

Panipat Institute of Engineering & Technology

An Autonomous Institution, Approved by A.I.C.T & Affiliated to Kurukshetra University, Kurukshetra NBA Accredited (MBA,CSE,IT & ECE,UG) 70, MILESTONE, G.T.ROAD, SAMALKHA, PANIPAT-132103, HARYANA Phone No. – 0180-2569700 Fax: 0180-2569800 Email: info@piet.co.in Web: www.piet.co.in

Scheme of Studies and Examinations, and the Syllabi for Under Graduate Degree Programme

Bachelor of Computer Applications (Cloud Technology and Information Security)

(in phased manner)

as per NEP-2020 guidelines

With Multiple Entry-Exit and Internship w.e.f. Academic Session 2024-25

DEPARTMENT OF COMPUTER APPLICATIONS - UG

| Scheme of Studies and Examinations (w.e.f. Session 2024 - 2025) | | | | | | | | | | | | | | | | | | |
|--|--|---|--|--|---|---|--|--|--|--------------------------|----------|--|------------|------------|-------------------------|--------------------------|-----------------------------|-----------------------------|
| | Bachelor of Computer Applications (CTIS) Semester – I | | | | | | | | | | | | | | | | | |
| Course Code | Course Code Course Title | | Period(s) | | Period(s) | | Period(s) | | Period(s) | | eriod(s) | | Hours/Week | Credit (s) | Continuous Examination | Semester End Examination | Total Marks (CIE+SEE) | Duration of Exam (Hours) |
| | | L | Т | P | | | Max | Max | Max | O O | | | | | | | | |
| | Core C | | | | | | Max | Max | Max | | | | | | | | | |
| BCA-101A | Foundations of Computer Science | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | | | | | | | |
| BCA-103A | Digital Logic Design | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | | | | | | | |
| | Basics of Mathematics-I | 2 | 0 | 0 | 2 | 2 | 40 | 60 | 100 | 3 | | | | | | | | |
| ASII-MAI-IIJA | Value Added | | | | | | 40 | 00 | 100 | | | | | | | | | |
| BT-CE-104A | Environmental Studies | 2 | 0 | 0 | 2 | 2 | 40 | 60 | 100 | 3 | | | | | | | | |
| B1-02-10411 | Skill Enhancen | _ | ours | e (SE | | | 10 | | 100 | | | | | | | | | |
| BCA-105A | Problem Solving through C | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | | | | | | | |
| 201110311 | Ability Enhance | _ | _ | se (A | | | | | 100 | | | | | | | | | |
| ASH-HUM-117A | English Language and Communication-1 | 2 | 0 | 0 | 2 | 2 | 40 | 60 | 100 | 3 | | | | | | | | |
| | Multi Disciplin | _ | ours | e (MII) | C) | | | | | _ | | | | | | | | |
| BBA-215A | Digital Marketing | 2 | 0 | 0 | 2 | 2 | 40 | 60 | 100 | 3 | | | | | | | | |
| | Practicum | Cour | se (I | | _ | _ | | | | _ | | | | | | | | |
| BCA-171A | Digital Logic Design Lab | 0 | 0 | 4 | 4 | 2 | 50 | 50 | 100 | 3 | | | | | | | | |
| BCA-173A | Problem Solving through C Lab | 0 | 0 | 4 | 4 | 2 | 50 | 50 | 100 | 3 | | | | | | | | |
| | Total | 17 | 0 | 8 | 25 | 21 | 380 | 520 | 900 | | | | | | | | | |
| | 201112 | | | | | | | | | | | | | | | | | |
| | Scheme of Studies and Examin | ation | s (w | e.f. | Sess | sion | 2024 - 2 | 025) | | | | | | | | | | |
| | | | | | Scheme of Studies and Examinations (w.e.f. Session 2024 - 2025) Bachelor of Computer Applications (CTIS) Semester – II | | | | | | | | | | | | | |
| | | plications (CT Period(s) | | | | 1010 | еше | ster – n | L | | | | | | | | | |
| Course Code | Course Title | Pe | | | | Credit (s) | Continuous Internal Examination | Semester End Exanination | Total Marks | uration of Exam (Hours) | | | | | | | | |
| Course Code | Course Title | | riod(| (s) | Hours/Week | | Continuous Examination | Semester End Examination | Marks (CIE+SEE) | Duration of Exam (Hours) | | | | | | | | |
| Course Code | | L | riod(| (s) P | | | Continuous Internal Examination | Semester End Exanination | Marks | Duration of Exam (Hours) | | | | | | | | |
