

# FATIMA MATA NATIONAL COLLEGE

AUTONOMOUS

(Reaccredited with 'A' Grade by NAAC)

Affiliated to University of Kerala



## OUTCOME MAPPING

**IQAC** INTERNAL QUALITY ASSURANCE CELL

# **BSc BOTANY**

## PROGRAMME OUTCOMES (POs)

<b>PO 1</b>	<p><b>Nationalistic Outlook and Contribution to National development:</b> Understand the distinct features of nationalistic outlook as enshrined in our Constitution and apply them towards national development, and nurture respect and love for the motherland, showing no discrimination based on gender, caste and creed.</p>
<b>PO 2</b>	<p><b>Fostering Global Competencies, and Technical and Intellectual proficiency:</b> Apply intellectual and technical skill to compete in a global setting and demonstrate proficiency in creating and applying appropriate technique, resources and modern IT tools for ensuring greater personal growth and global outlook.</p>
<b>PO 3</b>	<p><b>Values and Social Commitment:</b> Demonstrate the essence of human values through acts of social commitment, develop professional ethics and responsibilities; function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings; show respect for fellow beings by fair treatment, caring and concern; listen responsively, recognize the contributions of others, and engage in reflective practice; imbibe spirit of selfless service.</p>
<b>PO 4</b>	<p><b>Affective Skills and Integrity of Character:</b> Receive affective skills and organize activities displaying integrity of character, foster qualities such as emotional self-awareness, emotional reasoning and emotional self-management for addressing workplace challenges, and develop personal integrity and character.</p>
<b>PO 5</b>	<p><b>Critical Thinking, Problem Solving and Research-related Skills:</b> Develop critical thinking, and psycho-motor skills, create a sense of inquiry and research skills and take an analytical approach to learning for cutting edge areas.</p>
<b>PO 6</b>	<p><b>Environment and Sustainability:</b> Design measures which meet the global agenda of environment protection and sustainable development, develop consciousness to preserve the earth's finite resources, and wisdom, to balance human needs and the environment, and to instill an environmental consciousness.</p>
<b>PO 7</b>	<p><b>Quest for Excellence:</b> Receive skills towards holistic development and quest for excellence, recognize the need for, and have the preparation and ability to engage in an independent and life-long learning in the broadest context of technological change, develop healthy competition and setting parameters for excellence.</p>

## PROGRAMME SPECIFIC OUTCOMES (PSOs)

<b>PSO 1</b>	Develop linguistic skills and literary sensibility, and demonstrate an awareness on environment, disaster management and its associated problems.
<b>PSO 2</b>	Develop language proficiency, literary sensibility, values and critical thinking
<b>PSO 3</b>	Identify different forms and diversity of plant life
<b>PSO 4</b>	Appraise the pulse of nature and natural beings
<b>PSO 5</b>	Design experimental investigations
<b>PSO 6</b>	Understand the fundamental aspects of Chemistry through qualitative and quantitative investigations.
<b>PSO 7</b>	Develop ecological consciousness and apply it towards the protection of environment

# PSO – PO MAPPING

		POs						
		1	2	3	4	5	6	7
PSOs	1	*				*	*	
	2	*		*				*
	3						*	*
	4		*	*			*	
	5		*		*	*		
	6					*	*	
	7				*	*	*	

## **COURSE OUTCOMES (COs)**

# **SEMESTER I**

**Course Code 19UEN111.1**  
**English I LANGUAGE SKILLS (90 Hours)**  
**Instructional hours per week: 54 credits**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand the basics of Phonetics	1
CO2. Apply language skills in daily life situations.	1
CO3. Demonstrate sophisticated writing skills	1
CO4. Analyze and evaluate English literature	1

**Course Code 19UFR/HN/ML 111.1**  
**Additional Language I (72 Hours)**  
**Instructional hours per week: 43 credits**

**19UFR111.1 COMMUNICATION SKILLS IN FRENCH**

Upon completion of this course, the student will be able to:	PSO
CO1.Demonstrate a good comprehension of simple conversational French.	2
CO2. Use basic French expressions in daily communication	2
CO3.Develop short and intelligible texts in French on simple topics.	2

