Royal College of Arts Science and Commerce (Autonomous)

Affiliated to University of Mumbai

Program: B.Sc.

Course: BOTANY

Syllabus for Semester: I and II

Syllabus for Undergraduate Programme as per

National Education Policy (NEP-2020) with effect from the academic year 2024-2025

NEP Credit Structure for Science

Level	Sem	Major		Minor	OE	VSC	SEC	AEC	IKS	VEC	OJT/FP /RP/CC /CEP	Cumulative Credits	
		DSC	DSE										
4.5	I	6 (4Th + 2 Pr)		4+2 (4Th + 2 Pr)	2	2		2	2	2		22	UG Certificate Cumulative Credit:44
	II	6 (4Th + 2 Pr)		4+2 (4Th + 2 Pr)	2		2	2		2	2	22	
Exit Option: Award of UG Certiflcate in Major with 40 -44 Credits and an Additional 4 Credits Core NSQF Course / Internship OR Continue with Major and Minor													
5	III	8 (6Th + 2 Pr)		4 (2 Th + 2 Pr)	2+2		2	2			2	22	UG Diploma Cumulative Credit:88
	IV	8 (6Th + 2 Pr)		4 (2 Th + 2 Pr)	2+2		2	2			2	22	
Exit Option: Award of' UG Diploma in Major and Minor with 80-88 Credits and an Additional 4 Credits Core NSQF Course / Internship OR Continue with Major and Minor													
5.5	V	10 (8Th + 2 Pr)	4 (2Th + 2 Pr)			4					4	22+	UG Degree Cumulative Credit:132
	VI	10 (8Th + 2 Pr)	4 (2Th + 2 Pr)			4					4	22	
	Total	**48**	**8**	**20**	**12**	**10**	**6**	**8**	**2**	**4**	**14**	**132**	

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PROGRAM LEARNING OUTCOMES	
PLO1	To demonstrate a deep understanding of the fundamental principles and theories in Botany along with their practical applications
PLO2	Analyse the diversity of plants interpret their intricate relationships within various ecosystems.
PLO3	Evaluate the influence of environmental factors, genetics, diversity, and evolutionary processes on the morphology, physiology, and behaviour of plants, enabling a nuanced understanding of their adaptation and survival strategies
PLO4	Apply critical thinking skills to assess complex biological phenomena and solve problems encountered in botanical research, and raise awareness about ethical and environmental issues to address contemporary challenges in biological research.
PLO5	Achieve proficiency in laboratory techniques in fields of applied sciences which includes molecular biology, plant tissue culture, bioinformatics, microscopy, an

Semester I

Syllabus

B.Sc. (Botany)

(Sem.- I) Course I (Mandatory)

Name of the Course: Plant Diversity & Human Welfare I

Course/ Paper Title	**Plant Diversity & Human Welfare I**
Course offered as	**Major**
Course Code	**RUSBOMJ101**
Semester	**1**
No. of Credits	**2**
No. of lecture Hours/week	**2**

Course Learning Objectives (CLO): To enable the students,
CLO 1.: Identify the major groups of organisms amongst plants.
CLO 2.: Classify the major groups of organisms amongst plants.
CLO 3.: Compare and distinguish the characteristics Cryptogams and Phanerogams.
Course Outcomes (CO): The learner will be able to
CO 1.: Identify the major groups of organisms amongst plants.
CO 2.: Classify the major groups of organisms amongst plants.
CO 3.: Compare and distinguish the characteristics of Cryptogams and Phanerogams that differentiate them from each other.

Module 1: Plant Diversity I **15 Lectures**

1. Microbiology

i) General characteristics of bacteria

ii) Cell structure

iii) Nutrition

iv) Reproduction- vegetative, asexual and sexual Examples: Photosynthetic bacteria / Symbiotic bacteria etc.

2. Algae

i) General characteristics of Chlorophyta and Classification (as per G. M. Smith, 1955)

ii) Systematic position and life cycle (excluding developmental stages of sex organs) of *Spirogyra*.

3. Fungi

i) General characters of Phycomycetae and Classification (as per G. M. Smith, 1955)

ii) Systematic position and life cycle (excluding developmental stages of sex organs) of *Rhizopus*

4. Bryophyta

i) General characters of Hepaticeae and Classification (as per G. M. Smith, 1955)

ii) Systematic position, structure, and life cycle, (excluding developmental stages of sex organs) of *Riccia*

Module 2: Human Welfare I **15 Lectures**

1. **Applied Microbiology:** Utilization of microbes in Industry, Agriculture, Food and Pharmaceuticals, and Environment management citing one example for each.

