



પરિપત્ર:

ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટીની સાયન્સ વિદ્યાશાખાનાં અભ્યાસક્રમ ચલાવતી તમામ સંલગ્ન કોલેજોનાં આચાર્યશ્રીઓને સવિનય જણાવવાનું કે સાયન્સ વિદ્યાશાખા હેઠળનો NEP-૨૦૨૦ અંતર્ગત સ્કીલ એન્હાન્સમેન્ટ કોર્સનો સેમેસ્ટર-૧નો અભ્યાસક્રમ આ સાથે સામેલ છે. આ બાસ્કેટમાં સાયન્સનાં વિષયો આપવામાં આવેલ છે.

માનનીય કુલપતિશ્રીની મંજૂરી અનુસાર સદર અભ્યાસક્રમ શૈક્ષણિક વર્ષ જુન, ૨૦૨૩ થી અમલવારી કરવાની રહે છે. સાયન્સ વિદ્યાશાખાનાં અભ્યાસક્રમ ચલાવતી તમામ સંલગ્ન કોલેજો દ્વારા તેની અમલવારી કરવા જણાવવામાં આવે છે.

નોંધ: તા.૧૬/૧૦/૨૦૨૪નાં પરિપત્ર નં: ૧૩૯૩/ ૨૦૨૪માં ૧. Horticulture ૨. Introduction to SciLab (FOSS)નાં અભ્યાસક્રમમાં ફેરફાર કરવામાં આવેલ છે અન્ય અભ્યાસક્રમમાં કોઈ ફેરફાર કરવામાં આવેલ નથી.



[Signature]
18/6/2025

ખાસ ફરજ પરના અધિકારી
(એકેડેમિક)

ક્રમાંક/બીકેએનએમયુ/એકેડેમિક/૨૭૯/૨૦૨૫

ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી,

સરકારી પોલીટેકનિક કેમ્પસ,

ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી રોડ,

ખડીયા, જૂનાગઢ-૩૬૨૨૬૩

તા.૧૮.૦૬.૨૦૨૫

પ્રતિ,

- ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી સંલગ્ન સાયન્સ વિદ્યાશાખાનાં અભ્યાસક્રમો ચલાવતી તમામ કોલેજોના આચાર્યશ્રીઓ તરફ....

નકલ સાદર રવાના:-

- માન.કુલપતિશ્રી/કુલસચિવશ્રીનાં અંગત સચિવશ્રી.
- પરીક્ષા નિયામકશ્રી, ભક્તકવિ નરસિંહ મહેતા યુનિવર્સિટી, જૂનાગઢ

નકલ રવાના જાણ તથા યોગ્ય કાર્યવાહી અર્થે:

- સીસ્ટમ મેનેજરશ્રી, આઈ.ટી.સેલ વિભાગ (વેબસાઇટ ઉપર પ્રસિદ્ધ થવા અર્થે.)



BHAKTA KAVI NARSINH MEHTA UNIVERSITY
JUNAGADH



BOARD OF STUDIES
FACULTY OF SCIENCE
BASKET FOR SKILL ENHANCEMENT COURSE
(SEMESTER- I)

EFFECTIVE FROM JUNE, 2023

Bhakta Kavi Narsinh Mehta University
Syllabus of Science Faculty (UG) as per NEP
BASKET FOR SKILL ENHANCEMENT COURSE
Effective from June 2023

Sr. No.	Course Title	Page No.
1.	Office Automation	2
2.	Clothing Construction	7
3.	Horticulture	9
4.	Laboratory Skills and Safety	12
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7.	Introduction to SciLab (FOSS)	22
8.	English for Competitive Exams	25
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10.	Laboratory skills in physics	35
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Syllabus of Science Faculty (UG) as per NEP
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1. OFFICE AUTOMATION

Programme	UG (Science Faculty)		Internal Marks	25
Semester	I		External Marks	25
Course Type	Skill Enhancement Course-1		Total	50
Credit	02		Exam Duration	1:00 Hour
Teaching Hrs.	30 + 15(Practical) = 45		Practical Exam Duration	-
Course Title	Office Automation			

COURSE OBJECTIVES:

- Acquire confidence in using computers in Office and General Life.
- Understand file management.
- Create documents using word processor, spreadsheet & presentation software.

COURSE OUTCOMES:

- Well acquainted with Operating System and its applications for both desktop and Laptop.
- Able to identify various desktop screen components and modify various properties, date, time etc.
- Able to add and remove new program and features, manage files and folders.
- Well versed with printing and know various types of file extensions.
- Gaining Knowledge of Word Processing, their usage, details of word processing screen.
- After completion of Ms Excel, Students will have Knowledge of Spreadsheet Processing, their usage, details of Spreadsheet screen in depth.
- After completion of Ms- PowerPoint, Students will have Knowledge of PowerPoint presentations in depth.

COURSE CONTENT		
Units	Title of the Unit and the Topics	No. of Lectures
Unit 1	WORD PROCESSING Introduction Objective Word Processing Basics • Opening Word Processing Package • Title Bar, Menu Bar, Toolbars & Sidebar • Creating a New Document	05

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	• Opening and Closing Documents • Opening Documents • Save and Save As • Closing Document • Using The Help • Page Setup • Print Preview • Printing of Documents • PDF file and Saving a Document as PDF file Text Creation and manipulation • Document Creation • Editing Text • Text Selection • Cut, Copy and Paste • Font, Color, Style and Size selection • Alignment of Text • Undo & Redo • Auto Correct, Spelling & Grammar • Find and Replace Formatting the Text • Paragraph Indentation • Bullet sand Numbering • Change case • Header & Footer Table Manipulation • Insert &Draw Table • Changing cell width and height • Alignment of Text in cell Delete / Insertion of Row, Column and Merging & Splitting of Cells Border and Shading.	
Unit 2.	SPREADSHEET Introduction Objectives Elements of Spread Sheet Creating of Spread Sheet • Concept of Cell Address [Row and Column] and selecting a Cell • Entering Data [text, number, date in Cells • Page Setup • Printing of Sheet	05

