# LNCT University, Bhopal

# School of Computer Science and Technology (SOCST)

# Bachelor of Computer Application (BCA)

# Curriculum and Scheme

# CBGS/Grading System

## University Core Subjects

| S. No. | Subject Code | Subject Name |
|---|---|---|
| 1. | **BCA-104** | **Elementary Mathematics** |
| 2. | **BCA-105** | **Basic Communication** |
| 3. | **BCA-111** | **Disaster Management** |
| 4. | **BCA-201** | **Environmental Studies** |
| 5. | **BCA-203** | **Computer Oriented Statistical Methods** |
| 6. | **BCA- 210** | **Yoga and Meditation** |
| 7. | **BCA-305** | **Soft Skills** |

## Program Electives

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

## Programme Core Subjects

| S. No. | Subject Code | Subject Name |
|---|---|---|
| 1. | **BCA-101** | **Computer Fundamentals and Organization** |
| 2. | **BCA-102** | **Current Trends in Information Technology** |
| 3. | **BCA-103** | **Problem Solving and Programming in C** |
| 4. | **BCA-202** | **Data Structures** |
| 5. | **BCA-204** | **Object Oriented Programming with C++** |
| 6. | **BCA-205** | **Operating System** |
| 7. | **BCA-301** | **Introduction to Python** |
| 8. | **BCA-302** | **Discrete Mathematics** |
| 9. | **BCA-303** | **Data Base Management System** |
| 10. | **BCA-304** | **Software Engineering** |
| 11. | **BCA-401** | **Web Technologies** |
| 12. | **BCA-402** | **Java Programming** |
| 13. | **BCA-403** | **Computer Networks** |
| 14. | **BCA-404** | **Analysis and Design of Algorithms** |
| 15. | **BCA-405** | **Information and Cyber Security** |
| 16. | **BCA-501** | **Data Mining and Warehousing** |
| 17. | **BCA-502** | **Full Stack Development** |
| 18. | **BCA-503** | **Theory of Computation** |
| 19. | **BCA-504** | **Introduction to Artificial Intelligence and Machine Learning** |
| 20. | **BCA-601** | **Cloud Computing Basics** |

# LNCT UNIVERSITY, BHOPAL

School of Computer Science and Technology
Scheme of Examination

PROGRAMME: **BCA** **wef: July 2022**
BRANCH : **CA** SEMESTER: **I**

| S. No | Paper Code | Paper Name | Maximum Marks Allotted | | | | | Credits Allotted | | | | Total Credits | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Theory Slot | | Practical Slot | | | | | | | | |
| | | | EST | CAT | ESP | CAP | Total Marks | L | T | P | J | | |
| 1 | BCA-101 | **Computer Fundamentals and Organization** | **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 | BCA-102 | **Current Trends in Information Technology** | **70** | **30** | - | - | 100 | 3 | 1 | - | - | **04** | |
| 3 | BCA-103 | **Problem Solving and Programming in C** | **70** | **30** | - | - | 100 | 3 | 1 | - | - | **04** | |
| 4 | BCA-104 | **Elementary Mathematics** | **70** | **30** | - | - | 100 | 3 | 1 | - | - | **04** | |
| 5 | BCA-105 | **Basic Communication** | **70** | **30** | - | - | 100 | 3 | 1 | - | - | **04** | |
| 6 | BCA-106 | **Programming Lab in C** | **-** | **-** | 30 | 20 | 50 | - | - | 2 | - | **02** | |
| 7 | BCA-107 | **Programming Lab in Linux and Excel** | **-** | **-** | 30 | 20 | 50 | - | - | 2 | - | **02** | |
| 8 | BCA-108 | **Mini Project in C** | **-** | **-** | 30 | 20 | 50 | - | - | - | 1 | **01** | |
| 9 | BCA-109 | **Seminar/Presentation-I** | **-** | **-** | **-** | **-** | - | **-** | **-** | **-** | **-** | **-** | |
| 10 | *BCA- 111 | **Disaster Management** | **-** | **-** | **-** | **-** | - | **-** | **-** | **-** | **-** | **-** | |
| **Total** | | | **350** | **150** | **90** | **60** | **650** | **15** | **5** | **4** | **1** | **25** | |

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
*BCA-109: Non-Gradable
*BCA-111: 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** **wef: July 2022**
BRANCH : **CA** SEMESTER: **II**

| S. No | Paper Code | Paper Name | Maximum Marks Allotted | | | | | Credits Allotted | | | | Total Credits | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Theory Slot | | Practical Slot | | Total Marks | | | | | | |
| | | | EST | CAT | ESP | CAP | | L | T | P | J | | |
| 1 | BCA-201 | Environmental Studies | 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 | BCA-202 | Data Structures | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 3 | BCA-203 | Computer Oriented Statistical Methods | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 4 | BCA-204 | Object Oriented Programming with C++ | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 5 | BCA-205 | Operating System | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 6 | BCA-206 | Programming Lab in C++ | - | - | 30 | 20 | 50 | - | - | 2 | - | 02 | |
| 7 | BCA-207 | Programming Lab in Data structures | - | - | 30 | 20 | 50 | - | - | 2 | - | 02 | |
| 8 | BCA-208 | Mini Project in C++ | - | - | 30 | 20 | 50 | - | - | - | 1 | 01 | |
| 9 | BCA-209 | Seminar/Presentation-II | - | - | - | - | - | - | - | - | - | - | |
| 10 | *BCA-210 | Yoga and Meditation | - | - | - | - | - | - | - | - | - | - | |
| **Total** | | | **350** | **150** | **90** | **60** | **650** | **15** | **5** | **4** | **1** | **25** | |

