<u>Details about the student Participation to the Training Programunder RUSA Vocational Program</u>

<u>(Electronics)</u>

1. **(i). Name of the program: 6th School on system design using microcontrollers**

    (ii). Organized by :   Dept of Instrumentation, Gauhati University, Guwahati

    (iii). Duration: 25th-30th June, 2018

    (iv). Name of the Participants: Yetoka Abraham Awu and Chathavilie Peseyie (BSc 6th Sem)

2. **(i). Name of the program: 7th School on system design using microcontrollers**

    (ii). Organized by :   Dept of Instrumentation, Gauhati University, Guwahati

    (iii). Duration: 18th-22nd February, 2019

    (iv). Name of the Participants: Buddhiman Chetri and A. Zulo Kishi (BSc 4th Sem)

3. **(i). Name of the program: Technology Intervention in entrepreneurship**

    (ii). Organized by :   North east centre for technology application and Reach(NECTOR) Shillong
    at Fazal Ali College, Mokokchung

    (iii). Duration: 29th February, 2020

    (iv). Name of the Participants: Sentijungla Limasunep, Nokitchung (BSc 6th Sem) and Rukusu,
    Moatoshi (MSc 4th Sem)

4. **(i). Name of the program: Development of microcontroller based automatic Fast Response**
    Rain Gauge : A collaborative program between Physics Dept, Kohima Science College and
    Physics Dept, Fazal Ali College, Mockukchung

    (ii). Organized by :   Dept of Physics, Fazal Ali College, Mokokchung

    (iii). Duration: 14th - 18th February, 2022

    (iv). Name of the Participants: Sentijungla and Katemeren (MSc 4th Sem)

****

Course Syllabus

Self-financing Certificate Course

Department of Botany, Kohima Science College, Jotsoma (KSCJ)

Course Title: Mushroom Cultivation

30 Credits (60 hours)

Instructors: Faculty, Department of Botany (KSCJ)

Course Description

This course considers providing pragmatic knowledge on mushroom cultivation. The goal is to impart hands-on training to acquire capabilities on how to culture mushroom spawn, propagate, harvest, package and supply for marketing. Specifically, we will focus on oyster and button mushroom cultivation. This is a highly active learning course involving the opportunity for all participants to produce their own individual mushroom spawn to take home and enjoy the harvest. We will also explore the viability of propagating local mushroom and other commercially marketable varieties. The course is open to students and local entrepreneurs without any prior knowledge on mushroom cultivation who are interested to learn the techniques. The medium of communication will be both English and common local dialect (Nagamese).

Course Objectives

By taking this course, participants will be able to:

- Understand the concept and importance of mushroom cultivation
- Learn the step by step procedural knowledge of mushroom production
- Acquire the techniques of propagation of mushroom
- Execute the methods of mushroom propagation
- Produce their own mushroom spawn for propagation
- Self-practice mushroom farming for income generation

Course material

A mushroom cultivation text manual will be provided for the entire course content. Additional course material will include videos, pictures and protocols. Short reading materials may be provided to students occasionally to aid learning process.

Course assessment & final exam:

A mid-term review will be held half-way through the course. It will be based on class discussion and review of the completed course content. A final exam will be conducted on the last week of the course. Final exam will be objective and short answer type questions from the entire course content.

Exam Grades

Letter grades will be used for grading, based on UGC guideline (Retrieved from https://www.suniv.ac.in/upload/UGC%20Guidelines.pdf)
Final course grades will be broken down by the following percentage scale:

Marks (%)	Grade	Grade description
90.1 − 100	O	Outstanding
80.1 − 90	A+	Excellent
70.1 − 80	A	Very Good
60.1 − 70	B+	Good
55.1 − 60	B	Above Average
50.1 − 55	C	Average
40 − 50	P	Pass
< 40	F	Fail
0	Ab	Absent

Attendance

To be eligible for final exam and course completion certificate a student must have at least 75% of class attendance.

