



MVR DEGREE COLLEGE

ADD ON COURSE



DIGITAL MARKETING

*The use of the Internet to
reach consumers.*

PRINCIPAL
A. BALAKRISHNA

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Shramika Nagar, Gajuwaka
VISAKHAPATNAM-530026





M.V.R. DEGREE COLLEGE

UG & PG Courses

GAJUWAKA, VISAKHAPATNAM - 530 026

. Add-on COURSE IN DIGITAL MARKETING (FOUR MONTHS COURSE)

TITLE: DIGITAL MARKETING

Scope of the Course:

There is a broad Digital Marketing scope at present as the digital media is the new media that works with the help of internet and has proved to be the fastest medium of **mass** communication. Digital marketing points to a bunch of techniques used in promoting or marketing products or services on the Internet.

This shift in the choice and preferences has bolstered digital media's entry as a break from the past. It is an absolute revolution as Digital media marketing is barrier-free doing it from office or home does not make any difference.

All that is required is a device connected to the internet. It is also eco-friendly as no paper is used and saves time, long work, and other limitations inherent in traditional marketing.

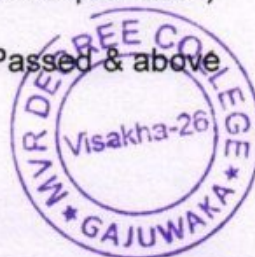
OBJECTIVES OF THE COURSE:

The aim of the Digital Marketing Course is to provide students with the knowledge about business advantages of the digital marketing and its importance for marketing success; to develop a digital marketing plan; to make SWOT analysis; to define a target group; to get introduced to various digital channels, their advantages and ways of integration; how to integrate different digital media and create marketing content; how to optimize a Web site and SEO optimization; how to create Google AdWords campaigns; social media planning; to get basic knowledge of Google Analytics for measuring effects of digital marketing and getting insight of future trends that will affect the future development of the digital marketing. The application of the gained knowledge, skills and competences will help future managers in forming digital marketing plan in order to manage a digital marketing performance efficiently.

DURATION : Four Months

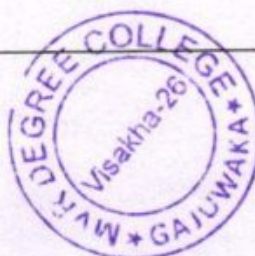
TOTAL NUMBER OF HOURS : 48 hours (3 Hours per week)

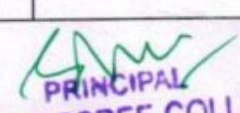
ELIGIBILITY : Intermediate Passed & above




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UNITS	SYLLABUS		
	Module	TOPICS	No. of classes (lectures)
Unit - I	I	• Introduction to the Course and Work plan • Introduction of the digital marketing • Digital vs. Real Marketing • Digital Marketing Channels	4
	II	• Creating initial digital marketing plan • Content management • SWOT analysis * • Target group analysis	3
	III	• Web design • Optimization of Web sites • MS Expression Web • EXERCISE: Creating web sites, MS Expression (working in groups)	4
Unit - II	IV	• SEO Optimization • Writing the SEO content	3
	V	• Google AdWords- creating accounts • Google AdWords- types • Exercise: Google AdWords (working in groups)	3
	VI	• Introduction to CRM • CRM platform * • CRM models • Exercise: CRM strategy (working in groups)	3
Unit - III	VII	• Introduction to Web analytics • Web analytics - levels • Introduction of Social Media Marketing • Exercise: Social Media Marketing plan (working in groups)	3
	VIII	• Creating a Facebook page • Visual identity of a Facebook page • Types of publications • Exercise: Making a Facebook page (working in groups)	3
	IX	• Business opportunities and Instagram options • Optimization of Instagram profiles • Integrating Instagram with a Web Site and other social networks • Keeping up with posts	4




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Unit - IV	X	• Business tools on LinkedIn • Creating campaigns on LinkedIn • Analyzing visitation on LinkedIn	3
	XI	• Creating business accounts on YouTube • YouTube Advertising • YouTube Analytics	3
	XII	• Facebook Ads • Creating Face book Ads, • Ads Visibility	3
Unit - V	XIII	• E-mail marketing • E-mail marketing plan • E-mail marketing campaign analysis • Keeping up with conversions	3
	XIV	Digital Marketing Budgeting • resource planning •- cost estimating • cost budgeting. - cost control	3
	XV	Recapitulation: - lessons learned - student satisfaction survey, - closing	3

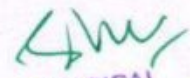
REQUIREMENTS FOR THE COURSE : Faculty, Digital Class Room, Computer Systems, Books

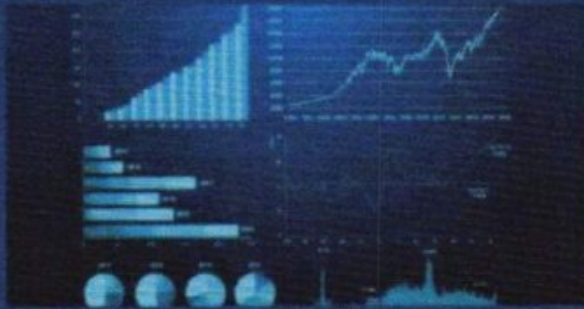
REFERENCE BOOKS :

- 1) Ryan, D. (2014). Understanding Digital Marketing: Marketing Strategies for Engaging the Digital Generation, Kogan Page Limited.
- 2) The Beginner's Guide to Digital Marketing (2015). Digital Marketer. Pulizzi,J.(2014) Epic Content Marketing, Mcgraw Hill Education.


