



# Kamla Nehru Mahavidyalaya, Nagpur

QLM 1.3.1

## SYLLABUS OF VALUE ADDED/ CERTIFICATE PROGRAM OFFERED

Session 2021-22

**Total -30 Hours (2 Credits)**

**Paper - I**

**Basic Electrical Engineering and Safety Precautions**

Max Marks: 30

Total periods: 08

**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 Semi-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

Total Periods 07

Max Marks: 20

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.

## Domestic Appliances

Total periods: 08

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 - coat Grainders - Coashing Machine - vacuum 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

Total Periods 07

Max Marks: 20

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

**KAMLA NEHRU MAHAVIDYALAYA, NAGPUR**

**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

  
**Principal**  
Kamla Nehru Mahavidyalaya  
Sakkardara Chowk, Nagpur.



**Kamla Nehru Mahavidyalaya, Nagpur**  
**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<sup>#</sup>, D<sup>#</sup>, (E<sup>#</sup>), f<sup>#</sup>,G<sup>#</sup>,A<sup>#</sup> (B<sup>#</sup>)]**
- v) Advance chords [major and minor]**
- vi) Few Songs –[Hollywood or Bollywood]**
- vii) Arpeggios pattern**



**PRINCIPAL**

Kamla Nehru Mahavidyalaya  
Lakkardara Chowk, Nagpur

KAMLA NEHRU MAHAVIDYALAYA  
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
	<b>UNIT-I</b>
1.	<b>PURPOSE AND SCOPE OF PRESERVATION</b> Types of preservatives Objectives of preservation and processing Scope of preservation industry in India <b>FUNDAMENTALS OF FOOD CHEMISTRY:</b> Carbohydrates, proteins, fats Vitamins and Minerals
	<b>UNIT-II</b>
2.	<b>FRUITS AND VEGETABLE PROCESSING SAUCES AND BEVERAGES</b> <b>A. CHUTNEY AND SAUCES</b> <ul style="list-style-type: none"> <li>• Definition</li> <li>• Method of Preservation</li> <li>• Steps in preservation of chutney</li> <li>• Steps in preservation of Sauces .</li> </ul> <b>B. FRUIT BEVERAGES.</b> <ul style="list-style-type: none"> <li>• Definition and Classification</li> <li>• Method of Preservation</li> <li>• Pasteurization</li> <li>• Use of Chemical Preservatives</li> <li>• Role of other ingredients</li> </ul>
	<b>UNIT-III</b>
3.	<b>PRINCIPLE AND METHOD OF PRESERVATION</b> <ul style="list-style-type: none"> <li>• Asepsis</li> <li>• Use of low temperature</li> <li>• Use of high temperature</li> <li>• Removal of moisture</li> <li>• Removal of air</li> </ul>

	<ul style="list-style-type: none"> <li>• Use of chemical preservatives Fermentation</li> <li>• Eradiation Gas Preservation</li> <li>• <b>INTRODUCTION OF FOOD MICROBIOLOGY</b></li> <li>• Concepts of microorganisms</li> <li>• Types of Microorganisms</li> <li>• Food Contamintaion and Spoilage</li> <li>• Used necessity of microbes in food preparations</li> </ul>
	<b>UNIT - IV</b>
4.	<b>POST HARVEST CHANGES AND SPOILAGE AND FOOD PROCESSING</b> <ul style="list-style-type: none"> <li>• Imporatnce of microbes in food</li> <li>• Signs of Contamination and spoilage in food</li> <li>• Introduction to diseases Caused by spoiled Food Contaimination of Different food</li> </ul> <b>FOOD PROCESSING</b> <ul style="list-style-type: none"> <li>• Milk and Milk Processing</li> <li>• UHT Milk</li> <li>• Dairy Products-curd , yogurt, Bread and role of other ingredients.</li> </ul> <b>PACKAGING AND LABELLING</b> <ul style="list-style-type: none"> <li>• Importance of packaging and labeling</li> <li>• Functions of food packing</li> <li>• Types of packing materials and food labels.</li> <li>• FSSAI guidelines on labeling of food products.</li> </ul>
	<b>UNIT- V</b>
5.	<ul style="list-style-type: none"> <li>• Key terms , factors affecting food safety Recent concern Food laws standards and regulations</li> <li>• Food additives and contaminants Hygiene and Sanitation</li> <li>• HACCP</li> </ul>

## PRACTICALS

### OBJECTIVES

- To familiarise 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, sensing /objectives evaluation and costing of :

**Sauces :** Chilly sauce and Tomato Sauce.

**Ketchup:** tomato Ketup

Chutney : Tomato and Imli Chutney

Squash: lemon, orange and pineapple. 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 coliform 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.