Scholastic Honesty

The institutional regulation of Kohima Science College, Jotsoma on scholastic honesty will be applied.

Class Schedule (Lecture: 1 hour; Lab: 2 hours, weekly)

Week (W)	Lecture	Lab
W1	Introduction and orientation to the course	Introduction to Lab facilities
W2	History of mushroom cultivation, Identification of poisonous & edible mushrooms	Lab 1
W3	Material acquisition and maintenance	Lab 2
W4	Spawn production techniques	Lab 3
W5	Sterilization, media composition and preparation	Lab 4
W6	Composting & mushroom bed preparation	Lab 5
W7	Inoculation techniques	Lab 6
W8	Storage and nutrition of culture	Lab 7
W9	Maintenance of culture in growth room	Lab 8
W10	Mid-term review	Lab 9
W11	Diseases & pest management	Lab 10
W12	Tissue culture and spawn culture	Lab 11
W13	Production of mother spawn	Lab 12
W14	Production of commercial spawn	Lab 13
W15	Quality control of culture	Lab 14
W16	Harvest, packaging, & processing for supply	Lab 15
W17	Nutrition facts and benefit of mushroom	Lab 16
W18	Economics of mushroom production	Lab 17
W19	Feedback & Review of course	Lab 18
W20	Final exam	

Course Enrollment Strength

The course enrollment strength for the initial three years will be 15 to 20 participants with a maximum number of 20 participants. The enrollment strength may change in the following years depending on the needs.

Course Fee

Each participant of the course will pay the following fees (for the funding period)

Item	Amount (₹)
Admission fee	50
Enrollment fee	50
Tuition fee	1000
Text book	300
Laboratory fee	3000
Electricity	250
Water	100
Exam fee	250
Total	5000

Justification of Course Fee

The course fee will be utilized for remuneration for lectures (equivalent to 60 hours of lecture) and a laboratory assistant (equivalent to 20 days in a course session). Some of the fee will be spent to prepare course materials in the form of a text book, additional relevant material to be provided to each participant, stationery purchase for conducting exams, and certificate printing. If there is any net amount generated, the amount will be kept aside for capital formation for post funding sustenance of the program. Efforts will be given to generate additional income for capital formation through sale of spawn and mushroom during the funding period.

Expenditure	Amount (₹)	Total amount (₹)
Remuneration (Lecture)	1000 (per hour)	60000
Remuneration (Laboratory Assistant)	500 (per day)	10000
Cost of course materials (books & stationery)	⊢	11000
Cost of electricity & water bill	⊢	7000
Capital formation for post funding management (consumables)	⊢	12000 (at maximum enrollment strength)

4

Certificate

This is to Certify that

THE VIRTUAL LINGUISTICS ACADEMY

**B P O Phezhu, Kohima Science College Road,
Jotsoma, Kohima, Nagaland - 797002, India**

has been found in Compliance with requirements of
Quality Management System
ISO 9001:2015
for the following scope:

**Providing Certificate Courses for English Phonetics for
Learners via LMS (Learning Management System).**

Certificate No.	:	QMS/026929/0322
Original Certificate Date	:	25-March-2022
Issue Date	:	25-March-2022
Expiry Date	:	24-March-2025

To check this certificate status visit:
"http://uasl.uk.com/certifiedorganization.html"

Authorised Signature

Quality Control Certification
UK Office: 1929, Chynoweth House,
Trevissome Park, Truro-TR48UN, Cornwall, UK
India Office: 2nd Floor, Aman Market,
Narela Mandi, Delhi - 110 040, India

COP IN PHONETICS AND SPOKEN AND SPOKEN ENGLISH

SYLLABUS   DURATION: 15 HOURS

CHAPTER -1

INTRODUCTION TO THE COURSE

WHAT IS PHONETICS?

WHY PHONETICS?

