



**PERIYAR  
MANIAMMAI**

INSTITUTE OF SCIENCE & TECHNOLOGY

(Deemed to be University)

Established Under Sec. 3 of UGC Act, 1956 • NAAC Accredited

think • innovate • transform

### **Criterion 1 – Curricular Aspects**

|                      |       |                                                                                                                                                               |
|----------------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Key Indicator</b> | 1.2   | <b>Academic Flexibility</b>                                                                                                                                   |
| <b>Metric</b>        | 1.2.2 | Percentage of Programmes in which Choice Based Credit System (CBCS)/elective course system has been implemented (Data for the latest completed academic year) |

### **DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS STRUCTURE OF THE PROGRAM CLEARLY INDICATING COURSES, CREDITS/ELECTIVES**

#### **Programmes**

- 1. BCA**
- 2. MCA**

**BACHELOR OF COMPUTER APPLICATIONS (BCA)****REGULATIONS 2018 Revision 01****CURICULLUM****SEMESTER – I**

| Course Code       | Course Title                                      | Credits   |           |           |           | Hours     |           |           |           |           |
|-------------------|---------------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                   |                                                   | L         | T         | P         | Total     | L         | T         | P         | SS        | Total     |
| <b>XGL101</b>     | <b>Communication Skills in English</b>            | 2         | 0         | 0         | 2         | 2         | 0         | 0         | 2*        | 4         |
| XGL101            | Basic English Communication Skills                |           |           |           |           |           |           |           |           |           |
| XGL102A / XGL102B | Ariviyal Tamil / Comprehensive English            | 3         | 0         | 0         | 3         | 3         | 0         | 0         | 0         | 3         |
| XCA103            | C Programming                                     | 4         | 0         | 1         | 5         | 4         | 0         | 2         | 0         | 6         |
| XCA104            | Algebra, Calculus and Analytical Geometry         | 4         | 1         | 0         | 5         | 4         | 1         | 0         | 0         | 5         |
| XCA105            | Computer Organization and Architecture            | 3         | 2         | 0         | 5         | 3         | 2         | 0         | 0         | 5         |
| XUM106            | Human Ethics, Values , Rights and Gender Equality | 3         | 0         | 0         | 0         | 3         | 0         | 0         | 0         | 3         |
|                   | <b>Total</b>                                      | <b>19</b> | <b>03</b> | <b>01</b> | <b>20</b> | <b>19</b> | <b>03</b> | <b>02</b> | <b>2*</b> | <b>26</b> |

**SEMESTER – II**

| Course Code   | Course Title                               | Credits   |           |           |           | Hours     |           |           |           |           |
|---------------|--------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|               |                                            | L         | T         | P         | Total     | L         | T         | P         | SS        | Total     |
| <b>XGL201</b> | <b>English for Effective Communication</b> | 2         | 0         | 0         | 2         | 2         | 0         | 0         | 2*        | 4         |
| <b>XGL201</b> | Advanced English Communication Skills      |           |           |           |           |           |           |           |           |           |
| XES202        | Environmental Studies                      | 2         | 0         | 0         | 2         | 2         | 0         | 0         | 1*        | 3         |
| XCA203        | Object Oriented Programming with C++       | 4         | 0         | 1         | 5         | 4         | 0         | 2         | 0         | 6         |
| XCA204        | Discrete Mathematics                       | 4         | 1         | 0         | 5         | 4         | 1         | 0         | 0         | 5         |
| XCA205        | Computer Networks                          | 3         | 1         | 0         | 4         | 3         | 1         | 0         | 0         | 4         |
| XCA206        | Data Structures and Algorithms             | 4         | 0         | 1         | 5         | 4         | 0         | 2         | 0         | 6         |
|               | <b>Total</b>                               | <b>19</b> | <b>02</b> | <b>02</b> | <b>23</b> | <b>19</b> | <b>02</b> | <b>04</b> | <b>3*</b> | <b>28</b> |

