



Kamla Nehru Mahavidyalaya, Nagpur

QLM 1.3.1

**SYLLABUS OF VALUE ADDED/ CERTIFICATE
PROGRAM OFFERED**

Session 2020-21

'Maintenance and Repairing of Domestic Appliances'

Subject - I

Basic Electrical Engineering and Safety Precautions

Total periods: 08

Periods per week : 02

Max Marks: 30

Major Topics

Sr. No.	Topic	No. Of Periods Alloted
1.	Basic Electrical Engineering	06
2.	Safety Precautions: First Aid	02
	Total	08

Syllabus content:

Basic Electrical Engineering

- 1.1 OHM's Law: Electric current - conductors - insulators Semit-conductors-Electric potential-Resistance-Ohm's Law - Resistances in series and parallel simple problem.
- 1.2 Work-power-Energy: Definitions of work, power & energy simple problems on power & energy, DC, A.C. power
- 1.3 Cells: primary cells - secondary cells - lead acid cell construction and working - efficiencies of cells defects in cells - charging methods - maintenance.

Safety Precautions: First Aid

Precaution to be taken at various stages, while handling tools during wiring- electric fire-precautions against shocks-first aid artificial respiration.

Lab - I

Electrical Lab

Practical No. 01

Periods per week: 02

Total Periods 08

Max Marks: 70

1. Measurement of power of a Appliance / Circuit
2. Testing and charging of cells
3. To Verify Ohm's Law
4. Connecting, starting of running and reversing of a I-Q capacitor motor.

Subject - II

Domestic Appliances

Total periods: 08

Periods per week : 02

Max Marks: 30

Major Topics

Sr. No.	Topic	No. Of Periods Allotted
1.	Heating Appliances	04
2.	Motorise and Other Appliances	04
	Total	08

Syllabus content:

Heating Appliances:

Electric Iron - Electric Stove - Immersion coater Heater Geyser -Table lamp - Testing & Repairing. A.C. Motor Winding

Motorised Appliances:

Electric Fans (Ceiling Fan, Table Fan, Pedastal Fan etc.) Electric Mixer - coet Grainders - Coashing Machine - vaccume cleaner - Electric Hand drill - Domestic water pump sets : Installation, Testing, Servicing and Repairing of above Mentioned Appliances.

Other Appliances:

Installation, Testing, Servicing and Repairing of Emergency Light -Invertors.

Lab - II

Domestic Appliances Lab

Practical No. 02

Periods per week: 06

Total Periods 24

Max Marks: 60

1. Testing of various Domestic Appliances mentioned in the Theory Subject - 2 10
2. Dismantling of various Domestic Appliances mentioned 10

Field Visit

On-The-Job-Training

Total Periods: 04

Max Marks: 10

KAMLA NEHRU MAHAVIDYALAYA, NAGPUR

DEPARTMENT OF PHYSICS

VALUE ADDED PROGRAM

2020-2021

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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Syllabus

Module I

Introduction to different methodology of composting, fertilizer: its classification and manufacturing processes, biofertilizers and their advantages, Plant growth regulators

Module II

Introduction and scope of Plant tissue culture(PTC), Instrumentation, Media preparation & sterilization, Explant isolation and callus induction in different growth regulators combination, organogenesis and somatic embryogenesis, cytology of callus, suspension culture and production of secondary metabolites

Module III

Micropropagation, Embryo culture, Production of haploid through anther/Pollen, ovule embryo culture, Protoplast isolation and culture, Invitro plant regeneration, Hardening, establishment

Module IV

Development of transgenic plant by Agrobacterium mediated transformation. Isolation of genomic DNA, plasmid isolation, RFLP technique

C. S. N.

Kamla Nehru Mahavidyalaya Nagpur
Environmental Science Department
Certificate Course
On
"Agricultural Waste Management"
Syllabus

Part I: Definition of Waste, Source of Waste, Industrial waste, Commercial Waste, Domestic waste, Agricultural waste, Types of Waste, Biodegradable waste and Non-Biodegradable waste, Importance of waste Management, Scientific Way of Waste Management, Efficient Management of Landfills, Concept of 3R, Zero waste System, Benefits of Waste Management.

Part II: Indian Scenario on waste Management, Recommendation to Managed waste effectively, Introduction of Agricultural Waste, Practice Related to Agriculture and Source of Agricultural Waste, Specific hazards related to agricultural waste .

Part III: Vermicomposting Introduction, Design Consideration, Large Scale, Small Scale, Able to worm Species, Climate and Temperature. Feedstock, Small-scale or home system, Large scale or commercial. Harvesting, Properties, Benefits, Uses, Operation and Maintenance, Application in India. Vermiwash Introduction, Setting up of vermiwash Unit, Composition, Use of Vermiwash, Procedure for use.

Unit IV: Organic Farming, Methods for Crop Improving and waste management in agricultural field, Compost forming, Biogas from waste, Procedure for Production of biogas and its Maintenance. Fodder for animals and recovery from waste.

Practical:

- 1) Solid waste sampling /Soil sampling
- 2) Sample Preparation (Soil/Solid Waste)
- 3) Analytical Method for analysis of sample
- 4) Estimation of Moisture content in Soil / Solid Waste/ Fertilizer
- 5) Determination of calcium in Soil / fertilizer
- 6) Estimation of NPK in soil/ fertilizer
- 7) Estimation of total carbon in soil/fertilizer
- 8) Determination of C:N ratio in Soil /Fertilizer


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DEPARTMENT OF MICROBIOLOGY
KAMLA NEHRU MAHAVIDYALAYA
CERTIFICATE COURSE IN COOKERY AND FOOD PRESERVATION
SYLLABUS
SESSION 2020-21

OBJECTIVES :

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

SYLLABUS

SR.NO.	CONTENT	NO.OF LECTURES
1.	UNIT I PURPOSE AND SCOPE OF PRESERVATION <ul style="list-style-type: none">• Objectives of preservation and processing.• Scope of preservation industry in India.	5

2.