CHAPTER -2

THE SOUNDS OF ENGLISH: THE PHONEMIC CHART

- Monophthongs
- Diphthongs
- Triphthongs
- Consonant sounds : singles and pairs

CHAPTER- 3

THE PRODUCTION OF SPEECH SOUNDS

- Articulators above the larynx
- Three term labels

CHAPTER -4

STRESS AND SYLLABLE MARKERS

CHAPTER -5

INTONATION

CHAPTER- 6
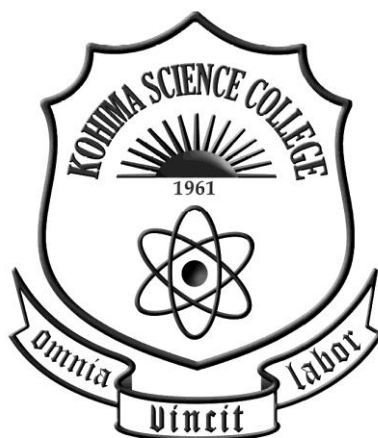
MOTHER TONGUE INFLUENCE (MTI)

CONSONANT CLUSTERS

1. Case Studies

CHAPTER 7

TRANSCRIPTION

- Letter
- Word
- Sentence
- Passage

SYLLABUS FOR VOCATIONAL COURSE

IN

APICULTURE

DEPARTMENT OF ZOOLOGY
KOHIMA SCIENCE COLLEGE
JOTSOMA, NAGALAND

COURSE NAME: APICULTURE

COURSE CODE: ZOOVOC 1.1 (THEORY)

COURSE CODE: ZOOVOC 1.2 (PRACTICAL)

Theory

Unit1: Introduction to apiculture: History of beekeeping, Importance of apiculture and its future prospects. Bee fauna and pollination, multiplication of honeybee colonies and their migration.

Unit 2: Study of habit and habitat of Honey bee, different species of honey bees.

Morphology and general anatomy of honey bee: Structure of mouth parts, sting apparatus, appendages, pollen basket; Caste system in honey bee (biology and behavior)

Unit3: Bee pheromones and dance language; seasonal management of honey bee, social behavior of honey bee (colony organization and division of labour), Destructive behavior of colony and the means to check the same.

Unit 4: Bee keeping equipments: bee box, Comb foundation sheet, nucleus box, Bee veil, Hive tool, Honey extractor, Hive stand and other accessories.

Study of products of apiculture and uses: honey, Wax, Propolis, Royal jelly, pollen.

Unit 5: Diseases and enemies of Bees and their control: Bee diseases – Protozoan, Bacterial, Viral, Fungal; Bee pests – Wax moth, Wax beetle; Bee predators – Bee eater, bee crow, lizard, Bear, Man; Harmful effects of insecticides in Honey Bee.

Practical

1. Practice of constructional details and use of beekeeping equipment such as Bee Box, Comb foundation sheet, Nucleus box, Bee veil, Hive tool, Honey extractor, Hive stand and other accessories.
2. Study of mouth parts and pollen apparatus of worker bees.
3. Types of Honey comb.
4. Study of different types of Honey bees.
5. Practicing hiving of natural colonies and catching swarms.
6. Practicing uniting of weal colonies.
7. Practicing division of bee colonies.
8. Identification of diseases, pests, predators and enemies of Honey bees.

SUGGESTED READINGS

- Prost, P. J. (1962). *Apiculture*. Oxford and IBH, New Delhi.
- Bisht D.S., *Apiculture*, ICAR Publication.
- Singh S., *Beekeeping in India*, Indian council of Agricultural Research, NewDelhi.