| | Core C | L ourse | T (CC) | (s) P | Hours/Week | Credit (s) | xeW (313) Continuous Internal Examination | xemester End Examination | Marks (CIE+SEE) Max | | | | | | | | | |
| BCA-102A | Core Coperating System | L ourse | T (CC) | P 0 | Hours/ Week | Credit (s) | xeM Continuous (313) Internal Examination | xem Semester End (SES) Examination | Marks (CIE+SEE) Max | 3 | | | | | | | | |
| BCA-102A BCA-112A | Core Core Core Core Core Core Core Core | L ourse 3 | T (CC) | P 0 0 | ω ω Hours/ Week | S Credit (s) | Continuous Table 100 | xem (SEE) Semester End Examination | Marks (CIE+SEE) Max 100 100 | 3 | | | | | | | | |
| BCA-102A BCA-112A BCA-114A | Core Core Core Core Core System Data Structures using C++ Introduction to Cloud Computing | L ourse 3 3 | T (CC) 0 0 | P 0 0 0 | Hours/ Week | Credit (s) | Continuous (313) Continuous wax (313) Carrieral Examination | Semester End (SES) (S | Marks (CIE+SEE) Max 100 100 100 | 3 3 3 | | | | | | | | |
| BCA-102A BCA-112A BCA-114A | Operating System Data Structures using C++ Introduction to Cloud Computing Basics of Mathematics-II | L ourse 3 3 2 2 | T (CC) 0 0 0 | P 0 0 0 0 0 0 | Hours/Week | S Credit (s) | Continuous Table 10 Continuou | xem (SEE) Semester End Examination | Marks (CIE+SEE) Max 100 100 | 3 | | | | | | | | |
| BCA-102A BCA-112A BCA-114A ASH-MAT-116A | Core Core Core Core Core Core Core Core | L ourse 3 3 2 2 | T (CC) 0 0 0 | P 0 0 0 0 VAC) | Hours/Week | 3 3 2 2 2 | Continuous (AIC) (AIC | SEMESTEL END Semester End O O O O O O O O O O O O O | Marks (CIE+SEE) Max 100 100 100 100 | 3 3 3 3 | | | | | | | | |
| BCA-102A BCA-112A BCA-114A | Core Core Core Core Core Core Core Core | L ourse 3 3 2 2 l Cour | T (CC) 0 0 0 0 rse (| P 0 0 0 0 0 VAC) | Hours/Week | Credit (s) | Continuous (313) Continuous wax (313) Carrieral Examination | Semester End (SES) (S | Marks (CIE+SEE) Max 100 100 100 | 3 3 3 | | | | | | | | |
| BCA-102A BCA-112A BCA-114A ASH-MAT-116A ASH-HUM-107A | Core Core Core Core Core Core Core Core | L ourse 3 3 2 2 l Cour 2 nent C | T (CC) 0 0 0 0 course (V | P 0 0 0 0 VAC) 0 se (SF | Hours/Week | 3 3 2 2 2 2 | (312) Continuous Wax (313) Examination On the continuous On the | (SEE) Max 60 60 60 60 60 | Marks (CIE+SEE) Max 100 100 100 100 100 | 3 3 3 3 3 | | | | | | | | |
| BCA-102A BCA-112A BCA-114A ASH-MAT-116A | Core Core Core Core Core Core Core Core | L ourse 3 3 2 2 l Cour 2 ment C 3 | T ((CC) 0 0 0 0 0 course () 0 | P 0 0 0 0 VAC) 0 ee (SE 0 | 3 3 2 2 2 CO 3 | 3 3 2 2 2 | Continuous (AIC) (AIC | SEMESTEL END Semester End O O O O O O O O O O O O O | Marks (CIE+SEE) Max 100 100 100 100 | 3 3 3 3 | | | | | | | | |
| BCA-102A BCA-112A BCA-114A ASH-MAT-116A ASH-HUM-107A BCA-106A | Core Core Core Core Core Core Core Core | L ourse 3 3 2 2 1 Cour 2 nent C 3 | T (CC) 0 0 0 0 course 0 Cours | P 0 0 0 0 VAC) 0 see(SI | 3 3 2 2 2 CC) 3 EC) | 3 3 2 2 2 2 3 | (Continuous 40 40 40 40 40 40 40 40 40 40 40 40 40 | 60 60 60 60 60 60 60 | Marks (CIE+SEE) Max 100 100 100 100 100 | 3 3 3 3 3 3 | | | | | | | | |
| BCA-102A BCA-112A BCA-114A ASH-MAT-116A ASH-HUM-107A BCA-106A | Core Core Core Core Core Core Core Core | L ourse 3 3 2 2 1 Cour 2 nent C 3 ment (| T (CC) 0 0 0 0 Cours 0 Cours | P 0 0 0 0 VAC) 0 se (SE 0 | 3 3 2 2 2 CC) 3 ECC) 2 | 3 3 2 2 2 2 | (312) Continuous Wax (313) Examination On the continuous On the | (SEE) Max 60 60 60 60 60 | Marks (CIE+SEE) Max 100 100 100 100 100 | 3 3 3 3 3 | | | | | | | | |
