Resolution No. AC/II(23-24).2.RUS2

S. P. Mandali's

Ramnarain Ruia Autonomous College

(Affiliated to University of Mumbai)

Syllabus for

Program: SYBSc

Program Code: RUSSECBCHP

(As per the guidelines of National Education Policy 2020- Academic year 2024-25)

(Choice Based Credit System)

GRADUATE ATTRIBUTES

S.P. Mandali's Ramnrain Ruia Autonomous College has adopted the Outcome Based Education model to make its science graduates globally competent and capable of advancing in their careers. The Bachelor's Program in Science also encourages students to reflect on the broader purpose of their education**.**

GA	GA Description **A student completing Bachelor's Degree in SCIENCE program will be able to:**
GA 1	Recall and explain acquired scientific knowledge in a comprehensive manner and apply the skills acquired in their chosen discipline. Interpret scientific ideas and relate its interconnectedness to various fields in science.
GA 2	Evaluate scientific ideas critically, analyse problems, explore options for practical demonstrations, illustrate work plans and execute them, organise data and draw inferences.
GA 3	Explore and evaluate digital information and use it for knowledge upgradation. Apply relevant information so gathered for analysis and communication using appropriate digital tools.
GA 4	Ask relevant questions, understand scientific relevance, hypothesize a scientific problem, construct and execute a project plan and analyse results.
GA 5	Take complex challenges, work responsibly and independently, as well as in cohesion with a team for completion of a task. Communicate effectively, convincingly and in an articulate manner.
GA 6	Apply scientific information with sensitivity to values of different cultural groups. Disseminate scientific knowledge effectively for upliftment of the society.
GA 7	Follow ethical practices at workplace and be unbiased and critical in interpretation of scientific data. Understand the environmental issues and explore sustainable solutions for it.
GA 8	Keep abreast with current scientific developments in the specific discipline and adapt to technological advancements for better application of scientific knowledge as a lifelong learner

PROGRAM OUTCOMES

PO	Description **A student completing Bachelor's Degree in SCIENCE program in the subject of BIOCHEMISTRY will be able to:**
PO 1	Achieve better understanding of the major thrust areas of the disciplines like Chemistry of Biomolecules & their metabolism, Cell biology (Basics, Membrane biochemistry, Cancer), Enzymology, Genetics, Plant Biochemistry, Pharmacology, Microbiology & Immunology.
PO 2	Gain acumen of the fundamental biochemical processes occurring at the molecular and gene level.
PO 3	Understand the role of Biochemistry in food and human nutrition
PO 4	Get insights into multiple important analytical tools for Biochemical testing and apply contextual knowledge and tools of biochemical research for problems solving.
PO 5	Acquire and empower technical knowledge by connecting disciplinary and interdisciplinary aspects of biochemistry.
PO 6	Compile and interpret Biological data using Biostatistics and Bioinformatics tools.
PO 7	Express ideas persuasively through scientific writing and oral presentation which will help in the development of the leadership qualities.
PO 8	Possess scientific temperament by research project-based learning.
PO 9	Procure hands-on real time experience in industries.
PO 10	Get exposure to the strong theoretical and practical understanding of various dimensions of Biochemistry and take up research-oriented courses in the fields of Biochemistry, Nutrition & Dietetics, Molecular Biology, etc.

CREDIT STRUCTURE BSc

Semester	Subject 1		Subject 2	GE/ OE course (Across disciplines)	Vocational and Skill Enhancement Course (VSC) & SEC	Ability Enhancement Course/ VEC/IKS	OJT/FP/CE PCC, RP	Total Credits
	DSC	DSE						
1	4		4	4 (2*2)	VSC-2 + SEC -2	AEC- 2 (CSK) + VEC- 2 (Env Sc.) + IKS-2		22
2	4		4	4 (2*2)	VSC-2 + SEC-2	AEC-2 (CSK)+ VEC-2 (Understanding India)	CC-2	22
Total	8		8	8	8	10	2	44
Exit option: award of UG certificate in Major with 44 credits and an additional 4 credit Core NSQF course/ Internship or Continue with Major and Minor								
3	Major 8		Minor 4	2	VSC-2	AEC-2 MIL	FP -2, CC-2	22
4	Major 8		Minor 4	2	SEC-2	AEC-2 MIL	CEP-2, CC-2	22
Total	16		8	4	4	4	8	44
Exit option: award of UG Diploma in Major with 88 credits and an additional 4 credit Core NSQF course/ Internship or Continue with Major and Minor								
5	DSC 12	DSE 4	Minor 2		VSC-2		CEP/FP-2	22
6	DSC 12	DSE 4	Minor 2				OJT-4	22
Total	24	8	4		2		6	44
	Exit option: award of UG Degree in Major with 132 credits or Continue with Major for Honours/ Research							

Semester IV

Course Code: RUSSECBCHPE211

Course Title: Food Testing & Analysis

Type of course: Skill Enhancement Course (SEC)

Academic year 2024-25

COURSE OUTCOMES:

	DESCRIPTION **A student completing this course will be able to:**
CO 1	Explain and apply various biochemical analysis techniques used in food testing
CO 2	Demonstrate proficiency in performing standard laboratory practices and protocols for food sample preparation, handling and analysis
CO 3	Develop skills to analyze and interpret the data obtained from food testing using different methods
CO 4	Enhance problem solving and critical thinking abilities by designing and conducting experiments to address specific food testing challenge
CO 5	Understand the importance food testing and analysis

Practical

Sr. No	**Course code-** RUSSECBCHEP211 **Practical Title-** Food Testing & Analysis	2 Credit
1	Differential Staining Techniques to identify *Lactobacilli* in curd	
2	Staining Techniques – Lipid staining, Capsule staining, Endospore staining	
3	Estimation of Reducing sugars in juices & beverages	
4	Quality Check of different Flours	
5	Estimation of degree brix and consistency of sauces	
6	Mineral Estimation in Food Sample - I	
7	Mineral Estimation in Food Sample – II	
8	Qualitative Tests of milk	
9	Effect of cooking on anti-nutritional factors	
10	Testing of food adulterants	
11	Questionnaire Designing using Sensory Evaluation Form	
12	Sensory Evaluation Tests I - Discrimination Tests	
13	Sensory Evaluation Tests II - Descriptive Tests	
14	Sensory Evaluation Tests III - Acceptance & Preference Tests	
15	Statistical Analysis of Sensory Results	

References:

1. Chapter 3 Sensory Evaluation. Sung Eun Choi. Jones & Bartlett Learning.
2. Nutrigenomics and Nutraceuticals: Clinical Relevance and Disease Prevention by Yashwant V. Pathak and Ali M. Ardekani
3. Pharmaceuticals to Nutraceuticals: A Shift in Disease Prevention by Dilip Ghosh and R.B.Smarta
4. Handbook of Nutraceuticals and Functional Foods (Modern Nutrition) by Robert E.C. Wildman and Richard S. Bruno

Modality of Assessment: Skill Enhancement Course (SEC) Semester IV

Semester End Practical Examination: Total 50 Marks

Practical Examination Pattern:

	Particulars	Marks
1	Laboratory work	40
2	Viva	05
3	Journal	05
	TOTAL	**50**