

**SRI KRISHNA ARTS AND SCIENCE COLLEGE**  
COIMBATORE – 641 008

**DEPARTMENT OF INFORMATION AND COMPUTER TECHNOLOGIES**  
**(2021 - 2024)**

| <b>I. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)</b> |   |
|---|---|
| <b>PEO 1</b>                                      | Prepare industry relevant quality graduates with programming and critical thinking skills to serve the domestic and global community. |
| <b>PEO 2</b>                                      | Disseminate the conceptual knowledge in the concerned discipline for societal development and transformation.                         |
| <b>PEO 3</b>                                      | Develop as a capable technical industry leader with outstanding communication skills.   |
| <b>PEO 4</b>                                      | Become technically competent in the field of computer science with a passion for lifelong learning.                                   |

| <b>II. PROGRAMME LEARNING OUTCOMES (PLOS)</b> |  |
|---|--|
| <b>No.</b>                                    | <b>The Graduates of Bachelor of Information Technology Programme will be able to :</b>   |
| <b>PLO1</b>                                   | Identify the programming and technical <b>knowledge</b> acquired in the current computational demands. <b>(Cognitive)</b>  |
| <b>PLO2</b>                                   | Analyze the complex problems and identify solutions through <b>critical thinking skills</b> . <b>(Cognitive)</b>   |
| <b>PLO3</b>                                   | Adapt to the latest tools and techniques used to develop domain based innovative solutions with the acquired <b>technical and operational skills</b> . <b>(Psychomotor Skills)</b> |
| <b>PLO4</b>                                   | Function and contribute as a <b>team</b> in the diversified environment in taking competitive decision. <b>(Affective)</b>   |
| <b>PLO5</b>                                   | <b>Communicate</b> effectively with the computing community as well as society to comprehend effective documentation and presentation. <b>(Affective)</b>                          |
| <b>PLO6</b>                                   | Incorporate advanced <b>digital skills</b> in designing, developing, managing and deploying in media and technical field. <b>(Affective)</b>                                       |
| <b>PLO7</b>                                   | Apply quantitative, <b>numerical and statistical skills</b> to solve challenging problems with effective solutions. <b>(Cognitive)</b>   |
| <b>PLO8</b>                                   | Articulate leadership skills in motivating the <b>team</b> towards the target in a multi-disciplinary environment. <b>(Affective)</b>  |
| <b>PLO9</b>                                   | Recognize the need and ability to involve independent and <b>life-long learning</b> in the changing era of technology. <b>(Affective)</b>  |
| <b>PLO10</b>                                  | Interpret the impact of <b>professional business solutions</b> on business environment for sustainable development. <b>(Affective)</b>   |
| <b>PLO11</b>                                  | Follow <b>ethical principles</b> and commit to professional responsibilities for a relevant technical practice. <b>(Affective)</b>   |

| III. PROGRAMME LEARNING OUTCOMES VS GRADUATE ATTRIBUTES VS TAXONOMY OF VERBS |                     |                   |                  |           |                      |                |          |                   |                   |                        |                          |           |             |           |
|--|---------------------|-------------------|------------------|-----------|----------------------|----------------|----------|-------------------|-------------------|------------------------|--------------------------|-----------|-------------|-----------|
| PLO  | Graduate Attributes |                   |                  |           |                      |                |          |                   |                   |                        |                          | Blooms    |             |           |
|  | Knowledge           | Critical Thinking | Practical Skills | Team work | Communication skills | Digital skills | Numeracy | Leadership skills | Lifelong learning | Entrepreneurial skills | Ethics & Professionalism | Cognitive | Psychomotor | Affective |
| 1  | √                   |                   |                  |           |                      |                |          |                   |                   |                        |                          | √         |             |           |
| 2  |                     | √                 |                  |           |                      |                |          |                   |                   |                        |                          | √         |             |           |
| 3  |                     |                   | √                |           |                      |                |          |                   |                   |                        |                          |           | √           |           |
| 4  |                     |                   |                  | √         |                      |                |          |                   |                   |                        |                          |           |             | √         |
| 5  |                     |                   |                  |           | √                    |                |          |                   |                   |                        |                          |           |             | √         |
| 6  |                     |                   |                  |           |                      | √              |          |                   |                   |                        |                          |           |             | √         |
| 7  |                     |                   |                  |           |                      |                | √        |                   |                   |                        |                          | √         |             |           |
| 8  |                     |                   |                  |           |                      |                |          | √                 |                   |                        |                          |           |             | √         |
| 9  |                     |                   |                  |           |                      |                |          |                   | √                 |                        |                          |           |             | √         |
| 10   |                     |                   |                  |           |                      |                |          |                   |                   | √                      |                          |           |             | √         |
| 11   |                     |                   |                  |           |                      |                |          |                   |                   |                        | √                        |           |             | √         |

| IV. PROGRAMME LEARNING OUTCOMES VS PROGRAMME EDUCATIONAL OBJECTIVES |       |       |       |       |
|---|-------|-------|-------|-------|
| PLO   | PEO 1 | PEO 2 | PEO 3 | PEO 4 |
| PLO 1   | √     |       |       |       |
| PLO 2   | √     |       |       |       |
| PLO 3   |       | √     |       |       |
| PLO 4   |       |       | √     |       |
| PLO 5   |       |       | √     |       |
| PLO 6   |       | √     |       |       |
| PLO 7   |       | √     |       |       |
| PLO 8   |       |       | √     |       |
| PLO 9   |       |       |       | √     |
| PLO 10  |       |       |       | √     |
| PLO 11  |       | √     |       |       |

| V. ADDITIONAL PROGRAMME OUTCOMES (APOs) |  |
|---|--|
| APO 1                                   | The students will have an ability to be socially intelligent with intelligent quotient and emotional quotient. |
| APO 2                                   | They will be having virtual collaborating ability.   |
| APO 3                                   | They will have the ability to use the social media effectively for productive use.                             |
| APO 4                                   | They will have critical thinking and innovative skills.  |
| APO 5                                   | They will be provided with good digital footprint.   |