**PRINCIPAL**

Dr. J. A. Nehru Mahavidyalaya  
Takkardara Chowk, Mangur



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.

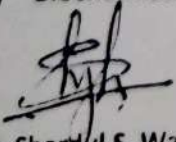


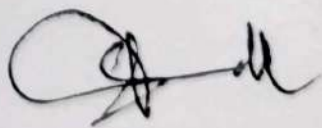
## Practical

- **Pathology**  
ABO Blood Grouping using Slide Technique and Cross Matching
- **Clinical Pathology**  
Urine Analysis- Physical, Chemical and Microscopic  
Sugar Albumin, Bile Salt
- **Heamatology**  
TLC, DLC for leucocytes counting  
Estimation of Hemoglobin by Sahlis Method,  
Determination of clotting time of blood.
- **Microbiology**  
Common Laboratory Equipment and Uses, Microscope, Incubator, Hot Air Oven Autoclave,  
Anaerobic Culture Inoculation
- **Clinical Microbiology**  
Various techniques involved in identification of microorganisms  
Staining Techniques, Simple Stain, Gram Stain, Acid Fast Staining,  
Antibiotic Sensitivity test
- **Biochemistry**  
Qualitative Test For identification of different types of Carbohydrates,  
Qualitative Test for Proteins And Amino Acids,  
Test for fat (Quantitative test for Cholesterol).
- **Immunology**  
WIDAL test, VDRL Test,  
Agglutination Test, ELISA Test
- **Parasitology**  
Detection of Antigen/ Antibody for Malarial Parasite

## Resources

- 1) Principles of Anatomy and physiology by Tortora and Grabowski Harper Collins College Publishers.
- 2) Human Physiology Vol I and II by C. C. Chaterjee, Medical Allied Agency.
- 3) Practical Microbiology by Dubey and Maheshwari, S Chand Publisher.
- 4) Textbook of Microbiology, Anant Narayan and Paniker, Orient Longman.
- 5) Text of Medical Laboratory Technology, Praful Godkar, Bhalani Publication ( New Edition)
- 6) Immunology- A short course by Richard Coico and Geoffrey Sunshine, Willey Blackwell Publisher
- 7) Immunology by Kubey, W H Feeman Publisher.
- 8) Biochemistry by Lehninger, Kalyani Publication.

  
Dr. Shardul S. Wagh  
Course Co-ordinator  
Head , Department of Biochemistry  
Kamla Nehru Mahavidyalaya, Nagpur

  
Dr. Dilip S. Badwaik  
Principal  
Kamla Nehru Mahavidyalaya  
Nagpur  
**PRINCIPAL**  
Kamla Nehru Mahavidyalaya  
Sakkardara Chowk, Nagpur

**Kamla Nehru Mahavidyalaya, Sakardara, 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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Sakardara Chowk, Nagpur



## Certificate Course On Anchoring

Vyavharik Marathi has now incorporated in the curriculum of B.A. (Compulsary Marathi). The objective behind incorporating the same in curriculum is to develop students. Any program is incomplete without anchoring as an anchor gives minute details about the program and communicates the idea behind any program. The demand for anchoring is increasing on radio and television due to more exposure of media.

In cities as well various program are organized everyday thus making anchoring an opportunity to earn employment rather than only being an art. This certificate course was taken by the college with an intention to train students in anchoring.

### Syllabus of Course:

- 1) What is anchoring? Importance of anchoring.
- 2) What are the fields of anchoring?
- 3) Important parameters of anchoring.
- 4) How to prepare yourself for anchoring? Mannerism's in anchoring.
- 5) Employment opportunities in anchoring.

Total 30 students participated in the course. The course was conducted in the institute from 15 March 2018 to 3 April 2018 from 10:30 am to 11:30 am.

