Kamla Nehru Mahavidyalaya, Nagpur

QLM 1.3.1

SYLLABUS OF VALUE ADDED/ CERTIFICATE PROGRAM OFFERED

Session 2021-22

Kamla Nehru Mahavidyalaya,Nagpur

Department of Sociology

Skill Oriented Certificate Course

On

Gender Sensitisation

2021-22 Duration: one Month

Teaching Plan

Day	Lecture Topic/sub topics	Hours
1	Introduction to Women's Studies	1 hour
2	Sex and Gender	1 hour
3	socialization, Definition, Nature	1 hour
4	socialization Scope and various dimensions	1 hour
5	Approaches of Feminism	1 hour
6	Feminist ideology, Feminism and Patriarchy	1 hour
7	Feminist Movements in brief	1 hour
8	Basic concepts of Gender and Society	1 hour
9	Sexual division of Labour Masculinity & feminity	1 hour
10	Man and Woman relationship	1 hour
11	Self awareness, consciousness raising consciousness raising	1 hour
12	Women and Law Constitutional	1 hour
13	Laws and Fundamental rights	1 hour
14	Human Rights, Women related Law	1 hour
15	**The Dowry Prohibition Act, 1961**	1 hour

16	**Protection of Women from Domestic Violence Act, 2005**	1 hour
17	**The Sexual Harassment of Women at Workplace**	1 hour
18	**The Criminal Law**	1 hour
19	Women in Politics – PRI.	1 hour
20	Skill development and presentation	1 hour
21	Film/Documentary Screening	2 hour
22	Field Visits,	3 hour
23	Group discussion and debate plays	3 hour
24	theatre and presentation skills for personality development.	2 hour
	Total	30 hours

Dr.Sucheta Parkar

Associat Professor

Department of Sociology

Kamla Nehru Mahavidyalaya,Nagpur

Principal

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Kamla Nehru Mahavidyalaya

Sakkardara Chowk, Nagpur

Dr.D.S.Badwaik

Kamla Nehru Mahavidyalaya,Nagpur

Kamla Nehru Mahavidyalaya

Department of Environmental Science

Value Added Course (M.Sc. I)
Environmental Monitoring & Instrumentation
Syllabus

Session: 2021-2022

Theory:

Unit I:Environmental Monitoring & Parameters : Introduction to Environmental Monitoring , importance of monitoring for sustainability, Regulatory framework and standards . Environmental parameters : Temperature, humidity and pressure measurement, Air Quality Parameters(PM, VOCs, gases), Water Quality Parameters(Physico-chemical, Demand, Nutrients, metal & organic analysis) , Soil Quality parameters (Physico-chemical , nutrients)

Unit II: Sampling Techniques & data analysis: Sampling methodology and strategies , sample collection and preservation . Data interpretation and analysis, Data visualization and statistical analysis, trend analysis and anomaly detection, Reporting and presentation of findings.

Unit III: Environmental Monitoring Instrument : Air Quality Monitoring Instruments (PM sampler and analyzers, Gas analyzer for SOx NOx &CO, Continuous emission monitoring), Water Quality Monitoring Instruments (Water quality sensors and probe ,Instruments for nutrients analysis and metal analysis eg. Colorimeter, UV- Visible spectrophotometer, Turbidity meter, pH meter, AAS),Soil and ground water Quality Instruments (Soil moisture sensor and geophysical method ,Contaminants monitoring in soil and ground water , different instruments for analysis eg. Flame photometer)

Unit IV: Noise and vibration measurement: Sound level meter and noise pollution assessment , decibel scale , intensity and frequency , different instruments use for noise measurements, Vibration sensors and impact on environment , mitigation strategies .

Practical:

1) Estimation of oil and grease from industrial water sample.

2) Determination of SPM and RSPM in ambient air by using High Volume Sampler.

3) Determination of SOx concentration in ambient air by using high volume sampler.

4) Determination of NOx concentration in ambient air by using high volume sampler.

5) Measurement of noise pollution by Noise Meter and comparison with standards.

6) Detection of metal ions by paper Chromatography

7) Demonstration of Colorimeter .

8) Demonstration of UV- Visible spectrophotometer

9) Demonstration of pH meter and conductivity meter.

10) Demonstration of Turbidity meter or Nephelometer.

11)Demonstration of Flame photometer.

12) Demonstration of Atomic Absorption Spectrophotometer.

13)Demonstration of Thin Layer chromatography

14) Demonstration of Gas Chromatography.

15) Comparison of environmental Parameters with standards (Air , Water , Wastewater disposal , Noise and Soil)

Kamla Nehru Mahavidyalaya

Department of Environmental Science

Value Added Course (M.Sc. II)

Green Technology for Sustainable Development

Syllabus

Session: 2021-2022

Theory:

Unit I:Introduction to Green Technology & Environmental Challenges: Overview of green technology & its role in sustainability , Historical perspectives and key milestones in green technology, Identifying global environmental challenges, The role of technology in addressing environmental issues.

Unit II: Renewable Energy Sources and Energy Efficiency : Solar Energy , Wind energy, hydro energy and geothermal energy technologies. Advantages and limitations of each energy sources. Energy efficient building design and technologies, Sustainable architecture ,Energy conservation practices in industries and households.

Unit III: Green Technology in Sustainable Development : Sustainable Transportation: Electric vehicles and their impacts, Public transportation and smart mobility solutions. Sustainable Agriculture: Precision farming and agro-ecology, vertical farming and aquaponics. Waste Management and Recycling: Waste to energy technologies, circular economy principles.

Unit IV: Green material and Pollution Control Technology: Sustainable material and their application , Eco- friendly manufacturing processes, Water purification and air pollution control technologies. Monitoring and measuring environmental parameters, emerging technology in the green sector , Ethical and social considerations in green technology.

Practical:

1) Study of Renewable Energy Sources:

a) Solar b) Wind c) Hydropower d) Biomass and Bioenergy

2) Study of waste to energy processes .(Methane Production)

3) Conducting energy audit for residential and commercial spaces (Identifying energy saving opportunities)

4) Hands on training on installation and maintaining solar panels.

5) Sorting and processing of recyclable material.

6) Designing and installing rainwater harvesting system .

7) Study of water purification techniques.

8) Study of practical application of sustainable construction materials.

9) Study of Setting up home automation for energy efficiency.

10) Case study on successful implementation of green technology.

11)Study of eco-friendly building material.