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	• Saving Spreadsheet • Opening and Closing Manipulation of Cells & Sheet • Modifying/ Editing Cell Content • Formatting Cell (Font, Alignment, Style) • Cut, Copy, Paste & Paste Special • Changing Cell Height and Width • Inserting and Deleting Rows, Column • AutoFill • Sorting Filtering • Freezing panes Formulas, Functions and Charts • Using Formulas for Numbers (Addition, Subtraction, Multiplication & Division, IF) • AutoSum • Functions (Sum, Count, MAX, MIN, AVERAGE) Charts (Bar, Pie, Line)	
Unit 3.	PRESENTATION Introduction Objectives Creation of Presentation • Creating a Presentation Using a Template • Creating a Blank Presentation • Inserting & Editing Text on Slides • Inserting and Deleting Slides in a Presentation • Saving a Presentation Manipulating Slides • Inserting Table • Adding Clip Art Pictures • Inserting Other Objects • Resizing and Scaling an Object • Creating & using Master Slide Presentation of Slides • Choosing a Set Up for Presentation • Running a Slide Show • Transition and Slide Timings • Automating a Slide Show • Providing Aesthetics to Slides & Printing • Enhancing Text Presentation • Working with Color and Line Style	05

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	• Adding Movie and Sound • Adding Headers, Footers and Notes Printing Slides and Handouts	
Unit -4	PRACTICAL LAB SESSIONS Practical exercises based on unit -1 to 3	30

REFERENCE BOOKS:

1. Microsoft Office for Beginners By M. L. Humphrey
2. Microsoft Office 2019 Beginner By M. L. Humphrey
3. Mastering MS Office By Bittu Kumar
4. Microsoft Office Training Guide By Prof. Satish Jain M. Geetha Kratika, BPB Publications
5. Working in Microsoft Office By Ron Mansfield
6. Windows 10 Step By Step By Joan Lambert
7. Windows 10 Inside Out By Ed Bott and Craig Stinson

REFERENCE WEBSITES:

1. <https://edu.gcfglobal.org/en/subjects/office/#>
2. <https://www.customguide.com/training/>
3. <https://www.guru99.com/free-microsoft-courses-certifications.html>
4. <https://alison.com/tag/microsoft-office>
5. <https://www.makeuseof.com/tag/microsoft-office-tutorials-courses/>
6. <https://www.udemy.com/topic/microsoft-word/free/>
7. <https://www.w3schools.com/excel/index.php>

INTERNAL EVALUATION SCHEME		
NO	Particulars	Marks
1	Mid Semester Exam/ Practical Exam (Mandatory)	13
2	Class Test	03
3	Open book exam/test	03
4	Open note exam/test	03
5	Self-test/ Online test	03
6	Essay/Article writing	03
7	Quizzes/Objective test	03

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8	Class assignment	03
9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03
15	Role Play	03
16	Paper presentation/Seminar	03
17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
	Total	25

Note: Sr.No.1 is mandatory. Select any Four from Sr.No.2 to 24. Each Contains three marks. Student should secure 09 Marks for passing in internal Exam

EXTERNAL ASSESSMENT BY UNIVERSITY		
Sr. No.	Particulars	Marks
1	Attempt the Following Question (2/4)	10
2	Attempt the Following Question (2/4)	10
3	Attempt the Following Question (1/2)	05

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2. CLOTHING CONSTRUCTION

Programme	UG (Science Faculty)	Internal Practical Marks	25
Semester	I	External Practical Marks	25
Course Type	Skill Enhancement Course-1	Total	50
Credit	02	Exam Duration	1:30 Hrs.
Teaching Hrs.	60	Course Code	
Course Title	CLOTHING CONSTRUCTION		

Only Practicals

Introduction of Clothing and Construction

Basic of sewing machine, parts and measuring tools and techniques

COURSE CONTENTS		
Units	Unit Description	No. of Lectures
Practical	- Demonstration sewing machine: Prepare a labeling outline diagram of sewing machine. - Make a Tools Chart with Sketch - Basic Stitches, Seams and Techniques of Fullness - Basic Hand Stitches: Taking stitch, Running stitch, Hemming stitch, Backstitch, Buttonhole stitch, Marking stitch, Herringbone stitch, Loop stitch, Slip stitch, Blanket stitch - Basic Machine Stitches: Simple stitch, Gather stitch, Reinforce stitch, Zigzag stitch - Types of Seams: Plain seam, felling seam, French seam, Overcast seam, Herringbone seam, Plain Left seam, Flat felled seam, Pippin seam, Plain Left seam, Flat felled seam, Pippin seam, - Techniques of Fullness: Type of Tucks, Type of Pleats, Ruffles and Gathering. Basic Stitches / Seams (make anyone) - Drafting and stitching anyone garments: - Example: - APRON & CUSHION	

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INTERNAL EVALUATION SCHEME		
NO	Particulars	Marks
1	Mid Semester Exam/ Practical Exam (Mandatory)	13
2	Class Test	03
3	Open book exam/test	03
4	Open note exam/test	03
5	Self-test/ Online test	03
6	Essay/Article writing	03
7	Quizzes/Objective test	03
8	Class assignment	03
9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03
15	Role Play	03
16	Paper presentation/Seminar	03
17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
	Total	25

Note: Sr.No.1 is mandatory. Select any Four from Sr.No.2 to 24. Each Contains three marks. Student should secure 09 Marks for passing in internal Exam

Practical:

PRACTICAL ASSESSMENT BY UNIVERSITY		
Que. No.	Particulars	Marks
Practical	External Practical	25

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3. HORTICULTURE

Programme	U.G (Science Faculty)		Internal Marks	25
Semester	I		External Marks	25
Course Type	Skill Enhancement Course		Total	50
Credit	02		Exam Duration	1:00 Hrs.
Teaching Hours	30		Course Code	
Course Title:	Horticulture			

Course Level Learning outcomes:

After the completion of the course the students will be able:

- To gain knowledge of gardening, cultivation, multiplication, raising of seedlings of garden plants.
- To get knowledge of new and modern techniques of plant propagation.
- To develop interest in nature and plant life.