**VI. PROGRAMME SPECIFIC OUTCOMES(PSOs)**

|       |   |
|-------|---|
| PSO 1 | Ability to understand the programming concepts, methodologies and algorithms to solve computational problems. |
| PSO 2 | Ability to apply emerging software development techniques and tools in providing real-time solutions.         |

**VII. CURRICULUM STRUCTURE FOR Bachelor of Information Technology****Course Components, Credits & Marks Distribution**

| Part No      | Group | Basic Structure: Distribution of Courses  | Number of Courses | Total Marks | Total Credits |
|--------------|-------|---|-------------------|-------------|---------------|
| I - IV       | 1     | AEC – Ability Enhancement Courses   | 10                | 1000        | 31            |
| III & IV     | 2     | DSC – Discipline Specific Courses   | 15                | 1500        | 53            |
|              | 3     | DSE – Discipline Specific Electives   | 11                | 1000        | 37            |
|              | 4     | GEC – General Elective Courses  | 5                 | 500         | 19            |
| IV           | 5     | ANCC 1 & 2 – Audit Non-Credit Courses   | 3                 | Completed   |               |
| V            |       | ANCC 3 – Audit Non-Credit Courses   | 1                 | Grade       | -             |
| -            | 6     | DTC – Drive Through Courses (SWAYAM-NPTEL, Coursera, Any courses certified by statutory bodies, etc.) | Any number        | -           | Addl. Credits |
| <b>Total</b> |       |   |                   | <b>4000</b> | <b>140</b>    |

**Group 1. Ability Enhancement Courses (AECs) (10 Courses)**

AEC are the courses based upon the content that leads to knowledge enhancement. Ability Enhancement Courses (AEC) are the following.

| S. No. | Course Code                                 | Course Title   | Semester | Ownership Department | Contact Hours | Credits | Marks |
|--------|---|--|----------|----------------------|---------------|---------|-------|
| 1.     | 21AEC02/<br>21AEC07/<br>21AEC11/<br>21AEC17 | <b>AEC PART I: Language – I</b><br>Tamil-I - Tamil<br>Aruvi – I/<br>Hindi-I/<br>French-I/<br>Malayalam-I | I        | Language Dept.       | 6             | 3       | 100   |
| 2.     | 21AEC22                                     | <b>AEC PART II:</b><br>English-I :<br>English for Professional Communication                             | I        | English Dept.        | 6             | 3       | 100   |
| 3      | 21AEC41                                     | <b>AEC PART III:</b><br>Probability and Statistics   | I        | Maths Dept.          | 5             | 3       | 100   |

|              |   |   |     |                     |   |           |             |
|--------------|---|---|-----|---------------------|---|-----------|-------------|
| 4.           | 21AEC04/<br>21AEC08/<br>21AEC12/<br>21AEC18 | <b>AEC PART I:</b><br>Language – II<br>Tamil-II - Tamil<br>Aruvi – II/<br>Hindi-II/<br>French-II/<br>Malayalam-II | II  | Language<br>Dept.   | 6 | 3         | 100         |
| 5.           | 21AEC24                                     | <b>AEC PART II:</b><br>English-II :<br>Campus to<br>Corporate   | II  | English<br>Dept.    | 6 | 3         | 100         |
| 6.           | 21AEC33                                     | <b>AEC PART III:</b><br>Academic Skill<br>for Computer<br>Studies   | II  | ICT Dept.           | 3 | 3         | 100         |
| 7.           | 21AEC60                                     | <b>AEC PART III:</b><br>Developing<br>Thinking Skills   | V   | ICT Dept.           | 3 | 3         | 100         |
| 8.           | 21AEC50                                     | <b>AEC PART III:</b><br>Capstone<br>Project   | IV  | ICT Dept.           | - | 4         | 100         |
| 9.           | 21AEC51                                     | <b>AEC PART IV:</b><br>Environmental<br>Studies   | III | Bioscience<br>Dept. | 3 | 3         | 100         |
| 10.          | 21AEC56                                     | <b>AEC PART IV:</b><br>Cyber Ethics   | VI  | ICT Dept.           | 3 | 3         | 100         |
| <b>Total</b> |   |   |     |                     |   | <b>31</b> | <b>1000</b> |

### Group 2. Discipline Specific Courses (DSCs) (15 Courses)

These courses are to be studied compulsorily by the students as a core requirement. The students are required to take DSCs across six semesters. The courses designed under this category aim to cover the basics that a student is expected to imbibe in the particular discipline. It includes Major project.