2. **Applied Phycology:** Utilization of Algae in Biofuel Industry, Agriculture, Pharmaceuticals, Food/Space Food and role in Environment management, Seaweeds citing one example for each.

3. **Applied Mycology:** Utilization of Fungi in Industry, Agriculture, Food and Pharmaceuticals, Environment management citing one example for each.

4. **Applied Bryology:** Utilization of Bryophytes, Uses of Sphagnum and the peat, Medicinal uses, Use as pollution indicators & Soil conservation citing one example for each

Course II (Mandatory)

Name of the Course: Forms and Functions I

Course/ Paper Title	**Forms and Functions I**
Course offered as	**Major**
Course Code	**RUSBOMJ102**
Semester	**1**
No. of Credits	**2**
No. of lecture Hours/week	**2**

Course Learning Objectives (CLO): To enable the students to
CLO 1.Identify the structure and functions of the Cell and cell organelles in plants.
CLO 2. Describe the Cell cycle and cell division in plants.
CLO 3. Apply the biostatistics and epistasis concepts.
CLO 4. Comprehend the ecology and environment conservation.

Course Outcomes (OC): The Learner will be able to
CO 1. Identify the structure and functions of the Cell and cell organelles in plants.
CO 2. Demonstrate and describe the Cell cycle and cell division in plants.

CO 3. Comprehend the biostatistics and epistasis application.
CO 4. Apply the ecology and environmental conservation concepts.

Detailed Syllabus

Name of the Course: Forms and Functions I (Mandatory)

Module 1: Cytogenetics and Biostatistics 15 Lectures

1. Ultrastructure and functions of Cell wall, Plasma membrane

2. Ultrastructure and functions of the cell organelles – Endoplasmic reticulum, Mitochondrion

3. Cell cycle, Mitosis in Plant Cells and its significance.

4. Genetically Modified plants.

5. Gene Interaction – Introduction and definition, Concept of epistatic and non-epistatic interactions.

6. Biostatistics – Concept of biostatistics, Applications and limitations, Common Statistical Terms, types of data.

7. Measures of central tendency: Mean, Median, Mode, and Measures of dispersion: Range, Standard deviation.

Module 2: Ecology and Environment conservation 15 Lectures

1. Introduction to Ecology: Concept, need and Scope.

2. Ecosystem - Types of ecosystems (Terrestrial & Aquatic), functions of ecosystem.

3. Environmental problems and its Impact - Natural & artificial ecological imbalance, climate change (ozone depletion, greenhouse effect).

4. Conservation - Introduction, Definition & importance of Conservation, in situ and ex situ conservation, Miyawaki method of plantation, Government acts.

. Ex-situ conservation: botanical gardens and zoological parks, seed bank, gene bank.

· In-situ conservation: Wildlife sanctuaries, National parks, Biosphere reserves and Sacred Groves
· Ecotourism.

Name of the Course: Practicals (Mandatory) Credits: 2

Course/ Paper Title	**SEMESTER I**
Course offered as	**Major**
Course Code	**RUSBOMJP1**
Semester	**1**
No. of Credits	**2**
No. of lecture Hours/week	**4**

Course Learning Objectives (CLO):

- **CLO1**: Develop hands-on skills in identifying vegetative and reproductive structures of various species and perform fundamental microbiological techniques like gram staining and media preparation.
- **CLO2**: Enhance understanding of cellular structures, including organelles and cell division, using microscopic techniques and laboratory practices.
- **CLO3**: Apply biostatistical methods to analyze biological data, including calculating central tendencies and graphically representing data.
- **CLO4**: Identify plant adaptations and investigate ecological conservation methods through field visits and hands-on studies of in-situ and ex-situ conservation techniques.

Course Outcomes (CO):

- **CO1**: Conduct microscopic examinations and identify vegetative and reproductive structures of organisms like Spirogyra, Rhizopus, and Riccia.
- **CO2**: Perform aseptic techniques, including media preparation, and demonstrate proficiency in gram staining and karyotyping.
- **CO3**: Apply statistical techniques to biological problems, calculate measures of central tendency and dispersion, and graphically present data using tools like Excel.

