

VALUE ADDED COURSE

Curriculum

Course Content

(Certificate Course in Innovation and Employability)

UNIT I

Innovation: Introduction, meaning, types, features and need, Innovation process, social Innovation and entrepreneurship, commercialization of Innovations, Government schemes and funding support to ideas, Innovation, and startup.

UNIT II

Employability skills: introduction, need, becoming a professional in 21st century, basic English skills, communication skills, Essential digital skills, key competencies, achieving your goals.

UNIT III

Innovation & Employability: Case study of innovations: Case study on online shopping system started in India. Case study on employability skills.


COURSE COORDINATOR


VAC COORDINATOR


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DPG DEGREE COLLEGE

(Affiliated to MDU, Rohtak)

Sector-34, Near Marble Market, Gurugram 122001

Department of Physics

VAC Syllabus 2023-24

Subject-Renewable & Non Renewable Energy Sources

UNIT-I

Energy Scenario: Classification of Energy Sources, Energy resources (Conventional and nonconventional), Energy needs of India, and energy consumption patterns. Worldwide Potentials of these sources, Energy efficiency and energy security, Energy and its environmental impacts, Distributed generation. Solar Energy: Solar thermal Systems: Types of collectors, Collection systems, efficiency calculations, applications. Photo voltaic (PV) technology: Present status, solar cells, cell technologies, characteristics of PV systems, equivalent circuit, array design, building integrated PV system, its components, sizing and economics. Peak power operation, Standalone and grid interactive systems.

UNIT-II

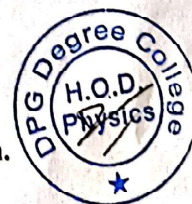
Energy storage and hybrid system configurations: Energy storage, Battery – types, equivalent circuit, performance characteristics, battery design, charging and charge regulators. Battery management, Flywheel-energy relations, components, benefits over battery. Fuel Cell energy storage systems. Ultra Capacitors. Bio-Mass and Bio-Fuels.

UNIT III

Grid Integration: Standalone systems, Concept of Micro-Grid and its components, Hybrid systems – hybrid with diesel, with fuel cell, solar-wind, wind –hydro systems, mode controller, load sharing, system sizing. Hybrid system economics, Interface requirements, Stable operation, Transient-safety, Operating limits of voltage, frequency, stability margin, energy storage, and load scheduling. Effect on power quality, harmonic distortion, voltage transients and sags, voltage flickers, dynamic reactive power support. Systems stiffness.

Reference:

- [1]. Renewable energy technologies - R. Ramesh, Narosa Publication.
- [2]. Energy Technology – S. Rao, Parulkar
- [3]. Non-conventional Energy Systems – Mittal, Wheelers Publication.
- [4]. Non-Conventional Sources of Energy- G.D.Rai, Khanna Publishers



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Sector-34, Near Marble Market, Gurugram 122001

Department of Arts and Humanities

VAC Course
Session- 2023-24

English for Success :A Skill Development Course

Course Objectives:

1. To help students identify their flaws in English pronunciation and have an individual plan to rectify them.
2. To help students understand the influences on correct English pronunciation.
3. To help students adapt their speech organs to get near-perfect native English pronunciation.
4. To provide all the necessary knowledge and skills to the students to remember to make a life-long goal to have good English pronunciation.

COURSE CONTENT

(English for Success :A Skill Development Course)

UNIT 1

Recapitulation of language skills: Parts of speech, Grammar and Syntax, Tenses, Synonyms, Antonyms, Vocabulary, Phrases, Clauses, sentence structure, punctuation.

UNIT 2

Listening and Speaking skills: Engaging in Dialogues, Discussions, Debates and Role-Plays, Vowels, Consonants, Pronunciation, Formal and informal conversation, conversation in the work place, public speech.

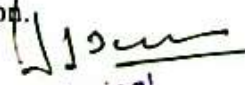
UNIT 3

Reading and Writing skills: Essay Writing, Creative Writing, Vocabulary, Report writing, paragraph writing, essay writing, CVs, Resume, and email writing.

Course Outcomes:

After completing this course the students will be able to

- Eliminate their mother tongue influences in English pronunciation.
- Learn correct English sounds.
- Develop fluency and clarity of speech.
- Understand to use Phonetics to improve their pronunciation.
- Gain speaking skills to communicate effectively with any life situation.


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Syllabus of VAC

Chemistry in Industrial Pollution and Green Chemistry

Course Objectives:

- To design cost effective chemical products.
- To design highest level of pollution hierarchy by reducing pollution.
- To design the disposal of untreated Chemicals safely.
- Designing chemical products to be less hazardous to Environment.