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
BCA-209 Non-Gradable
*BCA-210: 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** **wef: July 2022**
BRANCH : **CA** SEMESTER: **III**

| S. No | Paper Code | Paper Name | Maximum Marks Allotted | | | | | Credits Allotted | | | | Total Credits | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Theory Slot | | Practical Slot | | Total Marks | | | | | | |
| | | | EST | CAT | ESP | CAP | | L | T | P | J | | |
| 1 | BCA-301 | Introduction to 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 | BCA-302 | Discrete Mathematics | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 3 | BCA-303 | Data Base Management System | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 4 | BCA-304 | Software Engineering | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 5 | BCA-305 | Soft skills | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 6 | BCA-306 | Programming Lab in Python | - | - | 30 | 20 | 50 | - | - | 2 | - | 02 | |
| 7 | BCA-307 | Programming Lab in DBMS | - | - | 30 | 20 | 50 | - | - | 2 | - | 02 | |
| 8 | BCA-308 | Mini Project in Python/Internship Evaluation-I | - | - | 30 | 20 | 50 | - | - | - | 2 | 02 | |
| 9 | BCA-309 | CRT Training – I | - | - | - | - | - | - | - | - | - | - | |
| Total | | | 350 | 150 | 60 | 30 30 | 650 | 15 | 5 | 4 | 1 | 26 | |

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

*BCA -308 Internship Evaluation -I completed at I year level.

*BCA-309: Non-Gradable

# LNCT UNIVERSITY, BHOPAL

School of Computer Science and Technology
Scheme of Examination

PROGRAMME : **BCA** **wef: July 2022**
BRANCH : **CA** SEMESTER: **IV**

| S. No | Paper Code | Paper Name | Maximum Marks Allotted | | | | | Credits Allotted | | | | Total Credits | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Theory Slot | | Practical Slot | | | | | | | | |
| | | | EST | CAT | ESP | CAP | Total Marks | L | T | P | J | | |
| 1 | BCA-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 | BCA-402 | Java Programming | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 3 | BCA-403 | Computer Networks | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 4 | BCA-404 | Analysis and Design of Algorithms | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 5 | BCA-405 | Information and Cyber Security | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 6 | BCA-406 | Programming Lab in Java | - | - | 30 | 20 | 50 | - | - | 2 | - | 02 | |
| 7 | BCA-407 | Programming Lab in web Technologies | - | - | 30 | 20 | 50 | - | - | 2 | - | 02 | |
| 8 | BCA-408 | Minor Project-I | - | - | 30 | 20 | 50 | - | - | - | 1 | 01 | |
| 9 | BCA-409 | CRT Training-II | - | - | - | - | - | - | - | - | - | - | |
| Total | | | 350 | 150 | 90 | 60 | 650 | 15 | 5 | 4 | 1 | 25 | |

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
* BCA-409- Non-Gradable
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** **wef: July 2022**
BRANCH : **CA** SEMESTER: **V**

| S. No | Paper Code | Paper Name | Maximum Marks Allotted | | | | | Credits Allotted | | | | Total Credits | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Theory Slot | | Practical Slot | | Total Marks | | | | | | |
| | | | EST | CAT | ESP | CAP | | L | T | P | J | | |
| 1 | BCA-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 | BCA-502 | Full Stack Development-Java | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 3 | BCA-503 | Theory of Computation | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 4 | BCA-504 | Introduction to Artificial Intelligence and Machine learning | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 5 | BCA-505 | Elective: E-I | 70 | 30 | - | - | 100 | 3 | 1 | - | - | 04 | |
| 6 | BCA-506 | Programming Lab in Machine Learning | - | - | 30 | 20 | 50 | - | - | 2 | - | 02 | |
| 7 | BCA-507 | Minor Project-II/ Internship Evaluation-II | - | - | 30 | 20 | 50 | - | - | - | 4 | 04 | |
| Total | | | 350 | 150 | 60 | 40 | 600 | 15 | 5 | 2 | 4 | 26 | |

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
*BCA -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** **wef: July 2022**
BRANCH : **CA** SEMESTER: **VI**

| S. No | Paper Code | Paper Name | Maximum Marks Allotted | | | | | Credits Allotted | | | | Total Credits | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Theory Slot | | Practical Slot | | | | | | | | |
| | | | EST | CAT | ESP | CAP | Total Marks | L | T | P | J | | |
| 1 | BCA-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 | BCA-602 | **Elective: E-II** | 70 | 30 | - | - | 100 | 3 | 1 | - | - | **04** | |
| 3 | BCA-603 | **Programming Lab in Cloud Computing** | - | - | **70** | **30** | **100** | - | - | 6 | | **06** | |
| 4 | BCA-604 | **Major Project** | - | - | 120 | 80 | 200 | - | - | - | 8 | **08** | |
| **Total** | | | **140** | **60** | **190** | **110** | **500** | **6** | **2** | **6** | **8** | **22** | |

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