PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)

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SYLLABI

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B– –B– –=Kons B– –=Kons t r s r
u t s p n r Cours s

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EXA I A I ′ ›

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A r u tur

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Cours t

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Growth analysis experiments demonstrating various aspects of respiration, photosynthesis, and ascent of sap. Water culture techniques/deficiency and toxicity of major and minor elements.

u st n s

st r II

Cours t AG IC ◢ A ◢ IC BI ◢ GY
Cours Co DC

′ t s
To learn various applications of microorganisms in agriculture, industry, and environment.

– r s		**Cours Cr ts**
1.	**or r tt n E**	**Int rn ss ss nt**
2.	**r t r tt n E**	**Int rn ss ss nt**

r o s p r
1. Theory: Three of 45 minutes duration Two Hours
2. Practical: One of two hours duration Two Hours

I C I ′ F ′ A E E E
Students will attempt five questions out of a total of nine. Question No. 1 will be COMPULSORY and will comprise 8 short-answer type questions of one mark each, covering the whole syllabus. Units ‘I , ‘II , ‘III , and ‘IV will have two questions each, and one question is to be attempted out of each Unit.

n A s
Teacherseons syllabus. eT

r t

- Methods in Microbiology – cultivation and isolation of microorganisms.
-

B o str

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DC BCH Intro u t on to B o str r s =(=nt-

1. Preparation of biological buffers and solutions of different pH and molarity.
2. Qualitative tests for carbohydrates.
3. Qualitative tests for amino acids.
4. Estimation of saponification value of fat/oil.
5. Estimation of iodine value of fat/oil.
6. Titration curve of an amino acid and determinati

st r II

I C I ′ F ′ A E E E A D DE :

• Set nine questions in all. All questions carry equal marks.
• Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus
• Set two questions from each Section, and each question should be further divided in two to three parts. Any one question to be attempted from each section.

DC BCH Intro u t on to B o str r s

′ **t** To learn about biomolecules, their structure and functional in the biological system

EC I ′ I

tur s

t r: Physico chemical properties of water, dissociation and association constants. pH and buffers, pI, pka, Henderson Hasselbatch equation and its implications. **C r o r t s**: Structure of important mono, di-, oligo- and polysaccharides, glycoproteins, peptidoglycan, glycolipids and lipopolysaccharides. Storage polysaccharides and cell walls.Enantiomers and anomers.Acid mucopolysaccharides.

EC I ′ II

tur s

p s: Classification of lipids and fatty acids, general functions and structure of major lipid subclasses, acylglycerols, phosphoglycerols, phosphoglycerides, sphingolipids, glycosphingolipids and terpenes, sterols,steroids: Prostaglandins.

EC I ′ III

tur s

rot ns: Structure of amino acids, nonprotein and rare amino acids and their chemical reactions. Structural organization of proteins primary, secondary, tertiary and quaternary domain structure , protein classification and function.Forces stabilizing primary, secondary and tertiary structure.

EC I ′ I

tur s

u A s Structure and properties of purine and pyrimidine bases. Nucleosides and

AC ICA

DC BCH Intro u t on to B o str r s

o n Boo s

-

- Bioinformartdics: A practical guide to the analysis of genes and proteins. Ed. By
- Baxevanis, 3rd Edition, 1998 John Wiley & Sons, Inc. Publication.
- Bioinformatics: Sequences, structure and databanks by Des Higgins and Willie Taylor, Oxford University Press, 2000 .

BI F I D C I ′ BI I F ′ A IC II =(AC ICA :

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r s =( )

1. Performing multiple sequence alignment using Cenclq4 8.52 0 Td Tj /10.6383 g 5.31915 C 11 g e -g3l762

B ot no o

st r I

BI ′ IDC =Noun t ons o B ot no o ′

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Cr ts: 2

′ t s

This course will introduce the basic concepts of biotechnology to the students.

They will learn about the history of biotechnology, the foundations of modern biotechnology, the role of biotechnology in the fermentation industry, environment, and modern medicine, and the ethical implications of biotechnology.

I I

Basics of biotechnology: Green, White, Red, and Blue biotechnology.
Model organisms in research: ***E co . cc ro ce cere e Dro op e no er C enor e e n D n o rer o c .***

I II

Role of viruses and bacteriophages in biotechnology.
Fundamentals of recombinant DNA technology: Restriction Enzymes.
Role of biotechnology in diagnostics, introduction to gene therapy.
Transgenic animals and their applications in biotechnology.

r n Boo s

1. ***Co pre en e B o ec no o*** , Murray Moo-Young, 2nd edition 2011 , Pergamon Press.
2. ***n ro c on o B o ec no o*** , William J. Thieman &Michael A. Palladino, 3rd edition 2012 , Benjamin Cummings.
3. ***B o ec no o E p n n or on*** , B. D. Singh, 4th edition 2012 , Kalyani Publishers.
4. ***e E c of B o ec no o B o ec no o n e Cen r*** , Jonathan Morris, Chelsea House Pub L , 1st edition 2005 .
5. ***B o ec no o App n e Gene c e o on***, David P. Clark &Nanette J. Pazdernik, 1st edition 2008 , Academic Cell.
6. ***o ec r B o ec no o*** , Sandy B. Primrose, 2nd edition 1991 , Blackwell Scientific Publications, ISBN.17
7. ***B o ec no o De f n e Conce p*** , David Bourgaize, Thomas R. Jewell &Rodolfo G. Buiser, 1st edition 1999 , Benjamin Cummings.