UNIT-1

Green Chemistry- Importance, Goals of green Chemistry, Principles of Green Chemistry, Designing a green synthesis using these principles. Prevention of waste / by product. Atom economy.

Prevention/minimization of hazardous or toxic Chemicals. Green solvents . Use of catalytic reagent (wherever possible), Green Chemistry in sustainable development.

UNIT-2

Chemistry in Industrial Pollution- Cement, Sugar, distillery, drug, paper, and pulp, thermal power plants, nuclear power plants, metallurgy, Polymers, drugs etc. Radionuclide analysis. Disposal of waste and their management.

UNIT-3

Chemistry in Industrial Pollution- Soil Pollution, micro and macro nutrients, soil pollution, fertilizers, pesticides, water quality parameters (COD, BOD).



Energy & Environment - Source of energy: Coal , petrol and natural gas. Nuclear fusion/ Nuclear fission, Solar energy ,hydrogen , geothermal.

Nuclear pollution: Disposal of nuclear waste, Nuclear disaster.

Course Outcomes

- The student is able to realize the importance of green technologies in sustainable development of industries.
- Adopt alternative methods for green synthesis.
- To develop cleaner production and treatment mechanism for pollution prevention.





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Objectives:

- To develop skills of landscape planning.
- To give them opportunity to utilize available land effectively.
- To increase the knowledge of students about maintenance of plants and home gardens.
- To gain insight into various decorative features of garden.
- To understand effect of light and colour in the garden.

Title Of Paper: Gardening in Limited space: Miniature Gardening

UNIT1: Definition of Miniature Gardening

Importance Objectives

Preparation of miniature Garden Dish gardens, trough gardens, bottle gardens (terrarium), window boxes, bonsai (plants types and techniques) hanging baskets

Factors affecting Miniature gardening

UNIT 2: Landscape Planning Principles of planning Division of space

Landscape Planning Principles of
planning Division of space

The approach to house from main street to

- The main entrance
- The back entrance Division of grounds

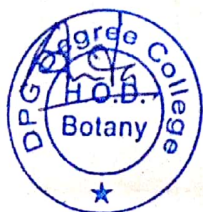
in front yard

- Lawns
- Flower beds
- Shrubs, vines
- Trees and plants Division of space in

back yard

- Place for drying laundry
- Place for washing

Place for garbage disposal Kitchen garden



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UNIT3: Selection of plants

All year round plants grass for lawn, hedges, shrubs Indoor plants, Decorative plants **Landscape design**

Light and colour in the garden Other garden features

- Landscape paths
- Rock garden
- Water garden
- Miniature garden

Green house and summer house

Caring plants and maintenance of surroundings

Essential needs of plants to grow successfully –soil, light, water temperature, humidity

Potting and repotting, potting mixtures

Basic Text & Reference Books

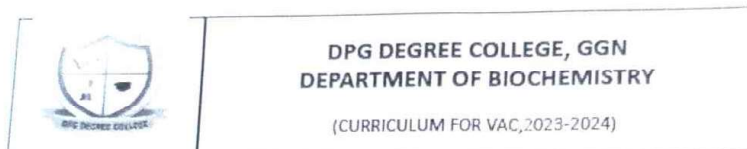
- Michael Wright, "The Complete Book of Gardening", Published by Ebury Press.
- S. Percy. Lancaster (1977), "Gardening in India", Published by Oxford and IBH Publishing Co. Pvt. Ltd.
- Peter Mchay (1987) "Anatomy of Garden", Published by Wendward.
- Trivedi P.P (1983) "home Gardening" Published by ICAR, New Delhi.



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VAC Biochemistry Department

Curriculum:-



Objective of the course: -

1. Utilize knowledge from the physical and biological sciences as a basis for understanding the role of food and nutrients in health and disease processes.
2. Provide nutrition counseling and education to individuals, groups, and communities throughout the lifespan using a variety of communication strategies.
3. Evaluate nutrition information based on scientific reasoning for clinical, community, and food service application.

Unit 1

Balanced food, classification of food, food and their nutrients, disorders related to food nutrition, food diet for person suffering from diabetes.

Unit 2

Malnutrition, diseases related to malnutrition, diet required during Infancy, growing age of child. Food standard ISI, Agmark, FPO, MPO, PFA.

