

Syllabus Of Basic Spoken Basic English Grammar

**RASHTRASANT TUKDOJI MAHARAJ NAGPUR UNIVERSITY
DEPARTMENT OF LIFELONG LEARNING AND EXTENSION
SHORT TERM CERTIFICATE COURSE UNDER
JEEVAN SHIKSHA ABHIYAN
2023-2024**

**J.M.PATEL COLLEGE ARTS, COMMERCE & SCIENCE COLLEGE
BHANDARA- 441 904**

DEPARTMENT OF ENGLISH

CERTIFICATE COURSE IN BASIC ENGLISH GRAMMAR

COURSE MODULE

Contents :

Unit –I - Parts of Speech

Unit-II – Sentence Formation

Unit-III – Tense & Affirmative to Negative

Unit-IV- Articles & Prepositions

Unit-V – Voice and Narration

Module Objectives :

- 1) To enable students to understand Parts of speech
- 2) To make students understand structure of sentences
- 3) To develop capacity among the learners to identify and change the tenses
- 4) To understand the use of articles and prepositions
- 5) To train learners to change the voice and Narration.

Course Outcomes :

At the end of the course learners will be able to:

- 1) To identify and convert various parts of speech.
- 2) To construct sentences of all types.
- 3) To identify and change tenses of any sentence and also convert sentences negative.
- 4) To fill the blanks with appropriate articles and prepositions.
- 5) To change the voice and Narration.

Time Frame :

Approximately 36 hours needed to finish this module - 5 hours for Parts of Speech, 10 hrs. for Sentence Formation, 10 hours for Tenses and affirmative to Negative, 5 hours for Articles and Prepositions and 6 hours for Voice and Narration.

Help : Guest Lectures of experts faculties will be organized.

Assessment : 1) All assessments are to be completed at the end of every unit.

2) Assessment will be done by Course-Coordinator or by expert faculty.

3) One Final Written Online or offline Test shall be conducted for final assessment.

4) Successful candidates shall be given Course Certificates.

- Syllabus of **Certificate Course in Basic English Grammar** is designed by Dr. Karthik Panicker, Head, Department of English and Dr. Umesh Bansod, Course Coordinator, Department of English, J. M. Patel College, Bhandara (M.S.)

Date : 4th August 2023



(Dr. Umesh Bansod)
Course Coordinator
Department of English



(Dr. Vikas Dhomne)
Principal
J. M. Patel College, Bhandara
Principal
J.M. Patel Arts, Commerce
& Science College, Bhandara

Syllabus Of Spoken English & English For Competitive Exams

**RASHTRASANT TUKDOJI MAHARAJ NAGPUR UNIVERSITY
DEPARTMENT OF LIFELONG LEARNING AND EXTENSION
SHORT TERM CERTIFICATE COURSE UNDER
JEEVAN SHIKSHA ABHIYAN**

**J. M. PATEL COLLEGE ARTS, COMMERCE & SCIENCE COLLEGE
BHANDARA- 441 904**

DEPARTMENT OF ENGLISH

**CERTIFICATE COURSE IN SPOKEN ENGLISH & ENGLISH FOR
COMPETITIVE EXAMS**

2023-24

COURSE MODULE

Contents:

Unit –I - Speaking about Myself /Family /Native Place/District/State

Unit-II – Practice in Public Speaking

Unit-III – Introduction to Basic Grammar

Unit-IV- English Grammar for Competitive Exams.

Unit-V – Interview Skills

Module Objectives :

- 1) To enable teachers to help their students develop the ability to speak English effectively and with confidence;
- 2) To encourage students to express themselves fluently using appropriate grammar, vocabulary and pronunciation;
- 3) To help students organise their ideas logically and to present them appropriately in various communication situations;
- 4) To make students familiar to grammar-based exercise and enable them to solve confidently.
- 5) To enable and encourage students to face interview for various jobs.

Course Outcome:

Upon completion of module the students will be able to :

- 1) To introduce themselves, talk about family, native place, district, state ect.
- 2) To express themselves effectively using appropriate grammar, vocabulary, and pronunciation.
- 3) To understand basic grammar and its function.
- 4) To solve various grammar-based questions asked in competitive exams.
- 5) To face interview with confidence.

Time Frame :

Approximately 37 Hrs. needed to finish this module - 10 hrs. for Communications skills, 10 hrs. for Basic Grammar and 16 hrs. for English for competitive exams.

Help : Guest Lectures of experts facilities ,soft skill Trainers shall be organized .

Assessment : 1) All assessments are to be completed at the end of every unit.

2) Assessment will be done by Course-Coordinator, mentors, or expert faculty.

3) One Final Written Test and Open Viva shall be conducted for final assessment.

4) Successful candidates shall be given Course Certificates.

* Syllabus of Certificate Course in Basic English Grammar is designed by Dr. Karthik Panicker, Head, Department of English and Dr. Umesh Bansod, Course Coordinator, Department of English, J. M. Patel College, Bhandara. (M.S.)

Date: 04 August 2023



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Course Coordinator
Department of English



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Syllabus Of PCB

**Designing
and**

Development

Rashtrasant Tukadoji Maharaj Nagpur University Nagpur
Department of Lifelong Learning and Extension
Certificate Course under Jeevan Shikshan Abhiyan
2023-2024

J. M. Patel Arts, Commerce & Science College, Bhandara
(Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University Nagpur)
Department of Electronics
Syllabus

Duration: 16 weeks (3 Hours per week)

Lectures: 48 Hours

Name of Course: Certificate Course in “PCB Designing and Development”

Eligibility: Undergraduate and Post Graduates Students

Course Objectives:

1. Identifying Electronic Components Symbols & Footprints
2. Constructing your Component libraries & use them effectively
3. Schematic creation & interpretation
4. Effective use of design rules & interfacing between schematic & PCB
5. Component placement & routing techniques for various technologies

Course Outcomes:

1. Students are able to design a schematic of their circuit
2. Students are able to design PCB layout of their design
3. Students are capable to produce PCB of their own circuit
4. The course is intended to give the students the necessary knowledge and of PCB design steps, starting from a simple schematic, through creating new components, and all the way to down a final PCB layout
5. Recognize the technologies used in electronic industry through the practical experience gained in the course.

Introduction:

This is a basic course for designing of PCB using software. PCB (Printed Circuit Board) designing is an integral part of each electronics products and this program is designed to make students capable to design their own projects PCB up to industrial grade.

Topics Covered:

1. Introduction to PCB designing concepts
2. Component introduction and their categories
3. Introduction to Development Tools
4. Detailed description and practical of PCB designing
5. Lab practice and designing concepts

Mode of Teaching: The theory Lectures and Practical Sessions of the course will be conducted via Offline mode in the Department of Electronics.

Theory:

Unit I: Introduction to Concepts of PCB Designing

Introduction & Brief History about PCB, Difference between PWB (Printed Wiring Board) and PCB; Types of PCBs: Single Sided (Single Layer), Multi-Layer (Double Layer), PCB Materials Introduction to Electronic Design Automation (EDA) Brief History of EDA Latest Trends in Market How it helps and Why it requires Different EDA tools. Introduction about PCB designing Software like Eagle CAD-CAM and Dip Trace.

Unit II: Introduction about Component and their categories with footprints

Types of Components in Electronics and their footprints in software; Active Components: Diode, Transistor, MOSFET, LED, SCR, Integrated Circuits (ICs) and so on. Passive Components: Resistor, Capacitor, Inductor, Transformer and so on.

Unit III: Component Package and Types

Introduction about Electronics component packages; Through Hole Packages: Axial lead, Radial Lead, Single Inline Package (SIP), Dual Inline Package (DIP), Transistor Outline(TO), Pin Grid Array(PGA). Through Hole Packages: Metal Electrode Face (MELF), Small Outline Integrated Circuit (SOIC), Quad Flat Pack (QFP) and Thin QFP (TQFP), Plastic Leaded Chip Carrier (PLCC).