KOHIMA SCIENCE COLLEGE

(AUTONOMOUS COLLEGE)
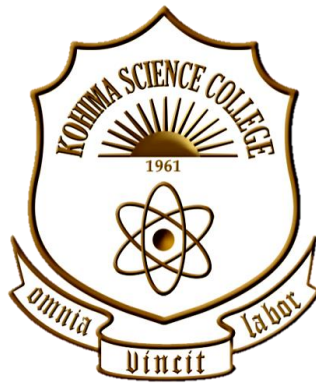
UGC-NSQF Approved Skill Development Courses

Course Name:

i) Photography & Video Production

ii) Computer Aided Fashion Technology

Course Name: Photography & Video Production

Programme: Two Years Advanced Diploma
College: Kohima Science College

Course Details:

This course is aimed for those who wish to become professional photographers or take-up photography and videography very seriously. While this course is not a specialisation course, it provides the students an orientation to professional photography and video production. Most importantly, the course enables one to achieve a thorough and a clear understanding of photography and videography fundamentals, as well as acquire a strong artistic and technical prowess in the various complex aspects of photography and videography. With such strong foundations in photography, it empowers a student to become a professional much quicker than the rest. In the age of digitisation, Video production rules, secrets and tricks aren't something we're born with or a gift gained via effortless, often unconscious assimilation.

Our mission is to provide resources for video enthusiasts who want to learn but are economically challenged. This course could pave an affordable path to conquer great video production and may fulfil one's dream of landing into a videographer job. In an effort to fill the vacuum in high-level skill based education in visual arts in India, Community College section of Derozio Memorial College brings its professional Photography and Video Production Course to those opting to take photography and videography as their career. Powered by a vastly experienced faculty of professional photographers, camera crews, directors, script writers, editors, Sound Recordist and the latest state-of-the-art teaching techniques, the course will combine a sound understanding of the fundamentals and theory of photography and videography with hands-on practical assignments in real-time situations that will prepare students for the real, ever-changing professional world.

From picking up the basics to shooting in complex and difficult situations, editing being adept with the latest technologies to handling people and making professional decisions, the course covers a wide range of skills around the craft of photography, videography and audio mixing making it a unique and most comprehensive learning program available in the country.

The top-class, versatile faculty of award-winning photographers brings to the course their immense experience and diverse styles of photography and videography. Each subject is handled in-depth, regularly involving other professionals from the industry and allied sectors. The classes are highly practice-oriented and students passing out from Kohima Science College would be a cut above the rest, with their own distinctive styles and creativity vision.

The course aims to make the aspirant photographer, videographer and sound editor a competent to face challenges in the professional world – from the skills of photography and videography to handling newest technology and managing people. And most important, it gives a personal interface with the industry, which is much needed to get the initial break in the industry.

A multifaceted and comprehensive course like this has been conspicuously absent in the teaching of visual arts in the country. It comes as a great stepping-stone for those creative persons looking for final-cut to become a true-blue professional. There is no doubt the country has a vast pool of young talent in photography and videography and Kohima Science College strives to play its role and contribute by channelizing this talent to make the country and its lens men and scissor men among the finest and a force to reckon with on a global platform. In Nagaland no other diploma course on photography and video production is running with recognition from any University and approval from MHRD, Govt. of India. The course has been designed in consultation with the renowned photographers, videographer and sound crews of Kolkata. It makes a balance between the theoretical and practical side of photography and video production according to NSQF level. Every important aspect of photography and videography has been taken into consideration. The Department is fortunate in having some of the most eloquent photographers, videographers and sound technicians of India as the faculty members. It is due to the active involvement of the faculty members, the excellent infrastructural facilities of the college and the closely controlled atmosphere prevailing inside the department, this diploma course has within a short period of time created a favourable impression among the students and industry. So we are very keen to make Industrial / Educational visit every year at the end of the course to judge the creativity of the students of Photography and Video Production course. This will help the students to be a part of the community relation growing process.

OBJECTIVES OF THE COURSE
- To create a healthy visual culture to combat the threats of visual illiteracy.
- Skill Development Programme for both amateur and serious hobbyists and making them sharp professional in their relevant field.
- Employability for young generation.