COURSE CONTENTS		
Units	Unit Description	No. of Lectures
Unit 1	HORTICULTURE 1. Introduction: Aims, Objectives and Scope of Horticulture 2. Plant Propagation- 2.1 Vegetative (Cutting, Layering, Budding, Grafting), 2.2 Sexual reproduction Advantage and Disadvantage 3. Display of Flowers 4. Water Garden 5. Kitchen Garden	15
Unit 2	HORTICULTURAL TECHNIQUES 1. Landscape: Principles, Types and Planning 2. Lawn Making 3. Floriculture and its implements 4. Bonsai 5. Hydroponics	15

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REFERENCE BOOKS:

1. C.R. Adams (2018). Principles of Horticulture. Amsterdam. Boston.
2. Chadha K. L. (2003). Handbook of Horticulture. Indian Council of Agricultural Research.
3. Michael A. Dirr (2009). Manual of Woody and land Plants. Stipes Pub .
4. Salaria and Salaria (2013). A2Z Solutions Horticulture at a glance Vol.I. Jain Bros.

INTERNAL EVALUATION SCHEME		
NO	Particulars	Marks
1	Mid Semester Exam/ Practical Exam (Mandatory)	13
2	Class Test	03
3	Open book exam/test	03
4	Open note exam/test	03
5	Self-test/ Online test	03
6	Essay/Article writing	03
7	Quizzes/Objective test	03
8	Class assignment	03
9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03
15	Role Play	03
16	Paper presentation/Seminar	03
17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
	Total	25

Note: Sr.No.1 is mandatory. Select any Four from Sr.No.2 to 24. Each Contains three marks. Student should secure 09 Marks for passing in internal Exam

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Que. No.	Particulars	Marks
Que-1	From Unit: 1	
	(1)	05
	(2)	05
	OR	
	From Unit: 1	
	(1)	05
	(2)	05
Que-2	From Unit: 2	
	(1)	05
	(2)	05
	OR	
	From Unit: 2	
	(1)	05
	(2)	05
Que-3	From Unit: 1 & 2	
	(1)	05
	OR	
	(1)	05

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4. LABORATORY SKILLS AND SAFETY

Course Level	U.G (Science Faculty)		Practical Internal Marks	25
Semester	I			
Course Type	Skills Enhancement Course (SEC)		Practical External Marks	25
Credit	02		Total	50
Teaching Hours	30		Exam Duration	1:30 Hrs.
Course Title:	Laboratory skills and safety		Course Code	SECHEM 111(P)

COURSE OBJECTIVES & OUTCOMES:

The course will provide its learners a primary practical exposure to the chemistry laboratory skills in terms of handling of chemicals, primary analytical techniques, various types of hazards and its safety measures including first aid and disaster management.

On completion of the course the student should be able to:

- Identify various laboratory glass apparatus and handle it properly.
- Use chainomatic balance as well as electronic weighing machine to weigh smaller samples.
- Use, handle and maintain miscellaneous apparatus including electric heating devices.
- Classify various chemicals w.r.t. requirements for safe storage.
- Prepare laboratory reagents, calculate and weigh chemicals for solution preparation antitrations.
- Carry out simple quantitative exercises like acid base titration.
- Carry out qualitative exercises like crystallization, m.p, determination, TLC for identification of two component, and lassaigine Test for elements analysis in organic compounds.
- Learn about fire hazards and its response techniques.
- Learn about MSDS and use it effectively to demonstrate laboratory skills and avoid chemical hazards.
- Learn about detection and handling of LPG gas leakages.
- Know about gas hazards and develop handling skills.
- Provide First Aid including CPR in case of any medical emergency.
- Serve as a skilled person/volunteer during any natural or man-made disaster in the laboratory or elsewhere.

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COURSE CONTENTS		
Units	Title of the Unit and the Topics	No. of Lectures
Unit 1	LABORATORY INTRODUCTION: A. Introduction of Lab Apparatus Glass apparatus - Beaker, Test tube, boiling tube, funnel, separating funnel, filtration flask, round bottom flask, flat bottom flask, condenser, watch glass etc. measuring conical or condenser, petri dish, desiccator. Volumetric Apparatus - Measuring cylinder, burette, pipette, volumetric flask Weight and Measurement – Weighing of chemicals for preparation of solutions using chainomatic balance, analytical balance, single-pan electronic balance etc. Miscellaneous apparatus- Buchner funnel, effective handing of Bunsen burner, burette stand, retort clamp, China clay dish/evaporating basin, wire gauze, filter pumps, crucible, clay pipe triangle, pestle and mortar, spirit lamp, spatulas, thermometer, pH meter/pH paper etc. and laboratory centrifuge. Apparatus for heating: Bunsen burner, water bath, oil bath, hot plate, sand bath, hot air oven, heating mantle etc. B. Chemical handling and storage • Classification of Inorganic compounds based on negative ion • Classification of organic compounds based on chemical nature • Storage requirement of different chemicals [Low Temperature, sun light, Fume wood]	
Unit 2.	Laboratory Skills: Quantitative aspects • Solution Preparation: Preparation of solutions, indicators and reagents (concentration of solutions: percentage, molarity, normality, molality (in ppm) calculation of masses and volumes for preparation of solutions solids, liquids.) • Simple acid-base titration. Qualitative aspects • Purification and Crystallization of organic compounds using appropriate solvents.	

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	• Determination of boiling point and melting point of organic compounds • Chromatographic separation of components. TLC-preparation and identification of number components. • Detection of nitrogen, Sulphur and halogen in given sample using Lassigne test.	
Unit 3.	Laboratory Safety: (Precautions, Demonstrations and Drill) Fire Hazards: Causes of fires, classification of fires, fire prevention protocols for different types of fires, fire Extinguishers and its drill. (in coordination with expert of fire department or NGS) Chemical Hazards: Classification and handling of hazardous chemicals, storage of chemicals, transfer from large containers. Use of MSDS for efficient handling of chemicals (Assignment/Project report preparation for some specific chemicals may be given to students) Gas Hazards: Safe usage of LPG in the laboratory, Detection and handling of Gas Leakage, Precautions and first aid related to gas hazards.	
Unit 4.	Medical emergency and First Aid including CPR-(Demonstrations/ Drill and training): Through collaboration/coordination with various Health care service providers, GOs/NGOs like Indian Red Cross Society etc. Natural or Man-made Disaster and its response management (Demonstrations/ Drill and training). Through collaboration/coordination with various GOs District disaster management cell/NGOs like Indian Red Cross Society etc.	