- **CO4**: Identify and classify morphological adaptations of plants (mesophytes, xerophytes, hydrophytes, halophytes) and evaluate conservation methods through field visits and exploration of ecological conservation practices.

Semester I

1. Study of vegetative and reproductive structures of *Spirogyra.*

2. Study of vegetative and reproductive structures of *Rhizopus.*

3. Study of vegetative and reproductive structures of *Riccia*.

4. Gram staining of Bacteria.

5. Aseptic techniques, preparation of media (PDA, NA), preparation of plates and slants.(Demonstration)

6. Identification and Economic importance of marine algae, fungi, bryophytes.

7. Study of Mushroom cultivation (Demonstration).

8. Identification of parts of cell and cell organelles with the help of permanent slides /photomicrographs/ Virtual Laboratory:Endoplasmic reticulum, Mitochondrion, Cell wall, Plasma membrane.

9. Study of various stages of mitosis in root tip cells (*Allium*).

10.To perform karyotyping on root tip cells of *Allium cepa* to observe and analyse chromosome morphology.

11.Problems based on Epistatic and non-epistatic interactions.

12.Calculation of mean, median and mode, standard deviation.

13.Graphical representation of data: Frequency polygon, Histogram, Ogive, Bar diagram, Pie charts. (Using Excel Sheet)

14.Morphological Adaptations of plants. (Mesophytes, Xerophytes). (Identification)

15.Morphological Adaptations of plants. (Hydrophytes, Halophytes). (Identification)

Field Visit: Exploration of In-Situ / Ex-Situ Conservation Methods in Botany (Visit)

Reference Books

1. College Botany Volume I and II Gangulee, Das and Dutta (latest edition).

2. Cryptogamic Botany Volume I and II by G M Smith McGraw Hill.

3. Genetics by Russel. Wesley Longman Inc. publishers.

4. Plant Physiology by Taiz and Zeiger Sinauer Associates Inc. Publishers

5. Fundamentals of Ecology by E P Odum and G W Barrett. Thompson Asia Pvt Ltd. Singapore.

6. Cell Biology by De Robertis

7. Biostatistics and Biometry by Parihar and Parihar

8. Introduction to Biostatistics by Pranab Kumar Banerjee

Semester II

Course I

Name of the Course: Plant Diversity & Human Welfare II (Mandatory)

Course/ Paper Title	**Plant Diversity & Human Welfare II**
Course offered as	**Major**
Course Code	**RUSBOMJ201**
Semester	**2**
No. of Credits	**2**
No. of lecture Hours/week	**2**

Course Objectives (CLO): To enable the students

CLO 1. Classify the major groups of organisms amongst plants.
CLO 2. Describe systematic position of the major groups of organisms amongst plants.
CLO 3. Compare and contrast the characteristics of plants.

Course Outcomes (CO): The Learner will be able to
CO1. Classify the major groups of organisms amongst plants.
CO2. Describe systematic position of the major groups of organisms amongst plants.
CO3. Compare and contrast the characteristics of plants.

Module 1: Plant Diversity II 15 Lectures

1. Pteridophytes
i. General characters of Pterophyta and Classification as per G.M. Smith (1955)
ii. Systematic position, and life cycle (excluding developmental stages of sex organs) of *Adiantum***.**

1. Gymnosperms
i. General characters of Cycadophyta and Classification as per Chamberlain (1934)
ii. Systematic position, and life cycle (excluding developmental stages of sex organs) of *Cycas*

3. Angiosperms
iii. Inflorenscence and its types. Study of flower- Terminology, Parts of typical flower, floral whorls – a) Calyx with their modifications and types of aestivations b) Corolla- Forms – Cruciform, Papilionaceous, Infundibuliform and bilabiate, c) Perianth, d) Androecium- Parts of stamen, cohesion and adhesion, e) Gynoecium- Parts of carpel, Apocarpous and Syncarpous, f) types of placentation**.**

Module 2: Human Welfare II 15 Lectures

1. **Applications of Pteridophytes:** Utilization of Pteridophytes as food, pharmaceuticals, ornamental and environment management (source, parts used, uses citing two examples of each).

2. **Applications of Gymnosperms:** Utilization of Gymnosperms as timber, turpentine, and pharmaceuticals (source, parts used, uses citing two examples of each).

3. **Applications of Angiosperms:** Utilization of Angiosperms as food, fibres, spices, condiments, and essential oils (source, parts used, uses citing two examples of each).