- To encourage students develop various ways of interpretation and documentation
- To work for the documentation and conservation of the rich cultural heritage, social bonding, educational and social integrity and diversity of India and making a platform for 'Digital India'.

ELIGIBILITY

Academic Qualification   : Higher Secondary

Age   : No Bar

Sex   : Male/Female/Transgender

Course Name: Photography & Video Production

<table>
<tr><td rowspan="14">One Year Diploma Course</td><td colspan="6" align="center">FIRST SEMESTER</td></tr>
<tr><td align="center">Paper Name</td><td align="center">Mode</td><td align="center">Credits</td><td colspan="3" align="center">Marks (Scaled)</td></tr>
<tr><td></td><td></td><td></td><td align="center">Int</td><td align="center">Ext</td><td align="center">Total</td></tr>
<tr><td>Communication Skills in English</td><td>Theory</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td>Introduction to Photography</td><td>Theory</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td>Basics of Computers</td><td>Practical</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td>Adobe Photoshop</td><td>Practical</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td>Mini Project</td><td>Practical</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td></td><td>TOTAL</td><td>30</td><td>100</td><td>400</td><td>500</td></tr>
<tr><td colspan="6" align="center">SECOND SEMESTER</td></tr>
<tr><td>Introduction of Camera Operations1</td><td>Theory</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td>Basic of Camera Light and Sound</td><td>Theory</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td>Lighting Techniques</td><td>Practical</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td>Shooting Techniques and Process</td><td>Practical</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td>Mini Project</td><td>Practical</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
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<table>
<tr><td></td><td></td><td>TOTAL</td><td>30</td><td>100</td><td>400</td><td>500</td></tr>
<tr><td rowspan="12">Two Year Adv Diploma</td><td colspan="6" align="center">THIRD SEMESTER</td></tr>
<tr><td>Introduction of Camera Operations2</td><td>Theory</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td>Brand Management</td><td>Theory</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td>Visual Special Effects & Compositing</td><td>Practical</td><td>4</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td>Photo Editing Techniques</td><td>Practical</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td>Mini Project</td><td>Practical</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td></td><td>TOTAL</td><td>30</td><td>100</td><td>400</td><td>500</td></tr>
<tr><td colspan="6" align="center">FOURTH SEMESTER</td></tr>
<tr><td>Shooting Techniques and Process2</td><td>Theory</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td>Photo Editing Techniques 2</td><td>Theory</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td>Adobe Premier</td><td>Practical</td><td>6</td><td>20</td><td>80</td><td>100</td></tr>
<tr><td>Project</td><td>Practical</td><td>12</td><td>40</td><td>160</td><td>200</td></tr>
</table>

			TOTAL	30	100	400	500

Programme: Two Years Advanced Diploma

College: Kohima Science College

Course Name: Computer Aided Fashion Technology

Programme: Two Years Advanced Diploma

Course Details:

Computer Aided fashion technology (CAFT) has revolutionized the fashion industry with its inception. Computer Aided design is a technology which designs a product and records the process used. It is highly innovative and cutting edge as recording the process of the making is what is utilized later in making other products. It also facilitates the process by storing detailed diagrams of the design's material, processes, dimensions etc. It can even create two dimensional and three dimensional diagrams of the product which can further be rotated at different angles so as to give the product a simulation or real life look.

 With technology advancing at such a fast pace, it has touched and transformed every industry. In every industry, old traditional processes turn obsolete and are replaced by newer and efficient technology. The fashion industry also reaps benefits of this technological advancement in the world. Manual skills have been substituted by computerized skills. To put it in the simplest way, **CAFT** reduces the need of manual sketches in the process of design. Manual skills such as mathematical calculation or artistic skills to sketch are no longer an obstacle for fashion lovers. There are a number of advantages of **Computer Aided fashion technology** pertaining to the processes of **fashion designing**. CAFT **provides precision and eliminates the scope of human flaws**. Every measurement is tuned to the decimal. This reduces wastage of resources and thus, consumer dissatisfaction. Not only this, but CAFT also organizes information for the designer which would otherwise have to done through a time taking manual process. Another noticeable gain is that the overall productivity of the process of designing increases. With lower labour costs and reduced time taken for a single product, the per product profits increase. Along with this, the competition also goes up a level higher with the advent of CAFT. The quality of products in the markets had to be upgraded in order for any brand to survive in the market. Experimentation has become easier through CAFT. Designers can now hit and try new ideas all the way to the last stage which would not be possible through