**SEMESTER – III**

| Course Code                              | Course Title                      | Credits   |           |           |              | Hours     |           |           |            |           |
|------------------------------------------|-----------------------------------|-----------|-----------|-----------|--------------|-----------|-----------|-----------|------------|-----------|
|                                          |                                   | L         | T         | P         | Total        | L         | T         | P         | SS         | Total     |
| XCA301                                   | HTML and DHTML                    | 1         | 0         | 1         | 2            | 1         | 0         | 2         | 0          | 3         |
| XCA302                                   | Database Management Systems       | 4         | 0         | 1         | 5            | 4         | 0         | 2         | 0          | 6         |
| XCA303                                   | Visual Programming                | 4         | 0         | 1         | 5            | 4         | 0         | 2         | 0          | 6         |
| XCA304                                   | Statistical and Numerical Methods | 3         | 2         | 0         | 5            | 3         | 2         | 0         | 0          | 5         |
| *Open Elective – To be chosen by student |                                   | 3         | 0         | 0         | 3            | 3         | 0         | 0         | 0          | 3         |
| XUM306                                   | Disaster Management               | 3         | 0         | 0         | 0            | 3         | 0         | 0         | 3*         | 3         |
| XCA307                                   | Web Technology                    | 0         | 0         | 0         | 1*           | 0         | 0         | 0         | 0          | 15        |
|                                          | <b>Total</b>                      | <b>18</b> | <b>02</b> | <b>03</b> | <b>20+1*</b> | <b>18</b> | <b>02</b> | <b>06</b> | <b>03*</b> | <b>26</b> |

### SEMESTER – IV

| Course Code                              | Course Title                         | Credits   |           |           |              | Hours     |           |           |           |           |
|------------------------------------------|--------------------------------------|-----------|-----------|-----------|--------------|-----------|-----------|-----------|-----------|-----------|
|                                          |                                      | L         | T         | P         | Total        | L         | T         | P         | SS        | Total     |
| XCA401                                   | Data Analytics                       | 1         | 0         | 1         | 2            | 1         | 0         | 2         | 0         | 3         |
| XCA402                                   | Java Programming                     | 4         | 0         | 1         | 5            | 4         | 0         | 2         | 0         | 6         |
| XCA403                                   | Resource Management Techniques       | 3         | 2         | 0         | 5            | 3         | 2         | 0         | 0         | 5         |
| XCA404                                   | Operating Systems                    | 4         | 0         | 1         | 5            | 4         | 0         | 2         | 0         | 6         |
| *Open Elective – To be chosen by student |                                      | 3         | 0         | 0         | 3            | 3         | 0         | 0         | 0         | 3         |
| XCA405                                   | Software Testing Tools and Practices | 0         | 0         | 0         | 1*           | 0         | 0         | 0         | 0         | 15        |
|                                          | <b>Total</b>                         | <b>15</b> | <b>02</b> | <b>03</b> | <b>20+1*</b> | <b>15</b> | <b>02</b> | <b>06</b> | <b>00</b> | <b>23</b> |

### SEMESTER – V

| Course Code | Course Title               | Credits |   |   |       | Hours |   |   |    |       |
|-------------|----------------------------|---------|---|---|-------|-------|---|---|----|-------|
|             |                            | L       | T | P | Total | L     | T | P | SS | Total |
| XCA501      | XML and Web Services       | 1       | 0 | 1 | 2     | 1     | 0 | 2 | 0  | 3     |
| XCA502A     | Software Engineering       | 4       | 1 | 0 | 5     | 4     | 1 | 0 | 0  | 5     |
| XCA502B     | Compiler Design            | 4       | 1 | 0 | 5     | 4     | 1 | 0 | 0  | 5     |
| XCA503A     | Unix and Shell Programming | 4       | 0 | 1 | 5     | 4     | 0 | 2 | 0  | 6     |

|         |                                             |           |           |           |              |           |           |           |           |           |
|---------|---------------------------------------------|-----------|-----------|-----------|--------------|-----------|-----------|-----------|-----------|-----------|
| XCA503B | Web Scripting Framework                     | 4         | 0         | 1         | 5            | 4         | 0         | 2         | 0         | 6         |
| XCA504A | Enterprise Resource Planning                | 4         | 1         | 0         | 5            | 4         | 1         | 0         | 0         | 5         |
| XCA504B | Organizational Behavior                     | 4         | 1         | 0         | 5            | 4         | 1         | 0         | 0         | 5         |
|         | *Open Elective – To be chosen by student    | 3         | 0         | 0         | 3            | 3         | 0         | 0         | 0         | 3         |
| XCA505  | Android App Development - Mobile Technology | 0         | 0         | 0         | 1*           | 0         | 0         | 0         | 0         | 15        |
| XCA506  | Inplant Training                            | 0         | 0         | 0         | 2*           |           |           |           |           |           |
|         | <b>Total</b>                                | <b>16</b> | <b>02</b> | <b>02</b> | <b>20+3*</b> | <b>16</b> | <b>02</b> | <b>04</b> | <b>00</b> | <b>22</b> |