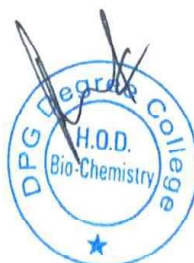
Unit 3

Diet therapy, diet in surgical conditions, diet in diabetes/hypoglycemia, diet in gall bladder removal, diet in cardiovascular disease, diet in renal disease.

COURSE OUTCOMES

1. Students will able to learn disorders related to food.
2. Diet required to overcome malnutrition.
3. Diet required during various disorders.

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**CERTIFICATE COURSE IN STRESS MANAGEMENT BY DEPARTMENT OF
MANAGEMENT**

This course is structured to help students to enhance the knowledge regarding stress management which will help them to work efficiently in their Personal and Professional life.

COURSE OBJECTIVES

At the end of the course the students will be able

- 1 To understand the nature of stress
- 2 To understand the impact of stress on work and on personal life
- 3 To understand the strategies of Stress management

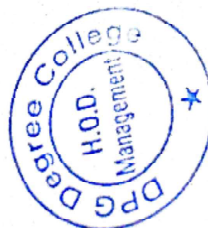
Unit 1: Understanding Stress- Introduction: Meaning and nature of Stress, Definition, aspect of Stress, Stressor and types - Source of Stress - Types of Stress - Indication of Stress, Consequences of Stress - Stress and work Performance - Stress Cycle - General Adaptation Syndrome, Stress related diseases and disorders- positive and negative stress

Unit2: Stress Prevention Plan - Care of Self - Stress reduction Practices - Time Management
-. Incorporating mindfulness into daily life, procrastination and distractions, Time Management and Organizational Skills, Prioritization techniques, role of hobbies in stress management, creating effective to-do lists, managing workload to reduce stress. Activities: Guided practice sessions, Workshops on time management, Journaling and reflection exercises.

Unit 3: Building Resilience and Sustaining Well-being-Strategies of Stress Management - Prevention of Stressful thinking - Problem solving - Emotional and cognitive coping style - Strategies of Stress Management, Developing Resilience, Healthy Lifestyle Choices, Impact of nutrition, exercise, and sleep on stress levels, Strategies for maintaining a healthy lifestyle, creating a balanced life. Sustaining Stress Management Practices. Relaxation Techniques - Yoga and Meditation

COURSE OUTCOME-

By the end of the course, students should have a deep understanding of stress, practical tools for managing it, and strategies for building long-term resilience. This course structure combines theoretical knowledge with practical application to ensure students can effectively manage stress in their lives.



A handwritten signature in blue ink, appearing to read "Meenu".



DPG School of Technology & Management

(A unit of DPG Degree College, Sec-34, Gurugram)

(Affiliated to MDU, Rohtak)

Recognized 2(f) by UGC & Accredited with 'A' Grade by NAAC



VALUE ADDED COURSE

Curriculum

Certificate Course in Spread Sheet Management -(2023-24)

This course is intended for anyone who seeks to develop one of the most critical and fundamental digital skills today. Spreadsheet software has become one of the most ubiquitous pieces of software used in workplaces across the world. In this course, learners develop the basic required Excel Skills for managers and entrepreneurs to manage and run a Business.

Course Objective:

By the end of the course the students will be able to:

CO1: Handle and format spreadsheets.

CO2: Design professional dashboards.

CO3: Perform complex calculations using advanced Excel features and techniques.

CO4: Apply advanced formulas and conditional logic to help decision making.

Max. Marks: 40

UNIT - I

Spreadsheet Tools

hours: 8

Moving between Spreadsheets, Selecting Multiple Spreadsheets, Inserting and Deleting Spreadsheets, Renaming Spreadsheets, Splitting the Screen, Freezing Panes, Copying and Pasting Data between Spreadsheets, Hiding, Protecting worksheets.

UNIT-2

Pictorial representation through Excel

hours: 8

Shapes, SmartArt, Creating charts and graphs, Creating PivotTables, manipulating Pivot Table, changing calculated value fields, PivotTable Styles, Grouping, sorting and filtering Pivot Tables, Working with Pivot Charts, use of sliders.

Financial Analysis

UNIT -3

hours: 8

Future Value (FV), FVSCHEDULE, PV, NPV, PMT, PPMT, IRR, MIRR, XIRR, NPER, RATE, XNPV, EFFECT, NOMINAL, SLN, DB, ACCRINT, ACCRINTM, CUMIPMT, CUMPRINC, DISC, INTRATE, YIELD, Balance Sheet, Profit and Loss Statement, Budget preparation, Variable Tax or Commission Calculation.