12) Study of E-waste management and recycling.

KAMLA NEHRU MAHAVIDYALAYA, NAGPUR

Mathematics Department

"Value Added course in Vedic Mathematics"

Academic Session: 2021 – 2022 Duration: 15 days

Teaching Plan

Sr. No	Topic	Hours
1	Addition	2 Hours
2	Subtraction	2 Hours
3	Multiplication	2 Hours
4	Square and Square root	2 Hours
5	Cube and Cube root	2 Hours
6	Magic Calendar	2 Hours
7	Digital root	2 Hours
8	Osculation	2 Hours
9	Quadratic Equation	2 Hours
10	Cubic Equation	2 Hours
11	Biquadratic Equation	2 Hours
12	Division	2 Hours
13	Pythagoras Theorem	2 Hours
14	Apollonius's Theorem	2 Hours
15	Compound multiplications	2 Hours

Dr. Manjusha V. Borkar

Head, Department of Mathematics,

Kamla Nehru Mahavidyalaya, Nagpur

Dr. D.S. Badwaik

Kamla Nehru Mahavidyalaya, Nagpur

Principal
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2021-2022

SYLLABUS

VERMICOMPOSTING CERTIFICATE COURSE (4 weeks)

Theory.

Unit 1.

1.1 . Introduction to vermicomposting.

1.2 . Composting worms.

1.3 . Methods of vermicomposting (preparing and maintenance of container).

Unit 2.

2.1 . Ideal condition needed for vermicomposting.

2.2 . Optimum environmental condition

2.3 . PH conditions and friends and foes.

Unit 3.

3.1. Using vermicompost manure.

3.2. Problems encountered during vermicomposting and remedies.

3.3. Importance of vermicomposting.

Practical.

1. Collection of raw materials and earthworms.
2. Preparation of bedding for earthworms and watering & care.
3. Protecting the vermicomposts from ants, worms and other animals.
4. Harvesting of prepared vermicomposts manure and packing.
5. Survey for marketing of the product on domestic and commercial scale respectively.

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Value Added Course
On
Work Place Development
Syllabus
Session(2021-22)

Unit – 1 **6 hrs.**

Change, Identifying the Impact of change, Clarifying standards, Assessing the current position, Critical incident analysis, Error reporting and quality monitoring, Review of business plans., Conditions for congenial Industry relations.

Unit – 2 **6 hrs.**

Definition ,Concept and meaning of Industrial relations, Factors of Industrial relations, Human resource management vs. Industrial relations, Importance of Industrial relations, Fuctional requirements for Sound Industrial relations programme, Functions of Industrial relations.

Unit – 3 **6 hrs.**

Factors Contributing harmonious Industry relations, Collective Bargaining, Characteristics of Collective Bargaining, Process of Collective Bargaining, Meaning and concept of Grievance, Causes of Grievances.

Unit – 4 **6 hrs.**

Discipline, Aspects of Discipline, Objectives of Discipline, Causes of Indiscipline and Misconduct, Industrial Conflicts, Causes of Industrial Conflicts, Prevention of Industrial Conflicts.

Unit –5 **6 hrs.**

Development Plans, Organizational Development Plans, Meeting the development needs of a small business, Department or team development plans, Multi skilling, Individual development plans.

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Work Place Development
(Practical)

Practical Set

i. Study of Impact of change.

ii. Study of Human resource management

iii. Study of Grievances.

iv. Study of Industrial Conflicts.

v. Study of or team development plans

Books:

1. Work place learning & Development – Jackie Clifford & Sara Thorpe
2. Industrial Relations –Himalaya Publishing House P. Subba Rao
3. Industrial Relations and Labour Laws" by S C Srivastava
4. Industrial Relations and Labour Laws" by Piyali Ghosh and Shefali Nandan

The total workload for the course is 30 hrs. And is divided as follows:

Theory = 20 hrs.

Practical = 10 hrs.

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DEPARTMENT OF PHYSICS

VALUE ADDED PROGRAM

2021-2022

Name of Program: Designing Regulated and un-regulated Power Supply

SYLLABUS

In the world of electronics, power supply plays an essential role. It provides the necessary power for electronic devices to function correctly. The power supply can either be regulated or unregulated. Both regulated and unregulated power supply has their advantages and disadvantages. and it's essential to understand the difference between them to make an informed decision on which type of power supply to use. In the present value-added program go through a well-defined syllabus as follows

1. Introduction of the resistor, capacitor, Diodes, Transistor, Integrated circuits(ICs) Transformer, printed circuit board

2. Unregulated Power Supply-Regulated Power Supply, Steady and Pulsating DC Voltages Rectifiers Half-wave Rectifier, Full-wave Rectifier-Full-wave Bridge Rectifier, Filters, Series Inductor Filter Shunt Capacitor Filter Effect of Increasing Filter Capacitance-LC Filter, The CLC or Pi Filter-Bleeder Resistor-Voltage Regulation-Zener Diode Shunt Regulator, Transistor Series Voltage Regulator Controlled Transistor Series Regulator, Transistor Shunt Voltage Regulator, Transistor Current Regulator, Voltage Dividers Complete Power Supply Voltage Multipliers Half-wave Voltage Doubler, Full- wave Voltage Doubler-Voltage Tripler and Quadrupler

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Department of Music

Skill Based Certificate Course
Session 2021-2022

Syllabus

i) Some Basic information

ii) Scales [C,D,E,F,G,A,B]

iii) Basic chords (major) and (minor)

iv) Sharp Scales [$C^{\#}$, $D^{\#}$, ($E^{\#}$), $f^{\#}$,$G^{\#}$,$A^{\#}$ ($B^{\#}$)]

v)Advance chords [major and minor]

vi) Few Songs –[Hollywood or Bollywood]

vii) Arpeggios pattern

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DEPARTMENT OF MICROBIOLOGY

CERTIFICATE COURSE IN COOKERY AND FOOD PRESERVATION

SESSION 2021-22

SYLLABUS

OBJECTIVE:

- To impart students with basic knowledge related to food safety and principle of preservations.
- To introduce students about the concept of processing and preservation of fruits and vegetables.

