

INCOME GENERATING ADD-ON COURSES AND CERTIFICATE COURSES

Financially independent women help in building a better society. Financial independence makes oneself more secure. Paving a way for this, various innovative Add on /certificate courses are conducted that could help the student community with income generation.

Department of Zoology

UGC Sponsored Add on Course on Quail Farming

The Department of Zoology has adopted several innovative practices to improve the quality of learning among the students. For this several add on and certificate courses helped the students to gain real life experience. Quail Farming as add on course that was started in the academic year 2016 – 17 and continued till 2019-20. The pandemic situation in 2020 prevented us from continuing the course as students were unable to come to the college during lockdown.

The following are the dates during which the add on course was conducted at the college

Academic Year 2016-17 Date: 19-10-2016 to 26-02-2017

Academic Year 2017 – 18 Date : 06-09-2017 to 30-01-2018

Academic Year 2018 – 19 Date: 01-10-2018 to 25-02-2019

Academic Year 2019 – 20 Date: 09-10-2019 to 15-02-2020

The III DC students of the department of Zoology were a part of the UGC sponsored ADD ON Course on Quail farming. The students had undergone several theory classes with regards to quail rearing and management. Ms. V. Neetha Guest

Lecturer, Department of Zoology taught the students about the different aspects of quail breeding.

The department had decided to rear quails on the campus to provide an opportunity for the students to get hands-on experience in quail rearing. As a part of our practical work, the students were to rear three hundred quails on the college campus which arrived on 14th October 2016. A formal inauguration function was held where Ms. Bindu Sasikumar, Ward Councilor of our ward came to inaugurate quail rearing at our college campus. The students took care of the feeding of quails, collection of eggs etc. The eggs collected were sold within the college to various teachers, non-teaching staff and students.

The money collected by selling the eggs for the past two years was donated to a needy student for the renovation of her home and non-teaching staff of the college. For this an amount of rupees one lakh was donated in a public function in which MLA B.D Devassay was the chief guest. The money was received by our Principal, Dr. Sr. Irene.

Two groups of students did their projects on quail. The feeding efficiency of quails in terms of weight gain and egg production was studied as a part of their project work.

Photos-

Inauguration of Quail farming within the college campus by Ms. Bindu Sasikumar, Ward Councillor.



Quails in quail cages being reared as a part of the Add On Course



Cheque for Rs.1,00,000 – being handed over to the Principal by B.D. Devassay, M.L.A. Chalakudy



Students of the department feeding the quails and studying weight gain



Certificate Course on Dairy Training

During the academic year 2018 – 19 the final year students were enrolled for a certificate course on dairy training. The syllabus required the students to complete 45 hours of theory and 5 hours of field visits. Dr. Neetha, Assistant Professor, Department of Zoology handled the classes.

The program was aimed at enlightening the students about dairy development. At the end of the course, the students were able to understand the organizational structure of dairy co-operatives at the village, district and state levels. Students also learnt about the role of dairying and the status of milk production in India. Students understood the cooperative functions and management system. Students also got to know about the government and institutional activities and schemes related to dairy development. The students also visited Milma's milk chilling plant and cooperative society.

Photos

Student visited the milk chilling plant as a part of their field visit



Homogenisation of milk at the milk chilling plant.



Visit to the Milk Processing unit of Milma



Certificate Course on Cattle Farming

During the academic year 2018 – 19 the final year students were enrolled for a certificate course on Animal Husbandry and Cattle farming. The syllabus required the students to complete 25 hours of theory and 5 hours of field visits. Dr. Neetha, Assistant Professor, Department of Zoology handled the classes. The General objective of this course is to establish a basic knowledge of how to manage and operate dairy farms. Describe the various breeds of dairy cattle, giving their origin and breed characteristics and milk production capacity and acquiring knowledge in construction details of the cow shed. An introduction was given to the different breeds of cattle, both indigenous and exotic. The different types of breeding, artificial insemination etc. were also taught to the students. The students went to Kerala Veterinary and Animal Sciences and cattle feed plant for gaining field experience.