BI ′ IDC =Noun t ons o B ot no o ′ r t s

Cr ts: 1

1. Introduction and use of Auto-pipettes, pH meter.
2. Use of centrifuges, light microscope, electrophoretic apparatus.
3. Introduction to vortex mixer, magnetic stirrer, rocker, laminar hoods, autoclave.
4. Cell disruption and cell lysis of bacterial cell Lysozyme digestion .
5. Staining of bacteria, yeast, and fungi.
6. Isolation of microbes from the environment.
7. Handling and disposal of hazardous reagents acids, carcinogenic chemicals like acrylamide, ethidium bromide .

st r II

Cours t I ZA I ′ A D C ′ E A I ′ Cours Co DC F A

′ t s The basic objective of this paper is to make the students aware of origin of plants, their civilization, utilization and extinction and conservation.

– r s **Cours Cr ts** 3

Theory : 75 Written Exam: 60 Internal Assessment: 15

r o s p r Theory – Four of 45 minutes duration Three Hours

Instru t ons or p r tt rs

Question paper will have four sections. Examiner will set a total of nine questions comprising of one compulsory question consisting of MCQ and fill in the blanks covering the whole syllabus and two questions from each unit. Student will attempt five questions in all – one question from each unit along with one compulsory question.

Teaching Aids Teachers can use lecture, lecture cum demonstration, project, assignments, problem solving, inductive and deductive methods, and can use L-C-D-, L-E-D-, Multimedia projector in addition to black white board–

n t I
Origin of agriculture-time and places of origin, domestication of cultivated plants Forests resources –sustainable utilization and development Ethnobotanyand its significance.
n t II
General account, food and economic value of the plants as source of: Fibres Cotton and Jute Pulses =Mung, Chickpea' Spices and Condiments Cumin, Fennel, Ginger and Turmeric Vegetables and fruits Potato, Tomato, Grapes and Mango –
n t III
General account, parts used and uses of the plants as source of: Vegetable oils Sunflower and Mustard Pulp plants bamboo Medicinal plants Ashwagandha, *Aloe vera* brief account of resins and gums psychoactive drugs Hemp and Poppy .
n t I
IUCN categories of plants plant extinction – causes and preventive measures principles of conservation *in situ* and *ex situ* conservation strategies Conventions on Biodiversity =CBD'

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IDC
B s An t n qu s I

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I **p n: Co t on n r s r t on o p s**
Sampling and theories of sampling, Sampling procedure, Collection of Samples and its storage, Preparation of samples for analysis, calibration standards, Hazards in sampling, simple equilibrium calculations, General methods of preservation.

II

◢ or tor r t

– r s: 25
ot Cr ts: 01

Con u to tr

1. Acid-Base titration.
2. Effect of concentration on equivalent conductance of a given electrolyte.

pH tr

1. Acid-Base titration.

o tr t ons

1. Estimation of oxalic acid by titrating it with $KMnO_4$.
2. Estimation of water of crystallization in Mohr s salt by titrating with $KMnO_4$.

Gr tr An s s

1. Determination of Nickel and Copper.

Co p o tr tr t ons

1. Determination of hardness of water by the EDTA Method.

u st n

a. Svehla, G. Vogel s Qualitative Inorganic Analysis, Pearson Education, 2012.

◢ or tor r t

– r s: 25
ot Cr ts: 01

– n ◢ r C ro to r p

1. Determination of Rf values and identification of organic compounds. Separation of isomeric

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Theory External Marks: 75
Theory Internal Marks: --

Time Duration: 3 Hrs. Number of Theory Hours: 45

t s The objective of this course is to understand the process of electronic commerce and familiarizes students with the technology involved in it.

Cours t o s
After completing the course students will be able to
i

I III

E tron nt st s E-cash: Purchasing &Using of e-cash Electronic Purses their loading with cash and use E-cheque payment system Online Third Party Verified Payment System through Credit &Debit Cards ATM based cash disbursement system Electronic Bill Payment System Inter bank clearing system.

I I

o Co r Definition, Benefits of Mobile Commerce, Issues in Mobile Commerce, Mobile Commerce Framework

App t ons o E Co r & C s tu s: Applications of e-commerce, Case studies in Retailing, Banking and e-governance Cyber Crimes: Types, Cyber Forensics, Cyber crimes and IT Act - 2000.

u st n s

1. Bhasker, Bharat: Electronic Commerce: Framework, Technologies and Applications Tata McGraw- Hill.
2. Bajaj, Kamlesh&Nag, Debjani: E-Commerce-The Cutting Edge of Business Tata McGraw Hill.
3. Young, Margaret Levine : The Complete Reference: Internet Tata McGraw Hill.
4. KalaKota, Ravi &Whinston, Andrew B.: Frontiers of Electronic Commerce Addison Wesley.
5. Stallings, William: Network Security Essentials: Applications & Standards Pearson Education.
6. Minoli, Daniel &Minoli, Emma: Web Commerce Technology Handbook Tata McGraw Hill.
7. Murthy CSV: e-Commerce: Concepts, Models, Strategies Himalayas Publishing House.
8. Kosiur, David: Understanding E-Commerce Microsoft Press.

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3	-	-	3	

Theory External Marks: 75

Theory Internal Marks: --

Time Duration: 3 Hrs.