REFERENCE BOOKS:

1. Computer Fundamentals by P.K.Sinha
2. Fundamental of IT for BCA–By S.Jaiswal

Note: Use the latest edition of the books.

INTERNAL EVALUATION SCHEME		
NO	Particulars	Marks
1	Mid Semester Exam/ Practical Exam (Mandatory)	13
2	Class Test	03
3	Open book exam/test	03
4	Open note exam/test	03

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5	Self-test/ Online test	03
6	Essay/Article writing	03
7	Quizzes/Objective test	03
8	Class assignment	03
9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03
15	Role Play	03
16	Paper presentation/Seminar	03
17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
Total		25

Note: Sr.No.1 is mandatory. Select any Four from Sr.No.2 to 24. Each Contains three marks. Student should secure 09 Marks for passing in internal Exam

Paper Style for Practical Exam:

EXTERNAL ASSESSMENT BY UNIVERSITY		
Que. No.	Particulars	Marks
P-1	Acid base titration of an unknown sample/Gravimetric analysis.	25
P-2	Viva/Demonstration of practical skills related to identification and handling of equipment, chemicals handling and storage, safety protocol, CPR, First aid, etc / Explanation of practical assignment work undertaken.	
P-3	Continuous internal assessment may also include active participation in activities and demonstration of skill achievement	

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5. APICULTURE

Programme	U.G (Science Faculty)	Internal Practical Marks	25
Semester	I	External Practical Marks	25
Course Type	Skill Enhancement Course	Total Marks	50
Credit	02	Practical Exam Duration	1:30 Hrs.
Teaching Hours	60	Course Code	SEC-101
Course title	Apiculture		

COURSE OBJECTIVES:

- The learner will be able to understand the basics of beekeeping tools, equipment, and managing beehives.
- The learner will be able to understand the primary life cycle of the honeybees, bee keeping tools and equipment.
- The learner will be able to learn and manage beehives for honey production and pollination.
- The course will be useful for providing self-employment to the learner.
- The learner will be able to understand the marketing of various bee products.

COURSE OUTCOMES:

- The learner will be able to understand:
- The learner will be able to manage beehives for honey production and pollination.
- The course will be useful for providing self-employment to the learner.
- The learner will be able to understand the marketing of various bee products.

COURSE CONTENTS		
Units	Title of the Unit and the Topics	No. of Lectures
Practical	Practical 1: History and Classification of Honey Bees Practical 2: Biology of Bees Practical 3: Social Organization of Bee Colony Practical 4: Rearing of Bees	

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	Practical 5: Selection of Bee Species for Apiculture Practical 6: Bee Keeping Equipment Practical 7: Artificial Bee rearing (Apiary) Practical 8: Methods of Extraction of Honey (Indigenous and Modern) Practical 9: Bee Diseases and Enemies, Control and Preventive measures Practical 10: Bee Economy and Entrepreneurship in Apiculture Practical 11: Products of Apiculture Industry and its Uses (Honey, Bees Wax, Propolis, Pollen etc.)	
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REFERENCE BOOKS:

1. Text book of applied entomology Srivastava
2. Economic zoology Shukla & Upadhyaya
3. Honey bees and their management in India (ICAR)..... R. C. Mishra
4. Beekeeping in India (ICAR).... S. Singh
5. Apiculture (Beekeeping).... Dr D K Belsareet

INTERNAL EVALUATION SCHEME		
NO	Particulars	Marks
1	Mid Semester Exam/ Practical Exam (Mandatory)	13
2	Class Test	03
3	Open book exam/test	03
4	Open note exam/test	03
5	Self-test/ Online test	03
6	Essay/Article writing	03
7	Quizzes/Objective test	03
8	Class assignment	03
9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03

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15	Role Play	03
16	Paper presentation/Seminar	03
17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
Total		25

Note: Sr.No.1 is mandatory. Select any Four from Sr.No.2 to 24. Each Contains three marks. Student should secure 09 Marks for passing in internal Exam

Paper Style:

PRACTICAL ASSESSMENT BY UNIVERSITY		
Que. No.	Particulars	Marks
Que-1	Do as per instruction and show it to examiner (Practical-1/2).....	25
Que-2	Do as per instruction and show it to examiner (Practical-3/4)	
Que-3	Do as per instruction and show it to examiner (Practical-5/6)	
Que-4	Do as per instruction and show it to examiner (Practical-7/8)	
Que-5	Do as per instruction and show it to examiner (Practical-9/10)	
Que-6	Do as per instruction and show it to examiner (Practical-11)	
Que-7	Report and Viva-voice.	
Que-8	Certified Journal.	

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6. MUSHROOM CULTIVATION

Programme	U.G (Science Faculty)	Internal Practical Marks	25
Semester	I	External Practical Marks	25
Course Type	Skill Enhancement Course	Total	50
Credit	02	Practical Exam Duration	1:30 Hrs.
Teaching Hours	60	Course Code	PHISE101
Course Title:	Mushroom Cultivation		

Course Level Learning outcomes:

By the conclusion of this course, the students will benefit as:

- Have developed a very good understanding of nutritional aspects and commercial use of mushrooms for human consumption.
- Have developed a very good understanding of practical cultivation of mushrooms, management of diseases affecting mushrooms, mushroom harvesting and various avenues for using it into an entrepreneurship.
- Enhance the skill of mushroom cultivation in control environment.

COURSE CONTENTS		
Units	Unit Description	No. of Lectures
Unit 1	Introduction of Mushroom Introduction: Morphology, Classification and identification of edible & non-edible/poisonous mushroom. Nutritional and Medicinal value of mushroom, Scope of mushroom cultivation.	
Unit 2	Structure and Life cycle of Mushroom Structure & Life cycle: Button mushroom (<i>Agaricus bisporus</i>), Milky mushroom (<i>Calocybe indica</i>), Oyster mushroom (<i>Pleurotus sajor caju</i>) and paddy straw mushroom (<i>Volvariella volvacea</i>). Breeding and genetic improvement of mushroom strains.	
Unit 3	Cultivation Conditions	

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	Principles & Requisites: Sterilization and disinfections of substrates, Pasteurization of different substrates, Isolation, growth media, Spawns production and their maintenance.	
Unit 4	Techniques of Cultivation Techniques of Cultivation: Structure and construction of mushroom House, layout of Traditional and Greenhouse method. Multiplication of spawn, Composting, bed and polythene bag preparation, spawning - casing – cropping. Pest management: chemical control Harvest and Post-harvest technology; freezing, dry freezing, drying, canning and entrepreneurship.	

