



# **Curriculum and Credit Framework For Undergraduate Programmes**

**(Academic Year 2023-24)**

**AURO UNIVERSITY**  
**#earthspace, Opp. ONGC, Bhatpore, Hazira Road**  
**Surat 394510, Gujarat**

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# School of Information Technology

## Part A: Programme Structure

**Name of Program:** BSc.IT

**Specialization:**

Artificial Intelligence and Machine Learning

And

Cyber Security and Forensics

**Course wise distribution of Total Credits across 3-year or 4-year Programme structure  
(as per NEP-2020)**

S.No	Category of Course(s)	Credits Required			
		3-year UG programme as per Govt of Gujarat Guidelines	AURO	4-year UG programme as per Govt of Gujarat Guidelines	AURO
1	Major (Core) Courses (with internship)	68	68	92	92
2	Minor (Elective) Courses	24	24	32	32
3	Multidisciplinary/Interdisciplinary/ Allied courses	12	12	12	12
4	AEC (Ability Enhancement Courses)	10	10	10	10
5	SEC (Skill Enhancement Courses)	10	10	10	10
6	VAC (Value Added Courses) including Indian/Knowledge System (IKS)	08	12	08	12
7	Research Project / OJT	00	00	12	12(OJT)
	<b>Total Credits</b>	<b>132</b>	<b>136</b>	<b>176</b>	<b>180</b>

**Name of Program: BSc.IT**

**Specialization:**

Artificial Intelligence and Machine Learning

And

Cyber Security and Forensics

**Year I**

**Semester - 1**

<b>S.No.</b>	<b>Course Title</b>	<b>Credits</b>
1.	Major 1 <b>Specialization:</b>	4
	Artificial Intelligence and Machine Learning	<b>Introduction to Python Programming (IBM)</b>
	Cyber security and Forensics	<b>Information Security Fundamentals (IBM)</b>
2	Major 2 Problem Solving and Programming using C	4
3	Minor 1 Computer System Architecture	4
4.	MD-1 Fundamentals of Mathematics	2
5.	MD-2 Dynamics of Human Behavior	2
6.	AEC 1 Communication Skills / Sanskrit	2
7.	SEC 1 E - Commerce	2
8.	VAC 1 Science of Living I	2
<b>Total of SEMESTER 1</b>		<b>22</b>

## Semester - 2

S.No.	Course Title	Credits
1.	Major 3 <b>Specialization:</b>	4
	Artificial Intelligence and Machine Learning	<b>Introduction to Artificial Intelligence and Machine Learning (IBM)</b>
	Cyber security and Forensics	<b>IT Network Security (IBM)</b>
2.	Major 4 Data Structure & Algorithm	4
3.	Minor 2 Database Management System	4
4.	MD 3 Fundamentals of Statistics	2
5.	MD 4 (Any one course to be chosen from the following pool of courses)	
	<b>Course Name</b>	<b>Offered By</b>
	Travel & Itinerary Design	School of Hospitality
	Environmental Education	School of Design
	Short Film Making	School of Journalism Mass Comm.
	Financial Literacy	School of Business
	Introduction to IPR	School of Law
	Digital Literacy	School of Information Technology
	Sculpture	School of Design
The Art of Expressive Writing	School of Liberal Arts & Human Sciences	
6.	AEC 2 Communication Skills/ French / Sanskrit / Gujarati / Hindi	2
7.	SEC 2 Internet Concepts and Web Designing	2
8.	VAC 2 Science of Living II	2

<b>Total of SEMESTER II</b>	<b>22</b>
<b>Total Credits for FIRST YEAR</b>	<b>44</b>

**Exit 1: Award of UG certificate in Major course with 44 credits with additional 4 credits of Summer Internship in core specific NSQF defined course OR continue with Major and Minor course for next NCrf credit level**

## Year 2

### Semester-3

S.No.	Course Title	Credits
1.	Major 5 <b>Specialization:</b>	4
	Artificial Intelligence and Machine Learning <b>Machine Learning (IBM)</b>	
	Cyber security and Forensics <b>IT Application Security (IBM)</b>	
2.	Major 6 Operating System	4
3.	Major 7 Relational Database Management System	4
4	MD 5 Computer Networks	2
5	MD-6 : (Any one course to be chosen from the following pool of courses)	
	<b>Course</b>	<b>Offered by</b>
	Digital Literacy	School of IT
	Environmental Education	School of Design
	Financial Literacy	School of Business
	Introduction to IPR	School of Law
	Sculpture	School of Design
	Short Film Making	School of Journalism and Mass Communication
	The Art of Expressive Writing	School of Liberal Arts and Human Sciences
Travel and Itinerary Design	School of Hospitality	
6	AEC 3 Communication Skills/ French / Sanskrit / Gujarati / Hindi	2
7	SEC 3 Data Science using R	2