Number of Theory Hours: 45

t s

1. To understand and asses the importance of information and its role in business.
2. To develop data analyzing skills in students to evaluate information and the tools used for information processing.
3. To imbibe theoretical knowledge of MIS in the students and prepare the students technological competitive and make them ready to self-upgrade with the higher technical skill.

Cours t o s

1. Understand the information needs of an organization and a business function.
2. Evaluate effectiveness of decision making process and identify its tools
3. Understand DSS techniques for making effective decisions
4. Design parameters for MIS application, for data analysis uses

o e Examiner will be required to set nine questions in all. First que

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D op nt D s n n

Cours t s

1. Identify the appropriate programming environment for developing dynamic client-side and server-side web applications.
2. Plan, develop, debug, and implement interactive client-side and server-side web applications.
3. Identify the tools needed to create dynamic client-side and server-side web applications.

Cours t o :

1. Students are able to develop a dynamic web page by the use of JavaScript and HTML.

or E t rn r s

or Int rn r s

Cr ts **Cont t ours**

Dur t on ours

ot

i. The Question Paper will consist of Four Sections.
ii. Examiner will set total of NINE questions comprising TWO questions from each Section and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Section and the Compulsory question.
iv. All questions carry equal marks unless specified.

n t I

World Wide Web – Web Browsers - Markup Languages - Style Sheet Technologies - Client-Side, Server Side – HTML – Headings – Links-Images – Lists - Tables - Forms, Frames, Cascading style Sheets

n t II

JAVASCRIPT- Introduction - Simple Program, Decision Making.
Equality and Relational Operators - Control Statements - Functions - Programmer Defined Functions, JavaScript Global Functions, Recursion

n t III

Arrays- References and Reference Parameters, Passing Arrays to Functions, Multidimensional Array Objects of JavaScript: Window Object - Document Object

n t I

Forms Object -Text Boxes and Text Areas - Buttons, Radio Buttons, Check Boxes, Select Object, Other Object: Data Object- Math Object- String Object- Arrays- Worked Examples.

r t us

Create web pages in JavaScript-Window Object-Document object-Forms- Object, Text Boxes and Text Areas, Buttons, Radio Buttons, Check Boxes, Select Object, Other Object, Data Object, Math Object, String Object, Arrays, Worked Examples

r n s

1. Learning Mike McGrath, JavaScript, Dream, Tech Press, 1st Edition 2006
2. Jennifer Robinson, Learning Web Design
3. Melani and Kyrin s ‚HTML, CSS, JavaScript All in One"
4. HTMLS Black Book by DT Editorial Services

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Intro u t on to In or t on no o

Cours t t	Cr ts	Cr t str ut on o t ours			r r qu s t o t ours =(n)
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Intro u t on to In or t on no o					I

t s

1. To familiarize the students with the Fundamentals of Information Technology.
2. To assess the implications for the markets and organizational change of advances in information technologies.

Cours ut o s

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- Knowledge about the basics of Windows Operating System.
- Learning various operations of Windows OS.
- Knowledge of MSword, MS Power Point, MS Excel, MS Access

I I

Introduction:Evolution of Computers, Windows and Unix. Fundamentals of windows, anatomy of windows, Operations on window: Opening, Minimizing, Maximizing, Moving, Resizing, Closing Windows Explorer, Folders: Creating, deleting, copying, renaming folders, folder properties Icons, Menu, Taskbar, Control panel, Recycle bin.

I II

Word Processing Package: Basics of Word Processing Word Processing Basics Text creation, Manipulation, Finding and replacing, Formatting of text Printing of word document, Page Layout: Margin setting, Alignments, Adding Borders and shading, Adding Headers and Footers, Setting up Multiple columns, Working with tables, Spell check, Auto Correct, Grammar facility, Mail merge.

I III

Spreadsheet Package: Worksheet Basics, Data Entry in Cells: Entry of numbers, text and formulae, Moving data in a worksheet, Moving around in a worksheet, Selecting Data Range. Using the interface Toolbars, Menus , Editing Basics, Working with workbooks, Cell referencing: Absolute, Relative and Mixed Formatting and Calculations: usingAutofill, Working with Formulae, Creating Chart and graphs.

I I

Presentation Packages: Basics, General Features,

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Cr t u r s
Dur t on o C ss ours p r p r
Dur t on o E ours Int rn Ass ss nt

Instru t ons to t E n r

- Question paper will have four sections/units. Paper setter will set a total of nine

I III

5. Clothing &Textiles
   - Basic terminology- Fiber, Yarn, Spinning, Fabric, Apparel, Textiles, Laundry, Starch, Blues, Weaving, Knitting, Non-wovens
   - Role &Importance of Clothing &Textiles in Community
   - Care and maintenance of garments.

6. Resource Management
   - Basic terminology- Home Management, Human resources, Time management, Work simplification, Ergonomics, Work ethics, Family Budget, Furniture &Furnishings, Floor coverings
   - Role &Importance of Resource Management in Community
   - Time, energy and money management

I I

7. Extension &Communication
   - Concept, Nature &Scope of Extension
   - Family and Community Science Extension as a Discipline and its contribution towards development
   - Methods &Media of Community Outreach
   - Role & Importance of Extension & Communication in Community and National Development.

o n n s

1. Basic Food Preparation: A Complete Manual, Faculty of Lady Irwin College, Orient Longman publishers.
2. Bhatnagar. O.P &Dhama, O.P. 2009 . Education And Communication For Development 2ed. New Delhi: Oxford &IBH Publishing Co. Pvt Ltd. ISBN-13: 978-8120400306.
3. Dantyagi S, ‘Fundamentals of Textiles and their Care,’’ Orient Longman Ltd, New Delhi.
4. Goyal, M. 2022 . Home Science. SBPD Publishers
5. R Vatsala "Textbook of Textiles &Clothing" 2003 , ICAR, New Delhi
6. Seetharaman P, Batra S. and Mehra P 2005. An Introduction to Family Resource Management. CBS Publishers and distributors, New Delhi.
7. Sumati R Mudambi &MV Rajagopal 2004 . Fundamentals of Foods &Nutrition. Forth edition, New Age P Publishers.