 Course Designed & submitted by
 Department of Commerce & Management




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ADD ON COURSE

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STATISTICAL METHODS & APPLICATIONS

**CONNECT THE WORLD
WITH DATA
WE CAN TRUST**

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A. BALA KRISHNA**



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ADD-ON COURSE IN STATISTICAL METHODS & APPLICATIONS
(FOUR MONTHS COURSE)

TITLE: STATISTICAL METHODS & APPLICATIONS

SCOPE:

- Statistical techniques deal with collection, presentation, analysis and interpretation of data
- Statistics is an emerging field and the demand of statistics professional is increasing day by day due to its applications.
- Potential in several fields such as planning, data, monitoring, management of industrial and business problems, laboratory techniques, research fields etc.,.

OBJECTIVES :

- Provide learners with the core knowledge required for statistical applications
- Familiarize the real life problems to the learners and promote them to the use of statistics in applied sciences and industries
- Equip them with the skills of using appropriate formulas for statistical application in various fields

DURATION	:	Four Months
TOTAL NUMBER OF HOURS:	:	48 Hours (3 hours per week)
ELIGIBILITY	:	Intermediate Passed & above
MEDIUM OF TEACHING	:	English




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SYLLABUS

UNIT – I : DESCRIPTIVE STATISTICS

14 hours

- **Measures of presentation and interpretation :**

Frequency distribution, Graphical presentation of data, histogram, frequency polygon, frequency curve, ogives

- **Measures of Central Tendency :**

Mean, Median, Mode

- **Measures of dispersion :**

Standard Deviation , Variance, coefficient of variation

UNIT – II : ELEMENTARY PROBABILITY

12 hours

- Mathematical Definition of probability of an event

- Conditional probability, Additive and multiplicative probability, random variables, mathematical expectations and variances

- **Probability distributions :**

Binomial, Poisson and normal distributions

UNIT – III: CORRELATION ANALYSIS , TESTS OF SIGNIFICANCE & ANOVA 22 hours

- **Correlation & regression analysis :**

Relationship between variables

- **Test of significance :**

Statistical & Scientific hypothesis, null and alternative hypothesis, procedure of hypothesis testing

- **Test of significance :**

Students t –test , chi-square test , F – Test

- **ANOVA**

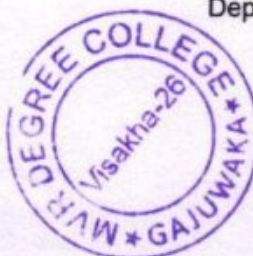
General Ideal of one – way & two-way analysis

REQUIREMENTS FOR THE COURSE : Faculty, Books

REFERENCE BOOKS

- 1) Quantitative Techniques by S.L.AGGARWAL & B.J.BHARADWAJ,
- 2) Fundamentals of Mathematical Statistics by S.C. GUPTHA & V.K. KAPOOR

SK. Kaiser
Course Designed & submitted by
Department of Statistics



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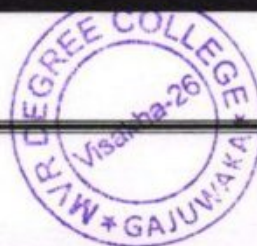


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IT SKILLS

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DEPARTMENT OF COMPUTER SCIENCE

ADD ON COURSE IN IT SKILLS

Title: IT Skills

Scope Of The Course:

This programme aims to introduce the concepts of Hardware, Software, office automation and Internet technologies. Also, included is a laboratory course where the student gets hands on experience.

Objective Of The Course:

- Impart the basics of Computer hardware and software
- Introduce the software concerns and software vulnerabilities
- Introduce social, legal and ethical aspects of IT
- Discuss the role of IT in various fields like: such as Business, Governance, Education and Medicine
- Introduce the concept of Information System
- Discuss the basic principles of Internet
- Process of searching for information on Internet
- Document creation and working with excel
- Creation of power point presentation

Duration: 4 Months

Hours per week: 2 HRS (Theory and Practicals)

Medium Of Teaching: English

Syllabus:

Unit 1: Introduction to Computers (4 Hrs)

Introduction to PC:

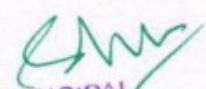
A personal computer(pc) consist of Central Processing Unit (CPU),Control Unit(CU) and Arithmetic Logic Unit(ALU).