Unit IV: Detailed Description & Practical of PCB Designing and Development

Introduction to PCB Design tool (Eagle PCB / Diptrace), PCB Designing Flow Chart, Schematic Entry, Net listing, PCB Layout Designing, Prototype Designing, Design Rule Check (DRC), Design for Manufacturing (DFM).PCB Making: Printing, Etching, Drilling, Assembly of components and soldering.

Practical: Practical based on above syllabus.

Reference Books:

- A Basic Introduction for Designing a Printed Circuit Board (PCB) with EAGLE eCAD/CAM Software by Kenneth Kwashnak *SURVICE Engineering* 4695 Millennium Drive Belcamp, MD 21017
- DipTrace Schematic and PCB Design Software Tutorial
- Getting Started in PCB Design by PADS®

Syllabus Designing Committee members:

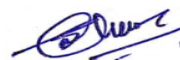
1. **Dr. Ashish K. Rewatkar**
Assistant Professor, Dept. of Electronics
J. M. Patel College, Bhandara.
2. **Mr. Devidas B. Sonkusare**
Assistant Professor, Dept. of Electronics
J. M. Patel College, Bhandara.
3. **Dr. Shridhar R. Sharma**
Professor and Head Dept. of Electronics
J. M. Patel College, Bhandara.

Criteria to get the Certificate:

1. Out of total marks on the marks sheet 20% marks allocated for internal assessment, 30% marks allocated for practical assessment and 50% marks allocated for final theory examination.
2. There will be the graded evaluation after the completion of each module.



Dr. Ashish K. Rewatkar
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Dr. Vikas P. Dhomne
Principal
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Principal
J. M. Patel Arts, Commerce
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Syllabus Of Forestry



**RASHTRASANT TUKDOJI MAHARAJ NAGPUR UNIVERSITY
DEPARTMENT OF LIFELONG LEARNING AND EXTENSION
SHORT TERM CERTIFICATE COURSE UNDER
JEEVAN SHIKSHA ABHIYAN**

2023-24

J. M. Patel Arts, Commerce & Science College, Bhandara-441904
(Affiliated to R.T.M. Nagpur, University, Nagpur)

SYLLABUS

Duration: 15 Weeks

60 Hours

Type of Program: Certificate Course

Name of Course: FORESTRY

Eligibility: UG & PG

Name of the Co-ordinator: Dr. Aparna M. Yadav

CERTIFICATE COURSE IN FORESTRY

AIM: Forestry is the science or practice of planting, managing, maintaining as well as conserving forests and their related resources with the aim to meet the goal of human welfare.

Forestry is a course where students have to work with some of the fundamental facts, concepts and implementation of different ideas to the system. The goal is to make sure that the extension of the area of the forest can be done along with the number of resources that are coming from the forest that do not get decreased.

OBJECTIVE:

- 1) Students have to learn some of the fundamental facts, concepts, and implementation of different ideas about the forest ecosystem.
- 2) Students should learn about many activities such as protection of natural resources, ecological restoration, timber harvesting etc.
- 3) Students get knowledge and skills they need to manage wildlife populations and habitats, and to administer public and private forest lands in a manner that ensures environmental.
- 4) During the course, students gain knowledge of the theoretical and practical fields, mostly on forestry.

SYLLABUS

MODULE 1:

- 1.1: Introduction to Soil Science
- 1.2: Concept of Soil Fertility
- 1.3: Forest Ecology
- 1.4: Biodiversity & Conservation

MODULE 2:

- 2.1: Introduction: Ethnobotany
- 2.2: Medicinal and Aromatic Plants
- 2.3: Agrometeorology
- 2.4: Tribology and Anthropology

MODULE 3:

- 3.1: Introduction to Silviculture
- 3.2: Silviculture of Indian trees (*Azadirachta indica*, *Casuarina equisetifolia*, *Shorea robusta*, and *Tectona grandis*)
- 3.3: Utilization of non-timber forest products
- 3.4: Forest Entomology

MODULE 4:

- 4.1: Introduction to Agroforestry
- 4.2: Forest Pathology
- 4.3: Introduction to Wild life Management
- 4.4: Management Policy and Legislation

PRACTICALS

- 1) Testing of soil from forest
- 2) Forest tree nursery management
- 3) Sapling making
- 4) To study ethnobotanical important plants
- 5) To study medical and aromatic plants
- 6) To study biodiversity of forest
- 7) To study diseases and control method for forest trees.
- 8) To study utilization of non-timber forest products

REFERENCES

- 1) P. D. Sharma (2020). Ecology and Environment, Rastogi Publications, Gangotri, Shivaji Road, Meerut-250002.
- 2) Majumdar S. P and Singh R. A (2000). Analysis of soil: Physical and Chemical properties, Agrobios (India), Jodhpur.
- 3) Kumar H. D. (1994). Modern concepts of ecology, Vikas Publishing House PVT LTD, New Delhi-110014.
- 4) Mathur L. M. (1993). Tree plantation and environment awareness, S. B. Nangia, Ashish Publishing House, New Delhi-110026.
- 5) Mitra J. N. (1998). An Introduction to systematic Botany, The World Press PVT, Calcutta-700012.
- 6) Hudson T. Hartman and Dole E. Kester (1972). Plant propagation principles and practices, Prentice-Hall of India PVT, New Delhi.
- 7) Gilbeart H. Cooling (1962). Commercial Fertilizers, Tata McGraw-Hill Publishing Company LTD New Delhi.
- 8) Gopal Swarup (1994). Plant diseases, Anmol publication PVT LTD, New Delhi-110002.
- 9) Albert F. Hill (1994). Economic Botany, Tata McGraw-Hill Publishing Company LTD New Delhi.

Syllabus of Certificate Course Designed by Dr. Aparna M. Yadav, Department of Botany with the support of Dr. Padmavathi Rao, Head, Department of Botany, J. M. Patel College, Bhandara.



Dr. Aparna Yadav
Course Co-ordinator
Department of Botany



Dr. Padmavathi Rao
Head
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J.M. Patel College
Bhandara - 441904 (M.S.)



Principal
J. M. Patel College Bhandara

Principal
J.M. Patel Arts, Commerce
& Science College, Bhandara

Syllabus of Insurance And Wealth Management



Gondia Education Society's
J. M. PATEL ARTS, COMMERCE & SCIENCE COLLEGE
BHANDARA - 441904 (M.S.)

Re-accredited B grade by NAAC | Awarded CPE Status (Phase II) by UGC
RTMNU Recognized Awarded Star College Scheme by DBT, Govt. of India
in association with

RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY'S
Department of Lifelong Learning and Extension

Brings a skill-based (Add-on Course)

2023-2024

Under Jeevan Shiksha Abhiyan

Offline Certificate Course in Insurance and Wealth Management

SYLLABUS

DURATION: 15 WEEKS

36 HOURS

Type of Program	:	Certificate Course
Name of Course	:	Insurance and Wealth Management
Eligibility	:	Any UG & PG students
Name of Course Co-coordinator	:	Dr. Anand A. Muley

Certificate Course in Insurance and Wealth Management

Aim:

- The idea, and the practice, of risk-sharing originated in antiquity.
- Wealth Management is a life-long process.
- It is a process that aims to provide techniques and plans that allows an individual or a company to attain all the possible goals in a systematic pragmatic manner.
- The professional who advises individuals and families in undertaking this process is the "Wealth Manager".

Objective

- The basic objective of Course is to learn how property/ casualty insurance are the transfer of risk.
- To have career in Insurance and Wealth Management
- To learn to reduce financial uncertainty and make accidental loss manageable.
- To learn substituting payment of a small, known fee—an insurance premium and manage the wealth professional insurer in exchange for the assumption of the risk a large loss, and a promise to pay in the event of such a loss.