- **SYLLABUS**

Sr. no.	CONTENT
	UNIT-I
1.	**PURPOSE AND SCOPE OF PRESERVATION** Types of preservatives Objectives of preservation and processing Scope of preservation industry in India **FUNDAMENTALS OF FOOD CHEMISTRY:** Carbohydrates, proteins, fats Vitamins and Minerals
	UNIT-II
2.	**FRUITS AND VEGETABLE PROCESSING SAUCES AND BEVERAGES** **A. CHUTNEY AND SAUCES** • Definition • Method of Preservation • Steps in preservation of chutney • Steps in preservation of Sauces . **B. FRUIT BEVERAGES.** • Definition and Classification • Method of Preservation • Pasteurization • Use of Chemical Preservatives • Role of other ingredients
	UNIT-III
3.	**PRINCIPLE AND METHOD OF PRESERVATION** • Asepsis • Use of low temperature • Use of high temperature • Removal of moisture • Removal of air

	• Use of chemical preservatives Fermentation • Eradiation Gas Preservation • **INTRODUCTION OF FOOD MICROBIOLOGY** • Concepts of microorganisms • Types of Microorganisms • Food Contamintaion and Spoilage • Used necessity of microbes in food preparations
	UNIT - IV
4.	**POST HARVEST CHANGES AND SPOILAGE AND FOOD PROCESSING** • Imporatnce of microbes in food • Signs of Contamination and spoilage in food • Introduction to diseases Caused by spoiled Food Contaimination of Different food **FOOD PROCESSING** • Milk and Milk Processing • UHT Milk • Dairy Products-curd , yogurt, Bread and role of other ingredients. **PACKAGING AND LABELLING** • Importance of packaging and labeling • Functions of food packing • Types of packing materials and food labels. • FSSAI guidelines on labeling of food products.
	UNIT- V
5.	• Key terms , factors affecting food safety Recent concern Food laws standards and regulations • Food additives and contaminants Hygiene and Sanitation • HACCP

PRACTICALS

OBJECTIVES

- To familarise the students with preserved fruit and vegetable product in the market.
- To equip them with skill required for preservation, packaging and evaluation of fruit beverages , ketchup Sauce and Chutney .

Practicals

1. Sterilization of bottles .

2. Market survey of preserved fruit and vegetable products.

3. **Preperation,** Packaging, sensoring /objectives evaluation and costing of :

Sauces : Chilly sauce and Tomato Sauce.

Ketchup: tomato Ketup

Chutney :Tomato and Imli Chutney

Squash: lemon, orange and pinepapple. Syrup : rose, almond syrup.

4. preparation of labels for preserved food.

5. Enumeration of aerobic viable count in sauce and jam & milk by serial dilution method.

6. Detection of coil form in food (Tomato puree, Imli , chutney) & beverages (Sugarcane Juice) as per BIS.

7. Determination of quality of milk by MBRT test.

8. To perform phosphatase test for milk.

9. Isolation of Salmonella from water & food.

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Kamla Nehru Mahavidyalaya, Sakkardara, Nagpur

Electronics Department Organized Short term Certification Course on "*Electronics Equipment*" (Session 2021-22)

Syllabus:

Topic 1: Analog based Equipment

Need of measuring analog based Equipment, their categories of digital Instrumentation devices and their proper uses in analog electronics built Equipment and their accuracy.

Topic 2: Digital based Equipment

Need of measuring digital based Equipment, their categories of digital Instrumentation devices and their proper uses in digital electronics built Equipment and their accuracy.

Topic 3: PLC Automation based Equipment

Basics of Microprocessor and Microcontrollers, basic functions of PLC, advantages over microcontroller, basic architecture, register basics, timer functions, counter function, ladder diagram, overview of PLC systems, I/O modules, power supplies, isolators, programming PLC.

Topic 4: Virtual Instrumentation

Virtual Instrumentation: Historical perspective, advantages, block diagram and architecture of a virtual instrument, data-flow techniques, graphical programming in data flow Comparison with conventional programming. Development of Virtual Instrument using GUI.

Topic 5: Biomedical Instrumentation

Man-instrument basic biomedical system, infrared thermometer (non-contact device), recording system, and patient monitoring system, Biomedical imaging techniques: MRI, ultrasonic, CT SCAN, X-ray tomography, ventilators, Biomedical instruments: Electrocardiography (ECG), hemodialysis machine, cardiac pacemakers, use of telemetry in diagnosis, Lasers in biomedical field.

Topic 6: Communication based Equipment

Fundamentals of antenna, antenna radiation pattern, Frii's transmission formula, field zones, linear, elliptical and circular polarization. The antenna family, short dipole antenna, antenna arrays, broad-side and end-fire arrays, linear arrays, folded dipole, Yagi-Uda array, helical beam antenna, horn antenna, rhombic antenna, parabolic reflectors.

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Mathematics Department

Skill Based Certificate Course on Quantitative Aptitude(2021-22)

Syllabus

Paper I – Arithmetic Ability : (30Hours) (2 Credits)

LCM & HCF, Simplification, Average, Problems of Ages, Percentage, Ratio & Proportion, Time & Work, Time & Distance Problems, Permutation & Combination, Probability,

Paper II –Reasoning and Mental Ability :(15Hours) (1 Credits)

Series Completion A.P. & G.P.,Data Interpretation, Direction sense Test,Mirror Image and Water Image, Problems on Pattern,

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DEPARTMENT OF COMPUTER SCIENCE

Academic Session 2021-22

TEACHING PLAN FOR CERTIFICATE COURSE

Date : From Day 1 to Day 15

Theory Timing (8:00 a.m to 9:00 a.m) & Practical Timing (9:00 a.m to 10:00 a.m)

Sr. No.	Date	Time (Theory & Practical)	Topic /Sub Topics	Duration
1	Day-1	8:00 a.m to 10:00 a.m	Introduction to IT, software , Hardwarwe, Basics of programming Languages	2 Hrs
2	Day-2	8:00 a.m to 10:00 a.m	Wireframing, UI & UX Typography, Web Colors, Web Icons, Web Images, Layout design, Inspiration	2 Hrs
3	Day-3	8:00 a.m to 10:00 a.m	What is HTML5, The Doctype, HTML Tags, Attribute and Elements, Simplest HTML Document Possible Header, Footer and Navigation	2 Hrs
4	Day-4	8:00 a.m to 10:00 a.m	What is CSS3, CSS Box model, Class & Id,CSS Comments and much more	2 Hrs
5	Day-5	8:00 a.m to 10:00 a.m	What is JS, JS statement, JS Output, JS Comments	2 Hrs
6	Day-6	8:00 a.m to	What is jQuery, jQuery getting	2 Hrs