**19UHN111.1 PROSE AND ONE ACT PLAYS**

Upon completion of this course, the student will be able to:	PSO
CO1.Develop knowledge about various forms of prose genres	2
CO2.Identify the distinct features of theatre and stagecraft	2
CO3.Understand social values and social relationships	2

**19UML 111.1MALAYALA KAVITHA (ADDITIONAL LANGUAGE: I)**

Upon completion of this course, the student will be able to:	PSO
CO1.Identify and illustrate the features of Ancient Literature	2
CO2.Discuss the peculiarities of the Ancient Vocabulary	2
CO3.Categorize different Poetic Styles	2

**Course Code 19UEN121**  
**Foundation Course I WRITINGS ON CONTEMPORARY ISSUES (72 Hours)**  
**Instructional hours per week: 42 credits**

Upon completion of this course, the student will be able to:	PSO
CO1. Analyze issues of human rights in the society	1
CO2. Understand and evaluate grave issues of society	1
CO3. Analyze and address gender issues.	1
CO4. Discuss the effects of substance abuse.	1



**Course Code 19UBO141****Core Course I: ANGIOSPERM ANATOMY AND EMBRYOLOGY**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand the structure and reproduction of angiosperms	3
CO2. Analyze plant cells, tissues and their functions.	4
CO3. Develop a concrete idea about seed and fruit development.	5

**Course Code 19UCH131.3****Complementary Course THEORETICAL CHEMISTRY**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand the the structure of atoms	6
CO2. Understand the basics of bonding in molecules	6
CO3. Evaluate environmental threats	6
CO4. Analyse waste water treatment	6

**Course Code 19UZO131.1****Complementary Course ANIMAL DIVERSITY I**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand the evolution and classification of invertebrate phyla	7
CO2. Understand the basics of systematics	7
CO3. Analyze typical examples in each phylum	7
CO4. Understand the diverse parasitic forms in lower and higher vertebrates	7
CO5. Evaluate the economic importance of invertebrates with the special reference to insect pests	7

# **SEMESTER II**

**Course Code 19UENS211****English II ENVIRONMENTAL STUDIES (72 Hours)****Instructional hours per week: 43 credits**

Upon completion of this course, the student will be able to:	PSO
CO1. Define the scope of Environmental Science and identify the different types of natural resources.	1
CO2. Define and identify the ecosystems and biodiversity around us.	1
CO3. Analyze and assess the types of pollutions and social issues around us.	1
CO4. Understand the impact of population on environment.	1

**Course Code 19UEN212.1****English III ENGLISH GRAMMAR AND COMPOSITION (90Hours)****Instructional hours per week: 54 credits**

Upon completion of this course, the student will be able to:	PSO
CO1. Define and identify the basics of grammar	1
CO2. Identify and explain the different types of sentences.	1
CO3. Apply the rules of grammar in all situations of communication	1
CO4. Design written discourse.	1

**Course Code 19UFR/HN/ML211.1****Additional Language II (72Hours)****Instructional hours per week: 43 credits****19UFR211.1 TRANSLATION & COMMUNICATION IN FRENCH**

Upon completion of this course, the student will be able to:	PSO
CO1. Analyze translated texts.	2
CO2. Apply fine translation skills in the target language.	2
CO3. Demonstrate better language proficiency with the assistance of translation.	2

**19UHN211.1 FICTION, SHORT STORY & NOVEL**

Upon completion of this course, the student will be able to:	PSO
CO1. Recognise various trends in Hindi Novel & Short Stories like Nationalistic outlook, Women empowerment, Dalit Chetana etc...	2
CO2. Develop essential skills of vocabulary enhancement & sentence structure	2
CO3. Identify the nature & character of person. Realise human values	2

**19UML 211.1 GADHYAM : RACHANAYUM PADAVUM**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand different Phases of Malayalam Prose	2
CO2. Demonstrate critical skills	2
CO3. Analyze the relation between Heritage and Culture	2

**Course Code 19UBO221****Foundation Course II****METHODOLOGY AND PERSPECTIVES IN PLANT SCIENCE**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand the basic concepts of scientific knowledge	3
CO2. Apply scientific and statistical knowledge, and microtechnique	4
CO3. Receive ethical and moral values of scientific studies	5