Course Syllabus

INSURANCE AND WEALTH MANAGEMENT **[COURSE CREDITS: 2 CREDITS]**

Duration: 15 WEEKS

Marks: 100

Course Outcome: The objective of the course is that the students will be able to understand various insurance products, knowledge of SEBI, Function & Role, Understanding Stock Markets, Understanding Mutual Funds, Understanding Taxation, TDS, risk associated with it.

Unit I: Basics of Insurance Evolution of insurance, Regulatory Authority - IRDA, Importance of insurance, Insurance as a tool of protection against losses, Insurance as an instrument of risk transfer. Introduction to SEBI, Structure of SEBI, Role and Functions of SEBI, .

Unit II : Legal Regulations Understanding the various insurance regulations and regulatory framework,. Policy Documents and Claims Stages in policy documentation process, Types of claims and claims procedure, importance of customer service, role of insurance agent and communication skill, basic concepts.

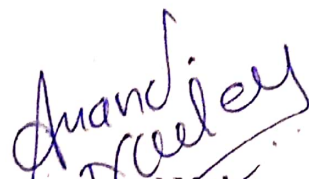
Unit III :Stock and Stock Market Basics Meaning, History and Evolution, Recent Trends in Stock Market, Importance and Role of Stock Markets in Economy, Primary Markets, Secondary markets, Stock Exchanges, Financial Intermediaries, Stock Indices, Careers related to Stock Markets.

Unit IV: Concept And Role of a Mutual Fund: Concept of a Mutual fund, Classification of Mutual Funds. Growth of the mutual fund industry in India. **TAXATION :** Applicability of taxes in respect of mutual funds. Capital Gains, Dividend income,. Tax benefit under Section 80C of the Income Tax Act. Tax Deducted at Source. Applicability of GST.

Reference Books :

1. K. B. Agrawal, Insurance Law in India, Kluwer Law International
2. Dr. L. P. GUPTA, India Insurance Guide, Publication
3. Banking, Risk & Insurance Management – Mohan Prakash N.R.
4. E Gordan, P K Gupta, Banking and Insurance, Himalaya Publishing House
5. Sundar Sankaran, Indian Mutual Funds Handbook, Published by: Vision books Pvt.Ltd.
6. Taxation Book, Taxmann's Master Guide To Income Tax Act.

Syllabus of Certificate Course in Insurance and Wealth Management Designed by Dr. Anand A. Muley, Department of Commerce with the support of Shri Naresh Yawalkar, Ex-Asstt. Commissioner, Sales Tax Mumbai


Dr. Anand Muley
Course Director





Dr. V.P Dhomne
Principal
J.M.Patel College,
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**J.M. Patel Arts, Commerce
& Science College, Bhandara**



Syllabus of Chemistry Laboratory Safety

RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY
DEPARTMENT OF LIFELONG LEARNING AND EXTENSION
SHORT TERM CERTIFICATE COURSE UNDER JEEVAN SHIKSHAN ABHIYAN
2023-2024

J. M. Patel Arts, Commerce & Science College, Bhandara – 441 904
(Affiliated to R.T.M. Nagpur University, Nagpur)

DEPARTMENT OF CHEMISTRY

SYLLABUS

Duration: 11 WEEKS (4 HOURS PER WEEK)

Lectures: 43 HOURS

Name of Course: Certificate Course in Chemistry Laboratory Safety

Eligibility: Undergraduate

Course Objectives:

1. To make the students use four simple principles of laboratory safety to recognize hazards, assess the risk of those hazards, minimize the risk of hazards, prepare to respond to emergencies.
2. To demonstrate the working knowledge of laboratory safety.
3. To develop the skills of using safe laboratory techniques.
4. To nurture a culture of safety in the laboratories.
5. To learn to tackle laboratory inspections, and also working with chemicals.

Course Outcome:

1. Students will acquire a comprehensive knowledge regarding precaution to be taken while working in chemistry laboratory.
2. They will be able to apply the understanding, awareness to prevent accidents, damage & injuries to themselves as well as to others.
3. Laboratory safety skills will enhance employment opportunities.
4. This will establish the notion of a “safety culture” that should permeate all laboratory activities.
5. Being aware of the safety procedures will make them a valuable future employee.

Introduction:

Many laboratories pose significant risks to the chemists due to the use of hazardous chemicals. The prevention of laboratory accidents requires great care and constant vigilance. Risk factors include high voltages, high & low pressures, and temperatures, corrosive & toxic chemicals, chemical vapors, radiation, fire, explosions etc. Measures to prevent laboratory accidents include safety training, general laboratory guidelines, enforcement of

laboratory safety policies, knowledge of laboratory reagents, safe use of laboratory equipment, the use of personal protective equipment, waste management procedures, responding to chemical spills in the laboratory, the use of safety protocols for, particularly, risky operations etc. Also, it is important to have knowledge of appropriate First Aid in case there is an accident.

We believe safety is a very important part and a responsibility shared by both students and instructors. Learning safety instruction is a part of chemistry education. Skills gained in the lab will serve in future careers and enable the student to stay safe while working in the laboratory. Use of critical thinking in applying safety principles will make the students a better chemist.

In view of this, the college preferred to introduce this certificate course for the benefit of rural students. This course will cover all the aspects needed for education of Chemistry Laboratory Safety.

Mode of Teaching: The theory lectures and practical sessions of the course will be conducted *via* Online/Offline mode.

Course Syllabus: Certificate Course in Chemistry Laboratory Safety

Theory:

- **Unit I: Culture of Laboratory Safety** **7 hours**
 - 1.1 The four principles of safety.
 - 1.2 Green chemistry initiatives in the laboratory.
 - 1.3 Lessons to be learned from laboratory incidents.
 - 1.4 Nurturing a safety culture among the people working in laboratories.
 - 1.5 Conducting chemistry demonstrations safely.
 - 1.6 Risks in a chemical laboratory and promoting safety.
 - 1.7 Demonstration: Do's and Don'ts in a chemistry laboratory.
 - 1.8 Demonstration: Green initiatives in organic chemistry laboratory.
- **Unit II: Management of Laboratory Emergencies** **7 hours**
 - 2.1 General preparedness and response to laboratory emergencies.
 - 2.2 Chemical spills containment and clean-up.
 - 2.3 Actions to be taken in case of chemical spills.
 - 2.4 Preparing for Fire emergencies in laboratories.
 - 2.5 Basic information of first aid in chemistry laboratories.
 - 2.6 Measuring toxicity.
 - 2.7 Acute toxicity, chronic toxicity and carcinogens.
 - 2.8 Demonstration: Chemical accidents and their first aid measures.
 - 2.9 Demonstration: Chemical spills and their preventive measures.
- **Unit 3: Understanding and Communicating Laboratory Hazards** **7 hours**
 - 3.1 Safety language Learning: Signs, Symbols, & Labels.
 - 3.2 Hazards: Exposure routes.

- 3.3 Material Safety Data Sheet (MSDS), Safety Data Sheet (SDS).
- 3.4 Globally Harmonized System of classification &labelling of chemicals (GHS).
- 3.5 Laboratory hazards and safety: Information resources.
- 3.6 Interpreting SDS Information.
- 3.7 Chemical hygiene plans.
- 3.8 Hazards associated with corrosive chemicals in the laboratories.
- 3.9 Demonstration: Symbols on chemical bottles.
- 3.10 Demonstration: Using SDS in the laboratory.