manual processes. This is critical, if you think about it, in originating unique designs by brainstorming and experimenting and see if the idea is feasible or not. Making quick changes and improvisations also becomes easier with this technology which otherwise used to be a tedious task.

Students are being trained for CAFT nowadays and there are separate **computer aided technology courses** in the market dedicated to CAFT. Many academia argue that the training for CAFT is quite different from the traditional training of fashion designing. Thus, every institution is working to update its curriculum to include CAFT because the current working in the industry is influenced by CAFT. The sooner aspirants realize the value of this technology and learn how to master the sooner they can tread on their own career as a fashion designer and succeed.

CAFT has brought the human element of creativity and efficiency of technology together. The decisions remain in the hands of a designer and the exhausting labour can be done away with. Such an amazing tool can transform the fashion industry to much greater levels than it already has. With the right kind of awareness and training, CAFT can be utilized in an optimum manner and can fulfil its potential. The fashion industry is slowly realizing its value and with time all old methods could be replaced to serve consumers with both quality and inexpensive products.

New technology such as CAFT has dramatically transformed the process of design. It enables students to showcase their work in different perspectives and provides a 360-degree view of a design. Many reputed fashion designers may choose to initially design their creations manually; CAFT software is normally used in the latter portions of the design process. The software is preferred by apparel manufacturers to determine the most efficient marker and to align the patterns in an economical manner. The virtual prototyping enables to check the fit and drape of a garment. Designers can then make any necessary modifications to the design instantaneously. The course provides students with an opportunity to understand the importance of combining technology with creativity for a quality output.

CAREER OPPORTUNITIES: Some of the career opportunities: Fashion Designer, Textile Designer, Illustrator, Pattern Maker or Stylist, Retail Merchandising, Visual merchandiser.

	FIRST SEMESTER

Course Name: Computer Aided Fashion Technology

Programme: Two Years Advanced Diploma

	Paper Name	Mode	Credits	Marks (Scaled)		
				Int	Ext	Total
One Year Diploma Course	Introduction to fashion and Fashion Accessories	Theory	6	20	80	100
	Basic Designing and Sketching	Theory	6	20	80	100
	Basics of Computers	Practical	6	20	80	100
	Pattern Making & Garment Construction- I	Practical	6	20	80	100
	Adobe Photoshop	Practical	6	20	80	100
		TOTAL	30	100	400	500
	SECOND SEMESTER					
	Fashion Retail, Marketing & Merchandising	Theory	6	20	80	100
	History of Textiles & Costumes	Theory	6	20	80	100
	Computer Aided Fashion Design I	Practical	6	20	80	100
	Corel Draw	Practical	6	20	80	100
	Mini Project	Practical	6	20	80	100
		TOTAL	30	100	400	500
Two Year Adv Diploma	**THIRD SEMESTER**					
	Apparel Production	Theory	6	20	80	100
	Fashion Illustration & Design	Theory	6	20	80	100
	Pattern Making & Garment Construction- II	Practical	4	20	80	100
	Computer Aided Fashion Design II	Practical	6	20	80	100
	Fashion Forecasting	Practical	6	20	80	100
		TOTAL	30	100	400	500
	FOURTH SEMESTER					
	Fashion Portfolio& Design Collection	Theory	6	20	80	100
	Apparel Computer Aided Design- I	Theory	6	20	80	100
	Fashion Portfolio & Design Collection	Practical	6	20	80	100
	Project	Practical	12	40	160	500
		TOTAL	30	100	400	500