| S. No. | Course Code | Course Title   | Semester | Contact Hours | Credits | Marks |
|--------|-------------|--|----------|---------------|---------|-------|
| 1      | 21CDC01     | <b>DSC 1:</b> Digital Computer Fundamentals          | I        | 4             | 4       | 100   |
| 2.     | 21CDC02A    | <b>DSC 2A:</b> Programming in C                      | I        | 3             | 2       | 50    |
|        | 21CDC02B    | <b>DSC 2B:</b> Practical : C Programming             |          | 3             | 2       | 50    |
| 3      | 21CDC03     | <b>DSC 3:</b> Data Structures and                    | II       | 4             | 4       | 100   |
| 4.     | 21CDC04A    | <b>DSC 4A:</b> Object Oriented Programming using C++ | II       | 3             | 2       | 50    |
|        | 21CDC04B    | <b>DSC 4B:</b> Practical :C++ Programming            |          | 3             | 2       | 50    |
| 5      | 21CDC05     | <b>DSC 5:</b> Operating Systems                      | III      | 4             | 3       | 100   |
| 6.     | 21CDC06     | <b>DSC 6:</b> Programming in Java                    | III      | 5             | 5       | 100   |

|       |          |   |     |   |    |      |
|-------|----------|---|-----|---|----|------|
| 7.    | 21CDC07  | <b>DSC 7:</b> Practical :Java Programming                 | III | 3 | 2  | 100  |
| 8.    | 21CDC08A | <b>DSC 8A:</b> Software Engineering                       | III | 3 | 2  | 50   |
|       | 21CDC08B | <b>DSC 8B:</b> Practical :Software Testing using Selenium |     | 2 | 2  | 50   |
| 9.    | 21CDC09  | <b>DSC 9:</b> Computer Networks                           | IV  | 3 | 3  | 100  |
| 10.   | 21CDC10  | <b>DSC 10:</b> Relational Database Management Systems     | IV  | 5 | 4  | 100  |
| 11.   | 21CDC11  | <b>DSC 11:</b> Practical : SQL and PL/SQL                 | IV  | 3 | 2  | 100  |
| 12.   | 21CDC12  | <b>DSC 12:</b> Machine Learning using Python              | V   | 5 | 4  | 100  |
| 13.   | 21CDC13  | <b>DSC 13:</b> Practical : Machine Learning using Python  | V   | 3 | 2  | 100  |
| 14.   | 21CDC14  | <b>DSC 14:</b> Major Project                              | VI  | 6 | 4  | 100  |
| 15.   | 21CDC15A | <b>DSC 15A:</b> Data Mining                               | VI  | 3 | 2  | 50   |
|       | 21CDC15B | <b>DSC 15B:</b> Practical : Data Science                  |     | 3 | 2  | 50   |
| Total |          |   |     |   | 53 | 1500 |

### Group 3. Discipline Specific Elective (DSEs) (11 Courses)

Discipline Specific Elective courses offered under the main discipline of study which may be specialized or advanced or supportive to the discipline of study. Students can choose any ELEVEN courses from the following list.

| S. No. | Course Code | Course Title   | Ownership Department | Contact Hours | Credits | Marks |
|--------|-------------|--|----------------------|---------------|---------|-------|
| 1.     | 21CDE01     | <b>DSE 1:</b> Practical : Excel Macro                      | ICT Dept.            | 3             | 2       | 100   |
| 2.     | 21CDE02     | <b>DSE 1:</b> Practical : Spreadsheet for Data Scientists  | CS Dept.             | 3             | 2       | 100   |
| 3.     | 21CDE03     | <b>DSE 2:</b> Mathematical Foundation for Computer Science | Maths Dept.          | 5             | 3       | 100   |
| 4.     | 21CDE04     | <b>DSE 3:</b> Operations Research for Computer Studies     | Maths Dept.          | 5             | 3       | 100   |
| 5.     | 21CDE05     | <b>DSE 3:</b> Statistics for Data Science                  | CS Dept.             | 5             | 3       | 100   |
| 6.     | 21CDE06A    | <b>DSE 4A:</b> PHP and MySQL                               | ICT Dept.            | 3             | 3       | 50    |
|        | 21CDE06B    | <b>DSE 4B:</b> Practical: PHP and MySQL                    |                      | 3             | 2       | 50    |
| 7.     | 21CDE07A    | <b>DSE 4A:</b> Data Visualization                          | CS Dept.             | 3             | 3       | 50    |
|        | 21CDE07B    | <b>DSE 4B:</b> Practical : Data Visualization              |                      | 3             | 2       | 50    |

|     |          |   |           |   |   |     |
|-----|----------|---|-----------|---|---|-----|
|     |          | using Power BI  |           |   |   |     |
| 8.  | 21CDE08  | <b>DSE 5:</b> Embedded System   | ECS Dept. | 5 | 3 | 100 |
| 9.  | 21CDE09  | <b>DSE 5:</b> Robotics and Applications                                 | ECS Dept. | 5 | 3 | 100 |
| 10. | 21CDE10  | <b>DSE 5:</b> PC Hardware   | ECS Dept. | 5 | 3 | 100 |
| 11. | 21CDE11  | <b>DSE 6 :</b> Industrial Exposure Training                             | ICT Dept  | - | 5 | 100 |
| 12. | 21CDE12  | <b>DSE 7:</b> Ethical Hacking   | CS Dept.  | 5 | 3 | 50  |
| 13. | 21CDE13  | <b>DSE 11:</b> Practical : Ethical Hacking                              |           | 4 | 2 | 50  |
| 14. | 21CDE14  | <b>DSE 7:</b> Web Intelligence  | ICT Dept. | 5 | 3 | 50  |
| 15. | 21CDE15  | <b>DSE 11:</b> Practical : Web Intelligence                             |           | 4 | 2 | 50  |
| 16. | 21CDE16  | <b>DSE 7:</b> Android Programming                                       | ICT Dept. | 5 | 3 | 50  |
| 17. | 21CDE17  | <b>DSE 11:</b> Practical : Mobile Application Development using Android |           | 4 | 2 | 50  |
| 18. | 21CDE18  | <b>DSE 7:</b> Programming in C#.net                                     | CA Dept.  | 5 | 3 | 50  |
| 19. | 21CDE19  | <b>DSE 11:</b> Practical : C#.net                                       |           | 4 | 2 | 50  |
| 20. | 21CDE20  | <b>DSE 7:</b> Linux and Shell Programming                               | CA Dept.  | 5 | 3 | 50  |
| 21. | 21CDE29  | <b>DSE 11:</b> Practical : Shell Programming                            |           | 4 | 2 | 50  |
| 22. | 21CDE30  | <b>DSE 7:</b> Visualization Analysis and Design                         | CA Dept.  | 5 | 3 | 50  |
| 23. | 21CDE31  | <b>DSE 11</b> Practical : Data Visualization Techniques                 |           | 4 | 2 | 50  |
| 24. | 21CDE32  | <b>DSE 7:</b> Time Series Analysis                                      | CS Dept.  | 5 | 3 | 50  |
| 25. | 21CDE33  | <b>DSE 11:</b> Practical : Scientific Programming Using R               |           | 4 | 2 | 50  |
| 26. | 21CDE21  | <b>DSE 8:</b> Cyber Security  | CS Dept.  | 5 | 3 | 100 |
| 27. | 21CDE22  | <b>DSE 8:</b> Mobile Computing  | ICT Dept. | 5 | 3 | 100 |
| 28. | 21CDE23  | <b>DSE 8:</b> Information Retrieval                                     | CA Dept.  | 5 | 3 | 100 |
| 29. | 21CDE24  | <b>DSE 8:</b> Reinforcement Learning                                    | CS Dept.  | 5 | 3 | 100 |
| 30. | 21CDE25A | <b>DSE 9A:</b> Data Analytics using R                                   | ICT Dept. | 3 | 2 | 50  |