PRACTICAL COURSE:

1. Introduction to Mushrooms
2. Collection & Identification of Mushrooms
3. Cultivation techniques of button Mushrooms
4. Cultivation Technology Oyster Mushrooms
5. Cultivation Technology of Paddy Straw Mushroom
6. Cultivation Technology of Milky Mushroom
7. Post Harvest Technology- Preservation of Mushrooms

REFERENCE BOOKS:

1. Handbook on Mushrooms by Bahl N.
2. Benjamin Hirst Mushrooms: A Beginners Guide to Home Cultivation Paperback (20150)
3. V. N. Pathak .Mushroom Production and Processing Technology IST Edition Hardcover – 2011.
4. Eiri Staff Hand Book of Mushroom Cultivation, Processing and Packaging Paperback – Import, 2007

ONLINE RESOURCES:

1. <http://ecoursesonline.iasri.res.in/course/view.php?id=596>

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INTERNAL EVALUATION SCHEME		
NO	Particulars	Marks
1	Mid Semester Exam/ Practical Exam (Mandatory)	13
2	Class Test	03
3	Open book exam/test	03
4	Open note exam/test	03
5	Self-test/ Online test	03
6	Essay/Article writing	03
7	Quizzes/Objective test	03
8	Class assignment	03
9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03
15	Role Play	03
16	Paper presentation/Seminar	03
17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
	Total	25

Note: Sr.No.1 is mandatory. Select any Four from Sr.No.2 to 24. Each Contains three marks. Student should secure 09 Marks for passing in internal Exam.

Practical:

PRACTICAL ASSESSMENT BY UNIVERSITY		
Que. No.	Particulars	Marks
Practical	External Practical	25

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7. INTRODUCTION TO SCILAB (FOSS)

Programme	UG (Science Faculty)	Internal Practical Marks	25
Semester	I	External Practical Marks	25
Course Type	Skill Enhancement Course-1	Total	50
Credit	02	Exam Duration	1:30 Hour
Teaching Hrs.	30	Course Code	
Course Title	Introduction to SciLab (FOSS)		

Note: Practical based learning course

COURSE LEARNING OUTCOMES:

- Student will learn to perform various matrix related operations in SciLab like matrix addition, matrix multiplication, matrix inversion etc.
- Student will learn to solve system of simultaneous linear equations in SciLab.
- Student will be able to plot and analyze conics, graphs of trigonometric functions, hyperbolic trigonometric functions, exponential functions and their inverses using plot command.
- Student will also be equipped with some basic programming skills after finishing this course.
- Student will get self motivated to make use of Free and Open Source Software “SciLab” over MatLab software, for their scientific research and development.

<u>Practical No.</u>	<u>Objective / Aim of Practical</u>
1.	Become familiar with the software and its interface:
	(a) What is <i>SciLab</i> ? and Why <i>SciLab</i> ?
	(b) Understanding its general environment and menu bar.
	(c) The Editor window (<i>SciNotes</i>), <i>Console</i> and <i>Graphics</i> window
	(d) Some user defined workspace customizations.
2.	To realize <i>SciLab</i> as a powerful Calculator :
	(a) Use of Arithmetic, relational and assignment operators in <i>SciLab</i> .
	(b) Learn and use some predefined constant strings like %e, %pi, %eps.
	(c) Learn keywords of inbuilt Mathematical functions in <i>SciLab</i> like trigonometric & inverse trigonometric functions, exponential & logarithmic functions, hyperbolic trigonometric functions, polynomial functions.
3.	To input matrices (of any order) using console as well as editor window :
	(a) Input a row vector, a column vector.
	(b) Input a rectangular array (matrix) and use “ <i>rand</i> ” function to generate matrices with random entries.
	(c) Learn use of matrix functions: <i>zeros</i> , <i>ones</i> , <i>eye</i> , <i>rand</i> , <i>det()</i> , <i>inv()</i> , <i>transpose</i> “ ‘ ”.
4.	To perform various kinds of operation(s) / procedure(s) on matrices:

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	(a)	To perform arithmetic operations (+, -, *, /) on matrices of suitable dimension and also scalar multiplication of matrix.
	(b)	Learn to access (<i>and/or modify</i>) any (i,j) th entry of given matrix (<i>or row(s) or column(s)</i>).
	(c)	Learn to obtain sub-matrices of given matrix and also delete row(s) / column(s).
5.	(a)	To find Minors, Cofactors and Adjoint of a matrix and thus get inverse of a matrix by using adjoint method.
	(b)	To solve system of simultaneous equations by adjoint method (only up to 4 variables).
6.	(a)	To plot any given set of points or sequences in 2D .
	(b)	To plot a line segment joining two given points in 2D .
	(c)	To plot a line in 2D whose equation is known .
	(d)	To manipulate properties of above plot(s) in terms of colour, thickness, position, label marking, title etc.
7.		To draw graph of trigonometric functions : sin(x), cos(x), tan(x), cosec(x), sec(x), cot(x)
8.		To draw graph of inverse-trigonometric functions : $\sin^{-1}(x)$, $\cos^{-1}(x)$, $\tan^{-1}(x)$, $\operatorname{cosec}^{-1}(x)$, $\sec^{-1}(x)$, $\cot^{-1}(x)$
9.		To draw graph of Hyperbolic trigonometric functions : sinh(x), cosh(x), tanh(x), $\operatorname{cosech}(x)$, $\operatorname{sech}(x)$, $\operatorname{coth}(x)$
10.		To draw graph of inverse Hyperbolic trigonometric functions : $\sinh^{-1}(x)$, $\cosh^{-1}(x)$, $\tanh^{-1}(x)$, $\operatorname{cosech}^{-1}(x)$, $\operatorname{sech}^{-1}(x)$, $\operatorname{coth}^{-1}(x)$