Storage Organization:

Types of Main Memory: RAM, ROM, PROM,EPRM

Secondary (auxiliary) Memory, Input /OutPut devices, Peripherals




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Unit 2: Software Security and Antivirus (4 Hrs)

Introduction, Types of Threats-physical Security

Threats-software security threats-password security threats.

Types of Security Measures: Physical Security Measures-Software Security

Measures-Network security Measures-password security Measures

Encryption: Symmetric and Asymmetric key Encryption-Security policies.

Unit 3: Web Based Technologies (4Hrs)

Evolution of Internet – Advantages of Internet-Information sharing-Internet

Tools and Services-Internet Components-Software and

Hardware Components-Internet Authorities-Internet Service Provider

Internet Addresses: Web Address-IP Address-E-mail Address.

Let's Connect To Internet: Direct connection-Dialup

Connection-Setup Internet connection.

Unit 4: Introduction- Basics of MS Word –

Editing A Document-Formatting Tool Bar-Saving and printing A Document-Inserting Images, objects and Embedded objects.

Page Design and Document Management: Adjusting Document

Margins (Ruler and Dialog options)

Creating Table: Sorting-Converting Text to A Table-Splitting-

Table Auto Format. Mail Merge

MS Power Point: Introduction- Creating New Presentation-

Different Kinds of Power Point Views-Insert Notes-Animation

and Show-Insert Images and Files-Saving and Printing Presentation.

Unit 5: MS Excel and Basics of MS Access

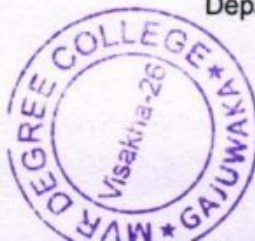
Introduction - Features-Create Worksheets-Add and Rename

Work Sheets-Customize Worksheet-Add and Remove Columns and Rows.

Move and Copy Worksheets-Linking Working Sheets-Linking Workbooks.

G. Sujatha

Course Designed & submitted by
Department of Computer Science



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ADD-ON COURSE

Techniques in Analytical Chemistry



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Department of Chemistry

ADD-ON COURSE in Techniques in Analytical Chemistry Skills

Scope of the course:

Analytical testing is a very important component of quality testing and validation of pharmaceutical products. In a pharmaceutical laboratory, a lot of work is being done on analytical equipments. Thus workforce trained in handling such equipments is always in demand. MVR College offers an opportunity to act as a trained technician handling such equipments.

Objectives of course:

After studying this course, you should be able to:

- Broaden your perception of the field of analytical chemistry,
- Distinguish between various analytical techniques; classify the chemical, electrical, optical, nuclear, and thermal methods of analysis, classify the separation methods,
- Understand the utility of analytical techniques, and
- Highlight the development of methods of chemical analysis.

Duration of course:

- The candidate is expected to complete the course in 4 months.

Hours per week:

- 5 hours per week (theory and practical)

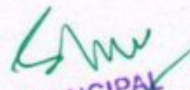
Course eligibility:

- Intermediate passed and above

Medium of teaching:

- English




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Syllabus:

Theory:

Unit – I

Introduction to analytical chemistry, definition, classification, applications of analytical chemistry.-----6hours

Unit – II

Classification of analytical methods, classical methods, instrumental methods.-----6hours

Unit – III

Classical methods, analysis of water.-----6 hours

Unit – IV

Instrumental methods of analysis, spectroscopic methods of analysis, electro analytical methods of analysis.-----6 hours

Practical

- 1) Determination of Fe(III) content in Iron supplements/water/any other alloy sample by Spectrophotometer-----3 hours
- 2) Determination of strength of acid by conductivity meter---3 hours
- 3) Determination of strength of Ferrous ammonium Sulphate using $K_2Cr_2O_7$ by potentiometer----3 hours
- 4) Determination of strength of acid by pH meter----3 hours
- 5) Determination of alkali metals like Na, K, Li using flame photometer----3 hours
- 6) Separation of mixture of amino acids/pigments by TLC---2 hours
- 7) Analysis of water-----7 hours
 - a) Determination of Hardness of water
 - b) Determination of Alkalinity of water sample
 - c) Determination of TDS of water sample
 - d) Determination of pH of water sample
 - e) Determination of Electrical conductivity of water sample




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Requirements for the course:

- PG chemistry laboratories
- Analytical chemistry books
- Our college working faculty are sufficient
- Consumable chemicals

Expenditure required:

1) Chemicals

S no	Name of chemical	Required volume
1	Hydrochloric acid	
2	Acetic acid	
3	Sulphuric acid	
4	Potassium dichromate	
5	Ferrous ammonium sulphate	
6	Sodium hydroxide	
7	EDTA	
8	Zinc sulphate	
9	Ammonium chloride	
10	Phosphoric acid	
11	Sodium hydroxide	
12	Ferric alum	
13	Potassium thiocyanate	
14	Sodium carbonate	