### SEMESTER – VI

| Course Code              | Course Title                    |   |   | Credits   |           |           |              | Hours     |           |           |           |           |
|--------------------------|---------------------------------|---|---|-----------|-----------|-----------|--------------|-----------|-----------|-----------|-----------|-----------|
|                          |                                 |   |   | L         | T         | P         | Total        | L         | T         | P         | SS        | Total     |
| XCA601                   | Introduction to Graphics Design |   |   | 1         | 0         | 1         | 2            | 1         | 0         | 2         | 0         | 3         |
| XCA602A                  | .Net Technologies               |   |   | 4         | 0         | 1         | 5            | 4         | 0         | 2         | 0         | 6         |
| XCA602B                  | Programming with PHP and MySQL  |   |   | 4         | 0         | 1         | 5            | 4         | 0         | 2         | 0         | 6         |
| XCA603A                  | Mobile Computing                |   |   | 4         | 1         | 0         | 5            | 4         | 1         | 0         | 0         | 5         |
| XCA603B                  | Distributed Computing           |   |   | 4         | 1         | 0         | 5            | 4         | 1         | 0         | 0         | 5         |
| XCA603C                  | Block Chain                     |   |   | 4         | 1         | 0         | 5            | 4         | 1         | 0         | 0         | 5         |
| XCA604                   | Project Work                    |   |   | 0         | 1         | 8         | 6            | 0         | 1         | 8         | 0         | 9         |
| NCC/NSS/SPORTS/RRC//YR C |                                 | 0 | 0 | 0         | 1*        | 0         | 0            | 0         | 0         | 0         |           |           |
|                          | <b>Total</b>                    |   |   | <b>09</b> | <b>02</b> | <b>10</b> | <b>18+1*</b> | <b>09</b> | <b>02</b> | <b>12</b> | <b>00</b> | <b>23</b> |

**MCA – MASTER OF COMPUTER APPLICATIONS  
REGULATION 2020**

**SEMESTER- I**

| <b>Course Code</b> | <b>Course Title</b>                                              | <b>L</b>  | <b>T</b>  | <b>P</b>  | <b>H</b>  | <b>C</b>  |
|--------------------|------------------------------------------------------------------|-----------|-----------|-----------|-----------|-----------|
| YCA101             | Database Management Systems                                      | 4         | 1         | 0         | 5         | 4         |
| YCA102             | Computer Networks                                                | 4         | 1         | 0         | 5         | 4         |
| YCA103             | Object Oriented Programming, Analysis and Design                 | 4         | 0         | 0         | 4         | 4         |
| YCA104             | Management Support Systems                                       | 3         | 0         | 0         | 3         | 3         |
| YCA105             | Mathematical Foundation for Computer Applications                | 4         | 1         | 0         | 5         | 5         |
| YCA106             | Database Management Systems Lab                                  | 0         | 0         | 4         | 4         | 2         |
| YCA107             | Mathematical Foundation for Computer Applications Lab using Java | 0         | 0         | 4         | 4         | 2         |
| <b>Total</b>       |                                                                  | <b>19</b> | <b>03</b> | <b>08</b> | <b>30</b> | <b>24</b> |

**SEMESTER- II**

| <b>Course Code</b> | <b>Course Title</b>                    | <b>L</b>  | <b>T</b>  | <b>P</b>  | <b>H</b>  | <b>C</b>  |
|--------------------|----------------------------------------|-----------|-----------|-----------|-----------|-----------|
| YCA201             | Advanced Operating System Concepts     | 4         | 1         | 0         | 5         | 4         |
| YCA202             | Software Engineering                   | 4         | 1         | 0         | 5         | 4         |
| <b>YCAIT*</b>      | <b>IT Elective I</b>                   | <b>4</b>  | <b>0</b>  | <b>0</b>  | <b>4</b>  | <b>4</b>  |
| YCA203             | Advanced Data Structures               | 4         | 0         | 0         | 4         | 3         |
| <b>YCABM*</b>      | <b>BM Elective I</b>                   | <b>3</b>  | <b>0</b>  | <b>0</b>  | <b>3</b>  | <b>3</b>  |
| YCA205             | Advanced Operating System Concepts Lab | 0         | 0         | 4         | 4         | 2         |
| YCA206             | Case Tools Lab                         | 0         | 0         | 4         | 4         | 2         |
| <b>Total</b>       |                                        | <b>19</b> | <b>02</b> | <b>08</b> | <b>29</b> | <b>22</b> |

