

**SANJEEV AGRAWAL GLOBAL EDUCATIONAL
UNIVERSITY, BHOPAL**

**Proposed Scheme & Syllabus
For**

Bachelor of Science (BSc)

Certificate/Diploma/Degree/Honors Degree/ Research Degree

in

Biotechnology

w.e.f. 2023-24 (According to NEP 2020)



School of Sciences

Bachelor of Science (BSc)

Program Educational Objectives (PEOs) Biotechnology/Microbiology:

PEO-1: Prospective Employment and Career Prospects-Developing the potential for vertical career growth in Biotech-oriented industries, service sectors and related avenues.

PEO-2: Proficiency- Inculcating technical and managerial skills crucial for real time scenarios through the enhancement of problem-solving skills and advanced technical documentation ability.

PEO-3: Affectionate Objective- Grooming the students with technical proficiency to equip them for the emergence of sustainable technology and solutions for prevailing environmental, societal and cultural concerns.

PEO-4: Research Methods-Nurturing the research aptitude to provide solutions for global challenges and abilities to explore hidden potential of the matter

PEO-5: Continuous Learning-Instilling knowledge and awareness on professional ethics, bioethical and health issues, intellectual property rights and life-long learning through career oriented courses

Program Outcomes (POs) Biotechnology/Microbiology:

By the end of the program the students will be able to:

- PO 1.** Understand concepts of Biotechnology/Microbiology and demonstrate interdisciplinary skills acquired in cell biology, genetics, biochemistry, and molecular biology.
- PO 2.** Demonstrate the Laboratory skills in cell biology, basic and applied microbiology with emphasis on technological aspects
- PO 3.** Apply the knowledge and skills gained in the fields of plant biotechnology, animal biotechnology and microbial technology in pharma, food, agriculture, beverages, herbal and nutraceutical industries.
- PO 4.** Critically analyze environmental issues and apply the biotechnology knowledge gained for conserving the environment and resolving environmental problems.
- PO 5.** Demonstrate comprehensive innovations and skills in the fields of biomolecules, cell and organelles, molecular biology, bioprocess engineering and genetic engineering of plants, microbes, and animals with respect to applications for human welfare.
- PO 6.** Apply the knowledge and skills of immunology, bioinformatics, computational modelling of proteins, drug design and simulations to test models and aid in drug discovery.
- PO 7.** Demonstrate communication skills, scientific writing, data collection and interpretation abilities in all the fields of biotechnology.
- PO 8.** Learn and practice professional skills in handling microbes, animals and plants and demonstrate the ability to identify ethical issues related to recombinant DNA technology, genetic engineering, animals handling, intellectual property rights, biosafety, and biohazards.
- PO 9.** Demonstrate thorough knowledge and application of good laboratory and good manufacturing practices in biotech industries
- PO 10.** Demonstrate entrepreneurship abilities, innovative thinking, planning, and setting up of small-scale enterprises or CROs

Bachelor of Science (BSc)

CURRICULUM COMPONENTS

	Components	Credits
University Core (Table 1)	Ability Enhancement Courses (06 Courses)	12
	Skill Enhancement Courses (06 Courses)	12
Discipline Core Courses (8 Courses) (Table 2)		32
Discipline Specific Major Electives (8+4 Courses) (Table 3)		32R/48H*
Discipline Specific Minor Electives (6 Courses) (Table 3)		24
Interdisciplinary Minor Electives (04 Courses) (Table 4)		16
Project/Field Internship/Skill Based Project		28H/44R*
	Total	172

*** Opt either 04 Specialized Courses (for Honors Degree) or Research Based Industrial Project (for Research Degree)**

** Note: Any student opting out after I year / II year will obtain undergraduate Certificate/Diploma respectively in the specific discipline subject to mandatory 450hrs (8-10 week) ,10 credit Internship in SUB/Industry/Research organization.

Distribution of credits across all components

SEM.	University Core Courses. (one course = 02 credit) (Table 1)		Discipline Courses (DC) [one course = 4 credit] (Table 2)	Main Faculty (as per prerequisite)		Interdisciplin ary Minor Elective Tracks (Employment Oriented) (Table 4)	Project/ Field Internship/ Skill Based Projects/Research Projects/industrial Projects	Total
	AEC	SEC		Discipline Specific Elective (one course = 4 credit) (Table 3)				
				(Major)	(Minor)			
I	2	2	4	4	4	4	3(PBL)	23
II	2	2	4	4	4	4	3(PBL)	23
III	2	2	4	4	4	4	3(PBL)	23
IV	2	2	4	4	4	4	3(PBL)	23
V	2	2	-	4+4	4		4(SIP)	20
VI	2	2	-	4+4	4		4(Minor Project)	20
VII			12				8(Major)	20
VIII*			4	16*			16*(Research/Inte rnship Project)	20(4+16*)
Total	12	12	32	32R/32+1 6*H	24	16	28H/28+16*R	172

* Opt either 04 Specialized Courses (For Honor Degree) or Research Based Industrial Project (For Research Degree)

Note: PBL- Project Based Learning, SIP- Summer internship Project, SEC- Skill Enhancement Courses, AEC- Ability Enhancement Courses.

FIRST SEMESTER wef 2023-24 onwards																	
Course Code	Course Title	Contact Hours per Week			Credits	ESE Durations (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR001	Project Based Learning –I	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

SECOND SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR002	Project Based Learning-II	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher’s Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those students who would like to exit after 1st year and want to obtain Undergraduate Certificate in Performing Arts have to complete mandatory Research internship at SUB/Industry/Research Organization for 450 hours to be completed in 8-10 weeks.

THIRD SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT			
		L	T	P			Internal Assessment (IA)					ES E	GT	CE [^]		ESE	ToT	
							MSE	ASG	TA	ATTD	ToT							
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	-	100
SC23PR003	Project Based Learning –III	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100	
		Total			23												700	

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

FOURTH SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)						Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	ToT	CE ^	ESE		ToT	
							MSE	ASG	TA	ATT D	ToT							
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	-	100
SC23PR004	Project Based Learning-IV	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100	
		Total			23													700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those students who would like to exit after 2nd year and want to obtain Undergraduate Diploma in Performing Arts have to complete mandatory Research internship at SUB/Industry/Research Organization for 450 hours to be completed in 8-10 weeks.

FIFTH SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			Credits	ESE Durat ion (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE ^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR005	Summer Internship / Field Activity	-	-	8	4	3	-	-	-	-	-	-	40	60	100		100
		Total			20												600

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

SIXTH SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			Credits	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ES E	To T
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR006	Minor Project	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
		Total			20												600

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those who would like to continue their studies in fourth year for obtaining degree of Honors/Research should have completed all the courses up to third year and obtained a minimum CGPA of 7.5.

	SEVENTH SEMESTER wef 2023-24 onwards
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Course Code	Course Name	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)							Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^	ESE	Viva Voce		ToT	
							MSE	ASG	TA	ATT	ToT								
SC23UC013	Intellectual Property Right & Research Publication Ethics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	-	100	
SC23UC014	Seminar / Publication	-	-	8	4	3	-	-	-	-	-	-	-	40	-	60	100	100	
MG23UC015	Project Management	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	-	100	
SC23PR007	Major Project	-	-	16	8	3	-	-	-	-	-	-	-	100	50	50	200	200	
		Total			20														500

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

EIGHTH SEMESTER (For Honors) wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MS E	ASG	TA	ATT D	ToT						
SC23MO001	MOOCs	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
		Total			20												500

OR

EIGHTH SEMESTER (For Research Degree) wef 2023-2 onwards											
Course Code	Course Name	Contact Hours per Week	Credits	ES ED	Weightage (Theory)					Weightage (Practical)	GT
											

		L	T	P	it s	u r a t i o n (H o u r s)	Internal Assessment (IA)					ESE	GT	CE [^]	ESE		To T		
							MSE	ASG	TA	ATT D	ToT				Pre Sub	Viv aVo ce			
SC23MO001	MOOCs	-	-	8	4	3	-	-	-	-	-	-	-	40	-	60	100	100	
SC23PR008	Research Project/Internship	-	-	32	16	3	-	-	-	-	-	-	-	200	100	100	400	400	
		Total			20														500

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

**Table I
Groups for UC Courses
2023-24 onwards**

GROUP A	School of Management, School of Commerce, School of Arts Humanities and Social Sciences, School of Law and Legal Studies, School of Performing Arts, School of Journalism and Mass Communication, School of Design.
GROUP B	School of Sciences, SIRT- Pharmacy , SAGE College of Nursing , School of Computer Application , School of Advanced Computing, School of Engineering and Technology, School of Agriculture

Semester	Course Code	Course Name Group A	CONTACT hours/week			Credits	Type	Course Code	Course Name Group B	CONTACT hours/week			Credits	Type
			L	T	P					L	T	P		
I	SC23UC001	Environmental Studies and Disaster Management	2	0	0	2	AEC	TR23UC003	Communication Skills	1	0	2	2	AEC
	AH23UC002	Hindi	2	0	0	2	SEC	CA23UC004	MS Office	0	0	4	2	SEC
II	TR23UC003	Communication Skills	1	0	2	2	AEC	SC23UC001	Environmental Studies and Disaster Management	2	0	0	2	AEC
	CA23UC004	MS Office	0	0	4	2	SEC	AH23UC002	Hindi	2	0	0	2	SEC
III	TR23UC005	Professional Skills-I	0	0	4	2	AEC	TR23UC007	Quantitative Aptitude and Logical Reasoning	2	0	0	2	AEC
	MG23UC006	Entrepreneurship Development	2	0	0	2	SEC	ET23UC008	Design and Critical Thinking	2	0	0	2	SEC
IV	TR23UC007	Quantitative Aptitude and Logical Reasoning	2	0	0	2	AEC	TR23UC005	Professional Skills-I	0	0	4	2	AEC
	ET23UC008	Design and Critical Thinking	2	0	0	2	SEC	MG23UC006	Entrepreneurship Development	2	0	0	2	SEC
V	TR23UC009	Professional Skills- II	0	0	4	2	AEC	CM23UC011	Financial Literacy & Banking	2	0	0	2	AEC
	MG23UC010	Research Methodology	2	0	0	2	SEC	AH23UC012	Indian Culture and Human Values	2	0	0	2	SEC
VI	CM23UC011	Financial Literacy & Banking	2	0	0	2	AEC	TR23UC009	Professional Skills- II	0	0	4	2	AEC
	AH23UC012	Indian Culture and Human Values	2	0	0	2	SEC	MG23UC010	Research Methodology	2	0	0	2	SEC

Note :

*Each Course would be of two Credits (1 Theory and 1 Practical) OR (0 Theory and 2 Practical)

** Each Credit is equivalent to 45 hrs. of student engagement (15 hrs. of Theory teaching in classroom & 30 hrs. of Practical learning / Field Work /Assignment /Self -learning)

School of Sciences (BSc)

Discipline Core Courses

Semester	Course Code	Discipline Core BSc
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I	SC23DC001	Basics of Life Sciences
II	SC23DC002	Introduction to Forensic Science
III	SC23DC003	Elements of Modern Physics
IV	SC23DC004	Elements of Statistics
V	SC23UC013	Intellectual Property Rights & Research Publication Ethics
VI	PA23UC014	Seminar / Publications
VII	MG23UC015	Project Management
VIII	PA23PR007	Major Project

Table: 2
Discipline Core Courses
2023-24 onwards

Semester	Course Code	Discipline Core BSc
I	SC23DC001	Basics of Life Sciences
II	SC23DC002	Introduction to Forensic Science
III	SC23DC003	Elements of Modern Physics
IV	SC23DC004	Elements of Statistics

Table: 3
 Discipline Specific Electives (DSE)
 (Select Any Two)
 2023-24 onwards

Tracks

Sem	Course Code	Biotechnology	Course Code	Chemistry
I	SC23BT001	Principles of Microbiology	SC23CH001	Analytical and Organic Chemistry - I
II	SC23MB002	Microbial Physiology and Metabolism	SC23CH002	Inorganic and Physical Chemistry - I
III	SC23BT003	Cell Biology and Genetics	SC23CH003	Analytical and Organic Chemistry - II
IV	SC23BT004	Immunology	SC23CH004	Inorganic and Physical Chemistry - II
V	SC23BT005 SC23BT006	Bioinformatics Bioanalytical Tools	SC23CH005	Biological Chemistry
VI	SC23BT007 SC23BT008	Plant Biotechnology Industrial Biotechnology	SC23CH006	Applied Chemistry
VIII	SC23BT009	Molecular Biology	SC23CH007 SC23CH008	Materials Chemistry Toxicology
	SC23BT010	Virology	SC23CH009	Analytical Chemistry-III
	SC23BT011	Recombinant DNA Technology	SC23CH010	Organic Chemistry-III
	SC23BT012	Animal Biotechnology	SC23CH011	Inorganic Chemistry-III
			SC23CH012	Physical Chemistry-III

Track Biotechnology

Semester	Course Code	Course Title	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)						Weightage (Practical)			GT	
			L	T	P			Internal Assessment (IA)					ESE	GT	CE [^]	ESE		ToT
								MSE	ASG	TA	ATD	ToT						
I	SC23BT001	Principles of Microbiology	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
II	SC23MB002	Microbial Physiology and Metabolism	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
III	SC23BT003	Cell Biology and Genetics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
IV	SC23BT004	Immunology	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
V	SC23BT005 SC23BT006	Bioinformatics Bioanalytical Tools	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
VI	SC23BT007 SC23BT008	Plant Biotechnology Industrial Biotechnology	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
VIII	SC23BT009	Molecular Biology	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23BT010	Virology	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23BT011	Recombinant DNA Technology	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23BT012	Animal Biotechnology	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100



Track Chemistry																		
Semester	Course Code	Course Title	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)						Weightage (Practical)			GT	
			L	T	P			Internal Assessment (IA)					ESE	GT	CE [^]	ESE		ToT
								MSE	ASG	TA	ATTD	ToT						
I	SC23CH001	Analytical and Organic Chemistry-I	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
II	SC23CH002	Inorganic and Physical Chemistry-I	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
III	SC23CH003	Analytical and Organic Chemistry-II	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
IV	SC23CH004	Inorganic and Physical Chemistry- II	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
V	SC23CH005 SC23CH006	Biological Chemistry Applied Chemistry	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
VI	SC23CH007 SC23CH008	Materials Chemistry Toxicology	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
VIII	SC23CH009	Analytical Chemistry-III	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23CH010	Organic Chemistry-III	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23CH011	Inorganic Chemistry-III	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23CH012	Physical Chemistry-III	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100

Table 4: Interdisciplinary Minor Elective Courses

(Select any one track)
2023-24 Onwards

S. No	Name of the Offering School	Minor Specialization Track	Minor Elective	Code	Course	Contact Hours / Week			Credits	Theory					Practical			G T		
						L	T	P		MSE	ASG	T A	A T D	E S E	Total	C E	E S E		Total	
1	School of Engineering & Technology	Digital Marketing	I	ET23DM001	Web Development Fundamentals	2	0	4	4							40	60	10	10	
			II	ET23DM002	Introduction to Digital Marketing	2	0	4	4								40	60	10	10
			III	ET23DM003	Search Engine Optimization and Social Media Marketing	2	0	4	4								40	60	10	10
			IV	ET23DA004	Web Analytics	2	0	4	4								40	60	10	10
		Data Analytics	I	ET23DA001	Data Analytics Fundamentals	2	0	4	4								40	60	10	10
			II	ET23DA002	Business Analytics	2	0	4	4								40	60	10	10
			III	ET23DA003	R Programming	2	0	4	4								40	60	10	10
			IV	ET23DA004	Data Visualization	2	0	4	4								40	60	10	10
		Web Designing	I	ET23WD001	Web Designing Fundamentals	2	0	4	4								40	60	10	10
			II	ET23WD002	Dynamic Website with Java-script	2	0	4	4								40	60	10	10
			III	ET23WD003	Introduction to XML	2	0	4	4								40	60	10	10
			IV	ET23WD004	Web Application Development using PHP	2	0	4	4								40	60	10	10
		Programming	I	ET23PR001	Core Java	2	0	4	4								40	60	10	10
II	ET23PR002		Advanced Java	2	0	4	4								40	60	10	10		
III	ET23PR003		Python Programming	2	0	4	4								40	60	10	10		