UNIT II

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.

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4.	UNIT IV POST HARVEST CHANGES AND SPOILAGE <ul style="list-style-type: none"> * Physical chemical and microbiological changes in fruits and vegetables. * Factors affecting growth of microorganisms and the control measures. 	10
5.	UNIT V FOOD SAFETY <ul style="list-style-type: none"> • Key Terms, Factors affecting food safety, Recent concern. • Food laws, standards and regulations. • Food additives and contaminants. • Hygiene and Sanitation. • HACCP. 	20

PRACTICALS

OBJECTIVES

- To familiarise the students with preserved fruit and vegetable product in the market
- To equip them with skills 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. Preparation, packaging, sensoring/objectives evaluation and costing of :

- Sauces : chilly sauce and tomato sauce.
- Ketchup : tomato ketchup
- Chutney : tomato and imli chutney
- Squash : lemon, orange and pineapple.
- Serup : rose, almond serup.

4. Preparation of labels for preserved food.

Outcome :

Job placements in dairy, quality control and food industries .



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Certificate Course in Beautification

Syllabus


Theory

1. Skin Care – Basic skin care, skin types, daily skin care routine
 - Cleansing
 - Toning
 - Moisturizing
2. Hair Care – Basic hair structure, types of hairs, hair care routine,
 - Hair cleansing
 - Oiling
 - Shampooing
 - Conditioning
3. Health care and Yoga
 - Diet and nutrition
 - Beauty nutrients
 - Exercise and Yoga
 - Relaxation
 - Personal Hygiene

Practical

4. Make up
 - Preparing face for make up
 - Use of foundation
 - Eye make up
 - Lip makeup
 - Hairstyle
 - Bridal makeup
 - Party make up
 - Day makeup




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Department Of Botany

Certificate Course

**Topic: - Nursery Techniques With Special Reference To
Floriculture**

Proposed syllabus:-

- Module 1 :- Basic Information About Nursery And Nursery Production.
- Module 2 :- Nursery Management And Scope.
- Module 3:- Types Of Nursery.
- Module 4 :- Tools Required For Nursery Development .
- Module 5:- Selection Of Plant For Nursery Development According To Type Of Nursery.
- Module 6 :- Selection Of Site And Soil For Nursery.
- Module 7 :- Preparation Of Nursery Beds.
- Module 8 :- Propagation Of Ornamental Plants By Seeds , Bulbs, And Layering .
- Module 9 :- Propagation Of Ornamental Plants By Cutting, Grafting And Budding Etc.
- Module 10 :- Plant Protection Measures , Weed Control Irrigation Techniques For Plants.
- Module 11:- Environment, Lay Out Manual Fertilization of Nursery.
- Module 12 :- Information About Pests And Disease Of Ornamental Plant.
- Module 13 :- Maintenance Of Nursery .
- Module 14 :- Packaging Of Plants For Transportation.
- Module 15 :- Selling And Marketing Strategy .



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Kamla Nehru Mahavidyalaya
Department of Biochemistry
Certificate Course on Medical Laboratory Technology
Syllabus

Unit-I

- **Pathology**
Introduction, Human Blood Group Antigen, Abo Blood Group System And Incompatibility, Rh Blood Group And Incompatibility Antigen Coagulant
- **Clinical Pathology .**
Introduction

Unit-II

- **Heamatology**
Estimation Of Hemoglobin, Hemocytometer (Sahlis Method), Serum / Plasma (Centrifugation)

Unit-III

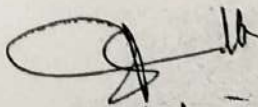
- **Microbiology**
History, Microbes And Their Classification, Study Of Microscope Culture And Identification, Sterilization And Disinfection
- **Clinical Microbiology and Paracetology**
Normal Flora Of Human Body, Septicemia, Pyaemia, Food Poisoning, Opportunistic Infection, study of different types of Parasite

Unit-IV

- **Biochemistry**
Introduction To Carbohydrate, Fats, Amino Acids, Proteins
- **Immunology**
Introduction To Immunity, Antigen And Antibody, Types Of Immunity, Antigen Antibody Reaction

Practical

- Abo Blood Group Slide Technique and Cross Matching
- Physical Chemical and Microscopic Analysis of Urine
- TLC, DLC
- Common Laboratory Equipment And Uses, Microscope, Incubator, Hot Air Oven Autoclave, Anarobic Culture Inoculation
- Standing Techniques, Simple Stain, Gram Stain, Acid Fast Staining, Antibiotic Sensitivity
- Test For Carbohydrates, Test For Proteins And Amino Acids
- Serology, Widal Test, Vdrl Test, Agglutination Test, Elisa Test
- Detection of Antigen/ Antibody For Malaria Parasite


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Kamla Nehru Mahavidyalaya, Sakardara, Nagpur
Electronics Department Organized Short term Certification Course
on
Embedded System Basics and 8051 Microcontroller Interfacing
(Session 2020-21)

Syllabus:

Unit 1: Embedded System Basics

Basic of Embedded System. Characteristics of Embedded System. basic building blocks of Embedded System. Difference Between microprocessor and microcontroller and basics about different types of microcontrollers available.

