



AMITY UNIVERSITY RAJASTHAN JAIPUR

**Bachelor of Technology (Bioinformatics)
Program Code: BTF
Duration – 4 Years Full Time**

**Program Structure
And
Curriculum & Scheme of Examination
With
Choice Based Credit System (CBCS)
2020 Batch**

**AMITY INSTITUTE OF BIOTECHNOLOGY
AMITY UNIVERSITY RAJASTHAN
JAIPUR**

Credit Summary Table

B. Tech Program Bioinformatics							
Semester	CC	DE	VA	OE	NTCC	Anandam	Total
1	16	3	4	-	-	2	25
2	16	3	4	3	-	2	28
3	18	3	4	3	-	2	30
4	18	3	4	3	-	2	30
5	17	3	4	3	-	2	29
6	18	3	4	3	-	2	30
7	21	3	4	-	-	2	30
8	-	-	-	-	20	-	20
Total	124	21	28	15	20	14	222

Note:- CC - Core Course, VA - Value Added Course, OE - Open Elective, DE - Domain Elective, FW - Field Work

Minor Track: Introductory Bioinformatics							
Sem	Course Code	Course	Category	L	T	P/F W	Credits
2	BTF 231	Biological Information and Databases	DE	3	-	-	3
3	BTF 332	Basics of PERL programming I	DE	3	-	-	3
4	BTF 432	Basics of PERL programming II & Python	DE	3	-	-	3
5	BTF 504	Molecular Modeling & Drug Designing	CC	3	-	-	3
6	BTF 603	Advanced Computational Biology -II	CC	3	-	-	3
Total							15

B. Tech. Bioinformatics

Semester I

Code	Course	Category	L	T	P/FW	Credit
BTF 101	Applied Mathematics - I	CC	3	1	-	4
BTF 102	Applied Physics - I	CC	2	-	-	2
BTF 103	Applied Chemistry - I	CC	2	-	-	2
BTF 104	Introduction to Computers	CC	2	-	-	2
BTF 105	Life Sciences	CC	2	-	-	2
BTF 122	Applied Physics - I Lab	CC	-	-	2	1
BTF 123	Applied Chemistry – I Lab	CC	-	-	2	1
BTF 124	Introduction to Computers Lab	CC	-	-	2	1
BTF 125	Engineering Graphics Lab	CC	-	-	2	1
DE Electives: Student has to select 1 course from the list of following DE electives						
BTF 130	Term Paper	DE	3			3
BTF 131	Chemical Biology	DE	3			
BTF 132	Basics in Biotechnology	DE	3			
BTF 133	Introduction to Bioinformatics	DE	3			
AND001	AANANDAM -I	NTCC	1	1	1	2
BCS 101	English	VA	1	-	-	1
BSS 104	Understanding Self for Effectiveness – I	VA	1	-	-	1
FLT101 FLG101 FLS101 FLC101	Foreign Language - I French German Spanish Chinese	VA	2	-	-	2
TOTAL						29

Semester II						
Code	Course	Category	L	T	P/FW	Credit
BTF 201	Applied Mathematics - II	CC	3	1	-	4
BTF 202	Applied Physics - II	CC	2	-	-	2
BTF 203	Applied Chemistry - II	CC	2	-	-	2
BTF 204	Object Oriented Programming in C++	CC	2	-	-	2
BTF 205	Internet Technologies	CC	2	-	-	2
BTF 222	Applied Physics - II Lab	CC	-	-	2	1
BTF 223	Applied Chemistry – II Lab	CC	-	-	2	1
BTF 224	Object Oriented Programming in C++ Lab	CC	-	-	2	1
BTF 225	Internet Technologies Lab	CC	-	-	2	1
DE Electives: Student has to select 1 course from the list of following DE electives						
BTF 230	Term Paper	DE	3			3
BTF 231	Biological Information and Databases	DE	3			
BTF 232	Computational Biology	DE	3			
BTF 233	Database management System	DE	3			
OE	Open Elective-I	OE				3
AND002	AANANDAM -II	NTCC	1	1	1	2
BCS 201	English	VA	1	-	-	1
BSS 204	Behavioural Science – II (Problem Solving and Creative Thinking	VA	1			1
FLT 201	Foreign Language - II French	VA	2	-	-	2
FLG 201	German					
FLS 201	Spanish					
FLC 201	Chinese					
Total						30