E E E I

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Cr t **u r s**
Dur t on o ss ours p r **p r**
Dur t on o E ours **Int rn Ass ss nt**

Instru t ons to n r

- The external and internal examiners are requested to be present at the examination centre before the commencement of the examination.

Cours t o

Students will have an in depth understanding of the following:

- Develop an understanding of the self and one s role and responsibilities as a productive individual and as a member of family, community and society.
- Learning across diverse domains and undertake a critical analysis of issues and concerns specific to family, community and society.
- Learners with the basic knowledge specific to five domains namely, Foods and nutrition, Human Development and Family studies, Fabric and Apparel, Resource Management and Communication and Extension.

Cont nt

1. Preparation of Audio–Visual Aids on following topics-
    - Food Pyramid
    - Menu Planning for different occasions
    - Teaching aids for pre-school children
    - Table setting
    - Textile labels
2. Planning & Arrangement of various thematic parties Decoration, Table setting, Meal planning and Fashion styling

ot r s r E t rn on t s s o s ss on or pr s nt t on

o n n s

1. Sumati R Mudambi & MV Rajagopal 2004 . Fundamentals of Foods & Nutrition. Forth edition, New Age P Publishers.
2. Basic Food Preparation: A Complete Manual, Faculty of Lady Irwin College, Orient Longman publishers, 2008.
3. Seetharaman P, Batra S. and Mehra P 2005. An Introduction to Family Resource Management. CBS Publishers and distributors, New Delhi.
4. Bhatnagar. O.P & Dhama, O.P. 2009 . Education And Communication For Development 2ed. New Delhi: Oxford & IBH Publishing Co. Pvt Ltd. ISBN-13: 978-8120400306.
5. Goyal, M. 2022 . Home Science. SBPD Publishers
6. Dantyagi S, Fundamentals of Textiles and their Care," Orient Longman Ltd, New Delhi.
7. R Vatsala "Textbook of Textiles & Clothing" 2003 , ICAR, New Delhi

E E E II

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Cr t **u r s**
Dur t on o C ss ours p r **p r**
Dur t on o E ours **Int rn Ass ss nt**

Instru t ons to t E n r

- Question paper will have four sections. Paper setter will set a total of nine questions comprising of one question from each unit and one compulsory question of short answer type covering the whole syllabus.
- Student will attempt a total of five questions in all, selecting one question from each section/units including the compulsory question.
- All questions may b 8.61705884-4.08.245992.009533 c 8.61721 u -0.6092 , 7641.16628 l3e 7.8272

o n r n s

1. Cradle to Cradle: Remaking the Way We Make Things By William McDonough &Michael Braungart
2. The Upcycle: Beyond Sustainability – Designing for Abundance by William McDonough & Michael Braungart
3. Grow Food For Free: The sustainable, zero-cost, low-effort way to a bountiful harvest by Huw Richards
4. Strategy for Sustainability: A Business Manifesto by Adam Werbach
5. Zero Waste Sewing: 16 projects to make, wear and enjoy by Elizabeth M Haywood Cooatalaa Press
6. 50 Nifty Thrifty Upcycled Fashions: Sew Something from Nothing by Cynthia Anderson, Stackpole Books
7. Wear, Repair, Repurpose: A Maker s Guide to Mending and Upcycling Clothes by Lily Fulop, Countryman Press
8. Recycling in Textiles by YoujiangWang , Woodhead Publishing Ltd
9. Wise Craft Quilts: A Guide to Turning Beloved Fabrics Into Meaningful Patchwork by Blair Stocker, Roost Books
10. Creative Recycling in Embroidery by Val Holmes , Batsford Ltd
11.

E E E II

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Cr t **u r s**
Dur t on o C ss ours p r **p r**
Dur t on o E ours **Int rn Ass ss nt**

Instru t ons to n r

- The external and internal examiners are requested to be present at the examination centre before the commencement of the examination.

Cours t o
tu nts n n pt un rst n n o t o o n

- Understand Terms related to sustainability
- Sustainable practices at home

Cont nt

1. Preparation of Audio- visual aids on sustainability and sustainable practices.
2. Awareness generation on sustainability and sustainability practices through Prepared audio-visual aids in neighbourhood On Campus and off Campus .
3. Product development from waste 5 different products will be developed from different mediums .
4. Preparation of file and presentation on field work.

o n r n s

1. Cradle to Cradle: Remaking the Way We Make Things By William McDonough &Michael Braungart
2. The Upcycle: Beyond Sustainability – Designing for Abundance by William McDonough & Michael Braungart
3. Grow Food For Free: The sustainable, zero-cost, low-effort way to a bountiful harvest by Huw Richards
4. Strategy for Sustainability: A Business Manifesto by Adam Werbach
5. Zero Waste Sewing: 16 projects to make, wear and enjoy by Elizabeth M Haywood Cooatalaa Press
6. 50 Nifty Thrifty Upcycled Fashions: Sew Something from Nothing by Cynthia Anderson, Stackpole Books
7. Wear, Repair, Repurpose: A Maker s Guide to Mending and Upcycling Clothes by Lily Fulop, Countryman Press
8. Recycling in Textiles by YoujiangWang , Woodhead Publishing Ltd
9. Wise Craft Quilts: A Guide to Turning Beloved Fabrics Into Meaningful Patchwork by Blair Stocker, Roost Books
10. Creative Recycling in Embroidery by Val Holmes , Batsford Ltd
11. Waste Recycling and Reuse by Sterling , Sterling Publishers
12.