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	<b>The Dowry Prohibition Act, 1961</b>	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  
 Associate Professor  
 Department of Sociology  
 Kamla Nehru Mahavidyalaya, Nagpur

  
 Principal  
**PRINCIPAL**  
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 Dr. D. S. Badwaik  
 Sakardara Chowk, Nagpur  
 Kamla Nehru Mahavidyalaya, Nagpur



**KAMLA NEHRU MAHAVIDYALAYA**

**NAGPUR**

**Mathematics Department**

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

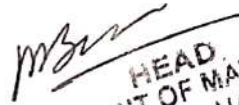
**Syllabus**

**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,

  
HEAD  
DEPARTMENT OF MATHEMATICS  
KAMLA NEHRU MAHAVIDYALAYA,  
SAKKARDARA CHOWK, NAGPUR.

  
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Kamla Nehru Mahavidyalaya  
Sakkardara Chowk, Nagpur

**Kamla Nehru Mahavidyalaya**  
Sakkardara Square, Nagpur

**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)***

<b>Sr. No.</b>	<b>Date</b>	<b>Time ( Theory &amp; Practical )</b>	<b>Topic /Sub Topics</b>	<b>Duration</b>
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



# Syllabus

## **MODULE I**

Introduction, History and concept of Bio fertilizers status scope and importance of Bio fertilizers Classification of Bio fertilizers Nitrogen fixation types of Biofertilizer, Basic requirement for Biofertilizer unit Production technology: Strain selection, sterilization, growth

## **MODULE II**

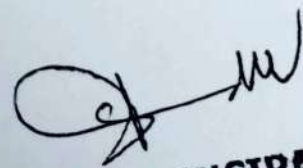
Manufacturing processes, mass production of carrier based and liquid bio fertilizers Application technology for seeds, seedlings, tubers, sets etc Biofertilizer and their advantages Introduction to different methodology of composting,

## **MODULE III**

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 IV**

Micropropagation, Embryo culture, Production of haploid through anther/Pollen, ovule embryo culture, Protoplast isolation and culture, Invitro plant regeneration, Hardening, establishment ,Development of transgenic plant by Agrobacterium mediated transformation (demonstration). Isolation of genomic DNA, plasmid isolation, PCR Technique




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Sakkardara Chowk, Nagpur

## PRACTICALS

1. Biofertilizer and its application.
2. Collection of raw material for biofertilizer
3. Manufacturing and processing of Biofertilizer.
4. Different types of Biofertilizer.
5. Preparation of plant tissue media, sterilization- Instrumentation.
6. Isolation of different types of ex-plants.
7. Induction of callus culture.
8. Shoot tip culture technique.
9. Anther culture technique.
10. DNA isolation.
11. PCR technique.

1. Motsora, M.R., P. Bhattacharya and Beena Srivastava ( 1995). Biofertilizer Technology, Marketing and Usage-A Source Bookcum-Glossary(FDCO, New Delhi)
2. Subbarao, N.S. 1993. Biofertilizers in Agriculture and Forestry ( Oxford and IBH Pub. Co., New Delhi)

3 General Microbiology – Dubey and Maheshwari

  
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Sakkardara Chowk, 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 SO<sub>x</sub> NO<sub>x</sub> & 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<sub>x</sub> concentration in ambient air by using high volume sampler.
- 4) Determination of NO<sub>x</sub> 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

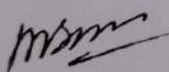
### “Value Added course in Vedic Mathematics”

Academic Session: 2021 – 2022

Duration: 15 days

#### Teaching Plan

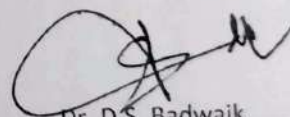
Sr. No	Topic	Hours
1	Addition	2 Hours
2	Subtraction	2 Hours
3	Multiplication	2 Hours
4	Square and Square root	2 Hours
5	Cube and Cube root	2 Hours
6	Magic Calendar	2 Hours
7	Digital root	2 Hours
8	Osculation	2 Hours
9	Quadratic Equation	2 Hours
10	Cubic Equation	2 Hours
11	Biquadratic Equation	2 Hours
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**  
Kamla Nehru Mahavidyalaya  
Sakkardara Chowk, Nagpur

# Certificate Course in Beautification

18

Cos

## 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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**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

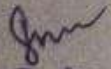
**Skin Care:**

- 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 Exercise for 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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**Kamla Nehru Mahavidyalaya**  
**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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**Kamla Nehru Mahavidyalaya**  
**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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**Kamla Nehru Mahavidyalaya**  
**Department of Cosmetic Technology**  
**Value Added Course on Entrepreneurship Skill Development**  
**Session: 2021-22**  
**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 programme 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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**Value Added Course  
On  
Computer Hardware Maintenance**

2021-22

**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. S. S.", written over the printed name of the Principal.

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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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## **Requirement For Conducting Course:**

- Equipment for preparation of organic fertilizers
- Raw material for preparation

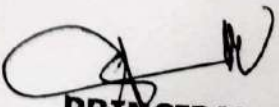
## **SYLLABUS :-**

**Unit 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.

**Unit 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 .

**Unit 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.

  
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**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 Botany**  
**Value Added Certificate Course**  
**'FLOWER ARRANGEMENT'**  
**2021-2022**  
**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
- Traditional/Western flower arrangements
- Modern Flower design.