▪ **Unit 4: Laboratory Hazards Identification**

7 hours

- 4.1 Working with flammable, reactive and corrosive chemicals.
- 4.2 The chemistry of fire.
- 4.3 Consequences of mixing incompatibles.
- 4.4 Working with compressed gases (parts of the cylinder, cylinder pressure regulator, storage guidelines, transporting cylinders, handling compressed gas cylinders).
- 4.5 Electrical hazards.
- 4.6 The dangers of messy laboratories.
- 4.7 Demonstration: Standard Operating Procedures for working with hazardous chemicals.
- 4.8 Demonstration: Storage of hazardous chemicals.

▪ **Unit 5: Risk Assessment and Minimization measures**

7 hours

- 5.1 Hazards: Risk assessment and management (making decisions about safety).
- 5.2 Using the GHS to evaluate chemical toxic hazards.
- 5.3 Understanding Occupational Exposure Limits (OEL)
- 5.4 Personal Protective Equipment (PPE): Proper attire (eye/face protection, lab coats, gloves, respirators, disposal/removal of PPE).
- 5.5 Emergency equipment safety showers/eye washes.
- 5.6 Chemical hoods in introductory laboratories.
- 5.7 Safety measures for common laboratory operations.
- 5.8 Demonstration: Minimizing the risks from hazard.
- 5.9 Demonstration: Use of Personal Protective Equipment for safety?

▪ **Unit 6: Chemical Management: Inspection, Storage, and Wastes**

8 hours

- 6.1 Handling Chemical Wastes: Introduction.
- 6.2 Storing Flammable and Corrosives.
- 6.3 Handling Hazardous Laboratory Waste.
- 6.4 Doing Your Own Safety Inspection.
- 6.5 Managing Chemicals in Your Laboratory.
- 6.6 Chemical Inventories and Storage.
- 6.7 Chemical Security.
- 6.8 Demonstration: Storage of flammable and corrosive chemicals in the laboratory.
- 6.9 Demonstration: Disposing of chemical waste safely.

References:

- Laboratory Safety for Chemistry Students (Second edition) John Wiley & Sons, 2016 by Robert H. Hill, JR. and David C. Finster, ISBN: 9781119027669
- Chemical Safety in the Laboratory, CRC Press by Stephen K. Hall, ISBN: 0-87371-896-8
- CHEMISTRY An Industry-Based Laboratory Manual, Lewis Publishers by John Kenkel, ISBN: 1-56670-346-8
- Handbook of Laboratory Safety (Fifth Edition), CRC Press by A. Keith Furr, ISBN: 0-8493-2523-4

Criteria to get a certificate:

1. 30% marks will be allocated for internal assessment and 70 Marks will be allocated for the final examination.
2. There will be graded evaluation after the completion of each module.
3. To get a certificate, enrolled UG students have to attempt quizzes//laboratory safety posters (Internal assessment) 30% weightage and Final examination 70% weightage.
4. Best 5 out of 6 graded quizzes//laboratory safety posters (based on each of the 6 modules) will be considered for internal assessment.

Date: 03.08.2023



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Course Coordinator
Assistant Professor
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Syllabus

of

Vermicomposting

RASHTRASANT TUKDOJI MAHARAJ NAGPUR UNIVERSITY
DEPARTMENT OF LIFELONG LEARNING AND EXTENSION
SHORT TERM CERTIFICATE COURSE UNDER
JEEVAN SHIKSHAN ABHIYAN



J. M. Patel Arts, Commerce & Science College, BhandSara-441904
(Affiliated to R.T.M. Nagpur University, Nagpur)

Certificate Course in Vermi composting

SYLLABUS

Duration: 15 Weeks

37 Hours

(From 2019-20 onwards)

Type of Program: Certificate course

Name of Course: **Vermi composting**

Eligibility: UG & PG

Terminal competency (Course Outcome)

After successful completion of course, the students will be able to get skills in

.

- Students will be able to compost in a limited space and understanding the decomposition process.
- The interested students will get the knowledge of composting,
- Students will get the employment
- They can generate employments
- They will also turn towards organic farming
- Will help to maintain the environment pollution free
- Will get the knowledge of biodiversity of local earthworms.
- They can get the jobs in Nurseries, Botanical Gardens and Agriculture Departments as vermicompost technician.

Aim & Objective:

In the total population of Bhandara district, 85% are residing in rural area and their main source of income is Agriculture. The major cultivated crops are paddy, wheat, soyabean, horticulture and vegetable crops. In today's world, recycling of garbage has become necessary in order to sustain our health and environment. So let's join for **Four R's of Recycling Reduce, Reuse, Recycle, Restore** i.e. certificate course in vermicompost technology. In view of the increasing awareness of the quality of food being consumed by the people, there is a growing demand for organic food. In view of this, the college has preferred to introduce this certificate course for the benefit of rural students. This certificate course covers all the aspects regarding the basic knowledge of compost pit making, vermiculture techniques, vermin-compost production and marketing.

Course Syllabus : Vermicomposting**Theory:****Module I:**

- 1.1 Knowledge of general safety, health and hygiene concept of vermicompost technology.
- 1.2 Definition, scope, importance, technique and suitable factors for making vermi-compost.
- 1.3 Need for public awareness, Compost Pit in Kitchen gardens.
- 1.4 Role of Vermicompost- Reduce, Reuse, Recycle, Restore. Role in bio transformation of the residues generated by human activity and production of organic fertilizers. How does nature works.

Module II:

- 2.1. Vermi composting in organic farming- an Ecofriendly Approach. Nutritional Composition of Vermicompost for plants, comparison with other fertilizers
- 2.2. Vermi composting for rural development.
- 2.3. Waste management: Classification of waste material, disposal techniques.
- 2.4. Vermi-composting impact on Agri-horticultural practices & environment. Problems & prospects of Vermi composting in India.

Module III:

- 3.1 Types of earthworms and classification- Epigeic Endogeic Diageic types. Role of Earthworms in waste management
- 3.2 Life History of Earthworm Species, study of Cocoons and their storages, Feeding of Earthworms, types of worm casts,
- 3.3 Pests and diseases of earthworms and control methods
- 3.4 Artificial culturing of Earthworms

Module IV

- 4.1 Vermi-composting techniques: Small and large scale methods. Bed and Pit methods
Standard composition of vermi-compost, vermiculture and vermiwash.
- 4.2 Physico chemical analysis and Nutrient contents of Vermi compost and Vermiwash
- 4.3. Vermicompost Harvesting, packaging, transport and storage of Vermicompost and Vermiwash.
- 4.4 Understand the usage and market demand of vermicompost.

Practical:

1. Collection of wastes & their segregation & processing.
2. Bed preparation for Vermi composting.
3. Natural Culturing of Earthworms with dung method
4. Earthworm collection & application on beds.
5. Survey of earth worm casts in local areas.
6. Preparation of vermicompost from Kitchen waste.
7. Vermi compost collection, Earthworms separation.
8. Air drying of vermi compost, sieving & storing.
9. Preparation of Kitchen Compost Bins.
10. Visit to Vermi composting Farm
11. Demonstration of equipments-(Spades, Crowbars, Mesh sieves, Culture trays, Dripper, Dung fork etc.
12. Project

Course syllabus Designed by Dr. Padmavathi S Rao, Head, Department of Botany with the support of Dr. Jitendra Kirsan, Assistant Professor Dept. of Zoology, JMPC, Bhandara and Shri. A.M. Kotangale, Taluka Agriculture Officer, Department of Agriculture, Bhandara (Govt. of Maharashtra).