Ho n

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Intro u tor ◢ n s or Ho n

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Cr t	**u r s**
Dur t on o C ss ours	**p r**
Dur t on o E ours	**Int rn Ass ss nt**

Instru t ons to E n r

- The external and internal examiners are requested to be present at the examination centre before the commencement of the examination.

Cours ut o

- The student will be able to apply knowledge of life science in day to day life

Cont nt

App Bot n

1. Preparation of a pot for sowing seeds and study different seed sowing methods
2. Preparation of bed for transplanting vegetables, potato sowing and raising seedlings
3. Demonstration of methods of vegetative propagation by cutting and grafting methods
4. To prepare temporary slide on onion peel

App Zoo o

5. Identification of few Common animal Insect pest, Fish etc. , Birds in human environment
6. Determination of ABO Blood group
7. Demonstration of Vermi composting

o n n s

1. NCERT Book , Class 11 & 12
2. Home Gardening- Shashi Kumar
3. A test Book of Practical Zoology, Vertebrate, by S.S.Lal.

st r II

Intro u tor s n s or Ho n

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Cr t	**u r s**
Dur t on o C ss ours	**p r**
Dur t on o E ours	**Int rn Ass ss nt**

Instru t ons to E n r

- Each theory paper will be of three hours duration.
- Question paper will have four sections. Paper setter will set a total of nine questions comprising of one question from each unit and one compulsory question of short

o n n s

1. Avery M., Household Physics
2. Ajoy Ghatak, K. Thagarajan- Lasers: Introduction to Fiber Optics
3. Gomber &V.Gogia, Pardeep s Fundamental Physics XI, XII
4. Gupta S.K, Modren s ABC of Physics XI, XII
5. Lal S., Fundamental Physics XI, XII
6. Ajoy Ghatak, K. Thagarajan- Lasers: Fundamentals and Applications Graduate Texts in Physics
7. Sachdeva &V.Duggal, Intermediate Physics
8. Applied Chemistry for Home Science and Allied Science by Thancamma, Jacob

st r II

Intro u tor s n s or Ho n

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Dur t on o C ss ours p r **p r**

Dur t on o E ours **Int rn Ass ss nt**

Instru t ons to E n r

- The external and internal examiners are requested to be present at the examination centre before the commencement of the examination.

Cours ut o

- The student will be able to apply knowledge of physical science in day to day life

Cont nt

App s s

1. Demonstration of Solar Cooker
2. Demonstration of Energy efficient light bulbs
3. Demonstration of conduction, convection, radiation with respect to cooking

App C str

4. Preparation of vanishing cream and cold cream
5. Preparation of detergent and liquid soap
6. Determination of degree of hardness of tap water volumetrically and determination of melting point of organic compounds

o n n s

1. Gupta S.K., Modern ABC of Physics
2. Jaiswal J. N., Comprehensive Practical Physics
3. Applied Chemistry for Home Science and Allied Science by Thancamma, Jacob

st r I

B s s o utr t on n Foo n I

HE ′ Y

Cr t Hours **u r s**
Dur t on o ss ours p r **p r**
Dur t on o ours **Int rn Ass ss nt**

I C I ′ ′EXA I E

1. Each theory paper will be of three hours duration.
2. The question paper will have four sections/units. Paper setter will set a total of nine questions, comprising of two questions from each section and one compulsory question of short-answer type covering the whole syllabus.
3.

I I

8. Meal planning
    - Fundamentals of meal planning
    - Factors affecting meal planning
9. Food safety
    - Basic concept of food adulteration
    - Introduction to food sa.4 0 Td 7.362.28 Tf 1 0 0 1 144.36 636.48 Tm I 3.21279 nt 1.40381 r 3.21279 c

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E E E II

B s s o utr t on n Foo n II
r t

Cr t Hours **u r s**
Dur t on o ss ours p r **p r**
Dur t on o ours **Int rn Ass ss nt**

B EC I E

1. To understand the concepts of weights and measurements raw and cooked food and its importance.
2. To acquire skills in food preparation techniques.
3. To use appropriate methods of cooking for preparation of specific food

st r I
B s s o F s on D s n n I

o E n t on
Cr ts

or

No. of Paper	Time in hrs	Marks Allotted	Int. Ass.	Total Marks
1	3	40	10	50

r t

Sr. No.	Name of Paper	No. of papers	Time in hrs	Marks Allotted	Int. Ass.
1	Basics of Fashion Designing-I	1	3	20	5

or

Credits:2
Maximum Marks : 50
Duration of Class : 2 Hours per week
Paper :40
Duration of Exam: 3 Hours
Internal Assessment: 10