REFERENCE SOURCES:

1. Web resource: Getting started by Scilab Enterprises, <https://www.scilab.org/tutorials/getting-started>
2. E-book: SciLab for very beginners by Scilab Enterprises, https://www.scilab.org/sites/default/files/prg/att/1764/Scilab_beginners_0.pdf
3. E-book: Programming in SciLab by Michael Baudin, https://www.scilab.org/sites/default/files/progscilab-v.0.10_en.pdf

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SEC - 101 (Skill Enhancement Course-1)
Evaluation of 50 Marks (2 Credit Paper)

Continuous and Comprehensive Evaluation (CCE)-Formative- 25 Marks		Semester End Evaluation (SEE)- Summative-25 Marks	
<u>Practicals (25 Marks)</u>		<u>Practicals (25 Marks)</u>	
1. Performance	15 Marks	1. Performance	15 Marks
2. Viva-voce	10 Marks	2. Viva-voce	05 Marks
		3. Journal	05 Marks
Total	25 Marks	Total	25 Marks

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8. ENGLISH FOR COMPETITIVE EXAMS-1

Programme	U.G (Science Faculty)		Internal Marks	25
Semester	I		External Marks	25
Course Type	Skill Enhancement Course		Total	50
Credit	02		Exam Duration	1:00 Hrs.
Teaching Hrs.	30		Course Code	SEC-1
Course Title	English for competitive Exams-1			

Objectives of the Course:

Competitive Exams aim at a basic but comprehensive understanding of English language. The present syllabus focuses on four aspects of English language.

1. Grammar Proficiency
2. Vocabulary Enhancement
3. Reading Comprehension
4. Writing Skills

Learning Outcomes:

1. The students will develop a basic understanding of grammar, enabling them to spot and correct mistakes in sentences.
2. The syllabus will enhance the students' vocabulary, enabling them to understand words and their roots, prefixes, and suffixes.
3. Reading comprehension skills will be improved, empowering the students to grasp the main ideas of passages and answer questions accordingly.
4. Writing skills will be honed, enabling the students to effectively communicate in formal situations, which will be beneficial before and after acquiring a job.

Detailed Syllabus

UNIT	ITEMS	Marks	Teaching Hours
I	- Articles & Quantifiers - Subject-Verb Agreement - Phrasal Verbs	18	15
II	- Modal Auxiliaries - Tenses - Comprehension	17	15

Note: Above mentioned topics must be taught keeping in mind competitive exams.

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INTERNAL EVALUATION SCHEME		
NO	Particulars	Marks
1	Mid Semester Exam/ Practical Exam (Mandatory)	13
2	Class Test	03
3	Open book exam/test	03
4	Open note exam/test	03
5	Self-test/ Online test	03
6	Essay/Article writing	03
7	Quizzes/Objective test	03
8	Class assignment	03
9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03
15	Role Play	03
16	Paper presentation/Seminar	03
17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
	Total	25

Note: Sr.No.1 is mandatory. Select any Four from Sr.No.2 to 24. Each Contains three marks. Student should secure 09 Marks for passing in internal Exam

Paper Style:

Ques. No.	Particulars	Marks
1	(A) Multiple Choice Question (5/7) (B) Identify the Error (5/7)	05 05
2	Write the Correct Option from the Bracket (10/12)	10
3	Read the Passage and Answer the Questions.	05

Suggested Reading

1. Objective General English by S P Bakshi
2. High School Wren and Martin English Grammar and Composition
3. English Grammar in Use by Raymond Murphy
4. <https://www.grammar-monster.com/>
5. <https://www.englishpage.com/>

Appendix (Phrasal Verbs)

Ask:

Ask for – to demand.

His family *asked for* compensation.

2. Ask after – to inquire.

The police had to contact branch office to *ask after* the case.

Act:

Act for – on behalf of.

I *acted for* my brother while he was out of station.

Act on – pursue / follow up on.

Did you *act on* my advice?

Act upon – affect / influence.

Over-consumption of alcohol *acts upon* (affects) health.

Her work *acted upon* (influenced) me to pass the exam.

Back:

Back out – to make a retreat from something agreed.

After my father had refused me, I *backed out* of party plan.

Back up – to support.

Can you *back up* your claims?

Bear:

Bear with – to tolerate.

You have to *bear with* others' criticism to succeed.

Blow:

Blow away – to remove.

The gust *blew away* all the leaves.

Blow in / blow into – to enter noisily

Two children *blew in* the classroom.

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Blow off – to emit.

The vehicles *blow off* black smoke.

Break:

Brake down – collapse / crush.

The wall of Berlin *broke down* (collapsed) and an era ended.

Gandhi fought to *break down* (crush) colonialism in India.

Break off – to stop / to break a piece.

The bus *broke off* in the middle of its way.

She *broke off* her tooth.

Break out – spread.

The Corona virus has *broken out* all over the world.

Break up – to end.

The show broke up at 10 p.m.

Bring:

Bring back – to return / to restore.

No one can *bring* those happy days *back* (return).

This picture *brought* me *back* (restored) sad memories.

Bring on – to cause.

Driving carelessly can *bring on* accident.

Bring out – to publish.

The book is banned right after it has been *brought out*.

Call:

Call at – to visit a place.

Jack will *call at* his house later.

Call on – to visit a person.

Mr. Morgan will *call on* you soon.

Call in – to invite.

Please someone help her and *call in* a doctor.

The doctor *called in* the next patient.

Call out – to utter aloud.

The boy *called out*, “I won! I won!”

Carry:

Carry on – to continue.

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Don't be disappointed, *carry on* your hard work.

Carry about – to carry.

My uncle who was a private investigator, always *carries about* a notebook and a pen.

Carry away – remove from *certain place* or mental state.

I was **carried away** when I heard my best friend died in an accident.

Come:

Come across – to meet unexpectedly.

I *came across* her on my way to office.

Come in – to enter.

May I *come in*?

Come out – to appear / to expose.

The businessman *came out* (appeared) at a video conference.

The reason of his disappearance was *come out* (exposed) then.

Come after – to chase.

The dogs *came after* the fox.

Come off – to take place.

A campus cleaning programme is going to be *come off*.

