



THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

Department of Fisheries and Aquaculture Technology

FAT 309 – Fish Feed Technology

COURSE PARTICULARS

Course Code: FAT 309

Course Title: Fish Feed Technology

No. of Units: 2

Course Duration: One hour of theory and three hours of practical per week for 15 weeks.

Status: Compulsory

Course Email Address:

Course Webpage:

Prerequisite: NIL

COURSE INSTRUCTORS

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COURSE DESCRIPTION

This course introduces the students into the basic in aquafeed formulation, processing and manufacturing. It is a practical-oriented course that guides students into transforming theoretical knowledge acquired in classrooms to meaningful output. Topics to be covered include: Nutrient sources, types of feedstuffs, ingredients and their chemical compositions, feed supplements and concentrates. Classification of foods, feedstuffs for aquafeeds. Chemistry and nutritive values of foods, feedstuffs and fish supplements. Methods of aquafeed formulation and preparation. Pelleting, extrusion, physical feed parameter and biological evaluation. Techniques involved in aquafeed formulation, components of a feedmill, packaging and storage of aquafeeds.

COURSE OBJECTIVES

The objectives of this course are to:

- introduce students to different feedstuffs for aquafeed; and
- guide students into how to formulate, processing of fish feed ingredients and feed preparation using various feedstuffs.

COURSE LEARNING OUTCOMES / COMPETENCIES

Upon successful completion of this course, the student will be able to:

(Knowledge based)

- know various feedstuffs used in aquafeed and their nutrient composition;
- classify identified feedstuffs into different nutrient groups;
- know the chemical compositions of various feedstuffs and supplements;
- formulating of fish feed based on nutrient requirement and available nutrient sources;
- know the components of a feedmill;

(Skills)

- identify feedmill equipment and items;
- formulate and pellet fish feeds of different crude protein composition;
- dry and package prepared feeds;

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Class Attendance	10%
Practical	10%
Test	20%
<u>Final Examination</u>	<u>60%</u>
<u>TOTAL</u>	<u>100%</u>

GENERAL INSTRUCTIONS

Attendance: It is expected that every student will be in class for lectures and also participate in all practical exercises. Attendance records will be kept and used to determine each person's qualification to sit for the final examination. In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with any of the instructors, indicating the reason for the absence.

Academic Integrity: Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances are prohibited. You are not allowed to make copies of another person's work and submit it as your own; that is plagiarism. All cases of

academic dishonesty will be reported to the University Management for appropriate sanctions in accordance with the guidelines for handling students' misconduct as spelt out in the Students' Handbook.

Assignments and Practical: Students are expected to submit assignments as at when due, failure to do so will earn such a student zero for that assignment. Only under extenuating circumstances, for which a student has notified any of the instructors in advance, will late submission of assignments be permitted. All students are also expected to participate in group practicals whenever they are fixed.

Code of Conduct in Lecture Rooms and Laboratories: Students should turn off their cell phones or at least put them in discreet mode during lectures. Students are prohibited from engaging in other activities (such as texting, watching videos, etc.) during lectures. Food (chewing gums inclusive) and drinks are not permitted during classes.

READING LIST

¹Hardy, R. W. and F. T. Barrows, (2002). Diet formulation and manufacture. Pp 505 – 600. *In:* Fish Nutrition. 3rd Ed. Elsevier Science. New York, USA.

¹De Silva, S. S. and F. B. Davy, (1993). Fish nutrition research for semi-intensive culture systems in Asia. *Asian Fisheries Society* 5: 129 – 144.

⁴New, M.B., Tacon, A.G.J. & Csavas, I. 1995. Farm-made aquafeeds. FAO Fisheries Technical Paper No. 343.

¹National Research Council (NRC), (1993). Nutrient Requirements of Domestic Animals. Nutrient Requirements of warm water fishes and shell fishes. Revised Edition. National Academy Press, Washington DC, USA, 114 p.

Useful Links:

³NRC (1993) Nutrient requirements of fish. National Academy Press, Washington DC.<http://www.nap.edu/books/0309048915/html/>

³New, M.B., Tacon, A.G.J. & Csavas, I. (1993) Farm-Made Aquafeeds. Published by RAPA 1993/18, AADCP/PROC/5, ISBN 974-89097-8-6, 434p <http://www.fao.org/DOCREP/003/V4430E/V4430E00.HTM>

Legend

- 1- Available in the University Library
- 2- Available in Departmental/School Libraries
- 3- Available on the Internet.
- 4- Available as Personal Collection
- 5- Available in local bookshops.

COURSE OUTLINE

WEEK	TOPIC
1	<ul style="list-style-type: none"> • General introduction of course synopsis • Identification of different nutrient sources
2 & 3	<ul style="list-style-type: none"> • Types of feedstuffs • Ingredients and their chemical compositions.
4 & 5	<ul style="list-style-type: none"> • Feed supplements and concentrates. • Classification of foods and feedstuffs for aqua feeds. • Components of a feed mill.
6	<p>Practical I</p> <ul style="list-style-type: none"> • Planning a feed mill and identifying reasons for specific feed mill layout; • Physical identification of different feed stuffs
7	Test I
8	<ul style="list-style-type: none"> • Chemistry and nutritive values of foods, feedstuffs and fish supplements.
9 & 10	<ul style="list-style-type: none"> • Methods of aqua feed formulation • Techniques involved in aqua feed formulation.
11 & 12	<ul style="list-style-type: none"> • Preparation of aqua feeds • Properties of formulated feeds • Packaging and storage of aqua feeds
13	<p>Practical II</p> <ul style="list-style-type: none"> • Formulating and pelleting fish feeds of different crude protein composition on group basis; • Drying, packaging and storage of prepared feeds.
14	Test II
15	Revision: Overview of course topics.