- **Reference Books:**
- **‘A Text Book of Applied Zoology: Vermiculture, Apiculture, Sericulture, Lac Culture, Agricultural Pests and their Controls’**- Pradip Jabde Publishers: Discovery Publishing house.
- **‘Earthworms for Solid Waste Management’** (Satyendra M.Singh) International Book Distributing Co. ISBN 81-8189-202-X.
- **‘Hand Book of Biofertilizers & Vermiculture’** (Published by Engineers India Research Institute) ISBN:81: 89765-01-9.
- **Handbook of Vermicomposting Technology** (Dr.E.Sreenivasan) The Western India Plywoods Ltd.
- **‘Vermitechnology’** (M. Seetha Lekshmy & R. Santhi) Saras Publications(2018).
- **‘Vermicompost; Vermiwash and Biopesticides’** (Singh Keshav et.al)Biotech Books Publications



Dr.Padmavathi S Rao
Course Coordinator

Head
Department of Botany
J.M. Patel College
Bhandara - 441904 (M.S.)



Dr.Vikas Dhomne
Principal
J.M.Patel College, Bhandara

Principal
J.M.Patel College
Bhandara

Syllabus Of Medicinal Plants



J. M. Patel Arts, Commerce & Science College, Bhandara
(Affiliated R.T.M. Nagpur, University, Nagpur)
Certificate Course in Medicinal Plants

SYLLABUS

Duration: 15 Weeks (4 hours per week)

60Hrs

Type of Program: Certificate course
Name of Course: Medicinal plants
Eligibility: 10+2 pass

Scope: The subject includes important aspects of Ethnomedicine like use in health care, study of important traditional medicines and formulations. There is a global demand of such but authentic products. Pharma companies are in need of trained personnel at their quality control department. This course envisages to train the students. In view of this, the college is preferred to introduce this Certificate course for the benefit of rural students.

Mode of Teaching : The theory Lectures and Practical sessions of the course will be conducted via online/offline mode.

Course Syllabus

Theory:

Module I: SPU

I. Ethno medicine – Definition, history and its scope – Inter disciplinary approaches ethnobotany – Collection of ethnic information.

II. Importance of medicinal plants role in human health care.

III. Introduction to basic concepts of folk medicine and Ayurveda: methods of disease diagnosis and treatment.

IV. Definition and scope of Pharmacognosy

V. Conservation of medicinal plants-Ex-situ and In- situ conservation. Non destructive and sustainable exploitation .

Module –II

Study of some medicinally important families (diagnostic features with at least three examples of species of medicinal use of ;

I. *Malvaceae*, *Papaveraceae*,

II. *Apiaceae*, *Rubiaceae*,

III. *Solanaceae*, *Meliaceae*,

IV. *Fabaceae*, *Euphorbiaceae*

V. *Rutaceae*, *Lamiaceae*.

Module –III

I. Morphological , Anatomical study and uses of medicinal plant parts: I. Underground parts- (Root, tubers, Suckers) *Asparagus-racemosus*, *Withania somnifera* , Bark- *Terminalia arjuna* , *Moringa oleifera*.

II. Morphological , Anatomical study and uses of medicinal plant parts: Leaves- *Ocimum sanctum*, *Vitex negundo*. Flower- *Hibiscus rosa sinensis*, *Catharanthus rosea*.

III. Morphological , Anatomical study and uses of medicinal plant parts: Fruit & Seeds- *Emblica officinale*, *Acacia nilotica*. Wood & Wood Extract- *Santalum album*,

IV. Study of unorganized drugs- Latex (*Calotropis*), Juice (*Aloe vera*).

V. Study of unorganized drugs- Dried Extract (*Andrographis paniculata*), Gum (*Acacia*), Oil (*Eucalyptus*).

Module –IV

I. Drug adulteration and its detection.

II. Organoleptic study of Rauwolfia, Ginger, Garlic, Turmeric, Neem, , Tulsi, Castor.

III. Principle of Soxhlet Extraction and experimental set up for extraction.

IV. Phytochemical Testing- Test for Carbohydrates and starch.

V. Phytochemical Testing- Test for protein and oil

Practicals

1. Field-study-Method of Sample Collection.
2. Herbarium Specimen Preparation, preservation.
3. Microscopic observations- Surface- hairs, trichomes , Stomatal index in leafy drugs.
4. Identification, morphological studies and medicinal value of locally available medicinal plants parts.
5. Underground parts:(Root, tubers,,Suckers)-*Asparagus racemosus*, *Withania somnifera*.
6. Bark-*Terminalia arjuna*, *Moringa oleifera*.
7. Leaves-*Ocimum sanctum*, *Vitex negundo*.
8. Flower-*Hibiscus rosa sinensis*, *Catharanthus rosa*
9. Fruit & Seeds-*Emblica officinale*, *Acacia nilotica*
10. Wood & Wood Extract-*Santalum album*, *Acacia nilotica*
11. Exudates & Gums-*Azadiracta indica*
12. Study of unorganized drugs Latex, oils.
13. Study of unorganized drugs Juice and gum
14. Organoleptic study
15. Soxhlet Extraction experimental set up for extraction
16. Chemical Test : Test for protein , carbohydrates , Starch and oils.

Course syllabus designed by Dr.S.P.Qureshi with the support of Dr V.J. Tiwari Rtd. Professor, Botany Department J.M.Patel College, Bhandara.

Reference-

1. A Textbook of Pharmacognosy by C. K. Kokate, Purohit, Ghokhale, Nirali Prakashan.
2. A Textbook of Pharmacognosy by Dr. C.S.Shah & Prof .T.S.Qadry ,B.S.Shah Prakashan,Ahmedabad-38001.
- 3 A text book of Synthetic Drugs , O.D.Tiyagi &M.Yadav, Amol publications Pvt.Ltd. New Delhi. 110002
4. An Introduction to Medicinal Botany and Pharmacognosy – N.C. Kumar, Emkay Publication, Delhi 110051

5. Encyclopaedia of Medicinal Plants, Probir Kanti Biswas, Dominant Publisher and Distributors New Delhi.
6. Handbook of Medicinal Plants, Prof Supriya Kumar Bhattacharjee, Pointer Publisher Jaipur 302003(Raj) India.
7. Herbal Plants and Drugs the origin of Evolution, Agnes Arber, Mangal Deep publications Jaipur.
8. Jain S. K. (1987). A manual of Ethnobotany, scientific Publisher, Jodhpur.
9. Jain S. K. (1991). Contribution to Indian Ethnobotany, scientific Publisher, Jodhpur.
10. Medicinal Plant, R.C. Grewal, Campus Books International

Criteria to get a Certificate:

1. 30 % Marks will be allocated for internal assessment and 70% marks will be allocated for the final examination.
2. There will be graded evaluation after the completion of each module.
3. To get a certificate enrolled students have to attempt all the assignment given to them time to time during course periods. This will be considered for internal assessment.

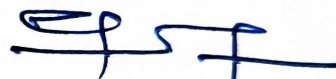


Dr. Sayeda Parveen Qureshi

Course Director (Assistant Professor)

Department of Botany

J.M. Patel College, Bhandara.

Dr. Vikas Dhomne

Principal

J.M. Patel College, Bhandara.

**Principal
J.M. Patel College
Bhandara**

Certificate course In Medicinal plants

Terminal competency (Course Outcome)

Students who complete this program will be able to demonstrate intermediate to advanced skills in

1. Macroscopy and related botanical skills to confidently and analyze botanical ingredients used in commercial products.
2. Difference between folk and traditional medicines
3. Use of some routinely used Ayurvedic drugs and formulations
4. Important Ethnomedicines of Vidharba.
5. Phytochemical and biological screening of herbal drugs.



Dr. Vikas Dhomne

Principal

J.M. Patel College, Bhandara.

Principal

**J.M. Patel College
Bhandara**

Dr. Sayeda Parveen Qureshi

Course Director (Assistant Professor)

Department of Botany

J.M. Patel College, Bhandara.