Come round – to recover / to change position or opinion.

She *came round* (recovered) after an expensive surgery after a long time.

She didn't *come round* (didn't change her opinion) to my point of view.

Cut:

Cut down – to cut with stroke / to reduce

The wood cutter *cut* the trees *down* with a chain saw.

You should *cut down* (reduce) your daily fat intake.

Cut off – to separate / to die.

I am *cut off* (separated) from my family since I got this job.

As her sister was *cut off* (died) and so she is brought up with extra care.

Get:

Get away – to escape.

The convicted *got away* from the high security prison.

Get along – to maintain a friendly relationship.

She *gets along* well with me.

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Give:

Give away – to distribute.

The Headmaster has *given away* the prizes.

Give up – to abandon / to put an end.

You have to work hard, don't *give up* (abandon) until you reach your goal.

Give up (put an end) smoking.

Hold:

Hold on – to stop and wait / to stick to

Please *hold on* a second.

She *held on* (stuck) to encourage me throughout my preparation.

Keep:

Keep away – to prevent from coming close.

Fire *keeps away* wild animals.

Keep on – to continue.

The party *kept on* blaming the voters for their defeat.

= *carry on*.

Keep up with – to maintain a pace with.

The public sector units must *keep up* with the latest technology.

Look:

Look after – to take care.

We must *look after* our parents at their old age.

Look for – to search / to expect.

I am *looking for* my glasses.

She didn't *look for* such conduct from you.

Look through – to examine carefully.

You didn't *look through* the question papers.

Make:

Make of – composed of / to understand.

The chair is *made of* (composed of) wood.

What did you *make of* (understand) this lesson?

Make up – to catch up with.

I have to *make up* my previous exam today.

Pass:

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Pass away – to die.

Mr. Bose *passed away* last night.

Pass by – go by.

When I looked out the window I saw a Ford *passed by*.

Put:

Put aside – to set aside / to save.

Put aside your toys and come with me.

I must *put aside* enough money for my father's operation. (= *lay by*)

Put down – to write / to suppress.

Please *put down* (write) what I'm saying.

The movement has been *put down* (suppressed) effectively by the government.

Put on – to wear / to increase.

Put on (wear) your overcoat and follow me. Quick.

She joins the gym because she has *put on* (increased) fifteen pounds.

Run:

Run across – to meet by chance.

We *ran across* her in front of my office after a lapse of five years.

Run after – to chase or persuade.

A dog *ran after* the cat.

Run away – to flee.

Whenever you see me, you *run away*. Why?

Set:

Set aside – to put aside / to suspend or cancel.

Set aside (put aside) your work and listen to me.

The court has *set aside* (cancelled) the conviction.

Set about – to begin.

The US *set about* a war in the middle east years ago.

A bird has *set down* (landed) from the tree.

See:

See off – to attend someone's departure.

My mother has come to *see me off*.

See-through – to perceive or discover.

We couldn't *see through* their intention.

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Stand:

Stand by – to be stick to / to do nothing

She *stood by* me in trouble.

He just *stood by* when the rioters were burning the houses.

Stand for – to represent.

M.P. stands for Member of Parliament.

Stand up for – to support.

She *stood up* for me in trouble.

Take:

Take off – to remove / to start

I *took off* (removed) my sweater.

The plane will *take off* (start) at 8 p.m.

Take up – to occupy / to adopt.

The table doesn't *take up* (occupy) too much space.

I have *taken up* (adopted) marketing as my hobby.

Turn:

Turn on – to switch on or start.

I *turned on* the AC.

Turn off – to switch off.

The refrigerator was *turned off*.

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9. Application of Microscopy in Forensic Biology

Programme	U.G (Science Faculty)		Internal Practical Marks	25
Semester	I		External Practical Marks	25
Course Type	Skill Enhancement Course		Total	50
Credit	02		Exam Duration	1:30 Hrs.
Teaching Hrs.	60		Course Code	SEC-1
Course Title	Application of Microscopy in Forensic Biology			

- ❖ Basic principles of Microscopy
- ❖ Types of Microscopes: Light Microscope & Electric Microscope
 - Simple and Compound microscope,
 - Comparison Microscope,
 - Phase contrast Microscope,
 - Stereoscopic microscope,
 - Polarizing microscope,
 - Fluorescent Microscopy,
 - Infra-red Microscopy,
 - Scanning Electron Microscope (SEM) & Transmission Electron Microscope (TEM)
- ❖ Uses of Microscope.

INTERNAL EVALUATION SCHEME		
NO	Particulars	Marks
1	Mid Semester Exam/ Practical Exam (Mandatory)	13
2	Class Test	03
3	Open book exam/test	03
4	Open note exam/test	03
5	Self-test/ Online test	03

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6	Essay/Article writing	03
7	Quizzes/Objective test	03
8	Class assignment	03
9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03
15	Role Play	03
16	Paper presentation/Seminar	03
17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
	Total	25

Note: Sr.No.1 is mandatory. Select any Four from Sr.No.2 to 24. Each Contains three marks. Student should secure 09 Marks for passing in internal Exam

Practical:

PRACTICAL ASSESSMENT BY UNIVERSITY		
Que. No.	Particulars	Marks
Practical	External Practical	25

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10. Laboratory skills in physics

Programme	U.G (Science Faculty)		Internal Practical Marks	25
Semester	I		External Practical Marks	25
Course Type	Skill Enhancement Course		Total	50
Credit	02		Exam Duration	1:30 Hrs.
Teaching Hrs.	60		Course Code	SEC-1
Course Title	Laboratory skills in physics			

Course Objectives and learning outcome

The course will provide its learners a primary practical exposure to the physics laboratory skills in terms of handling of electronic and optical instruments, various types of hazards and its safety measures including first aid and disaster management.

To Understand the basic principles, construction, working of various measuring instruments and their applications.

To acquire the knowledge about the basic concepts Vernier calipers, Micrometer screw, Spherometer, Wheatstone Bridge etc.

To understand working function of Wheatstone Bridge

- At the end of course, students will be able to

Understands the basic knowledge about working of various instruments and their application.

Learn and understand construction and use of various measuring instruments.