Course II
Name of the Course: Forms and functions II (Mandatory)

Course/ Paper Title	Forms and functions II
Course offered as	Major
Course Code	RUSBOMJ202
Semester	2
No. of Credits	2
No. of lecture Hours/week	2

Course Learning Objectives (CLO): To enable the students to
CLO 1. Correlate anatomy, taxonomy, physiology, and ecology.
CLO 2. Identify the plant tissue system and their functions.
CLO 3. Apply the knowledge of medicinal botany to daily life.

Course Outcomes (CO): The Learners will be able to
CO 1. Correlate anatomy, taxonomy, physiology, and ecology.
CO 2. Identify and describe the plant tissue system and their functions.
CO 3. Apply the knowledge of medicinal botany to daily life.

Module 1: Plant Anatomy **15 Lectures**

1. Introduction, and scope of Anatomy in relation to Taxonomy, Physiology and Ecology.
2. Functional Tissue System:
o Storage tissues - Parenchyma,
o Mechanical Tissues - Collenchyma, Sclerenchyma
o Conducting tissues - Xylem and Phloem.
3.Adaptive and protective Epidermal Tissue System:
o Epidermal Tissue System- Functions of epidermis,
o Epidermal appendages - A) Hair-Root hair, Unicellular hair, and Multicellular hair B) Scales C) Colleters D) Water vesicles/Bladders.
4. Internal Primary architecture of dicot and monocot root, stem, and leaf.
5. Types of stomata: Diacytic, Paracytic, Anomocytic, Anisocytic and Graminaceous
6. Types of vascular bundles.
7. Cell Inclusions – Starch, protein, Calcium oxalate and calcium carbonate crystals.

Module 2: Botanicals and its applications **15 Lectures**

1. Medicinal Botany - Plant resources used in cosmetics, aromatics and pharmaceutics
o Introduction and scope.
o Herbal preparations - Emulsion making technique for Mask, Lotion, Gel
o Methods of extraction – Maceration, digestion, decoction, aromatic waste, leachates and tinctures.
2. Explain with reference to Botanical name, family, part used, products and uses:
o Cosmetics - Aloe, Henna,
o Aromatics - Lemon grass and Rose
o Pharmaceuticals - Turmeric and Amla
o Beverages - Non-alcoholic - Tea, Coffee, Cocoa
3. Grandma's Pouch: Botanical name, common name, family, constituents, biological source and uses of: Tulsi, Ginger, Adulsa, Clove.

Name of the Course: Practicals (Mandatory) 60 Hours Credits:02

Course/ Paper Title	**SEMESTER II**
Course offered as	**Major**
Course Code	**RUSBOMJP2**
Semester	**2**
No. of Credits	**2**
No. of lecture Hours/week	**4**

Course Learning Objectives (CLO): To enable the students

CLO1: identity the vegetative and reproductive structures of key plant groups such as Pteridophytes and Gymnosperms .

CLO2: Explore the morphological features of inflorescences and flowers, and relate these to their theoretical understanding.

CLO3: Examine the role of Pteridophytes, Gymnosperms, and Angiosperms in human welfare, including their uses in medicine, food, timber, and pharmaceuticals.

CLO4: Study the anatomical structures of monocot and dicot roots and stems and understand their primary structures.

CLO5: Investigate specialized plant structures such as vascular bundles, stomata types, epidermal outgrowths, and cell inclusions.

CLO6: Develop skills in extracting botanicals using various methods (decoction, maceration) and prepare botanical-based cosmetic products.

CLO7: Gain knowledge of commonly used medicinal plants through "Grandma's Pouch," focusing on their botanical name, common name, family, constituents, and uses.

Course Outcomes (CO): The Learner will be able to

CO1: Master the identification and understanding of reproductive structures in **Pteridophytes** and **Gymnosperms**.

CO2: Develop expertise in recognizing and classifying various **inflorescences** and **flowers**.

CO3: Appreciate the practical applications of **Pteridophytes**, **Gymnosperms**, and **Angiosperms** in industries related to human welfare.

CO4: Demonstrate knowledge of the primary anatomical differences between **monocot** and **dicot roots** and **stems**.

CO5: Investigate the structure and function of specialized plant features, contributing to an understanding of plant physiology.

CO6: Develop skills in botanical extraction and product formulation using plant-based compounds.

CO7: Gain insight into the traditional uses of medicinal plants and their biological constituents.