Kamla Nehru Mahavidyalaya
Department of Cosmetic Technology
Value Added Course on Skin Care
Session: 2021-22
Bachelor of Cosmetic Technology Semester II

Syllabus:

Theory: **15 hours**

Skin Care:

- Skin
- Structure and of Skin
- Functions of Skin
- Types of Skin
- Analysis of Skin type
- Daily Skin Care
- Specific skin care for different ages
- Skin care for Summer
- Skin care for Winter
- Skin care for Rainy season
- Diet and Exercisefor healthy skin
- Common skin problems
- Skin care products
- Skin care treatments
- Basics of Depilation

Practicals: **15 hours**

- Cleansing
- Toning
- Moisturizing
- Facial
- Waxing

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Department of Cosmetic Technology
Value Added Course on Hand and Feet Care
Session: 2021-22
Bachelor of Cosmetic Technology Semester IV

Syllabus:

Theory: 15 hours

- Anatomy of Hand
- Anatomy of Feet
- Anatomy of Nail
- Basic Hand and Feet Care
- Hand and Feet Care for Summer
- Hand and Feet for Winter
- Hand and Feet for Rainy season
- DIY Hand and Feet care
- Common Hand and Feet problems
- Footwear and foot health
- Role of massage in Hand and Feet Care
- Hand and Feet massage techniques
- Importance of Exercise in Hand and Feet Care
- Remedies for sore feet
- Nail Care

Practical:

- Manicure — 5 hour
- Pedicure — 5 hour
- Nail art — 5 hour

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Department of Cosmetic Technology

Value Added Course on Professional Make-up Techniques

Session: 2021-22

Bachelor of Cosmetic Technology Semester VI

Syllabus:

Theory: 15 hours

- Introduction to Makeup
- Types of Makeup
- Corrective Makeup
- Makeup Tools and accessories
- Colour Theory
- Brush types and uses
- Makeup products
- Concealing
- Face-Foundation and powdering
- Lips
- Eye makeup
- Bridal makeup
- Airbrush makeup
- Fashion makeup
- Specialized makeup

Practical:

- Bridal makeup — 5 hour
- HD/3D Makeup — 5 hour
- Airbrush Makeup — 5 hour

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Department of Cosmetic Technology
Value Added Course on Personality Development
Session: 2021-22
Bachelor of Cosmetic Technology Semester VIII

Syllabus:

Theory: 15 hours

- Communication Skills
- Stress Management
- Time management
- Listening ability
- Decision Making
- Problem solving
- Goal setting
- Attitude and motivation
- Self awareness
- Empathy
- Body language
- Confidence building
- Interpersonal skills
- Resilience
- Adaptability

Practical:

- Public speaking/Group Discussion — 5 hour
- Meditation — 5 hour
- Body language/ mock interviews — 5 hour

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Department of Cosmetic Technology
Value Added Course on Effective Writing
Session: 2021-22
Master of Cosmetic Technology Semester II

Syllabus:
Theory: 15 hours

- Introduction to Effective Writing
- Principles of Effective Writing
- Types and Stages of Effective Writing
- Notions of Correctness and Appropriateness
- Essay Writing
- Types of Essays
- Essentials of Academic Writing,
- Business Writing and its Functions
- Mechanics of Business Writing
- Business Letters and Memos
- Format of Business Letters and Memos
- Types of Business Letter
- Sales, Complaint and Adjustment Letters
- Report Writing
- Style of Report Writing

Practical:

- Essay Writing — 5 hour
- Business Letters Writing — 5 hour
- Report Writing — 5 hour

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Department of Botany

Value Added Certificate Course

'FLOWER ARRANGEMENT'

2021-2022

Syllabus (Under Graduate)

UNIT I: ORIGIN OF FLOWER DESIGN AND IDENTIFCATION OF FLOWER

- Origin of flower designing
- Flower & plant Identification
- Care & handling of Cut flowers

UNIT II: TYPES & CHOICE OF FLOWERS

- Floral bouquets, baskets, wreaths.
- Table Centerpiece
- Ikebana

UNIT III: PRINCIPLES OF FLOWERS ARRANGEMENTS

- Design & balance.
- Arrangement, scale & rhythm.
- Emphasis (Focal point, harmony & unit)

UNIT IV: DIFFERENT STYLES OF FLOWER ARRANGEMENTS

- Oriental flower arrangements
- Traditions/Western flower arrangements
- Modern Flower design.

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Department of Botany

Value Added Certificate Course

'Preservation Techniques for Plants'

2021-2022

Syllabus (Post Graduate)

M.Sc I yr

UNIT I: INTRODUCTION

- Introduction of specimens, targeting collection locations and date with permits.
- Study of types of pressed, dried and wet plant

UNIT II: ALGAL HERBARIUM

- Herbarium for algae with collection, cleaning, pressing, mounting, storage and conservation with all details

UNIT III: PTERIDOPHYTE AND FLOWERING PLANT HERBARIUM

- Herbarium for Pteridophytes and Flowering plant with collection, cleaning, pressing, mounting, drying, storage and conservation with all details.

UNIT IV: USES AND MANAGEMENT

- Key to use of Herbarium details.
- Operation and maintenance in practice

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Value Added Certificate Course

'Miniature Gardens '

2021-2022

Syllabus (Post Graduate)

M.Sc II yr

UNIT I: INTRODUCTION TO MINIATURE GARDEN

- Scope and objectives of gardening
- Style of gardens: Formal, Informal, gardening tools, potting soil, types of propagation
- Principles and making of Terrarium and Kokedama.

UNIT II: TYPES AND IMPORTANCE OF MINIATURE GARNDEN

- Concept of vertical gardens, Small area greening.
- Plants suitable for office space with aesthetic value, break office monotony, air purifier.

UNIT III: LAYOUTS OF MINIATURE GARDEN AND COMPOSTING

- Importance of layout and principles in kitchen and balcony garden.
- Composting and micro greens.

UNIT IV: MINIATURE GARDEN MANAGEMENT

- Gardening management operations: soil laying, manuring, watering.
- Management of pests and diseases with complete cure.

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Syllabus:

Unit- I: **5 Hrs**

The potential scope of aquarium keeping: knowing types of aquaria,aquarium maintenance, setting of aquarium of different sizes (home, office, hotels, tourist centric, zoos, research laboratories etc.), estimates of money to be incurred on space, materials, skilled and unskilled man power needed and equipment's to craft aquarium.