8	VAC 3 Science of Living III	2
<b>Total of SEMESTER III</b>		<b>22</b>

### Semester - 4

S.No.	Course Title	Credits
1.	Major 8 <b>Specialization:</b>	4
	Artificial Intelligence and Machine Learning	<b>Deep Learning (IBM)</b>
	Cyber security and Forensics	<b>IT Data Security (IBM)</b>
2.	Major 9 JAVA Programming	4
3.	Major 10 ASP.net	4
4.	Minor 3 Design and Analysis of Algorithm	4
5.	AEC 4 Communication Skills/ French / Sanskrit / Gujarati / Hindi	2
6.	SEC 4 UI/UX Design and Animation	2
7.	VAC 4 Science of Living IV	2
<b>Total of SEMESTER IV</b>		<b>22</b>
<b>Total Credits for SECOND YEAR</b>		<b>44</b>

(Students will complete the internship after semester IV; credit thereof to be counted in semester VI)

**Exit 2: Award of UG Diploma in Major course with 88 credits with additional 4 credits of Summer Internship in core specific NSQF defined course OR continue with Major and Minor course for next NCrf credit level**

## Year 3

### Semester - 5

S.No.	Course Title	Credits
1.	Major 11 <b>Specialization:</b>	4
	Artificial Intelligence and Machine Learning	<b>Computational Linguistic and Natural Language Processing (IBM)</b>
	Cyber security and Forensics	<b>Ethical Hacking &amp; Penetration Testing (IBM)</b>
2.	Major 12 Block chain Technologies	4
3.	Major 13 Web Technologies using PHP	4
4.	Minor 4 Software Engineering	4
5.	Minor 5 Service – Oriented Architecture	4
6.	SEC 5 Data Visualization	2
7.	VAC 5 Foundation of Indian Culture – I	2
<b>Total of SEMESTER V</b>		24

### Semester - 6

S.No.	Course Title	Credits
1.	Major 14 <b>Specialization:</b>	4
	Artificial Intelligence and Machine Learning	<b>Application of Machine Learning in Industries (IBM)</b>
	Cyber security and Forensics	<b>Digital Forensic (IBM)</b>
2.	Major 15 Android Programming	4



3.	Major 16 Full Stack Development	4
4.	Minor 6 Introduction to Cloud Computing	4
5.	AEC 5 Introduction to IoT and Security	2
6.	Internship 1 Major Project – I	4
7.	VAC 6 Foundation of Indian Culture – II	2
<b>Total of SEMESTER VI</b>		<b>24</b>

**Exit 3: Award of UG Degree in Major Course with 136 credits and Internship in core discipline OR continue with Major and Minor course for next NCrF credit level**

### Semester-7

S.No.	Course Title		Credits
1.	Major 17 <b>Specialization:</b>		4
	Artificial Intelligence and Machine Learning	<b>Pattern Recognition and Anomaly Detection (IBM)</b>	
	Cyber security and Forensics	<b>Information Security Audit, Monitoring and Governance (IBM)</b>	
2.	Major 18 Cryptography & Network Security		4
3.	Major 19 Digital Image Processing		4
4.	Minor 7 System Simulation and Modelling		4
5.	OJT 1 On the Job Training – Major Project II		6
<b>Total of SEMESTER VII</b>			<b>22</b>

### Semester-8

<b>S.No.</b>	<b>Course Title</b>	<b>Credits</b>
1.	Major 20 Big Data Analytics using Hadoop	4
2.	Major 21 Software Testing Tools	4
3.	Major 22 Mobile Computing	4
4.	Minor 8 Distributed System	4
5.	OJT 2 / Research Project 1 On the Job Training – Major Project III / Research Project	6
<b>Total of SEMESTER VIII</b>		<b>22</b>

Four Years

BSc IT (Artificial Intelligence and Machine Learning)

BSc IT (Cyber security and Forensics)

Degree with 180 credits.