| BCA-102A BCA-112A BCA-114A ASH-MAT-116A ASH-HUM-107A BCA-106A ASH-HUM-118A | Operating System Data Structures using C++ Introduction to Cloud Computing Basics of Mathematics-II Value Added Universal Human Values Skill Enhancer Introduction to Web Technology Ability Enhancer English Language and Communication-2 Multi Disciplin | L ourse 3 3 2 2 1 Cour 2 nent C 3 ment C 2 | T (CCC) 0 0 0 0 course 0 Course | P 0 0 0 0 VAC) 0 see (SH 0 0 ee (MI | 3 3 2 2 2 CC) 3 EC) 2 CC) | 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | (AT Continuous Continu | 60 60 60 60 60 60 | Marks (CIE+SEE) Max 100 100 100 100 100 100 | 3 3 3 3 3 3 3 | | | | | | | | |
| BCA-102A BCA-112A BCA-114A ASH-MAT-116A ASH-HUM-107A BCA-106A ASH-HUM-118A | Core Core Core Core Core Core Core Core | L ourse 3 3 2 2 l Cour 2 ment C 3 ment C 2 ary C | T (CCC) 0 0 0 0 Course (V 0 Course (V 0 0 Course (V 0 0 Course (V 0 0 Course (V 0 0 Course (V 0 0 0 Course (V 0 0 Course (V 0 0 0 Course (V 0 0 Course | P 0 0 0 0 0 vAC) 0 see (SE 0 see (MID 0 | 3 3 2 2 2 CC) 3 ECC) 2 | 3 3 2 2 2 2 3 | (Continuous 40 40 40 40 40 40 40 40 40 40 40 40 40 | 60 60 60 60 60 60 60 | Marks (CIE+SEE) Max 100 100 100 100 100 | 3 3 3 3 3 3 | | | | | | | | |
| BCA-102A BCA-112A BCA-114A ASH-MAT-116A ASH-HUM-107A BCA-106A ASH-HUM-118A ASH-HUM-119A | Operating System Data Structures using C++ Introduction to Cloud Computing Basics of Mathematics-II Value Added Universal Human Values Skill Enhancer Introduction to Web Technology Ability Enhancer English Language and Communication-2 Multi Disciplin Indian Knowledge System Practicum | L ourse 3 3 2 2 l Cour 2 ment C 3 ment C 2 ary C 2 | T (CC) 0 0 0 0 Course 0 Course 0 see (F | P 0 0 0 0 0 VAC) 0 se (SE 0 0 e (ME 0 0 CC) | 3 3 2 2 2 CC) 3 EC) 2 CC) 2 | 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | (Continuous 40 40 40 40 40 40 40 40 40 40 40 40 40 | (SEE) Max 60 60 60 60 60 60 | Marks (CIE+SEE) Max 100 100 100 100 100 100 100 | 3 3 3 3 3 3 3 3 | | | | | | | | |
| BCA-102A BCA-112A BCA-114A ASH-MAT-116A ASH-HUM-107A BCA-106A ASH-HUM-118A ASH-HUM-119A | Core Core Core Core Core Core Core Core | L ourse 3 3 2 2 1 Cour 2 nent C 3 ment (2 ary C 2 1 Cour 0 | T (CC) 0 0 0 0 Course 0 Course 0 cree (F | P 0 0 0 0 0 VAC) 0 se (SE 0 0 e (MI) 0 PC) 4 | 3 3 2 2 2 CC) 3 ECC) 2 CC) 4 | 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | (Continuous 40 40 40 40 40 40 40 40 40 40 40 40 40 | (SEE) Max 60 60 60 60 60 60 60 | Marks (CIE+SEE) Max 100 100 100 100 100 100 100 100 100 | 3 3 3 3 3 3 3 3 | | | | | | | | |
| BCA-102A BCA-112A BCA-114A ASH-MAT-116A ASH-HUM-107A BCA-106A ASH-HUM-118A ASH-HUM-119A | Operating System Data Structures using C++ Introduction to Cloud Computing Basics of Mathematics-II Value Added Universal Human Values Skill Enhancer Introduction to Web Technology Ability Enhancer English Language and Communication-2 Multi Disciplin Indian Knowledge System Practicum | L ourse 3 3 2 2 l Cour 2 ment C 3 ment C 2 ary C 2 | T (CC) 0 0 0 0 Course 0 Course 0 see (F | P 0 0 0 0 0 VAC) 0 se (SE 0 0 e (ME 0 0 CC) | 3 3 2 2 2 (C) 3 EC) 2 0 4 4 | 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | (Continuous 40 40 40 40 40 40 40 40 40 40 40 40 40 | (SEE) Max 60 60 60 60 60 60 60 60 60 60 | Marks (CIE+SEE) Max 100 100 100 100 100 100 100 100 100 | 3 3 3 3 3 3 3 3 | | | | | | | | |
| BCA-102A BCA-112A BCA-114A ASH-MAT-116A ASH-HUM-107A BCA-106A ASH-HUM-118A ASH-HUM-119A BCA-174A BCA-182A | Core Core Core Core Core Core Core Core | L ourse 3 3 2 2 l Cour 2 nent C 3 ment C 2 ary C 2 l Cour 0 0 | T (CC) 0 0 0 0 Course 0 Course (F | P 0 0 0 0 0 VAC) 0 se (SE 0 0 e (MI) 0 PC) 4 | 3 3 2 2 2 CC) 3 ECC) 2 CC) 4 | 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | (Continuous 40 40 40 40 40 40 40 40 40 40 40 40 40 | (SEE) Max 60 60 60 60 60 60 60 | Marks (CIE+SEE) Max 100 100 100 100 100 100 100 100 100 | 3 3 3 3 3 3 3 3 | | | | | | | | |

