MLK PG COLLEGE BALRAMPUR (U.P.)

Affiliated to Siddhartha University Kapilvastu
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1.1.2: Number of certificate/diploma program introduced during the last five years.

Syllabus of Certificate/Diploma Programs

Contents

CERTIFICATE COURSE IN

AQUARIUM FISH KEEPING

Department of Zoology

MLK PG College Balrampur (U.P.) India 271201

Duration: 90 Days **Strength: 30**

Syllabus

Unit1: Introduction to Aquarium Fish Keeping

The potential scope of Aquarium Fish Industry as a Cottage Industry, Exotic and Endemic species of Aquarium Fishes

Unit 2: Biology of Aquarium Fishes

Common characters and sexual dimorphism of Fresh water and Marine Aquarium fishes such as Guppy, Molly, Sword tail, Gold fish, Angel fish, Blue morph, Anemone fish and Butterfly fish, Use of live fish feed organisms. Preparation and composition of formulated fish feeds

Unit 3: Fish Transportation and Aquarium Maintenance

Live fish transport - Fish handling, packing and forwarding techniques.

General Aquarium maintenance–budget for setting up an Aquarium Fish Farm as a Cottage Industry

Unit 4. Project / Practical on Relevant Topics

Resource: Internet, Books, E- Resources

CERTIFICATE COURSE ON

FLORICULTURE

Department of Botany

M.L.K.P.G. College, Balrampur (U.P.) India 271201

Duration: 90 Days **Strength: 30**

Syllabus

Unit-I Agrometeorology (15 Lectures)

Theory:

1. Importance of different elements of weather and climate in agriculture – rainfall, temperature, humidity, sunshine, wind speed and direction.
2. Weather forecast and its implication.

Practical:

A. Identification of meteorological instruments.
B. Demonstration for recording of a) Rainfall, b) Temperature, c) Humidity, d) Wind direction and speed, e) Evaporation and f) Sunshine hours.

Basic knowledge on plant biology

Theory:

3. Morphology, Physiology and another preliminary knowledge.

Practical:

A. Germination, parts of roots, stems flowers and seeds. Identification of families/varieties, Soil fertility, Manures and Fertilizers, Fertility Management

Theory:

4. Soil fertility, productivity and its maintenance. Concept and practices of integrated nutrient management system.
5. Different types of manures such as vermi-compost, FYM, Sludge, Poultry manure: Their role in improving soil and soil fertility.
6. Green manure – Role of Green Manuring in crop production.
7. Cultivation of important green manure crops such as Dhaincha, Kalai, Cowpea, Sunhemp, Glyricidia.
8. Use of bio-fertilizer asAzolla, Blue-green algae, Rhizobium, Azotobactor, Phosphate solubilizing bacteria and mycorrhiza - their propagation and application.
9. Essential plant nutrient elements - Role of Major and Minor plant nutrient elements. Deficiency symptoms.
10. Chemical Fertilizers: Classification (both macro and micro-nutrient containing fertilizers), nutrient contents. Deficiency symptoms.
11. Method of fertilizer application: Broadcasting, Band and furrow placement, Ring placement, foliar spray. Time of fertilizer application.
12. Maintenance of soil fertility: through adoption of cultural methods such as recycling or application of crop residue, ploughing, levelling.
13. Application of O.M., fertilizers and soil amendments.
14. Crop rotation and adoption of appropriate cropping systems.
15. Environmental factors, photoperiodism, dormancy, growth regulators.

Practical:

A. Identification of seeds of Green Manuring crops. Identification of different Green Manuring crops – Dhaincha, Kalai, Cowpea, Subabul, Glyricidia.
B. Demonstration and incorporation of green manuring crops.
C. Preparation of bio-fertilizers. Practice of bio-fertilizers, application, techniques
D. Identification of fertilizers and micronutrient containing chemicals.
E. Study of nodulation.
F. Practice cultural methods such as recycling or application of crop residue, ploughing, leveling, application of O.M., fertilizers and soil amendments, crop rotation and adoption of appropriate cropping systems for maintenance of soil fertility.