Course Outcomes:

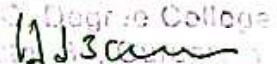
1. Capable of Moving between Spreadsheets, Selecting Multiple Spreadsheets, Inserting and Deleting Spreadsheets using Spreadsheet Tools.
2. Distinguish different elements in an optimization problem
3. Analyze and optimization problem in terms of constraints and objective function
4. Perform statistical analysis

Textbook(s): 1. Succeeding in Business with Microsoft® Excel 2013: A Problem-Solving Approach by Debra gross, Frank Akaiwa and Karleen Nordquist, Cengage learning publication.

2. Excel® 2016 Formulas and Functions by Paul McFedries, MrExcel Librart


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DPG DEGREE COLLEGE
Sector 34, Gurugram HR 122001
Department of Mathematics
Value Added Course

Quantitative Aptitude – 1
Session 2023-24

Course Objectives: -

- Strengthen mathematical skills in arithmetic, algebra, geometry, and statistics.
- Develop problem-solving abilities for competitive exams and real-life scenarios.
- Improve speed and accuracy in quantitative tasks
- Apply math in practical situations like business and data analysis.

Course Duration: 30 Hours

UNIT I

6 Hours

Numbers-H.C.F and L.C.M of Numbers-Decimal Fractions.

UNIT II

6 Hours

Simplification-Square Roots and Cube Roots-Average.

UNIT III

6 Hours

Problems on Numbers-Problems on Ages-Surds and Indices.

UNIT IV

6 Hours

Percentage-Profit and Loss, Ratio and Proportion

UNIT V

6 Hours

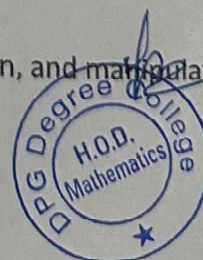
Logarithms-Area-Volume and Surface Areas.

Books for Reference:

1. Quantitative Aptitude by R.S.Agarwal, Sultan Chand and Company Ltd, New Delhi.
2. Quantitative Aptitude for Competitive Examinations by Abhijit Guha, McGraw Hill Education.

Course Outcomes:

1. Develop the ability to analyze and solve a variety of mathematical and quantitative problems accurately and efficiently.
2. Enhance numerical skills, including mental calculations, estimation, and manipulation of numbers in various contexts.



DEPARTMENT OF ZOOLOGY

VAC Course Title: 'Aquaculture: Principles and Practices'

Course Outcomes:

- CO1: Students will be able to define and comprehend the scope and significance of aquaculture and examine the types and practices of aquaculture
- CO2: Students will be able to acquire the knowledge on culture of freshwater fish, acquire the knowledge on culture of Freshwater Fishes
- CO3: Students will be able to describe the culturable characteristics of Shrimp and Molluscs; explain the economic importance of Pearl oyster

Unit I

- Introduction to fisheries: Categorization of fish by their habitat, Production, utilization and demand, Economic importance, fish and health benefits
- Culture and rearing of finfishes, effects of climate change, general guidelines for aquaculture

Unit II

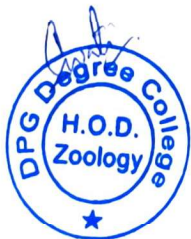
- Molluscs and their culture: distribution, biology, practices, farming methods, pearl culture
- Culture of crustaceans: Shrimp farming (water quality, site selection, pond preparation, flock preparation, feed management, harvesting), Lobster and Crayfish culture

Unit III

- Field Culture: ponds, cages and pens, raceways, indoor tanks, canals; Culture: monoculture, polyculture and composite fish culture
- Fishing crafts and gears: Fishing boats and tube platforms, nets and hook lines, rafts and canoe, encircling and entangling gears, fishing methods: fish traps, electric fishing

Suggested reading material:

1. Mathew Landau. 1995. Introduction to Aquaculture. Daya Publishing House, New Delhi.
2. Pillay, T. V. R. 1993. Aquaculture: Principles and Practices. Fishing News Books. Black Well Scientific Publications.
3. MPEDA, 1991. Hand Book on Shrimp Farming, Kochi, India.
4. Jhingran, V. G. 1982. Fish and Fisheries of India. Hindustan Publishing Corporation, New Delhi.
- Chakrabarti, N. M. 1998. Biology, Culture and Production of Indian Major Carps. Narendra Publishing House, New Delhi.
5. Coche, A. G. and J. F. Muir. 1996. Pond Construction and Fresh Water Fish Culture - Pond Farm Structures and Layouts - Simple Methods for Aquaculture. FAO. Daya Publishing House, New Delhi.
- Upadhyay, A. S. 1995.



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