|              |          |  |           |   |           |             |
|--------------|----------|--|-----------|---|-----------|-------------|
|              | 21CDE25B | <b>DSE 9B:</b> Practical :<br>Data Analytics using R               |           | 3 | 2         | 50          |
| 31.          | 21CDE26A | <b>DSE 9A :</b> Next<br>Generation Databases -<br>NoSQL            | CS Dept.  | 3 | 2         | 50          |
|              | 21CDE26B | <b>DSE 9B:</b> Practical :<br>Next Generation<br>Databases - NoSQL |           | 3 | 2         | 50          |
| 32.          | 21CDE27  | <b>DSE 10:</b><br>Artificial Intelligence                          | ICT Dept. | 4 | 4         | 100         |
| 33.          | 21CDE28  | <b>DSE 10 :</b> Artificial<br>Intelligence and<br>Analytics        | CS Dept.  | 4 | 4         | 100         |
| <b>Total</b> |          |  |           |   | <b>37</b> | <b>1000</b> |

**Industrial Exposure Training (IET):**

Industrial Exposure Training during fifth semester for a period of 4 weeks is mandatory for all students.

The Continuous Internal Assessment mark distribution for IET is as follows:

| Component    | Mode of Conduct | Project Coverage | Marks     |
|--------------|-----------------|------------------|-----------|
| 3 Reviews    | Presentation    | Phase by Phase   | 25        |
| Work Diary   | Written         | Phase by Phase   | 10        |
| Report       | Submission      | Entire Phases    | 15        |
| <b>Total</b> |                 |                  | <b>50</b> |

Viva-voce Marks for the Industrial Exposure Training will be given based on the report and viva-voce examination, conducted by the Department.

**Report : 30 Marks**

**Viva-voce : 20 Marks**

**Major Project:**

During the Sixth semester each student should undertake a project work and submit the report. A guide will be allotted to each student by the Department. A student can select any research topic in discussion with the guide. The internal and external examiners will evaluate the Project report jointly for **50 Marks** and Viva-voce examination shall be conducted jointly for **50 Marks**.

Three Reviews should be conducted and marks have to be entered in Myclassroom portal as follows:

**Review : 25 Marks**

**Work Dairy : 10 Marks**

**Report : 15 Marks**

**Total : 50 (Internal) Marks**

End Semester Viva-Voce will be conducted for 50 (External) Marks.

**(Dissertation - 30 Marks & Viva-voce - 20Marks)**

**Group 4. Generic Elective Courses (GECs) (5 Courses)**

Generic Elective Courses are advanced level course for the discipline. They are not specialization specific. No overlapping with specialization courses. A student of specific discipline of any specialization can subscribe. These courses are future and recent developments in the respective discipline. The student has to subscribe any 5 courses in the following list:

| Sl.No. | Course Code | Course Title                  | Semester | Ownership Department     | Contact Hours | Credits | Marks |
|--------|-------------|-------------------------------|----------|--------------------------|---------------|---------|-------|
| 1.     | 21CGE01     | Agile Software Development    | III      | ICT Dept.                | 5             | 4       | 100   |
|        | 21CGE02     | Social Media Mining           |          |                          |               |         |       |
|        | 21CGE03     | Big Data Analytics            |          |                          |               |         |       |
| 2.     | 21GEC01     | Spoken Tamil                  | IV       | Language Dept.           | 3             | 3       | 100   |
|        | 21GEC02     | Spoken Hindi                  |          |                          |               |         |       |
|        | 21GEC03     | Spoken Telugu                 |          |                          |               |         |       |
|        | 21GEC04     | Spoken Malayalam              |          |                          |               |         |       |
|        | 21GEC05     | Spoken French                 |          |                          |               |         |       |
| 3.     | 21CGE04     | Computer Forensics            | IV       | ICT Dept.                | 5             | 4       | 100   |
|        | 21CGE05     | Cyber Threat Intelligence     |          |                          |               |         |       |
|        | 21CGE06     | Green Computing               |          |                          |               |         |       |
| 4.     | 21CGE07     | Wireless Technology           | V        | ICT Dept.                | 5             | 4       | 100   |
|        | 21CGE08     | Internet of Things            |          |                          |               |         |       |
|        | 21CGE09     | Cloud Computing               |          |                          |               |         |       |
| 5.     | 21CGE10     | Organizational Behaviour      | VI       | Management Science Dept. | 5             | 4       | 100   |
|        | 21CGE11     | Human Resource Management     |          |                          |               |         |       |
|        | 21CGE12     | Management Information System |          |                          |               |         |       |
| Total  |             |                               |          |                          |               | 19      | 500   |