			IV	ET23PR00 4	Web Application Development	2	0	4	4							40	60	10	10	0	0		
2	School of Arts Humanities and Social Sciences	Tours & Travel Management	I	AH23TT00 1	Hospitality Etiquettes	2	0	4	4							40	60	10	10	0	0		
			II	AH23TT00 2	World Heritage Sites of MP	2	0	4	4							40	60	10	10	0	0		
			III	AH23TT00 3	Medical Tourism	2	0	4	4							40	60	10	10	0	0		
			IV	AH23TT00 4	International Travel Assistance	2	0	4	4							40	60	10	10	0	0		
3	School of Sciences	Laboratory Management	I	SC23LM00 1	Microbiology& Biotechnology Laboratory Skills	0	0	8	4							40	60	10	10	0	0		
			II	SC23LM00 2	Chemistry Lab Skills	0	0	8	4							40	60	10	10	0	0		
			III	SC23LM00 3	Electronics & Electrical Lab Skills	0	0	8	4							40	60	10	10	0	0		
			IV	SC23LM00 4	Physics Lab Skills	0	0	8	4							40	60	10	10	0	0		
4	School of Agriculture	Horticulture	I	AG23HR00 1	Production Technology for Vegetable and Spices	2	0	4	4							40	60	10	10	0	0		
			II	AG23HR00 2	Production Technology for Fruit and Plantation Crops	2	0	4	4							40	60	10	10	0	0		
			III	AG23HR00 3	Diseases of Field and Horticultural Crops and their Management –I	2	0	4	4							40	60	10	10	0	0		
			IV	AG23HR00 4	`Diseases of Field and Horticultural Crops and their Management-II	2	0	4	4							40	60	10	10	0	0		
		Agri Business	I	AG23AB00 1	Agricultural Finance and Cooperation	2	0	4	4									40	60	10	10	0	0
			II	AG23AB00 2	Agricultural Marketing Trade & Prices	2	0	4	4									40	60	10	10	0	0
			III	AG23AB00 3	Entrepreneurship Development and Business Communication	2	0	4	4									40	60	10	10	0	0
			IV	AG23AB00 4	Farm Management, Production & Resource Economics	2	0	4	4									40	60	10	10	0	0
5	School of Commerce & Management	Basic Accounting Skills	I	CM23BA0 01	Financial Accounting	4	0	0	4							40	60	10	10	0	0		
			II	CM23BA0 02	Tally	3	0	2	4							40	60	10	10	0	0		
			III	CM23BA0 03	Personal Taxation	4	0	0	4							40	60	10	10	0	0		
			IV	CM23BA0 04	Direct and Indirect Taxes	4	0	0	4							40	60	10	10	0	0		

		Retail Management & Merchandising	I	MG23RM001	Retail Management	4	0	0	4							40	60	10	10	
			II	MG23RM002	Merchandising	4	0	0	4								40	60	10	10
			III	MG23RM003	Supply Chain Management	4	0	0	4								40	60	10	10
			IV	MG23RM004	E Business	4	0	0	4								40	60	10	10
		Investment Management	I	MG23IM001	Introduction to Financial Markets	4	0	0	4								40	60	10	10
			II	MG23IM002	Fundamental & Technical Analysis of Investment	4	0	0	4								40	60	10	10
			III	MG23IM003	Risk Management	4	0	0	4								40	60	10	10
			IV	MG23IM004	Introduction to Derivatives	4	0	0	4								40	60	10	10
6	School of Design	Sketching & Painting	I	DN23SP001	Sketching-I	0	0	8	4							40	60	10	10	
			II	DN23SP002	Sketching -II	0	0	8	4							40	60	10	10	
			III	DN23SP003	Painting-I	0	0	8	4							40	60	10	10	
			IV	DN23SP004	Painting-II	0	0	8	4							40	60	10	10	
		Interior Design	I	DN23ID001	Building Materials & Processes	0	0	8	4								40	60	10	10
			II	DN23ID002	Elements of Interior Spaces	0	0	8	4								40	60	10	10
			III	DN3ID003	Basics of Lighting Design	0	0	8	4								40	60	10	10
			IV	DN23ID004	Building Services	0	0	8	4								40	60	10	10
		Apparel Design	I	DN23AD001	Fashion Illustration-I	0	0	8	4								40	60	10	10
			II	DN23AD002	Dyeing and Printing Techniques	0	0	8	4								40	60	10	10
			III	DN23AD003	Surface Exploration I	0	0	8	4								40	60	10	10
			IV	DN23AD004	Surface Exploration II	0	0	8	4								40	60	10	10
		School of Performing Arts	Dance	I	PA23DN001	Techniques and Theatrical Performance of Dance I	0	0	8	4							40	60	10	10
				II	PA23DN002	Techniques and Theatrical Performance of Dance II	0	0	8	4							40	60	10	10

7			III	PA23DN003	Techniques and Theatrical Performance of Dance III	0	0	8	4							40	60	10	10		
			IV	PA23DN004	Techniques and Theatrical Performance of Dance IV	0	0	8	4								40	60	10	10	
			Music	I	PA23MC001	Musical Roots and Theatrical Performance I	0	0	8	4								40	60	10	10
				II	PA23MC002	Musical Roots and Theatrical Performance II	0	0	8	4								40	60	10	10
		III		PA23MC003	Musical Roots and Theatrical Performance III	0	0	8	4								40	60	10	10	
		IV		PA23MC004	Musical Roots and Theatrical Performance IV	0	0	8	4								40	60	10	10	
		Theatre	I	PA23TR001	Basics of Acting Production I	0	0	8	4								40	60	10	10	
			II	PA23TR002	Drama Production II	0	0	8	4								40	60	10	10	
			III	PA23TR003	Drama Production III	0	0	8	4								40	60	10	10	
			IV	PA23TR004	Drama Production IV	0	0	8	4								40	60	10	10	
		8	School of Journalism and Mass Communication	Basic Media Production Techniques	I	JM23MP001	Photography	0	0	8	4							40	60	10	10
					II	JM23MP002	Videography	0	0	8	4							40	60	10	10
III	JM23MP003				Script Writing	0	0	8	4							40	60	10	10		
IV	JM23MP004				Audio Visual Editing	0	0	8	4							40	60	10	10		
Advertising and Public Relations	I			JM23AP001	Introduction to Advertising	0	0	8	4								40	60	10	10	
	II			JM23AP002	Content Creation	0	0	8	4								40	60	10	10	
	III			JM23AP003	Introduction to Public Relations	0	0	8	4								40	60	10	10	
	IV			JM23AP004	Tools and Techniques of Public Relations	0	0	8	4								40	60	10	10	

**SANJEEV AGRAWAL GLOBAL EDUCATIONAL
UNIVERSITY, BHOPAL**

**Proposed Scheme & Syllabus
For**

Bachelor of Science (BSc)

Certificate/Diploma/Degree/Honors Degree/ Research Degree

in

Chemistry

w.e.f. 2023-24 (According to NEP 2020)



School of Sciences

Bachelor of Science (BSc)

Program Educational Objectives (PEOs) Chemistry:

PEO-1: Prospective Employment and Career Prospects-Developing the potential for vertical career growth in investigation laboratories, service sectors and related avenues.

PEO-2: Proficiency- Inculcating technical and managerial skills crucial for real time scenarios through the enhancement of problem-solving skills and advanced technical documentation ability.

PEO-3: Affectionate Objective- Grooming the students with technical proficiency to equip them for the emergence of sustainable technology and solutions for prevailing environmental, societal and cultural concerns.

PEO-4: Research Methods-Nurturing the research aptitude to provide solutions for global challenges and abilities to explore hidden potential of the matter.

PEO-5: Continuous Learning-Instilling knowledge and awareness on professional ethics related to crime prevention and evidence analysis and life-long learning through career-oriented courses.

Program Outcomes (POs) Chemistry:

By the end of the program the students will be able to:

- PO 1.** Understand the fundamentals of various branches of chemistry.
- PO 2.** Demonstrate a range of practical skills to conduct and infer experiments independently and in groups.
- PO 3.** Design and carry out scientific experiments as well as accurately record and analyze the results of such experiments.
- PO 4.** Apply the key concepts and standard methodologies to solve problems related to Chemistry.
- PO 5.** Apply their skill in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
- PO 6.** Apply the knowledge and skills to explain why chemistry is an integral activity for addressing social, economic, and environmental problems.
- PO 7.** Possess the level of proficiency in subject required for post-graduation as well as for pursuing research in Chemistry and related interdisciplinary subjects.
- PO 8.** Apply methodologies to the solution of unfamiliar types of problems.
- PO 9.** Design solutions stemming from the application of Chemistry to the local issues.
- PO 10.** Explore new areas of research in pure chemistry and applied chemistry.

Bachelor of Science (BSc)

CURRICULUM COMPONENTS

	Components	Credits
University Core (Table 1)	Ability Enhancement Courses (06 Courses)	12
	Skill Enhancement Courses (06 Courses)	12
Discipline Core Courses (8 Courses) (Table 2)		32
Discipline Specific Major Electives (8+4 Courses) (Table 3)		32R/48H*
Discipline Specific Minor Electives (6 Courses) (Table 3)		24
Interdisciplinary Minor Electives (04 Courses) (Table 4)		16
Project/Field Internship/Skill Based Project		28H/44R*
Total		172

*** Opt either 04 Specialized Courses (for Honors Degree) or Research Based Industrial Project (for Research Degree)**

** Note: Any student opting out after I year / II year will obtain undergraduate Certificate/Diploma respectively in the specific discipline subject to mandatory 450hrs (8-10 week) ,10 credit Internship in SUB/Industry/Research organization.

Distribution of credits across all components

SEM.	University Core Courses. (one course = 02 credit) (Table 1)		Discipline Courses (DC) [one course = 4 credit] (Table 2)	Main Faculty (as per prerequisite)		Interdisciplin ary Minor Elective Tracks (Employment Oriented) (Table 4)	Project/ Field Internship/ Skill Based Projects/Research Projects/industrial Projects	Total
	AEC	SEC		Discipline Specific Elective (one course = 4 credit) (Table 3)				
				(Major)	(Minor)			
I	2	2	4	4	4	4	3(PBL)	23
II	2	2	4	4	4	4	3(PBL)	23
III	2	2	4	4	4	4	3(PBL)	23
IV	2	2	4	4	4	4	3(PBL)	23
V	2	2	-	4+4	4		4(SIP)	20
VI	2	2	-	4+4	4		4(Minor Project)	20
VII			12				8(Major)	20
VIII*			4	16*			16*(Research/Inte rnship Project)	20(4+16*)
Total	12	12	32	32R/32+1 6*H	24	16	28H/28+16*R	172

* Opt either 04 Specialized Courses (For Honor Degree) or Research Based Industrial Project (For Research Degree)

Note: PBL- Project Based Learning, SIP- Summer internship Project, SEC- Skill Enhancement Courses, AEC- Ability Enhancement Courses.

FIRST SEMESTER wef 2023-24 onwards																	
Course Code	Course Title	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR001	Project Based Learning –I	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

SECOND SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR002	Project Based Learning-II	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher’s Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those students who would like to exit after 1st year and want to obtain Undergraduate Certificate in Performing Arts have to complete mandatory Research internship at SUB/Industry/Research Organization for 450 hours to be completed in 8-10 weeks.

THIRD SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT			
		L	T	P			Internal Assessment (IA)					ES E	GT	CE [^]		ESE	ToT	
							MSE	ASG	TA	ATTD	ToT							
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	-	100
SC23PR003	Project Based Learning –III	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	-	100
		Total			23													700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

FOURTH SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	ToT	CE ^		ESE	ToT
							MS E	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR004	Project Based Learning-IV	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those students who would like to exit after 2nd year and want to obtain Undergraduate Diploma in Performing Arts have to complete mandatory Research internship at SUB/Industry/Research Organization for 450 hours to be completed in 8-10 weeks.

FIFTH SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE ^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR005	Summer Internship / Field Activity	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
		Total			20												600

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

SIXTH SEMESTER wef 2023-24 onwards																	
Course Code	Course Name	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR006	Minor Project	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
		Total			20												600

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those who would like to continue their studies in fourth year for obtaining degree of Honors/Research should have completed all the courses up to third year and obtained a minimum CGPA of 7.5.

SEVENTH SEMESTER wef 2023-24 onwards																			
Course Code	Course Name	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)							Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^	ESE	ToT			
							MSE	ASG	TA	ATT	ToT							Pre Sub	Viva Voce
SC23UC013	Intellectual Property Right & Research Publication Ethics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	-	100	
SC23UC014	Seminar / Publication	-	-	8	4	3	-	-	-	-	-	-	-	40	-	60	100	100	
MG23UC015	Project Management	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	-	100	
SC23PR007	Major Project	-	-	16	8	3	-	-	-	-	-	-	-	100	50	50	200	200	
		Total			20														500

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

EIGHTH SEMESTER (For Honors) wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE [^]		ES E	To T
							MS E	ASG	TA	ATT D	ToT						
SC23MO001	MOOCs	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
		Total			20												500

OR



EIGHTH SEMESTER (For Research Degree) wef 2023-2 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)							Weightage (Practical)			GT	
		L	T	P			Internal Assessment (IA)					ESE	GT	CE [^]	ESE	ToT		
							MSE	ASG	TA	ATT D	ToT							Pre Sub
SC23MO001	MOOCs	-	-	8	4	3	-	-	-	-	-	-	-	40	-	60	100	100
SC23PR008	Research Project/Internship	-	-	32	16	3	-	-	-	-	-	-	-	200	100	100	400	400
		Total			20													500

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Table I
Groups for UC Courses
2023-24 onwards

GROUP A		School of Management, School of Commerce, School of Arts Humanities and Social Sciences, School of Law and Legal Studies, School of Performing Arts, School of Journalism and Mass Communication, School of Design.												
GROUP B		School of Sciences, SIRT- Pharmacy , SAGE College of Nursing , School of Computer Application , School of Advanced Computing, School of Engineering and Technology, School of Agriculture												
Semester	Course Code	Course Name Group A	CONTACT hours/week			Credi ts	Type	Course Code	Course Name Group B	CONTACT hours/week			Credits	Type
			L	T	P					L	T	P		
I	SC23UC001	Environmental Studies and Disaster Management	2	0	0	2	AEC	TR23UC003	Communication Skills	1	0	2	2	AEC
	AH23UC002	Hindi	2	0	0	2	SEC	CA23UC004	MS Office	0	0	4	2	SEC
II	TR23UC003	Communication Skills	1	0	2	2	AEC	SC23UC001	Environmental Studies and Disaster Management	2	0	0	2	AEC
	CA23UC004	MS Office	0	0	4	2	SEC	AH23UC002	Hindi	2	0	0	2	SEC
III	TR23UC005	Professional Skills-I	0	0	4	2	AEC	TR23UC007	Quantitative Aptitude and Logical Reasoning	2	0	0	2	AEC
	MG23UC006	Entrepreneurship Development	2	0	0	2	SEC	ET23UC008	Design and Critical Thinking	2	0	0	2	SEC
IV	TR23UC007	Quantitative Aptitude and Logical Reasoning	2	0	0	2	AEC	TR23UC005	Professional Skills-I	0	0	4	2	AEC
	ET23UC008	Design and Critical Thinking	2	0	0	2	SEC	MG23UC006	Entrepreneurship Development	2	0	0	2	SEC
V	TR23UC009	Professional Skills- II	0	0	4	2	AEC	CM23UC011	Financial Literacy & Banking	2	0	0	2	AEC
	MG23UC010	Research Methodology	2	0	0	2	SEC	AH23UC012	Indian Culture and Human Values	2	0	0	2	SEC
VI	CM23UC011	Financial Literacy & Banking	2	0	0	2	AEC	TR23UC009	Professional Skills- II	0	0	4	2	AEC
	AH23UC012	Indian Culture and Human Values	2	0	0	2	SEC	MG23UC010	Research Methodology	2	0	0	2	SEC

Note :

*Each Course would be of two Credits (1 Theory and 1 Practical) OR (0 Theory and 2 Practical)

** Each Credit is equivalent to 45 hrs. of student engagement (15 hrs. of Theory teaching in classroom & 30 hrs. of Practical learning / Field Work /Assignment /Self -learning)

School of Sciences (BSc)

Discipline Core Courses

Semester	Course Code	Discipline Core BSc
I	SC23DC001	Basics of Life Sciences
II	SC23DC002	Introduction to Forensic Science
III	SC23DC003	Elements of Modern Physics
IV	SC23DC004	Elements of Statistics
V	SC23UC013	Intellectual Property Rights & Research Publication Ethics
VI	PA23UC014	Seminar / Publications
VII	MG23UC015	Project Management
VIII	PA23PR007	Major Project

Table: 2
Discipline Core Courses
2023-24 onwards

Semester	Course Code	Discipline Core BSc
I	SC23DC001	Basics of Life Sciences
II	SC23DC002	Introduction to Forensic Science
III	SC23DC003	Elements of Modern Physics
IV	SC23DC004	Elements of Statistics