Unit 2: Basics of 8051 microcontroller

Basics of 8051 microcontroller, pin architecture of 8051 microcontroller, basic circuit requirement of 8051 microcontroller and Internal and external memory architecture of 8051 Microcontroller.

Unit 2: Programing in 8051


Programing architecture and structure of 8051 microcontroller, discuss about addressing modes, Instruction formats and Instruction Set of 8051 microcontroller. Discuss about how to interface peripherals with the 8051 microcontroller

Unit 3: Interfacing with 8051

How to interface array of 8 LEDs (Light Emitting Diode) with 8051 microcontroller and develop drivers for it, interfacing SSD (Seven Segment Display) in simple way as well as multiplexed way with the 8051 microcontroller and develop drivers for it. Interfacing alphanumeric 16 x 2 LCD (Liquid Crystal Display) in 8 bit mode with the 8051 microcontroller and develop drivers for it. Interfacing keys as well as Hexadecimal Key-Pad with the 8051 microcontroller and driver develop for it.

Unit 4: Serial Bus in 8051

Connecting Computer (PC) with 8051 microcontroller through RS 232 cable using UART (Universal Asynchronous Receiver and Transmitter) and driver develop for it. Discuss about Serial Protocols which are ready to connect with microcontrollers and what is I²C (Intra Integrated Circuit) Bus and features and characteristics of I²C Protocol, Interfacing RTC (Real Time Clock) with 8051 microcontroller using I²C Protocol and develop driver for it.



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SYLLABUS

- MODULE 1: Synthesis of Polyaniline and Photocatalytic Applications** **Period: 1**
Methods of synthesis polyanilines, metal oxides, Composites
Applications of these composites.
- MODULE 2: Synthesis of Advanced polymer methods and Applications** **Period: 1**
Methods of synthesis of advanced polymers by polycondensation
method, addition polymerization and copolymerization
- MODULE 3: Synthesis of copolymers** **Period: 1**
Methods of synthesis of copolymers and terpolymers b in
laboratory by condensation, coordination polymerization and
emulsion polymerizations
- MODULE 4: Molecular weight Determination of Polymers** **Period: 1**
Molecular mass, molar distribution, Number average and weight
average molecular weight of polymers, VPO Method
- MODULE 5: Synthesis and Applications of organic polymers** **Period: 1**
Methods of synthesis of organic polymers, copolymers by
free radical, emulsion and copolymerization
- MODULE 6: Luminescence Properties of Polymers** **Period: 1**
Luminescence, emissions, Photoluminesce and
Thermoluminescence of organic polymers
- MODULE 7: Synthesis of Coordination Polymers** **Period: 1**
Sythesis of different types of ligand, synthesis of coordination
Polymers by ultrasonication and other methods
- MODULE 8: Types of polymers** **Period: 1**
Linear, brancedcrosslinked thermoplastic, thermosetting, fibres,
nanofibres, elastomers stereopolymers
- MODULE 9: Ion Exchange Copolymers** **Period: 1**
Effect of electrolytes on uptake of metal ions, Effect of time on
uptake of metal ions and determination of distribution of metal
ionsie effect of pH on uptake of metal ions.

- MODULE 10: Thermal properties of Terpolymers** Period: 1
Activation energy, order of reaction, Sharp-wentworth method,
Freeman Carroll method, thermodynamic parameters calculations
- MODULE 11: Synthesis of Advanced polymer SBR Rubber and its Applications** Period: 1
Synthesis of SBR rubber and composites with nano filler,
Emulsion polymerisation method, Two roll mill method
Mechanical, thermal and environmental properties
- MODULE 12: Applications of Polymers** Period: 1
Nylon, terylene, amide fibres, shoes sol, adhesive, door, chair and
other items useful to society
- MODULE 13: Methods of synthesis of Organic polymers** Period: 1
Method of synthesis of organic polymers and copolymers by
copolymerization method and other methods
- MODULE 14: Terpolymer synthesis and their characterization** Period: 1
Characterization of polymers and terpolymers by spectral methods,
thermal, elemental analysis, molecular weight, and physicochemical
methods
- MODULE 15: Commercial polymers** Period: 1
Synthesis and applications of polyethylene, ceullulose acetate,
polyamide polyester, ureas resins and epoxy resins.

Total Number of Periods: 30


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Mathematics Department

“Value Added course in Vedic Mathematics”

Academic Session: 2020 – 2021

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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Kamla Nehru Mahavidyalaya
Department of Cosmetic Technology
Value Added Course on Skin Care
Session: 2020-21
Bachelor of Cosmetic Technology Semester II

Syllabus:

(Total Hours = 30 Hours)

15 hours

Theory:

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 Exercise for healthy skin
- Common skin problems
- Skin care products
- Skin care treatments
- Basics of Depilation

15 hours

Practicals :

- Cleansing
- Toning
- Moisturizing
- Facial
- Waxing

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Department of Cosmetic Technology
Value Added Course on Hand and Feet Care
Session: 2020-21
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
- Pedicure
- Nail art

5 hour

5 hour

5 hour



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Kamla Nehru Mahavidyalaya
Department of Cosmetic Technology
Value Added Course on Professional Make-up Techniques
Session: 2020-21
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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Kamla Nehru Mahavidyalaya
Department of Cosmetic Technology
Value Added Course on Personality Development
Session: 2020-21
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
- Meditation
- Body language/ mock interviews

5 hour

5 hour

5 hour



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Department of Cosmetic Technology
Value Added Course on Effective Writing
Session: 2020-21
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 Cosmetic Technology
Value Added Course on Entrepreneurship Skill Development
Session: 2020-21
Master of Cosmetic Technology Semester IV

Syllabus:

Theory: 15 hours

- Theories of entrepreneurship
- Dimensions of entrepreneurship
- Socio-economic environment and entrepreneur
- Emerging trends and social entrepreneurship
- External environmental forces, economic, social, technological and competitive factors, establishment of a new unit
- Innovation and entrepreneurship
- Entrepreneurial behavior and social responsibility
- Entrepreneurial development program relevance and achievements
- Role of government
- Small business management
- Business communication and ethics in business
- Marketing support for entrepreneurs
- Role of e-commerce in business
- Business opportunities and start-up policy
- Entrepreneurial motivation

Practical:

- | | |
|---|--------|
| • Emerging Trends in Entrepreneurship Development | 5 hour |
| • Market Survey | 5 hour |
| • Project Work | 5 hour |



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Syllabus of Value Added Course

on

“Computer Fundamental and Multimedia Techniques”

UNIT-I: Google Drive, Google Forms, Google Docs

Working with Google Drive: Sign-In, How to manage data in Google drive

Working with Google Forms: creating Google Forms, accessing Google forms, sharing and view responses in Google forms

Working with Google Docs: Work with documents, basic formatting, advanced formatting, use doc in Google classroom

UNIT-II: Ethics in Information Technology

An overview of Ethics: Ethics in business world, Ethics in IT, Ethics for IT professionals and IT users, Ethical behavior, the impact of IT on the standard of Living and productivity.

Computer and Internet Crime: IT security incidents: Increasing Complexity Increases Vulnerability, Higher Computer user Expectations, Expanding and changing systems.

UNIT-III: Multimedia

Define multimedia; discuss the effects of multimedia in your daily life, Identify five multimedia components, analog and digital conversion process, Classify multimedia software based on its function

UNIT-IV: Multimedia data acquisition and processing

Representation of an Image, Capturing a moving image with camera, Compression of video data, MPEG Compression standard, Acquiring and storing audio signals, Compression of audio signals, Audio signal processing, speech processing



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Syllabus for Value Added course on
“Data Science and Network Security “

UNIT 1: Introduction to Data Mining

Introduction to Data Mining: What is Data Mining? Motivating Challenges, Definitions, Origins of Data Mining, Data Mining Tasks, **Data:** Types of Data- Attributes and Measurement and Types of data sets, Data Quality-Measurement and Data Collection Issues, Issues Related to Applications, Data Preprocessing- Aggregation, Sampling, Dimensionality Reduction, Feature subset selection, Feature creation, Discretization and Binarization, Variable Transformation.

UNIT 2: Introduction to Soft computing

Introduction of soft computing, soft computing vs hard computing. Soft computing techniques. Learning (Supervised & Unsupervised), Artificial Neural Network (ANN): Evolution of, Basic neuron modeling, Difference between ANN and human brain, characteristics.

UNIT 3: Introduction to MIS

The meaning and use MIS, System View of Business, Process of MIS, Development of MIS within the organization, Management Process, Information Needs, System Approach in Planning Organizing and Controlling MIS.

UNIT 4: Introduction to Network Security

Network Security Fundamentals: Introduction, security Vulnerabilities and Threats, Classification of Security Services. Cryptography: Encryption principles, Conventional Encryption DES, IDEA, Algorithms.


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Syllabus for Value Added course on

“Advance Computer Technology “

UNIT 1: Introduction to AI

AI problems, AI Techniques, Tic-tac-toe, A water jug problem Control strategies, Depth-first, Breadth-first search, Generate-and-test, Hill climbing, Best- first search, A* Algorithm, AO* algorithm

UNIT 2: Introduction to IOT

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.

UNIT 3: Introduction to Python

Introducing Python: What is Python? Python History

Python Fundamentals: Extending Python programs : Interactively, From a File, Other Methods. Script, program or module? **Components of a python programming: Built – In-Object types:** Python objects and other Languages, Operators basics, Numbers, Strings, Lists, Tuples, Working with sequences, Dictionaries, Files, object storage, type conversion, type comparisons **Statements:** statement format, comments, assignments, print, control statements, common traps.

UNIT 4: Introduction to Big Data

Getting an Overview of Big Data: What is Big Data,History of Data management,Structuring Big data,Elements of Big data,Big data Analytics, Exploring The Use of Big data. **Introducing Technologies for Handling Big data:** Distributed and Parallel Computing in Big Data, Introducing Hadoop, HDFS and Map reduce, Cloud computing and big data, Features of Cloud Computing.



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Syllabus for Value Added Course on

“Basic Computer Technology and E-commerce”

Unit I: Introduction to Google account

How to create google account: Steps to create google account, Understanding Google privacy: Steps to access google privacy tools, Locked out of your google account: Recovering your user name and password.

Unit II: Introduction to Google form

Google drive : Sign-in, How to manage google form: What is google form, Accessing google form, creating google form, sharing viewing responses as a summary, viewing responses individually, Creating quiz: Select correct answers for your questions, Adding sections to your quiz, Adding quizzes to your classes.

Unit III: Introduction to Google docs

How to use Google Docs: Create a document, Edit and format, Share and work with others, deleting a document, How to use Google Sheets: Create a sheet, Edit and format, Share and work with others, deleting a sheets. How to use Google Slides: Create a slide, Edit and format, Share and work with others, deleting a slides.

Unit IV: Introduction to Ethics in Information Technology

Ethics in business world, Ethics in IT, Ethics for professionals, Ethical behavior, IT professional malpractices, IT users. The impact of Information Technology on the Quality of Life: The impact of IT on the standard of Living and productivity.

UNIT - V: Introduction to E commerce

Introduction to e-Commerce, Scope of electronic commerce, definition, e-Commerce and Trade Cycle, e- Markets, Internet e-Commerce in perspective. Value chain, Supply chain, Inter organizational value chains.