नागालैण्ड NAGALAND

359260

Date: 15th June 2020

MEMORANDUM OF UNDERSTANDING (MOU)

Between

Kohima Science College,
(An Autonomous Government PG College)
&
Imprint :The Creative workshop

This is an agreement between **Kohima Science College, Jotsoma** & "**Imprint** :The creative workshop" Jail Colony, below BSNL office Kohima, Nagaland Pin-797001 hereinafter called "**Industry partner**"

The purpose of this MOU is to clearly identify the roles and responsibilities of each party as they relate to the implementation of the NSQF **Advance Diploma programme** in **Photography & Video Production. Imprint** :The creative workshop is indented to help to provide service-learning and other opportunities _____ to **Kohima Science College, Jotsoma** students through partnership. To support this goal **Kohima Science College, Jotsoma** and Industry Partner will work together to conduct service that meets need of our communities.

In particular, this MOU is intended to establish clear guidelines regarding the service work that will be conducted at to Kohima Science College, Jotsoma and Imprint :The creative workshop.

This MOU shall : be effective upon the signature of Principal, Nodal Officer of Kohima Science college and Proprietor, Imprint :The creative workshop. It shall be in force from 01/07/2020 to 31/06/2023

Floriculture

(Skill Enhancement Course)

A Report

Submitted to the

Principal

Kohima Science College, Jotsoma, Kohima
(An Autonomous Govt. P. G. College)
Nagaland, 797002

By

The Department of Botany
Kohima Science College, Jotsoma, Kohima
Nagaland, 797002

2020

Contents

1. <u>Introduction</u>

Recognizing the importance of Floriculture as a promising and beneficial vocation for young aspiring students, the Kohima Science College desired to develop one such course in the department of Botany. A proposal to start a skill enhancement course in "Floriculture" was submitted for financial assistance to the Directorate of Higher Education, Nagaland. The proposal was accepted in 2015 under the MHRD, Government of India, RUSA program of vocationalization of higher education with a total allocated budget of Rs. 40,07,202 (Rupees Forty Lakh Seven Thousand Two Hundred Two only), with 90% central share and 10% state share.

2. <u>Course Structure</u>

Floriculture was introduced as a skill enhancement course in the core curriculum. The course is now given as a compulsory course for undergraduate students in the third semester as two credit course. The students are provided hands on training on management of flowers in greenhouse and open spaces, flower cutting and packaging for sale, flower arrangements and tour of floriculture gardens as time permits. In addition to getting course credit, the students are given a certificate on successful completion of the course. So far five batches of students (150 students) have completed the course. At present, the total intake capacity is 75 students. The detailed syllabus is provided in the annexure 1.

Classes in Greenhouse & Open Space Garden

3. Infrastructure Development

i. Capital equipment

Sl. No.	Item	No. of item	Remarks
1.	Growth Chamber	1	Used for acclimatization of plantlets propagated through tissue culture.
2.	Autoclave	1	For sterilization of culture equipment & media.
3.	Steel almirah	1	For storage of items used in gardening and practical demonstration
4	Blooming tales (book)	15	For reference
5	Commercial floriculture (book)	1	For reference
6	Biofertilizer technology (book)	1	For reference
7	Secateurs	20	For pruning
8	Water sprayer	5	For spraying water on plants
9	Gardening tools	2	For preparation of soil beds
10	Fertilizer	50 bags	For plant growth
11	Overhead storage tank (1000 ltr)	1	For water supply in instrumentation room
12	Trowel	2	Gardening tool
13	Garden Rake	1	Gardening tool
14	Garden Gloves	5	Gardening tool