**Course Code 19UCH231.3****Complementary Course INORGANIC AND BIOINORGANIC CHEMISTRY**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand the importance of organometallic compounds	6
CO2. Demonstrate the basics of the use of nuclear chemistry	6
CO3. Understand the fundamentals of transition metal complexes	6
CO4. Analyze the chemistry of biological processes	6
CO5. Analyze the biochemistry of trace elements	6

**Course Code 19UZO231.1****Complementary Course ANIMAL DIVERSITY II**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand the evolution, and classification of chordates	7
CO2. Understand the morphology and physiology of typical examples	7
CO3. Analyze the adaptations exhibited by various vertebrates	7
CO4. Evaluate the economic importance of specific vertebrates	7
CO5. Identify chordates and their systematic positions	7

# **SEMESTER III**

**Course Code 19UEN311.1****English IV READINGS IN LITERATURE I (90 Hours)****Instructional hours per week: 54credits**

Upon completion of this course, the student will be able to:	PSO
CO1.Understand the various forms of Literature.	1
CO2.Analyze the prose writings of Indian authors.	1
CO3.Evaluate the poems by Indian authors.	1
CO4. Appraisal of short stories in English by Indian authors.	1

**Course Code 19UFR/HN/ML311.1Additional Language III (90 Hours)****Instructional hours per week: 54 credits****19UFR311.1 LITERATURE IN FRENCH**

Upon completion of this course, the student will be able to:	PSO
CO1.Demonstrate knowledge of French and Francophone literature.	2
CO2.Develop literary sensibility in French and Francophone literature.	2
CO3.Interpret simple literary texts in French and thereby enrich one's vocabulary.	2

**19UHN311.1 POETRY AND GRAMMAR**

Upon completion of this course, the student will be able to:	PSO
CO1.Interpret the ideology of different Poets	2
CO2.Demonstrate positive approach towards nature & society	2
CO3.Analyse the features of Ancient, Medieval & Modern Poems	2
CO4. Apply the rules of grammar in all situations of communication	2

**19UML311.1 DRISHYAKALA SAHITHYAM-BHAGAM 1**

Upon completion of this course, the student will be able to:	PSO
CO1.Develop Critical View and Creativity	2
CO2. Understand Racial, Gender, Environmental Issues	2
CO3. Analyze how language becomes a medium of culture	2

**Course Code 19UBO341****Core Course II LOWER PLANTS-I AND PLANT PATHOLOGY**

Upon completion of this course, the student will be able to:	PSO
CO1. Identifying and characterize the lower plant groups	3
CO2. Understand the role of microbes in the survival and sustenance of the earth.	4
CO3. Identify various plant diseases and their effective control measures.	5

**Course Code 19UCH331.3:****Complementary Course PHYSICAL CHEMISTRY**

Upon completion of this course, the student will be able to:	PSO
CO1. Analyze the rates of chemical reactions	6
CO2. Demonstrate the basics of ionic equilibria	6
CO3. Understand the fundamentals of radioactivity	6
CO4. Analyze different liquid systems and dilute solution	6
CO5. Analyze the biochemistry of trace elements	6
CO6. Identify the properties of colloidal and its applications	6

**Course Code 19UZO331.1****Complementary Course FUNCTIONAL ZOOLOGY**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand the metabolic process in the human body.	7
CO2. Identify the causes of physiological disorders, and diseases.	7
CO3. Evaluate physiological process with reference to human being	7
CO4. Analyze hormones and its regulatory pathway	7
CO5. Appraise the role of immunity and the need for vaccination	7

# **SEMESTER IV**



**Course Code 19UEN411.1****English V READINGS IN LITERATURE II (90 Hours)****Instructional hours per week: 54 credits**

Upon completion of this course, the student will be able to:	PSO
CO1. Critically analyse poetry in English	1
CO2. Understand and demonstrate the dynamics of theatre	1
CO3. Analyze prose pieces in English	1
CO4. Evaluate literature in the global context.	1

**Course Code 19UFR/HN/ML411.1****Additional Language IV (90 Hours)****Instructional hours per week: 54 credits****19UFR411.1 CULTURE AND CIVILIZATION**