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VALUE ADDED COURSE

ON

"Introduction to Digital Marketing"

Session-2020-21

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 advertising, 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.



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Sakkardara Chowk, Nagpur.

MSc-I
Syllabus of Value Aided 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 Operators Queries, 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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Sakkardara Chowk, Nagpur.

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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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:

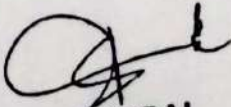
Evaluate cyber security solutions and use of cyber security, information assurance, and cyber/computer forensics software/tools

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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Value Added Course
On
Computer Hardware Maintenance
2020-21

Unit - 1

4 hrs.

Basic computer System and Peripherals: Input and Output devices, their types and specification, CPU, Memory devices: Primary and Secondary.
Mother board: Study of Motherboard RAM, ROM, CMOS, POST, BUS (Address, Data System)
Motherboard troubleshooting.

Unit - 2

4 hrs.

Connections of various devices such as display adapter, ports (Serial, Parallel, and USB) and modem on the mother board. Importance of CPU cooling.

Storage Devices:

- a) HDD: HDD types, integrated, SCSI, Magnetic recording, Formatting (Track, Sector) Cluster, Defragmentation, Bad Sector, Jumper Setting, Common Problems and its trouble shooting, External Drive (HDD), Optical Drives.
- b) FDD: FDD types and working and its related problems
- c) CD and DVD drives: ROM and Writer, combo drives Mass storage devices
- d) USB Devices: Hub, Pen Drives

Unit - 3

4 hrs.

Input Devices:

- a) Keyboard: Switches, keyboard organization, key board type, wireless keyboard trouble shooting.
- b) Mouse: Mouse types : Scroll and optical mouse, function connecting mouse, trouble shooting mouse
- c) Ports
- d) Modems

Output Devices: Printers: working of DMP, Inkjet, Laser Printer, Line Printer, Multifunction Printer and Trouble shooting

Unit - 4

4 hrs.

Other Output Devices:

- a) Scanner: Working method and its trouble shooting
- b) Plotters

Types of Software: System software, application software driver software installation, windows and other software and antivirus

Unit - 5

4 hrs.

Boot process: setting of CMOS/BIOS setup

Power supply: operating characteristics, types and maintenance

Types of PC Desktop, Laptop, Palmtop,

PC Tools



A handwritten signature in black ink, appearing to be "S. K. Kulkarni".

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Computer Hardware Maintenance (Practical)

Practical Set

- i. Study of devices on mother board
- ii. Study of keyboard and keyboard decoder
- iii. Study of video adapter and display controllers
- iv. Study of floppy drives, CD, DVD, Pen Drive and Hard disk
- v. Study of Multifunction Input/output controllers

Books:

1. IBM PC Advanced Troubleshooting and Repair: Robert Bernner, PHI
2. Inside the PC: Peter Norton, Techmedia Publication
3. Upgrading and Repairing PCs: Scott Mueller PHI
4. Computer Fundamentals and Introduction to IBM PC: Pankaj Nagar
5. Computer Fundamentals: P. K. Sinha, Priti Sinha, BPB Publications

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

Theory = 20 hrs.

Practical = 10 hrs.



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Kamla Nehru Mahavidyalaya
Department of Botany
Online Value Added Certificate Course
'FLOWER ARRANGEMENT'
2020-2021
Syllabus (Under Graduate)

UNIT I: ORIGIN OF FLOWER DESIGN AND IDENTIFICATION 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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Kamla Nehru Mahavidyalaya
Department of Botany
Online Value Added Certificate Course
'Preservation Techniques for Plants'
2020-2021
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

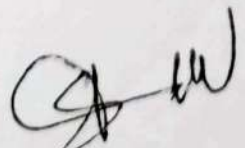
- Herbarium for algae with collection, cleaning, pressing, mounting, storage and conservation with all details

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 importance.


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Botany

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Department of Botany

Online Value Added Certificate Course

'Miniature Gardens '

2020-2021

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 GARDEN

- 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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4. To inculcate the importance and methods of ornamental fish farming, as well as the many approaches of handling and marketing.
5. Students gains business acumen and is thereafter prepared to support themselves.

Course structure:

❖ Total Teaching Hours- 30 hrs

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:

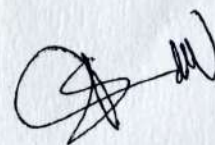
5 Hrs

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

1. Preparation of an aquarium tank of suitable size.
2. Identify, classify and describe any five an aquarium fishes.
3. Study of breeding in live bearer
4. Identify and describe, aquarium decorative plants, natural food, artificial food (pallets, flakes, powders, etc.), live food organism, etc.
5. Identify and describe egg layers and transgenic fishes (any five).
6. Aquarium fish diseases



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KAMLA NEHRU MAHAVIDYALAYA, NAGPUR
DEPARTMENT OF PHYSICS
VALUE ADDED PROGRAM
2020-2021

Name of Program: 1. Basics of Instrumentations

2. Identification & 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;

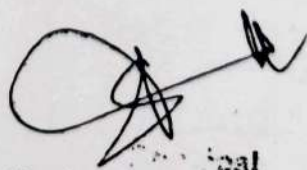
1. Basics of Instrumentations

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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Kamla Nehru Mahavidyalaya
Department of Environmental Science

Value Added Course

Syllabus

Session: 2020-2021

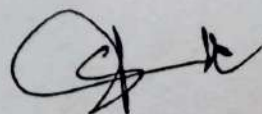
Theory:

Unit I: Water Chemistry : definition, Composition, Structure, bonding of water molecule and formula, formation of hydrogen bonding, state of water and anomalous 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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Department of Environmental Science

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

Syllabus

Session: 2020-2021

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)

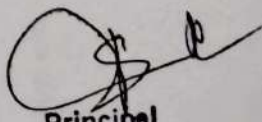
Unit II: Sampling Techniques & data analysis: Sampling methodology and strategies , sample collection and preservation . Data interpretation and analysis, Data visualization and statistical analysis, trend analysis and anomaly detection, Reporting and presentation of findings.