**Group 5. Audit Non-Credit Courses (ANCC)**

Non Credit Courses are intended for students who want to gain general knowledge, learn a new skill, upgrade existing skills, enrich their understanding of a wide range of topics, or develop personal interests. A student has to complete any two courses during Semester I and II.

| <b>Part IV - Semester I - ANCC 1 &amp; Semester II - ANCC 2</b> |                    |                                |
|---|--------------------|--------------------------------|
| <b>S. No.</b>   | <b>Course Code</b> | <b>Course Name</b>             |
| 1.  | 21ANC01            | Human Rights                   |
| 2.  | 21ANC02            | Women's Rights                 |
| 3.  | 21ANC03            | Yoga for Human Excellence      |
| 4.  | 21ANC04            | Indian Culture and Heritage    |
| 5.  | 21ANC05            | Introduction to Cyber Security |
| 6.  | 21ANC06            | Consumer Protection            |
| 7.  | 21ANC07            | Constitution of India          |
| 8.  | 21ANC08            | Waste Management               |

Student has to take part in any one extension activity during their course of study.

| <b>Part V- ANCC 3 - Extension Activities</b> |                    |                         |
|--|--------------------|-------------------------|
| <b>S. No.</b>                                | <b>Course Code</b> | <b>Course Name</b>      |
| 1.   | 21ANC09            | National Service Scheme |
| 2.   | 21ANC10            | National Cadet Corps    |
| 3.   | 21ANC11            | Youth Red Cross         |
| 4.   | 21ANC12            | Red Ribbon Club         |
| 5.   | 21ANC13            | Rotaract Club           |
| 6.   | 21ANC14            | Sports                  |
| 7.   | 21ANC15            | Association Activities  |

**Group 6. Drive-Through Course (DTC)**

These courses are intended to bring out and promote the self-learning initiative of the students – where their own motivation is what drives them to complete the course and not external compulsions. This fosters the habit of keeping oneself updated always by means of self-study. It gives the students the opportunities to explore new areas of interest and earn additional credits. Students can take any number of courses under this cafeteria system. The credits will not be taken for CGPA calculation. Additional 4 credits per Course will be given on submission of certificate.

1. SWAYAM-NPTEL
2. Coursera
3. Any courses certified by statutory bodies

## VIII: SEMESTER-WISE SCHEME

| Semester I  |  |           |                    |                      |              |             |                |             |                  |                           |
|---|--|-----------|--------------------|----------------------|--------------|-------------|----------------|-------------|------------------|---------------------------|
| Course Code   | Course Title   | T/<br>P/E | ESE<br>Dur.<br>Hrs | Ins.<br>Hrs/<br>Week | CIA<br>Marks | ES<br>Marks | Total<br>Marks | Credit<br>s | SD/<br>EM/<br>EN | G/L/<br>R/N               |
| 21AEC02/<br>21AEC07/<br>21AEC11/<br>21AEC17/<br>21AEC61 | <b>AEC PART I:</b><br>Tamil-I:Tamil Aruvi-I/<br>Hindi - I/<br>French – I/<br>Malayalam - I/<br>Sanskrit –I | T         | 3                  | 6                    | 50           | 50          | 100            | 3           | SD               | R/<br>N/<br>G/<br>R/<br>G |
| 21AEC22   | <b>AEC PART II:</b><br><b>English I:</b> English for<br>Professional<br>Communication                      | T         | 3                  | 6                    | 50           | 50          | 100            | 3           | SD               | G                         |
| 21CDC01   | <b>DSC 1:</b><br>Digital Computer<br>Fundamentals  | T         | 3                  | 4                    | 50           | 50          | 100            | 4           | SD               | G                         |
| 21CDC02A  | <b>DSC 2A :</b><br>Programming in C  | E         | 2                  | 3                    | 25           | 25          | 50             | 2           | SD/<br>EM        | G                         |
| 21CDC02B  | <b>DSC 2B :</b><br>Practical:<br>C Programming   |           | 2                  | 3                    | 25           | 25          | 50             | 2           | SD/<br>EM        | G                         |
| 21CDE01/<br>21CDE02                                     | <b>DSE 1:</b><br>Practical: Excel Macro<br>/<br>Practical : Spreadsheet<br>for Data Scientists             | P         | 3                  | 3                    | 50           | 50          | 100            | 2           | SD               | G                         |
| 21AEC41   | <b>AEC PART III:</b><br>Probability and<br>Statistics  | T         | 3                  | 5                    | 50           | 50          | 100            | 3           | SD/<br>EM        | G                         |
|   | <b>ANCC-1 (NF2F)</b>   | T         | 2                  | -                    | -            | -           | Completed      |             | EN               | G                         |
| Total   |  |           |                    | 30+2                 |              |             | 600            | 19          |                  |                           |

|   | Semester II  |        |              |                |           |          |             |         |            |                           |
|---|--|--------|--------------|----------------|-----------|----------|-------------|---------|------------|---------------------------|
| Course Code   | Course Title   | T/ P/E | ESE Dur. Hrs | Ins. Hrs/ Week | CIA Marks | ES Marks | Total Marks | Credits | SD/ EM/ EN | G/L/ R/N                  |
| 21AEC04/<br>21AEC08/<br>21AEC12/<br>21AEC18/<br>21AEC62 | <b>AEC PART I:</b><br><b>Language II:</b><br>TAMIL-II:<br>Tamil Aruvi – II/<br>Hindi - II/<br>French – II/<br>Malayalam – II<br>Sanskrit –II | T      | 3            | 6              | 50        | 50       | 100         | 3       | SD         | R/<br>N/<br>G/<br>R/<br>G |

