyclostomes.

3) Elasmobranches :

General Characters of sharks and rays.

Holocephali :-

Salient Feature and its affinities.

Dipnoi :

General Characters and Affinities

Teleostomes :-

Characteristic Features up to major orders.

B. Sc. I (Fishery Science)

Semester I

Course Code – Fishery Sci. 102

Anatomy and Physiology

Paper No. – II

Total Periods – 45

Marks – 50

Units – A **15 Periods**

1) Axial Skeleton
2) Visceral and appendicular skeleton.
3) Alimentary canal and associated digestive glands, physiology and digestion.

Unit – B **15 Periods**

1) Structure and function of gill, Physiology of respiration, accessory respiratory organs.
2) Structure and function of heart, Arterial and Venous system, Blood and its components.
3) Structure and its function of Kidney osmoregulation.

Unit – C **15 Periods**

1) Male and Female Reproductive Organs, Maturation and spawning.
2) Structure of Brain, Cranial Nerves and Spinal Nerves.
3) **Endocrine glands in Fishes :**

   Structure and function of Pituitary gland and Thyroid gland.

B. Sc. I (Fishery Science)

Semester I

Course Code – Fishery Sci. 103

(Practical Based on Paper No. - I and II)

Paper No. - III

Total Periods – 45

Marks – 50

1) Identification and Classification of fishes :- **06**

a) Holocephali – (Two from each class).

b) Dipnoi – (Two from each class).

c) Elasmobranchs –(Two from each class).

d) Teleosts – (Two from each class).

2) Median and Paired fins – Different types of caudal fin. **06**

3) Temporary and permanent mounting of scales. **09**

4) Dissection : **15**

(Any locally available bony fish)

a) Digestive system.

b) Respiratory system.

Gills and accessory respiratory organs.

c) Heart, Afferent and Efferent Branchial Vessels.

d) Brain, Cranial nerves.

e) Male and Female Reproductive System.

5) Histology :- **09**

1) T.S. of Stomach 2) T.S. of Intestine

3) T.S. of Liver 4) T.S. of Kidney

5) T.S. of Ovary 6) T.S. of Testis

7) T.S. of Pituitary glands.

B. Sc. I (Fishery Science)

Semester II

Course Code – Fishery Sci. 104

Fish Ecology and Adaptation

Paper No. - IV

Total Periods – 45

Marks – 50

Units – A **20 Periods**

1) Introduction of Ecology –

- Primary Productivity of water mass and fish production.
- Tropic levels of Fish in food chain.
- Pyramid of numbers.
- Predator – Prey relationship.

2) Ecology of fresh water:-

Ecology of managed fish farm, Ponds, Rivers, Streams, Reservoirs and Lakes.

3) Ecology of Brackish and Marine Water.

Units – B **10 Periods**

1) Water Pollution :-

Introduction, Causes of Pollution, Type of Pollution, Effect of pollutants on fishes, preservation and control of water pollution.

2) Migration of Fishes :-

3) Adaptations of Fishes to Environment – **10 Periods**

a) Density and pressure of the water.

b) Salinity.

c) Temperature.

d) Salt Content.

e) Gases in Solution.

f) Light.

g) pH.

Unit – C **05 Periods**

1) Adaptation in the Hill stream fishes.

2) Adaptation in Deep Sea fishes.

3) Adaptation in Exotic Fishes.

B. Sc. I (Fishery Science)

Semester II

Course Code – Fishery Sci. 105

Fish Pathology and Parasitology

Paper No. - V

Total Periods – 45

Marks – 50

Unit – A **15 Periods**

1) Introduction.
2) Inflammation and immune response and pathological changes in tissues.
3) Sings of sickness and effect on fish and mode of contractions of infection.

Unit – B **15 Periods**

Nutritional diseases and elements from environmental factors.

1) Disease caused by parasites and pathogens and its control measures.
2) Fungal Diseases, Bacterial Diseases.

Unit – C **15 Periods**

1) Protozoan Diseases.
2) Worm Diseases.
3) Crustacean Diseases**.**

B. Sc I (Fishery Science)

Semester II

Course Code – Fishery Sci. – 106

(Practical based on theory Paper No. IV and V)

Paper No – VI

Total Periods – 45

Marks – 50

1) Identification of Fishes From Different Habitat. **06**

a) Fresh water habitat – (Any Two)

b) Brackish water habitat – (Any Two)

c) Marine water habitat -(Any Two)

2) Identification of Fishes with special reference to the Adaptive characters of the following. **09**

Exocoetus, Hippocampus, Echienus, Pristis, Hemirampus, Zygaena, Trygon, Cynoglossus, Diadon, Tetradon, Ostracian, Lophius.

3) Water Analysis :- **12**

Estimation of O_2, CO_2, pH and Alkalinity.

4) Identification and Collection of Endo and Ectoparasites of fishes. **18**

Chairman

(Dr. M. G. Babare)

List of Books Recommended for Papers – I, II, IV,V and Practical's

1. **Biswas K.P:** Prevention and control of fish and prawn diseases. Narendra Publishing House, New Delhi.
2. **C.J. Hiware:** Parasitology
3. **C.V. and Duitan:** Diseases of fishes Jr. Book Lt. London.
4. **Gotterman et. al:** Methods of physical and chemical analysis.
5. Hoar and Randall. Fish endocrinology Vol. I to VII. Academic press, INC (London) Ltd.
6. **Khanna S. S and H. R. Singh (2003):** A text book of fish biology and fisheries, Narendra Publishing House, New Delhi – 110 006.
7. **Khanna S. S:** An Introduction to fishes. Central Book Depot, Allahabad.
8. **Matty A. J and C. Room:** Timber Press, Protland, Oregon.
9. **Nilolsky G.Y:** The ecology of fishes. Academic Press, London.
10. **Norman J. R:** A. History of Fishes. Earnest Benn. Ltd. London.
11. **Pandey A. K and Sandhu G.S:** Encyclopedia of fishes and fisheries of India Vol. I and IV, Amol Publication, New Delhi.
12. **Reddy K. R. and M. G. Babare:** A manual in fishery Science.
13. **Reddy K. R. and M. G. Babare:** General topics in fishery Science.
14. **Santaram R. P:** Velayutheam and G. Tegateesan. A manual of fresh water ecology. Daya Publishing House, New Delhi.
15. **Sharma P.D:** Ecology and Environment Rastogi Publication, Meerut.
16. **Smith L.S:** Introduction of fish physiology. Narendra Publishing House, New Delhi.
17. **Srivastava C.B.L:** A text book of fishery science and Indian Fisheries, KitabMahal, Delhi.
18. **T.C. Chang:** Medical Parasitology.
19. **Weatherley A.H:** Growth and ecology of fish populations, Academic Press, London.
20. **Wench.** Limnology.
21. **Yadhav B. M:** Fish and Fisheries, Daya Publishing House, New Delhi.
22. **Yadhav B. N:** Fish endocrinology. Daya Publishing House, New Delhi.