Done



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ADD ON COURSE



MEDICAL DIAGNOSTIC METHODS & TECHNIQUES



MVR DEGREE COLLEGE

DIAGNOSTICS OF MICROBIOLOGY



ICS



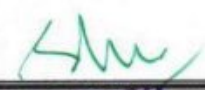
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Dr. A. BALA
KRISHNA

HOD

DR. P. V
D. SOWJANYA




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CERTIFICATE COURSE IN APPLIED SCIENCES

MEDICAL DIAGNOSTIC METHODS AND TECHNIQUES

SCOPE THE COURSE:

The present course has been specifically designed for the students who have aspiration towards learning of diagnostic techniques. This course may be opted by intermediate and undergraduate students of any discipline. The course will cover the essential aspects of diagnostic methods such as sample collection, serological tests, and identification of pathogens, immune and rapid techniques.

The course will impart knowledge regarding various sterilization techniques and bio medical waste management which is very important and burning problem now a days. The duration of the course is 50 hrs (3 months). After completion of course the student will gain the knowledge about basic diagnostic methods and techniques, maintenance of microbiology and diagnostic laboratories. This knowledge will help the students in to get incorporated into diagnostic field.

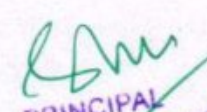
OBJECTIVES:

The present course has been designed to achieve the following objectives:

- To provide basic knowledge about sample collection for different diagnostic tests.
- To learn the procedures for handling of the clinical specimens and samples.
- To train the student in performing basic serological and immunological tests.
- To provide adequate information regarding sterilization techniques, microbiological media preparations and different biochemical tests which are very important in identification of pathogens.
- To give adequate information and explanation towards bio waste management and automation techniques.

As a whole to impart knowledge over diagnostic techniques and methods




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SYLLABUS

UNIT – I

4hr

Collection of clinical samples, storage, transport and precautions: Collection of blood sample, urine samples, feces, sputum, swab from throat, skin.

UNIT - II

6hr

Serological Tests: Antigen and Antibody reactions, Determination of blood Group. Urine analysis. WIDAL Test, VDRL Test, WBC Test, RBC Test, Hb Estimation, Pregnancy Test. Rapid tests for Malaria, HIV, HCV, HBSAg. Immuno diffusion – RIA & ODD.

UNIT – III

6hr

Identification of pathogens by using staining techniques: Gram staining, Ziehl Nelson staining for Tubercle bacilli, Giemsa staining of blood film for malaria. Fungal staining techniques.

UNIT – IV

6hr

Preparation and use of culture media for identification of pathogenic bacteria: Selective and Indicator media – Mac Conkey Agar, Mannitol Salt Agar, Blood Agar, Potato Dextrose Agar, Chocolate Agar, EMB Agar, SS Agar, TCBS Agar. Biochemical tests (IMViC).

UNIT – V

6hr

Sterilization and disinfection techniques - Physical methods autoclave, hot- air oven, pressure cooker, laminar air flow, filter sterilization, Radiation methods UV rays, Gamma rays. Chemical methods - alcohols, aldehydes, fumigants, phenols, halogens and hypochlorites. Bio waste management. Automation in clinical reference laboratories (CRL).

PRACTICALS:

20hr

- Hemoglobin estimation
- Ab – Ag reaction determination of blood groups.
- WIDAL test for Typhoid.
- VDRL test for Syphilis.
- Pregnancy test.
- Total leukocyte count by the given blood sample.



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- Laboratory examination of sputum by Ziehl – Nelson staining to detect the acid fast bacilli.
- Isolation of bacterial flora of skin by swab methods.
- Identification of pathogens by cultural, morphological, and biochemical characteristics.
- Total RBC and WBC count of given blood samples.
- Immuno techniques: RIA & ODD
- TRIDOT TEST FOR HIV.
- Rapid tests for HCV & HBSAg.

Requirements:

- **Required Faculty members: 2**
- Kits for Hb estimation, RIA, ODD, WIDAL, VDRL, and Pregnancy test, HCV & HBSAg.
- Hemocytometers.
- RBC & WBC diluting fluids, pipettes and counting chambers.
- Nutrient broth, Nutrient agar, Mac conky agar, Mannitol salt agar, EMB agar, SS agar, TCBS agar and Potato Dextrose agar.
- Staining reagents.
- Microscopes.
- Books: Available in library are sufficient.
- Expenditure required if any: Media, Chemicals and Kits has to buy.
- Honorarium if required:

P.V.D. Sowjanya Kumari
 Course Designed and Submitted by
P. V. D. SOWJANYA KUMARI, M. Sc.
Dr. P. V. D. Sowjanya Kumari
 Dept. of Microbiology
 M. V. R. DEGREE COLLEGE
 Dept. of Microbiology



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ADD - ON COURSE

FISH PRODUCT

TECHNOLOGY

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ADD - ON COURSE IN ZOOLOGY

FISH PRODUCTS TECHNOLOGY

SCOPE OF THE COURSE:

Fisheries sector forms an integral part of Indian economy. This sector generates ample amounts of jobs, revenue, food and foreign exchange. The programme trains students in aspects related to post harvest processes and to create a skilled work force which is capable of doing various roles in fisheries sector.