I C I ′ F ′ HE A E E E

t on B–

3. Terminology Grain, Bias, Selvadge, Ease, Seam Allowance, Dart
4. Recording of Body Measurements and Precautions to be taken while taking body measurements
5. Preparation of Fabric for Clothing Construction, Shrinking and Straightening
6. Methods of Pattern Development Drafting

t on C

2. Fashion Terminology: Apparel, Fashion, Fad, Craze, High Fashion, Mass Fashion, Style, Change, Classic, Boutique, Croquet, Silhouette, Designer, Collection, Adaptation
3. Fashion Trend, Fashion Cycle, Sources of Fashion, Factors Favoring Fashion, Selecting Fashion, Forcasting Fashion, Fashion Show, Advertising and Display

t on D

4. Elements of Art such as Color, Form, Texture, Shape and Line
5. Principles of Design such as Harmony, Balance, Rhythm, Emphasis, Proportion

st r II

BA IC F FA HI ′ DE IG I G II

or

No. of Paper	Time in hrs	Marks Allotted	Int. Ass.	Total Marks
1	3	40	10	50

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Sr. No.	Name of Paper	No. of papers	Time in hrs	Marks Allotted	Int. Ass.
1	Basics of Fashion Designing-II	1	3	20	5

or

Credits: 2
Maximum Marks: 50
Duration of Class: 2 Hours per week
Paper: 40
Duration of Exam: 3 Hours
Internal Assessment: 10

I C I ′ F ′ HE A E E E

The question paper will consist of 5 sections: A, B, C, D, and E.
Sections A, B, C, and D will have 2 questions from the respective sections of the syllabus and will carry 8 marks each.
Section E will consist of objective type questions covering the entire syllabus uniformly and will carry 8 marks.

I C I ′ F ′ HE CA DIDA E

Candidates are required to attempt one question each from the sections A, B, C, and D of the question paper and the entire section E.

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1. Internal assessment should be based on Assignment/test/Seminars and Attendance for Theory and Practical.
2. Practical examination will be held before the final Theory Exams.
3. Practical groups should have 12-15 students.

t on A

1. Selection of suitable clothes for following age groups:
   Infants, Toddlers, School-going children, Adolescents, Adults, Elderly
2. Methods of laundry/washing
3. Care and storage of garments of cotton, wool, silk

t on B

4. Bleaches- oxidizing, reducing bleaches and their suitability to different fabrics
5. Blues-types and uses

t on C

6. Application of color on fabrics
    a . Dyeing, simple dyeing of cotton
    b . Resist- Tie, Dye and Batic
7. Printing-
   Block printing, screen printing, roller printing

t on D

8. Traditional Embroideries of India:
    1. Kantha
    2. Phulkari
    3. Chikankari
    4. Chamba
    5. Kasuti
    6. Kutch

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DC A BA IC A HE A IC I

Credits 3 L 2 + T 1
1 Credit of Lecture 1 hr. and 1 Credit of Tutorial 3 hrs.
So, 3 Credits 2 hrs. of lectures and 3 hrs. of Tutorials in a week 5 hrs. / week
Total Contact hours in a semester of 15 weeks 75 hrs. 30 hrs. Lectures + 45 hrs. Tutorials
E 3 hours **– r s** 75
68 External + 7 Internal Assessment

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1. The syllabus has been split into three Units: Unit – I, Unit – II, and Unit – III. The examiner will set in total seven questions including a compulsory question. The compulsory question Question No.1 will contain 7 parts of 2 marks each, covering the entire syllabus. Two questions, each of 18 marks, will be set from each of the 3 Units.
2. A student will be required to attempt four questions in all, selecting one question from each Unit and the compulsory question.

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The objective of this course is to study the basics of various topics of Mathematics which is a

E E E II

DC A BA IC A HE A IC II

Credits 3 L 2 + T 1
1 Credit of Lecture 1 hr. and 1 Credit of Tutorial 3 hrs.
So, 3 Credits 2 hrs. of lectures and 3 hrs. of Tutorials

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CREDITS: 3

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I C I ′ F ′ HE EXA I E

The Question Paper will have four sections. The examiner will set a total of nine questions, comprising two questions from each unit, and one compulsory question of short-answer type covering the whole syllabus. Students will attempt one question from each unit and the compulsory question. All questions may carry equal marks unless specified.

C ′ E B ◢EC I E A D ◢EA I G ′ C ′ E

- To understand the scope of specialty foods.
- To classify specialty foods on the basis of sources.
- To familiarize with the concept of therapeutic foods.
- To gain insights into consumer requirements in the area of specialty foods.

I I

o–o Hours

n op o p t Foo s Need and scope of specialty foods, Functional foods, Convenience food, Healthcare and medical benefits, Nutritional status, Low-cost foods.

p t Foo s B s on our s Cereals and millets, Legumes and pulses, Fruits and vegetables, Animal food sources, By-product based foods, Bioactive components, Novel nutraceuticals products, Fast foods, Organic and inorganic farming, Genetically modified foods.

I II

o–o Hours

Intro u t on to Hu n utr t on Introduction to human nutrition, Energy value of foods and from proximate principles, Daily calorie needs for basal metabolism.

D t r qu r nts o utr nts Requirements and role of carbohydrates, lipids, water, proteins, vitamins, and minerals in human health, Recommended Dietary Allowance RDA , Dietary sources, Anti-nutritional factors in plant foods.

I III

o–o Hours

r p ut Foo s Modification of diets in disorders of the digestive tract, liver, cardiovascular system, kidney, metabolic disorders, allergy, endocrine disorders.

p Consu r f nt Foo s Foods for Defense persons, Space/astronauts, High-altitude mountain climbers, Disaster situations – crises, care, and maintenance.