Table: 3
 Discipline Specific Electives (DSE)
 (Select Any Two)
 2023-24 onwards
Tracks

Sem	Course Code	Chemistry	Course Code	Physics
I	SC23CH001	Analytical and Organic Chemistry - I	SC23PH001	Mathematical Physics
II	SC23CH002	Inorganic and Physical Chemistry - I	SC23PH002	Mechanics
III	SC23CH003	Analytical and Organic Chemistry - II	SC23PH003	Thermal Physics and Statistical Mechanics
IV	SC23CH004	Inorganic and Physical Chemistry - II	SC23PH004	Wave and Optics
V	SC23CH005	Biological Chemistry	SC23PH005	Classical Electrodynamics
	SC23CH006	Applied Chemistry	SC23PH006	Electricity, Magnetism and Electromagnetism
VI	SC23CH007	Materials Chemistry	SC23PH007	Quantum Mechanics
	SC23CH008	Toxicology	SC23PH008	Plasma Physics
VIII	SC23CH009	Analytical Chemistry-III	SC23PH009	Solid State Physics
	SC23CH010	Organic Chemistry-III	SC23PH010	Nuclear, Atomic and Molecular Physics
	SC23CH011	Inorganic Chemistry-III	SC23PH011	Analog & Digital Circuits
	SC23CH012	Physical Chemistry-III	SC23PH012	Elements of Condensed Matter Physics

Track Chemistry																		
Semester	Course Code	Course Title	Contact Hours per Week			Credits	E S E D U R A T I O N (Hours)	Weightage (Theory)							Weightage (Practical)			GT
			L	T	P			Internal Assessment (IA)					ES E	G T	C E ^	E S E	T o T	
								M S E	A S G	T A	A T T D	T o T						
I	SC23CH001	Analytical and Organic Chemistry-I	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
II	SC23CH002	Inorganic and Physical Chemistry-I	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
III	SC23CH003	Analytical and Organic Chemistry-II	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
IV	SC23CH004	Inorganic and Physical Chemistry- II	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
V	SC23CH005 SC23CH006	Biological Chemistry Applied Chemistry	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
VI	SC23CH007 SC23CH008	Materials Chemistry Toxicology	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
VIII	SC23CH009	Analytical Chemistry-III	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23CH010	Organic Chemistry-III	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23CH011	Inorganic Chemistry-III	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23CH012	Physical Chemistry-III	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100

Track Physics																		
Sem ester	Course Code	Course Title	Contact Hours per Week			C red it s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)							Weightage (Practical)			GT
			L	T	P			Internal Assessment (IA)					ES E	G T	CE ^	ESE	ToT	
								M SE	AS G	T A	AT TD	To T						
I	SC23PH001	Mathematical Physics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
II	SC23PH002	Mechanics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
III	SC23PH003	Thermal Physics and Statistical Mechanics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
IV	SC23PH004	Wave and Optics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
V	SC23PH005	Classical Electrodynamics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23PH006	Electricity and Magnetism Electromagnetism	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
VI	SC23PH007 SC23PH008	Quantum Mechanics Plasma Physics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
VIII	SC23PH009	Solid State Physics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23PH010	Nuclear, Atomic and Molecular Physics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23PH011	Analog & Digital Circuits	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23PH012	Elements of Condensed Matter Physics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100

Table 4: Interdisciplinary Minor Elective Courses

(Select any one track)

2023-24 Onwards

S. No	Name of the Offering School	Minor Specialization Track	Minor Elective	Code	Course	Contact Hours / Week			Credits	Theory					Practical			G T				
						L	T	P		MSE	ASG	T A	A T T D	E S E	T o t a l	C E	E S E		T o t a l			
1	School of Engineering & Technology	Digital Marketing	I	ET23DM001	Web Development Fundamentals	2	0	4	4							40	60	10	10	0	0	
			II	ET23DM002	Introduction to Digital Marketing	2	0	4	4								40	60	10	10	0	0
			III	ET23DM003	Search Engine Optimization and Social Media Marketing	2	0	4	4								40	60	10	10	0	0
			IV	ET23DA004	Web Analytics	2	0	4	4								40	60	10	10	0	0
		Data Analytics	I	ET23DA001	Data Analytics Fundamentals	2	0	4	4								40	60	10	10	0	0
			II	ET23DA002	Business Analytics	2	0	4	4								40	60	10	10	0	0
			III	ET23DA003	R Programming	2	0	4	4								40	60	10	10	0	0
			IV	ET23DA004	Data Visualization	2	0	4	4								40	60	10	10	0	0
		Web Designing	I	ET23WD001	Web Designing Fundamentals	2	0	4	4								40	60	10	10	0	0
			II	ET23WD002	Dynamic Website with Java-script	2	0	4	4								40	60	10	10	0	0
			III	ET23WD003	Introduction to XML	2	0	4	4								40	60	10	10	0	0
			IV	ET23WD004	Web Application Development using PHP	2	0	4	4								40	60	10	10	0	0
		Programming	I	ET23PR001	Core Java	2	0	4	4								40	60	10	10	0	0
			II	ET23PR002	Advanced Java	2	0	4	4								40	60	10	10	0	0
			III	ET23PR003	Python Programming	2	0	4	4								40	60	10	10	0	0

			IV	ET23PR00 4	Web Application Development	2	0	4	4							40	60	10	10	0	0		
2	School of Arts Humanities and Social Sciences	Tours & Travel Management	I	AH23TT00 1	Hospitality Etiquettes	2	0	4	4							40	60	10	10	0	0		
			II	AH23TT00 2	World Heritage Sites of MP	2	0	4	4							40	60	10	10	0	0		
			III	AH23TT00 3	Medical Tourism	2	0	4	4							40	60	10	10	0	0		
			IV	AH23TT00 4	International Travel Assistance	2	0	4	4							40	60	10	10	0	0		
3	School of Sciences	Laboratory Management	I	SC23LM00 1	Microbiology& Biotechnology Laboratory Skills	0	0	8	4							40	60	10	10	0	0		
			II	SC23LM00 2	Chemistry Lab Skills	0	0	8	4							40	60	10	10	0	0		
			III	SC23LM00 3	Electronics & Electrical Lab Skills	0	0	8	4							40	60	10	10	0	0		
			IV	SC23LM00 4	Physics Lab Skills	0	0	8	4							40	60	10	10	0	0		
4	School of Agriculture	Horticulture	I	AG23HR00 1	Production Technology for Vegetable and Spices	2	0	4	4							40	60	10	10	0	0		
			II	AG23HR00 2	Production Technology for Fruit and Plantation Crops	2	0	4	4							40	60	10	10	0	0		
			III	AG23HR00 3	Diseases of Field and Horticultural Crops and their Management –I	2	0	4	4							40	60	10	10	0	0		
			IV	AG23HR00 4	Diseases of Field and Horticultural Crops and their Management-II	2	0	4	4							40	60	10	10	0	0		
		Agri Business	I	AG23AB00 1	Agricultural Finance and Cooperation	2	0	4	4									40	60	10	10	0	0
			II	AG23AB00 2	Agricultural Marketing Trade & Prices	2	0	4	4									40	60	10	10	0	0
			III	AG23AB00 3	Entrepreneurship Development and Business Communication	2	0	4	4									40	60	10	10	0	0
			IV	AG23AB00 4	Farm Management, Production & Resource Economics	2	0	4	4									40	60	10	10	0	0
5	School of Commerce & Management	Basic Accounting Skills	I	CM23BA0 01	Financial Accounting	4	0	0	4							40	60	10	10	0	0		
			II	CM23BA0 02	Tally	3	0	2	4							40	60	10	10	0	0		
			III	CM23BA0 03	Personal Taxation	4	0	0	4								40	60	10	10	0	0	
			IV	CM23BA0 04	Direct and Indirect Taxes	4	0	0	4								40	60	10	10	0	0	

		Retail Management & Merchandising	I	MG23RM001	Retail Management	4	0	0	4							40	60	10	10	
			II	MG23RM002	Merchandising	4	0	0	4								40	60	10	10
			III	MG23RM003	Supply Chain Management	4	0	0	4								40	60	10	10
			IV	MG23RM004	E Business	4	0	0	4								40	60	10	10
		Investment Management	I	MG23IM001	Introduction to Financial Markets	4	0	0	4								40	60	10	10
			II	MG23IM002	Fundamental & Technical Analysis of Investment	4	0	0	4								40	60	10	10
			III	MG23IM003	Risk Management	4	0	0	4								40	60	10	10
			IV	MG23IM004	Introduction to Derivatives	4	0	0	4								40	60	10	10
6	School of Design	Sketching & Painting	I	DN23SP001	Sketching-I	0	0	8	4							40	60	10	10	
			II	DN23SP002	Sketching -II	0	0	8	4							40	60	10	10	
			III	DN23SP003	Painting-I	0	0	8	4							40	60	10	10	
			IV	DN23SP004	Painting-II	0	0	8	4							40	60	10	10	
		Interior Design	I	DN23ID001	Building Materials & Processes	0	0	8	4								40	60	10	10
			II	DN23ID002	Elements of Interior Spaces	0	0	8	4								40	60	10	10
			III	DN3ID003	Basics of Lighting Design	0	0	8	4								40	60	10	10
			IV	DN23ID004	Building Services	0	0	8	4								40	60	10	10
		Apparel Design	I	DN23AD001	Fashion Illustration-I	0	0	8	4								40	60	10	10
			II	DN23AD002	Dyeing and Printing Techniques	0	0	8	4								40	60	10	10
			III	DN23AD003	Surface Exploration I	0	0	8	4								40	60	10	10
			IV	DN23AD004	Surface Exploration II	0	0	8	4								40	60	10	10
		School of Performing Arts	Dance	I	PA23DN001	Techniques and Theatrical Performance of Dance I	0	0	8	4							40	60	10	10
				II	PA23DN002	Techniques and Theatrical Performance of Dance II	0	0	8	4							40	60	10	10

7			III	PA23DN003	Techniques and Theatrical Performance of Dance III	0	0	8	4							40	60	10	10		
			IV	PA23DN004	Techniques and Theatrical Performance of Dance IV	0	0	8	4								40	60	10	10	
			Music	I	PA23MC001	Musical Roots and Theatrical Performance I	0	0	8	4								40	60	10	10
				II	PA23MC002	Musical Roots and Theatrical Performance II	0	0	8	4								40	60	10	10
		III		PA23MC003	Musical Roots and Theatrical Performance III	0	0	8	4								40	60	10	10	
		IV		PA23MC004	Musical Roots and Theatrical Performance IV	0	0	8	4								40	60	10	10	
		Theatre	I	PA23TR001	Basics of Acting Production I	0	0	8	4								40	60	10	10	
			II	PA23TR002	Drama Production II	0	0	8	4								40	60	10	10	
			III	PA23TR003	Drama Production III	0	0	8	4								40	60	10	10	
			IV	PA23TR004	Drama Production IV	0	0	8	4								40	60	10	10	
		8	School of Journalism and Mass Communication	Basic Media Production Techniques	I	JM23MP001	Photography	0	0	8	4							40	60	10	10
					II	JM23MP002	Videography	0	0	8	4							40	60	10	10
III	JM23MP003				Script Writing	0	0	8	4							40	60	10	10		
IV	JM23MP004				Audio Visual Editing	0	0	8	4							40	60	10	10		
Advertising and Public Relations	I			JM23AP001	Introduction to Advertising	0	0	8	4								40	60	10	10	
	II			JM23AP002	Content Creation	0	0	8	4								40	60	10	10	
	III			JM23AP003	Introduction to Public Relations	0	0	8	4								40	60	10	10	
	IV			JM23AP004	Tools and Techniques of Public Relations	0	0	8	4								40	60	10	10	

**SANJEEV AGRAWAL GLOBAL EDUCATIONAL
UNIVERSITY, BHOPAL**

**Proposed Scheme & Syllabus
For**

Bachelor of Science (BSc)

Certificate/Diploma/Degree/Honors Degree/ Research Degree

in

Forensic Science

w.e.f. 2023-24 (According to NEP 2020)



School of Sciences

Bachelor of Science (BSc)

Program Educational Objectives (PEOs) Forensic Science:

PEO-1: Prospective Employment and Career Prospects-Developing the potential for vertical career growth in investigation laboratories, service sectors and related avenues.

PEO-2: Proficiency- Inculcating technical and managerial skills crucial for real time scenarios through the enhancement of problem-solving skills and advanced technical documentation ability.

PEO-3: Affectionate Objective- Grooming the students with technical proficiency to equip them for the emergence of sustainable technology and solutions for prevailing environmental, societal and cultural concerns.

PEO-4: Research Methods-Nurturing the research aptitude to provide solutions for global challenges and abilities to explore hidden potential of the matter.

PEO-5: Continuous Learning-Instilling knowledge and awareness on professional ethics related to crime prevention and evidence analysis and life-long learning through career-oriented courses.

Program Outcomes (POs) Forensic Science:

By the end of the program the students will be able to:

- PO 1.** Understand concepts of Forensic Science and demonstrate interdisciplinary skills acquired in Forensic biology, Forensic chemistry, Forensic physics, questioned documents and cyber forensics.
- PO 2.** Demonstrate the Laboratory skills in Forensic biology, Forensic chemistry, Forensic physics, questioned documents and cyber forensics with emphasis on technological aspects
- PO 3.** Apply the knowledge and skills gained in the fields of Forensic biology, Forensic chemistry, Forensic physics, questioned documents and cyber forensics.
- PO 4.** Critically analyze shortcomings in scientific analysis of evidences and apply the knowledge gained for protecting the Integrity and confidentiality of evidences to serve justice.
- PO 5.** Demonstrate comprehensive innovations and skills in the fields of Forensic biology, DNA Fingerprinting, Forensic chemistry, Toxicology, Forensic physics, ballistics, questioned documents and cyber forensics with respect to applications for human welfare.
- PO 6.** Apply the knowledge and skills of scientific concepts of forensic science to aid in investigation.
- PO 7.** Demonstrate communication skills, scientific writing, data collection and interpretation abilities in all the fields of forensic science.
- PO 8.** Learn and practice professional skills in handling and analyzing evidences of different fields of forensic science.
- PO 9.** Demonstrate thorough knowledge and application of good laboratory practices in forensic investigative agencies
- PO 10.** Demonstrate entrepreneurship abilities, innovative thinking, planning, and setting up of and working in different investigative agencies.

Bachelor of Science (BSc)

CURRICULUM COMPONENTS

	Components	Credits
University Core (Table 1)	Ability Enhancement Courses (06 Courses)	12
	Skill Enhancement Courses (06 Courses)	12
Discipline Core Courses (8 Courses) (Table 2)		32
Discipline Specific Major Electives (8+4 Courses) (Table 3)		32R/48H*
Discipline Specific Minor Electives (6 Courses) (Table 3)		24
Interdisciplinary Minor Electives (04 Courses) (Table 4)		16
Project/Field Internship/Skill Based Project		28H/44R*
Total		172

*** Opt either 04 Specialized Courses (for Honors Degree) or Research Based Industrial Project (for Research Degree)**

** Note: Any student opting out after I year / II year will obtain undergraduate Certificate/Diploma respectively in the specific discipline subject to mandatory 450hrs (8-10 week) ,10 credit Internship in SUB/Industry/Research organization.

Distribution of credits across all components

SEM.	University Core Courses. (one course = 02 credit) (Table 1)		Discipline Courses (DC) [one course = 4 credit] (Table 2)	Main Faculty (as per prerequisite)		Interdisciplin ary Minor Elective Tracks (Employment Oriented) (Table 4)	Project/ Field Internship/ Skill Based Projects/Research Projects/industrial Projects	Total
	AEC	SEC		Discipline Specific Elective (one course = 4 credit) (Table 3)				
				(Major)	(Minor)			
I	2	2	4	4	4	4	3(PBL)	23
II	2	2	4	4	4	4	3(PBL)	23
III	2	2	4	4	4	4	3(PBL)	23
IV	2	2	4	4	4	4	3(PBL)	23
V	2	2	-	4+4	4		4(SIP)	20
VI	2	2	-	4+4	4		4(Minor Project)	20
VII			12				8(Major)	20
VIII*			4	16*			16*(Research/Inte rnship Project)	20(4+16*)
Total	12	12	32	32R/32+1 6*H	24	16	28H/28+16*R	172

* Opt either 04 Specialized Courses (For Honor Degree) or Research Based Industrial Project (For Research Degree)

Note: PBL- Project Based Learning, SIP- Summer internship Project, SEC- Skill Enhancement Courses, AEC- Ability Enhancement Courses.