List of Practicals:

1. Study of vegetative and reproductive structures of *Adiantum*.
2. Study of vegetative and reproductive structures of *Cycas*.
3. Morphology of Inflorescence. (As per theory).
4. Morphology of flower. (As per theory).
5. Study of Pteridophytes in human welfare: medicinal, ornamental, food (As per theory).
6. Study of Gymnosperms in human welfare: food, timber, turpentine and pharmaceutical sources (As per theory).
7. Study of Angiosperms in human welfare: plants: food, fiber, spices, condiments, medicinal, ornamental (As per theory).
8. Study of essential oils of *Citronella* by TLC.
9. Primary structure of dicot and monocot root.
10. Primary structure of dicot and monocot stem.
11. Study of vascular bundles from suitable plant material.
12. Study of Diacytic, Paracytic, Anomocytic, Anisocytic and Graminaceous stomata.
13. Study of Epidermal outgrowths.
14. Study of Cell Inclusion.
15. Extraction of botanicals using: Decoction, Cold Maceration.
16. Prepare Face mask, Gel, Lotion using botanicals.
17. Grandma's Pouch: Botanical name, common name, family, constituents, biological source and uses of: Tulsi, Ginger, Adulsa, Clove

Reference Books

1. College Botany Volume I and II Gangulee, Das and Dutta latest edition. Central
Education enterprises
2. Cryptogamic Botany Volume I and II by G M Smith McGraw Hill.

3. Plant Anatomy by B. P. Pandey
4. Plant Anatomy by A. Fahn
5. Taxonomy of Angiosperms by A.V.S.S. Sambamurty
6. Taxonomy of Angiosperms – Taxonomy, Systematic Botany, Economic Botany, Ethnobotany, Saras Publication
7. A Text Book of Botany: Angiosperms by B.P. Pandey
8. Manual of Ethnobotany by S. K. Jain (latest edition)
9.Herbal Remedies by Urjita Jain.

Royal College of Arts Science and Commerce (Autonomous)

Affiliated to University of Mumbai

Program: UG First Year Programme

Course: OPEN ELECTIVE OF BOTANY

Syllabus for Semester: I and II

Syllabus for Undergraduate Programme as per

National Education Policy (NEP-2020) with effect from the academic year 2024-2025

Semester I

Name of the Course: Organic farming and Biofertilizers

Course/ Paper Title	**Organic farming and Biofertilizers**
Course offered as	**Open Elective**
Course Code	**RUSBOOE101**
Semester	**1**
No. of Credits	**2**
No. of lecture Hours/week	**2**

Course Learning Objectives (CLO): To enable students	
CLO. 1	. Acquire knowledge of Organic farming.
CLO. 2.	Identify and describe biofertilizers and their significance.
CLO. 3.	Comprehend about marketing organic products, consumer demand and the economic aspect of Organic farming.

Course Outcomes (CO): Students will be able to:	
CO. 1	Discuss various principles, need and prospect of Organic farming.
CO. 2.	Describe biofertilizers and their significance.
CO. 3.	Explain about marketing organic products, consumer demand and the economic aspect of Organic farming

Module 1: Organic farming **15 hours**

1. Introduction to Organic farming

2. Need and limitations of Organic farming in the present context and future prospects

3. Inspection, Certification & Labelling procedure

4. Marketing & Export

5. Visit to Organic farm to study the various components, identification and utilization of Organic products.

Module 2: Biofertilizers **15 hours**

1. Definition, Introduction of Biofertilizers and its role in Agriculture.

2. Types of biofertilizers based on nature and function:

a. Nitrogen fixing: Bacteria, Blue-green algae, *Azolla*

b. Compost

c. Vermicompost

3. Fungal Biofertilizer: *Trichoderma* (Culturing and utilization as biofertilizer)

4. Advantages and limitations of Biofertilizers

Reference Books:

1. Kumarasan. B, 2001, Biotechnology, Saras Publication, Tamil Nadu.

2. Dubey, R.C., 2001, Text Book of biotechnology, S. Chand & Co., New Delhi.

3. Bagyaraj, D.J., & Rangasamy A.,2005, Agricultural Microbiology- Tata McGraw Hill., New Delhi

4. Subba Rao, N.S.,1995, Biofertilizers, Oxford and IBH Publishing Co., Pvt. Ltd., New

5. Handbook of Microbial Biofertilizers M. K. Rai, PhD Editor, Food Products Press®, an imprint of The Haworth Press, Inc., 10 Alice Street, Binghamton, NY 13904- 1580. 2006 by The Haworth Press, Inc.

