

Maulana Abul Kalam Azad University of Technology, WB (Formerly known as West Bengal University of Technology)
Syllabus of B.Sc. in Bioinformatics
Effective from academic session 2023-24

Model curriculum structure for 4-year Non-AICTE UG programs for B. Sc. in Bioinformatics

Sem	Major (Offline)	Minor (Blended Mode)	Inter-Disciplinary (Offline)	Ability Enhancement (Offline)	Skill Enhancement (Online /Sessional)	Common Value added Course (SESSIONAL)	Total credits
I	BSBIN 1101 Biochemistry [3] BSBIN 1191 Lab on Biochemistry [2] BSBIN 1102 Cell Biology [3] BSBIN1192 Lab on Cell Biology [2] 2 sub x 5 credits	Computer Fundamental (3credits=3h/wk) 1 sub x 3 credits	Anyone from GE baskets Basket A or D (3 credits)	English & Professional Communication (2 credits)	Life Skills & Personality Development (2 credits)	Yoga/ Health & Wellness/ Sports (2 credits)	22
II	BSBIN2101 Basic microbiology [3] BSBIN2191 Lab on Basic Microbiology [2] BSBIN2102 Basic Bioinformatics [3] BSBIN2192 Lab on Basic Bioinformatics [2] 2 sub x 5 credits	Management Information System(3h/wk) 1 sub x 3 credits	Anyone from GE baskets Basket B or E (3 credits)	Modern Indian Languages and Literature (2 credits)	IT Tools for Business (2 credits)	Critical Thinking / NSS/ Mental Health/ Environmental Studies (2 credits)	22
III	BSBIN 3201 Molecular Biology [3] BSBIN 3291 Lab on Molecular Biology [2]	Word, Powerpoint and Spreadsheet application with Excel (3L+1T)/wk	Anyone from GE baskets Basket C or F (3 credits)	The Constitution, Human Rights, and Law (2 credits)	Understanding Basics of Cyber Security (2 credits)		21

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	BSBIN3202 Application of Bioinformatics [3] BSBIN3292 Lab on Application of Bioinformatics [2] 2 sub x 5 credits	/2L+2P 1 sub x 4 credits					
IV	BSBIN 4201 Structural Bioinformatics [2] BSBIN 4291 Lab on Structural Bioinformatics[2] BSBIN 4202 C programming [2] BSBIN 4292 Lab on C Programming [2] BSBIN4203 Genetics and Karyotyping[3] BSBIN4293 Lab on Genetics and Karyotyping[2] 1 sub x 5 credits 2 sub x 4 credits	2 sub x 4 credits Basics of Operating System (3L+1T) or 2L+2P Graphic Design with photoshop and illustrator (3L+1T) or 2L+2P		Society Culture and Human Behavior (2 credits)			23
V	BSBIN 5301 Python in Bioinformatics [3] BSBIN 5391 Lab on Python in Bioinformatics [2] BSBIN 5302 Immunology [3]	2 sub x 4 credits Cloud computing (3L+1T) or 2L+2P E-commerce and			Internship to be started after exam of 4 th sem (sem break) and completed within 5 th sem (weekends) (4 credits)		22

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	BSBIN 5392 Lab on Immunology [2] 2 sub x 5 credits	applications (3L+1T) or 2L+2P					
VI	BSBIN 6301 Biostatistics [3] BSBIN 6391 Lab on Biostatistics [2] BSBIN 6302 R Programming [3] BSBIN 6392 Lab on R programming [2] BSBIN 6303 Plant and Animal Biotechnology [4] 2 sub x 5 credits 1 sub x 4 credits	2 sub x 4 credits Web development with HTML and CSS (3L+1T) or 2L+2P Internet and Networking (3L+1T) or 2L+2P					22

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VII	<p>BSBIN 7401 Genomics, Proteomics and Bioinformatics [3]</p> <p>BSBIN 7491 Lab on Genomics, Proteomics and Bioinformatics [2]</p> <p>BSBIN 7402 Computational Drug Design [3]</p> <p>BSBIN 7492 Lab on Computational Drug Design [2]</p> <p>BSBIN 7403 Research Methodology [4]</p> <p>2 sub x 5 credits 1 sub x 4 credits</p>	<p>2 sub x 4 credits</p> <p>Software Project Management / Digital Marketing (3L+1T) or 2L+2P</p> <p>Data Analysis and Interpretation (3L+1T) or 2L+2P</p>					22
VIII	<p>BSBIN 8401 Database Management System [3]</p> <p>BSBIN 8491 Lab on Database Management System [2]</p> <p>BSBIN 8402 IPR and Biosafety [4+1]</p> <p>2 sub x 5 credits</p>			Research project 12 credits			22
	19 sub - 91 credits	11 sub – 42 credits	4 sub – 08 credits	3 sub & Int & Proj - 22 credits	2 sub – 4 credits		176

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Note:

Normally all 5 credit courses will be either theory (3) + practical (2) [100+100 marks] or theory (4) + tutorial (1) [100 marks]

Normally all 4 credit courses will be either theory (3) + tutorial (1) or theory (4) [100 marks]

Normally all 3 credit courses will be theory (3) – Inter disciplinary (5 to 6 baskets) [100 marks]

Normally all 2 credit courses AEC/SEC/CVA would be theory or online/sessional course

4 th year subjects could be foundation of Master's program (as masters would be of 1 year after 4 years UG)

7/8th semester Major subjects could include Projects in core, if required 100/200/300/400 level should be maintained as per UGC document

For online course (Skill Enhancement Course) 2 credits=30 hours.