



Symbiosis Institute of Computer Studies and Research, Pune
Bachelor of Computer Applications
Programme Structure 2020-23

| | | | | | | |
|-----|------------------------------------|--|--|------------------------------|--|-----------------------------------|
| 1. | OBJECTIVE | BCA offers the prequalification for professionals heading for smart career in the IT field, which measures up to international standards. On completing this course one can do higher studies such as MCA, MBA etc., in any UGC recognized universities or in any other reputed institution in India or abroad. | | | | |
| 2. | DURATION (IN MONTHS) | 36 (Full Time) | | | | |
| 3. | INTAKE | 60 | | | | |
| 4. | RESERVATION | I. Within the sanctioned intake | a) SC (In Percentage) | b) ST (In Percentage) | c) Differently abled (In Percentage) | d) Defence (In Percentage) |
| | | | 15 | 7.5 | 3 | 5 |
| | | II. Over and above the sanctioned intake | a) Kashmiri Migrants (In Seats) | | b) International Students (In Percentage) | |
| | | | 2 | | 15 | |
| 5. | ELIGIBILITY | Passed Standard XII (10+2) or equivalent government approved Diploma in Engineering/ Technology from any recognised Board with a minimum of 50% marks or equivalent grade (45% marks or equivalent grade for Scheduled Caste/ Scheduled Tribes) | | | | |
| 6. | SELECTION PROCEDURE | Symbiosis Entrance Test, Personal Interaction and Writing Ability Test (PI-WAT) | | | | |
| 7. | MEDIUM OF INSTRUCTION | English | | | | |
| 8. | PROGRAMME PATTERN | Semester | | | | |
| 9. | COURSE & SPECIALIZATION | As per Annexure A | | | | |
| 10. | FEE | | Academic Fee p.a | Institute Deposit | Total | |
| | | Indian Students | 165000 | 10000 | 175000 | |
| | | International Students (USD equivalent to INR) | 250000 | 10000 | 260000 | |
| 11. | ASSESSMENT | All internal courses will have 100% component as internal evaluation at the institute level. All external courses will have 40% internal component and 60% external component [University] examination. | | | | |
| 12. | STANDARD OF PASSING | The assessment of students for each examination is done, based on relative performance. Maximum Grade Point (GP) is 10 corresponding to O (Outstanding). For all courses, a student is required to pass both internal and external examination separately with a minimum Grade Point of 4 corresponding to Grade P. Students | | | | |

| | | |
|-----|--|--|
| | | securing less than 40% absolute marks in each head of passing will be declared FAIL. The University awards a degree to the student who has achieved a minimum CGPA of 4 out of maximum of 10 CGPA for the programme. |
| 13. | AWARD OF DEGREE/ DIPLOMA/ CERTIFICATE | Bachelor of Computer Applications will be awarded at the end of semester VI examination by taking into consideration the performance of all semester examinations after obtaining minimum 4.00 CGPA out of 10 CGPA. |

| 14. NATURE WISE DISTRIBUTION OF CREDITS | | | | | | | |
|--|--------------|------------------|---------------------|-------------------------|---------------|----------|------------|
| Semester | Generic Core | Generic Elective | Specialization Core | Specialization Elective | Open Elective | Audit | Total |
| 1 | 18 | 0 | 0 | 0 | 0 | 1* | 18 |
| 2 | 20 | 0 | 0 | 0 | 0 | 1* | 20 |
| 3 | 10 | 12 | 0 | 0 | 0 | 2* | 22 |
| 4 | 14 | 14 | 0 | 0 | 0 | 0 | 28 |
| 5 | 4 | 12 | 0 | 0 | 0 | 0 | 16 |
| 6 | 0 | 16 | 0 | 0 | 0 | 0 | 16 |
| Total | 66 | 54 | 0 | 0 | 0 | 0 | 120 |

* Satisfactory completion of the non letter grade courses 'Integrated Disaster Management', 'Fitness for Life', 'Core Environmental Studies' and 'Certificate in COVID-19 Care for the Community' is mandatory for the award of degree.

The revised programme structure supersedes the previously approved programme structure dated 18/03/2021 for the programme.

This Programme Structure is aligned with the norms laid down by the University and is approved by the Academic Council. Hereafter changes (if any) which conform to the policy on "Curriculum Development and Review" would be permissible, subject to revision of the Programme Structure, following the specified processes.

