

Bachelor of Technology in 'Computer Science and Engineering- (2019-20)

| Sem           | Course Code, Course Name (L-T-P) Credits                                  |   |   |   |   |  |  | Communi<br>Service   | GP                           | Hrs. Per week |     |    | Credits      |                         |
|---------------|---|---|---|---|---|--|--|--|------------------------------|---------------|-----|----|--------------|-------------------------|
|               | L   | T   | P   |   |   |  |  |  |                              |               |     |    |              |                         |
| 1             | MAL151<br>Engg Maths-I<br>(3-0-2)4  | CSL106<br>FOCP-I<br>(2-0-6)5                | CHL150<br>Engg<br>Chemistry<br>(1-0-2)2                       | CLL101<br>Effective<br>Communica-tion I<br>(2-0-0)2 | MEP110<br>Engineering<br>Graphics &<br>Drawing<br>(1-0-3)2.5                | CLL120<br>Human Values<br>and<br>Professional<br>Ethics<br>(1-0-1)1.5        | CSL110<br>Problem<br>Solving<br>and Design<br>Thinking<br>(0-0-4)2 |  | CSR118<br>GP<br>1<br>Credits | 10            | 0   | 18 | 19+1<br>= 20 |                         |
| 2             | MAL152<br>Engg Maths-II<br>(3-0-2)4                                       | CSL108<br>FOCP-II<br>(2-0-6)5               | PHY150<br>Engineering<br>Physics<br>(3-0-2)4                  | CLL102<br>Effective<br>Communication-II<br>(2-0-0)2 | MEL150<br>Basics of<br>Mechanical an<br>d Civil<br>Engineering<br>(2-0-2) 3 | ECL110<br>Basic of Electrical<br>&<br>Electronics<br>Engineering<br>(2-0-2)3 |  |  | CSR119<br>GP<br>1<br>Credits | 14            | 0   | 14 | 21+1<br>= 22 |                         |
| <b>Summer</b> |   |   |   |   |   |  |  |  |                              |               |     |    |              |                         |
| 3             | CSL209<br>Data Structures<br>(3-0-2)4                                     | ECL255<br>DE & CA<br>(3-0-2)4               | CSL240<br>Computer<br>Networks<br>(3-0-2)4                    | CSL223<br>Discrete<br>Mathematics<br>(3-0-0)3       | Program<br>Elective - I<br>(2-0-4)4   | CSV201<br>Skill<br>Development*<br>(1-0-2)2                                  |  | CSS201<br>CS-III<br>(35 Hrs)   | CSR218<br>GP<br>1<br>Credits | 15            |     | 12 | 21+1<br>=22  |                         |
| 4             | CSL422<br>Cyber Security<br>(3-0-2)4                                      | CSL214<br>DBMS<br>(3-0-2)4                  | CSL230<br>Analysis and<br>Design of<br>Algorithms<br>(3-0-2)4 | Program<br>Elective-<br>2<br>(2-0-4)4               | SML300<br>Entrepreneur<br>ship<br>(3-0-0)3                                  | SML*** Liberal<br>Arts<br>(3-0-0-)3  |  | CSS202<br>CS-IV<br>(35 Hrs)<br>1 Credit  | CS219<br>GP<br>1<br>Credits  | 17            |     | 10 | 22+2<br>= 24 |                         |
| <b>Summer</b> |   |   |   |   |   |  |  | <b>CST201 Industrial Training/internship (including 70 hrs of community service)</b> |                              |               |     |    | <b>2</b>     |                         |
| 5             | CSL236<br>Introduction to<br>AI & ML /<br>CSL242 AI for<br>Games (3-0-2)4 | CSL303<br>Operating<br>System<br>(3-0-2)4   | Program<br>Elective-3<br>(2-0-4)4                             | Program<br>Elective-<br>4<br>(2-0-4)4               | Open<br>Elective – 1*<br>(MOOC)<br>(3-0-0)3                                 |  |  | CSS301<br>CS-V<br>(35 Hrs)   | CSR318<br>GP<br>1<br>Credits | 13            |     | 12 | 19+1<br>= 20 |                         |
| 6             | CSL229<br>SEPM<br>(3-0-2)4  | Program<br>Elective-5<br>(2-0-4)4           | Program<br>Elective-6<br>(2-0-4)4                             | CSL318<br>Theory of<br>Computation<br>(3-0-2)4      | Open<br>Elective-2<br>(3-0-0)3  | CLP300<br>Campus to<br>Corporate<br>(1-0-0)1                                 | CSC301<br>Seminar<br>1 Credit                                      | CSS302<br>CS-VI<br>(35 Hrs)<br>1 Credit  | CSR319<br>GP<br>1<br>Credits | 14            |     | 12 | 21+2<br>= 23 |                         |
| <b>Summer</b> |   |   |   |   |   |  |  | <b>CST301 Industrial Training/ internship(including 70 hrs of community service)</b> |                              |               |     |    | <b>3</b>     |                         |
| 7             | Program<br>Elective-<br>7<br>(2-0-4)4                                     | Program<br>Elective-<br>8<br>(2-0-4)4       | CSD401<br>Project # 1<br>4 Credits                            | Open<br>Elective – 3*<br>(MOOC)<br>(3-0-0)3         | CHL100<br>EVS<br>(3-0-0)3   | Foreign<br>Language<br>(3-0-0)3  |  | CSS401<br>CS-VII<br>70 Hrs   |                              | 13            |     | 8  | 21           |                         |
| 8             | Open<br>Elective – 4*<br>(MOOC)<br>(3-0-0)3                               | Open<br>Elective – 5*<br>(MOOC)<br>(3-0-0)3 | CSD402<br>Project # 2<br>/Internship<br>6 Credits             |   |   |  |  | CSS402<br>CS-VIII<br>70 Hrs<br>2<br>Credits  |                              | 6             |     |    | 12+2<br>= 14 |                         |
|               | <b>Total</b>  |   |   |   |   |  |  |  |                              |               | 102 | 0  | 86           | <b>161+10<br/>= 171</b> |