OBJECTIVES:

- To develop and strengthen human resource by infusing and imparting knowledge and skill in value added fish products.
- To train personnel for self employment and creating awareness and competency in the fish processing as well as fish products preparation.
- To impart basic knowledge and technical proficiency in Post –Harvest management, primary processing of fish, value addition.




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SYLLABUS

UNIT – I Introduction to fish processing and value addition. **10hrs**

- 1.1. Fish as food – introduction to fisheries, composition and nutrition, fish spoilage, fish handling and chill storage.
- 1.2. Fishery Products – products of commerce, dried, cured and smoked products, frozen products, heat processed products.

UNIT – II Mince and Mince based Products **10hrs**

- 2.1. Fish Mince – Production of fish mince, storage and shelf life, utilization.
- 2.2. Surimi – definition, raw materials, processing and storage, surimi based products.

UNIT – III Coated Products **10hrs**

- 3.1. Battering and Breading – Batter, Breadings, Process
- 3.2. Types of Products – whole fish and shell fish based molded products.

UNIT – IV Fish by – products and waste utilization **10hrs**

- 4.1. Fish meal and oil – Production of fish meal and oil, uses of fish meal and oil, quality and storage.

4. Other specialty products – Fish flakes, fish sauce and fish soup powder, fish noodles and pickles.

Practicals: **8hr**

- Quality evaluation of commercial marine fishes and shellfishes in a fish landing centre.
- Estimation of the proximate composition of a fish.
- Handling techniques of fish on – board a fishing vessel.
- Preparation of frozen fish and shell fish products.
- Chilling of fish using ice.
- Preparation of fish cutlets using fish mince
- Preparation of fish fingers.
- Preparation of coated fish balls.



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Requirements of the course:

- Faculty required: 2
- Laboratory requirements: -
- Books: available in library are sufficient.
- Any additional requirements: cooking items.
- Expenditure required if any: -
- Honorarium if required: -

Course Designed and Submitted by

K. Lydia Grace
K.LYDIA GRACE

Dept.of Zoology



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(UG & PG COURSES)
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DEPARTMENT OF MATHEMATICS

ADD ON COURSE

"A STUDY ON CALCULUS"



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Department of MATHEMATICS

A STUDY ON CALCULUS (Course Code: Math 121)

Syllabus

UNIT I

Functions,

Rational functions,

Complex number

UNIT II

Zeros of polynomial,

Graphing Lines,

Parabolas,

Some Non-Euclidean Geometry.

UNIT III

A Quick Proof of the Power Rule, Uses of the Power Rule, The Product Rule,

The Quotient Rule, An Introduction to the Chain Rule, Using the Chain Rule,

UNIT IV

Combining Computational Techniques, Acceleration and the Derivative,

Solving Word Problems Involving Distance and Velocity,



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UNIT V

Higher-Order Derivatives and Linear Approximation, Using the Tangent Line

Approximation Formula, Newton's Method

DURATION OF THE COURSE : 80 hrs
NO OF TEACHING HOURS PER WEEK :
EXAMINATION PATTERN : OBJECTIVE
METHOD OF EVALUATION : MANUAL
ELIGIBILITY FOR ISSUING CERTIFICATE: GRADE SYSTEM

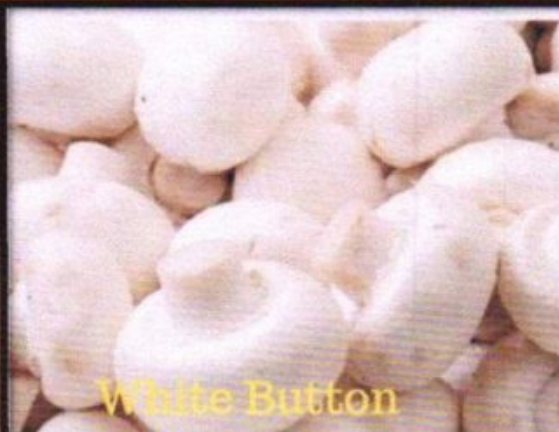
Ch. Ram
Course Designed and Submitted by
Head of The Department
Department of Mathematics
Mr. Ch. Ramasanyasi Rao
M.V.R. Degree College
Gajuwaka, Visakhapatnam-26.
Dept. of Mathematics



