

CBCS – MAKAUT B.Sc Biotechnology B.Sc (Hons) 140 Credit FRAMEWORK

Subject Type and Number of Subjects per Semester	Semester I	Semester II	Semester III	Semester IV	Semester V	Semester VI
CORE COURSE	2	3	3	2	2	2
GENERIC ELECTIVE SUBJECT	1(Credit-3)	1(Credit-3)		1, MOOC/offline (Credit-6)	1, MOOC/offline (Credit-6)	1, MOOC/offline (Credit-6)
ABILITY ENHANCEMENT COMPULSORY	1	1				
SKILL ENHANCEMENT COURSE			1	1		
DISCIPLINE SPECIFIC ELECTIVE					2	2
Number of paper (total credit)	4 (17)	5 (23)	4 (20)	4(20)	5 (30)	5 (30)

Total Credit- 17+23+20+20+30+30= 140

Semester-I

CORE COURSE (Credit=4+2)		ABILITY ENHANCEMENT COMPULSORY (Credit =2) Any One		SKILL ENHANCEMENT COURSE (Credit =2)Any one		GENERIC ELECTIVE SUBJECT (Credit =3) Class room teaching, Any one		DISCIPLINE SPECIFIC ELECTIVE (Credit =6) Any one from A group and B group	
Paper name	Paper code	Paper name	Paper code	Paper name	Paper code	Paper name	Paper code	Paper name	Paper code
Biochemistry and Metabolism (Theory)	BSUBTC- 101	English Communication Skill Development	BSUBTA- 101			Plant and Animal Tissue Culture	BSUBTG- 101		
Biochemistry and Metabolism (Lab)	BSUBTC- 191	Introduction to fundamental computer	BSUBTA- 102			Biotechnology and Human Welfare	BSUBTG- 102		
Cell Biology (Theory)	BSUBTC- 102	Introduction to environmental science	BSUBTA- 103			Bio- Mathematics	BSUBTG- 103		
Cell Biology (Lab)	BSUBTC- 192								
Credit- 6+6=12		Credit- 2				Credit- 6			

Total Credit- 12+2+6=20

Semester-II

CORE COURSE (Credit=4+2)		ABILITY ENHANCEMENT COMPULSORY (Credit =2)Any one		SKILL ENHANCEMENT COURSE (Credit =2)Any one		GENERIC ELECTIVE SUBJECT (Credit =3) Class room teaching, Any one		DISCIPLINE SPECIFIC ELECTIVE (Credit =6) Any one from A group and B group	
Paper name	Paper code	Paper name	Paper code	Paper name	Paper code	Paper name	Paper code	Paper name	Paper code
General microbiology (Theory)	BSUBTC-201	English Communication Skill Development	BSUBTA-201			Inheritance Biology	BSUBTG-201		
General microbiology (Lab)	BSUBTC-291	Introduction to fundamental computer	BSUBTA-202			Basic Programming Language (C)	BSUBTG-202		
Chemistry (Theory)	BSUBTC-202	Introduction to environmental science	BSUBTA-203			Bio-Mathematics	BSUBTG-203		
Chemistry (Lab)	BSUBTC-292								
Plant and Mammalian Physiology (Theory)	BSUBTC-203								
Plant and Mammalian Physiology (Lab)	BSUBTC-293								
Credit- 6+6=12		Credit- 2				Credit- 3			

Total Credit- 18+2+3=23

Semester-III

CORE COURSE (Credit=4+2)		ABILITY ENHANCEMENT COMPULSORY (Credit =2)Any one		SKILL ENHANCEMENT COURSE (Credit =2)Any one		GENERIC ELECTIVE SUBJECT		DISCIPLINE SPECIFIC ELECTIVE (Credit =6) Any one from A group and B group	
Paper name	Paper code	Paper name	Paper code	Paper name	Paper code	Paper name	Paper code	Paper name	Paper code
Genetics (Theory)	BSUBTC- 301			Enzymology	BSUBTS- 301				
Genetics (Lab)	BSUBTC- 391			Industrial Biotechnology	BSUBTS- 302				
Chemistry 2(Theory)	BSUBTC- 302			Plant and animal chromosome preparation and karyotyping.	BSUBTS- 303				
Chemistry 2 (Lab)	BSUBTC- 392								
Molecular Biology (Theory)	BSUBTC- 303								
Molecular Biology (Lab)	BSUBTC- 393								
Credit- 6+6+6=18				Credit- 2					

Total Credit- 18+2=20

Semester-IV

CORE COURSE (Credit=4+2)		ABILITY ENHANCEMENT COMPULSORY (Credit =2)Any one		SKILL ENHANCEMENT COURSE (Credit =2)Any one		GENERIC ELECTIVE SUBJECT (Credit =6)(MOOCs/ClassRoom)		DISCIPLINE SPECIFIC ELECTIVE (Credit =6) Any one from A group and B group	
Paper name	Paper code	Paper name	Paper code	Paper name	Paper code	Paper name	Paper code	Paper name	Paper code
Immunology (Theory)	BSUBTC -401			Molecular Diagnostics	BSUBTS -401	Basket 1 Basket 2 Basket 3 Basket 4	BSUBTG- 401*		
Immunology (Lab)	BSUBTC -491			Plant-Microbe Interaction	BSUBTS- 402				
Bioanalytical tools (Theory)	BSUBTC -402			Research Methodology	BSUBTS- 403				
Bioanalytical tools (Lab)	BSUBTC -492			Basic Forensic Science	BSUBTS- 404				
Credit- 6+6=12				Credit- 2		Credit- 6			