Note 1: The Industrial Internship shall be of 4 credits duration of 45-60 days after the 2nd semester. If a student takes exit after 2nd semester with Under Graduate Certificate in Computer Applications (Cloud Technology and Information Security), marks of Industrial Internship shall be counted in 2nd semester itself.

| | Scheme of Studies and Examinations (w.e.f. Session 2024 - 2025) | | | | | | | | | |
|--|---|---|---|---|--|---|--|--|--|-----------------------------|
| | Bachelor of Computer Applications (CTIS) Semester – III | | | | | | | | | |
| Course Code | Course Title | | Period(s) | | Hours/ Week | | Continuous Internal Examination | Semester End Exanination | Total Marks | Duration of Exam (Hours) |
| | | | | | Ħ | | (CIE) | (SEE) | (CIE+SEE) | Dar |
| | | L | T | P | | | Max | Max | Max | |
| | Core Co | ourse | (CC |) | | | | | | |
| BCA-201A | Software Engineering | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 |
| BCA-211A | Linux and Shell Programming | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 |
| BCA-203A | Database Management System | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 |
| BCA-213A | Introduction to Information Security | 2 | 0 | 0 | 2 | 2 | 40 | 60 | 100 | 3 |
| | Skill Enhancen | aent C | ours | se (SI | EC) | | | | | |
| BCA-215A | Full Stack Development-1 (MERN) | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 |
| | Ability Enhancer | ment (| Cour | se (A | EC) | | | | | |
| BBA-217A | Personality Development | 2 | 0 | 0 | 2 | 2 | 40 | 60 | 100 | 3 |
| | Practicum | Cour | se (I | PC) | | | | | | |
| BCA-281A | Linux and Shell Programming Lab | 0 | 0 | 4 | 4 | 2 | 50 | 50 | 100 | 3 |
| BCA-273A | Database Management System Lab | 0 | 0 | 4 | 4 | 2 | 50 | 50 | 100 | 3 |
| BCA-283A | Full Stack Development-1 (MERN) Lab | | 0 | 4 | 4 | 2 | 50 | 50 | 100 | 3 |
| | Total | 0 16 | 0 | 12 | 28 | 22 | 390 | 510 | 900 | |
| | 20 | 10tal 10 0 12 28 22 390 510 900 | | | | | | | | |
| | Scheme of Studies and Examinations (w.e.f. Session 2024 - 2025) | | | | | | | | | |
| | Scheme of Studies and Examina | ation | s (w | .e.f. | Sess | sion | 2024 - 2 | 025) | | |
| | Scheme of Studies and Examina Bachelor of Computer Appl | | | | | | ster – I | | | |
| Course Code | | icatio | | (CT) | S) S | | Continuous as Internal Lxamination | Semester End Exanination | Total Marks | ration of Exam (Hours) |
| Course Code | Bachelor of Computer Appl | icatio | ons | (CT) | | eme | ster – I | 7 | | Duration of Exam (Hours) |
| Course Code | Bachelor of Computer Appl | icatio | ons | (CT) | S) S | eme | Continuous as Internal Lxamination | Semester End Exanination | Marks | Duration of Exam (Hours) |
| Course Code | Bachelor of Computer Appl Course Title Core Co | Pe L ourse | riod | (CT) | S) S | eme | Continuous Internal Examination | Semester End Examination | Marks (CIE+SEE) | Duration of Exam (Hours) |
| BCA-212A | Course Title Core Co Data Communication and Computer Networks | Pe L ourse | riod | (CT) | S) S | eme | Continuous Internal Examination | Semester End Examination | Marks (CIE+SEE) | 3 |
| BCA-212A BCA-214A | Course Title Core Co Data Communication and Computer Networks Cyber Laws and Ethics | Pe L ourse 3 | T (CC) | (CT) (s) P 0 0 | Hours/ Week | Credit (s) | Continuous Coutinuous Calcy Aux Coutinuous Literal Examination 40 | Semester End (SEE) Max 60 | Marks (CIE+SEE) Max 100 100 | 3 |
| BCA-212A | Course Title Core Co Data Communication and Computer Networks Cyber Laws and Ethics Fundamental of Storage and Data Centres | Pe L ourse 3 3 | T (CC) | (CT) (s) P 0 0 0 | Hours/Week | Credit (s) | Continuous (AID) Internal Examination 40 | Semester End Examination 60 | Marks (CIE+SEE) Max | 3 |
| BCA-212A BCA-214A BCA-216A | Course Title Core Co Data Communication and Computer Networks Cyber Laws and Ethics Fundamental of Storage and Data Centres Value Added | Pe L ourse 3 3 1 Cour | T (CC) | (CT) (s) P 0 0 VAC) | S) S Hours/ Week | Credit (s) | Continuous Continuous Calc Ca | Semester End (SEE) Max 60 60 | Marks (CIE+SEE) Max 100 100 100 | 3 3 3 |
| BCA-212A BCA-214A | Course Title Core Co Data Communication and Computer Networks Cyber Laws and Ethics Fundamental of Storage and Data Centres Value Added Quantitative Aptitude | Pe L ourse 3 3 1 Cour | T (CC) | (S) P 0 0 0 VAC) 0 | S) S Hours/ Week | Credit (s) | Continuous Coutinuous Calcy Aux Coutinuous Literal Examination 40 | Semester End (SEE) Max 60 | Marks (CIE+SEE) Max 100 100 | 3 |
| BCA-212A BCA-214A BCA-216A BCA-202A | Course Title Core Co Data Communication and Computer Networks Cyber Laws and Ethics Fundamental of Storage and Data Centres Value Added Quantitative Aptitude Skill Enhancen | Pe L ourse 3 3 1 Cour | T (CC) | (CT) P 0 0 0 VAC) 0 se (SI | S) S Hours/ Week | 3 3 3 2 2 | Continuous Continuous Coutinuous Campa Cam | V Semester End 60 60 60 60 60 | Marks (CIE+SEE) Max 100 100 100 100 | 3 3 3 |