FIRST SEMESTER wef 2023-24 onwards																	
Course Code	Course Title	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR001	Project Based Learning –I	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

SECOND SEMESTER wef 2023-24 onwards																	
Course Code	Course Name	Contact Hours per Week			Credits	E S E D U r a t i o n (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR002	Project Based Learning-II	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those students who would like to exit after 1st year and want to obtain Undergraduate Certificate in Performing Arts have to complete mandatory Research internship at SUB/Industry/Research Organization for 450 hours to be completed in 8-10 weeks.

THIRD SEMESTER wef 2023-24 onwards																	
Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)						Weightage (Practical)			GT	
		L	T	P			Internal Assessment (IA)					E S E	GT	CE [^]	ESE		ToT
							MSE	ASG	TA	ATTD	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR003	Project Based Learning –III	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

FOURTH SEMESTER wef 2023-24 onwards																		
Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT			
		L	T	P			Internal Assessment (IA)					ESE	ToT	CE ^		ESE	ToT	
							MS E	ASG	TA	ATT D	ToT							
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	-	100
SC23PR004	Project Based Learning-IV	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100	
		Total			23												700	

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those students who would like to exit after 2nd year and want to obtain Undergraduate Diploma in Performing Arts have to complete mandatory Research internship at SUB/Industry/Research Organization for 450 hours to be completed in 8-10 weeks.

FIFTH SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE ^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR005	Summer Internship / Field Activity	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
		Total			20												600

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

SIXTH SEMESTER wef 2023-24 onwards																	
Course Code	Course Name	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR006	Minor Project	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
		Total			20												600

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those who would like to continue their studies in fourth year for obtaining degree of Honors/Research should have completed all the courses up to third year and obtained a minimum CGPA of 7.5.

SEVENTH SEMESTER wef 2023-24 onwards																			
Course Code	Course Name	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)							Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^	ESE	ToT			
							MSE	ASG	TA	ATT	ToT							Pre Sub	Viva Voc
SC23UC013	Intellectual Property Right & Research Publication Ethics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	-	100	
SC23UC014	Seminar / Publication	-	-	8	4	3	-	-	-	-	-	-	-	40	-	60	100	100	
MG23UC015	Project Management	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	-	100	
SC23PR007	Major Project	-	-	16	8	3	-	-	-	-	-	-	-	100	50	50	200	200	
		Total			20														500

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

EIGHTH SEMESTER (For Honors) wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE [^]		ES E	To T
							MS E	ASG	TA	ATT D	ToT						
SC23MO001	MOOCs	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
		Total			20												500

OR



EIGHTH SEMESTER (For Research Degree) wef 2023-2 onwards																			
Course Code	Course Name	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)							Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^	ESE	ToT			
							MSE	ASG	TA	ATT D	ToT							Pre Sub	Viva Voce
SC23MO001	MOOCs	-	-	8	4	3	-	-	-	-	-	-	-	-	40	-	60	100	100
SC23PR008	Research Project/Internship	-	-	32	16	3	-	-	-	-	-	-	-	-	200	100	100	400	400
		Total			20														500

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Table I
Groups for UC Courses
2023-24 onwards

GROUP A		School of Management, School of Commerce, School of Arts Humanities and Social Sciences, School of Law and Legal Studies, School of Performing Arts, School of Journalism and Mass Communication, School of Design.												
GROUP B		School of Sciences, SIRT- Pharmacy , SAGE College of Nursing , School of Computer Application , School of Advanced Computing, School of Engineering and Technology, School of Agriculture												
Semester	Course Code	Course Name Group A	CONTACT hours/week			Credi ts	Type	Course Code	Course Name Group B	CONTACT hours/week			Credits	Type
			L	T	P					L	T	P		
I	SC23UC001	Environmental Studies and Disaster Management	2	0	0	2	AEC	TR23UC003	Communication Skills	1	0	2	2	AEC
	AH23UC002	Hindi	2	0	0	2	SEC	CA23UC004	MS Office	0	0	4	2	SEC
II	TR23UC003	Communication Skills	1	0	2	2	AEC	SC23UC001	Environmental Studies and Disaster Management	2	0	0	2	AEC
	CA23UC004	MS Office	0	0	4	2	SEC	AH23UC002	Hindi	2	0	0	2	SEC
III	TR23UC005	Professional Skills-I	0	0	4	2	AEC	TR23UC007	Quantitative Aptitude and Logical Reasoning	2	0	0	2	AEC
	MG23UC006	Entrepreneurship Development	2	0	0	2	SEC	ET23UC008	Design and Critical Thinking	2	0	0	2	SEC
IV	TR23UC007	Quantitative Aptitude and Logical Reasoning	2	0	0	2	AEC	TR23UC005	Professional Skills-I	0	0	4	2	AEC
	ET23UC008	Design and Critical Thinking	2	0	0	2	SEC	MG23UC006	Entrepreneurship Development	2	0	0	2	SEC
V	TR23UC009	Professional Skills- II	0	0	4	2	AEC	CM23UC011	Financial Literacy & Banking	2	0	0	2	AEC
	MG23UC010	Research Methodology	2	0	0	2	SEC	AH23UC012	Indian Culture and Human Values	2	0	0	2	SEC
VI	CM23UC011	Financial Literacy & Banking	2	0	0	2	AEC	TR23UC009	Professional Skills- II	0	0	4	2	AEC
	AH23UC012	Indian Culture and Human Values	2	0	0	2	SEC	MG23UC010	Research Methodology	2	0	0	2	SEC

Note :

*Each Course would be of two Credits (1 Theory and 1 Practical) OR (0 Theory and 2 Practical)

** Each Credit is equivalent to 45 hrs. of student engagement (15 hrs. of Theory teaching in classroom & 30 hrs. of Practical learning / Field Work /Assignment /Self -learning)

School of Sciences (BSc)

Discipline Core Courses

Options	Major	Minor
I Nurture	Forensic Science	Digital Forensic

Semester	Course Code	Discipline Core BSc
I	SC23DC001	Basics of Life Sciences
II	SC23DC002	Introduction to Forensic Science
III	SC23DC003	Elements of Modern Physics
IV	SC23DC004	Elements of Statistics
V	SC23UC013	Intellectual Property Rights & Research Publication Ethics
VI	PA23UC014	Seminar / Publications
VII	MG23UC015	Project Management
VIII	PA23PR007	Major Project

Table: 2
Discipline Core Courses
2023-24 onwards

Semester	Course Code	Discipline Core BSc
I	SC23DC001	Basics of Life Sciences
II	SC23DC002	Introduction to Forensic Science
III	SC23DC003	Elements of Modern Physics
IV	SC23DC004	Elements of Statistics

Table: 3
 Discipline Specific Electives (DSE)
 (Select Any Two)
 2023-24 onwards

Tracks

Sem	Course Code	Forensic Science	Sem	Course Code	Digital Forensic
I	SC23FS001	Police Science and Criminal Justice System	I	SC23FS013	Computer Fundamentals and Organization
II	SC23FS002	Document and Fingerprint Examination	II	SC23FS014	Operating Systems
III	SC23FS003	Crime Scene Management	III	SC23FS015	Computer Networks
IV	SC23FS004	Forensic Physics and Speaker Identification	IV	SC23FS016	Digital Forensics and Investigation
V	SC23FS005 SC23FS006	Forensic Medicine and Toxicology Forensic Genetics and Anthropology	V	SC23FS017	File System and Storage
VI	SC23FS007 SC23FS008	Forensic Biology and Serology Forensic Ballistics	VI	SC23FS018	Forensics regulations, IT Acts and Cyber Law
VIII	SC23FS009	Forensic Chemistry and Explosives			
	SC23FS010	Instrumental Methods-Physical and Cyber			
	SC23FS011	Quality control, NABL Accreditation and Recent Advancement in Forensic Science			
	SC23FS012	Instrumental Methods-Chemical and Biological			

Table: 3.3

Track Forensic Science																		
Semester	Course Code	Course Title	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
			L	T	P			Internal Assessment (IA)					ESE	GT	CE [^]		ESE	ToT
								MS	ASG	TA	ATTD	ToT						
I	SC23FS001	Police Science and Criminal Justice System	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
II	SC23FS002	Document and Fingerprint Examination	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
III	SC23FS003	Crime Scene Management	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
IV	SC23FS004	Forensic Physics and Speaker Identification	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
V	SC23FS005 SC23FS006	Forensic Medicine and Toxicology Forensic Genetics and Anthropology	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
VI	SC23FS007 SC23FS008	Forensic Biology and Serology Forensic Ballistics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
VII	SC23FS009	Forensic Chemistry and Explosives	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23FS010	Instrumental Methods-Physical and Cyber	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23FS011	Quality control, NABL Accreditation and Recent Advancement in Forensic Science	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23FS012	Instrumental Methods-Chemical and Biological	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100

Table 4: Interdisciplinary Minor Elective Courses

**(Select any one track)
2023-24 Onwards**

S. No	Name of the Offering School	Minor Specialization Track	Minor Elective	Code	Course	Contact Hours / Week			Credits	Theory					Practical			GT		
						L	T	P		MSE	ASG	TAD	ATD	ESE	Total	CE	ESE		Total	
1	School of Engineering & Technology	Digital Marketing	I	ET23DM001	Web Development Fundamentals	2	0	4	4							40	60	10	10	
			II	ET23DM002	Introduction to Digital Marketing	2	0	4	4								40	60	10	10
			III	ET23DM003	Search Engine Optimization and Social Media Marketing	2	0	4	4								40	60	10	10
			IV	ET23DA004	Web Analytics	2	0	4	4								40	60	10	10
		Data Analytics	I	ET23DA001	Data Analytics Fundamentals	2	0	4	4								40	60	10	10
			II	ET23DA002	Business Analytics	2	0	4	4								40	60	10	10
			III	ET23DA003	R Programming	2	0	4	4								40	60	10	10
			IV	ET23DA004	Data Visualization	2	0	4	4								40	60	10	10
		Web Designing	I	ET23WD001	Web Designing Fundamentals	2	0	4	4								40	60	10	10
			II	ET23WD002	Dynamic Website with Java-script	2	0	4	4								40	60	10	10
			III	ET23WD003	Introduction to XML	2	0	4	4								40	60	10	10
			IV	ET23WD004	Web Application Development using PHP	2	0	4	4								40	60	10	10
		Programming	I	ET23PR001	Core Java	2	0	4	4								40	60	10	10
			II	ET23PR002	Advanced Java	2	0	4	4								40	60	10	10

			III	ET23PR00 3	Python Programming	2	0	4	4							40	60	10	10	
			IV	ET23PR00 4	Web Application Development	2	0	4	4							40	60	10	10	
2	School of Arts Humanities and Social Sciences	Tours & Travel Management	I	AH23TT00 1	Hospitality Etiquettes	2	0	4	4							40	60	10	10	
			II	AH23TT00 2	World Heritage Sites of MP	2	0	4	4							40	60	10	10	
			III	AH23TT00 3	Medical Tourism	2	0	4	4							40	60	10	10	
			IV	AH23TT00 4	International Travel Assistance	2	0	4	4							40	60	10	10	
3	School of Sciences	Laboratory Management	I	SC23LM00 1	Microbiology& Biotechnology Laboratory Skills	0	0	8	4							40	60	10	10	
			II	SC23LM00 2	Chemistry Lab Skills	0	0	8	4							40	60	10	10	
			III	SC23LM00 3	Electronics & Electrical Lab Skills	0	0	8	4							40	60	10	10	
			IV	SC23LM00 4	Physics Lab Skills	0	0	8	4							40	60	10	10	
4	School of Agriculture	Horticulture	I	AG23HR00 1	Production Technology for Vegetable and Spices	2	0	4	4							40	60	10	10	
			II	AG23HR00 2	Production Technology for Fruit and Plantation Crops	2	0	4	4							40	60	10	10	
			III	AG23HR00 3	Diseases of Field and Horticultural Crops and their Management -I	2	0	4	4							40	60	10	10	
			IV	AG23HR00 4	`Diseases of Field and Horticultural Crops and their Management-II	2	0	4	4							40	60	10	10	
		Agri Business	I	AG23AB00 1	Agricultural Finance and Cooperation	2	0	4	4								40	60	10	10
			II	AG23AB00 2	Agricultural Marketing Trade & Prices	2	0	4	4								40	60	10	10
			III	AG23AB00 3	Entrepreneurship Development and Business Communication	2	0	4	4								40	60	10	10
			IV	AG23AB00 4	Farm Management, Production & Resource Economics	2	0	4	4								40	60	10	10
School of Commerce & Management	Basic Accounting Skills	I	CM23BA0 01	Financial Accounting	4	0	0	4							40	60	10	10		
		II	CM23BA0 02	Tally	3	0	2	4							40	60	10	10		

5		Retail Management & Merchandising	III	CM23BA003	Personal Taxation	4	0	0	4							40	60	10	10	
			IV	CM23BA004	Direct and Indirect Taxes	4	0	0	4								40	60	10	10
			I	MG23RM001	Retail Management	4	0	0	4								40	60	10	10
			II	MG23RM002	Merchandising	4	0	0	4								40	60	10	10
			III	MG23RM003	Supply Chain Management	4	0	0	4								40	60	10	10
			IV	MG23RM004	E Business	4	0	0	4								40	60	10	10
		Investment Management	I	MG23IM001	Introduction to Financial Markets	4	0	0	4								40	60	10	10
			II	MG23IM002	Fundamental & Technical Analysis of Investment	4	0	0	4								40	60	10	10
			III	MG23IM003	Risk Management	4	0	0	4								40	60	10	10
			IV	MG23IM004	Introduction to Derivatives	4	0	0	4								40	60	10	10
6	School of Design	Sketching & Painting	I	DN23SP001	Sketching-I	0	0	8	4							40	60	10	10	
			II	DN23SP002	Sketching -II	0	0	8	4							40	60	10	10	
			III	DN23SP003	Painting-I	0	0	8	4							40	60	10	10	
			IV	DN23SP004	Painting-II	0	0	8	4							40	60	10	10	
		Interior Design	I	DN23ID001	Building Materials & Processes	0	0	8	4								40	60	10	10
			II	DN23ID002	Elements of Interior Spaces	0	0	8	4								40	60	10	10
			III	DN3ID003	Basics of Lighting Design	0	0	8	4								40	60	10	10
			IV	DN23ID004	Building Services	0	0	8	4								40	60	10	10
		Apparel Design	I	DN23ADO01	Fashion Illustration-I	0	0	8	4								40	60	10	10
			II	DN23ADO02	Dyeing and Printing Techniques	0	0	8	4								40	60	10	10
			III	DN23ADO03	Surface Exploration I	0	0	8	4								40	60	10	10

			IV	DN23AD004	Surface Exploration II	0	0	8	4							40	60	10	10		
7	School of Performing Arts	Dance	I	PA23DN001	Techniques and Theatrical Performance of Dance I	0	0	8	4							40	60	10	10		
			II	PA23DN002	Techniques and Theatrical Performance of Dance II	0	0	8	4								40	60	10	10	
			III	PA23DN003	Techniques and Theatrical Performance of Dance III	0	0	8	4								40	60	10	10	
			IV	PA23DN004	Techniques and Theatrical Performance of Dance IV	0	0	8	4								40	60	10	10	
		Music	I	PA23MC001	Musical Roots and Theatrical Performance I	0	0	8	4								40	60	10	10	
			II	PA23MC002	Musical Roots and Theatrical Performance II	0	0	8	4								40	60	10	10	
			III	PA23MC003	Musical Roots and Theatrical Performance III	0	0	8	4								40	60	10	10	
			IV	PA23MC004	Musical Roots and Theatrical Performance IV	0	0	8	4								40	60	10	10	
		Theatre	I	PA23TR001	Basics of Acting Production I	0	0	8	4								40	60	10	10	
			II	PA23TR002	Drama Production II	0	0	8	4								40	60	10	10	
			III	PA23TR003	Drama Production III	0	0	8	4								40	60	10	10	
			IV	PA23TR004	Drama Production IV	0	0	8	4								40	60	10	10	
		8	School of Journalism and Mass Communication	Basic Media Production Techniques	I	JM23MP001	Photography	0	0	8	4							40	60	10	10
					II	JM23MP002	Videography	0	0	8	4							40	60	10	10
					III	JM23MP003	Script Writing	0	0	8	4							40	60	10	10
					IV	JM23MP004	Audio Visual Editing	0	0	8	4							40	60	10	10
Advertising and Public Relations	I			JM23AP001	Introduction to Advertising	0	0	8	4								40	60	10	10	
	II			JM23AP002	Content Creation	0	0	8	4								40	60	10	10	
	III			JM23AP003	Introduction to Public Relations	0	0	8	4								40	60	10	10	
	IV			JM23AP004	Tools and Techniques of Public Relations	0	0	8	4								40	60	10	10	

**SANJEEV AGRAWAL GLOBAL EDUCATIONAL
UNIVERSITY, BHOPAL**

**Proposed Scheme & Syllabus
For**

Bachelor of Science (BSc)

Certificate/Diploma/Degree/Honors Degree/ Research Degree

in

Mathematics

w.e.f. 2023-24 (According to NEP 2020)



School of Sciences

Bachelor of Science (BSc)

Program Educational Objectives (PEOs) Mathematics:

PEO-1: Prospective Employment and Career Prospects-Developing the potential for vertical career growth in investigation laboratories, service sectors and related avenues.