\* CSV201 Skill Development (Python to be taught to students with Cyber Security specialization)

## Program Electives for each track

| Tracks                    | Data Science  | IoT                                  | Full Stack                              | Game Tech                                  | Cyber Security                                 | Other Electives                            |
|---------------------------|---|--------------------------------------|---|--|--|--|
| Program Elective-1 SemIII | CSL 225 Programming for Data Science                    | CSL 225 Programming for Data Science | CSL273 Enterprise Web Applications      | CSL243 Game Design & Asset Creation        | CSL 281 Secure Communication and Cryptography  | MAL270 Numerical Methods                   |
| Program Elective-2        | CSL227 Applied Computational Statistics                 | CSL253 Web Frameworks                | CSL274 Middleware Frameworks and ORM    | CSL245 Programing for Games                | CSL 283 Secure Coding and Vulnerabilities      | CSL223 Web Development Technologies        |
| Program Elective-3        | CSL234 Data Engineering                                 | ECL252 Micro-controllers & Sensors   | CSL276 No SQL Databases                 | CSL244 Advanced Programming for Games      | CSL 284 Digital Forensics and Malware Analysis | MAL280 Linear Algebra and its Applications |
| Program Elective-4        | CSL232 Business Intelligence and Data Visualization     | CSL234 Data Engineering              | CSL253 Web Frameworks                   | CSL343 Designing Human Computer Interfaces | CSL 383 Network security                       | MAL260 Probability and Statistics          |
| Program Elective-5        | CSL313 Machine Learning                                 | CSL361 Security in IoT               | CSL371 Mobile Application Development   | CSL246 Cross Platform Game Development     | CSL387 Web and Mobile Security                 |  |
| Program Elective-6        | CSL311 Big Data   | CSL311 Big Data                      | CSL373 Devops                           | CSL341 AR Development                      | CSL385 Risk Analysis and Assessment            |  |
| Program Elective-7        | CSL316 Introduction to Image Processing and Recognition | CSL364 Cloud & Fog computing         | CSL311 Big Data                         | CSL345 VR Development                      | CSL384 Cloud Security Essentials               |  |
| Program Elective-8        | CSL312 Deep Learning                                    | CSL358 Introduction to Robotics      | CSL374 Micro service Based Applications | CSL342 XR Studio                           | CSL382 Blockchain                              |  |