Unit-II: Fundamentals of floriculture (15 Lectures)

Theory

1. Methods of seeds & bulbs collection and storing.
2. Post-harvest technology of cut flowers, seeds, Bulbs.
3. Irrigation & Water management. Including micro irrigation techniques like drip, sprinkler, fogger, fustigation, etc

Practical

A. Propagation by cutting, budding, greating.
B. Handling of seeds, bulbs, cutflowers, nursery plants, pot plants.

Nursery and seed production

4. **Introduction**: Importance of Nursery and seed production, selection of site for open and covered culture.
5. Soil preparation, soil sterilization, propagating structures, preparation of soil mixture for seed sowing and pot plants.
6. Seed production methods for pure seed, open seed, cross pollinated seed and hybrid seed, harvesting, cleaning, seed testing, germination test and packing.
7. Seedling production methods for annuals another herbaceous ornamental's and their methods of packing.
8. Bulb/ Corn production and storage methods for Gladiolus, Tuberose, Freesia, Dahlia, Amaryllis, Day lily, Spider lily, Crinum, Daffodiland Narcissus, Iris, Tulip, Cannas, etc.
9. Methods of harvest, protection, storage and packing.
10. Method of production of Herbaceous rooted cuttings/suckers- Chrysanthemum, Carnation, Dahlia, Gerbera, and Anthodium etc.
11. Methods of production of budded / grafted plants; Rose, Bougainvillea, Hibiscus.

Practical

A. Studying and identification of seeds & testing viability.
B. Seed treatment, soil treatment before sowing.

C. Studying seed sowing in beds and containers.
D. Studying different media, soil mixture for raising plantsby seeds, cutting.
E. Methods of different types of seed sowing.
F. Transplanting or potting the seedling in the pots,polythene bags and in other containers.
G. Studying of floricultural tools used in maintenance andin propagation.
H. Propagation by runners, suckers, off shoots &other vegetative means.
I. Preparing of Nursery plants by various vegetativemethods& their maintenance.
J. Practicing simple and tongue layering, ground layering, air layering or gootee.
K. Practicing leaf cutting and leaf bud cutting.
L. Transplanting of rootstock for preparing grafts.
M. Practicing various budding methods on different root stock at different times.
N. Harvesting different types of seed.
O. Repotting of pot bound plants Pinching, disbudding and application of growth regulators.

Commercial flowers

Theory:

12. Scope, importance, cultivars, soil and climatic requirements, propagation, nutrition and water management, management of insect pests, diseases and weeds, specific cultural operations, harvesting, grading, pulsing, storage.
13. Packing of the following commercially important flowers:
    a. For loose flowers: Jasmines, Chrysanthemums, Rose, Barleria, Balsam, Marigold, China aster, Dahlia, Hibiscus.
    b. For long stem cut flowers: Perennials: Rose, Gladiolus, Carnation, Gerbera, Chrysanthemums, Water lilies, Lilium amaryllis, Tulip, Dahlia, Narcissus.
    c. Annuals: Antirrhinum, Aster, Delphinium, Dianthus, Centauria, Helichrysum, Stock, Candytuft.
    d. Cut Greens: Asparagus, Ferns, Grevillea, Callistemon, Solidago, Palms, Thuja.
14. Specific cultural requirementsfor certain crops(Chrysanthemum,Carnation,Rose, Marigold) suchas pinching, disbudding, regulation Scheduling/forcingof flowering, use of growth regulators.
15. Cultivation under cover such as Poly &Net Houses and specific requirements of control of light temperature &humidity for flower crops suchas Chrysanthemum, Carnation, Rose. Poly house, shed net house, mulching

Practical:

Protected Cultivation offlowers Identification and study of poly house, shed net house, mulching.

CERTIFICATE COURSE ON

DISASTER MANAGEMENT

Department of Geography

MLK PG College Balrampur (U.P.) India 271201

Duration: 90 Days **Strength: 30**

Syllabus

UNIT-1: INTRODUCTION TO DISASTER MANAGEMENT (15 Lectures)

Disaster: Meaning, Factors and Significance; Understanding Disasters: Causes and Effects;

Disasters: A Global View; Disaster Profile of India - Regional and Seasonal; Typology of Disasters: Earthquake, Flood and Drainage, Cyclone, Drought and Famine, Landslide and Snow Avalanche, Fire and Forest Fire, Industrial and Technological Disaster, Epidemics; Planning; Communication; Leadership and Coordination; Warehousing and Stockpiling;

Community Health During Disasters; Emergency Health Operations; Drinking Water; Food and Nutrition; Hygiene and Sanitation; District Administration; Military and Para-Military Forces; Ministries and Departments at Centre and State Levels; Non-Governmental Organizations; Governmental Agencies; Media.

UNIT-II: DISASTER MANAGEMENT: METHODS AND TECHNIQUES
(15Lectures)

Aim: To emphasize various methods and techniques to be used for appropriate and timely preparation and mitigation of disasters. This course also focuses on relevant measures for proper health and casualty management and techniques for reconstruction and rehabilitation.