Ch. Ram
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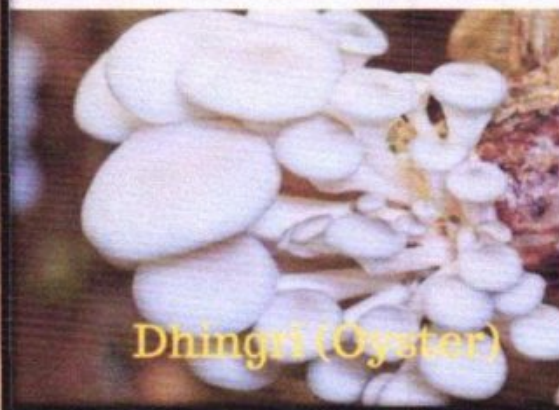
ADD –ON COURSE
Fundamentals in Mushroom cultivation
DEPARTMENT OF BOTANY
M.V.R. College (UG and PG Courses)
Gajuwaka, Visakhapatnam, AP



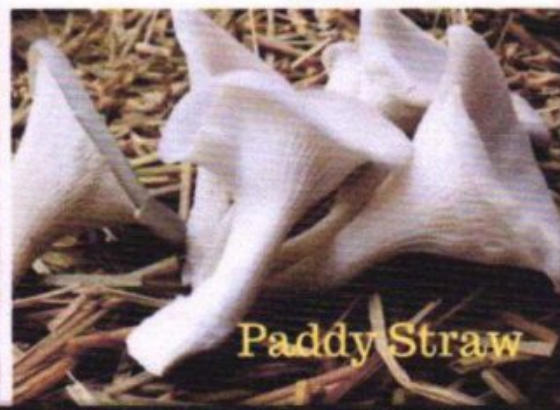
White Button



Portobello



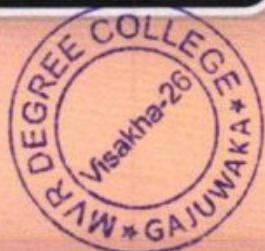
Dhingri (Oyster)

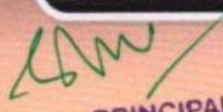


Paddy Straw

Add on Course
Fundamentals in Mushroom cultivation
Course Coordinator
Dr. S.V. Krishna, HOD
Department of Botany

Duration of the course: 30 hours
Hours per week: 2hrs. (Theory and
Practical)
Eligibility: Intermediate/12th grade and
above
Medium of teaching: English




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DEPARTMENT OF BOTANY

ADD - ON COURSE – Fundamentals in Mushroom culture



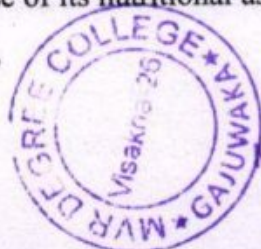
1. **Title of the course:** Fundamentals in Mushroom culture

2. **Scope of the course:**

Mushroom production has tremendous scope. Mushroom has excellent medicinal properties. It is rich in protein, fibre and aminoacids. It is a 100 percent vegetarian food and is good for diabetes and joint pains. It has no cholesterol and helps in purifying blood. So all health conscious people now prefer mushroom as most nutritive vegetarian food. With growing health consciousness among the Indian increase the demand for mushroom constantly.

In addition, mushroom production is also very easy, it requires very little land. It can be cultivated in indoor and space requirement is also very less. It can be a good source of employment for educated youth. The required capital investment for small scale production is also very less may be around Rs. 20000/-. The profit from mushroom cultivation is also very high. Cost of production per kg is around Rs.60 to 70 and sale price is about Rs. 200/-.

India is exporting fresh and prepared forms of mushroom to US, Israel and Mexico countries. Nowadays mushroom cultivation is becoming popular because of its nutritional aspects and export potential. Hence there is a lot of scope for mushroom cultivation in India,



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3. Objectives of the course:

- To enable the students to identify edible and poisonous mushrooms
- To provide practical training as well as theoretical knowledge about types of mushrooms, their nutritive profile, health benefits and cultivation.
- To give hands on training for the preparation of bed for mushroom cultivation and spawn production
- To help the students to learn a means of self employment and income generation. but also for improving their nutritional standards.

Programme code :	Title: Add on course	
Course code:	Mushroom cultivation	
FMC 101	Hours/week	Total hours
	2	30

4. Course outcomes:

On successful completion of the course the students will be able to

CO1	Identify edible types of mushroom
CO2	Gain the knowledge of cultivation of different types of edible mushrooms and spawn production
CO3	Manage the diseases and pests of mushrooms
CO4	Learn a means of self-employment and income generation

5. Duration of the course: 30 hours

6. Hours per week: 2hrs. (Theory and Practicals)

7. Eligibility: Passed Intermediate/
12th grade and above

8. Medium of teaching: English



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Syllabus:

UNIT 1: Introduction to mushrooms (2 hours)

Mushrooms -Taxonomical rank -History and
Scope of mushroom cultivation - Edible and
Poisonous Mushrooms-Vegetative characters

UNIT 2: Common edible mushrooms (2 Hours)

Button mushroom (*Agaricus bisporus*), Milky mushroom
(*Calocybe indica*), Oyster mushroom (*Pleurotus sajorcaju*)
and paddy straw mushroom (*Volvariella volvcea*).