| 21AEC24             | <b>AEC PART II</b><br><b>English II:</b><br>Campus to Corporate     | T         | 3                  | 6                    | 50           | 50          | 100            | 3           | SD               | G           |
|---------------------|---|-----------|--------------------|----------------------|--------------|-------------|----------------|-------------|------------------|-------------|
| 21AEC33             | <b>AEC PART III</b><br>Academic Skill for<br>Computer Studies       | T         | 3                  | 3                    | 50           | 50          | 100            | 3           | SD               | G           |
| 21CDC03             | <b>DSC 3:</b><br>Data Structures and<br>Algorithms                  | T         | 3                  | 4                    | 50           | 50          | 100            | 4           | SD/<br>EM        | G           |
| 21CDC04A            | <b>DSC 4A:</b><br>Object Oriented<br>Programming using<br>C++       | E         | 2                  | 3                    | 25           | 25          | 50             | 2           | SD/<br>EM        | G           |
| 21CDC04B            | <b>DSC 4B:</b> Practical:<br>C++ Programming                        |           | 2                  | 3                    | 25           | 25          | 50             | 2           | SD/<br>EM        | G           |
| 21CDE03             | <b>DSE 2:</b><br>Mathematical<br>Foundation for<br>Computer Science | T         | 3                  | 5                    | 50           | 50          | 100            | 3           | SD/<br>EM        | G           |
|                     | <b>ANCC-2 (NF2F)</b>  | T         | 2                  | -                    | -            | -           | Completed      |             |                  | R           |
| <b>Total</b>        |   |           |                    | <b>30+2</b>          |              |             | <b>600</b>     | <b>20</b>   |                  |             |
|                     |   |           |                    |                      |              |             |                |             |                  |             |
| <b>Semester III</b> |   |           |                    |                      |              |             |                |             |                  |             |
| Course Code         | Course Title  | T/<br>P/E | ESE<br>Dur.<br>Hrs | Ins.<br>Hrs/<br>Week | CIA<br>Marks | ES<br>Marks | Total<br>Marks | Credit<br>s | SD/<br>EM/<br>EN | G/L/<br>R/N |
| 21CDC05             | <b>DSC 5:</b><br>Operating Systems                                  | T         | 3                  | 4                    | 50           | 50          | 100            | 3           | SD/<br>EM        | G           |
| 21CDC06             | <b>DSC 6:</b><br>Programming in Java                                | T         | 3                  | 5                    | 50           | 50          | 100            | 5           | SD/<br>EM        | G           |
| 21CDC07             | <b>DSC 7:</b> Practical:<br>Java Programming                        | P         | 3                  | 3                    | 50           | 50          | 100            | 2           | SD/<br>EM        | G           |
| 21CDC08A            | <b>DSC 8A:</b><br>Software Engineering                              | E         | 2                  | 3                    | 25           | 25          | 50             | 2           | SD/<br>EM        | G           |
| 21CDC08B            | <b>DSC 8B:</b> Practical:<br>Software Testing Using<br>Selenium     |           | 2                  | 2                    | 25           | 25          | 50             | 2           | SD/<br>EM        | G           |
| 21AEC51             | <b>AEC PART IV:</b><br>Environmental Studies                        | T         | 3                  | 3                    | 50           | 50          | 100            | 3           | SD               | G           |

|                                 |  |   |   |           |    |    |            |           |           |   |
|---------------------------------|--|---|---|-----------|----|----|------------|-----------|-----------|---|
| 21CGE01/<br>21CGE02/<br>21CGE03 | <b>GEC I:</b><br>Agile Software Development/<br>Social Media Mining/<br>Big Data Analytics | T | 3 | 5         | 50 | 50 | 100        | 4         | SD/<br>EM | G |
| 21CDE04 /<br>21CDE05            | <b>DSE 3:</b><br>Operations Research for Computer Studies /<br>Statistics for Data Science | T | 3 | 5         | 50 | 50 | 100        | 3         | SD/<br>EM | G |
| <b>Total</b>                    |  |   |   | <b>30</b> |    |    | <b>700</b> | <b>24</b> |           |   |

| Semester IV   |   |       |              |                |           |          |             |         |                   |                           |
|---|---|-------|--------------|----------------|-----------|----------|-------------|---------|-------------------|---------------------------|
| Course Code   | Course Title  | T/P/E | ESE Dur. Hrs | Ins. Hrs/ Week | CIA Marks | ES Marks | Total Marks | Credits | SD/ EM/ EN        | G/L/ R/N                  |
| 21CDC09   | <b>DSC 9:</b><br>Computer Networks  | T     | 3            | 3              | 50        | 50       | 100         | 3       | SD/<br>EM         | G                         |
| 21AEC50   | <b>AEC PART III:</b><br>Capstone Project  | -     | 3            | -              | 50        | 50       | 100         | 4       | SD/<br>EM /<br>EN | N                         |
| 21CDC10   | <b>DSC 10:</b><br>Relational Database Management Systems  | T     | 3            | 5              | 50        | 50       | 100         | 4       | SD                | G                         |
| 21CDC11   | <b>DSC 11:</b> Practical: SQL and PL/SQL  | P     | 3            | 3              | 50        | 50       | 100         | 2       | EM                | G                         |
| 21CDE06A /<br>21CDE07A                                  | <b>DSE 4A:</b><br>PHP and MySQL /<br>Data Visualization   | E     | 2            | 3              | 25        | 25       | 50          | 3       | SD                | G                         |
| 21CDE06B /<br>21CDE07B                                  | <b>DSE 4B:</b> Practical: PHP and MySQL /<br>Practical : Data Visualization using Power BI                |       | 2            | 3              | 25        | 25       | 50          | 2       | EM                | G                         |
| 21CDE08 /<br>21CDE09 /<br>21CDE10                       | <b>DSE 5:</b><br>Embedded System /<br>Robotics and Applications /<br>PC Hardware                          | T     | 3            | 5              | 50        | 50       | 100         | 3       | SD                | N                         |
| 21GEC01/<br>21GEC02/<br>21GEC03/<br>21GEC04/<br>21GEC05 | <b>GEC 2:</b><br>Spoken Tamil/<br>Spoken Hindi /<br>Spoken Telugu /<br>Spoken Malayalam/<br>Spoken French | T     | 3            | 3              | 100       | -        | 100         | 3       | SD                | R/<br>N/<br>R/<br>R/<br>G |

