



**LNCT University, Bhopal**

**School of Computer Science and Technology**  
**(SOCST)**

**Bachelor of Computer Application-Artificial**  
**Intelligence and Data Analytics (BCA (AI & DA))**

**In collaboration with**

**Samatrix.io**

**Curriculum and Scheme**  
**CBGS/Grading System**

## University Core Subjects

S. No.	Subject Code	Subject Name
1.	BAI-104	Elementary Mathematics
2.	BAI-203	Computer Oriented Statistical Methods
3.	BAI-205	Basic Communication
4.	BAI-305	Soft Skills
5.	*BAI-211	Disaster Management
6.	*BAI- 110	Yoga and Meditation

## Program Electives

S. No.	Subject Code	Subject Name
1.	BAI -505 E-I (1)	Introduction to Mobile Computing
2.	BAI -505 E-I (2)	Soft Computing and Applications
3.	BAI -505 E-I (3)	Digital Marketing
4.	BAI-602 E-II (1)	Software Testing
5.	BAI-602 E-II (2)	Compiler Design
6.	BAI-602 E-II (3)	Natural Language Processing

## Programme Core Subjects

<b>S. No.</b>	<b>Subject Code</b>	<b>Subject Name</b>
1.	BAI-101	Computer Fundamentals and Organization
2.	BAI-102	Foundation to AI, Data Science, Ethics and Foundation of Data Analysis
3.	BAI-103	Problem Solving and Programming in C
4.	BAI-105	Operating System
5.	BAI-201	Data Analysis using Python, Numpy, Pandas, Matplotlib, and Seaborn
6.	BAI-202	Data Structures
7.	BAI-204	Object Oriented Programming with C++
8.	BAI-301	Probabilistic Modelling and Reasoning with Python
9.	BAI-302	R Programming for Data Science and Data Analysis
10.	BAI -303	Data Base Management System
11.	BAI -304	Software Engineering
12.	BAI – 401	Web Technologies
13.	BAI - 402	Foundation of Machine Learning and Pattern Recognition
14.	BAI – 403	Computer Networks
15.	BAI -404	Analysis and Design of Algorithms
16.	BAI -405	Machine Learning Practical with Python, Scikit-learn, Matplotlib, TensorFlow
17.	BAI-501	Data Mining and Warehousing
18.	BAI -502	Foundation of Neural Network and Deep Learning
19.	BAI -503	Theory of Computation
20.	BAI -504	Data Visualization -Tools & Techniques
21.	BAI-601	Cloud Computing Basics

# LNCT UNIVERSITY, BHOPAL

School of Computer Science and Technology

Scheme of Examination

PROGRAMME: **BCA**  
BRANCH : **AI & DA**

wef: **July 2022**  
SEMESTER: **I**

S. No	Paper Code	Paper Name	Maximum Marks Allotted					Total Marks	Credits Allotted				Total Credits	Remark
			Theory Slot		Practical Slot		L		T	P	J			
			EST	CAT	ESP	CAP								
1	BAI-101	Computer Fundamentals and Organization	70	30	-	-	100	3	1	-	-	04	One credit refers to one hour teaching in theory, tutorial, practical and Project workload per week corresponding to LTPJ	
2	BAI-102	Foundation to AI, Data Science, Ethics and Foundation of Data Analysis	70	30	-	-	100	3	1	-	-	04		
3	BAI-103	Problem Solving and Programming in C	70	30	-	-	100	3	1	-	-	04		
4	BAI-104	Elementary Mathematics	70	30	-	-	100	3	1	-	-	04		
5	BAI-105	Operating System	70	30	-	-	100	3	1	-	-	04		
6	BAI-106	Programming Lab in C	-	-	30	20	50	-	-	2	-	02		
7	BAI-107	Programming Lab in Linux and Excel	-	-	30	20	50	-	-	2	-	02		
8	BAI-108	Mini Project in C	-	-	30	20	50	-	-	-	1	01		
9	BAI-109	Seminar/Presentation-I	-	-	-	-	-	-	-	-	-	-		
10	*BAI- 110	Yoga and Meditation	-	-	-	-	-	-	-	-	-	-		
<b>Total</b>			<b>350</b>	<b>150</b>	<b>90</b>	<b>60</b>	<b>650</b>	<b>15</b>	<b>5</b>	<b>4</b>	<b>1</b>	<b>25</b>		

MST: Mid Semester Test      CAT: Continuous Assessment Theory      EST: End Semester Theory

ESP: End Semester Practical      CAP: Continuous Assessment Practical      L: Lecture

T: Tutorial      P: Practical      J: Project Work

\*BAI-109: Non-Gradable

\*BAI-110: Non-Gradable, Necessary to pass the exam to earn the certificate.

