Study & Evaluation Scheme

Of

Bachelor of Technology
B. Tech. (AI and ML)

[Applicable w.e.f. Academic Session 2024-25]

Approved by Academic Council

FUTURE UNIVERSITY

18th Milestone, Bareilly-Lucknow Highway NH-24
Near Faridpur, Bareilly, Uttar Pradesh 243503
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SUMMARY

<table>
<tr><td>Programme</td><td>Bachelor of Technology
B. Tech. (AI and ML)</td></tr>
<tr><td>Duration</td><td>Four years Full Time (Eight semesters)</td></tr>
<tr><td>Medium</td><td>English</td></tr>
<tr><td>Minimum Required Attendance</td><td>75%</td></tr>
<tr><td>Maximum Credit</td><td>170</td></tr>
<tr><td>Minimum Credit (required for the degree)</td><td>160</td></tr>
<tr><td>Assessment (Theory)</td><td><table><tr><td>Internal</td><td>External</td><td>Total</td></tr><tr><td>30%</td><td>70%</td><td>100%</td></tr></table></td></tr>
<tr><td>Assessment (Practical)</td><td><table><tr><td>Internal</td><td>External</td><td>Total</td></tr><tr><td>50%</td><td>50%</td><td>100%</td></tr></table></td></tr>
<tr><td>Internal Evaluation (Theory Papers)</td><td><table><tr><td>Class Test I</td><td>Class Test 2</td><td>Assignment(s)</td><td>Other Activity (including attendance)</td><td>Total</td></tr><tr><td>10 marks</td><td>10 marks</td><td>5 marks</td><td>5 marks</td><td>30 marks</td></tr></table></td></tr>
<tr><td>Internal Evaluation (Practical Papers)</td><td><table><tr><td>Experiment File Viva</td><td>Exam</td><td>Attendance</td><td>Total</td></tr><tr><td>10 marks</td><td>30 marks</td><td>10 marks</td><td>50 marks</td></tr></table></td></tr>
<tr><td>Duration of Examination (Theory)</td><td><table><tr><td>External</td><td>Internal</td></tr><tr><td>3 hrs.</td><td>1 ½ hrs</td></tr></table></td></tr>
<tr><td>Duration of Examination (Practical)</td><td>As per the requirement of the practical paper</td></tr>
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To qualify the course a student is required to secure a minimum of 40% marks in aggregate including the semester end examination and teachers' continuous evaluation. (i.e. both internal and external).
A candidate who secures less than of 40% of marks in a course shall be deemed to have failed in that course. The student should have at least 50% marks in aggregate to clear the semester. In case a student has more than 40% in each course, but less than 50% overall in a semester, he/she shall re-appear in courses where the marks are less than 50% to achieve the required aggregate percentage of 50% in the semester.

Question Paper Structure

1. ***The question paper shall consist of six questions. Out of which first question shall be of short answer type (not exceeding 50 words) and will be compulsory. Question No. 1 shall contain 8 parts representing all units of the syllabus and students shall have to answer any five (weight age 4 marks each).***
2. ***Out of the rest five questions, students shall be required to attempt all five questions, but there will be an internal choice of A or B. Each question will be from one unit of the syllabus. The weight age of Question No. 2 to 6 shall be 10 marks each.***

Bachelor of Technology in AI and ML

Credit Framework for the B. Tech. (AI and ML) -NEP-2020, Future University									Total
Sem.	Major (Core)	Minor Stream	Multidisciplinary	Ability Enhancement Course	Skill Enhancement Course	Value Added	Summer Internship	Research Project/ Dissertation	
1	10	4	5	0	2	2			23
2	10	2	5	0	2	2			21
Students exiting the programme after securing 40 credits will be awarded UG Certificate in the relevant Discipline / Subject provided they secure 4 credits in work based vocational courses offered during summer term or internship / Apprenticeship in addition to 6 credits from skill-based courses earned during first and second semester									
3	10	1	2	2	2				17
4	15	1		3					19
Students exiting the programme after securing 80 credits will be awarded UG Diploma in the relevant Discipline / Subject provided they secure 4 credits in skill based vocational courses offered during first year or second year summer term.									
5	17	4			4				25
6	17	1							18
Students who want to undertake 3-year UG Programme will be awarded UG Degree in the relevant Discipline/ Subject Upon securing 120 credits									
7	14	1						06	21
8	9	1						16	26
Students will be awarded UG Degree(Honors) with Research in the relevant Discipline/ Subject provided they secure 160 credits (As per NEP guidelines)									