Unit- II: **5 Hrs**

Ornamental fish farming management aspects: Ornamental fish-diseases and their management, live food culture for tropical ornamental fish, feeding for breeding and maintenance of ornamental fish and health management in ornamental fish farming.

Unit- III: **5 Hrs**

Fish breeding and rearing of egg layers: Breeding of ornamental fish with reference to selected egg layer species. Introduction to breeding of Angel fish, Zebra fish and Neon tetra.Introduction of hatchery management system for egg layers. Nursery management of egg layers with special emphasis on breeding of Gold fish, Advantages and disadvantages of ornamental fish breeding.Theoretical knowledge of transgenic fish technology globally and in India..

Unit- IV: **5 Hrs**

Conservation and future prospects in ornamental fish industries in India and abroad. Co - marketing of transgenic fishes in world and India. Filling the demand supply gap.Field visit to the local aquaria.Ornamental new dimensions in aquaculture entrepreneurship (less space and other requirement).Packaging and transport of aquarium species – export units – marketing strategy regulations for export of fish, etc.

PRACTICALS

10 Hrs

7. Preparation of an aquarium tank of suitable size.
8. Identify, classify and describe any five an aquarium fishes.
9. Study of breeding in live bearer
10. Identify and describe, aquarium decorative plants, natural food, artificial food (pallets, flakes, powders, etc.), live food organism, etc.
11. Identify and describe egg layers and transgenic fishes (any five).
12. Aquarium fish diseases

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KAMLA NEHRU MAHAVIDYALAYA, NAGPUR

DEPARTMENT OF PHYSICS

VALUE ADDED PROGRAM

2021-2022

Name of Program: 1. Basics of Instrumentations

2. Identification and Study of Electronics

When working with such heavy and dangerous equipment, getting accurate measurements can be a very difficult process. This is why instrumentation is so important. Because of the number of processes involved in modern machines, accurate instrumentation is needed to ensure that everything is operating properly. In the present value-added program go through a well-defined syllabus as follows;

1. Basics of Instrumentations

Least counts and measurements using calculation of

a) Vernier Calliper

b) Screw Gauge

c) Travelling Microscope

d) Spectrometer

e) Ammeter

f) Voltmeter, Analog Multimeter and Digital Multimeter

2. Identification and Study of Electronics Components

a) Capacitors

b) Resistors

c) Potentiometer

d) Transistor

e) Diodes

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Department of Environmental Science

Value Added Course

Syllabus

Session: 2022-2023

Theory:

Unit I:Water Chemistry : definition, Composition, Structure, bonding of water molecule and formula, formation of hydrogen bonding, state of water and anamalous behavior of water , Solubility of gases in water, water as universal solvent.

Unit II: Water Sampling: Necessity of water sampling , Objectives, selection of sampling site, Types of water samples, Collection, Handling and preservation, sampling equipment.

Unit III: Water Quality Parameter: Classification of water quality parameters (Inorganic, Organic and nutrients, Parameters analyzed on the spot (field parameter), Data interpretation, Basic concepts, significance and measurement of DO and BOD.

Unit IV: Water resources: water availability on earth, hydrological cycle, sources of water: Surface water ground water, use of water, Water pollution: sources, effects, Control measures. Standards of drinking water quality (WHO Guideline)

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Practical:

1)Water sampling for ground and surface water and its storage techniques.

2) Physical parameters (colour , Temperature ,Turbidity) for characterizing and evaluation of water quality.

3) Relative density test for sample of water.

4) Determination of hydrogen ion concentration (pH) and conductivity of water.

5) Estimation of total solid, total dissolved and total suspended solids by gravimetric method of water and waste water.

6)Estimation of chlorides of water and waste water by Argentometric method.

7) Estimation of alkalinity and acidity of water and waste water.

8)Estimation of total hardness of water and waste water.

9)Estimation of Nitrogen by Kjeldahl methods.

10)Estimation of sulphate and Phosphate in water sample.

11)Estimation of dissolved oxygen (DO) in water sample.

12) Determination of iron and manganese by spectrophotometer.

13)Determination of total coliform of water by MPN technique.

14)Determination of residual chlorine , demand and dose in a provided water sample.

15)Determination of optimum coagulant dose by Jar Test Apparatus.

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Value Added Course
On
Business Strategy
Syllabus
Session(2021-22)

Unit – 1 6hrs.

Business strategy, Strategy and competitive advantage, components of strategic management, Strategy Planning, Corporate level planning, Functional level planning, Business Level Planning.

Unit – 2 6hrs.

Strategy formulation, Strategy implementation, Requirements for Strategy implementation, Adaptive mode, Mission statements, Formulating mission statements, Guidelines for socially responsible firm.

Unit – 3 6hrs.

Analysis of business environment, Remote environment, Customer profile, Suppliers and creditors, Environmental scanning, Intensity of rivalry among existing competitors, Bargaining power of suppliers, Threats of substitute products.

Unit – 4 6hrs.

Diversification strategy, Potential competitors, Exploiting change, Designing opportunistic strategies, Demand conditions, formulation of strategy, Indirect exporting, Direct Exporting, Joint ventures, Direct Investments.

Unit –5 6 hrs.

Acquisitions, Turnkey operations, Management contracts, Value chain, Systematic internal assessment, Superior product designing, Superior customer service, Superior guarantee, Assessing top management.

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KAMLA NEHRU MAHAVIDYALAYA

DEPARTMENT OF MICROBIOLOGY

VALUE ADDED CERTIFICATE COURSE

SYLLABUS OF

"HEALTH AND HYGIENE"

SESSION: 2021-2022

The course is designed to provide a complete guidance on health and hygiene systems, guidelines for implementing and role of government and public in maintaining a healthy life. At the end of the course the student shall be able to understand –

- The importance of health and hygiene in life
- The importance of nutrition for a healthy life
- Different health care programmers of India
- Basic concept of health impact assessment as a means of assessing the policies, plans and projects using quantitative and qualitative techniques
- Importance of community and personal health & hygiene measures
- Importance of food, social tenets, mental condition, physical activity on health

Learning Objectives:

- To provide knowledge on different health indicators and types of hygiene methods
- To impart knowledge on different health care programmes taken up by India
- To create awareness on community health and hygiene
- To enrich knowledge on communicable and non-communicable diseases and their control
- To aware the student on the importance of food, social strategies, mental status and physical activities on health
- To introduce different community-based mobile apps on health to student and thereby to the community