Growth Chamber   Autoclave

ii.   Housing & Outdoor Units

Sl. No.	Unit	No. of unit	Remarks
1	Greenhouse (2015)	1	Growing seasonal & perennial cut flowers & nursery management
2	Tissue Culture Laboratory (2017)	1	Propagation of indigenous & exotic commercial flowers.
3	Open space garden (2019)	1	Propagating indigenous & exotic outdoor plants & landscaping.
4	Instrumentation room (2018)	1	Housing equipment

Greenhouse

Instrumentation Room
(under construction)

Tissue Culture Room

Open Space Garden

iii.   Renovation works

Sl. No.	Type of work	Remarks
1	Pipe connection from main source (above chemistry dept.) to instrumentation room and poly house (~50 feet) (2018)	For uninterrupted water supply
2	Construction of corridor leading to instrumentation room (2018)	Ease of conveyance between laboratories
3	Construction of water reservoir for greenhouse (2000 ltr) (2019)	Needed for daily watering of plants

Water Reservoir

4. <u>Participation of Students</u>

i.   Flower exhibition cum competition during the annual college WINFEST (photo)

ii.   Conducted a one day seminar with North Bengal Floritech on 25th March 2017 (photo)

iii. Visited Niathu Gardens and also some local nurseries in and around Kohima, 2018 (photo)

iv.   Workshop on flower arrangement, October 2019 (Photo)

v.   Selling of cut flowers, saplings (seasonal & perennial), potted plants, etc. (photo)

WINFEST Flower Competition & Exhibition

Seminar with North Bengal Floritech

Niathu Garden Tour

Flower Arrangement Workshop

Cut Flowers for Sale

5. <u>Future Plan</u>

Shortage of fund allows only minor research work on tissue culture of indigenous commercially important flowers and cannot facilitate student's engagement. In future, pertains to availability of fund tissue culture activity can be expanded with participation of students.

Tissue Culture Plantlets (Orchid)

6. <u>Acknowledgements</u>

Department of Botany
Kohima Science College, Jotsoma

Floriculture
(Credits 2)
Lectures: 30

Unit 1: Introduction: History of gardening; Importance and scope of floriculture and landscape gardening. Nursery Management and Routine Garden Operations: Sexual and vegetative methods of propagation; Soil sterilization; Seed sowing; Pricking; Planting and transplanting; Shading; Stopping or pinching; Defoliation; Wintering; Mulching; Topiary; Role of plant growth regulators. **(6 Lectures)**

Unit 2 : Ornamental Plants: Flowering annuals; Herbaceous perennials; Divine vines; Shade and ornamental trees; Ornamental bulbous and foliage plants; Cacti and succulents; Palms and Cycads; Ferns and Selaginellas; Cultivation of plants in pots; Indoor gardening; Bonsai. **(6 lectures)**

Unit 3: Principles of Garden Designs: English, Italian, French, Persian, Mughal and Japanese gardens; Features of a garden (Garden wall, Fencing, Steps, Hedge, Edging, Lawn, Flower beds, Shrubbery, Borders, Water garden. Some Famous gardens of India. **(6 lectures)**

Unit 4: Landscaping Places of Public Importance: Landscaping highways and Educational institutions. **(6 lectures)**

Unit 5: Commercial Floriculture: Factors affecting flower production; Production and packaging of cut flowers; Flower arrangements; Methods to prolong vase life; Cultivation of Important cut flowers and foliages (Carnation, Chrysanthemum, Alstromeria, Gerbera, Gladiolous, Marigold, Rose, Lilium, Orchids). Diseases and Pests of Ornamental Plants **(6 lectures)**

Suggested Readings

1. Randhawa, G. S. and Mukhopadhyay, A. 1986. Floriculture in India. Allied Publishers.
2. Brickell, C. (1997). Encyclopaedia Gardening. The Royal Horticultural Society.
3. Brickell, C. (1995). Gardener's Encyclopaedia; Plants and flowers. The Royal Horticultural Society.
4. Barnett, F. & Moore, T. (1999). The ultimate book of Fresh and Dried Flowers. Anness Publishing Limited.