Semester III						
Code	Course	Category	L	T	P/FW	Credit
BTF 301	Cell Biology	CC	3	-	-	3
BTF 302	Biochemistry - I	CC	2	-	-	2
BTF 303	Microbiology	CC	3	-	-	3
BTF 304	Computer-I	CC	2	-	-	2
BTF 321	Cell Biology-Lab	CC	-	-	2	1
BTF 322	Biochemistry - I-Lab	CC	-	-	2	1
BTF 323	Microbiology -Lab	CC	-	-	2	1
BTF 324	Computer-I-Lab	CC	-	-	2	1
DE Electives: Student has to select 1 course from the list of following DE electives						
BTF 330	Term Paper	DE				3
BTF 331	Metabolomics	DE				
BTF 332	Basics of PERL programming I	DE				
BTF 333	Chemiinformatics	DE				
OE	Open Elective-II	OE				3
EVS001	Environmental Sciences	CC	4	-	-	4
AND003	AANANDAM -II	NTCC	1	1	1	2
BCS 301	Communication Skills – I	VA	1	-	-	1
BSS 304	Understanding Self for Effectiveness – III	VA	1	-	-	1
FLT301 FLG301 FLS301 FLC301	Foreign Language - III French German Spanish Chinese	VA	2	-	-	2
Total						30

Semester IV						
Code	Course	Category	L	T	P/FW	Credit
BTF 401	Biochemistry - II	CC	3	-	-	3
BTF 402	Molecular Biology	CC	3	-	-	3
BTF 403	Computers - II	CC	2	-	-	2
BTF 404	Genetics	CC	3	-	-	3
BTF 405	Statistics for Biology	CC	3	-	-	3
BTF 421	Biochemistry – II -Lab	CC	-	-	2	1
BTF 422	Molecular Biology-Lab	CC	-	-	2	1
BTF 423	Computers - II-Lab	CC	-	-	2	1
BTF 424	Genetics-Lab	CC	-	-	2	1
DE Electives: Student has to select 1 course from the list of following DE electives						
BTF 430	Term paper	DE	3			3
BTF 431	Proteomics	DE	3			
BTF 432	Basics of PERL programming II & Python	DE	3			
BTF 433	Molecular Structure Visualization	DE	3			
OE	Open Elective-III	OE				3
AND004	AANANDAM -II	NTCC	1	1	1	2
BCS 401	Communication Skills – II	VA	1	-	-	1
BSS 404	Behavioral Science-IV (Relationship Management)	VA	1	-	-	1
FLT401 FLG401 FLS401 FLC401	Foreign Language -IV French German Spanish Chinese	VA	2	-	-	2
Total						30

Semester V						
Code	Course	Category	L	T	P/FW	Credit
BTF 501	Structural Biology	CC	3	-	-	3
BTF 502	Advanced Computational Biology – I	CC	3	-	-	3
BTF 503	Immunology	CC	2	-	-	2
BTF 504	Molecular Modeling & Drug Designing	CC	2	-	-	2
BTF 505	Computers - III	CC	2	-	-	2
BTF 521	Structural Biology -Lab	CC	-	-	2	1
BTF 522	Advanced Computational Biology – I-Lab	CC	-	-	2	1
BTF 523	Immunology-Lab	CC	-	-	2	1
BTF 524	Molecular Modeling & Drug Designing -Lab	CC	-	-	2	1
BTF 525	Computers - III-Lab	CC	-	-	2	1
DE Electives: Student has to select 1 course from the list of following DE electives						
BTF 530	Term Paper	DE	3			3
BTF 531	Functional and Comparative genomics	DE	3			
BTF 532	Transcriptomics and Data Analysis	DE	3			
BTF 533	Immunoinformatics and Biochemical Techniques	DE	3			
OE	Open Elective-IV	OE				3
AND005	AANANDAM -II	NTCC	1	1	1	2
BCS 501	Communication Skills – III	VA	1	-	-	1
BSS 504	Understanding Self for Effectiveness – V	VA	1	-	-	1
FLT501 FLG501 FLS501 FLC501	Foreign Language -V French German Spanish Chinese	VA	2	-	-	2
Total						29