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Learning / Course Outcomes: On completion of this course, the students will be able to understand -

- What is a healthy diet
- How can we use available information to optimize our diet?
- Can nutrition be used for a healthy life?
- Is there a one-size-fits-all "good" diet or should we individualize our dietary goals?
- Disaster management and responsiveness of public in pandemic and epidemiediseases
- Assess the impact of policies on health and hygiene Health measures to considerwhile travelling
- Awareness in public through digital media viz., mobile apps

Unit I: Basics of Nutrition

1. Nutrition – definition, importance, Good nutrition and mal nutrition; Balanced Diet:Basics of Meal Planning
2. Carbohydrates –functions, dietary sources, effects of deficiency.
3. Lipids –functions, dietary sources, effects of deficiency.
4. Proteins –functions, dietary sources, effects of deficiency.
5. Brief account of Vitamins- functions, food sources, effects of deficiency,
6. Macro and micro minerals –functions, effects of deficiency; food sources of Calcium,Potassium and Sodium; food sources of Iron, Iodine and Zinc
7. Importance of water– functions, sources, requirement and effects of deficiency.

UNIT: II Health Hazards: Health dynamicity

1. Definition, factors influencing health, health as a medium of socio-economic Development.
2. Diseases – Common food borne and water borne diseases (gastroenteritis, jaundice, Cholera, salmonellosis, travellers' diarrhoea and Escherichia coli infection, typhoid)

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3. Mode of transmission, causative agents, symptoms, prevention and control. Sexually transmitted infections– AIDS, genital herpes, hepatitis B, syphilis, gonorrhoea causative Agents, symptoms, modes of transmission and prevention. Dengue, chikunguniya, rat fever (general methods of mosquito control and the need to prevent mosquito breeding in and around our homes).

4. Lifestyle habits – excessive usage of T.V., computer, mobile phones, two wheelers, and their impacts on health. Lack of physical exercise and its deleterious effects on the body and mind.

Unit III: Hygiene

1. Hygiene – Definition; Personal, Community, Medical and Culinary hygiene; WASH (**W**ater, Sanitation and **H**ygiene) programme
2. Rural Community Health: Village health sanitation & Nutritional committee (Roles & Responsibilities); About Accredited Social Health Activist (ASHA); Village Health Nutrition Day, Rogi Kalyan Samitis
3. Community & Personal Hygiene: Environmental Sanitation and Sanitation in Public places
4. Public Awareness through Digital Media - An Introduction to Mobile Apps of Government of India: NHP, Swasth Bharat, No More Tension, Pradhan Mantri Surakshit Mantritva Abhiyan (PM Suman Yojana), My Hospital (Mera aspataal), India fights Dengue, JSK Helpline, Ayushman Bhava, Arogya Setu, Covid 19AP.

UNIT IV: Adulteration of food:

1. Food hygiene – hygiene of milk, meat, fish, eggs, fruits and vegetables,.

2. Common food adulterants – harmful effects and their detection, food additives, fortification of food;

3. Food Adulteration Act and its stringent implementation.

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DEPARTMENT OF BIOTECHNOLOGY

Session 2021-22

Value-added course on

"Clinical Research"

Syllabus

UNIT I:

Introduction to clinical research

Clinical Research: An Overview, Different types of Clinical Research, Terminologies and definition in Clinical Research, Treatment research, Prevention Research, Diagnostic research, Screening research, Genetic studies and Epidemiological studies.

UNIT II :

Clinical Pharmacology: Pharmacokinetics, absorption, distribution, metabolism, and excretion of drugs., Pharmacodynamics, molecular, biochemical, and physiological effects of drugs, including drug mechanism of action, Pharmaco epidomology, Descriptive and analytical,

UNIT III:

Bioavailability- Absolute bioavailability and Relative bioavailability, time curve and dose response graphs, Bioequivalence, non-replicated or replicated, two-period, two-formulation, two-sequence crossover study.

UNIT IV:

Drug Development Process: Preclinical trail, In Vivo, In Vitro, And Ex Vivo Assays, Human Pharmacology (Phase-I, II, III & IV), Therapeutic treatment discovery, preclinical studies, clinical development and market approval.

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Biotechnology Department

Session 2021-22

Organized Value-added course

"Exploring Bioinformatics and Advanced Research Methodology"

Syllabus

Module 1:

Introduction to Bioinformatics and Biological concepts, Overview of bioinformatics and its significance, biological databases and data types, Introduction to sequence, structure, and functional analysis, Molecular biology basics (DNA, RNA, proteins), Central dogma of molecular biology, Cell biology and signalling pathways

Module 2:

Sequence Analysis and Structural Bioinformatics, Sequence alignment algorithms (Pairwise and Multiple), BLAST and other sequence similarity tools, Phylogenetic analysis and evolutionary relationships, Protein structure prediction methods (Homology modelling, Ab initio prediction), Protein structure visualization and analysis tools

Module 3:

Introduction to Research Methodology and, Understanding the research process, Types of research: exploratory, descriptive, analytical, experimental, Importance of research in various fields, defining research problem and objectives, Formulating research questions and hypotheses, Types of research designs: experimental, quasi-experimental, non-experimental, observational, etc.

Module 4:

Literature Review, Importance of literature review, Searching and evaluating academic literature, Synthesizing information from various sources, Avoiding plagiarism and proper citation practices

Module 5:

Research Proposal Writing and Research publication, Components of a research proposal, writing a clear and concise research title, developing a research abstract, Outlining research methodology and expected outcomes

Module 6:

Practical Exercises and Case Studies, Hands-on data collection and analysis exercises, Critiquing research studies, Group discussions and presentations,

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VALUE ADDED COURSE

ON

"Introduction to Digital Marketing"

Session-2021-22

Unit-I

Fundamentals of Digital marketing & Its Significance, Traditional marketing Vs Digital Marketing, Evolution of Digital Marketing. Digital Marketing Landscape, Key Drivers, Digital Consumer & Communities. Gen Y & Netizen's expectation & influence wrt Digital Marketing.

Unit-II

The Digital users in India, Digital marketing Strategy- Consumer Decision journey. POEM Framework, Segmenting & Customizing messages. Digital advertising Market in India, Skills in Digital Marketing, Digital marketing Plan.