Syllabus

Unit-1 **Vernier Calipers:** Introduction, Theory, Figure, Description of the instrument, Detail study of Least count, Method of taking observation with the help of Vernier Calipers.

Micrometer Screw: Introduction, Theory, Figure, Description of the instrument, Definition of pitch and its determination, study of least count, Method of taking observation with the help of Micrometer Screw.

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Unit-2 **Spherometer:** Introduction, Theory, Figure, Description of the instrument, to determine the pitch of the screw, To determine the least count of the spherometer, Zero error, Derivation of the formula for the radius of curvature of a curved surface.

Wheatstone Bridge: Introduction, Theory with figure, The figure of meter bridge used in laboratory, construction of Meter bridge. Post-Office box: Introduction, Theory, Circuit Diagram, Theoretical
 Circuit diagram, explanation of working with necessary formula.

INTERNAL EVALUATION SCHEME		
NO	Particulars	Marks
1	Mid Semester Exam/ Practical Exam (Mandatory)	13
2	Class Test	03
3	Open book exam/test	03
4	Open note exam/test	03
5	Self-test/ Online test	03
6	Essay/Article writing	03
7	Quizzes/Objective test	03
8	Class assignment	03
9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03
15	Role Play	03
16	Paper presentation/Seminar	03
17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
	Total	25

Note: Sr.No.1 is mandatory. Select any Four from Sr.No.2 to 24. Each Contains three marks. Student should secure 09 Marks for passing in internal Exam

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Practical:

PRACTICAL ASSESSMENT BY UNIVERSITY		
Que. No.	Particulars	Marks
1	Perform practical and calculate parameter for given practical.	25
2	Viva/Demonstration of practical skills related to identification and handling of equipment and Explanation of practical assignment work undertaken.	
3	Continuous internal assessment may also include active participation in activities and demonstration of skill achievement	

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11. Fashion Studies

Programme	U.G (Science Faculty)		Internal Practical Marks	25
Semester	I		External Practical Marks	25
Course Type	Skill Enhancement Course		Total	50
Credit	02		Exam Duration	1:30 Hrs.
Teaching Hrs.	60		Course Code	SEC-1
Course Title	Fashion Studies			

OBJECTIVE

1. This course helps in understanding concept of fashion and the factors that affect fashion.
2. Its enables the students to familiarize with fashion terminology.
3. Understanding of the fashion trends is must for garment designers to make their designs acceptable in Market.
4. Thus this is a very important course for students.

PRACTICAL

1. To collections of famous designers photographs Garment from internet which is related to the field.
2. To make Fashion Accessories — (Any Two)
 - a. Jewellery
 - b. Hand Bag
 - c. Purses
 - d. Broach
 - e. Belt
3. Sketching of elements design
4. Sketching of Principles design
5. Project work — Fashion Accessories / Fashion Style / Fashion Collection

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RECOMMENDED READINGS

1. Fashion Design Essentials: 100 Principles of Fashion Design - Rockport I Jay Calderin
2. The culture of Fashion - Christopher Breward
3. Fashion and Modernity O Christopher Breward
4. Fashion logy: An Introduction to Fashion Studies - Yuniya Kawamura
5. Fashion and Its Social Agendas: Class, Gender, and Identity in Clothing – DianaCrane
6. Fashion Cultures: Theories, Explorations and Analysis - Stella Bruzzi
7. Ready to Wear Apparel Analysis. Prentice Hall, Brown, Patty, Rice J., 1998.
8. Individuality in Clothing & Personal, Marshall S G, Jackson H O, Stanley MS, Kefge M &Specht T, 2009.
9. Appearance, 6th Edition, Pearson Education, USA.
10. The Complete Book of Fashion Design, Harper and Row Publications, Tate S.L., Edwards M.S., 1982, New York
11. Dr.veena s. samani(2012) :apparel making part- I Saurashtra university — Rajkot

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INTERNAL EVALUATION SCHEME		
NO	Particulars	Marks
1	Mid Semester Exam/ Practical Exam (Mandatory)	13
2	Class Test	03
3	Open book exam/test	03
4	Open note exam/test	03
5	Self-test/ Online test	03
6	Essay/Article writing	03
7	Quizzes/Objective test	03
8	Class assignment	03
9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03
15	Role Play	03
16	Paper presentation/Seminar	03
17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
	Total	25

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Practical:

PRACTICAL ASSESSMENT BY UNIVERSITY		
Que. No.	Particulars	Marks
Practical	External Practical	25

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12. Microscopy

Programme	UG (Science Faculty)	Practical External Marks	25
Semester	I	Practical Internal Marks	25
Course Type	Skill Enhancement Course-1	Total	50
Credit	02	Exam Duration	-
Teaching Hrs.	4 Hrs/ Week	Practical Exam Duration	1:30 Hrs.
Internal Marks	25	Course Code	
Course Title	Microscopy		

- ❖ Basic principles of Microscopy
- ❖ Types of Microscopes: Light Microscope & Electric Microscope
 - Simple and Compound microscope,
 - Comparison Microscope,
 - Phase contrast Microscope,
 - Stereoscopic microscope,
 - Polarizing microscope,
 - Fluorescent Microscopy,
 - Infra-red Microscopy,
 - Scanning Electron Microscope (SEM) & Transmission Electron Microscope (TEM)
- ❖ Uses of Microscope.

❖ INTERNAL EVALUATION SCHEME		
NO	Particulars	Marks
1	Mid Semester Exam/ Practical Exam (Mandatory)	13
2	Class Test	03
3	Open book exam/test	03
4	Open note exam/test	03
5	Self-test/ Online test	03
6	Essay/Article writing	03
7	Quizzes/Objective test	03
8	Class assignment	03

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9	Home assignment	03
10	Reports Writing	03
11	Research/Dissertation	03
12	Case Studies	03
13	Viva/Oral exam	03
14	Group Discussion	03
15	Role Play	03
16	Paper presentation/Seminar	03
17	Language Lab work	03
18	Interview	03
19	Craft work	03
20	Co-curricular work	03
21	Field Assignment	03
22	Poster Presentation	03
23	Attendance	03
24	Project Work	03
	Total	25

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Practical:

PRACTICAL ASSESSMENT BY UNIVERSITY		
Que. No.	Particulars	Marks
Practical	External Practical	25