Students visited the Kerala Veterinary and Animal Sciences



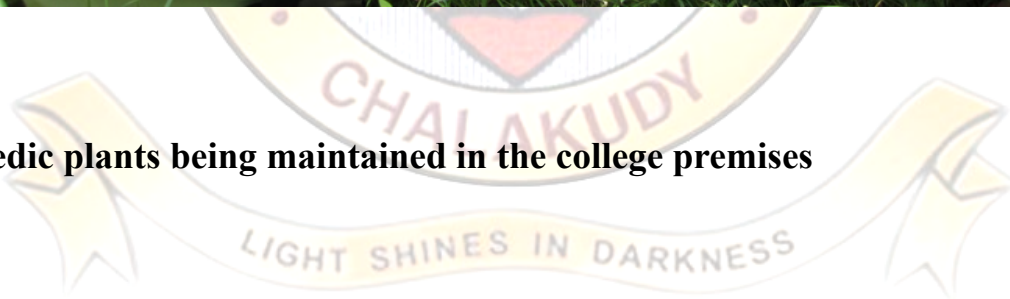
Certificate Course on Ayurvedic Plant Breeding

During the academic year 2018 – 19 the final year students were enrolled for a certificate course on ayurvedic plant breeding. The syllabus required the students to complete 30 hours of theory with a mandatory field visit. An introduction to medicinal plants and aromatic plants was given. The cultivation of medicinal plants was also dealt with. The different methods of propagation were also discussed. Mass propagation of medicinal plants was also taught. Practical work involved several field surveys for familiarization with local plants and collection of specimens. The students were also required to submit specimens collected by them as a herbarium.

Students involved in planting ayurvedic plants



Ayurvedic plants being maintained in the college premises





Ayurvedic plants being maintained in the pots



Department of Chemistry

Certificate Courses offered by the Department of Chemistry

In order to help the students to develop their interest in household chemistry and also to prepare them for industrial exposure, the Department of Chemistry offers various certificate courses during the past five years.

No.	Certificate courses offered	year
1.	Soaps and Detergents	2016-17
2.	Toiletries	2017-18
3.	Soaps and Detergents Toiletries Water Analysis	2018-19
4.	Water Analysis	2019-20

SYLLABI OF ADD-ON-COURSES

COURSE DESCRIPTION

These syllabi are prepared for undergraduate students. These courses will help to develop their interest towards household chemistry and also to prepare them for industrial exposure. Clean fresh water is one of the most vital natural resources. Since quality of water is susceptible to changes with time and other factors, continuous monitoring of water is essential. Water quality assessment provides the baseline information on water safety. The course intends to prepare a student in acquiring skills on the art of water monitoring and quantitative analysis of critical water quality parameters. It also brings in those aspects of chemistry which are important for water quality management and pollution control.

The interdisciplinary approach with vigor and depth is compatible with the syllabi of other universities. The units in the syllabi are well defined with scope and the number of lectures. The references are mentioned with relevance.

GENERAL OBJECTIVES OF THE COURSES:

1. The students are expected to understand the fundamentals, basic principles, concepts and recent developments in the subject area.
2. At the end of the course in water analysis, the student will be able to:
 - Develop awareness about water quality criteria and standards, and their relation to public health and the environment
 - Understand important parameters for measuring water quality.
 - Know about the methods for the determination of water quality parameters
 - Learn how to run accurate water quality tests and to determine how the parameters relate to each other.
3. The practical course is in relevance to the theory courses to improve the understanding of the concepts.

ADD-ON COURSE IN SOAPS AND DETERGENTS

COURSE CODE : **SHCHADD1**
COURSE NAME : **SOAPS AND DETERGENTS**
YEAR OF IMPLEMENTATION : 2016

COURSE CONTENT

UNIT I

[8 hours]

Cleaning agents: Introduction, synthesis and applications of Natural cleaning agents, cleaning action, Introduction of soaps, synthetic detergents, General principles of soap making, boiling and saponification reaction, manufacture of soap, bleaching of soap, manufacture of toilet soap.

UNIT II [4 hours]

Technology of Soap: Chemistry of soap; Raw material for soap industry, Chemical reactions of soaps; Hard and Soft soaps; process employed in soap manufacture

UNIT III [8 hours]

Detergents and surfactants: Introduction; Different terms used in detergents; Raw materials for detergents; Washing action of detergents; Types of detergents;

Introduction of surfactants; Types of surfactants. Various types of detergents, classification of detergents (anionic, cationic nonionic, amphoteric), biodegradability. Inorganic compounds of detergents (builder & other additives, phosphates, silicates, zeolites, etc)

Recommended Books

1. Soaps & Detergents by K.S. Parsuram
2. Handbook on Soaps, Detergents & Acid Slurry by NIIR Board
3. Soaps: Their Chemistry & Technology by J.G. Kane [First edition]
4. Surface Active Agents & Detergents by Anthony M. Schwartz James, W. Perry Julian Berch
5. Oils, Detergents & Maintenance by Benjamin Levitt

Practicals: SHCHADD1 [p]

[10 hours]

Manufacture of liquid soap, laundry soap, hand wash, dish wash and detergents.