Syllabus Of Renewable Energy Resources



J. M. Patel Arts, Commerce & Science College, Bhandara
(Affiliated R.T.M. Nagpur, University, Nagpur)
Certificate Course in Renewable Energy Resources
SYLLABUS

Duration: 15 Weeks (4 Hours per week)
Hours: 60

Type of Program: Certificate course

Name of Course: Renewable Energy Resources

Eligibility: 10+2 pass

Scope: To introduce new course for the students and to eradicate unemployment. The students are expected to identify the new methodologies / technologies for effective utilization of Renewable Energy Resources. Renewable Energy Resources Course will let students through a detailed study of the different renewable resources, bioenergy, wind energy, solar energy, tidal biogas, biomass, and many more. The depth study through this Course will also guide them the forms of energy, and more. Also, the best learning part of this course is through insights for the recovery of waste.

Course Syllabus

Theory:

Module I:

- i. Introduction -Definition of Power and energy, difference between power and energy.
- ii. The role of energy in development.
- iii. Importance of renewable sources of energy.
- iv. Limitation of renewable energy sources their usefulness seasonal nature, requirement, need for the use of new energy sources.

Module -II

- i .Commercial energy sources, fossil-fuels coal, oil, natural gas, hydro electric power, nuclear.

- ii. Non-commercial energy sources, wood, animal wastes, agricultural waste, cost of raw materials, transport problems, issues
- iii. Energy conservation for optimization of energy usage.
- iv. Environmental and ethical concerns.

Module –III

- i. Solar energy-Sun as a source of energy, Solar radiation and Spectrum. Advantage and disadvantage of Solar energy.
- ii. Wind energy-Wind as a Source of energy-Wind energy system. Types of Wind Machines.
- iii. Nature of wind and selection of site.Wind energy in India.
- iv. Biomass energy-Biomass and wastes as a source of energy.

Module –IV

- i. Hydro energy-Hydrological cycle as a Renewable energy source.Advantage and disadvantages of hydropower.
- ii. Tides and waves as a source of renewable energy.
- iii. Hydropower and Tidal energy Scenario in India .
- iv. Geothermal energy- Geothermal energy as a source of renewable energy.Advantages and disadvantages of Geothermal energy.

Practicals-

- 1. Familiarization with renewable energy gadgets
- 2. To study briquetting machine .
- 3. To study solar cooker
- 4. Familiarization with different solar energy gadgets
- 5. To study solar pond.
- 6. To study solar drying system.
- 7. To study solar photovoltaic system .
- 8. To study about solar lighting .

9. To study biogas plants .
10. To study about solar pumping.
11. To study about solar fencing.
12. To study solar distillation
13. To study solar drying system
14. To study the production process of biodiesel
15. To study about wind energy.

Course syllabus designed by Dr.S.P.Qureshi Botany Department with the support of Dr V. Muley Sir and A.M. Nawlakhe Sir Professor, Physics Department of J.M.Patel College, Bhandara.

References

- 1.Environment problem and Solution,D.k. Ashthana & Meera Ashthana, S.Chand Co.Ltd.New Delhi
2. Environmental Studies , Benny Joseph. Tata McGrew-Hill Publishing Co.Ltd.
3. Environmental Studies . N.K.Uberoi ,Excel Book Narayna Phase-I New Delhi.
4. Fundamentals of Ecology.M.C. Dash, Tata McGrew-Hill Publishing Co.Ltd.
- 5 Modern concept of Ecology , H.D. Kumar ,Vikas Publishing house Pvt.Ltd New Delhi.
- 6.Principals of Agriculture Ecology ,G.S.Dahliwal & D.S.Kler, Himalaya Publishing House.
7. Practical Manual on Renewable Energy and Green Technology, Dr. Ajay Sing Lodhi, Jawaharlal Nehru Krishi Vishvidyalaya,Jabalpur (M.P.)

Criteria to get a Certificate:

- 1.30 % marks will be allocated for internal assessment and70% marks will be allocated for the final examination.
- 2.There will be graded evaluation after the completion of each module.
- 3.To get a certificate enrolled students have to attempt all the assignment given to them time to tme during course periods.This will be considered for internal assessment.


Dr.Vikas Dhomne

Principal

J.M.Patel College, Bhandara.
Principal
J.M.Patel College
Bhandara




Dr.Sayeda Parveen Qureshi

Course Director (Assistant Professor)

certificate course in Renewable Energy Resources

Terminal competency (Course Outcome)

Students who complete this program will be able to demonstrate intermediate to advanced skills in

1. To join hands for a greener tomorrow
2. To understand role significance of solar energy.
3. To provide importance of Wind Energy.
4. To understand the role of ocean energy in the Energy Generation.
5. To get the utilization of Biogas plants and geothermal energy .
6. To understand the concept of energy Conservation.
7. All issues related to energy, national energy, regional, and global importance.

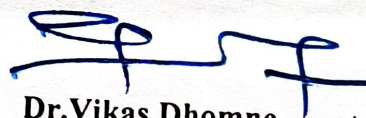


Dr.Sayeda Parveen Qureshi

Course Director (Assistant Professor)

Department of Botany

J.M.Patel College, Bhandara.



Dr.Vikas Dhomne

Principal

J.M.Patel College, Bhandara.

**Principal
J.M.Patel College
Bhandara**

Syllabus

of

Mass

Communication

RASHTRASANT TUKDOJI MAHARAJ NAGPUR UNIVERSITY
DEPARTMENT OF LIFELONG LEARNING AND EXTENSION
SHORT TERM CERTIFICATE COURSE UNDER
JEEVAN SHIKSHA ABHIYAN :
2023-2024
J.M.PATEL COLLEGE ARTS, COMMERCE & SCIENCE COLLEGE
BHANDARA- 441 904
DEPARTMENT OF MARATHI
CERTIFICATE COURSE IN MASS COMMUNICATION

COURSE MODULE : 02 Credits

Contents : --

Unit I : Introduction of Mass Communication

20 Marks

- i) Concept of Communication and Mass Communication.
- ii) Characteristics Concept of Mass Media
- iii) Concept of Mass Media
- iv) Types of Mass Media (Print, Electronic, Digital)
- iiiv) Relation between Mass Media & Mass Culture.
- iiiiv) Media as a fourth pillar of Democracy.

Unit II: Introduction to News

20 Marks

- i) The meaning and Definition of news.
- ii) Sources and Elements of News
- iii) Difference style of News Writing for (Newspaper and Magazines.
- iv) Types of Mass Media (Print, Electronic, Digital)
- iiiv) Different style of News Writing
- iiiiv) Elements of News, Characteristics

Unit III: News Reporting

20 Marks

- viii) Definition and Principles of News Reporting.
- ix) Types and Techniques of News Reporting (Types : Investigative, Cultural,
- x) Political, Seminar & Civic Issue)
- xi) Functions of Reporting ; Interviews, Collection of Data and Research for news reporting.
- xii) Qualities and Responsibilities of Reporter.
- xiii) To Technology used : related subjects Technology journalism includes genres such as
- xiv) News ,reports and analysis covering a wide variety of topics, including communication.



Unit IV: Editing –

20 Marks

- v) Introduction to editing symbol,
- vi) proof reading symbol & copy desk
- vii) Role, Function and Responsibilities of Copy Editor
- viii) Practice and Practical : News Collection, News Reporting and Proof Reading

Technology used :

Nature and need for editing, Principles of editing ,editorial desk,functions of editorial desk. Copy-editing preparation of copy for press-style sheet. editing symbols, proof reading symbols and their significance. Photo developing and printing techniques, creative in photo printing .