Semester VI						
Code	Course	Category	L	T	P/FW	Credit
BTF 601	Genomics	CC	3	-	-	3
BTF 602	Computational Proteomics	CC	3	-	-	3
BTF 603	Advanced Computational Biology - II	CC	3	-	-	3
BTF 606	Clinical Research & Pharmacovigilance	CC	3	-	-	3
BTF 605	Computers - IV	CC	2	-	-	2
BTF 621	Genomics -Lab	CC	-	-	2	1
BTF 622	Computational Proteomics-Lab	CC	-	-	2	1
BTF 623	Advanced Computational Biology - II -Lab	CC	-	-	2	1
BTF 625	Computers - IV-Lab	CC	-	-	2	1
DE Electives: Student has to select 1 course from the list of following DE electives						
BTF 630	Term Paper & Industry Visit	DE	3			3
BTF 631	System Biology	DE	3			
BTF 632	Biocomputing Methods of Bioinformatics	DE	3			
BTF 633	IPR and Drug Regulatory Affairs	DE	3			
OE	Open Elective-V	OE				3
AND006	AANANDAM -II	NTCC	1	1	1	2
BCS 601	Communication Skills – IV	VA	1	-	-	1
BSS 604	Understanding Self for Effectiveness –V I	VA	1	-	-	1
FLT601 FLG601 FLS601 FLC601	Foreign Language -VI French German Spanish Chinese	VA	2	-	-	2
Total						30

Note: After completion of the End Term Examination the students must compulsorily undergo Industrial Training of 6 weeks. The evaluation of this training would be carried out in VIIsem.

For domain elective: BTF630- Term Paper & Industry Visit: In addition to term paper Students must compulsorily undergo Industrial Visit (Cluster of 5-6 Industries) for One week and they will be graded on their learning outcome of the visit for one third component of this Term Paper & Industry Visit.

Evaluation will be as follows;

Term Paper: 2 Credit (70 Marks)

Industry Visit: 1 Credit (30 Marks)

Semester VII						
Code	Course	Category	L	T	P/FW	Credit
BTF 701	Bioinformatics Algorithms ,Python and Matlab	CC	4	1	1	4
BTF 702	Data Mining	CC	3	1	-	4
BTF 703	Entrepreneurship Development	CC	3	1	1	3
BTF 704	R Programming	CC	3	1	-	4
BTF750	Industrial Training (Evaluation)	CC	-	-	-	3
BTF 722	Data Mining-Lab	CC	-	-	2	1
BTF 723	Bioinformatics Algorithm, Python &Matlab-Lab	CC	1	1	2	1
BTF 724	R Programming Lab	CC	-	-	2	1
DE Electives: Student has to select 1 course from the list of following DE electives						
BTF 730	Term Paper	DE	3			3
BTF 731	BioJava	DE	3			
BTF 732	Optimization Algorithm	DE	3			
BTF 733	BioPerl	DE	3			
AND007	AANANDAM -II	NTCC	1	1	1	2
BCS 701	Communication Skills – V	VA				1
BSS 704	Understanding Self for Effectiveness – VII	VA				1
FLT 701 FLG 701 FLS 701 FLC 701	Foreign Language - VII French German Spanish Chinese	VA				2
Total						30

Semester VIII						
Code	Course	Category	L	T	P/FW	Credit
BTF 860	Project / Dissertation	NTCC	-	-	-	20
Total						