ADD-ON COURSE IN TOILETRIES

COURSE CODE: **SHCHADD2**

COURSE NAME: **TOILETRIES**

YEAR OF IMPLEMENTATION: 2017

SYLLABUS

UNIT I

[10 hours]

Toilet cleaner: Properties, features and formulation of toilet cleaner, manufacturing process of Toilet cleaner

Shampoos: Ingredients and functions. Different kinds of shampoos: Anti-dandruff, anti-lice, herbal and baby shampoos. Health effects of shampoos.

Floor cleaner: Properties, features and formulation of Floor cleaner, manufacturing process of Floor cleaner

UNIT III

[10 hours]

Naphthalene Balls Uses & Application Properties Manufacturing Process Process Flow Diagram

Tooth Paste: Components of Toothpaste, Typical Toothpaste Ingredients, Manufacturing Process, Process Flow Diagram

Shaving Cream: Raw Material Used for Shaving Cream, Application of Shaving Cream, Formulation, Manufacturing Process

Hand Sanitizer: Physical and Chemical Properties, Ingredients, Uses, Formulation of Herbal Hand Sanitizer, Manufacturing Process

Toilet powder: Introduction, classification, General formation. Toxicology of cosmetics.

Recommended Books

1. Cosmetic and toiletry formulations by Ernest W. Flick volume 6
2. Technology of herbal cosmetics and toiletries products with formulae by Industrial Technologies India
3. Formulating Packaging and Marketing of Cosmetic Products by Nava Dayan
4. Practical Hand-Book of Toilet Preparations and Their Uses by Joseph A Begy
5. Surfactants, Disinfectants, Cleaners, Toiletries, Personal Care Products Manufacturing and Formulations By P. K. Chattopadhyay

Practicals: SHCHADD1 [p]

[10 hours]

Manufacture of Toilet cleaners, Floor cleaners, shampoos, phenyl, hand sanitizer

ADD-ON COURSE IN WATER ANALYSIS

COURSE CODE: SHCHADD3

COURSE NAME: WATER ANALYSIS

YEAR OF IMPLEMENTATION: 2018

UNIT I

[6 hours]

Chemistry of water: Physical and chemical properties of water, Water resources, water pollution, Types and characteristics of industrial waste water, Sewage and sewage analysis - Total solids, settleable solids, suspended solids, Protection of surface waters from pollution with industrial sewage.

UNIT II

[8 hours]

Water quality parameters: Important water Quality parameters and methods for their determination - turbidity, color, taste, pH, acidity, alkalinity, chemical constituents, hardness, dissolved oxygen, BOD (Winkler's titration method and dissolved oxygen meter) and COD, chloride, fluoride and nitrate. Toxic metals in water and their effects: Cadmium, lead and mercury. Water sampling, standard for drinking water as per BIS specifications.

UNIT III

[6 hours]

Water treatment methods - Primary, secondary and tertiary methods - Aerobic and anaerobic oxidation -Sedimentation, coagulation, filtration, disinfection, desalination and ion exchange - USAB process and deep well injection.