**SEMESTER- III**

| <b>Course Code</b> | <b>Course Title</b>                          | <b>L</b> | <b>T</b> | <b>P</b> | <b>H</b> | <b>C</b> |
|--------------------|----------------------------------------------|----------|----------|----------|----------|----------|
| YCA301             | Artificial Intelligence and Machine Learning | 4        | 0        | 0        | 4        | 4        |
| YCA302             | Graphics and Multimedia                      | 3        | 0        | 0        | 3        | 3        |
| <b>YCAIT*</b>      | <b>IT Elective II</b>                        | <b>3</b> | <b>0</b> | <b>0</b> | <b>3</b> | <b>3</b> |

|               |                                                               |           |          |           |           |           |
|---------------|---------------------------------------------------------------|-----------|----------|-----------|-----------|-----------|
| <b>YCABM*</b> | <b>BM Elective II</b>                                         | <b>3</b>  | <b>0</b> | <b>0</b>  | <b>3</b>  | <b>3</b>  |
| YCA303        | Optimization Techniques                                       | 4         | 0        | 0         | 4         | 4         |
| YCA304        | Artificial Intelligence and Machine Learning Lab using Python | 0         | 0        | 4         | 4         | 2         |
| YCA305        | Optimization Techniques Lab                                   | 0         | 0        | 4         | 4         | 2         |
| YCA306        | Industrial Lectures                                           | 0         | 0        | 2         | 2         | 2         |
| YCA307        | Mini Project                                                  | 0         | 0        | 3         | 3         | 2         |
| <b>Total</b>  |                                                               | <b>17</b> | <b>0</b> | <b>13</b> | <b>30</b> | <b>25</b> |

#### SEMESTER-IV

| Course Code  | Course Title                             | L             | T        | P         | H         | C         |
|--------------|------------------------------------------|---------------|----------|-----------|-----------|-----------|
| YCA401       | Research Methodology(Paper Publications) | 3*(SS)        | 0        | -         | 3         | 3         |
| YCA402       | Project                                  | 0             | 0        | 6         | 6         | 12        |
| <b>Total</b> |                                          | <b>3*(SS)</b> | <b>0</b> | <b>06</b> | <b>09</b> | <b>15</b> |

#### INFORMATION TECHNOLOGY ELECTIVES

##### IT Elective I

| Course Code | Course Title                          | L | T | P | H | C |
|-------------|---------------------------------------|---|---|---|---|---|
| YCAEE1      | Data Mining and Data Warehousing      | 4 | 0 | 0 | 4 | 4 |
| YCAEE2      | High Performance Computing            | 4 | 0 | 0 | 4 | 4 |
| YCAEE3      | Compiler Design                       | 4 | 0 | 0 | 4 | 4 |
| YCAEE8      | System Analysis and Simulation        | 4 | 0 | 0 | 4 | 4 |
| YCAEE9      | Cryptography and Information Security | 4 | 0 | 0 | 4 | 4 |

##### IT Elective II

| Course Code | Course Title                    | L | T | P | H | C |
|-------------|---------------------------------|---|---|---|---|---|
| YCAEE4      | Cloud Computing                 | 3 | 0 | 0 | 3 | 3 |
| YCAEE5      | Distributed Database Management | 3 | 0 | 0 | 3 | 3 |
| YCAEE6      | Image Processing                | 3 | 0 | 0 | 3 | 3 |
| YCAEE7      | Parallel Programming            | 3 | 0 | 0 | 3 | 3 |
| YCAEE10     | Bigdata Analytics               | 3 | 0 | 0 | 3 | 3 |

## BUSINESS MANAGEMENT ELECTIVES

### BM Elective I

| Course Code | Course Title                      | L | T | P | H | C |
|-------------|-----------------------------------|---|---|---|---|---|
| YCABM3      | Foundations of Decision Processes | 3 | 0 | 0 | 3 | 3 |
| YCABM4      | Investment Technology             | 3 | 0 | 0 | 3 | 3 |
| YCABM8      | Management of Software Projects   | 3 | 0 | 0 | 3 | 3 |
| YCABM9      | Blockchain Technology             | 3 | 0 | 0 | 3 | 3 |

### BM Elective II

| Course Code | Course Title                      | L | T | P | H | C |
|-------------|-----------------------------------|---|---|---|---|---|
| YCABM1      | Managerial Economics              | 3 | 0 | 0 | 3 | 3 |
| YCABM2      | Corporate Planning                | 3 | 0 | 0 | 3 | 3 |
| YCABM5      | Business Finance                  | 3 | 0 | 0 | 3 | 3 |
| YCABM6      | Taxation Practices                | 3 | 0 | 0 | 3 | 3 |
| YCABM7      | MIS Frameworks and Implementation | 3 | 0 | 0 | 3 | 3 |