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**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 of Herbarium



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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 GARDEN**

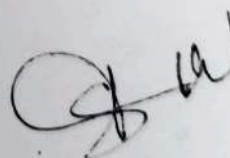
- Concept of vertical gardens, Small area greening.
- Plants suitable for office space with aesthetic value, break office monotony, air purifier.

**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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# 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:**

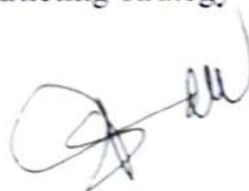
**5 Hrs**

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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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.

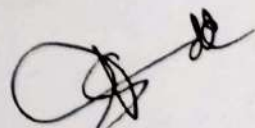
- 2.1 . Ideal condition needed for vermicomposting.
- 2.2 . Optimum environmental condition
- 2.3 . PH conditions and friends and foes.

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

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**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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## **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 Program on Language, Etiquettes and Manners in Students Life

2021-2022

Co-ordinator: Dr S D Deshbhratar

Sr. No.	Topic	Date	Time
1.	The power of Words: Using Language Effectively	11 Aug 2021	10.15am
2.	Nonverbal Communication: Understanding Body Language	12 Aug 2021	10.15am
3.	Greetings and Introduction: Starting off Right	13 Aug 2021	10.15am
4.	Basic Etiquette Rules: Dos and Don'ts	14 Aug 2021	10.15am
5.	Respectful Language: Using Tone and Words Wisely	17 Aug 2021	10.15am
6.	Active Listening: The Key to Effective Communication	18 Aug 2021	10.15am
7.	Table Manners	20 Aug 2021	10.15am
8.	Effective Communication: Clarity and Conciseness	21 Aug 2021	10.15am
9.	Respectful Disagreement	23 Aug 2021	10.15am
10.	Apologizing and Showing Gratitude	24 Aug 2021	10.15am
11.	Posture and Body Language	25 Aug 2021	10.15am
12.	Telephone Etiquette	26 Aug 2021	10.15am
13.	Email Etiquette	27 Aug 2021	10.15am
14.	Respect for Authority	28 Aug 2021	10.15am
15.	Basic Social Graces: Please, Thank you and Excuse Me	30 Aug 2021	10.15am
16.	Public Speaking: Overcoming Fear	31 Aug 2021	10.15am
17.	Intercultural Communication	01 Sept 2021	10.15am
18.	Conflict Resolution	02 Sept 2021	10.15am
19.	Time Management	03 sept2021	10.15am
20.	Punctuality	04 Sept 2021	10.15am
21.	Building Positive Relationships	06 Sept 2021	10.15am
22.	Basic Manners in Public Places	07 Sept 2021	10.15am
23.	Respectful Language Online	08 Sept 2021	10.15am
24.	Effective Communication in Groups	09 Sept 2021	10.15am
25.	Leadership and Initiative	13 Sept 2021	10.15am
26.	Review and Practice	14 Sept 2021	10.15am
27.	Overcoming Fears And Anxiety	15 Sept 2021	10.15am
28.	Creating a Personal Brand	16 Sept 2021	10.15am
29.	Networking and Building Connections	17 Sept 2021	10.15am
30.	Final Project: Creating a Personal Etiquette Manifesto and Reflecting on Learned Skills	18 Sept 2021	10.15am