| 21CGE04/<br>21CGE05/<br>21CGE06   | <b>GEC 3:</b><br>Computer Forensics /<br>Cyber Threat Intelligence /<br>Green Computing   | T         | 3                  | 5                    | 50           | 50          | 100            | 4           | SD/<br>EM        | G           |
|---|---|-----------|--------------------|----------------------|--------------|-------------|----------------|-------------|------------------|-------------|
| <b>Total</b>  |   |           |                    | <b>30</b>            |              |             | <b>800</b>     | <b>28</b>   |                  |             |
|   |   |           |                    |                      |              |             |                |             |                  |             |
| <b>Semester V</b>   |   |           |                    |                      |              |             |                |             |                  |             |
| Course Code   | Course Title  | T/<br>P/E | ESE<br>Dur.<br>Hrs | Ins.<br>Hrs/<br>Week | CIA<br>Marks | ES<br>Marks | Total<br>Marks | Credit<br>s | SD/<br>EM/<br>EN | G/L/<br>R/N |
| 21CDE11   | <b>DSE 6:</b><br>Industrial Exposure Training   | -         | 3                  | 4<br>Weeks           | 50           | 50          | 100            | 5           | EN               | G           |
| <b>AND</b>  |   |           |                    |                      |              |             |                |             |                  |             |
| 21AEC60   | <b>AEC PART III:</b><br>Developing Thinking Skills  | T         | 3                  | 3                    | 50           | 50          | 100            | 3           | SD               | G           |
| 21CDC12   | <b>DSC 12:</b><br>Machine Learning using Python   | T         | 3                  | 5                    | 50           | 50          | 100            | 4           | SD/<br>EM        | G           |
| 21CDC13   | <b>DSC 13:</b> Practical:<br>Machine Learning using Python  | P         | 3                  | 3                    | 50           | 50          | 100            | 2           | SD/<br>EM        | G           |
| 21CDE12/<br>21CDE14/<br>21CDE16/<br>21CDE18/<br><br>21CDE20/<br><br>21CDE30/<br><br>21CDE32 | <b>DSE 7:</b><br>Ethical Hacking/<br>Web Intelligence/<br>Android Programming/<br>Programming in C#.net/<br>Linux and Shell Programming/<br>Visualization Analysis and Design /<br>Time Series Analysis | T         | 3                  | 5                    | 25           | 25          | 50             | 3           | EN               | G           |

| 21CDE13/<br>21CDE15/<br>21CDE17/<br>21CDE19/<br>21CDE29/<br>21CDE31/<br>21CDE33 | <b>DSE 11:</b><br>Practical: Ethical Hacking/<br>Practical: Web Intelligence/<br>Practical: Mobile Application Development using Android/<br>Practical: C#.net/<br>Practical: Shell Programming/<br>Practical: Data Visualization Techniques /<br>Practical : Scientific Programming Using R | P      | 3            | 4              | 25        | 25       | 50          | 2         | EN         | G         |
|---|--|--------|--------------|----------------|-----------|----------|-------------|-----------|------------|-----------|
| 21CDE21 /<br>21CDE22 /<br>21CDE23 /<br>21CDE24                                  | <b>DSE 8:</b><br>Cyber Security /<br>Mobile Computing /<br>Information Retrieval /<br>Reinforcement Learning   | T      | 3            | 5              | 50        | 50       | 100         | 3         | SD         | G         |
| 21CGE07/<br>21CGE08/<br>21CGE09   | <b>GEC 4:</b><br>Wireless Technology/<br>Internet of Things/<br>Cloud Computing  | T      | 3            | 5              | 50        | 50       | 100         | 4         | SD/<br>EM  | G         |
|   |  |        |              | <b>30</b>      |           |          | <b>700</b>  | <b>26</b> |            |           |
|   |  |        |              |                |           |          |             |           |            |           |
| <b>Semester VI</b>  |  |        |              |                |           |          |             |           |            |           |
| Course Code   | Course Title   | T/ P/E | ESE Dur. Hrs | Ins. Hrs/ Week | CIA Marks | ES Marks | Total Marks | Credits   | EM/ SD/ EN | G/ L/N/ R |
| 21AEC56   | <b>AEC PART IV :</b><br>Cyber Ethics   | T      | 3            | 3              | 50        | 50       | 100         | 3         | SD         | G         |
| 21CDC14   | <b>DSC 14:</b><br>Major Project  | -      | 3            | 6              | 50        | 50       | 100         | 4         | EN         | G         |
| 21CDC15A  | <b>DSC 15A:</b><br>Data Mining   | E      | 2            | 3              | 25        | 25       | 50          | 2         | SD         | G         |
| 21CDC15B  | <b>DSC 15B:</b> Practical:<br>Data Science   |        | 2            | 3              | 25        | 25       | 50          | 2         | EM         | G         |
| 21CDE25A /<br>21CDE26A  | <b>DSE 9A:</b><br>Data Analytics using R / Next Generation Databases - NoSQL   | E      | 2            | 3              | 25        | 25       | 50          | 2         | SD / EM    | G         |