PEO-2: Proficiency- Inculcating technical and managerial skills crucial for real time scenarios through the enhancement of problem-solving skills and advanced technical documentation ability.

PEO-3: Affectionate Objective- Grooming the students with technical proficiency to equip them for the emergence of sustainable technology and solutions for prevailing environmental, societal and cultural concerns.

PEO-4: Research Methods-Nurturing the research aptitude to provide solutions for global challenges and abilities to explore hidden potential of the matter.

PEO-5: Continuous Learning-Instilling knowledge and awareness on professional ethics related to crime prevention and evidence analysis and life-long learning through career-oriented courses.

Program Outcomes (POs) Mathematics:

By the end of the program the students will be able to:

- PO 1.** Recall basic facts about mathematics and display knowledge of conventions such as notations, terminology etc.
- PO 2.** Think in a critical manner and develop problem solving skills which leads in-depth knowledge of Algebra, Calculus, Geometry, differential equations and several other branches of pure and applied mathematics.
- PO 3.** Apply the knowledge and skills to critical thinking and logical reasoning and capable of recognizing and distinguishing the various aspects of real-life problems.
- PO 4.** Analyze the problems, identify and define appropriate computing requirements for its solutions.
- PO 5.** Inquire about appropriate questions relating to the Mathematical concepts in different areas of Mathematics.
- PO 6.** Use appropriate software to solve system of algebraic equation and differential equations.
- PO 7.** Work independently and to make an in-depth study of various notions of Mathematics.
- PO 8.** Develop algorithms and computational skills for solving real world problems.
- PO 9.** Apply their skills and knowledge in various fields of studies including, science, engineering, commerce and management etc.
- PO 10.** Peruse advanced studies and research in pure and applied Mathematical sciences.

Bachelor of Science (BSc)

CURRICULUM COMPONENTS

	Components	Credits
University Core (Table 1)	Ability Enhancement Courses (06 Courses)	12
	Skill Enhancement Courses (06 Courses)	12
Discipline Core Courses (8 Courses) (Table 2)		32
Discipline Specific Major Electives (8+4 Courses) (Table 3)		32R/48H*
Discipline Specific Minor Electives (6 Courses) (Table 3)		24
Interdisciplinary Minor Electives (04 Courses) (Table 4)		16
Project/Field Internship/Skill Based Project		28H/44R*
	Total	172

*** Opt either 04 Specialized Courses (for Honors Degree) or Research Based Industrial Project (for Research Degree)**

** Note: Any student opting out after I year / II year will obtain undergraduate Certificate/Diploma respectively in the specific discipline subject to mandatory 450hrs (8-10 week) ,10 credit Internship in SUB/Industry/Research organization.

Distribution of credits across all components

SEM.	University Core Courses. (one course = 02 credit) (Table 1)		Discipline Courses (DC) [one course = 4 credit] (Table 2)	Main Faculty (as per prerequisite)		Interdisciplin ary Minor Elective Tracks (Employment Oriented) (Table 4)	Project/ Field Internship/ Skill Based Projects/Research Projects/industrial Projects	Total
	AEC	SEC		Discipline Specific Elective (one course = 4 credit) (Table 3)				
				(Major)	(Minor)			
I	2	2	4	4	4	4	3(PBL)	23
II	2	2	4	4	4	4	3(PBL)	23
III	2	2	4	4	4	4	3(PBL)	23
IV	2	2	4	4	4	4	3(PBL)	23
V	2	2	-	4+4	4		4(SIP)	20
VI	2	2	-	4+4	4		4(Minor Project)	20
VII			12				8(Major)	20
VIII*			4	16*			16*(Research/Inte rnship Project)	20(4+16*)
Total	12	12	32	32R/32+1 6*H	24	16	28H/28+16*R	172

* Opt either 04 Specialized Courses (For Honor Degree) or Research Based Industrial Project (For Research Degree)

Note: PBL- Project Based Learning, SIP- Summer internship Project, SEC- Skill Enhancement Courses, AEC- Ability Enhancement Courses.

FIRST SEMESTER wef 2023-24 onwards																	
Course Code	Course Title	Contact Hours per Week			Credits	ESE Durations (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR001	Project Based Learning –I	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

SECOND SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR002	Project Based Learning-II	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher’s Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those students who would like to exit after 1st year and want to obtain Undergraduate Certificate in Performing Arts have to complete mandatory Research internship at SUB/Industry/Research Organization for 450 hours to be completed in 8-10 weeks.

THIRD SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT			
		L	T	P			Internal Assessment (IA)					ES E	GT	CE [^]		ESE	ToT	
							MSE	ASG	TA	ATTD	ToT							
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	-	100
SC23PR003	Project Based Learning –III	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100	
		Total			23												700	

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

FOURTH SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)						Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	ToT	CE ^	ESE		ToT	
							MSE	ASG	TA	ATT D	ToT							
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	-	100
SC23PR004	Project Based Learning-IV	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100	
		Total			23													700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those students who would like to exit after 2nd year and want to obtain Undergraduate Diploma in Performing Arts have to complete mandatory Research internship at SUB/Industry/Research Organization for 450 hours to be completed in 8-10 weeks.

FIFTH SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			Credits	ESE Durat ion (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE ^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR005	Summer Internship / Field Activity	-	-	8	4	3	-	-	-	-	-	-	40	60	100		100
		Total			20												600

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

SIXTH SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			Credits	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ES E	To T
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR006	Minor Project	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
		Total			20												600

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those who would like to continue their studies in fourth year for obtaining degree of Honors/Research should have completed all the courses up to third year and obtained a minimum CGPA of 7.5.

	SEVENTH SEMESTER wef 2023-24 onwards
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Course Code	Course Name	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)							Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^	ESE	Viva Voce		ToT	
							MSE	ASG	TA	ATT	ToT								
SC23UC013	Intellectual Property Right & Research Publication Ethics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	-	100	
SC23UC014	Seminar / Publication	-	-	8	4	3	-	-	-	-	-	-	-	40	-	60	100	100	
MG23UC015	Project Management	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	-	100	
SC23PR007	Major Project	-	-	16	8	3	-	-	-	-	-	-	-	100	50	50	200	200	
		Total			20														500

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

EIGHTH SEMESTER (For Honors) wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			Credits	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MS E	ASG	TA	ATT D	ToT						
SC23MO001	MOOCs	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
		Total			20												500

OR

EIGHTH SEMESTER (For Research Degree) wef 2023-2 onwards											
Course Code	Course Name	Contact Hours per Week	Credits	E S E D u	Weightage (Theory)					Weightage (Practical)	GT
											

		L	T	P	it s	r a t i o n (H o u r s)	Internal Assessment (IA)					ESE	GT	CE^	ESE	To T			
							MSE	ASG	TA	ATT D	ToT				Pre Sub			Viv aVo ce	
SC23MO001	MOOCs	-	-	8	4	3	-	-	-	-	-	-	-	40	-	60	100	100	
SC23PR008	Research Project/Internship	-	-	32	16	3	-	-	-	-	-	-	-	200	100	100	400	400	
		Total			20														500

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

**Table I
Groups for UC Courses
2023-24 onwards**

GROUP A	School of Management, School of Commerce, School of Arts Humanities and Social Sciences, School of Law and Legal Studies, School of Performing Arts, School of Journalism and Mass Communication, School of Design.
GROUP B	School of Sciences, SIRT- Pharmacy , SAGE College of Nursing , School of Computer Application , School of Advanced Computing, School of Engineering and Technology, School of Agriculture

Semester	Course Code	Course Name Group A	CONTACT hours/week			Credits	Type	Course Code	Course Name Group B	CONTACT hours/week			Credits	Type
			L	T	P					L	T	P		
I	SC23UC001	Environmental Studies and Disaster Management	2	0	0	2	AEC	TR23UC003	Communication Skills	1	0	2	2	AEC
	AH23UC002	Hindi	2	0	0	2	SEC	CA23UC004	MS Office	0	0	4	2	SEC
II	TR23UC003	Communication Skills	1	0	2	2	AEC	SC23UC001	Environmental Studies and Disaster Management	2	0	0	2	AEC
	CA23UC004	MS Office	0	0	4	2	SEC	AH23UC002	Hindi	2	0	0	2	SEC
III	TR23UC005	Professional Skills-I	0	0	4	2	AEC	TR23UC007	Quantitative Aptitude and Logical Reasoning	2	0	0	2	AEC
	MG23UC006	Entrepreneurship Development	2	0	0	2	SEC	ET23UC008	Design and Critical Thinking	2	0	0	2	SEC
IV	TR23UC007	Quantitative Aptitude and Logical Reasoning	2	0	0	2	AEC	TR23UC005	Professional Skills-I	0	0	4	2	AEC
	ET23UC008	Design and Critical Thinking	2	0	0	2	SEC	MG23UC006	Entrepreneurship Development	2	0	0	2	SEC
V	TR23UC009	Professional Skills- II	0	0	4	2	AEC	CM23UC011	Financial Literacy & Banking	2	0	0	2	AEC
	MG23UC010	Research Methodology	2	0	0	2	SEC	AH23UC012	Indian Culture and Human Values	2	0	0	2	SEC
VI	CM23UC011	Financial Literacy & Banking	2	0	0	2	AEC	TR23UC009	Professional Skills- II	0	0	4	2	AEC
	AH23UC012	Indian Culture and Human Values	2	0	0	2	SEC	MG23UC010	Research Methodology	2	0	0	2	SEC

Note :

*Each Course would be of two Credits (1 Theory and 1 Practical) OR (0 Theory and 2 Practical)

** Each Credit is equivalent to 45 hrs. of student engagement (15 hrs. of Theory teaching in classroom & 30 hrs. of Practical learning / Field Work /Assignment /Self -learning)

School of Sciences (BSc)

Discipline Core Courses

Semester	Course Code	Discipline Core BSc
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I	SC23DC001	Basics of Life Sciences
II	SC23DC002	Introduction to Forensic Science
III	SC23DC003	Elements of Modern Physics
IV	SC23DC004	Elements of Statistics
V	SC23UC013	Intellectual Property Rights & Research Publication Ethics
VI	PA23UC014	Seminar / Publications
VII	MG23UC015	Project Management
VIII	PA23PR007	Major Project



Table: 2
Discipline Core Courses
2023-24 onwards

Semester	Course Code	Discipline Core BSc
I	SC23DC001	Basics of Life Sciences
II	SC23DC002	Introduction to Forensic Science
III	SC23DC003	Elements of Modern Physics
IV	SC23DC004	Elements of Statistics

Table: 3
 Discipline Specific Electives (DSE)
 (Select Any Two)
 2023-24 onwards
Tracks

Sem	Course Code	Physics	Course Code	Mathematics
I	SC23PH001	Mathematical Physics	SC23MA001	Algebra and Calculus - I
II	SC23PH002	Mechanics	SC23MA002	Algebra and Calculus - II
III	SC23PH003	Thermal Physics and Statistical Mechanics	SC23MA003	Differential Equations
IV	SC23PH004	Wave and Optics	SC23MA004	Discrete Mathematics
V	SC23PH005	Classical Electrodynamics	SC23MA005	Real Analysis
	SC23PH006	Electricity, Magnetism and Electromagnetism	SC23MA006	Integral Calculus and Vector Analysis
VI	SC23PH007	Quantum Mechanics	SC23MA007	Linear Algebra
	SC23PH008	Plasma Physics	SC23MA008	Probability and Statistics
VIII	SC23PH009	Solid State Physics	SC23MA009	Complex Analysis
	SC23PH010	Nuclear, Atomic and Molecular Physics	SC23MA010	Numerical Methods
	SC23PH011	Analog & Digital Circuits	SC23MA011	Linear Programming and Optimization Techniques
	SC23PH012	Elements of Condensed Matter Physics	SC23MA012	Mathematical Transforms and Techniques

Track Physics																		
Sem ester	Course Code	Course Title	Contact Hours per Week			C red it s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)							Weightage (Practical)			GT
			L	T	P			Internal Assessment (IA)					ES E	G T	CE ^	ESE	ToT	
								M SE	AS G	T A	AT TD	To T						
I	SC23PH001	Mathematical Physics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
II	SC23PH002	Mechanics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
III	SC23PH003	Thermal Physics and Statistical Mechanics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
IV	SC23PH004	Wave and Optics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
V	SC23PH005	Classical Electrodynamics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23PH006	Electricity and Magnetism Electromagnetism	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
VI	SC23PH007 SC23PH008	Quantum Mechanics Plasma Physics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
VIII	SC23PH009	Solid State Physics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23PH010	Nuclear, Atomic and Molecular Physics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23PH011	Analog & Digital Circuits	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23PH012	Elements of Condensed Matter Physics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100

Track Mathematics

Semester	Course Code	Course Title	Contact Hours per Week			Credits	ESE D u r a t i o n (Hours)	Weightage (Theory)						Weightage (Practical)			GT	
			L	T	P			Internal Assessment (IA)					ESE	GT	CE ^	ESE		ToT
								MSE	ASG	TA	ATD	ToT						
I	SC23MA001	Algebra and Calculus - I	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
II	SC23MA002	Algebra and Calculus - II	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
III	SC23MA003	Differential Equations	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
IV	SC23MA004	Discrete Mathematics	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
V	SC23MA005 SC23MA006	Real Analysis	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
VI	SC23MA007 SC23MA008	Integral Calculus and Vector Analysis	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
VIII	SC23MA009	Linear Algebra Probability and Statistics	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23MA010	Complex Analysis	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23MA011	Numerical Methods	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23MA012	Linear Programming and Optimization Techniques	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100

Table 4: Interdisciplinary Minor Elective Courses

**(Select any one track)
2023-24 Onwards**

S. No	Name of the Offering School	Minor Specialization Track	Minor Elective	Code	Course	Contact Hours / Week			Credits	Theory					Practical			G T		
						L	T	P		M S E	A S G	T A	A T T D	E S E	T o t a l	C E	E S E		T o t a l	
1	School of Engineering & Technology	Digital Marketing	I	ET23DM001	Web Development Fundamentals	2	0	4	4							40	60	10	10	
			II	ET23DM002	Introduction to Digital Marketing	2	0	4	4								40	60	10	10
			III	ET23DM003	Search Engine Optimization and Social Media Marketing	2	0	4	4								40	60	10	10
			IV	ET23DA004	Web Analytics	2	0	4	4								40	60	10	10
		Data Analytics	I	ET23DA001	Data Analytics Fundamentals	2	0	4	4								40	60	10	10
			II	ET23DA002	Business Analytics	2	0	4	4								40	60	10	10
			III	ET23DA003	R Programming	2	0	4	4								40	60	10	10
			IV	ET23DA004	Data Visualization	2	0	4	4								40	60	10	10
		Web Designing	I	ET23WD001	Web Designing Fundamentals	2	0	4	4								40	60	10	10
			II	ET23WD002	Dynamic Website with Java-script	2	0	4	4								40	60	10	10
			III	ET23WD003	Introduction to XML	2	0	4	4								40	60	10	10
			IV	ET23WD004	Web Application Development using PHP	2	0	4	4								40	60	10	10
		Programming	I	ET23PR001	Core Java	2	0	4	4								40	60	10	10
II	ET23PR002		Advanced Java	2	0	4	4								40	60	10	10		
III	ET23PR003		Python Programming	2	0	4	4								40	60	10	10		