Total= 170 credit

		Future University								
		B. Tech. in AI and ML (Undergraduate Regular)								
		Course Structure 2024-2028								
Program Name			**B. Tech. (AI and ML)**				**Program Code:**		**07**	
		Total Credit of Program: 170					**Branch Code:**		**06**	
Semester –I										
			Theory	**Week**			**Evaluation Scheme**		**Total**	**Credit**
SN	**Course Category**	**Code**	**Course Title**	**L**	**T**	**P**	**CA**	**EE**		
1	Multidisciplinary Course	BAS101	Engineering Mathematics-1	3	1	0	30	70	100	4
2	Minor Course	BAS103	Advanced Engineering Physics	2	1	0	30	70	100	3
3	Major Core Courses	BAS105/ BEC101	Essentials of Electrical Engineering / Essentials of Electronics Engineering	3	1	0	30	70	100	4
4	Major Core Courses	BCS101/ BME101	Principles of Problem Solving Using Advance C / Elements of Mechanical Engineering	3	1	0	30	70	100	4
5	Value Added Course	BCS103	Recent Advances In Technology	2	0	0	30	70	100	2
Practical										
6	Minor Course	BAS171	Advanced Engineering Physics LAB	0	0	2	50	50	100	1
7	Major Core Courses	BCS173/ BME173	Programming using Advanced C LAB /EME Lab	0	0	2	50	50	100	1

8	Major Core Courses	BEE175/ BEC175	Essentials of Electrical Engineering LAB / Essentials of Electronics Engineering LAB	0	0	2	50	50	100	1
9	Skill Enhancement Course	BME177/BME177	Workshop Practice Lab / Engineering Graphics Lab	0	1	2	25	25	50	2
10	Multidisciplinary Course	IKS101	IKS-1 (Indian Knowledge System-1)	1	0	0	50		50	1
			TOTAL	**14**	**5**	**8**	**375**	**525**	**900**	**23**

Semester –II										
			Theory	Week			Evaluation Scheme		Total	Credit
SN	Course Category	Code	Course Title	L	T	P	CA	EE		
1	Multidisciplinary Course	BAS102	Engineering Mathematics – II	4	1	0	50	100	150	5
2	Minor Course	BAS102	Environmental Science	2	0	0	30	70	100	2
3	Major Core Courses	BEC104/ BEE104	Essentials of Electronics Engineering / Essentials of Electrical Engineering	3	1	0	50	100	150	4
4	Major Core Courses	BME106/ BCS106	Elements of Mechanical Engg. / Principles of Problem Solving Using Advance C	3	1	0	30	70	100	4
5	Value Added Course	BCS108	Cyber Security	2	0	0	30	70	100	2
Practical										
6	Major Core Courses	BME180/ BCS182	EME Lab/Programming using advanced C Lab	0	0	2	50	50	100	1
7	Major Core Courses	BEC184/ BEE186	Essentials of Electronics Engineering Lab / Essentials of Electrical Engineering Lab	0	0	2	50	50	100	1
8	Skill Enhancement Course	BME188/ BME190	Engineering Graphics Lab / Workshop Practice Lab	0	0	2	50	50	100	2
9	Skill Enhancement Course	LSM110	LSM-I (Life Skill & Mentoring I)	0	0	0				0
			TOTAL	**14**	**3**	**6**	**340**	**560**	**900**	**21**

Semester –III										
				Week			Evaluation Scheme		Total	Credit
SN	Course Category	Code	Course Title	L	T	P	CA	EE		
1	Multidisciplinary Course	BAS201	Probability and Random Variables	2	0	0	30	70	100	2
2	Major Core Course	BAI203	Data Structures & Algorithms	3	0	0	30	70	100	3
3	Major Core Course	BAI205	Operating System	3	0	0	30	70	100	3
4	Skill Enhancement Course	BCS213	AI for Everyone	2	0	0	30	70	100	2
5	Ability Enhancement Course	BAS211	Foreign language (French/German)	2	0	0	30	70	100	2
6	Minor Course	BAI207	MOOC	Self Paced Learning					100	1
Practical										
6	Major Core Course	BAI271	Data Structures & Algorithms Lab	0	0	4	50	50	100	2
7	Major Core Course	BAI273	Operating System Lab	0	0	4	50	50	100	2
			TOTAL	**12**	**0**	**8**	**250**	**450**	**800**	**17**

Semester-IV										
				WEEK			Evaluation Scheme			
SN	**Course Category**	**Code**	**Course Title**	**L**	**T**	**P**	**CA**	**EE**	**Total**	**Credit**
1	Major Core Course	BAI202	Introduction to Machine learning	3	1	0	30	70	100	4
2	Major Core Course	BAI204	AI and Intelligent Agents	3	0	0	30	70	100	3
3	Major Core Course	BAI206	Object Oriented Programming with Python	3	1	0	30	70	100	4
4	Ability Enhancement Course	BCS210	AI for Engineers	3	0	0	30	70	100	3
5	Minor Course	BAI208	MOOC	Self Paced Learning					100	1
			Practical							
6	Major Core Course	BAI280	Machine Learning Lab	0	0	4	50	50	100	2
7	Major Core Course	BAI282	Object Oriented Programming with Python Lab	0	0	4	50	50	100	2
			TOTAL	**12**	**2**	**8**	**220**	**380**	**700**	**19**