Increased Understanding of Disasters

a: Flood and Drainage, Cyclone; Drought and Famine; Landslides and Snow Avalanches; Fire and Forest Fire; Industrial and Technological Disasters; Epidemics;

b: **Disaster Mapping**; Predictability, Forecasting and Warning; Disaster Preparedness Plan; Land-Use Zoning for Disaster Management; Preparing Community - Through IEC;

c: **DisasterMitigation**; Search, Rescue and Evacuation; Livestock and Relief Measures; Clearance of Debris and Disposal of the Dead; Control of Fire; Damage Assessment; Community Health During Disasters; Emergency Health Operations; Drinking Water; Food and Nutrition; Hygiene and Sanitation;

d: **Rehabilitation**: Social and Economic Aspects; Reconstruction and Rehabilitation as Means of Development; Agriculture and Irrigation; Housing to Resist Disasters Including Relocation; Retrofitting, Repairing and Strengthening of Houses; Monitoring; Evaluation; Review

UNIT III: PROJECT WORK: (Field Work, Case Studies)

The project /fieldwork is meant for students to understand vulnerabilities and to work on reducing disaster risks and to build a culture of safety. Projects are conceived creatively based on the geographic location and hazard profile of given region

A few ideas or suggestions on topics for projects for Student work could be as follows.

1. Development Disaster preparedness plans
2. Monitoring and evaluation plan for disaster response
3. Low-cost home-based water purification methods
4. Planning Nutrition intervention programmes
5. IEC Activities on public health issues during disasters
6. Preparedness plans for public health response.
7. Safety tips before during and after earthquake, cyclone, floods and fire accidents.
8. Mapping Disaster prone areas,
9. Mapping vulnerability of people (specific groups) and resources.
10. Mock Drills
11. First Aid Training
12. World’s deadliest disasters
13. Major disasters in India
14. Disaster Management in India
15. Disasters in India –An overview Institutional Framework
16. Flood affected areas and damages in India
17. Tropical cyclones
18. Heat waves in India
19. Earth quakes in India
20. Industrial and Chemical Disasters
21. Hands vide hazard zones in India

22. Historical Tsunamis in India
23. Nuclear emergence
24. Major stampedes in India
25. Local Traffic accidents in India
26. Train Accidents
27. Mine disasters
28. Major disease outbreak
29. Disaster management structure in India
30. Precaution, mitigation of disaster in India
31. Warning system in India to prevent disaster
32. Bhopal gas tragedy
33. Kutch earth quake
34. Tsunami (2004)
35. Kosi Calamity 2008
36. Mayapuri radiation exposure Delhi (2010)
37. Mock excuses, First aid
38. strengthening the preparedness phase –the way forward

Teaching Resources

Emphasis will be on interactive teaching learning methods. Tools could be Range of Films-documentaries and feature films related to disasters and their impacts and on vulnerabilities of people are available which a teacher could choose with care and screen. This could form a basis for classroom discussion

CERTIFICATE COURSE ON

UTILITY OF CHEMICAL REAGENTS AND EQUIPMENT

Department of Chemistry

MLK PG College Balrampur (U.P.) India 271201

Duration: 90 Days **Strength: 30**

Syllabus

UNIT-1 (15 Lectures)

Aim: To develop skill towards reagents and equipment.

Objectives: To ready students for job in industry and pharmaceutical companies.

Dil H_2SO_4, Conc H_2SO_4, Dil HCl, Conc HCl, Dil HNO_3,Conc HNO_3, NaOH, NH_4OH, CH_3COOH (Preparation of solutions in different normality).

Glacial acetic acid, iodine $CHCl_3$, Iodoform, Picric Acid, Phthalic acid, Citric acid, Tartaric acid, $NaHCO_3$, Na_2CO_3, $Na_2S_2O_3$(Hypo), glycerol, fumaric acid, alcohols, spirit.

Equipments: Burette, pipette, beaker, reflux condenser, solvent extractor, Buchner funnel, test tube, crucible, silica crucible, water bath, heat mantle, distilled water plant, Ionize pressure pump, magnetic stirrer, mechanical stirrer.

Key Skills and Competencies developed: Study for three month for handling the equipments.

UNIT-2: (15 Lectures)

Aim: Be good Lab technician employment.

Objectives: Can be able to work as chemist/analyst.

Syllabus: Fehling solution A, Fehling solution B, Baeyer reagent, Schiff reagent, phenophthalene, methyl orange, indigo, starch, spraying reagent used in paper chromotography, molisch reagent, salicylic acid, glucose, fructose.

Equipments:Separating funnel, ohmmeter, conductivity meter, balance electronic, glassware, HPLC, GLC, UV spectrophotometer, plastic ware, incubator, compressor pump, oven, refrigerator, paper chromatographic chamber, ascending technique, BOD instrument, COD instrument, Solvent extraction technique, analyser.