# LNCT UNIVERSITY, BHOPAL

School of Computer Science and Technology

Scheme of Examination

PROGRAMME: **BCA**  
BRANCH : **AI & DA**

wef: **July 2022**  
SEMESTER: **II**

S. No	Paper Code	Paper Name	Maximum Marks Allotted					Total Marks	Credits Allotted				Total Credits	Remark
			Theory Slot		Practical Slot		L		T	P	J			
			EST	CAT	ESP	CAP								
1	BAI-201	Data Analysis using Python, Numpy, Pandas, Matplotlib, and Seaborn	70	30	-	-	100	3	1	-	-	<b>04</b>	One credit refers to one hour teaching in theory, tutorial, practical and project. 25 hour workload per week corresponding to LTPJ	
2	BAI-202	Data Structures	70	30	-	-	100	3	1	-	-	<b>04</b>		
3	BAI-203	Computer Oriented Statistical Methods	70	30	-	-	100	3	1	-	-	<b>04</b>		
4	BAI-204	Object Oriented Programming with C++	70	30	-	-	100	3	1	-	-	<b>04</b>		
5	BAI-205	Basic Communication	70	30	-	-	100	3	1	-	-	<b>04</b>		
6	BAI-206	Programming Lab in C++	-	-	30	20	50	-	-	2	-	<b>02</b>		
7	BAI-207	Programming Lab in Data structures	-	-	30	20	50	-	-	2	-	<b>02</b>		
8	BAI-208	Mini Project in C++	-	-	30	20	50	-	-	-	1	<b>01</b>		
9	BAI-209	Seminar/Presentation-II	-	-	-	-	-	-	-	-	-	-		
10	*BAI-211	Disaster Management	-	-	-	-	-	-	-	-	-	-		
<b>Total</b>			<b>350</b>	<b>150</b>	<b>90</b>	<b>60</b>	<b>650</b>	<b>15</b>	<b>5</b>	<b>4</b>	<b>1</b>	<b>25</b>		

MST: Mid Semester Test      CAT: Continuous Assessment Theory      EST: End Semester Theory

ESP: End Semester Practical      CAP: Continuous Assessment Practical      L: Lecture

T: Tutorial

P: Practical

J: Project Work

\*BAI-208 Non-Gradable

\*BAI-211: Non-Gradable, Necessary to pass the exam to earn the certificate.

Internship-I (60 Hrs Duration). To be completed at the end of the second semester.

# LNCT UNIVERSITY, BHOPAL

## School of Computer Science and Technology Scheme of Examination

PROGRAMME: **BCA**  
BRANCH : **AI & DA**

wef: **July 2022**  
SEMESTER: **III**

S. No	Paper Code	Paper Name	Maximum Marks Allotted					Total Marks	Credits Allotted				Total Credits	Remark
			Theory Slot		Practical Slot		L		T	P	J			
			EST	CAT	ESP	CAP								
1	BAI-301	Probabilistic Modelling and Reasoning with Python	70	30	-	-	100	3	1	-	-	04	One credit refers to one hour teaching in theory, tutorial, practical and Project : 26 hour workload per week corresponding to LTPJ	
2	BAI-302	R Programming for Data Science and Data Analysis	70	30	-	-	100	3	1	-	-	04		
3	BAI -303	Data Base Management System	70	30	-	-	100	3	1	-	-	04		
4	BAI -304	Software Engineering	70	30	-	-	100	3	1	-	-	04		
5	BAI -305	Soft skills	70	30	-	-	100	3	1	-	-	04		
6	BAI -306	Programming Lab in Python	-	-	30	20	50	-	-	2	-	02		
7	BAI -307	Programming Lab in DBMS	-	-	30	20	50	-	-	2	-	02		
8	BAI -308	Mini Project in Python/Internship Evaluation-I	-	-	30	20	50	-	-	-	2	02		
9	BAI -309	CRT Training – I	-	-	-	-	-	-	-	-	-	-		
<b>Total</b>			<b>350</b>	<b>150</b>	<b>90</b>	<b>60</b>	<b>650</b>	<b>15</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>26</b>		

MST: Mid Semester Test      CAT: Continuous Assessment Theory      EST: End Semester Theory  
 ESP: End Semester Practical      CAP: Continuous Assessment Practical      L: Lecture  
 T: Tutorial      P: Practical      J: Project Work

\*BAI -308 Internship Evaluation -I completed at I year level.