			IV	ET23PR00 4	Web Application Development	2	0	4	4							40	60	10	10	0	0	
2	School of Arts Humanities and Social Sciences	Tours & Travel Management	I	AH23TT00 1	Hospitality Etiquettes	2	0	4	4							40	60	10	10	0	0	
			II	AH23TT00 2	World Heritage Sites of MP	2	0	4	4							40	60	10	10	0	0	
			III	AH23TT00 3	Medical Tourism	2	0	4	4							40	60	10	10	0	0	
			IV	AH23TT00 4	International Travel Assistance	2	0	4	4							40	60	10	10	0	0	
3	School of Sciences	Laboratory Management	I	SC23LM00 1	Microbiology& Biotechnology Laboratory Skills	0	0	8	4							40	60	10	10	0	0	
			II	SC23LM00 2	Chemistry Lab Skills	0	0	8	4							40	60	10	10	0	0	
			III	SC23LM00 3	Electronics & Electrical Lab Skills	0	0	8	4							40	60	10	10	0	0	
			IV	SC23LM00 4	Physics Lab Skills	0	0	8	4							40	60	10	10	0	0	
4	School of Agriculture	Horticulture	I	AG23HR00 1	Production Technology for Vegetable and Spices	2	0	4	4							40	60	10	10	0	0	
			II	AG23HR00 2	Production Technology for Fruit and Plantation Crops	2	0	4	4							40	60	10	10	0	0	
			III	AG23HR00 3	Diseases of Field and Horticultural Crops and their Management –I	2	0	4	4							40	60	10	10	0	0	
			IV	AG23HR00 4	`Diseases of Field and Horticultural Crops and their Management-II	2	0	4	4							40	60	10	10	0	0	
		Agri Business	I	AG23AB00 1	Agricultural Finance and Cooperation	2	0	4	4								40	60	10	10	0	0
			II	AG23AB00 2	Agricultural Marketing Trade & Prices	2	0	4	4								40	60	10	10	0	0
			III	AG23AB00 3	Entrepreneurship Development and Business Communication	2	0	4	4								40	60	10	10	0	0
			IV	AG23AB00 4	Farm Management, Production & Resource Economics	2	0	4	4								40	60	10	10	0	0
5	School of Commerce & Management	Basic Accounting Skills	I	CM23BA0 01	Financial Accounting	4	0	0	4							40	60	10	10	0	0	
			II	CM23BA0 02	Tally	3	0	2	4							40	60	10	10	0	0	
			III	CM23BA0 03	Personal Taxation	4	0	0	4							40	60	10	10	0	0	
			IV	CM23BA0 04	Direct and Indirect Taxes	4	0	0	4							40	60	10	10	0	0	

		Retail Management & Merchandising	I	MG23RM001	Retail Management	4	0	0	4							40	60	10	10	
			II	MG23RM002	Merchandising	4	0	0	4								40	60	10	10
			III	MG23RM003	Supply Chain Management	4	0	0	4								40	60	10	10
			IV	MG23RM004	E Business	4	0	0	4								40	60	10	10
		Investment Management	I	MG23IM001	Introduction to Financial Markets	4	0	0	4								40	60	10	10
			II	MG23IM002	Fundamental & Technical Analysis of Investment	4	0	0	4								40	60	10	10
			III	MG23IM003	Risk Management	4	0	0	4								40	60	10	10
			IV	MG23IM004	Introduction to Derivatives	4	0	0	4								40	60	10	10
6	School of Design	Sketching & Painting	I	DN23SP001	Sketching-I	0	0	8	4							40	60	10	10	
			II	DN23SP002	Sketching –II	0	0	8	4							40	60	10	10	
			III	DN23SP003	Painting-I	0	0	8	4							40	60	10	10	
			IV	DN23SP004	Painting-II	0	0	8	4							40	60	10	10	
		Interior Design	I	DN23ID001	Building Materials & Processes	0	0	8	4								40	60	10	10
			II	DN23ID002	Elements of Interior Spaces	0	0	8	4								40	60	10	10
			III	DN3ID003	Basics of Lighting Design	0	0	8	4								40	60	10	10
			IV	DN23ID004	Building Services	0	0	8	4								40	60	10	10
		Apparel Design	I	DN23AD001	Fashion Illustration-I	0	0	8	4								40	60	10	10
			II	DN23AD002	Dyeing and Printing Techniques	0	0	8	4								40	60	10	10
			III	DN23AD003	Surface Exploration I	0	0	8	4								40	60	10	10
			IV	DN23AD004	Surface Exploration II	0	0	8	4								40	60	10	10
		School of Performing Arts	Dance	I	PA23DN001	Techniques and Theatrical Performance of Dance I	0	0	8	4							40	60	10	10
				II	PA23DN002	Techniques and Theatrical Performance of Dance II	0	0	8	4							40	60	10	10

**SANJEEV AGRAWAL GLOBAL EDUCATIONAL
UNIVERSITY, BHOPAL**

**Proposed Scheme & Syllabus
For**

Bachelor of Science (BSc)

Certificate/Diploma/Degree/Honors Degree/ Research Degree

in

Microbiology

w.e.f. 2023-24 (According to NEP 2020)



School of Sciences

Bachelor of Science (BSc)

Program Educational Objectives (PEOs) (Microbiology):

PEO-1: Prospective Employment and Career Prospects-Developing the potential for vertical career growth in Biotech-oriented industries, service sectors and related avenues.

PEO-2: Proficiency- Inculcating technical and managerial skills crucial for real time scenarios through the enhancement of problem-solving skills and advanced technical documentation ability.

PEO-3: Affectionate Objective- Grooming the students with technical proficiency to equip them for the emergence of sustainable technology and solutions for prevailing environmental, societal and cultural concerns.

PEO-4: Research Methods-Nurturing the research aptitude to provide solutions for global challenges and abilities to explore hidden potential of the matter

PEO-5: Continuous Learning-Instilling knowledge and awareness on professional ethics, bioethical and health issues, intellectual property rights and life-long learning through career oriented courses

Program Outcomes (POs) (Microbiology):

By the end of the program the students will be able to:

- PO 1.** Understand concepts of Biotechnology/Microbiology and demonstrate interdisciplinary skills acquired in cell biology, genetics, biochemistry, and molecular biology.
- PO 2.** Demonstrate the Laboratory skills in cell biology, basic and applied microbiology with emphasis on technological aspects
- PO 3.** Apply the knowledge and skills gained in the fields of plant biotechnology, animal biotechnology and microbial technology in pharma, food, agriculture, beverages, herbal and nutraceutical industries.
- PO 4.** Critically analyze environmental issues and apply the biotechnology knowledge gained for conserving the environment and resolving environmental problems.
- PO 5.** Demonstrate comprehensive innovations and skills in the fields of biomolecules, cell and organelles, molecular biology, bioprocess engineering and genetic engineering of plants, microbes, and animals with respect to applications for human welfare.
- PO 6.** Apply the knowledge and skills of immunology, bioinformatics, computational modelling of proteins, drug design and simulations to test models and aid in drug discovery.
- PO 7.** Demonstrate communication skills, scientific writing, data collection and interpretation abilities in all the fields of biotechnology.
- PO 8.** Learn and practice professional skills in handling microbes, animals and plants and demonstrate the ability to identify ethical issues related to recombinant DNA technology, genetic engineering, animals handling, intellectual property rights, biosafety, and biohazards.
- PO 9.** Demonstrate thorough knowledge and application of good laboratory and good manufacturing practices in biotech industries
- PO 10.** Demonstrate entrepreneurship abilities, innovative thinking, planning, and setting up of small-scale enterprises or CROs

Bachelor of Science (BSc)

CURRICULUM COMPONENTS

	Components	Credits
University Core (Table 1)	Ability Enhancement Courses (06 Courses)	12
	Skill Enhancement Courses (06 Courses)	12
Discipline Core Courses (8 Courses) (Table 2)		32
Discipline Specific Major Electives (8+4 Courses) (Table 3)		32R/48H*
Discipline Specific Minor Electives (6 Courses) (Table 3)		24
Interdisciplinary Minor Electives (04 Courses) (Table 4)		16
Project/Field Internship/Skill Based Project		28H/44R*
Total		172

*** Opt either 04 Specialized Courses (for Honors Degree) or Research Based Industrial Project (for Research Degree)**

** Note: Any student opting out after I year / II year will obtain undergraduate Certificate/Diploma respectively in the specific discipline subject to mandatory 450hrs (8-10 week) ,10 credit Internship in SUB/Industry/Research organization.

Distribution of credits across all components

SEM.	University Core Courses. (one course = 02 credit) (Table 1)		Discipline Courses (DC) [one course = 4 credit] (Table 2)	Main Faculty (as per prerequisite)		Interdisciplin ary Minor Elective Tracks (Employment Oriented) (Table 4)	Project/ Field Internship/ Skill Based Projects/Research Projects/industrial Projects	Total
	AEC	SEC		Discipline Specific Elective (one course = 4 credit) (Table 3)				
				(Major)	(Minor)			
I	2	2	4	4	4	4	3(PBL)	23
II	2	2	4	4	4	4	3(PBL)	23
III	2	2	4	4	4	4	3(PBL)	23
IV	2	2	4	4	4	4	3(PBL)	23
V	2	2	-	4+4	4		4(SIP)	20
VI	2	2	-	4+4	4		4(Minor Project)	20
VII			12				8(Major)	20
VIII*			4	16*			16*(Research/Inte rnship Project)	20(4+16*)
Total	12	12	32	32R/32+1 6*H	24	16	28H/28+16*R	172

* Opt either 04 Specialized Courses (For Honor Degree) or Research Based Industrial Project (For Research Degree)

Note: PBL- Project Based Learning, SIP- Summer internship Project, SEC- Skill Enhancement Courses, AEC- Ability Enhancement Courses.

FIRST SEMESTER wef 2023-24 onwards																	
Course Code	Course Title	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE [^]		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR001	Project Based Learning –I	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

SECOND SEMESTER wef 2023-24 onwards																	
Course Code	Course Name	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR002	Project Based Learning-II	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those students who would like to exit after 1st year and want to obtain Undergraduate Certificate in Performing Arts have to complete mandatory Research internship at SUB/Industry/Research Organization for 450 hours to be completed in 8-10 weeks.

THIRD SEMESTER wef 2023-24 onwards																	
Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)						Weightage (Practical)			GT	
		L	T	P			Internal Assessment (IA)					ES E	GT	CE [^]	ESE		ToT
							MSE	ASG	TA	ATTD	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR003	Project Based Learning –III	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

FOURTH SEMESTER wef 2023-24 onwards																	
Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	ToT	CE ^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR004	Project Based Learning-IV	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those students who would like to exit after 2nd year and want to obtain Undergraduate Diploma in Performing Arts have to complete mandatory Research internship at SUB/Industry/Research Organization for 450 hours to be completed in 8-10 weeks.

FIFTH SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE ^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR005	Summer Internship / Field Activity	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
		Total			20												600

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

SIXTH SEMESTER wef 2023-24 onwards																	
Course Code	Course Name	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR006	Minor Project	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
		Total			20												600

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those who would like to continue their studies in fourth year for obtaining degree of Honors/Research should have completed all the courses up to third year and obtained a minimum CGPA of 7.5.

SEVENTH SEMESTER wef 2023-24 onwards																			
Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)							Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^	ESE	ToT			
							MSE	ASG	TA	ATT D	ToT							Pre Sub	Viv a Voc e
SC23UC013	Intellectual Property Right & Research Publication Ethics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	-	100	
SC23UC014	Seminar / Publication	-	-	8	4	3	-	-	-	-	-	-	-	40	-	60	100	100	
MG23UC015	Project Management	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	-	100	
SC23PR007	Major Project	-	-	16	8	3	-	-	-	-	-	-	-	100	50	50	200	200	
		Total			20														500

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

EIGHTH SEMESTER (For Honors) wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE [^]		ES E	To T
							MS E	ASG	TA	ATT D	ToT						
SC23MO001	MOOCs	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
		Total			20												500

OR

EIGHTH SEMESTER (For Research Degree) wef 2023-2 onwards

Course Code	Course Name	Contact Hours per Week			Credits	ESE Durations (Hours)	Weightage (Theory)							Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^	ESE	VivaVoce		ToT	
							MSE	ASG	TA	ATT D	ToT								
SC23MO001	MOOCs	-	-	8	4	3	-	-	-	-	-	-	-	40	-	60	100	100	
SC23PR008	Research Project/Internship	-	-	32	16	3	-	-	-	-	-	-	-	200	100	100	400	400	
		Total			20														500

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Table I
Groups for UC Courses
2023-24 onwards

GROUP A	School of Management, School of Commerce, School of Arts Humanities and Social Sciences, School of Law and Legal Studies, School of Performing Arts, School of Journalism and Mass Communication, School of Design.													
GROUP B	School of Sciences, SIRT- Pharmacy , SAGE College of Nursing , School of Computer Application , School of Advanced Computing, School of Engineering and Technology, School of Agriculture													
Semester	Course Code	Course Name Group A	CONTACT hours/week			Credi ts	Type	Course Code	Course Name Group B	CONTACT hours/week			Credits	Type
			L	T	P					L	T	P		
I	SC23UC001	Environmental Studies and Disaster Management	2	0	0	2	AEC	TR23UC003	Communication Skills	1	0	2	2	AEC
	AH23UC002	Hindi	2	0	0	2	SEC	CA23UC004	MS Office	0	0	4	2	SEC
II	TR23UC003	Communication Skills	1	0	2	2	AEC	SC23UC001	Environmental Studies and Disaster Management	2	0	0	2	AEC
	CA23UC004	MS Office	0	0	4	2	SEC	AH23UC002	Hindi	2	0	0	2	SEC
III	TR23UC005	Professional Skills-I	0	0	4	2	AEC	TR23UC007	Quantitative Aptitude and Logical Reasoning	2	0	0	2	AEC
	MG23UC006	Entrepreneurship Development	2	0	0	2	SEC	ET23UC008	Design and Critical Thinking	2	0	0	2	SEC
IV	TR23UC007	Quantitative Aptitude and Logical Reasoning	2	0	0	2	AEC	TR23UC005	Professional Skills-I	0	0	4	2	AEC
	ET23UC008	Design and Critical Thinking	2	0	0	2	SEC	MG23UC006	Entrepreneurship Development	2	0	0	2	SEC
V	TR23UC009	Professional Skills- II	0	0	4	2	AEC	CM23UC011	Financial Literacy & Banking	2	0	0	2	AEC
	MG23UC010	Research Methodology	2	0	0	2	SEC	AH23UC012	Indian Culture and Human Values	2	0	0	2	SEC
VI	CM23UC011	Financial Literacy & Banking	2	0	0	2	AEC	TR23UC009	Professional Skills- II	0	0	4	2	AEC
	AH23UC012	Indian Culture and Human Values	2	0	0	2	SEC	MG23UC010	Research Methodology	2	0	0	2	SEC

Note :

*Each Course would be of two Credits (1 Theory and 1 Practical) OR (0 Theory and 2 Practical)

** Each Credit is equivalent to 45 hrs. of student engagement (15 hrs. of Theory teaching in classroom & 30 hrs. of Practical learning / Field Work /Assignment /Self -learning)

School of Sciences (BSc)

Discipline Core Courses

Semester	Course Code	Discipline Core BSc
I	SC23DC001	Basics of Life Sciences
II	SC23DC002	Introduction to Forensic Science
III	SC23DC003	Elements of Modern Physics
IV	SC23DC004	Elements of Statistics
V	SC23UC013	Intellectual Property Rights & Research Publication Ethics
VI	PA23UC014	Seminar / Publications
VII	MG23UC015	Project Management
VIII	PA23PR007	Major Project

Table: 2
Discipline Core Courses
2023-24 onwards

Semester	Course Code	Discipline Core BSc
I	SC23DC001	Basics of Life Sciences
II	SC23DC002	Introduction to Forensic Science
III	SC23DC003	Elements of Modern Physics
IV	SC23DC004	Elements of Statistics

Table: 3
 Discipline Specific Electives (DSE)
 (Select Any Two)
 2023-24 onwards

Tracks

Sem	Course Code	Microbiology	Sem	Course Code	Chemistry
I	SC23MB001	Bacteriology and Systematics	I	SC23CH001	Analytical and Organic Chemistry - I
II	SC23MB002	Microbial Physiology and Metabolism	II	SC23CH002	Inorganic and Physical Chemistry - I
III	SC23BT003	Cell Biology and Genetics	III	SC23CH003	Analytical and Organic Chemistry - II
IV	SC23BT004	Immunology	IV	SC23CH004	Inorganic and Physical Chemistry - II
V	SC23BT005 SC23BT006	Bioinformatics Bioanalytical Tools	V	SC23CH005	Biological Chemistry
VI	SC23MB003 SC23MB004	Agriculture and Food Microbiology Industrial Biotechnology		SC23CH006	Applied Chemistry
VIII	SC23BT009	Molecular Biology	VI	SC23CH007 SC23CH008	Materials Chemistry Toxicology
	SC23BT010	Virology	VIII	SC23CH009	Analytical Chemistry-III
	SC23BT011	Recombinant DNA Technology		SC23CH010	Organic Chemistry-III
	SC23MB005	Medical Microbiology		SC23CH011	Inorganic Chemistry-III
				SC23CH012	Physical Chemistry-III