Unit III: Environmental Monitoring Instrument : Air Quality Monitoring Instruments (PM sampler and analyzers, Gas analyzer for SO_x NO_x & 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 SO_x concentration in ambient air by using high volume sampler.
- 4) Determination of NO_x 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)


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Kamla Nehru Mahavidyalaya
Department of Environmental Science
Value Added Course (M.Sc. II)
Green Technology for Sustainable Development

Syllabus

Session: 2020-2021

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.

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Value Added Course
On
Work Place Development
Syllabus
Session (2020-21)

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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DATE

Value Added Course
On
Business Strategy
Syllabus
Session (2020-21)

Unit - 1

6 hrs.

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

Unit - 2

6 hrs.

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

Unit - 3

6 hrs.

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

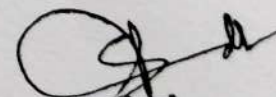
6 hrs.

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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Business Strategy (Practical)

Practical Set

- i. Study of Strategy Planning
- ii. Study of Functional level planning
- iii. Study of Analysis of business environment
- iv. Study of Designing opportunistic strategies
- v. Study of Systematic internal assessment

Books:

1. Playing to Win: A. G. Lafley, Roger L. Martin
2. Blue Ocean Strategy: W. Chan Kim and Renee Mauborgne
- 3 The Art of Strategy: Avinash K. Dixit and Barry J. Nalebuff

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

Theory = 20 hrs.

Practical = 10 hrs.



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Value Added Course
on
Applications of Chemicals in all facets of life

Session(2020-21)

Unit -1

6hrs

- A) Unhealthy use of Chemicals in food adulteration ,Mechanism and health aspect of food adulteration,Typesand causes of food adulteration.
- B) Explanation of phenomenon related to capillary action, Floating bodies of higher density, cleansing action, principle behind clinical test,Measurement of surface tension of various surfactants and comparative studies of their cleansing action.

Unit -2

6hrs

- A) Basic principles of green chemistry,calculation of atom economy of rearrangements, reactions,synthesis involving basic principles of green chemistry.
- B) Sonochemistry,microwaveable reactions,zeolites,solvent free reactions,electrochemical reactions,Biocatalyst in organic synthesis.

Unit -3

6hrs

- A) Importance of chemistry in food, Food additives, food preservatives, food flavours, food processing and storage,Role of Baking powder in preparation of food (action of liquid),Baking soda acts as a chemical leavener,Role of vinegar in food preservatio
- B)Chemistry in Cosmetic industries Chemicals used in Talcum powder,Chemicals used in Lipstick, Face wash, hand sanitizers, floor cleaners.

Unit -4

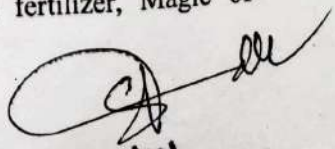
6hrs

- A) Theory: Use of Non-metals in Industries Role of carbon, hydrogen , Nitrogen, sulphur, Chlorine, Iodine,Different types of polymers (man-made & natural)Synthesis of Bakelite,Synthesis of Resins, Role of metal ions in biological system,Role of Iron, copper, Cobalt, sodium , Potassium, platinum etc
- B) . Chemistry of medicines,Chemical methods of synthesis of various drugs (Analgesic, Antipyretic, anti-inflammatory) and their interaction with body,Synthesis of Paracetamol Synthesis of Aspirin.

Unit -5

6hrs

- A) Chemistry in buildings and construction,Chemical composition of cement, clay, various materials,Chemistry fordefence,Chemicals used in explosive Theory.
- B) Lithium ion battery and other batteries with their merits and demerits Chemistry for Agriculture,Use of N, P, K in fertilizers,Preparation of chemical fertilizer, Magic of Chemistry.


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Chowk, Nagpur

कार्यक्रम पत्रिका

सत्र		वक्ता	विषय
व्याख्यान सत्र १ दिनांक ४ ऑगस्ट २०२०		मा. श्री. गुलाबरावजी खनसे अध्यक्ष, ग्रामगीता जीवन विकास परीक्षा विभाग गुरुकुंज आश्रम	गुरुदेव सेवा मंडळाची उद्दिष्टे
व्याख्यान सत्र २ दिनांक ५ ऑगस्ट २०२०		मा. श्री. अरविंदजी राठोड, उपअधीक्षक मानव सेवा छात्रालय, गुरुकुंज आश्रम	तुकडोजी महाराज : व्यक्ती आणि वाङ्मय
व्याख्यान सत्र ३ दिनांक ६ ऑगस्ट २०२०		मा. श्री. गोपालजी कडू सचिव, ग्रामगीता जीवन विकास परीक्षा विभाग	गुरुकुंज आश्रम सामुदायिक प्रार्थना
व्याख्यान सत्र ४ दिनांक ७ ऑगस्ट २०२०		मा. पौर्णिमाताई सवाई ग्रामगीताचार्य व साहित्यिक	महिलोन्नती
व्याख्यान सत्र ५ दिनांक ८ ऑगस्ट २०२०		मा. श्री. ज्ञानेश्वरजी रक्षक गुरुदेव सेवा मंडळ प्रचारक व साहित्यिक, नागपूर	ग्रंथाध्ययन
व्याख्यान सत्र ६ दिनांक १० ऑगस्ट २०२०		मा. डॉ. राजेन्द्र जाने, प्राचार्य, कला वाणिज्य महाविद्यालय, भिरी	जीवन-शिक्षण
व्याख्यान सत्र ७ दिनांक ११ ऑगस्ट २०२०		मा. डॉ. देवमन कामडी, कार्यकारी प्राचार्य, नवप्रतिभा महाविद्यालय, नागपूर	ग्रामोद्योगातून ग्रामराज्याची निर्मिती
व्याख्यान सत्र ८ दिनांक १२ ऑगस्ट २०२०		मा. डॉ. संजय प्र. बुरंगे, संशोधक व अभ्यासक	ग्रामगीतेतील साहित्यमूल्ये आणि जीवनमूल्ये