| BCA-212A BCA-214A BCA-216A | Course Title Course Title Core Co Data Communication and Computer Networks Cyber Laws and Ethics Fundamental of Storage and Data Centres Value Added Quantitative Aptitude Skill Enhancen Full Stack Development-2 (MEAN) | Pe L ourse 3 3 1 Cour 2 aent C | T (CC 0 0 0 Course (0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | (CT) (s) P 0 0 0 0 0 se (SH 0 | S) S yaaa Montal Montal 3 3 3 2 CC) 2 | 3 3 3 2 2 2 | Continuous Continuous Calc Ca | Semester End (SEE) Max 60 60 | Marks (CIE+SEE) Max 100 100 100 | 3 3 3 |
| BCA-212A BCA-214A BCA-216A BCA-202A | Course Title Core Co Data Communication and Computer Networks Cyber Laws and Ethics Fundamental of Storage and Data Centres Value Added Quantitative Aptitude Skill Enhancen | Pe L ourse 3 3 1 Cour 2 aent C | T (CC 0 0 0 Course (0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | (CT) (s) P 0 0 0 0 0 se (SH 0 | S) S yaaa Montal Montal 3 3 3 2 CC) 2 | 3 3 3 2 2 2 | Continuous Continuous Coutinuous Campa Cam | V Semester End 60 60 60 60 60 | Marks (CIE+SEE) Max 100 100 100 100 | 3 3 3 |
| BCA-212A BCA-214A BCA-216A BCA-202A BCA-218A | Course Title Course Title Core Co Data Communication and Computer Networks Cyber Laws and Ethics Fundamental of Storage and Data Centres Value Added Quantitative Aptitude Skill Enhancen Full Stack Development-2 (MEAN) Discipline specific | Pe L ourse 3 3 1 Cour 2 nent C 2 Electi 3 | T (CCC) 0 0 0 course (0 0 course C) 0 | (CT) (s) P 0 0 0 0 vAC) see (SH 0 0 0 | S) S yaaa Montal Montal 3 3 3 2 CC) 2 | 3 3 3 2 2 2 2 (2) | Continuous Con | V | Marks (CIE+SEE) Max 100 100 100 100 | 3 3 3 3 |
| BCA-212A BCA-214A BCA-216A BCA-202A BCA-202A BCA-260A | Course Title Core Co Data Communication and Computer Networks Cyber Laws and Ethics Fundamental of Storage and Data Centres Value Added Quantitative Aptitude Skill Enhancen Full Stack Development-2 (MEAN) Discipline specific Elective-I Practicum Storage and Data Centres Lab | Pe L ourse 3 3 1 Cour 2 nent C 2 Electi 3 | T (CC 0 0 0 course (1 0 ve C orse (1 0 | (CT) (s) P 0 0 0 VAC) 0 se (SH 0 0 PC) 4 | 3 3 3 3 2 2 CC) 2 2 (DSI 3 | 3 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | Continuous Continuous CIE Continuous CIE C | (SEE) Max 60 60 60 60 60 | Marks (CIE+SEE) Max 100 100 100 100 100 100 | 3 3 3 3 3 3 |
| BCA-212A BCA-214A BCA-216A BCA-202A BCA-202A BCA-284A | Course Title Core Co Data Communication and Computer Networks Cyber Laws and Ethics Fundamental of Storage and Data Centres Value Added Quantitative Aptitude Skill Enhancen Full Stack Development-2 (MEAN) Discipline specific Elective-I Practicum Storage and Data Centres Lab Full Stack Development-2 (MEAN) Lab | Per L Ourse 3 3 Course 2 Dent C 2 Election 0 0 | T (CC 0 0 0 0 course (V 0 0 0 0 course (V 0 0 0 0 0 course (V 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | (CT) (s) P 0 0 0 VAC) 0 se (SI 0 course 4 4 | 3 3 3 2 2 (DSI 3 4 4 4 | 3 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | Continuous Continuous Coutinuous Cou | (SEE) Max 60 60 60 60 50 50 | Marks (CIE+SEE) Max 100 100 100 100 100 100 100 | 3 3 3 3 3 3 3 3 |
| BCA-212A BCA-214A BCA-216A BCA-202A BCA-202A BCA-260A | Course Title Course Title Core Co Data Communication and Computer Networks Cyber Laws and Ethics Fundamental of Storage and Data Centres Value Added Quantitative Aptitude Skill Enhancen Full Stack Development-2 (MEAN) Discipline specific Elective-I Practicum Storage and Data Centres Lab Full Stack Development-2 (MEAN) Lab Elective-I Lab | Per L Course 3 3 3 1 Course 2 Electi 3 Course 0 0 0 0 0 | T (CC 0 0 0 0 course (I 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | (CT) (s) P 0 0 0 VAC) 0 course (SI 0 course 4 4 4 | 3 3 3 2 (CC) 2 (DSI 4 4 4 | 3 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | Continuous Continuous | (SEE) Max 60 60 60 60 50 50 50 | Marks (CIE+SEE) Max 100 100 100 100 100 100 100 100 100 1 | 3 3 3 3 3 3 |
| BCA-212A BCA-214A BCA-216A BCA-202A BCA-218A BCA-260A BCA-284A BCA-284A BCA-286A | Course Title Core Co Data Communication and Computer Networks Cyber Laws and Ethics Fundamental of Storage and Data Centres Value Added Quantitative Aptitude Skill Enhancen Full Stack Development-2 (MEAN) Discipline specific Elective-I Practicum Storage and Data Centres Lab Full Stack Development-2 (MEAN) Lab | Per L Ourse 3 3 Course 2 Dent C 2 Election 0 0 | T (CC 0 0 0 0 course (V 0 0 0 0 course (V 0 0 0 0 0 course (V 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | (CT) (s) P 0 0 0 VAC) 0 se (SI 0 course 4 4 | 3 3 3 2 2 (DSI 3 4 4 4 | 3 3 3 2 2 2 2 2 2 2 2 | Continuous Continuous Coutinuous Cou | (SEE) Max 60 60 60 60 50 50 | Marks (CIE+SEE) Max 100 100 100 100 100 100 100 | 3 3 3 3 3 3 3 3 |