Upon completion of this course, the student will be able to:	PSO
CO1. Identify the distinct features of French culture and civilization	2
CO2. Appraise role of cultural knowledge in learning a foreign language.	2
CO3. Compare cultural practices as they relate to French and one's own culture.	2

**19UHN411.1 DRAMA, TRANSLATION & COMMUNICATIVE HINDI**

Upon completion of this course, the student will be able to:	PSO
CO1. Evaluate literary texts against the corresponding social backgrounds	2
CO2. Understand theory & practice of Translation	2
CO3. Develop skills of writing letters in official language Hindi	2
CO4. Develop communication skills in Hindi	2

**19UML411.1 DRISHYAKALA SAHITHYAM- BHAGAM 2**

Upon completion of this course, the student will be able to:	PSO
CO1. Develop creative and critical skill	2
CO2. Analyze Racial, Gender and Environmental Issues	2
CO3. Analyze Language as a medium of culture	2

**Course Code 19UBO441:****Core Course III LOWER PLANTS-II AND PALEOBOTANY**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand the unique and general features of lower plants	3
CO2. Identify the morphology, anatomy and reproduction of different members of lower plants.	4
CO3. Evaluate the economic and ecological significance of lower plants and the application of Paleobotany.	5

**Course Code 19UCH431.3****Complementary Course ORGANICCHEMISTRY**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand the chromatographic techniques	6
CO2. Analyze the structure and functions of aminoacids, proteins and nucleicacids	6
CO3. Understand the basics of stereochemistry	6
CO4. Identify the structure and importance of Oils, Fats, Detergents, Alkaloids, Vitamins and Terpenes.	6
CO5. Classify dyes and drugs and demonstrate their uses	6

**SEMESTER- III & IV****Course Code 19UCH432.3: LABORATORY COURSES**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand the reactions of functional groups in organic compounds:	6
CO2. Identify the organic compounds	6
CO3. Demonstrate micro scale analysis	6
CO4. Demonstrate accuracy and precision in volumetric estimations	6
CO5. Compile the data on experiments	6

**Course Code 19UZO431.1: Applied Zoology**

Upon completion of this course, the student will be able to:	PSO
CO1. Categorize the concepts of traditional methods of aquaculture	7
CO2. Understand sericulture, poultry farming and management.	7
CO3. Evaluatec the principles of genetics, and genetic counseling.	7
CO4. Understand the basic concepts of early embryonic development	7
CO5. Appraise the role of biology in stem cell tharapy, tissue engineering, and regenerative medicine	7

**19UZO432.2: Practical**

Upon completion of this course, the student will be able to:	PSO
CO1. Demonstrate simple dissections and mountings	7
CO2. Identify conventional organ system in animals	7
CO3. Inspect economically important specimen (preserved)	7
CO4. Demonstrate routine clinical analysis of blood and urine	7

# **SEMESTER V**

**Course Code 19UB0541****Core Course IV ANGIOSPERM SYSTEMATICS AND ECONOMIC BOTANY**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand the plant morphological terminologies.	3
CO2. Identify angiosperms upto the family level.	4
CO3. Judge angiosperm classification and discuss plant nomenclature	5
CO4. Identify the morphologically, economically and ethnobotanically useful plant products.	6

**Course Code 19UB0542****Core Course V ENVIRONMENTAL STUDIES AND PHYTOGEOGRAPHY**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand ecology and the need for conserving resources	3
CO2. Identify the distribution of vegetation in different zones	4
CO3. Evaluate environmental problems and social issues	5
CO4. Organize waste management through pollution control methods	6

**Course Code 19UB0543****Core Course VI CYTOLOGY, GENETICS AND EVOLUTION**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand structure and functions of cells and its organelles.	3
CO2. Demonstrate Mendelian & Non-Mendelian experiments.	4
CO3. Identify different theories and mechanisms of evolution.	5

**Course Code 19UB0544****Core Course VII PRACTICAL-I**

Upon completion of this course, the student will be able to:	PSO
CO1. Identify structure of cells and their organization	3
CO2. Organize basic statistical analysis.	4
CO3. Identify and characterize the lower plant group	5