(वेळ: सकाळी १०.०० ते २.००)


KAMLA NEHRU MAHAVIDYALAYA
DEPARTMENT OF MICROBIOLOGY
VALUE ADDED CERTIFICATE COURSE
SYLLABUS OF
"HEALTH AND HYGIENE"
SESSION: 2020-2021

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 -

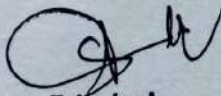
- What is a healthy diet
- How can we use available information to optimize our diet?
- Can nutrition be used for a healthy life?
- Is there a one-size-fits-all "good" diet or should we individualize our dietary goals?
- Disaster management and responsiveness of public in pandemic and epidemic diseases
- Assess the impact of policies on health and hygiene Health measures to consider while 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)
3. Mode of transmission, causative agents, symptoms, prevention and control. Sexually


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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 (Water, Sanitation and Hygiene) 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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BIOTECHNOLOGY DEPARTMENT

SESSION 2020-2021

Organized Value-added course

"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 epidemiology, 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 2020-21

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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Re-accredited by NMAC with 'B' Grade (2017-2020)



DEPARTMENT OF COMMERCE

CERTIFICATE COURSE IN ITR FILING (SALARY)

SYLLABUS

Sr. No.	Particulars	Duration
1	Introduction to income tax, Basic Concepts income, agriculture income, casual income previous year, assessment year, gross total income, total income, Income Tax Slabs Income tax Calculation, Financial Year and Assessment Year.	7 Days
2	Deduction under section 80C, 80CCC, 80CCD, 80D, 80DDB, 80E, 80G, 80GG, 80TTA, 80 TTB, 80U.	5 Days
3	Income from Salary Types of allowances (Taxable & Tax free), perquisites, and Tax treatment of P.F, E.P.F., Superannuation Fund, Allowances & Perquisites, Computation of Income from Salary and Calculation of Tax Liability.	8 Days
4	Preparation of Computation of Income from salary, Online User Id and Password Creation, Online Preparation of Return ITR 1, Submission of Income Tax Return and Online verification of Return of Income.	10 Days



KAMLA NEHRU MAHAVIDYALAY

SAKKARDARA SQUARE, NAGPUR

DEPARTMENT OF MASTER OF BUSINESS ADMINISTRATION

ACADEMIC SESSION 2020 – 2021

TEACHING PLAN FOR VALUE ADDED COURSE ON

“SKILLS AND EMPLOYABILITY ENHANCEMENT PROGRAM”.

FROM 17 / 07 / 2021 TO 25 / 09 / 2021 (Timing: 10.00 am to 1.00 pm)

Sr. No.	Date	Time	Topic / Sub Topic	Duration
1	17 / 07 / 2021	10.00 am to 01.00 pm	Improve Communication Skills - Telephone Etiquette, Blunders that Annoy Communicate effectively using the phone with clients, customers, public speaking skills.	3 hrs
2	24 / 07 / 2021	10.00 am to 01.00 pm	Verbal and Non-Verbal Communication. Tips for Improving Non-Verbal Communication.	3 hrs
3	31 / 07 / 2021	10.00 am to 01.00 pm	Personal Appearance: Gestures, Postures, Facial Expression, Eye Contacts, Body Language (Kinesics), Time language, Silence Activities on Body Language	3 hrs
4	07 / 08 / 2021	10.00 am to 01.00 pm	Face-to-face conversation: group discussion, talking to family members at home, public speeches, etc. Activities on Group Discussion	3 hrs
5	14 / 08 / 2021	10.00 am to 01.00 pm	Business Communication & Ethics for managers Introduction to ethics, meaning of ethics, relation with psychology, development of morality.	3 hrs
6	28 / 08 / 2021	10.00 am to 01.00 pm	Physical and mental health, problems and life balance sheet, work life balance. Activities	3 hrs
7	04 / 09 / 2021	10.00 am to 01.00 pm	Soft Skills for Leadership and Team Management- Qualities of a Good Leader: Leadership Styles, Decision Making, Intrapersonal skills Activities on Leadership skills	3 hrs
8	11 / 09 / 2021	10.00 am to 01.00 pm	Interpersonal skills, Problem solving, Critical thinking, Negotiation skills Activities	3 hrs
9	18 / 09 / 2021	10.00 am to 01.00 pm	Employability Quotient Resume building- The art of participating in Group Discussion – Facing the Personal (HR & Technical) Interview -Frequently Asked Questions - Psychometric Analysis	3 hrs
10	25 / 09 / 2021	10.00 am to 01.00 pm	Mock Interview Sessions.	3 hrs

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Skill & Employability Enhancement Program (SEEP)

OBJECTIVES OF THE COURSE:-

To assist the students in the development of communication competence by providing information regarding different forms of communication and their appropriate use.