\*BAI-309: Non-Gradable

# LNCT UNIVERSITY, BHOPAL

## School of Computer Science and Technology Scheme of Examination

PROGRAMME: BCA  
BRANCH : AI & DA

wef: July 2022  
SEMESTER: IV

S. No	Paper Code	Paper Name	Maximum Marks Allotted				Total Marks	Credits Allotted				Total Credits	Remark
			Theory Slot		Practical Slot			L	T	P	J		
			EST	CAT	ESP	CAP							
1	BAI - 401	Web Technologies	70	30	-	-	100	3	1	-	-	04	One credit refers to one hour teaching in theory, tutorial, practical and Project : 25 hour workload per week corresponding to LTPJ
2	BAI - 402	Foundation of Machine Learning and Pattern Recognition	70	30	-	-	100	3	1	-	-	04	
3	BAI - 403	Computer Networks	70	30	-	-	100	3	1	-	-	04	
4	BAI -404	Analysis and Design of Algorithms	70	30	-	-	100	3	1	-	-	04	
5	BAI -405	Machine Learning Practical with Python, Scikit-learn, Matplotlib, TensorFlow	70	30	-	-	100	3	1	-	-	04	
6	BAI -406	Programming Lab in Machine Learning	-	-	30	20	50	-	-	2	-	02	
7	BAI -407	Programming Lab in web Technologies	-	-	30	20	50	-	-	2	-	02	
8	BAI -408	Minor Project-I	-	-	30	20	50	-	-	-	1	01	
9	BAI -409	CRT Training-II	-	-	-	-	-	-	-	-	-	-	
<b>Total</b>			<b>350</b>	<b>150</b>	<b>90</b>	<b>60</b>	<b>650</b>	<b>15</b>	<b>5</b>	<b>4</b>	<b>1</b>	<b>25</b>	

MST: Mid Semester Test      CAT: Continuous Assessment Theory      EST: End Semester Theory  
 ESP: End Semester Practical      CAP: Continuous Assessment Practical      L: Lecture  
 T: Tutorial      P: Practical      J: Project Work

\* BAI-409- CRT Training -non credit course

Internship-II (90 Hrs Duration). To be completed at the end of the fourth semester.

# LNCT UNIVERSITY, BHOPAL

## School of Computer Science and Technology Scheme of Examination

PROGRAMME: **BCA**  
BRANCH : **AI & DA**

wef: **July 2022**  
SEMESTER: **V**

S. No	Paper Code	Paper Name	Maximum Marks Allotted					Total Marks	Credits Allotted				Total Credits	Remark
			Theory Slot		Practical Slot		L		T	P	J			
			EST	CAT	ESP	CAP								
1	BAI-501	Data Mining and Warehousing	70	30	-	-	100	3	1	-	-	04	One credit refers to one hour teaching in theory, tutorial, practical and Project : 26 hour workload per week corresponding to LTPJ	
2	BAI -502	Foundation of Neural Network and Deep Learning	70	30	-	-	100	3	1	-	-	04		
3	BAI -503	Theory of Computation	70	30	-	-	100	3	1	-	-	04		
4	BAI -504	Data Visualization - Tools & Techniques	70	30	-	-	100	3	1	-	-	04		
5	BAI -505	Elective: E-I	70	30	-	-	100	3	1	-	-	04		
6	BAI -506	Programming Lab in Data Visualization	-	-	30	20	50	-	-	2	-	02		
7	BAI -507	Minor Project-II / Internship Evaluation-II	-	-	30	20	50	-	-	-	4	04		
<b>Total</b>			<b>350</b>	<b>150</b>	<b>60</b>	<b>40</b>	<b>600</b>	<b>15</b>	<b>5</b>	<b>2</b>	<b>4</b>	<b>26</b>		

MST: Mid Semester Test      CAT: Continuous Assessment Theory      EST: End Semester Theory  
 ESP: End Semester Practical      CAP: Continuous Assessment Practical      L: Lecture  
 T: Tutorial      P: Practical      J: Project Work

\*BAI -507 Internship Evaluation -II completed at II year level.

**Elective: E-I**

1. Introduction to Mobile Computing
2. Soft Computing and Applications
3. Digital Marketing



# LNCT UNIVERSITY, BHOPAL

School of Computer Science and Technology

Scheme of Examination

PROGRAMME: **BCA**  
BRANCH : **AI & DA**

wef: **July 2022**  
SEMESTER: **VI**

S. No	Paper Code	Paper Name	Maximum Marks Allotted				Total Marks	Credits Allotted				Total Credits	Remark
			Theory Slot		Practical Slot			L	T	P	J		
			EST	CAT	ESP	CAP							
1	BAI-601	Cloud Computing Basics	70	30	-	-	100	3	1	-	-	04	One credit refers to one hour teaching in theory, tutorial, practical and Project : 22 hour workload per week corresponding to LTPJ
2	BAI-602	Elective: E-II	70	30	-	-	100	3	1	-	-	04	
3	BAI-603	Programming Lab in Cloud Computing	-	-	70	30	100	-	-	6	-	06	
4	BAI-604	Major Project & Case Studies	-	-	120	80	200	-	-	-	8	08	
<b>Total</b>			<b>140</b>	<b>60</b>	<b>190</b>	<b>110</b>	<b>500</b>	<b>6</b>	<b>2</b>	<b>6</b>	<b>8</b>	<b>22</b>	

MST: Mid Semester Test

CAT: Continuous Assessment Theory

EST: End Semester Theory

ESP: End Semester Practical

CAP: Continuous Assessment Practical

L: Lecture

T: Tutorial

P: Practical

J: Project Work

**Elective: E-II**

1. Software Testing
2. Compiler Design
3. Natural Language Processing