Unit VI : Projects and Practicum Work

20 Marks

- vi) Seminar
- vii) Assignment Submission
- viii) Peer visits to the district bureaus of mainstream dailies.
- ix) Field Work
- x) Project Work (Self-created news, Personal Special News, Field Work Report)

This Course is designed by -

Dr. Mamta Raut, Assistant Professor, Department of Marathi

Reference Books-

- v) An introduction to journalism by Richard Rudin.
- vi) An introduction to journalism by Carole Fleming
- vii) Approaches to media literacy: a by Art Silverblatt, Jane Ferry, Barbara Finan
- viii) Print Media, public opinion, and immigration by Rita James Siman,Susan H. Alexander

Basic Requirements are Available –

- v) Sixty computers are available in the computer lab of the college.
- vi) Printers, Software, LCD Projector, Smart Board are available.
- vii) Wi-Fi Internet connectivity and CCTV Surveillance Classroom available.
- viii) Fully Furnished Classrooms are available

Module Objectives :

- 6) To enable students to understand what is mass communication and related terms.
- 7) To make students understand what is news and its basic style.
- 8) To enable students to understand different concepts, techniques and type of news reporting.
- 9) To train students how to edit news.
- 10) To develop capacity of students as a new anchor.

Course Outcomes:

At the end of the course learners will be able:

- 6) Understand concepts of communication and mass communication and types of mass media and mass culture.
- 7) Understand meaning, definition, characteristic and style of news.
- 8) Know principal, type and technique of news reporting.
- 9) Edit symbol, proof reading and responsibilities of editor.
- 10) Face people camera and reporting gadgets as an anchor.

Time Frame :

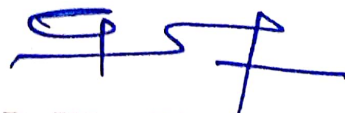
Approximately 15 weeks needed to finish this module — Forty weeks for Off-line for live classes, Two Weeks for Group Dissociation and Seminars, Three weeks for Project Work, Two Weeks for Software's used in preparation of academic Projects & Assignments, Two Weeks for Field Work and One Weeks Test Exam & Final Exam

Help : Guest Lectures of expert faculties will be organized.

- Assessment:**
- 1) All assessments are to be completed at the end of every unit.
 - 2) Final assessment will be done by Course-Coordinator or by expert faculty.
 - 3) One Final Written Online or Offline Test along with project shall be conducted for final assessment.
 - 4) Successful candidates shall be given Course Certificates.



Dr. Mamta Raut
Course Co-ordinator
J. M. Patel College, Bhandara



Dr. Vikas Dhomne
Principal
J. M. Patel College, Bhandara
**J.M. Patel Arts, Commerce
& Science College, Bhandara**

Syllabus

of

Fish Breeding

Technology

RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY
DEPARTMENT OF LIFELONG LEARNING AND EXTENSION
SHORT TERM CERTIFICATE COURSE UNDER
JEEVAN SHIKSHAN ABHIYAN

2023-24

J. M. Patel Arts, Commerce & Science College, Bhandara- 441 904

Department of Zoology
CERTIFICATE COURSE IN FISH BREEDING TECHNOLOGY
(Skill development initiative by Department of Zoology)

COURSE MODULE

Introduction: The certificate course covers all the aspects regarding basic knowledge of fish breeding technology. The main focus is to help each students to recognise their true potential and developed applied aspects in their area of expertise with the foundation based education. Due to this the student would be able to develop a strong basis of their skill sets.

A. lot of emphasis is given to different types of breeding culture techniques. Being a practical oriented programme the focus will be more on hands on training.

The candidates are expected to spend at least 58 to 60 hrs to be eligible for the certificate course.

Passing Minimum: The candidate shall have to secure minimum 50% marks in both theory and practical exam.

Syllabus of Certificate course in Fish Breeding Technology

Module – I History and scope of aquaculture.

- 1.1 Definition and history of Aquaculture, scope and importance.
- 1.2 Basic concept of fisheries, marine, inland and brackish water fisheries.
- 1.3 Important Factors for aquaculture.
- 1.4 Origin and Classification of Fishes.

Module- II Reproductive System and Spawning Rhythm

- 2.1 Anatomical Study of Reproductive System in Fishes.
- 2.2 Study of Gonadosomatic Index and Histology of Fish Gonads.
- 2.3 Fecundity in Fishes.
- 2.4 Ovulation, Fertilization, Spawning, Hatching and Post Embryonic Development.

Module- III Methods of Induced breeding

- 3.1 Bundh Breeding Methods.
- 3.2 Chinese Hatchery Method.
- 3.3 Pituitary Extract Method.
- 3.4 Induced Breeding by synthetic hormone drugs like Ovaprim, Ovatide and others

Module- IV Endocrine System in Fishes

- 2.1 Histophysiology of the Pituitary Gland.
- 2.2 Study of Neuroetho-hypophysio-gonadal pathway in the Fish.
- 2.3 Role of Hormones in Fish Reproduction.
- 2.4 Neuroendocrine Control of Fish Reproduction.

Practical

- 1. Identification and classification of fishes
- 2. Anatomical observation surgical ablation of gonads.
- 3. Identification of developmental stages of Indian major carps.
- 4. Identification of fish by using fin formula.
- 5. Morphological study of diseased fishes.
- 6. Study of Gonadosomatic index of given fish.
- 7. Anatomical observations, demonstration and detailed explanation of reproductive system of carps with the help of ICT tools/ models/ charts.
- 8. Preparation of artificial fish feed.
- 9. Visit to fish breeding centre.

Course Module Designed By:

Course Module Designed by: 1. Dr. Veena Mahajan
Course Co-ordinator
Department of Zoology

J. M. P. C. Bhandara.
Dr. Veena M. Mahajan
Co-ordinator
Department of Zoology
J.M.Patel College, Bhandara





Principal

J. M. Patel College, Bhandara.

Principal
Jashbhai Munibhai Patel College
of Arts, Commerce & Science
Bhandara-441004

Syllabus
of
Nanoscience
and
Nanotechnology

J. M. Patel Arts, Commerce & Science College, Bhandara

Department of Physics Organized Short term
Certificate Course in Nanoscience and Nanotechnology
(Session 2023-24)

Syllabus

Theory: (16 Hours)

Module I: Introduction to Nanoscience and Nanotechnology (4 Hours)

Introduction about nano science and nano technology, Evolution of nano technology, Comparative study of Bulk and Nano materials, Nano structures: 0-D, 1-D, 2-D, and 3-D. Properties of Nanomaterials: Mechanical, Thermal, Electrical, Optical, Magnetic, and Structural.

Module II: Synthesis of Nonmaterial (4 Hours)

Synthesis Approaches: Top-down and Bottom-up. Chemical methods: Hydrothermal, Chemical vapour deposition, Sol-gel method, Combustion method, Co-precipitation method.

Physical methods: Top-down Ball Milling, Physical vapour deposition, Sputter deposition, Gas evaporation, Electro spinning.

Module III: Nanomaterials Characterization (4 Hours)

Introduction, Principle and working of Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), Energy Dispersive X-ray Analysis (EDX), UV-Visible Spectroscopy (UV-VIS), X-ray Diffraction and Debye-Scherrer Formula.

Module IV: Nanocomposites and their applications (4 Hours)

Classification of nanocomposites, metallic, ceramic and polymer nanocomposites, Graphene/Fullerene/Carbon nanotube (CNT) polymer nanocomposites. Applications: Nano based Field Effect Transistors, Carbon nanotube transistors, Memory Devices, sensors.

Practical: (30 Hours)

- 1) Laboratory safety rules
- 2) Calibration and use of pH meter and hot air oven.
- 3) Synthesis of nano particles using Sol-gel method.
- 4) Synthesis of nano particles using co-precipitation method.
- 5) Study of synthesis methods of nano composites using autoclave.
- 6) Study and analysis of SEM (Scanning Electron Microscopy) of synthesized materials.
- 7) Study and analysis of TEM (Transmission Electron Microscopy) of synthesized materials.
- 8) Study and analysis of EDX (Energy Dispersive X-ray spectra) of synthesized materials.
- 9) Study and analysis of XRD (X-ray diffraction spectra) of synthesized materials.