Total Credit- 12+2+6=20

*= Inheritance Biology (32)

MAKAUT In-House B.Sc Biotechnology Hons. Syllabus Structure [CBCS] | 2019-2022

Semester-V

CORE COURSE (Credit=4+2)		ABILITY ENHANCEMENT COMPULSORY (Credit =2)Any one		SKILL ENHANCEMENT COURSE (Credit =2)Any one		GENERIC ELECTIVE SUBJECT (Credit =6) (MOOCs/ClassRoom)		DISCIPLINE SPECIFIC ELECTIVE (Credit =6) Any one from A group and B group	
Paper name	Paper code	Paper name	Paper code	Paper name	Paper code	Paper name	Paper code	Paper name	Paper code
Bioprocess Technology (Theory)	BSUBTC- 501					Basket 1 Basket 2 Basket 3 Basket 4	BSUBTG- 501	Animal Biotechnology	BSUBTD- 501A
Bioprocess Technology (Lab)	BSUBTC- 591							Model organism and human genome project	BSUBTD- 502A
Recombinant DNA Technology (Theory)	BSUBTC- 502							Medical biotechnology	BSUBTD- 503A
Recombinant DNA Technology (Lab)	BSUBTC- 592							Plant Biotechnology	BSUBTD- 501B
								Plant secondary metabolites and Biotransformation	BSUBTD- 502B
Credit- 6+6=12						Credit- 6		Credit- 6+6=12	

Total Credit- 12+6+12=30

Semester-VI

CORE COURSE (Credit=4+2)		ABILITY ENHANCEMENT COMPULSORY (Credit =2)Any one		SKILL ENHANCEMENT COURSE (Credit =2)Any one		GENERIC ELECTIVE SUBJECT (Credit =6)Any one (MOOCs/ClassRoom)		DISCIPLINE SPECIFIC ELECTIVE (Credit =6) Any one from A group and B group	
Paper name	Paper code	Paper name	Paper code	Paper name	Paper code	Paper name	Paper code	Paper name	Paper code
Genomics, Proteomics and Bioinforma tics(Theory)	BSUBTC- 601					Basket 1 Basket 2 Basket 3 Basket 4	BSUBTG- 601	Genetic Modification In agriculture and Medicine	BSUBTD- 601A
Genomics, Proteomics and Bioinforma tics(Lab)	BSUBTC- 691							Environmental Biotechnology	BSUBTD- 602A
IPR, Biosafety and ethical issues(Theory)	BSUBTC- 602							Project/ Dissertation	BSUBTD- 681B
IPR, Biosafety and ethical issues(Lab)	BSUBTC- 692								
Credit- 6+6=12						Credit- 6		Credit- 6+6=12	

Total Credit- 12+6+12=30

Credits point distribution per Semester:

	Core Course [Credit=4+2]	Ability enhancement Compulsory [Credit=2]	Skill Enhancement Course [Credit=2]	Generic elective Subject {Class room [Credit-3] + MOOC/Class room [Credit=6]}	Discipline Specific Subject [Credit=6]	Semester Specific Total Credit
SEM-I	[4+2]+[4+2]	2	0	3	0	17
SEM-II	[4+2]+[4+2]+ [4+2]	2	0	3	0	23
SEM-III	[4+2]+[4+2]+ [4+2]	0	2	0	0	20
SEM-IV	[4+2]+[4+2]	0	2	6	0	20
SEM-V	[4+2]+[4+2]	0	0	6	6+6	30
SEM-VI	[4+2]+[4+2]	0	0	6	6+6	30
Course Specific Total Credit	84	4	4	24	24	140 is the Total Credit for B.Sc Biotechnology Course

Online (MOOCs)/Offline (Classroom) Subjects' Basket

Basket 1	Basket 2	Basket 3	Basket 4
HUMANITIES & HUMAN SKILLS	CREATIVE & PERFORMING ARTS	GENERAL SCIENCE	EMERGING TECH, INNOVATION & ENTREPRENEURSHIP
1. Sports for All 2. Wellness Lifestyle 3. Yoga and Stress Management 4. Understanding Human Rights and Responsibility 5. Indian Society and Culture 6. Fundamental Psychological Process 7. Industry 4.0 8. Leadership Skill 9. Business English 10. Health Education & Communication	11. Drama & Theatre Arts 12. Film Video & Photographic Arts 13. Music-Indian, Western & Fusion 14. Event Management 15. Digital Productions 16. Set Design 17. Multimedia 18. AR-VR	19. Renewable Energy 20. Biotechnology and Human Welfare 21. Environmental Biotechnology 22. Principles of Modern Physics 23. Introduction to Biological Physics 24. Biological Basis of Behaviour 25. Mathematics 26. Statistics 27. The Yoga Professional 28. History of Biology 29. Scientific Illustration 30. Structural Biology 31. Microscopy, spectroscopy 32. Inheritance Biology 33. Biodiversity, Taxonomy	34. Creativity and Innovation 35. Entrepreneurship Theory and Practice 36. Introduction to Mobile Application Development 37. E-Commerce System Development 38. Ethical Hacking and Intrusion Forensics 39. Business Statistics and Research Methods 40. Data Science 41. Data Security 42. Big Data 43. C Programming Language 44. Internet of Things 45. Data Structure and Numerical analysis 46. DBMS and Computer networking