Table: 3.2

Track Microbiology																		
Semester	Course Code	Course Title	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)							Weightage (Practical)			GT
			L	T	P			Internal Assessment (IA)					ESE	GT	CE [^]	ESE	ToT	
								MSE	ASG	T A	AT TD	To T						
I	SC23MB001	Bacteriology and Systematics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
II	SC23MB002	Microbial Physiology and Metabolism	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
III	SC23BT003	Cell Biology and Genetics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
IV	SC23BT004	Immunology	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
V	SC23BT005 SC23BT006	Bioinformatics Bioanalytical Tools	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
VI	SC23MB003 SC23MB004	Agriculture and Food Microbiology Industrial Biotechnology	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
VIII	SC23BT009	Molecular Biology	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23BT010	Virology	4	-	0	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23BT011	Recombinant DNA Technology	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23MB005	Medical Microbiology	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100

Table: 3.3

Track Chemistry																		
Semester	Course Code	Course Title	Contact Hours per Week			Credits	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
			L	T	P			Internal Assessment (IA)					ES E	G T	CE ^		ESE	ToT
								M SE	AS G	T A	AT TD	To T						
I	SC23CH001	Analytical and Organic Chemistry-I	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
II	SC23CH002	Inorganic and Physical Chemistry-I	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
III	SC23CH003	Analytical and Organic Chemistry-II	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
IV	SC23CH004	Inorganic and Physical Chemistry- II	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
V	SC23CH005 SC23CH006	Biological Chemistry Applied Chemistry	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
VI	SC23CH007 SC23CH008	Materials Chemistry Toxicology	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
VIII	SC23CH009	Analytical Chemistry-III	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23CH010	Organic Chemistry-III	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23CH011	Inorganic Chemistry-III	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23CH012	Physical Chemistry-III	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100

Table 4: Interdisciplinary Minor Elective Courses

**(Select any one track)
2023-24 Onwards**

S. No	Name of the Offering School	Minor Specialization Track	Minor Elective	Code	Course	Contact Hours / Week			Credits	Theory					Practical			G T		
						L	T	P		MSE	ASG	T A	A T T D	E S E	Total	C E	E S E		Total	
1	School of Engineering & Technology	Digital Marketing	I	ET23DM001	Web Development Fundamentals	2	0	4	4							40	60	10	10	
			II	ET23DM002	Introduction to Digital Marketing	2	0	4	4								40	60	10	10
			III	ET23DM003	Search Engine Optimization and Social Media Marketing	2	0	4	4								40	60	10	10
			IV	ET23DA004	Web Analytics	2	0	4	4								40	60	10	10
		Data Analytics	I	ET23DA001	Data Analytics Fundamentals	2	0	4	4								40	60	10	10
			II	ET23DA002	Business Analytics	2	0	4	4								40	60	10	10
			III	ET23DA003	R Programming	2	0	4	4								40	60	10	10
			IV	ET23DA004	Data Visualization	2	0	4	4								40	60	10	10
		Web Designing	I	ET23WD001	Web Designing Fundamentals	2	0	4	4								40	60	10	10
			II	ET23WD002	Dynamic Website with Java-script	2	0	4	4								40	60	10	10
			III	ET23WD003	Introduction to XML	2	0	4	4								40	60	10	10
			IV	ET23WD004	Web Application Development using PHP	2	0	4	4								40	60	10	10
		Programming	I	ET23PR001	Core Java	2	0	4	4								40	60	10	10
			II	ET23PR002	Advanced Java	2	0	4	4								40	60	10	10

			III	ET23PR00 3	Python Programming	2	0	4	4							40	60	10	10	
			IV	ET23PR00 4	Web Application Development	2	0	4	4							40	60	10	10	
2	School of Arts Humanities and Social Sciences	Tours & Travel Management	I	AH23TT00 1	Hospitality Etiquettes	2	0	4	4							40	60	10	10	
			II	AH23TT00 2	World Heritage Sites of MP	2	0	4	4							40	60	10	10	
			III	AH23TT00 3	Medical Tourism	2	0	4	4							40	60	10	10	
			IV	AH23TT00 4	International Travel Assistance	2	0	4	4							40	60	10	10	
3	School of Sciences	Laboratory Management	I	SC23LM00 1	Microbiology& Biotechnology Laboratory Skills	0	0	8	4							40	60	10	10	
			II	SC23LM00 2	Chemistry Lab Skills	0	0	8	4							40	60	10	10	
			III	SC23LM00 3	Electronics & Electrical Lab Skills	0	0	8	4							40	60	10	10	
			IV	SC23LM00 4	Physics Lab Skills	0	0	8	4							40	60	10	10	
4	School of Agriculture	Horticulture	I	AG23HR00 1	Production Technology for Vegetable and Spices	2	0	4	4							40	60	10	10	
			II	AG23HR00 2	Production Technology for Fruit and Plantation Crops	2	0	4	4							40	60	10	10	
			III	AG23HR00 3	Diseases of Field and Horticultural Crops and their Management -I	2	0	4	4							40	60	10	10	
			IV	AG23HR00 4	Diseases of Field and Horticultural Crops and their Management-II	2	0	4	4							40	60	10	10	
		Agri Business	I	AG23AB00 1	Agricultural Finance and Cooperation	2	0	4	4								40	60	10	10
			II	AG23AB00 2	Agricultural Marketing Trade & Prices	2	0	4	4								40	60	10	10
			III	AG23AB00 3	Entrepreneurship Development and Business Communication	2	0	4	4								40	60	10	10
			IV	AG23AB00 4	Farm Management, Production & Resource Economics	2	0	4	4								40	60	10	10
School of Commerce & Management	Basic Accounting Skills	I	CM23BA0 01	Financial Accounting	4	0	0	4							40	60	10	10		
		II	CM23BA0 02	Tally	3	0	2	4							40	60	10	10		

5		Retail Management & Merchandising	III	CM23BA003	Personal Taxation	4	0	0	4						40	60	10	10	
			IV	CM23BA004	Direct and Indirect Taxes	4	0	0	4							40	60	10	10
			I	MG23RM001	Retail Management	4	0	0	4							40	60	10	10
			II	MG23RM002	Merchandising	4	0	0	4							40	60	10	10
			III	MG23RM003	Supply Chain Management	4	0	0	4							40	60	10	10
			IV	MG23RM004	E Business	4	0	0	4							40	60	10	10
		Investment Management	I	MG23IM001	Introduction to Financial Markets	4	0	0	4							40	60	10	10
			II	MG23IM002	Fundamental & Technical Analysis of Investment	4	0	0	4							40	60	10	10
			III	MG23IM003	Risk Management	4	0	0	4							40	60	10	10
			IV	MG23IM004	Introduction to Derivatives	4	0	0	4							40	60	10	10
6	School of Design	Sketching & Painting	I	DN23SP001	Sketching-I	0	0	8	4						40	60	10	10	
			II	DN23SP002	Sketching -II	0	0	8	4						40	60	10	10	
			III	DN23SP003	Painting-I	0	0	8	4						40	60	10	10	
			IV	DN23SP004	Painting-II	0	0	8	4						40	60	10	10	
		Interior Design	I	DN23ID001	Building Materials & Processes	0	0	8	4							40	60	10	10
			II	DN23ID002	Elements of Interior Spaces	0	0	8	4							40	60	10	10
			III	DN3ID003	Basics of Lighting Design	0	0	8	4							40	60	10	10
			IV	DN23ID004	Building Services	0	0	8	4							40	60	10	10
		Apparel Design	I	DN23AD001	Fashion Illustration-I	0	0	8	4							40	60	10	10
			II	DN23AD002	Dyeing and Printing Techniques	0	0	8	4							40	60	10	10
			III	DN23AD003	Surface Exploration I	0	0	8	4							40	60	10	10

			IV	DN23AD004	Surface Exploration II	0	0	8	4							40	60	10	10	0	0
7	School of Performing Arts	Dance	I	PA23DN001	Techniques and Theatrical Performance of Dance I	0	0	8	4							40	60	10	10	0	0
			II	PA23DN002	Techniques and Theatrical Performance of Dance II	0	0	8	4							40	60	10	10	0	0
			III	PA23DN003	Techniques and Theatrical Performance of Dance III	0	0	8	4							40	60	10	10	0	0
			IV	PA23DN004	Techniques and Theatrical Performance of Dance IV	0	0	8	4							40	60	10	10	0	0
		Music	I	PA23MC001	Musical Roots and Theatrical Performance I	0	0	8	4							40	60	10	10	0	0
			II	PA23MC002	Musical Roots and Theatrical Performance II	0	0	8	4							40	60	10	10	0	0
			III	PA23MC003	Musical Roots and Theatrical Performance III	0	0	8	4							40	60	10	10	0	0
			IV	PA23MC004	Musical Roots and Theatrical Performance IV	0	0	8	4							40	60	10	10	0	0
		Theatre	I	PA23TR001	Basics of Acting Production I	0	0	8	4							40	60	10	10	0	0
			II	PA23TR002	Drama Production II	0	0	8	4							40	60	10	10	0	0
			III	PA23TR003	Drama Production III	0	0	8	4							40	60	10	10	0	0
			IV	PA23TR004	Drama Production IV	0	0	8	4							40	60	10	10	0	0
8	School of Journalism and Mass Communication	Basic Media Production Techniques	I	JM23MP001	Photography	0	0	8	4							40	60	10	10	0	0
			II	JM23MP002	Videography	0	0	8	4							40	60	10	10	0	0
			III	JM23MP003	Script Writing	0	0	8	4							40	60	10	10	0	0
			IV	JM23MP004	Audio Visual Editing	0	0	8	4							40	60	10	10	0	0
		Advertising and Public Relations	I	JM23AP001	Introduction to Advertising	0	0	8	4							40	60	10	10	0	0
			II	JM23AP002	Content Creation	0	0	8	4							40	60	10	10	0	0
			III	JM23AP003	Introduction to Public Relations	0	0	8	4							40	60	10	10	0	0
			IV	JM23AP004	Tools and Techniques of Public Relations	0	0	8	4							40	60	10	10	0	0

SANJEEV AGRAWAL GLOBAL EDUCATIONAL UNIVERSITY, BHOPAL

**Proposed Scheme & Syllabus
For**

Bachelor of Science (BSc)

Certificate/Diploma/Degree/Honors Degree/ Research Degree

in

Physics

w.e.f. 2023-24 (According to NEP 2020)



School of Sciences

Bachelor of Science (BSc)

Program Educational Objectives (PEOs) Physics:

PEO-1: Prospective Employment and Career Prospects-Developing the potential for vertical career growth in investigation laboratories, service sectors and related avenues.

PEO-2: Proficiency- Inculcating technical and managerial skills crucial for real time scenarios through the enhancement of problem-solving skills and advanced technical documentation ability.

PEO-3: Affectionate Objective- Grooming the students with technical proficiency to equip them for the emergence of sustainable technology and solutions for prevailing environmental, societal and cultural concerns.

PEO-4: Research Methods-Nurturing the research aptitude to provide solutions for global challenges and abilities to explore hidden potential of the matter.

PEO-5: Continuous Learning-Instilling knowledge and awareness on professional ethics related to crime prevention and evidence analysis and life-long learning through career-oriented courses.

Program Outcomes (POs) Physics:

By the end of the program the students will be able to:

- PO 1.** Design and perform experiments in the labs to demonstrate the concepts, principles and theories learned in the classrooms.
- PO 2.** Have hands on experience in modeling, implementation and calculation of physical quantities of relevance.
- PO 3.** Demonstrate skills and competencies to conduct a wide range of physics experiments.
- PO 4.** Work effectively as an individual as a team member in a multidisciplinary team.
- PO 5.** Use a modern scientific, engineering and IT tool or technique for solving problems in the areas of their discipline.
- PO 6.** Emphasize the discipline of Physics to be a very important branch of science for pursuing the interdisciplinary and multidisciplinary higher education.
- PO 7.** Apply their knowledge in various fields of academics and industry.
- PO 8.** Create the facilities and environment in all the educational institutions to consolidate the knowledge acquired.
- PO 9.** To emphasize the importance of Physics as the most important discipline for sustaining the existing industries and establishing new ones to create job opportunities at all levels of employment.
- PO 10.** Pursue their future career in the field of academics, research and industry.

Bachelor of Science (BSc)

CURRICULUM COMPONENTS

	Components	Credits
University Core (Table 1)	Ability Enhancement Courses (06 Courses)	12
	Skill Enhancement Courses (06 Courses)	12
Discipline Core Courses (8 Courses) (Table 2)		32
Discipline Specific Major Electives (8+4 Courses) (Table 3)		32R/48H*
Discipline Specific Minor Electives (6 Courses) (Table 3)		24
Interdisciplinary Minor Electives (04 Courses) (Table 4)		16
Project/Field Internship/Skill Based Project		28H/44R*
	Total	172

*** Opt either 04 Specialized Courses (for Honors Degree) or Research Based Industrial Project (for Research Degree)**

** Note: Any student opting out after I year / II year will obtain undergraduate Certificate/Diploma respectively in the specific discipline subject to mandatory 450hrs (8-10 week) ,10 credit Internship in SUB/Industry/Research organization.

Distribution of credits across all components

SEM.	University Core Courses. (one course = 02 credit) (Table 1)		Discipline Courses (DC) [one course = 4 credit] (Table 2)	Main Faculty (as per prerequisite)		Interdisciplin ary Minor Elective Tracks (Employment Oriented) (Table 4)	Project/ Field Internship/ Skill Based Projects/Research Projects/industrial Projects	Total
	AEC	SEC		Discipline Specific Elective (one course = 4 credit) (Table 3)				
				(Major)	(Minor)			
I	2	2	4	4	4	4	3(PBL)	23
II	2	2	4	4	4	4	3(PBL)	23
III	2	2	4	4	4	4	3(PBL)	23
IV	2	2	4	4	4	4	3(PBL)	23
V	2	2	-	4+4	4		4(SIP)	20
VI	2	2	-	4+4	4		4(Minor Project)	20
VII			12				8(Major)	20
VIII*			4	16*			16*(Research/Inte rnship Project)	20(4+16*)
Total	12	12	32	32R/32+1 6*H	24	16	28H/28+16*R	172

* Opt either 04 Specialized Courses (For Honor Degree) or Research Based Industrial Project (For Research Degree)

Note: PBL- Project Based Learning, SIP- Summer internship Project, SEC- Skill Enhancement Courses, AEC- Ability Enhancement Courses.

FIRST SEMESTER wef 2023-24 onwards																	
Course Code	Course Title	Contact Hours per Week			Credits	ESE Durations (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR001	Project Based Learning –I	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

SECOND SEMESTER wef 2023-24 onwards																	
Course Code	Course Name	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR002	Project Based Learning-II	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those students who would like to exit after 1st year and want to obtain Undergraduate Certificate in Performing Arts have to complete mandatory Research internship at SUB/Industry/Research Organization for 450 hours to be completed in 8-10 weeks.

THIRD SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D U R A T I O N (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT			
		L	T	P			Internal Assessment (IA)					ES E	GT	CE [^]		ESE	ToT	
							MSE	ASG	TA	ATTD	ToT							
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	-	100
SC23PR003	Project Based Learning –III	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100	
		Total			23												700	

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

FOURTH SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	ToT	CE ^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 2	Discipline Core	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 4	Interdisciplinary Minor Elective Track	-	-	8	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR004	Project Based Learning-IV	-	-	6	3	2	-	-	-	-	-	-	-	40	60	100	100
		Total			23												700

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those students who would like to exit after 2nd year and want to obtain Undergraduate Diploma in Performing Arts have to complete mandatory Research internship at SUB/Industry/Research Organization for 450 hours to be completed in 8-10 weeks.

FIFTH SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			C r e d i t s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE ^		ESE	ToT
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR005	Summer Internship / Field Activity	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
		Total			20												600

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

SIXTH SEMESTER wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			Credits	E S E D u r a t i o n (H o u r s)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ES E	To T
							MSE	ASG	TA	ATT D	ToT						
Refer Table 1	AEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 1	SEC	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Major Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Minor Track – II	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
SC23PR006	Minor Project	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
		Total			20												600

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

Note: Those who would like to continue their studies in fourth year for obtaining degree of Honors/Research should have completed all the courses up to third year and obtained a minimum CGPA of 7.5.