Key Skills and Competencies Developed: Handle equipment such as soxlet, pH meter, potentiometer, chemical balance, electronic balance, gas chromatography, TLC, HPLC, electrophotometer, COD and BOD instruments.

Content: To study and knowledge of specific potentiometer chemical balance, and reagents.

UNIT-3:

PROJECT WORK: To study as project work and field work minimum one month is require

CERTIFICATE COURSE IN

MICROBIOLOGICAL ASSESSMENT OF DRINKING WATER

Department of Botany

MLK PG College Balrampur (U.P.) India 271201

Duration: 90 Days **Strength: 30**

Syllabus

Unit I: Microbiology of water

Microbiological status of water especially drinking water. M.P.N. count and practical methods in water, Types of microbes in different nature of water, Water born disease in living beings, Microbiological remediation and purification of water

Unit II: Distribution and quality of water

Water resources, Diversity of aquatic habitats, Lentic and Lotic ecosystems Aquifers, Hydrological Cycles and Disposition of water. Physicochemical properties of freshwater, Water quality parameters and standards, Water pollution and its sources, Ground water, Threats of surface water resources.

Unit III: Water and plants

Aquaculture, water stress adaptation in plants, role of plants in water management, Eutrophication.

Unit IV: Water Management strategies

Management of ground water, Rain Water harvesting, Recharging of ground water, Recycling of waste water Catchment infiltration, Watershed management, The water (prevention and control of pollution) Act. 1974 Ramsar convention.

Treatment Technologies

Treatment of drinking water (ion exchange reverse osmosis and disinfection of water)Treatment technologies for domestic waste water, Biological treatment of waste water.

Practical's

Comparative study of the followings in given water samples:

Dissolve Oxygen (DO), Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Solutes (TS), Total Solid Solutes (TSS), Total Dissolved Solutes (TDS), Nitrates, Phosphates, Relative Hardness, Electro Conductivity (EC) ect.

Bacteriological examination of water by multiple- tube fermentation test, Presumptive coliforms test, Detection of *Pseudomonas*, Detection of *Salmonella*, Detection of *Shigella*, Detection of yeasts and molds, Detection of *Vibrio sp*, Calibration of ocular micrometer and measurement of microorganisms, Enumeration (Counting) of bacteria by plate count/serial dilution agar plate technique, Counting of bacterial population by the use of spectrophotometer.

Teaching Resources: Books, Internet material

Qualification: Graduate in life sciences subjects

Duration:06 months

Seats:30

CERTIFICATE COURSE IN

VERMICULTURE

Department of Zoology

MLK PG College Balrampur (U.P.) India 271201

Duration: 90 Days **Strength: 30**

Syllabus

UNIT 1

1. Introduction to vermiculture, definition, classification, history, economic important, their value in maintenance of soil structure.
2. Its role in bio transformation of the residues generated by human activity and production of organic fertilizers.
3. Choosing the right worm. Useful species of earthworms. Local species of earthworms. Exotic species of earthworms.
4. Biology of *Pheretimaposthuma*.

   a) Taxonomy Anatomy, physiology and reproduction.

   b) Vital cycle of *Pheretimaposthuma*: alimentation, fecundity, annual reproducer potential.

UNIT 2

5. Limit factors (gases, diet, humidity, temperature, P^H, light, and climatic factors).
6. Physio- chemical parameters of vermicompost
7. Different Methods of Vermicomposting: Small- and large-scale Bed method, Pit method Small Scale Earthworm farming for home gardens - Earthworm compost for home gardens
8. Conventional commercial composting - Earthworm Composting larger scale
9. Pest and diseases of earthworms. Frequent problems. How to prevent and fix them. Complementary activities of auto evaluation.
10. Nutritional Composition of Vermicompost for plants, comparison with other fertilizer.

UNIT 3

11. Earthworm Farming (Vermiculture), Extraction (harvest), vermicomposting harvest and processing. Earthworm Farming (Vermiculture), Extraction (harvest), vermicomposting harvest and processing.
12. Vermiwash
13. Small Scale Earthworm farming for home gardens
14. Conventional commercial composting
15. Earthworm Farming (Vermiculture), Extraction (harvest), vermicomposting harvest and processing.
16. Harvesting, packaging, transport and storage of Vermicompost and separation

PRACTICAL

Scientific classification of Earthworm

Study of external morphology of Earhworm

Study of habit and habitat of Earhworm

Study of Digestive system of earthworm

Study of Reproduction of earthworm

Vermicomposting unit Pit method

Establishment of vermicomposting unit Bed method

Establishment of vermiwash unit

Vermicompost production, harvesting and packaging.