Semester –V										
				Week			Evaluation Scheme			
SN	**Course Category**	**Code**	**Course Title**	**L**	**T**	**P**	**CA**	**EE**	**Total**	**Credit**
1	Major Core Course	BAI301	Natural Language Processing (NLP)	3	0	0	30	70	100	3
2	Major Core Course	BAI303	Cloud Computing & Edge AI	3	0	0	30	70	100	3
3	Major Core Course	BAI305	Computational Intelligence	3	1	0	30	70	100	4
4	Major Core Course		Elective-I	3	1	0	30	70	100	4
5	Minor Course	BAI307	MOOC	Self Paced Learning					100	4
Practical										
6	Major Core Course	BAI371	Computational Intelligence Lab	0	0	4	50	50	100	2
7	Major Core Course	BAI373	Cloud Computing & Edge AI	0	0	2	50	50	100	1
8	Skill Enhancement Course	BAI375	Internship	0	0	8	50	50	100	4
			TOTAL	**12**	**2**	**14**	**270**	**430**	**800**	**25**

Semester-VI										
				Week			Evaluation Scheme			
SN	**Course Category**		**Course Title**	**L**	**T**	**P**	**CA**	**EE**	**Total**	**Credit**
1	Major Course	BAI302	Research Methodology	3	1	0	30	70	100	4
2	Major Core Course	BAI304	Internet of Things	3	0	0	30	70	100	3
3	Major Core Course	BAI306	Introduction to Robotic Process Automation Tools	3	0	0	30	70	100	3
4	Major Core Course		Elective-II	3	0	0	30	70	100	3
5	Minor Course	BAI308	MOOC	Self Paced Learning					100	1
			Practical							
6	Major Core Course	BAI380	Internet of Things Lab	0	0	4	50	50	100	2
7	Major Core Course	BAI382	Introduction to Robotic Process Automation Tools Lab	0	0	4	50	50	100	2
			TOTAL	**12**	**1**	**8**	**220**	**380**	**700**	**18**

Semester –VII

				Week			Evaluation Scheme			
SN.	**Course Category**	**Code**	**Course Title**	**L**	**T**	**P**	**CA**	**EE**	**Total**	**Credit**
1	Major Core Course	BAI401	Fuzzy Logic & Application	3	0	0	30	70	100	3
2	Major Course	BAI403	R Programming	3	0	0	30	70	100	3
3	Major Core Course	BAI405	Deep Learning	3	0	0	30	70	100	3
4	Major Core Course		Elective-III	3	0	0	30	70	100	3
5	Minor Course	BAI407	MOOC	Self Paced Learning					100	1
Practical										
6	Major Core Course	BAI471	R Programming Lab	0	0	4	50	50	100	2
7	Research Project/ Dissertation	BAI473	Project Part-I	0	0	12	50	50	100	6
			TOTAL	**12**	**0**	**16**	**220**	**380**	**700**	**21**

Semester-VIII										
				Week			Evaluation Scheme			
SN	**Course Category**	CODE	**Course Title**	**L**	**T**	**P**	**CA**	**EE**	**Total**	**Credit**
1	Major Core Course	BAI416	Entrepreneurship & AI Startups	3	0	0	30	70	100	3
2	Major Core Course		Elective – IV	3	0	0	30	70	100	3
3	Major Core Course	BAI402	Robotic Operating Systems & Robot Simulation	3	0	0	30	70	100	3
4	Minor Course	BAI404	MOOC	Self Paced Learning					100	1
			Practical							
5	Research Project/ Dissertation	BAI480	Project Part- II	0	0	32	100	300	400	16
			Total	**9**	**0**	**32**	**190**	**510**	**800**	**26**

SN	Course Category
1	Major (Core)
2	Minor Stream
3	Multidisciplinary
4	Ability Enhancement Course
5	Skill Enhancement Course
6	Value Added Courses Common for All UG
7	Summer Internship
8	Research Project/ Dissertation

SN	CODE	Elective -I
1	BAI309	Information Security

2	BAI311	Database Security
3	BAI313	Business Intelligence
4	BAI315	Smart Industry Connectivity
5	BAI317	Data Visualization

SN		**Elective-II**
1	BAI310	Blockchain Technology
2	BAI312	Cyber Security and AI
3	BAI314	Management Information System
4	BAI316	Signal & Image Processing
5	BAI318	Meta Learning

SN		**Elective –III**
1	BAI409	Orientation program in Entrepreneurship
2	BAI411	Meta Verse
3	BAI413	AI Ethics and Governance
4	BAI415	Unmanned Aerial Vehicles
5	BAI417	Formal Language & Automata Theory

SN		**Elective-IV**
1	BAI406	Quantum Computing
2	BAI408	AI in Bioinformatics
3	BAI410	Big Data Analytics
4	BAI412	Evolutionary Algorithms
5	BAI414	Computer Vision