UNIT 3: Principles of mushroom cultivation (8 Hours)

Structure and construction of mushroom house.
Sterilization of substrates. Spawn production - culture media preparation
- production of pure culture, mother spawn, and multiplication of spawn.
Composting technology, mushroom bed preparation. Spawning,
spawn running, harvesting. Cultivation of oyster and paddy
straw mushroom. Problems in cultivation - diseases, pests and
nematodes, weed moulds and their management strategies.

UNIT 4: Health benefits of mushrooms (2 Hours)

Nutritional and medicinal values of mushrooms.

Therapeutic aspects- antitumor effect

UNIT 5: Post harvest technology: (4 Hours)

Preservation of mushrooms - freezing, dry freezing,
drying, canning, quality assurance and entrepreneurship.
Value added products of mushrooms.

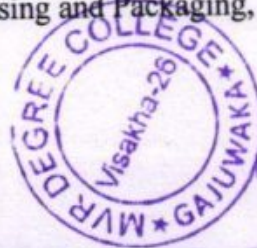
UNIT 5: Training/ Workshop/ Field visit (12 Hours)

Sterilization and sanitation of mushroom house,
instruments and substrates Preparation of mother culture,
media preparation, inoculation, incubation and spawn production
Cultivation of oyster mushroom using paddy straw/agricultural wastes.

9. Teaching Methods Power Point presentation/Seminar/Discussion/Assignment/quiz

10. Text Books:

- Hand book of mushroom cultivation by R.K.Pandey and S.K.Ghosh, Emkay publications, Delhi
- Mushroom cultivation in India by B.C. Suman, V.P.Sarma, Daya Publishing House, New Delhi
- Hand book on Mushroom cultivation, Processing and Packaging, Publishers: Engineers India research Institute (EIRI).




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12. References

1. Marimuthu, T. et al. (1991). Oster Mushroom. Department of Plant Pathology. Tamil Nadu Agricultural University, Coimbatore.
2. Nita Bhal. (2000). Handbook on Mushrooms. 2nd ed. Vol. I and II. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi
3. Pandey R.K, S. K Ghosh, 1996. A Hand Book on Mushroom Cultivation. Emkey Publications.
4. Pathak, V. N. and Yadav, N. (1998). Mushroom Production and Processing Technology. Agrobios, Jodhpur.
5. Tewari Pankaj Kapoor,
S. C. (1988). Mushroom Cultivation. Mittal Publication, New Delhi.
6. Tripathi, D.P. (2005) Mushroom Cultivation, Oxford & IBH Publishing Co. PVT.LTD, New Delhi.
7. V.N. Pathak, Nagendra Yadav and Maneesha Gaur, Mushroom Production and Processing Technology/ Vedams Ebooks Pvt Ltd., New Delhi (2000)

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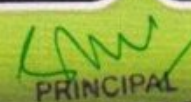


ADD – ON COURSE
INTRODUCTION TO BONSAI PRINCIPLES AND TECHNIQUES
DEPARTMENT OF BOTANY
M.V.R. College (UG and PG Courses)
Gajuwaka, Visakhapatnam, AP



Add on Course
Introduction to BONSAI principles and techniques
Course Coordinator
Dr. S.V.Krishna, HOD
Department of Botany

Duration of the course: 30 hours
Hours per week: 2hrs. (Theory and Practical)
Eligibility: Passed Intermediate/12th grade and above
Medium of teaching: English


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DEPARTMENT OF BOTANY

ADD - ON COURSE - BONSAI



11. Scope of the course:

- Bonsai is an art of miniature trees found in nature.
- They are not special trees, just ordinary trees found in nature.
- Bonsai is a beautiful miniature gardening technique.
- Bonsai can be cultivated in a small space.
- They are the best way to have greenery in a limited place in urban areas and can add greening to offices and at home.
- Bonsai is a type of gardening that provides a natural form of stress relief and peace of mind.

So, pursuing it as career is great and it can bring about a lot of cheers and joy to surroundings.

Programme code :	Title: Add on course - BONSAI	
Course code:	Introduction to BONSAI principles and techniques	
BON 101	Hours/week	Total hours
	2	30

12. Course objectives



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- To know the latest development in the field of Bonsai
- To develop skills in the area of designing, styles and making of bonsai.
- To create knowledge on self employment through and entrepreneur skills.

13. Course outcomes

On successful completion of the course the students will be able to

CO1	Recognize about preliminary technique about Bonsai.
CO2	Understand the necessary skills to take care and maintain a Bonsai plant
CO3	Apply knowledge on Bonsai cultivation and marketing
CO4	Implement the acquired knowledge on commercial application Bonsai.

14. Syllabus

UNIT I: (6 hours)

Introduction - history, aim, scope and importance of Bonsai –

Identification and collection of suitable plants for bonsai making.

UNIT II: (6 hours)

Tools, containers, wiring and preparation of media.