To help students by learning how to start conversations and communicate clearly. Get ahead in life by communicating effectively. Students learn about the ability to communicate clearly and share thoughts, feelings and ideas will help in all the relations with other people.

To build your relationship with team members, clients, stakeholders and business partners. Skills like communication can help positively influence how you interact with others. Empathy is another soft skill that helps build and maintain workplace relationships.

To understand and personal attributes which makes graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce and the community. Students also learn about the different financial aspects with different skills.

To lay down broader guidelines for value and ethics for managers.

SYLLABUS-

UNIT I: - Communication skills for beginners.

Improve Communication Skills - Telephone Etiquette, Blunders that Annoy Communicate effectively using the phone with clients, customers, Public speaking skills, Verbal and Non-Verbal Communication. Tips for Improving Non-Verbal Communication.

UNIT II: - Personal Appearance: Gestures, Postures, Facial Expression, Eye Contacts, Body Language (Kinesics), Time language, Silence, Face-to-face conversation: group discussion, talking to family members at home, public speeches, etc.

UNIT II: - Business Communication & Ethics for managers

Introduction to ethics, meaning of ethics, relation with psychology, development of morality, physical and mental health, problems and life balance sheet, work life balance.

UNIT III: - Soft Skills for Leadership and Team Management.

Qualities of a Good Leader: Leadership Styles, Decision Making, Intrapersonal skills, Interpersonal skills, Problem solving, Critical thinking, Negotiation skills.

UNIT IV: Employability Quotient

Resume building- The art of participating in Group Discussion – Facing the Personal (HR & Technical) Interview -Frequently Asked Questions - Psychometric Analysis - Mock Interview Sessions.

Kamla Nehru Mahavidyalaya, Nagpur
Department of Biochemistry
Value added course
Hands on training in Empirical Biochemistry
Session-2020-2021

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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Head

Department of Biochemistry
Kamla Nehru Mahavidyalaya
Nagpur.

Kamla Nehru Mahavidyalaya, Nagpur

DEPARTMENT OF BIOTECHNOLOGY

Session 2020-21

Syllabus

Unit I: Major sector

Academic
Agriculture
Pharma and health sector
Pollution control Board
Genetic Engineering
Industrial Sector (At production level)

Unit II: Opportunities in industries


Industries working experience in the area of microbial, plant, health care, Basic experience, skills.
knowledge required for the industries, Small, Big and multinational industries.
Small Scale Industrial units, advantage and support by Govt. for SSI,
Opportunities in services provided by the industry research, Opportunities in reagents preparation, packaging and distribution. R&D in industries.
Major industrial groups in India.
International industrial organization.

Unit III: Opportunities in research

General Organizational structures of Research Institute,
Qualifications for researcher positions.
JRF, SRF, RA, PDF.
Scientist positions in Government and private research institutes.
Research outcome - Publication, Patent and technology transfer.
Training man power, Conduct of Seminar, Symposia and Workshop.
Advantages, Challenges and Risks of employment in research institute.

Unit IV: Funding agencies

Types of funding,
Government funding institutes like DBT, ICMR, CSIR, aCSIR, and UGC
Preparations of Project proposals.
Importance of research publications.
Preparation of projects and Basic requirement for funding.
Funding from Agricultural institutes, Private funding, Research grants, Collaborative research.
International funding for higher studies and Research.
International collaborations and sharing of resources across the country.


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SYLLABUS
[2020 - 2021]

MODULE 1: Safety Symbols & MSDS

Period: 01

Personal protection, simple rules to be followed while working in laboratory, chemical hazards, flammability hazards, spillage and disposal, first aid and toxic materials

MODULE2: General procedure -

Period : 01

Laboratory work, technique and report – Treatment of results, the accuracy of measurements, types of errors, applications of statistical methods

MODULE 3: Simple apparatus and calibrations-

Period : 01

Pyknometer, Stalagmomneter, Refractometer, Calibration of Measuring Flask and Pipette

MODULE 4: Conductomerty-

Period: 01

Introduction, principle, working, conductivity meter and applications of conductometric method

MODULE 5: Practice Set-

Period: 01

Titration of Strong acid with strong base

Titration of mixtures of strong acid, weak acid and salt with NaOH

MODULE 6: Practice set -

Period : 01

To determine the solubility of Sparingly soluble salt conductometrically.

To examine the Validity of the Debye- Onsagar equation for strong electrolytes.

MODULE 7: Potentiometry-

Period : 01

Introduction, principle, working, formulae and calculations

MODULE 8: Practice set-

No of Period : 01

Potentiometric titrations using Grans plot.

Potentiometric titration of strong acid and strong base.

To determine amount of Fe^{2+} in the given solution and standard redox potential of $\text{Fe}^{2+}/\text{Fe}^{3+}$ system.

MODULE 9: Chromatography-

No of Period : 01

Introduction, Principle, Classification and Application

MODULE 10: Practice Set- Period.per week: 02

Chromatographic separations and calculations of R_f values

MODULE 11: Spectrophotometry-

No of Period: 01

Introduction, Theory, Working and Applications

MODULE 12: Practice Set-

No of Period: 01

To determine composition of Fe(III) salicylic acid complex by Job's method.

Simultaneous determination of Co (II) and Co (III) by spectrophotometry.

MODULE 13: Polarography, Instrumentation, Applications

No of Period :01

MODULE 14: Applications of Computers in Chemistry, Use of Computers in Drug Designing

No of Period: 01

MODULE 15: Practice of all the modules.

No of Period: 01

Total No of Periods: 30