Note 2: The Industrial Internship shall be of 4 credits duration of 45-60 days after the 4th semester. If a student takes exit after 4th semester with Under Graduate Diploma in Computer Applications (Cloud Technology and Information Security), marks of Industrial Internship (either done after 2nd or 4th semester) shall be counted in 4th semester itself.

| Scheme of Studies and Examinations (w.e.f. Session 2024 - 2025) | | | | | | | | | | | | |
|---|-----------------------------------|-----------|--------|-----------------------|------|-----------|-----|------------|---------------------------------------|-------|----------------|-----------------------------|
| Bachelor of Computer Applications (CTIS) Semester – V | | | | | | | | | | | | |
| Course Code | Course Title | Period(s) | | Period(s) Hours/Week | | Period(s) | | Credit (s) | Continuous Internal Examination | | Total Marks | Duration of Exam (Hours) |
| | | | | | | | | | (CIE) | (SEE) | (CIE+SEE) | Dar |
| | | | | | | Max | Max | Max | | | | |
| | Core Course (CC) | | | | | | | | | | | |
| BCA-311A | Principle of Virtualization | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | |
| BCA-313A | Cloud Web Services | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | |
| BCA-315A | Cryptography and Network Security | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | |
| | Discipline specific | Electi | ve C | ourse | (DSI |) | | | | | | |
| BCA-359A | Elective-II | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | |
| | Skill Enhancer | nent C | ours | e (SI | EC) | | | | | | | |
| BCA-371A | Seminar | 0 | 0 | 2 | 2 | 1 | 100 | | 100 | 3 | | |
| | Practicum | Cour | rse (I | PC) | | | | | | | | |
| BCA-381A | Virtualization Lab | 0 | 0 | 4 | 4 | 2 | 50 | 50 | 100 | 3 | | |
| BCA-383A | Cloud Web Services Lab | 0 | 0 | 4 | 4 | 2 | 50 | 50 | 100 | 3 | | |
| | Industrial In | terns | hip (I | NTR |) | | | | | | | |
| BCA-377A | Industrial Internship | 0 | 0 | 0 | 0 | 4 | 100 | | 100 | 3 | | |
| | Total | 12 | 0 | 10 | 22 | 21 | 460 | 340 | 800 | | | |

Note 3: If a student pursues 3 years UG Programme without taking Exit option, the Industrial Internship (either done after 2nd or 4th semester) will be taken into account in 5th semester.

| Scheme of Studies and Examinations (w.e.f. Session 2024 - 2025) | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------------------------------|-----------|-------|-----------|------|-----------|-------|-----------|-----------|-----------|--|-----------|--|-----------|--|-----------|--|------------|---------------------------------------|-----------------------------|----------------|--------------------------|
| Bachelor of Computer Applications (CTIS) Semester – VI | | | | | | | | | | | | | | | | | | | | | | |
| Course Code | Course Title | Period(s) | | Period(s) | | Period(s) | | Period(s) | | Period(s) | | Period(s) | | Period(s) | | Period(s) | | Credit (s) | Continuous Internal Examination | Semester End Exanination | Total Marks | Duration of Exam (Hours) |
| | | | | | | | (CIE) | (SEE) | (CIE+SEE) | Dar | | | | | | | | | | | | |
| | | | | | | Max | Max | Max | | | | | | | | | | | | | | |
| | Core Course (CC) | | | | | | | | | | | | | | | | | | | | | |
| BCA-312A | Network Administration | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | | | | | | | | | | | |
| BCA-314A | Containerization using Docker | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | | | | | | | | | | | |
| | Discipline specific | Electi | ve C | ourse | (DSE |) | | | | | | | | | | | | | | | | |
| BCA-360A | Elective-III | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | | | | | | | | | | | |
| | Skill Enhancer | nent C | ours | e (SI | (C) | | | | | | | | | | | | | | | | | |
| BBA-304A | Entrepreneurship and Startups | 2 | 0 | 0 | 2 | 2 | 40 | 60 | 100 | 3 | | | | | | | | | | | | |
| | Practicum | Cour | se (I | PC) | | | | | | | | | | | | | | | | | | |
| BCA-382A | Network Administration Lab | 0 | 0 | 4 | 4 | 2 | 50 | 50 | 100 | 3 | | | | | | | | | | | | |
| BCA-384A | Containerization using Docker Lab | 0 | 0 | 4 | 4 | 2 | 50 | 50 | 100 | 3 | | | | | | | | | | | | |
| BCA-376A | Minor Project | 0 | 0 | 8 | 8 | 4 | 50 | 50 | 100 | 3 | | | | | | | | | | | | |
| | Total | 11 | 0 | 16 | 27 | 19 | 310 | 390 | 700 | | | | | | | | | | | | | |
| Grand T | Total (Exit with 3 years Degree) | 91 | 0 | 66 | 157 | 128 | 2350 | 2850 | 5200 | | | | | | | | | | | | | |