UNIT-III

Terminology used in Digital Marketing, PPC and online marketing through social media, Social Media Marketing, SEO techniques. Keyword advertising, Google web-master and analytics overview.Affiliate Marketing, Email Marketing, Mobile Marketing.

UNIT-IV

Display adverting, Buying Models, different type of ad tools, Display advertising terminology, types of display ads. different ad formats, Ad placement techniques. Important ad terminology, Programmatic Digital Advertising.

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Syllabus of Value Added Course

on

" Digital Office Automation using Google Tools"

MCM-I

Unit-I : Google Docs and Google Drive

Word-processing using Google Docs, Toolbar, Menus, Creating of New Document, Opening, Sharing, downloading Document, Basic formatting features, Text & Paragraph Formatting, Table, Watermarks, Header and Footer, Special Character, Alignment, bullets and numbering, Spelling & Grammar, Voice Typing

Introduction to Google Drive, Managing Google Drive, Storing and sharing files and folders, Documents, Photos, Videos, Recordings, etc.

Unit-II : Google Sheets

Introduction to Google Sheets, Toolbar, Menus, Creating of New Spreadsheet, Opening, Sharing, downloading, importing spread sheet, Freeze, Group, Zoom, inserting charts,

Unit-III : Slides

Introduction to Google Slide, Toolbar, Menus, Creating of New Presentation, Opening, Sharing, downloading, importing, presentation, Slideshow, motion, inserting text, audio, video, animation, background, border and shading, bullets and numbering, transition.

Unit-IV : Gmail (Google Mail) and Google forms

Introduction to Gmail, Sending and Receiving mail, attachment, sharing, Smart email filtering system, Custom labels.

Introduction to Google forms. Creating form, quiz, linking, sharing, attachment of add-on.

Practical: Practical based on above syllabus.

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Syllabus of Value Added Course

on

" Computer Networking"

MCM-II

UNIT 1: Introduction of Networking:

Network applications, network hardware, network software, Reference models: OSI, TCP/IP, Internet, The public switched telephone Domain name space, DNS in internet, electronic mail, FTP, WWW, HTTP,SNMP, multi-media, network security, Connection oriented network - X.25,frame relay.

UNIT 2: Transmission Media:

Guided transmission media, wireless transmission THE DATA LINK LAYER: Design issues, error detection and correction, elementary data link protocols, Sliding window protocols, example data link protocols - ACCESS SUBLAYER: Channel allocations problem, multiple access protocols, Ethernet.

UNIT 3: THE NETWORK LAYER

Network layer design issues, routing algorithms, Congestion control algorithms Internetworking, , TCP/IP Networking ,Network Security Ensuring Integrity and Availability Network Management Ensuring Integrity and Availability Service.

UNIT 4:

THE TRANSPORT LAYER

Transport service, elements of transport protocol, Simple Transport Protocol, Internet transport layer protocols: UDP and TCP. THE APPLICATION LAYER: Domain name system, electronic mail, World Wide Web: architectural overview, dynamic web document and Simple Network Management Protocol, File Transfer Protocol, Simple Mail Transfer Protocol, Telnet.

PRINCIPAL

MSc-I
Syllabus of Value Added Course
On
Data Warehousing

UNIT – I :

Introduction to Data Warehousing: Data Warehouse Architectural Strategies, Data Content, Building a Data Warehouse, Performance Considerations, Crucial Decisions in Designing a Data Warehouse, Different Case Studies.
Various Technological Considerations: OLTP and OLAP Systems, Data Modeling, Managed Query Environment (MQE).

UNIT – II :

(Data Mart and Data Mining Tools) Data Mart: Data Mart, Type of Data Mart, Loading a Data Mart, Metadata for a Data Mart, Data Model for a Data Mart,
Data Mining and Tools:
Introduction, From Data Warehouse to Data Mining, Steps of Data Mining, Data Mining Algorithm, Database Segmentation, Predictive Modeling, Link Analysis, Tools for Data Mining.

UNIT – III :

(SQL Server, Components and Queries) SQL Server Architecture: SQL Server Data Storage Architecture, The Data Engine, System Databases.
SQL Components: SQL"s Basic Object, Data Types, Transact-SQL Functions, Scalar OperatorsQueries, Modification of Table Contents, Stored Procedures and User-Defined Functions, Views.

UNIT – IV :

(Data Integrity, User Security and Concurrency Control) Managing Data Integrity: Data Integrity Controls, Working with Constraints, DML Triggers. Principles and Authentication, Implementing Permission in SQL Server.
Backup and Concurrency Control: Transaction Architecture, Locking, Backup Types, n, Using Transaction Logs, Using Triggers, Replication Methods

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MSC-II
Syllabus of Value Added Course
On
Data SCIENCE

Module-I

- Course overview and introduction to data science and Python
- Basic python programming
- Introduction to Numpy
- Introduction to Pandas and data-frames

Module-II

- Object-oriented programming and automation
- Data loading, cleaning, summarization
- Data aggregation and transformation
- Data visualization

Module -III

- Review of basics statistics
- Statistical and exploratory data analysis and outlier detection
- Linear Algebra Review

Module -IV

- Linear and Logistic Regression
- Feature Selection
- Data Ethics
- Project presentations

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MCA-I
Syllabus Of Value Added Course
On
Cyber Security

Module 1:

Defining Cyberspace , Architecture of cyberspace, Communication and web technology, Internet, World wide web, Advent of internet, Internet infrastructure for data transfer and governance, Internet society, Regulation of cyberspace, Concept of cyber security, Issues and challenges of cyber security.

Module 2:

Apply and evaluate the cyber security needs of an organization.

Determine and analyze software vulnerabilities and security solutions to reduce the risk of exploitation.

Module 3:

Evaluate cyber security solutions and use of cyber security, information assurance, and cyber/computer forensics software/tools

Design and develop security architecture for an organization.

Module 4:

Design operational and strategic cyber security strategies and policies.