Dr. Amar K. Nandanwar
Course Coordinator & Head

Head of the
Department of Physics
J. M. Patel College, Bhandara.



Dr. Vikas Dhomne
Principal
J. M. Patel College, Bhandara.
J.M. Patel Arts, Commerce
& Science College, Bhandara



Syllabus Of Fashion Designing

RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR
DEPARTMENT OF LIFELONG LEARNING AND EXTENSION SHORT TERM

CERTIFICATE COURSE
UNDER JEEVAN SHIKSHAN ABHIYAN

2023 – 2024

J. M. PATEL COLLEGE ARTS, COMMERCE & SCIENCE COLLEGE
BHANDARA -441904

DEPARTMENT OF HOME ECONOMICS
CERTIFICATE COURSE IN FASHION DESIGNING

Contents:

Unit I: Introduction, Importance, Classification of fashion, marketing and management of fashion

Unit II: Colour –characteristics, Fullness application in apparel, Sketching of natural forms, Introduction to flat sketches

Unit III: Drafting and cutting

Unit IV: Brief study on classification of stitches

Module Objectives:

- 1) To make learners able to introduce the learners to Fashion Designing
- 2) To motivate learner show to Design various garments
- 3) To encourage learners to face to Fashion cycle
- 4) To improve their Designing & marketing skill

Unit I:

1.1-Introduction, Importance, Classification of fashion, marketing and management of fashion Introduction to fashion - definitions and origin

1.2-Importance of fashion business-Reasons for change in fashion Classification of fashion -Style, Class, fad, Trend, Fashion cycle

1.3-Fashion designing–Designers role in styling and production of costumers designing–

1.4- Fashion Marketing and Management. Introduction of Design - definition, types, Structural and decorative designs. Elements of Design-Line, shape, form, colour and texture. Related terminologies and their application

Classification of Fibres– Brief study on cotton, silk, wool and other fibres.

Unit II

2.1-Colour-characteristics,prangcolour chart, colour harmony and colour schemes.

Psychology of colour and its application in apparel market, Basic line and shading exercises using various pencil and colour medium.

2.2-Fullness application in apparel–tucks, pleats, gathers, shirring, frills, flounces.

Introduction to neck-lines, waistlines, hemline, collars, sleeves.

2.3- Sketching of natural forms from nature like flowers, leaves, branches, plants etc.

Free hand drawing of lines and strokes. Drawing heads and faces. Illustrating children, men, women in front view, back view, side view.

2.4- Introduction to flat sketches-different types of skirts,neckline,collars,sleeves,dresses designing flat sketches for children, men, women for formal wear, casual wear, sports

wear, occasional wear.

Unit III

- 3.1- Drafting and cutting the patterns of following style : basic- men's wear, women's wear, children's wear.
- 3.2- Defects in pattern, causes and remedies. Checking fitting of the garments, cause for poor fitting.
- 3.3-Description of basic garment sewing machinery.
- 3.4- Brief study on trims and accessories: sewing thread, needle, label, zip, lining, interlining, and fasteners.

Unit IV

- 4.1-Brief study on classification of stitches: their application, study about flow of processes for sewing various style of garments.
- 4.2- Introduction of surface ornamentation and embroidery - Hand embroidery stitches like - Running stitch, Laced running stitches etc.
- 4.3- Special stitches – counted thread work on canvas material -Drawn thread work, Cut work, Beat work, Mirror work, Sequins work, Ari work.
- 4.4- Introduction to print designs – repeat patterns block, brick variation, tie and dye, Fabric painting Croshia work, Warli painting.

PRACTICALS

- | | |
|-----------------------|----------------------------|
| 1.Making of patterns— | 8- Blouse – simple ,katori |
| 2.Measurement | 9. Churidar |
| 3.Paper cutting | 10. Simple kurta |
| 4.Sketching | 11. A-line kurta |
| 5.Hand embroidery -10 | 12. Stand kurta |
| 6.Stitching | 13. Umbrella kurta |
| 7. Simple salwar | |

Course Module Designed By :Dr. Vijaya Kannake & Smt. Smita Datir (Expert)
Course Co-ordinator Instructor Fashion Designing
Department of Home Economics Govt. ITI, Bhandara
J. M. Patel College, Bhandara

COURSE OUTCOMES

- The Student will be able to develop basic design, aptitudes and skills.
- The Student will be able to apply design elements like drawing, sketches, drafting, cutting, lines, shapes, text, colour etc.
- The Student will develop an understanding of nature forms, man made objects, perspective and human figures, fabric etc.
- The student will be able to design different types of apparels
- The students will be able to stitch the garments
- Through the knowledge of embroidery and other forms of ornamentation, students will be able to add value to the garments.
- The student will be able to create original designs and develop collections for their portfolio.
- The Student will be able to adapt their artistic abilities to support their future design careers.

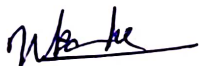
Time frame:

Approximately 15 weeks would be needed to finish the mentioned module.

1. Two weeks for Introduction, Importance , Classification of fashion ,marketing and management of fashion Introduction to fashion.
2. Six weeks for . Drafting & Cutting
3. 3 Days for field visits
4. 3 Days for guest lecture
5. Six weeks for practical work, PPT Presentation

Help: Online/ offline guest lectures of experts faculties, PowerPoint presentations will be organised

- Assessment:**
1. All the assessments are to be completed at the end of every unit.
 2. Assessment will be done by Course-Coordinator or by expert faculty
 3. Final written, practical exam and viva- Voce shall be conducted for Final assessment through online or offline mode.
 4. Successful candidates shall be given Course Certificate.



Dr. Vijaya Kannake
Course Director
J.M.Patel College, Bhandara



Dr. Vikas P. Dhomne
Principal
J. M. Patel College, Bhandara
Principal
**J.M. Patel Arts, Commerce
& Science College, Bhandara**

Syllabus of Baking and Icing



J. M. Patel Arts, Commerce & Science College, Bhandara

(AFFILIATED TO RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY NAGPUR)

Certificate Course in Baking & Icing

2023 - 24

SYLLABUS

Duration: 3 Months

Lectures: 60

Type of Program : CERTIFICATE COURSE

Name of Course : Baking & Icing

Eligibility : HSC Passed

Terminal competency (Course Outcome)

After successful completion of training, the students will be able to demonstrate intermediate to advanced skills in

1. To make Various types of Cake.
2. Practice to develop skills
3. Practice in methods of Baking & Icing,
4. Practice in Selling and marketing
5. To increase self employability of the youth

Introduction:

Now a days everybody has fad of cake . We cannot be celebrate any program without cake. In every program we cut the cake. Just like Birthday, Engagement, Marriage Anniversary, Baby Shower , Friendship Day, Reception and Many other parties. Now a day's Cake has a great demand. In view of this, the college is preferred to introduce this certificate course for the benefit of students.

Course Syllabus :Certificate Course

Theory:

Module I:

- 1.1 Introduction and scope of Baking & Icing
- 1.2 Types of Cake and Icing

Module II:

- 2.1. Study of Classification of cake
- 2.2. Study of Importance of cake

Module III:

- 3.1. Fun facts about cake
- 3.2. Methods of baking biscuit

Module IV:

- 4.1. Nutrient contents of cake & biscuits
- 4.2. Health benefits of cake& biscuits

Practical:

- 1. Study of main ingredients use in baking
- 2. Study of tools use in baking & icing
- 3. Study of using techniques in baking & icing
- 4. Steps of baking cake & biscuits
- 5. Steps of decorating cake
- 6. Testing the taste & texture



Course Co-ordinator & Head
Department of Home Economics



Dr. Vikas P. Dhomne
Principal

J. M. Patel College, Bhandara

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& Science College, Bhandara**