| | Scheme of Studies and Examinations (w.e.f. Session 2024 - 2025) | | | | | | | | | | | | | |
|----------------------|---|--|---------------|------|-------------|------------------------|---------------------------------------|-----------------------------|----------------|-----------------------------|---------------------------------|--------------|----------------|-----------------------------|
| | Bachelor of Computer Applications Semester – VII (Honours) | | | | | | | | | | | | | |
| Course Code | | | Period(s) | | | Hours/ Week Credit (s) | Continuous Internal Examination | Semester End Exanination | Total Marks | Duration of Exam (Hours) | | | | |
| | | | | | # | | (CIE) | (SEE) | (CIE+SEE) | D D | | | | |
| | | L | T | P | | | Max | Max | Max | | | | | |
| | Honour | Cours | e (H(| C) | | | | | | | | | | |
| BCA-451A | Design and Analysis of Algorithm | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | | | |
| BCA-453A | Optimization Techniques | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | | | |
| | Value Adde | | rse (| VAC) | | | | | | | | | | |
| BT-ME-112A | Design Thinking and Innovation | 2 | 0 | 0 | 2 | 2 | 40 | 60 | 100 | 3 | | | | |
| | Practicum | | $\overline{}$ | | | | | | | | | | | |
| BCA-471A | Design and Analysis of Algorithm Lab | 0 | 0 | 4 | 4 | 2 | 50 | 50 | 100 | 3 | | | | |
| BCA-473A | Major Project-1 | 0 | 0 | 20 | 20 | 10 | 50 | 50 | 100 | 3 | | | | |
| | Total | 8 | 0 | 24 | 32 | 20 | 220 | 280 | 500 | | | | | |
| | GI CG L' IE ' | | - / | C | C | • | 2024 2 | 025) | | | | | | |
| | Scheme of Studies and Examin | | | | | | | | | | | | | |
| Course Code | Bachelor of Computer Applica Course Title | Period(s) | | | | | | | | Credit (s) | Continuous Internal Examination | Semester End | Total Marks | Duration of Exam (Hours) |
| | | | | | Hours/ Week | | (CIE) | (SEE) | (CIE+SEE) |) III | | | | |
| | | L | T | P | | | Max | Max | Max | _ | | | | |
| | Honour | Cours | e (H(| C) | | | | | | | | | | |
| BCA-315A | Cryptography and Network Security | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | | | |
| BCA-452A | Computer Graphics | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | | | |
| | | Cour | se (I | PC) | | | | | | | | | | |
| | | ticum Course (PC) 0 0 4 4 2 50 50 100 3 | | | | | | | 3 | | | | | |
| BCA-472A | Computer Graphics Lab | U | U | 4 | 4 | | | | 100 | _ | | | | |
| BCA-472A BCA-474A | Computer Graphics Lab Major Project-2 | 0 | 0 | 20 | 20 | 10 | 50 | 50 | 100 | 3 | | | | |
| | | _ | _ | _ | _ | 10 18 | | 50 220 | | _ | | | | |

| | Scheme of Studies and Examinations (w.e.f. Session 2024 - 2025) | | | | | | | | | | | | | | | |
|----------------|--|-----------|-------|--------------|-------------------------|---------------------------------------|-----------------------------|----------------|-----------------------------|-----|-------------|------------|---------------------------------------|-----------------------------|----------------|-----------------------------|
| Ba | Bachelor of Computer Applications Semester – VII (Honours with Research) | | | | | | | | | | | | | | | |
| Course Code | Course Title | Period(s) | | Hours/Week | ours/Week Credit (s) | Continuous Internal Examination | Semester End Exanination | Total Marks | Duration of Exam (Hours) | | | | | | | |
| | | | | | H | | (CIE) | (SEE) | (CIE+SEE) | Dar | | | | | | |
| | | L | T | P | | | Max | Max | Max | | | | | | | |
| | Honour (| Cours | e (H | C) | | | | | | | | | | | | |
| BCA-455A | Research Methodology | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | | | | | |
| BCA-457A | Image Processing | 3 | 0 | 0 | 3 | 3 | 40 | 60 | 100 | 3 | | | | | | |
| | Value Added | Cour | rse (| VAC) | | | | | | | | | | | | |
| BT-ME-112A | Design Thinking and Innovation | 2 | 0 | 0 | 2 | 2 | 40 | 60 | 100 | 3 | | | | | | |
| | Practicum | | _ | PC) | | | | | 1 | | | | | | | |
| BCA-475A | Image Processing Lab | 0 | 0 | 4 | 4 | 2 | 50 | 50 | 100 | 3 | | | | | | |
| BCA-473A | Major Project-1 | 0 | 0 | 20 | 20 | 10 | 50 | 50 | 100 | 3 | | | | | | |
| | Total | 8 | 0 | 24 | 32 | 20 | 220 | 280 | 500 | | | | | | | |
| | | | | | - | | | | | | | | | | | |
| | Scheme of Studies and Examin | | | | | | | | 15 | | | | | | | |
| Ва | chelor of Computer Applications S | emes | ter | <u> – VI</u> | II (H | lono | | | rch) | | | | | | | |
| Course Code | Course Title | Period(s) | | Period(s) | | Period(s) | | Period(s | | (s) | Hours/ Week | Credit (s) | Continuous Internal Examination | Semester End Exanination | Total Marks | Duration of Exam (Hours) |
| | | | | | H | | (CIE) | (SEE) | (CIE+SEE) | Dm | | | | | | |
| | | L | T | P | | | Max | Max | Max | | | | | | | |
| | Practicum | Cour | se (I | | | | | | | | | | | | | |
| BCA-476A | Dissertation | 0 | 0 | 36 | 36 | 18 | 100 | 100 | 200 | 3 | | | | | | |
| | Total | 0 | 0 | 36 | 36 | 18 | 100 | 100 | 200 | | | | | | | |
| Grand Total (4 | years Honours with Research Degree) | 95 | 0 | 126 | 221 | 162 | 2590 | 3110 | 5700 | | | | | | | |