**Value Added Program on  
Language and Ethics while using Social Media Platform  
2021-2022**

**Coordinator – Prof. Shruti Takone**

Sr No	Topic	Date	Time
1.	Introduction of Social Media	11 Aug 2021	10.15
2.	Types of Social Media	12 Aug 2021	10.15
3.	How Social Media Is Important	13 Aug 2021	10.15
4.	Are Social Media platforms safe to use	14 Aug 2021	10.15
5.	What are the laws about Social Media	17 Aug 2021	10.15
6.	How can I be safer online	18 Aug 2021	10.15
7.	Ethics of Social Media : i) Transparency ii) Respect	20 Aug 2021	10.15
8.	Ethics of Social Media : iii) Responsibility iv) Authenticity v) Accountability	21 Aug 2021	10.15
9.	Social Media Language	23 Aug 2021	10.15
10.	The impact of Social Media language on the current generation	24 Aug 2021	10.15
11.	How Social Media language create a sense of community	25 Aug 2021	10.15
12.	Use of Social Media language In Political discourse	26 Aug 2021	10.15
13.	Influence of Social Media language on mental health	27 Aug 2021	10.15
14.	Ethics of Social Media	28 Aug 2021	10.15
15.	Using the right email or testing services	30 Aug 2021	10.15
16.	Oversharing client information in online forums when requesting referrals	31 Aug 2021	10.15
17.	Messy Email	01 Sept 2021	10.15
18.	Texting boundaries	02 Sept 2021	10.15
19.	Using client reviews on websites	03 Sept 2021	10.15
20.	Ethics and the Five Deadly Sins of Social Media : i) Unreported Endorsements ii) Improper Anonymity iii) Compromising Consumer Privacy	04 Sept 2021	10.15
21.	iv) Overly Enthusiastic Employees v) Using the online community for free work	06 Sept 2021	10.15
22.	Social Media ethics in the work place	07 Sept 2021	10.15
23.	Cyberbullying	08 Sept 2021	10.15
24.	Stereotypes and Biases	09 Sept 2021	10.15
25.	Digital Detox	13 Sept 2021	10.15
26.	Digital footprint	14 Sept 2021	10.15
27.	The harm of hate speech	15 Sept 2021	10.15
28.	How Social Media can shape our identities	16 Sept 2021	10.15
29.	The impact of Social Media on Online Education	17 Sept 2021	10.15
30.	How to use Social Media for learning	18 Sept 2021	10.15

  
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**Value Added Program on  
Business and corporate communication skill and drafting  
2021-2022**

**Co ordinator – Dr Sandhya Jain**

Sr No	Topic	Date	Time
1.	Foundations of Business Communication	11 Aug 2021	10 .15
2.	Introduction to Business Communication: Importance and Relevance	12 Aug 2021	10 .15
3.	Types and Modes of Business Communication	13 Aug 2021	10 .15
4.	Principles of Effective Communication	14 Aug 2021	10 .15
5.	Verbal vs. Non-Verbal Communication	17 Aug 2021	10 .15
6.	Communication Channels in Business	18 Aug 2021	10 .15
7.	Written Communication Skills	20 Aug 2021	10 .15
8.	Business Writing Essentials: Clarity, Conciseness, and Coherence	21 Aug 2021	10 .15
9.	Email Etiquette and Effective Email Writing	23 Aug 2021	10 .15
10.	Memos, Letters, and Notices: Formats and Guidelines	24 Aug 2021	10 .15
11.	Writing Effective Business Reports and Proposals	25 Aug 2021	10 .15
12.	Resume Writing and Professional Profiles	26 Aug 2021	10 .15
13.	Oral Communication Skills	27 Aug 2021	10 .15
14.	Effective Presentation Skills: Content, Delivery, and Visual Aids	28 Aug 2021	10 .15
15.	Public Speaking Techniques and Overcoming Stage Fear	30 Aug 2021	10 .15
16.	Meetings and Conference Call Etiquette	31 Aug 2021	10 .15
17.	Negotiation Skills in Business Communication	01 Sept 2021	10 .15
18.	Handling Q&A Sessions and Dealing with Difficult Questions	02 Sept 2021	10 .15
19.	Corporate Communication Strategies	03 sept2021	10 .15
20.	Internal vs. External Communication: Strategies and Importance	04 Sept 2021	10 .15
21.	Crisis Communication and Reputation Management	06 Sept 2021	10 .15
22.	Interpersonal Skills and Building Effective Relationships	07 Sept 2021	10 .15
23.	Cross-Cultural Communication in a Globalized World	08 Sept 2021	10 .15
24.	Social Media and Digital Communication in Business	09 Sept 2021	10 .15
25.	Drafting and Document Creation	13 Sept 2021	10 .15
26.	Business Document Formatting and Layout	14 Sept 2021	10 .15
27.	Legal Aspects of Business Writing and Document Drafting	15 Sept 2021	10 .15
28.	Minutes of Meetings and Notetaking Techniques	16 Sept 2021	10 .15
29.	Drafting Business Agreements and Contracts	17 Sept 2021	10.15
30.	Policies, Procedures, and Manuals: Creating Effective Documents	18 Sept 2021	10.15