**Course Code 19UB0545****Core Course VIII PRACTICAL-II**

Upon completion of this course, the student will be able to:	PSO
CO1. Identify internal & reproductive structure of the lower plants	3
CO2. Apply effective control measures for various plant diseases	4
CO3. Analyze the morphology and anatomy of the fossil plant forms	5

# **SEMESTER VI**

**Course Code 19UB0641****Core Course IX PLANT PHYSIOLOGY AND BIOCHEMISTRY**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand the various physiological aspects of plants	3
CO2. Understand the processes of growth and development of plants.	4
CO3. Identify the structure and functions of biomolecules in plant life	5
CO4. Demonstrate physiological experiments	6

**Course Code 19UB0642****Core Course X MOLECULAR BIOLOGY AND INFORMATICS**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand the basics of basics of nucleic acid genes	3
CO2. Use information technology, social informatics & internet.	4
CO3. Understand the basics of bioinformatics, genomics, proteomics, metabolomics, databases, sequence alignment, molecular visualization and molecular phylogeny	5

**Course Code 19UB0643****Core Course XI CROP IMPROVEMENT AND RESEARCH METHODOLOGY**

Upon completion of this course, the student will be able to:	PSO
CO1. Develop gardening skills and plant propagation methods	3
CO2. Evaluate the importance of crop improvements in human welfare	4
CO3. Apply scientific research techniques	5

**Course Code 19UB0644****Core Course XII PRACTICAL III**

Upon completion of this course, the student will be able to:	PSO
CO1. Identify angiosperm plants based on morphology	3
CO2. Evaluate the importance of the traditional medicinal plants.	4
CO3. Demonstrate Mendelian and non-Mendelian inheritance	5

**Course Code 19UB0645****Core Course XIII PRACTICAL IV**

Upon completion of this course, the student will be able to:	PSO
CO1. Demonstrate physiological & biochemical experiments.	3
CO2. Apply propagation methods and fertilizers.	4
CO3. Apply ICT in biology research	5

**Course Code 19UB0661****Elective Course XIII BIOTECHNOLOGY AND NANO BIOTECHNOLOGY**

Upon completion of this course, the student will be able to:	PSO
CO1. Understand the techniques & procedures of plant tissue culture	3
CO2. Apply recombinant DNA technology, Gene transfer technology, and Microbial biotechnology	4
CO3. Apply nano biotechnology	5

**Course Code 19UB0646****PROJECT REPORT, TOUR DIARY, VIVA-VOCE**

Upon completion of this course, the student will be able to:	PSO
CO1. Design Research Projects	3
CO2. Organize data/information and write meaningful reports	4

## COURSE – PSO MAPPING

Course Code	PSO 1	PSO 2	PSO 3	PSO 4	PSO5	PSO 6	PSO 7
19UEN111.1/19UEN111.2	*						
19UENS211	*						
19UML 111.1		*					
19UHN111.1		*					
19UFR111.1		*					
19UBO141			*	*	*		
19UCH131.3						*	
19UZO131.1							
19UENS211	*						
19UEN212.1/19UEN212.2	*						
19 UML 211.1		*					
19UHN211.1		*					
19UFR211.1		*					
19UBO221			*	*	*		
19UCH231.3						*	
19UZO231.1							*
19UEN311.1	*						
19 UML 311.1		*					
19UHN311.1		*					
19UFR311.1		*					
19UBO341			*	*	*		
19UCH331.3						*	
19UZO331.1:							*
19UEN411.1	*						
19 UML 411.11		*					
19UHN411.1		*					
19UFR411.1		*					
19UBO441			*	*	*		
19UCH431.3						*	
19UCH432.3						*	
19UZO431.1							*
19UZO432.2							*
19UB0541			*	*	*		
19UB0542			*	*	*		
19UB0543			*	*	*		
19UB0544			*	*	*		
19UB0545			*	*	*		
19UB0641			*	*	*		
19UB0642			*	*	*		
19UB0643			*	*	*		
19UB0644			*	*	*		
19UB0645			*	*	*		
19UB0661			*	*	*		
19UB0646			*	*	*		