Abbreviations Used:

| Abbreviation | Full Form | Description |
|--------------|-----------------------------------|---|
| CC | Core Course | Compulsory core course for the programme, CC will be a theory course of 3 credits |
| PC | Practicum Course | Compulsory practical course (software lab) of 2 credits |
| INTR | Industrial Internship | A student can do Industrial Internship of 45-60 days duration after the 2nd or 4th semester. It will be of 4 credits. If a student pursues 3 year UG Programme without taking Exit option, this internship (either done after 2nd or 4th semester) will be taken into account in 5th semester. If a student takes Exit after 2 years in UG Programme, this internship (either done after 2nd or 4th semester) will be taken into account in 4th semester. If a student takes Exit after 1 year in UG Programme, the mandatory internship done after 2nd semester will be taken into account in 2nd semester. |
| SEC | Skill Enhancement Course | These courses aim at imparting knowledge, practical skills, hands-on training and competencies, soft skills, etc. to enhance the employability of students. |
| AEC | Ability Enhancement Course | These courses aim at enabling the students to achieve competency in the English language with special emphasis on communication skills. |
| VAC | Value-Added Course | This course aims to instil in students (i) Universal Human Values, (ii) Environmental Studies (iii) Quantitative Aptitude. |

| MDC | Multi-Disciplinary Course | These courses are based on introductory knowledge in a subject which is different from the main discipline of study to gain knowledge across the disciplines. Students are not allowed to choose or repeat courses already undergone at the Senior Secondary Level (Class XII) or disciplines of study under this category. Provided further that if a Multidisciplinary Course (MDC) across the discipline cannot be offered by a Department/ Institute, due to its constraints and available resources, then i) A subject from the same discipline can be offered as a MDC course if that subject also belongs to the list of subjects of some other discipline. ii) MDC can be opted out of Massive Open Online Courses (MOOCs) from NPTEL, SWAYAM. It shall be of minimum 2 credits. |
|-----|-------------------------------------|---|
| DSE | Discipline-specific Elective Course | A discipline-specific elective course is a course aimed at imparting options for varied knowledge and skills in the specialized fields of a discipline/subject. |
| нс | Honour Course | A honour course in the 4 th year of the Honours or Honours with Research Degree Programme. |

List of Discipline-specific Elective Courses

| Elective No. | Semester | Course Code | Elective Course Name | | | |
|--------------|-------------------------|--------------|---|--|--|--|
| Elective-I | IV | BCA-260A(i) | Essentials of Python | | | |
| Liective-i | 1 V | BCA-260A(ii) | Java Programming | | | |
| Elective-II | V | BCA-359A(i) | Foundations of Artificial Intelligence | | | |
| Elective-II | V | BCA-359A(ii) | Internet of Things and its Applications | | | |
| Elective-III | VI | BCA-360A(i) | Blockchain Technology | | | |
| Elective-III | VI | BCA-360A(ii) | Web Security | | | |
| | VII | BCA-459A(i) | Data Warehousing and Data Mining | | | |
| Elective-IV | (Honours) | BCA-459A(ii) | Server Administration | | | |
| Elective-iv | VII | BCA-461A(i) | Data Warehousing and Data Mining | | | |
| | (Honours with Research) | BCA-461A(ii) | Quantum Computing | | | |
| Elective-V | VIII | BCA-462A(i) | Digital Forensic and Investigation | | | |
| Elective-v | (Honours) | BCA-462A(ii) | Ethical Hacking | | | |

Note 4: Relative weightage of Continuous Internal Evaluation (CIE) and Semester End Examination (SEE), criteria of passing marks, evaluation procedure, and other guidelines are as per the Ordinance of Under Graduate Degree Programmes: Bachelor of Computer Applications, Bachelor of Computer Applications (Cloud Technology and Information Security), Bachelor of Computer Applications (Data Science).