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

Session(2021-22)

**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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**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 -

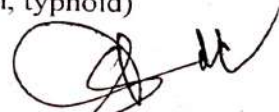
- What is a healthy diet
- How can we use available information to optimize our diet?
- Can nutrition be used for a healthy life?
- Is there a one-size-fits-all “good” diet or should we individualize our dietary goals?
- Disaster management and responsiveness of public in pandemic and epidemic diseases
- 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)



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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 (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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# Kamla Nehru Mahavidyalaya, Nagpur

## 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 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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# **Kamla Nehru Mahavidyalaya, Nagpur**

## **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:**

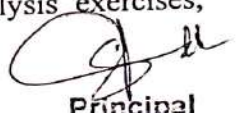
Literature Review, Importance of literature review, Searching and evaluating academic literature, Synthesizing information from various sources, Avoiding plagiarism and proper citation practices

### **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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**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-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 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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**MSc-I**  
**Syllabus of Value Added Course**  
**On**  
**Data Warehousing**

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**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**

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**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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## Kamla Nehru Mahavidyalaya, Nagpur

Affiliated to RTM Nagpur University, Nagpur, Recognised by State Government

Re-accredited by NAAC with (A+) grade (CGPA 3.53)



Amrit Sewak Mahavidyalaya

### DEPARTMENT OF COMMERCE CERTIFICATE COURSE IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT

#### SYLLABUS SESSION :- 2021-2022

Sr. No.	Particulars	Duration
1	<b>Introduction to basic concepts of Logistics:</b> What is Logistics. Importance of Logistics management. <b>Procurement, Storage and Warehouse Management :-</b> Role of Inventory in Warehouse Management. Location and design and managing uncertainty risk of customer market.	9 Days
2	<b>Distribution Management For Global Supply Chain :-</b> strategic role of logistics management study the important modes of logistics operations	9Days
3	<b>Applied GIS and Spatial Data Analytics :-</b> supplier locations, distribution centers, and routing of vehicles.	7 Days
4	<b>Supply Chain Risk Modeling&amp; Management</b> 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



# Theory Syllabus

## Module I: Introduction of Nursery and Floriculture Development

Basic Information about Nursery, Basic Information about Floriculture, Nursery Production, Seedling Production, Propagation by Grafting, Propagation by Seeds and Bulbs, Propagation by Cutting, Propagation by Budding, Greenhouse and Polyhouse, Scope and objectives of nursery.

## Module II: Plants for Nursery and Floriculture

Types of nurseries, Selection of Plants according to types of nurseries, Medicinal Plants, Timber yielding Plants, Fruit yielding Plants, Ornamental Plants, Flowering Plants, Seasonals, Cactus, Special requirement of Plants.

## Module III: Nursery Management

Selection of site, Selection of soil, Soil sterilization, Preparation of nursery beds, Tools required for nursery, Plant protection measures, Fertilizers and nutrition for nursery, Irrigation technique, Weed control, pest control and disease management, Proper seed management.

## Module IV: Marketing Strategies

Action plan for Marketing, Packaging of plants, Transportation of plants, Marketing, Selling, Present marketing status in India, Needs and Demands, Decorative items, Online marketing, Advertising.

  
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Jai Nohru Mahavidyalaya  
Bikkardara Chowk, Nagpur



# Practical Syllabus

1. Preparation of beds
2. Cutting technique
3. Grafting technique
4. Budding technique
5. Preparation of soil mixture for pots and beds
6. Weeding methods
7. Planting methods
8. Preparation of saplings
9. Transplantation technique
10. Handling of nursery tools.



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Kamla Nehru Mahavidyalaya  
Sakkardara Chowk, Nagpur

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  $pH$  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.



**Principal**

Kamla Nehru Mahavidyalaya  
Sakkardara, Nagpur.



**Head**

**Department of Biochemistry**  
**Kamla Nehru Mahavidyalaya**  
**Nagpur.**



## **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.



**Value Added Course  
On  
Personality Enhancement**

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**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**

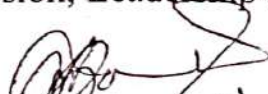
**6 hours**

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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