6. Sharma, Arun K. 2002. A Handbook of Organic farming. Agrobios, India.

7. S.P. Palaniappan, K. Annadurai, 1999. Organic Farming- Theory and Practice, Scientific Publishers, Jodhpur, India.

8. Dushyent Gehlot. 2005. Organic Farming- standards, accreditation, certification and inspection. Agribios, India.

Semester II

Name of the Course: "Plants in Everyday Life: A Botanical Exploration"

Course/ Paper Title	**Plants in Everyday Life: A Botanical Exploration**
Course offered as	**Open Elective**
Course Code	**RUSBOOE201**
Semester	**2**
No. of Credits	**2**
No. of lecture Hours/week	**2**

Course Learning Objectives (**CLO)**: To enable students:	
CLO. 1	Recognize the botanical significance of plants in everyday life.
CLO. 2.	Demonstrate practical applications of plants in various fields, including medicine and nutrition.
CLO. 3.	Comprehend cultural and traditional importance of plants in different societies.

Course Outcomes (CO): The students will be able to:	
CLO. 1	Identify and describe the role of plants in daily life.
CLO. 2.	Apply botanical knowledge in various fields, including medicine and nutrition.
CLO. 3.	Reflect on cultural and traditional relation between humans and plants.

Module 1:

Everyday Plants and Their Roles in Daily Life (15 lectures)

1.1 Ornamental plants

Examples: Spider Plant, Snake Plant, Peace Lily etc.

1.2 Plants in Cooking (Traditional and exotic)

Examples: Basil, Rosemary, Mint etc.

1.3 Plants in Home Décor (Indoor and Outdoor plants)

Examples: Succulents like Aloe Vera, Jed Plant, Pothos etc.

1.4 Plants in Healing (Appetizers, Burns, Cold & Cough etc.)

Examples: Turmeric, Chamomile, Mulethi, Rose etc.

Module 2:

Hands-On Botanical Activities for Daily Life (15 Lectures)

2.1 DIY Indoor Gardening

Examples: Creating a terrarium, cultivating herb etc.

2.2 Planting for Sustainability

Examples: Composting kitchen scraps to create nutrient-rich soil and planting native wildflowers to support local ecosystems.

2.3 Botanical Art

Examples: Pressed flower bookmarks using petals from Marigold, creating botanical art with leaves, twigs, seeds etc.

2.4 Reflections on role of "Plants in My Daily Life"

Examples: A multimedia presentation showcasing a student's personal engagement with plants, including photos, reflections, and creative outputs.

Reference Books:

1. Medicinal Plants of India" by C.P. Khare

2. Pharmacognosy and Phytotherapy by Kendall Jefferson

3. Phytochemistry and Pharmacology of Medicinal Plants, 2-volume Set by C. Pullaiah

4. "A Compendium of Medicinal Plants in India" by By P. K. Warrier, V. P. K. Nambiar, C. Ramankutty, Volume 1-5

5. "Medicinal Plants of the Indian Trans-Himalaya: Focus on Tibetan Use of Medicinal Resources" by C.P.Kala

6. "Encyclopedia of Indian Medicinal Plants" by C.P. Khare

7. "Medicinal Plants: Traditions of yesterday and drugs of tomorrow" by Ameenah Gurib-Fakim

8. "Indian Herbal Remedies: Rational Western Therapy, Ayurvedic, and Other Traditional Usage, Botany" by C. P. Khare

9. Conserving medicinal species: securing a healthy future. By International Union for Conservation of Nature and Natural Resources, Sriyanie Miththapala, Ecosystems and

Livelihoods Group.

Examination Pattern:

QUESTION PAPER PATTERN
(External and Internal)

Format of Question Paper: External Theory (Mandatory) 30 marks Time:- 01 hr 30 min			
Q. No.	Descriptor	Module	Marks
Q 1	**Answer the following: (any 2)**	**1**	**10**
A			
B			
C			
D			
Q 2	**Answer the following: (any 2)**	**2**	**10**
A			
B			
C			
D			
Q3	**Write Short Notes on: (any 2)**	**1 and 2**	**10**
A			
B			
C			
D			

Internal Theory (Mandatory) 20 marks

Continuous Evaluation through:	Quizzes, Class Tests, presentation, project, role play, creative writing, assignment etc. (at least 3)