Designing, Styles and making of bonsai.

Training and pruning techniques in bonsai.

Irrigation, pest and disease management.

UNIT III: (6 hours)

Styles of Bonsai - Upright Style, Formal Upright,

Informal Upright Style, Slanting Style Windswept Style, Broom Style.

UNIT IV: (6 hours)

Cascade Styles of Bonsai - Semi Cascade Style,

Formal Cascade Style, Informal or Vertical Cascade Style,

Displaying Cascade Style Bonsai.

UNIT V: (6 hours)

Multiple tree styles of Bonsai - Two-Tree and Twin Trunk Style Bonsai.

Forest Style Bonsai*. Bonsai with Special Characteristics.



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15. Teaching Methods

Power Point presentation/

Seminar/

Discussion/

Assignment/quiz

6. Text books

1. Paul Lesniewicz., 1994.

Bonsai in your home. Sterling publishing Co, New York.

2. Randhawa, G.S., and Amitabha Mukhopadhyay, 2000.

3. Floriculture in India, Allied publishers India

7. REFERENCES

Roy Edwin Biles, (2003).

The complete Book of Gardening. Biotech Books, Delhi - 35.

Bhattacharjee, S.K. (2006).

Advances in Ornamental Horticulture. Pointer Publication, Jaipur.

Doesh Beer Singh and Poonam Wazir, (2002).

Bonsai - An art. Scientific Publishers, Jodhpur

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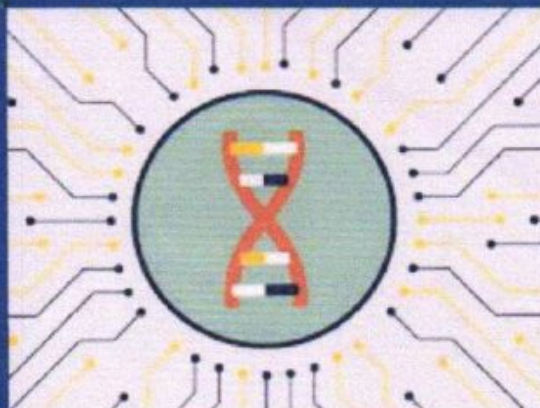
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ADD ON COURSE



BIO INFORMATICS & BIO STATISTICS

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A.BALA KRISHNA
HOD
DR. V SOWJANYA**





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CERTIFICATE COURSE IN APPLIED SCIENCES
BIOINFORMATICS & BIOSTATISTICS

SCOPE THE COURSE:

This course is specifically designed for the students who are interested to get an opportunity in pharmaceutical companies, government organizations, agriculture field, clinical trials, drug designing, and biodiversity conservation and in reputed universities.

The course will cover the essential aspects of sequence alignment using soft ware tools and in the prediction of protein structure and function. It is used to study how to implement biostatistics, in the field of population studies and disease studies.

The techniques that are covered in this course are applied in research works, used in hospitals for maintaining electronic health records.

OBJECTIVES:

- To achieve knowledge on cell function by protein sequence analysis and structure using soft ware.
- It is used to learn how to design experiments and perform advanced statistical analysis.
- Computers are used to gather, store, analyze and integrate biological and genetic information.
- It is used to provide information about living cells and how it functions at molecular level.
- It offers students to gain hands on experience with the testing equipment modeling software while networking with medical and government organizations.
- This technology is versatile and can be applied in research field for discovery of a new drug.

Duration	4 Months
Hours per week	3
Eligibility	Intermediate passed & above
Medium of Teaching	English



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SYLLABUS

UNIT – I

7hr

Introduction to Bioinformatics, Biological Databases, Nucleic acid Databases, Protein databases, Structural databases, NCBI, Drug design, Concept of Genomics and Proteomics.

UNIT – II

7hr

Sequence alignment – Global alignment & Local alignment, Dot matrix & Dynamic programming method, Sequence similarity using BLAST & FASTA.

UNIT – III

8hr

Phylogenetic basics, Phylogenetic tree construction – methods and programmes. Protein 3D structure Prediction, Secondary structure prediction, Tertiary structure prediction.

UNIT – IV

8hr

Measures of central tendency – Mean, median, standard deviation, range, standard error.

UNIT – V

8hr

Probability, T – test, test of significance for small samples, Chi – square test, population and sampling.



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Practicals:

10hr

1. Problem related to mean, median, and mode
2. Problems based on probability
3. Sequence alignment using BLAST
4. Protein structural alignment
5. Protein 3- D structure identification
6. Problems related to Chi – Square test

Requirements:

- Required Faculty members: 2
- Phylogenetic software
- Clustal w software for multiple sequence alignment
- Systems with Internet facility (depending on number of candidates admitted)
- Expenditure: cost of software
- Honorarium if required: No

Course Designed and Submitted by,

Head
Department of Biotechnology
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Ramachandra Nagar, Nandapur,
VISAKHAPATNAM-530 044
K. HINDAVI



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