Head - Academics

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Annexure A

| Catalog Course Code | Course Code | Course Title | Specialization | Credit | Internal Marks | External Marks | Total Marks |
|-----------------------------|-------------|--|----------------|-----------|----------------|----------------|------------------|
| Semester : 1 | | | | | | | |
| Generic Core Courses | | | | | | | |
| T3586 | 0301210101 | Web Technologies | | 4 | 100 | 0 | 100 |
| T3593 | 0301210102 | Computational Thinking | | 4 | 40 | 60 | 100 |
| T2495 | 0301210103 | Business Communication | | 2 | 50 | 0 | 50 |
| T3322 | 0301210104 | Elements of Mathematics | | 2 | 50 | 0 | 50 |
| T3244 | 0301210105 | Introduction to Database Management System | | 2 | 50 | 0 | 50 |
| T3213 | 0301210106 | Introduction to Operating System | | 2 | 20 | 30 | 50 |
| T3198 | 0301210107 | Introduction to Python | | 2 | 20 | 30 | 50 |
| T4005 | 0301210108 | Integrated Disaster Management * | | 0 | 0 | 0 | Non Letter Grade |
| Total | | | | 18 | 330 | 120 | 450 |
| Semester : 2 | | | | | | | |
| Generic Core Courses | | | | | | | |
| T3610 | 0301210201 | Applications of Spreadsheets in Business | | 4 | 100 | 0 | 100 |
| T3206 | 0301210202 | Advanced Programming in Python | | 2 | 50 | 0 | 50 |
| T3209 | 0301210203 | Data Structures | | 2 | 20 | 30 | 50 |
| T3200 | 0301210204 | Linux Shell Scripting | | 2 | 20 | 30 | 50 |
| T3224 | 0301210205 | Network Essentials | | 2 | 50 | 0 | 50 |
| T3205 | 0301210206 | Web Development using CMS | | 2 | 50 | 0 | 50 |
| T3238 | 0301210207 | Human Computer Interaction | | 2 | 50 | 0 | 50 |
| T3605 | 0301210208 | Elements of System and Software Development | | 2 | 20 | 30 | 50 |
| T3609 | 0301210209 | Structured Query Language | | 2 | 20 | 30 | 50 |
| T2883 | 0301210210 | Core Environmental Studies * | | 0 | 0 | 0 | Non Letter Grade |
| Total | | | | 20 | 380 | 120 | 500 |
| Semester : 3 | | | | | | | |
| Generic Core Courses | | | | | | | |
| T3202 | 0301210301 | Object Oriented Programming | | 4 | 40 | 60 | 100 |
| T3595 | 0301210302 | Design and Implementation of Algorithms | | 4 | 40 | 60 | 100 |
| T3474 | 0301210303 | Web Development using Python | | 2 | 20 | 30 | 50 |
| TH4095 | 0301210312 | Fitness for Life * | | 0 | 0 | 0 | Non Letter Grade |
| TH4272 | 0301210313 | Certificate in COVID-19 Care for the Community * | | 0 | 0 | 0 | Non Letter Grade |



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| Catalog Course Code | Course Code | Course Title | Specialization | Credit | Internal Marks | External Marks | Total Marks |
|--|-------------|---|----------------|-----------|----------------|----------------|-------------|
| Total | | | | 10 | 100 | 150 | 250 |
| Generic Elective Courses Group | | | | | | | |
| T3606 | 0301210304 | Software Engineering Practices | | 4 | 40 | 60 | 100 |
| T3596 | 0301210305 | Real Time Operating System | | 4 | 40 | 60 | 100 |
| T3486 | 0301210306 | Network Infrastructure Essential | | 4 | 40 | 60 | 100 |
| T3221 | 0301210307 | Introduction to Cloud Computing | | 4 | 40 | 60 | 100 |
| T3587 | 0301210308 | Advance Web Scripting | | 4 | 40 | 60 | 100 |
| T3237 | 0301210309 | Foundations of Data Warehousing and Data Mining | | 4 | 40 | 60 | 100 |
| T3201 | 0301210310 | Mobile Programming | | 4 | 40 | 60 | 100 |
| TE7019 | 0301210311 | Big Data Analytics | | 4 | 40 | 60 | 100 |
| Total Required Credits | | | | 12 | 120 | 180 | 300 |
| Semester : 4 | | | | | | | |
| Generic Core Courses | | | | | | | |
| T8000 | 0301210401 | Service Learning | | 4 | 100 | 0 | 100 |
| T3258 | 0301210402 | Current Trends and Practices in IT | | 3 | 75 | 0 | 75 |
| T3803 | 0301210403 | Project | | 3 | 75 | 0 | 75 |
| T3371 | 0301210404 | Introduction to Java Enterprise Framework | | 2 | 20 | 30 | 50 |
| T3649 | 0301210405 | Introduction to Blockchain Technologies | | 2 | 50 | 0 | 50 |
| Total | | | | 14 | 320 | 30 | 350 |
| Generic Elective Courses Group - I | | | | | | | |
| T7527 | 0301210406 | Internet of Things | | 4 | 40 | 60 | 100 |
| T3487 | 0301210407 | Network Security Essentials | | 4 | 40 | 60 | 100 |
| T3204 | 0301210408 | Server Side Web Technology | | 4 | 40 | 60 | 100 |
| TE7023 | 0301210409 | Machine learning | | 4 | 40 | 60 | 100 |
| T3589 | 0301210410 | IoT Application Development | | 4 | 40 | 60 | 100 |
| T3599 | 0301210411 | Cloud Application Development | | 4 | 40 | 60 | 100 |
| T3601 | 0301210412 | Network Administration | | 4 | 40 | 60 | 100 |
| T3607 | 0301210413 | Software Project Practices | | 4 | 40 | 60 | 100 |
| Total Required Credits | | | | 12 | 120 | 180 | 300 |
| Generic Elective Courses Group - II | | | | | | | |
| T6096 | 0301210414 | Creative Writing | | 2 | 50 | 0 | 50 |
| T6181 | 0301210415 | Understanding Cinema | | 2 | 50 | 0 | 50 |
| T6182 | 0301210416 | Appreciating Cinema | | 2 | 50 | 0 | 50 |
| T6246 | 0301210417 | Music in Media I | | 2 | 50 | 0 | 50 |