Introduction to Cyber Crime Investigation Firewalls and Packet Filters, Cyber-crime and offences, Organizations dealing with Cyber-crime and Cyber security in India, Case studies

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MCA II

Syllabus of Value Added Course
On
Certificate Course on IOT

1. Introduction to IOT

- Understanding IoT fundamentals
- IOT Architecture and protocols
- Various Platforms for IoT
- Real time Examples of IoT
- Overview of IoT components and IoT Communication Technologies
- Challenges in IOT

2. Arduino Simulation Environment

- Arduino Uno Architecture
- Setup the IDE, Writing Arduino Software
- Arduino Libraries
- Basics of Embedded C programming for Arduino
- Interfacing Arduino with LCD

3. Sensor & Actuators with Arduino

- Overview of Sensors working
- Analog and Digital Sensors
- Interfacing of Temperature, Humidity, Motion, Light and Gas Sensor with Arduino
- Interfacing of Actuators with Arduino.
- Interfacing of Relay Switch and Servo Motor with Arduino

4. Basic Networking with ESP8266 WiFi module

- Basics of Wireless Networking
- Introduction to ESP8266 Wi-Fi Module
- Various Wi-Fi library.
- Web server- introduction, installation, configuration
- Posting sensor(s) data to web server

5. IoT Protocols

- M2M vs. IOT
- Communication Protocols

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DEPARTMENT OF COMMERCE
CERTIFICATE COURSE IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT

SYLLABUS
SESSION :- 2021-2022

Sr. No.	Particulars	Duration
1	**Introduction to basic concepts of Logistics:** What is Logistics. Importance of Logistics management. **Procurement, Storage and Warehouse Management** :- Role of Inventory in Warehouse Management. Location and design and managing uncertainty risk of customer market.	9 Days
2	**Distribution Management For Global Supply Chain** :- strategic role of logistics management study the important modes of logistics operations	9Days
3	**Applied GIS and Spatial Data Analytics :-** supplier locations, distribution centers, and routing of vehicles.	7 Days
4	**Supply Chain Risk Modeling& Management** Insight on valuable perspectives on supply chain vulnerabilities. With an emphasis on data, models and modeling systems the students can also analyze supply chain planning problems.	6 Days

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Kamla Nehru Mahavidyalaya, Nagpur
Department of Biochemistry
Value added course
Hands on training in Empirical Biochemistry
Session-2021-2022

The objective of the course "Hands on training in Empirical Biochemistry" for explaining the essentials of Biochemistry related technology to develop enthusiasm amongst students. This course intends to provide fundamental understanding and practical handling as well as research application associated with the techniques.

Learning outcome
Through this course students are exposed to biological molecules. They will acquire knowledge about qualitative and quantitative estimation of biomolecules. This skill based course introduces the students to the concepts in biophysical, biochemical and molecular techniques. Through this course students will be acquainted with the principles, applications and instrumentation used in biochemistry.

Course Content

Section I
Basic equipment used in biochemistry.
Handling of P^H meter, Colorimeter, Spectrophotometer, Weighing balance, Centrifuge, incubator oven, heating bath, Water bath, distillation assembly, autoclave, micropipettes etc.

Section II
Basic Biochemical tests
Basic biochemical tests for qualitative and quantitative estimation for Protein, Lipid, Nucleic acid and carbohydrate.

Section II
Separation techniques.
Separation of Biomolecules by using different types of separation techniques including Chromatography, Electrophoresis.

Section III
Molecular Biology Techniques
Isolation of DNA from bacteria/blood sample.
Agarose gel electrophoresis of DNA.
Visualization of DNA by UV transilluminator
Demonstration of Polymerase Chain Reaction technique.

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Sakkardara, Nagpur.

Head
Department of Biochemistry
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MBA DEPARTMENT

Value Added Course
On
Personality Enhancement

Course Outcomes

The students will be able to identify their strengths and weaknesses and use the knowledge gained to interact with other students in a more confident and effective manner.

The students will inculcate positive qualities like punctuality, flexible attitude, willingness to learn, friendly nature, eagerness to help others and so on.

The students will develop confidence in daily encounters and would be able to present self assertively.

The students will be provided with measures of characteristics like feelings and emotional states, attitudes, and approaches to interpersonal relations.

UNIT I: - Self Assessment **6 hours**

Term self-esteem - Symptoms - Advantages - Do's and Don'ts to develop positive self-esteem – Low self-esteem - Personality having low self-esteem - Positive and negative self-esteem. Analysing self-strength and weakness. Preparation of self-introduction. Activity on Self-assessment.

UNIT II: - Interpersonal Relationship **6 hours**

Analysis of Ego States, Transactions, life positions and strokes. Interpersonal Relationships – Defining the difference between aggressive, submissive and assertive behaviours – Lateral thinking.

UNIT III: - Managing interpersonal relations **6 hours**

Conflict – types of conflicts, reason behind conflict, resolution of conflict. Stress Management – causes of stress, Stress Management Techniques

UNIT IV: Techniques of Personality Development **6 hours**

Decision-making skills - Time management - Good manners and business etiquette.

UNIT V: - Professional Dynamics. **6 hours**

The art of participating in Group Discussion - Meaning, Do's and don'ts of group discussion, Leadership styles, Team-building. Practical sessions on group discussion.

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Department of Biochemistry
Certificate Course on Medical Laboratory Technology

Syllabus

Theory

- **Unit-I: Pathology**
  Concept of pathology and various aspects involved in it, Human Blood Group Antigen, Abo Blood Group System And Incompatibility, Rh Blood Group And Incompatibility. Clinical pathology and its importance
  General overview of Genetic and molecular diagnosis.

- **Unit-II: Clinical Pathology**
  Introduction
  Mechanism of urine formation, Composition of Urine, Diseases of Urinary system- Haemoglobinuria, Proteinuria, Phenylketoneuria, Glucosuria, Oligouria, Polyuria etc.

- **Unit-III: Heamatology**
  Composition of Blood. Physical and Chemical Characteristics of blood. Disorders of blood.

- **Unit-IV: Microbiology**
  History of microbiology and the evolution of microscope technique, Principle and technique of simple and differential staining, Study of Microorganisms –bacteria, fungi, viruses etc. Introduction to different sterilization techniques. Brief overview of diseases caused by microorganisms. Mechanism of effect of antibiotics on microorganism.

- **Unit-V: Clinical Microbiology**
  Normal Flora of Human Body, Septicemia, Pyaemia, Food Poisoning, Opportunistic Infection

- **Unit-VI: Biochemistry**
  Introduction to Carbohydrate, Fats, Amino Acids, Proteins. Clinical significance of biomolecules.

- **Unit-VII: Immunology**
  Introduction to Immunity, Types of Immunity, study of Antigen and Antibody, Antigen Antibody Reactions.

- **Unit-VII: Parasitology**
  Brief study of parasites and parasitic diseases.