I I

o–o Hours

utr t on n nt n qu s Infant nutrition and infant foods, Geriatric nutrition, Maternal nutrition, Sports Nutrition.

A n s n utr t on Effect of processing, preservation, and storage on the nutritional quality of foods, Food fortification, Food enrichment, Complementation and supplementation diets, Nutritional labeling.

GGE ED EADI G =(t st t ons)

1. Gibson, G.R. & William, C.M. 2000 . ***F nc on Foo Concep o ro c .***
2. Robert, E.C. 2006 . ***n oo of r ce c n F nc on Foo*** , 2nd Ed., Wildman.
3. Manson, P. 2001 . ***D e r . pp e en***

E E E II

Fun t on Foo s or ust n H t

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I E A ◢A E E

I C I ′ F ′ HE EXA I E The Question Paper will have four sections. The examiner will set a total of nine questions, comprising two questions from each unit, and one compulsory question of short answer type covering the whole syllabus. Students will attempt one question from each unit and the compulsory question. All questions may carry equal marks unless specified.

C ′ E B EC I E A D ◢EA I G ′ C ′ E : The course is designed to inculcate knowledge about functional foods, their importance, and health benefits. Further, the students will acquire knowledge on the health-promoting nutritional factors and bioactive constituents, their potential health implications, and mechanisms of action.

I I

o–o Hours

Functional Foods and Nutraceuticals and Role in Health Management:

GGE ED EADI G latest editions :

1. Wildman, R. E. 2016 . *Handbook of Nutraceuticals and Functional Foods.* CRC Press
2. Gibson, G. R. and Williams, M. C. 2001 . *Functional Foods: Concept to Product.* CRC Press
3. Vattem, D. A. and Maitin, V. 2016 . *Functional Foods, Nutraceuticals, and Natural Products: Concepts and Applications.* DEStech Publications, Inc.
4. Gupta, R. C. 2016 . *Nutraceuticals: Efficacy, Safety, and Toxicity.* Academic Press
5. Robert E. C. Wildman *Handbook of Nutraceuticals and Functional Foods, Second Edition* CRC Press
6. Giuseppe Mazza *Functional Foods: Biochemical and Processing Aspects, Volume 1* CRC Press

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6. Tortora, G.J., Funke, B.R. and Case, C.L. 2009 Microbiology: An

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DC IC oo s n n qu s n ro o o

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Int rn ss ss nt

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Cr ts

t To enable the students learn important tools and techniques in microbiology so that they

S S

The college has to opt any one course in each semester Semester 1 and 2 out of the following courses:

n t s s n E r no n

Energy and Sustainable Living

- Introduction to energy forms and conservation
    - Energy transformations and the laws of thermodynamics
    - Energy efficiency and energy conservation techniques
    - Renewable and non-renewable energy sources
- Exploring renewable energy sources
    - Solar energy and photovoltaic cells
    - Wind energy and turbine technology
    - Hydroelectric power and tidal energy

  Physics-based concepts for sustainable living and environmental impact
    - Carbon footprint and greenhouse gas emissions
    -

u t s p n r Cours =(DC)	
ú t n us	Co put t on s s
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Cont t Hours	
r s	=(or Int rn Ass ss nt ( )
Instru t ons	1. The theory paper will be of 75 marks including 15 marks for internal assessment and three-Hour duration. 2. The question paper for the final examination will consist of three units. Unit I-II will have THREE questions each from the corresponding units of the syllabus. Unit III in the paper will have one compulsory question consisting of short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting two questions from Unit I and II and the compulsory question from Unit III. 3. Use of non-programmable calculators will be allowed in the examination centre.

us **n t I**

B s s o s nt o put n : Binary and decimal arithmetic, Floating point numbers, algorithms, Sequence, Selection and Repetition, single and double precision arithmetic, underflow & overflow- emphasize the importance of making equations in terms of dimensionless variabl

u t s p n r Cours =(DC)	
ú t n us	BA IC F A E IA ◢ CIE CE
Cr t	
Cont t Hours	
r s	=(or Int rn Ass ss nt ( )
Instru t ons	1. The theory paper will be of 75 marks including 15 marks for internal assessment and three-Hour duration. 2. The question paper for the final examination will consist of three units. Unit I-II will have THREE questions each from the corresponding units of the syllabus. Unit III in the paper will have one compulsory question consisting of short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting two questions from Unit I and II and the compulsory question from Unit III. 3. Use of non-programmable calculators will be allowed in the examination centre.

us n t I

Review of Atomic Structure: Rutherford atom model, Bohr model of atom, Somerfield s Extension of Bohr s theory, Pauli s Exclusion principle, Wave mechanical model of the atom Properties of crystalline and amorphous solids, crystal lattice, symmetry considerations, space lattice of cubic system, lattice planes and miller indices, Bragg s law, reciprocal lattice Imperfection in crystals, point defects, dislocations, surface imperfections Bonding in solids: Ionics bonding, covalent bonding, metallic bonding, van der Waal s

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Credit: 3
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1. This course will be offered by the Department of Statistics to the students of other Departments other than the Department of Statistics .
2. Students are to be engaged in 3 hours of teaching per week.