Celebrating 50 Years of Excellence

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| Catalog Course Code | Course Code | Course Title | Specialization | Credit | Internal Marks | External Marks | Total Marks |
|--|-------------|--|----------------|-----------|----------------|----------------|-------------|
| T6255 | 0301210418 | Introduction to Theatre | | 2 | 50 | 0 | 50 |
| T6274 | 0301210419 | Foundations of Ethics | | 2 | 50 | 0 | 50 |
| T6334 | 0301210420 | Basic Sociology | | 2 | 50 | 0 | 50 |
| T6307 | 0301210421 | Basic Psychology | | 2 | 50 | 0 | 50 |
| Total Required Credits | | | | 2 | 50 | 0 | 50 |
| Semester : 5 | | | | | | | |
| Generic Core Courses | | | | | | | |
| T1234 | 0301210501 | Information Technology and Regulatory Compliance | | 2 | 20 | 30 | 50 |
| F0002 | 0301210502 | Flexi-Credit Course | | 2 | 50 | 0 | 50 |
| Total | | | | 4 | 70 | 30 | 100 |
| Generic Elective Courses Group | | | | | | | |
| T3222 | 0301210503 | Introduction to Vulnerability Assessment Penetration Testing | | 4 | 40 | 60 | 100 |
| T3521 | 0301210504 | Advanced Internet of Things | | 4 | 40 | 60 | 100 |
| T3588 | 0301210505 | Game Design | | 4 | 40 | 60 | 100 |
| T3590 | 0301210506 | Design of Content Management System | | 4 | 40 | 60 | 100 |
| T3612 | 0301210507 | Data Visualization | | 4 | 40 | 60 | 100 |
| T3600 | 0301210508 | Cloud Architectures and Security | | 4 | 40 | 60 | 100 |
| T3602 | 0301210509 | Network Monitoring and Troubleshooting | | 4 | 40 | 60 | 100 |
| T3608 | 0301210510 | Software Testing | | 4 | 40 | 60 | 100 |
| Total Required Credits | | | | 12 | 120 | 180 | 300 |
| Semester : 6 | | | | | | | |
| Choose any One Group | | | | | | | |
| Generic Elective Courses Group - I | | | | | | | |
| T3912 | 0301210601 | Industry Internship | | 12 | 120 | 180 | 300 |
| F0004 | 0301210602 | Flexi-Credit Course | | 4 | 100 | 0 | 100 |
| Generic Elective Courses Group - II | | | | | | | |
| F0004 | 0301210602 | Flexi-Credit Course | | 4 | 100 | 0 | 100 |
| T3808 | 0301210603 | Project | | 8 | 80 | 120 | 200 |
| T3009 | 0301210604 | Best Programming Practices | | 2 | 20 | 30 | 50 |
| T3387 | 0301210605 | Introduction to Design Patterns | | 2 | 20 | 30 | 50 |
| Total Required Credits | | | | 16 | 220 | 180 | 400 |



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| Semester | Internal Credits | External Credits | Total Credits | Total Marks |
|--------------|------------------|------------------|---------------|-------------|
| Semester 1 | 10 | 8 | 18 | 450 |
| Semester 2 | 12 | 8 | 20 | 500 |
| Semester 3 | 0 | 22 | 22 | 550 |
| Semester 4 | 14 | 14 | 28 | 700 |
| Semester 5 | 2 | 14 | 16 | 400 |
| Semester 6 | 4 | 12 | 16 | 400 |
| Total | 42 | 78 | 120 | 3000 |