|   |   |   |   |  |    |    |            |           |                                  |            |
|---|---|---|---|--|----|----|------------|-----------|----------------------------------|------------|
| 21CDE25B / 21CDE26B   | <b>DSE 9B:</b><br>Practical: Data Analytics using R / Practical : Next Generation Databases – NoSQL |   | 2 | 3  | 25 | 25 | 50         | 2         | SD/EM                            | G          |
| 21CDE27 / 21CDE28   | <b>DSE 10:</b><br>Artificial Intelligence / Artificial Intelligence and Analytics                   | T | 3 | 4  | 50 | 50 | 100        | 4         | SD/EM                            | G          |
| 21CGE10/ 21CGE11/ 21CGE12   | <b>GEC 5:</b><br>Organizational Behavior/ Human Resource Management/ Management Information System  | T | 3 | 5  | 50 | 50 | 100        | 4         | SD                               | G          |
|   | <b>ANCC 3:</b><br>Extension Activities  | - | 3 | -  | -  | -  | Grade      | -         | SD                               | N          |
| <b>Total</b>  |   |   |   | <b>30</b>  |    |    | <b>600</b> | <b>23</b> |                                  |            |
| <b>Total</b>  |   |   |   |  |    |    | <b>400</b> |           |                                  | <b>140</b> |
| <b>Drive-Through Course (DTC):</b><br>Courses offered in SWAYAM-NPTEL, Coursera OR Any courses certified by statutory bodies. |   |   |   | Additional 4 credits per Course will be given on submission of Certificate |    |    |            |           | During Semester I to Semester VI |            |

## Semester-wise Distribution of Marks and Credits:

| Semester     | Total Marks | Total Credits |
|--------------|-------------|---------------|
| I            | 600         | 19            |
| II           | 600         | 20            |
| III          | 700         | 24            |
| IV           | 800         | 28            |
| V            | 700         | 26            |
| VI           | 600         | 23            |
| <b>Total</b> | <b>4000</b> | <b>140</b>    |

**OFFERED BY****List of Courses Offered by Mathematics Department**

| Semester | Course Code | Course Name   | Programme | T/ P / E | Ins. Hrs | CIA | ES | Total Marks | Credit |
|----------|-------------|---|-----------|----------|----------|-----|----|-------------|--------|
| I        | 21AEC41     | <b>AEC PART III:</b><br>Probability and Statistics            | ICT       | T        | 5        | 50  | 50 | 100         | 3      |
| II       | 21CDE03     | <b>DSE 2:</b><br>Mathematical Foundation for Computer Science | ICT       | T        | 5        | 50  | 50 | 100         | 3      |
| III      | 21CDE04     | <b>DSE 3:</b> Operations Research for Computer Studies        | ICT       | T        | 5        | 50  | 50 | 100         | 3      |

**List of Courses Offered by Electronics and Communication Systems Department**  
**(Any 1 out of 3) during Semester IV**

| Semester | Course Code | Course Name                            | Programme | T/ P / E | Ins. hrs | CIA | ES | Total Marks | Credit |
|----------|-------------|--|-----------|----------|----------|-----|----|-------------|--------|
| IV       | 21CDE08     | <b>DSE 5:</b><br>Embedded System       | ICT       | T        | 5        | 50  | 50 | 100         | 3      |
| IV       | 21CDE09     | <b>DSE:5</b> Robotics and Applications | ICT       | T        | 5        | 50  | 50 | 100         | 3      |
| IV       | 21CDE10     | <b>DSE 5:</b><br>PC Hardware           | ICT       | T        | 5        | 50  | 50 | 100         | 3      |

**OFFERED TO****List of Courses Offered to BA. English Literature**

| Semester | Course Code | Course Name                  | Programme             | T/ P / E | Ins. hrs | CIA | ES | Total Marks | Credit |
|----------|-------------|------------------------------|-----------------------|----------|----------|-----|----|-------------|--------|
| III      | 21NDE07     | Practical: Office Automation | BA English Literature | P        | 4        | 50  | 50 | 100         | 3      |



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## Amendments in 2021 Batch Undergraduate Programs (B.Sc CS/IT/CT/CSA/BCA)

- The following DSE courses are dropped in Semester V .

**DSE 6A : 21CDE12A - System Modeling using UML /  
21CDE13A - Cloud Computing**

**DSE 6B : 21CDE12B - Practical :System Modeling using UML /  
21CDE13B - Practical : Cloud Computing**

- AEC Part III : 21AEC40 - Computational Thinking** is replaced by **21AEC60 - Developing Thinking Skills**.
- The **DSC12 : 21CDC12 - Programming in Python** course title amended as **Machine Learning using Python** and the instructional hours are updated from 4 hours to 5 hours.
- The following **DSE 8 courses** instructional hours are updated from 4 hours to 5 hours. **21CDE21 - Cyber Security / 21CDE22 - Mobile Computing / 21CDE23 - Information Retrieval / 21CDE24 - Reinforcement Learning**
- The **DSE 7A & 7B embedded course** is converted as individual theory and practical course. The following changes were carried out,
  - DSE 7A** is changed as **DSE 7**.The instructional hours for DSE 7 is updated from 3 Hours to 5 Hours.
  - DSE 7B** is changed as **DSE 11**. The instructional hours for DSE 11 is updated from 3 Hours to 4 Hours.