	SEVENTH SEMESTER wef 2023-24 onwards
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Course Code	Course Name	Contact Hours per Week			Credits	E S E D u r a t i o n (H o u r s)	Weightage (Theory)							Weightage (Practical)			GT	
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^	ESE	ToT		
							MSE	ASG	TA	ATT D	ToT							Pre Sub
SC23UC013	Intellectual Property Right & Research Publication Ethics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	-	100
SC23UC014	Seminar / Publication	-	-	8	4	3	-	-	-	-	-	-	-	40	-	60	100	100
MG23UC015	Project Management	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	-	100
SC23PR007	Major Project	-	-	16	8	3	-	-	-	-	-	-	-	100	50	50	200	200
		Total			20													500

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

EIGHTH SEMESTER (For Honors) wef 2023-24 onwards

Course Code	Course Name	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)					Weightage (Practical)			GT		
		L	T	P			Internal Assessment (IA)					ESE	GT	CE^		ESE	ToT
							MS E	ASG	TA	ATT D	ToT						
SC23MO001	MOOCs	-	-	8	4	3	-	-	-	-	-	-	-	40	60	100	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
Refer Table 3	DSE Track – I	-	-	-	4	3	-	-	-	-	-	-	-	-	-	-	100
		Total			20												500

OR

EIGHTH SEMESTER (For Research Degree) wef 2023-2 onwards																	
Course Code	Course Name	Contact Hours per Week	Credits	ESE Duration	Weightage (Theory)					Weightage (Practical)			GT				
																	

		L	T	P	Credits	Duration (Hours)	Internal Assessment (IA)					ESE	GT	CE^	ESE	VivaVoce	ToT		
							MSE	ASG	TA	ATT D	ToT								
SC23MO001	MOOCs	-	-	8	4	3	-	-	-	-	-	-	-	40	-	60	100	100	
SC23PR008	Research Project/Internship	-	-	32	16	3	-	-	-	-	-	-	-	200	100	100	400	400	
		Total			20														500

L- Lecture, T- Tutorial, P- Practical, ESE- End Semester Exam, MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ToT- Total, CE- Continuous Evaluation, GT- Grand Total

**Table I
Groups for UC Courses
2023-24 onwards**

GROUP A	School of Management, School of Commerce, School of Arts Humanities and Social Sciences, School of Law and Legal Studies, School of Performing Arts, School of Journalism and Mass Communication, School of Design.
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GROUP B	School of Sciences, SIRT- Pharmacy , SAGE College of Nursing , School of Computer Application , School of Advanced Computing, School of Engineering and Technology, School of Agriculture													
Semester	Course Code	Course Name Group A	CONTACT hours/week			Credits	Type	Course Code	Course Name Group B	CONTACT hours/week			Credits	Type
			L	T	P					L	T	P		
I	SC23UC001	Environmental Studies and Disaster Management	2	0	0	2	AEC	TR23UC003	Communication Skills	1	0	2	2	AEC
	AH23UC002	Hindi	2	0	0	2	SEC	CA23UC004	MS Office	0	0	4	2	SEC
II	TR23UC003	Communication Skills	1	0	2	2	AEC	SC23UC001	Environmental Studies and Disaster Management	2	0	0	2	AEC
	CA23UC004	MS Office	0	0	4	2	SEC	AH23UC002	Hindi	2	0	0	2	SEC
III	TR23UC005	Professional Skills-I	0	0	4	2	AEC	TR23UC007	Quantitative Aptitude and Logical Reasoning	2	0	0	2	AEC
	MG23UC006	Entrepreneurship Development	2	0	0	2	SEC	ET23UC008	Design and Critical Thinking	2	0	0	2	SEC
IV	TR23UC007	Quantitative Aptitude and Logical Reasoning	2	0	0	2	AEC	TR23UC005	Professional Skills-I	0	0	4	2	AEC
	ET23UC008	Design and Critical Thinking	2	0	0	2	SEC	MG23UC006	Entrepreneurship Development	2	0	0	2	SEC
V	TR23UC009	Professional Skills-II	0	0	4	2	AEC	CM23UC011	Financial Literacy & Banking	2	0	0	2	AEC
	MG23UC010	Research Methodology	2	0	0	2	SEC	AH23UC012	Indian Culture and Human Values	2	0	0	2	SEC
VI	CM23UC011	Financial Literacy & Banking	2	0	0	2	AEC	TR23UC009	Professional Skills- II	0	0	4	2	AEC
	AH23UC012	Indian Culture and Human Values	2	0	0	2	SEC	MG23UC010	Research Methodology	2	0	0	2	SEC

Note :

*Each Course would be of two Credits (1 Theory and 1 Practical) OR (0 Theory and 2 Practical)

** Each Credit is equivalent to 45 hrs. of student engagement (15 hrs. of Theory teaching in classroom & 30 hrs. of Practical learning / Field Work /Assignment /Self -learning)

School of Sciences (BSc)

Discipline Core Courses

Semester	Course Code	Discipline Core BSc
I	SC23DC001	Basics of Life Sciences
II	SC23DC002	Introduction to Forensic Science
III	SC23DC003	Elements of Modern Physics
IV	SC23DC004	Elements of Statistics
V	SC23UC013	Intellectual Property Rights & Research Publication Ethics
VI	PA23UC014	Seminar / Publications
VII	MG23UC015	Project Management
VIII	PA23PR007	Major Project



Table: 2
Discipline Core Courses
2023-24 onwards

Semester	Course Code	Discipline Core BSc
I	SC23DC001	Basics of Life Sciences
II	SC23DC002	Introduction to Forensic Science
III	SC23DC003	Elements of Modern Physics
IV	SC23DC004	Elements of Statistics

Table: 3
 Discipline Specific Electives (DSE)
 (Select Any Two)
 2023-24 onwards
Tracks

Sem	Course Code	Physics	Course Code	Mathematics
I	SC23PH001	Mathematical Physics	SC23MA001	Algebra and Calculus - I
II	SC23PH002	Mechanics	SC23MA002	Algebra and Calculus - II
III	SC23PH003	Thermal Physics and Statistical Mechanics	SC23MA003	Differential Equations
IV	SC23PH004	Wave and Optics	SC23MA004	Discrete Mathematics
V	SC23PH005	Classical Electrodynamics	SC23MA005	Real Analysis
	SC23PH006	Electricity, Magnetism and Electromagnetism	SC23MA006	Integral Calculus and Vector Analysis
VI	SC23PH007	Quantum Mechanics	SC23MA007	Linear Algebra
	SC23PH008	Plasma Physics	SC23MA008	Probability and Statistics
VIII	SC23PH009	Solid State Physics	SC23MA009	Complex Analysis
	SC23PH010	Nuclear, Atomic and Molecular Physics	SC23MA010	Numerical Methods
	SC23PH011	Analog & Digital Circuits	SC23MA011	Linear Programming and Optimization Techniques
	SC23PH012	Elements of Condensed Matter Physics	SC23MA012	Mathematical Transforms and Techniques

Track Physics																		
Sem ester	Course Code	Course Title	Contact Hours per Week			C red it s	E S E D u r a t i o n (H o u r s)	Weightage (Theory)							Weightage (Practical)			GT
			L	T	P			Internal Assessment (IA)					ES E	G T	CE ^	ESE	ToT	
								M SE	AS G	T A	AT TD	To T						
I	SC23PH001	Mathematical Physics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
II	SC23PH002	Mechanics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
III	SC23PH003	Thermal Physics and Statistical Mechanics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
IV	SC23PH004	Wave and Optics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
V	SC23PH005	Classical Electrodynamics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23PH006	Electricity and Magnetism Electromagnetism	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
VI	SC23PH007 SC23PH008	Quantum Mechanics Plasma Physics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
VIII	SC23PH009	Solid State Physics	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23PH010	Nuclear, Atomic and Molecular Physics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23PH011	Analog & Digital Circuits	3	-	2	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23PH012	Elements of Condensed Matter Physics	4	-	-	4	3	20	05	05	10	40	60	100	-	-	-	100

Track Mathematics																		
Semester	Course Code	Course Title	Contact Hours per Week			Credits	ESE Duration (Hours)	Weightage (Theory)						Weightage (Practical)			GT	
			L	T	P			Internal Assessment (IA)					ESE	GT	CE [^]	ESE		ToT
								ME	ASG	TA	ATTD	ToT						
I	SC23MA001	Algebra and Calculus - I	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
II	SC23MA002	Algebra and Calculus - II	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
III	SC23MA003	Differential Equations	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
IV	SC23MA004	Discrete Mathematics	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
V	SC23MA005 SC23MA006	Real Analysis	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
VI	SC23MA007 SC23MA008	Integral Calculus and Vector Analysis	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
VIII	SC23MA009	Linear Algebra Probability and Statistics	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23MA010	Complex Analysis	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23MA011	Numerical Methods	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100
	SC23MA012	Linear Programming and Optimization Techniques	3	1	-	4	3	20	05	05	10	40	60	100	-	-	-	100

Table 4: Interdisciplinary Minor Elective Courses

**(Select any one track)
2023-24 Onwards**

S. No	Name of the Offering School	Minor Specialization Track	Minor Elective	Code	Course	Contact Hours / Week			Credits	Theory					Practical			G T				
						L	T	P		M S E	A S G	T A	A T T D	E S E	T o t a l	C E	E S E		T o t a l			
1	School of Engineering & Technology	Digital Marketing	I	ET23DM001	Web Development Fundamentals	2	0	4	4							40	60	10	10	0	0	
			II	ET23DM002	Introduction to Digital Marketing	2	0	4	4								40	60	10	10	0	0
			III	ET23DM003	Search Engine Optimization and Social Media Marketing	2	0	4	4								40	60	10	10	0	0
			IV	ET23DA004	Web Analytics	2	0	4	4								40	60	10	10	0	0
		Data Analytics	I	ET23DA001	Data Analytics Fundamentals	2	0	4	4								40	60	10	10	0	0
			II	ET23DA002	Business Analytics	2	0	4	4								40	60	10	10	0	0
			III	ET23DA003	R Programming	2	0	4	4								40	60	10	10	0	0
			IV	ET23DA004	Data Visualization	2	0	4	4								40	60	10	10	0	0
		Web Designing	I	ET23WD001	Web Designing Fundamentals	2	0	4	4								40	60	10	10	0	0
			II	ET23WD002	Dynamic Website with Java-script	2	0	4	4								40	60	10	10	0	0
			III	ET23WD003	Introduction to XML	2	0	4	4								40	60	10	10	0	0
			IV	ET23WD004	Web Application Development using PHP	2	0	4	4								40	60	10	10	0	0
		Programming	I	ET23PR001	Core Java	2	0	4	4								40	60	10	10	0	0
			II	ET23PR002	Advanced Java	2	0	4	4								40	60	10	10	0	0
			III	ET23PR003	Python Programming	2	0	4	4								40	60	10	10	0	0
			IV	ET23PR004	Web Application Development	2	0	4	4								40	60	10	10	0	0

2	School of Arts Humanities and Social Sciences	Tours & Travel Management	I	AH23TT001	Hospitality Etiquettes	2	0	4	4							40	60	10	10	
			II	AH23TT002	World Heritage Sites of MP	2	0	4	4								40	60	10	10
			III	AH23TT003	Medical Tourism	2	0	4	4								40	60	10	10
			IV	AH23TT004	International Travel Assistance	2	0	4	4								40	60	10	10
3	School of Sciences	Laboratory Management	I	SC23LM001	Microbiology& Biotechnology Laboratory Skills	0	0	8	4							40	60	10	10	
			II	SC23LM002	Chemistry Lab Skills	0	0	8	4							40	60	10	10	
			III	SC23LM003	Electronics & Electrical Lab Skills	0	0	8	4							40	60	10	10	
			IV	SC23LM004	Physics Lab Skills	0	0	8	4							40	60	10	10	
4	School of Agriculture	Horticulture	I	AG23HR001	Production Technology for Vegetable and Spices	2	0	4	4							40	60	10	10	
			II	AG23HR002	Production Technology for Fruit and Plantation Crops	2	0	4	4							40	60	10	10	
			III	AG23HR003	Diseases of Field and Horticultural Crops and their Management -I	2	0	4	4							40	60	10	10	
			IV	AG23HR004	Diseases of Field and Horticultural Crops and their Management-II	2	0	4	4							40	60	10	10	
		Agri Business	I	AG23AB001	Agricultural Finance and Cooperation	2	0	4	4								40	60	10	10
			II	AG23AB002	Agricultural Marketing Trade & Prices	2	0	4	4								40	60	10	10
			III	AG23AB003	Entrepreneurship Development and Business Communication	2	0	4	4								40	60	10	10
			IV	AG23AB004	Farm Management, Production & Resource Economics	2	0	4	4								40	60	10	10
5	School of Commerce & Management	Basic Accounting Skills	I	CM23BA001	Financial Accounting	4	0	0	4							40	60	10	10	
			II	CM23BA002	Tally	3	0	2	4							40	60	10	10	
			III	CM23BA003	Personal Taxation	4	0	0	4							40	60	10	10	
			IV	CM23BA004	Direct and Indirect Taxes	4	0	0	4							40	60	10	10	

		Retail Management & Merchandising	I	MG23RM001	Retail Management	4	0	0	4							40	60	10	10	0	0		
			II	MG23RM002	Merchandising	4	0	0	4									40	60	10	10	0	0
			III	MG23RM003	Supply Chain Management	4	0	0	4									40	60	10	10	0	0
			IV	MG23RM004	E Business	4	0	0	4									40	60	10	10	0	0
		Investment Management	I	MG23IM001	Introduction to Financial Markets	4	0	0	4									40	60	10	10	0	0
			II	MG23IM002	Fundamental & Technical Analysis of Investment	4	0	0	4									40	60	10	10	0	0
			III	MG23IM003	Risk Management	4	0	0	4									40	60	10	10	0	0
			IV	MG23IM004	Introduction to Derivatives	4	0	0	4									40	60	10	10	0	0
6	School of Design	Sketching & Painting	I	DN23SP001	Sketching-I	0	0	8	4							40	60	10	10	0	0		
			II	DN23SP002	Sketching -II	0	0	8	4								40	60	10	10	0	0	
			III	DN23SP003	Painting-I	0	0	8	4									40	60	10	10	0	0
			IV	DN23SP004	Painting-II	0	0	8	4									40	60	10	10	0	0
		Interior Design	I	DN23ID001	Building Materials & Processes	0	0	8	4									40	60	10	10	0	0
			II	DN23ID002	Elements of Interior Spaces	0	0	8	4									40	60	10	10	0	0
			III	DN3ID003	Basics of Lighting Design	0	0	8	4									40	60	10	10	0	0
			IV	DN23ID004	Building Services	0	0	8	4									40	60	10	10	0	0
		Apparel Design	I	DN23AD001	Fashion Illustration-I	0	0	8	4									40	60	10	10	0	0
			II	DN23AD002	Dyeing and Printing Techniques	0	0	8	4									40	60	10	10	0	0
			III	DN23AD003	Surface Exploration I	0	0	8	4									40	60	10	10	0	0
			IV	DN23AD004	Surface Exploration II	0	0	8	4									40	60	10	10	0	0
			School of Performing Arts	Dance	I	PA23DN001	Techniques and Theatrical Performance of Dance I	0	0	8	4							40	60	10	10	0	0
					II	PA23DN002	Techniques and Theatrical Performance of Dance II	0	0	8	4								40	60	10	10	0

7			III	PA23DN003	Techniques and Theatrical Performance of Dance III	0	0	8	4							40	60	10	10	
			IV	PA23DN004	Techniques and Theatrical Performance of Dance IV	0	0	8	4								40	60	10	10
		Music	I	PA23MC001	Musical Roots and Theatrical Performance I	0	0	8	4								40	60	10	10
			II	PA23MC002	Musical Roots and Theatrical Performance II	0	0	8	4								40	60	10	10
			III	PA23MC003	Musical Roots and Theatrical Performance III	0	0	8	4								40	60	10	10
			IV	PA23MC004	Musical Roots and Theatrical Performance IV	0	0	8	4								40	60	10	10
		Theatre	I	PA23TR001	Basics of Acting Production I	0	0	8	4								40	60	10	10
			II	PA23TR002	Drama Production II	0	0	8	4								40	60	10	10
			III	PA23TR003	Drama Production III	0	0	8	4								40	60	10	10
			IV	PA23TR004	Drama Production IV	0	0	8	4								40	60	10	10
8	School of Journalism and Mass Communication	Basic Media Production Techniques	I	JM23MP001	Photography	0	0	8	4							40	60	10	10	
			II	JM23MP002	Videography	0	0	8	4							40	60	10	10	
			III	JM23MP003	Script Writing	0	0	8	4							40	60	10	10	
			IV	JM23MP004	Audio Visual Editing	0	0	8	4							40	60	10	10	
		Advertising and Public Relations	I	JM23AP001	Introduction to Advertising	0	0	8	4								40	60	10	10
			II	JM23AP002	Content Creation	0	0	8	4								40	60	10	10
			III	JM23AP003	Introduction to Public Relations	0	0	8	4								40	60	10	10
			IV	JM23AP004	Tools and Techniques of Public Relations	0	0	8	4								40	60	10	10