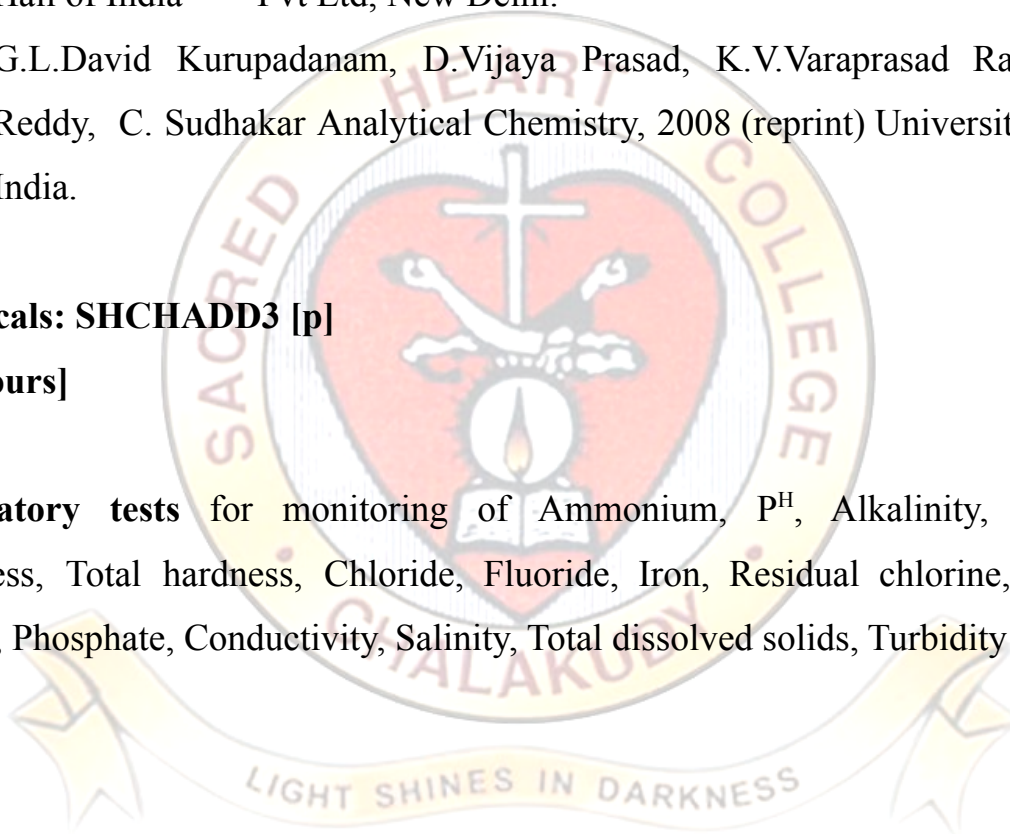
Recommended Books

1. S.E. Manahan, Environmental Chemistry, CRC Press, London.
2. A.K. De, Environmental Chemistry, 6th Edn. New Age International.
1. P.K. Goel, Water Pollution, Causes, Effects and Control, New Age International (P) Ltd.
2. R.A.Day and A.L.Underwood, Quantitative Analysis, 5th edition, Prentice Hall of India Pvt Ltd, New Delhi.
3. G.L.David Kurupadanam, D.Vijaya Prasad, K.V.Varaprasad Rao, KLN Reddy, C. Sudhakar Analytical Chemistry, 2008 (reprint) Universities Press India.

Practicals: SHCHADD3 [p]

[10 hours]

Laboratory tests for monitoring of Ammonium, P^H , Alkalinity, Calcium Hardness, Total hardness, Chloride, Fluoride, Iron, Residual chlorine, Nitrate, Nitrite, Phosphate, Conductivity, Salinity, Total dissolved solids, Turbidity



Department Of Mathematics

ADD-ON COURSE

Industrial mathematics is one of the emerging branches in mathematical sciences. Scientists, researchers, and engineers from both academia and industry and from various fields have shown considerable interest in this subject. It is concerned with developing the most efficient mathematical methods to tackle various problems arising in industry. Several challenges have arisen in economic and ecological industries that necessitate innovative methods and techniques to meet these new demands. For example, developing economical and fast computing techniques, reducing cost and increasing quality, analyzing big data and finding optimal solutions, and so on. Industrial mathematics is the key factor to design, realising, and implementing these methods. Students were provided with the basic foundation of the subject of this course.

INDUSTRIAL MATHEMATICS (Total 30 Hrs)

SYLLABUS

Module 1 : Arithmetic with Whole Numbers, Fractions and Decimals (2 hours)

Arithmetic computations, following the order of operations using; whole numbers, fractions, decimals, and scientific notation

Module 2: Measurement Tools (4 hours)

Computations with units and convert units within Metric Systems, Measurements with measurement tools commonly used in the trades.

Module 3: Practical Plane Geometry and Solid Figures (8 hours)

Computations using formulas, and rearrange formulas into alternate forms, perimeters, areas, surface areas, and volumes of plane and solid figures.

Module 4: Ratio, Proportions, Percent and Trigonometry (8 hours)

problems involving percent, ratio, and proportion, algebraic equations including linear and quadratic, and solve systems of equations, problems involving right and oblique triangles by using trigonometric ratios.

Module 5: Statistics (8 hours)

Analyzing graphically and measures of central tendency to solve problems involving data sets, Translate numbers between decimal, binary, and hexadecimal representations.

REFERENCES

1. Saunders and Carman, Mathematics for the Trades, 8th edition. Publishers: Pearson