Study of cocoon and vermicast

Study of Pests and diseases of Earthworms

CERTIFICATE COURSE IN

FUNCTIONAL ENGLISH

Department of English

MLK PG College Balrampur (U.P.) India 271201

Duration: 90 Days **Strength: 30**

Syllabus

Unit I Tense, Voice, and Syntax etc.

Unit-2 Translation

Unit-3 Project Work (Field work, case studies)

or

Practical: Speaking-Proficiency

Teaching Resources: Library, e-journals and internet-materials

CERTIFICATE COURSE ON

ENTREPRENEUR DEVELOPMENT PROGRAM

Department of Commerce

MLK PG College Balrampur (U.P.) India 271201

Duration: 90 Days **Strength: 30**

Syllabus

Unit I

Introduction of EDP's, Meaning and EDP's, Need and Importance of EDP's

Unit II

Objectives of EDP's

Achievements of EDP's

Phases of Conduct of EDP's

Unit III

EDP's in India Pre Independence and Post-Independence

Causes of Slow Development of Entrepreneurship in India

Unit IV

Role of Government and Institutions

Institute Established by Central Government

Institute Established by State Government

Unit V

Evaluation of EDP's, Limitations or Weaknesses of EDP's, Suggestion for Improving EDP's in India

CERTIFICATE COURSE IN

HUMAN RIGHTS

Department of Political Science

MLK PG College Balrampur (U.P.) India 271201

Duration: 90 Days **Strength: 30**

Syllabus

Unit I

Meaning and Definition, Theories of human rights, Aspects of human rights.

Unit II

Categories of Human Rights: Men, Women, Children, Refugees, War Prisoners, Labourers (Skilled, Unskilled)

Unit III

Agencies involved in human rights protection –UNO, Amnesty International, Human Rights Commission of India

Resources: Books, Magazines, and Journals.

CERTIFICATE COURSE IN

GUIDANCE PSYCHOLOGY

Department of Psychology

MLK PG College Balrampur (U.P.) India 271201

Duration: 90 Days **Strength: 30**

Syllabus

Unit I

Guidance and Counselling, Nature and goal of Counselling, Distinction between Guidance and Counselling. Types of Counselling.

Unit II

Need forGuidance, Nature, Goals and Functions of Guidance, Areas of Guidance, Educational, Vocational and Personal.

Personality

Motivation

Practicals:-

1. Entroversion/ Extroversion
2. Moral Judgment
3. Home Environment
4. Measurement Emotional Maturity
5. Anxiety
6. Mental Health
7. Stress Scale
8. Altruism Scale
9. Attitude Scale
10. 10-Interest Test

Resources: Books, Magazines, and Journals.

CERTIFICATE COURSE IN

FOOD PRESERVATION

Department of Home Science

MLK PG College Balrampur (U.P.) India 271201

Duration: 90 Days **Strength: 30**

Syllabus

Unit I: Principle of food preservation

Definition of food spoiling and food preservation, importance of food preservation, historyand scope of fruit, vegetable industry, and its growth and development.

Unit II: Methods of food preservation

Different methods used in the preservation of food i.e., high concentration of sugar pickling, dehydration etc. Objectives, Principle involved, Merits and Demerits

Unit III: Preservation

- Method involved in preservation of food by low temperature Quick and slow freezing, Merits and demerits
- Preservation byhigh temperature-Definition of processing, Canning,Autoclaving,Spoiling of canned food
- Preservation by preservatives-Objectives,Principle,types of preservatives, Chemical preservatives used in preservation of food,their role and function,reactions,Different types of food chemicals preservatives

- Preservation by high osmotic pressure
- Pickling, salting, curing –Principle and method

Unit IV: Practical-preparation of Jam Jelly

CERTIFICATE COURSE IN

CULTURAL TOURISM (CT)

Department of History

MLK PG College Balrampur (U.P.) India 271201

Duration: 90 Days **Strength: 30**

Syllabus

UNIT- I Heritage Tourism

1. Ancient Religions of India, Indian Culture.
2. Art and Architecture.
3. Tourism and Environment

UNIT- IIMuseums

1. Museums constitute an important resource for Cultural Tourism.
2. Their status as cultural mediators and diversity of their collections
3. Category (whether public or private and national, regional or local)

UNIT-III Project Work & Field Work

1. Heritage Tour
2. Heritage Interpretation
3. List of Heritage Railways
4. World Heritage Site
5. Genealogy Tourism

Teaching Resources: Books, Internet, Map & Atlas,