Paper Title with code	Lecture L / Credit	Marks Distribution
B.Sc.STAT-MDC-101 STATISTICS-I	Lecture:3 Credit:3	Theory Max.Marks:75 Theory: 60 Internal Assessment : 15 Time:3 Hours

A I IC I

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This course is designed to shape the attitudes of learners regarding the field of statistics. This course is aimed at students who need a basic background in statistics and its application. It is to provide an

n t II

Basic Concepts of Probability: Random experiment, sample space, events, different definitions of probability, additive law of probability, multiplication probability, conditional probability.
Random Variables for univariate case only : Discrete and continuous random variables, probability density function, distribution functions, mathematical expectation, moment generating function.

GGE ED EADI G

1. Goon, A.M., Gupta, M.K. and Dasgupta, B. 2013 : *Fundamentals of Statistics, Vol I*, World Press, Kolkata.
2. Miller, Irwin and Miller, Marylees 2006 : *John E. Freund's Mathematical Statistics with Applications*, 7th Edn. , Pearson Education, Asia.
3. Gupta, S.C. &Kapoor, V.K.: *Fundamentals of Mathematical Statistics*, Sultan Chand and Sons.
4. Mood, A.M., Graybill, F.A., and Boes, D.C. 2011 :

n t II

Sampling distributions and their applications: Student - t distributions, F-distribution, and Chi-square distribution. Simple tests based on t, F, chi-square, and normal variate z. Analysis of variance: for one-way classification, two-way classification for fixed effect model only .

GGE ED EADI G

1. Hogg, R.V., Tanis, E.A., and Rao, J.M. 2009 : Probability and Statistical Inference, Seventh Edition, Pearson Education, New Delhi.
2. Gupta, S.C., & Kapoor, V.K.: Fundamentals of Applied Statistics, Sultan Chand and Sons.
3. Goon, A.M., Gupta, M.K., & Dasgupta, B. 2005 : Fundamentals of Statistics, Vol. II, WordPress, Calcutta.
4. Meyer, P.L. 1970 : Introductory Probability and Statistical Applications, Oxford & IBH Publishing, New Delhi.

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ot Hours =(or) **Cr ts =(4)**
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or r s {60 Theory examination +15 Internal assessment }
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Instru t ons For p r tt r n n t

Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1.5 marks each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, five questions are to be attempted including compulsory one. 50 of the questions are to be split up into 2-4 sub-parts. To qualify for a Course, the candidate must obtain a minimum of 40 marks.

or

Course Outcomes:

- *The students will be able to develop clarity on key concepts related to health and hygiene.*
- *The students will able to develop strategies for the promotion of health and hygiene.*
- *The students will be able to appreciate different dimensions of health and role of proper nutrition.*
- *The students will be able to understand the importance of hygiene, personal and community health.*

I

utr t on

- Classification of foods -Carbohydrates, proteins, lipids, vitamins and minerals.
- Balanced diet and Malnutrition.
- Nutritional deficiencies and disorders.

I

H t

- Definition of Health.
- Concept of Health & Diseases.
- Factors influencing Health.
- Immunity: Innate and Acquired Immunity.
- Basic concept of Vaccines and Allergy.

I

D s s s

- Introduction to diseases, typesofdisease:Communicable and Non-Communicable diseases.
- Communicable Diseases:Causes, Symptoms and Prevention - Measles, polio, Influenza,Chikungunya,RabiesandAIDS.
- Non-Communicable diseases and their preventive measures – Hypertension, Coronary Heart diseases, Stroke andDiabetes.

I

H n

- Hygiene: Concept,Meaning, Principles,andImportance.
- StandardHygienePractices.
- TypesofHygiene:Personal,Food,andCommunity.
- Healthawareness, Food adulteration and inspections.

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ot Hours =(or) **Cr ts =( )**
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or r s {60 Theory examination +15 Internal assessment }
Dur t on or n n t on ours

Instru t ons For p r tt r n n t

Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1.5 marks each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, five questions are to be attempted including compulsory one. 50 of the questions are to be split up into 2-4 sub-parts. To qualify for a Course, the candidate must obtain a minimum of 40 marks.

or

Course Outcomes:

- *The students will be able to understand Human body, Body functions and Life's Processes.*

I

D st st
Alimentary canal, Digestive Glands, Digestion, Deficiency diseases.
sp r tor st
Respiratory tract, Respiratory organ, working of respiratory system, Diseases.

I

C r o s u r st
Structure of Heart, Blood, Rh factor, Blood groups.
E r tor st
Structure of Kidney, Osmoregulation, Kidney Diseases.

I

t st
Main parts of Skeleton and their bones, Types of Bones, Cartilage, Ligaments and Tendons.
us u r st
Structure of Skeletal Muscle, Types of Muscle, Muscle contraction and Types of skeletal Muscle fibers.
pro u t st
Male and Female reproductive system, their parts and functions.

I

r ous st
Parts of Nervous system, Structure of Neuron and Nerves.
En o r n st
Major Glands and their Functions, Disorders.

GGE ED EADI G

1. Taneja, S.K.: Biochemistry & Animal Physiology, Trueman Book Co., 1997.
2. Guyton, A.S.: Text Book of Medical Physiology, 14th edition, W.B. Saunders Company, 2020.
3. Pradeep s A Text Book of Biology 2024-25 ISBN: 978939564966 Pradeep Publication India
4. Modern s ABC Plus of Biology Part I & II Dr. BB Arora & Sabharwal Notebook, 1 January 2021
5. Human Physiology 2007 Stuart Fox Author Publisher : McGraw-Hill Education 10th edition 16 February 2007