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

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| **Sem** | **Course Code,** **Course Name****(L-T-P) Credits** | **Community Service** | **GP** | **Hrs.****Per week** | **Credits** |
| **L** | **T** | **P** |
| 1 | MAL151Engg Maths-I(3-0-2)4 | CSL106FOCP-I(2-0-6)5 | CHL150Engg Chemistry(1-0-2)2 | CLL101EffectiveCommunica-tion I(2-0-0)2 | MEP110Engineering Graphics &Drawing(1-0-3)2.5 | CLL120Human Values andProfessional Ethics(1-0-1)1.5 | CSL110Problem Solvingand DesignThinking(0-0-4)2 |  | CSR118GP1 Credits | 10 | 0 | 18 | 19+1= 20 |
| 2 | MAL152Engg Maths-II(3-0-2)4 | CSL108FOCP-II(2-0-6)5 | PHY150EngineeringPhysics(3-0-2)4 | CLL102EffectiveCommunication-II(2-0-0)2 | MEL150Basics of Mechanical  and Civil Engineering(2-0-2) 3 | ECL110Basic of Electrical &ElectronicsEngineering(2-0-2)3 |  |  | CSR119GP1 Credits | 14 | 0 | 14 | 21+1= 22 |
| **Summer** |  |  |  |  |  |
| 3 | CSL209Data Structures(3-0-2)4 | ECL255DE & CA(3-0-2)4 | CSL240ComputerNetworks(3-0-2)4 | CSL223Discrete Mathematics(3-0-0)3 | ProgramElective - I(2-0-4)4 | CSV201SkillDevelopment\*(1-0-2)2 |  | CSS201CS-III(35 Hrs) | CSR218GP1 Credits | 15 |  | 12 | 21+1=22 |
| 4 | CSL422Cyber Security(3-0-2)4 | CSL214DBMS(3-0-2)4 | CSL230Analysis andDesign ofAlgorithms(3-0-2)4 | Program Elective-2(2-0-4)4 | SML300Entrepreneurship(3-0-0)3 | SML\*\*\* Liberal Arts(3-0-0-)3 |  | CSS202CS-IV (35 Hrs)1 Credit | CS219GP1 Credits | 17 |  | 10 | 22+2= 24 |
| **Summer** |  | **CST201 Industrial Training/internship (including 70 hrs of community service)** | 2 |
| 5 | CSL236Introduction toAI & ML / CSL242 AI for Games (3-0-2)4 | CSL303Operating System(3-0-2)4 | Program Elective-3(2-0-4)4 | Program Elective-4(2-0-4)4 | OpenElective – 1\*(MOOC)(3-0-0)3 |  |  | CSS301CS-V(35 Hrs) | CSR318GP1 Credits | 13 |  | 12 | 19+1= 20 |
| 6 | CSL229SEPM(3-0-2)4 | Program Elective-5(2-0-4)4 | Program Elective-6(2-0-4)4 | CSL318Theory ofComputation(3-0-2)4 | OpenElective-2(3-0-0)3 | CLP300Campus to Corporate(1-0-0)1 | CSC301Seminar1 Credit | CSS302CS-VI (35 Hrs)1 Credit | CSR319GP1 Credits | 14 |  | 12 | 21+2= 23 |
| **Summer** |  | **CST301 Industrial Training/ internship(including 70 hrs of community service) 3** |
| 7 | Program Elective-7(2-0-4)4 | Program Elective-8(2-0-4)4 | CSD401Project # 14 Credits | OpenElective – 3\*(MOOC)(3-0-0)3 | CHL100EVS(3-0-0)3 | Foreign Language(3-0-0)3 |  | CSS401CS-VII70 Hrs |  | 13 |  | 8 | 21  |
| 8 | OpenElective – 4\*(MOOC)(3-0-0)3 | OpenElective – 5\*(MOOC)(3-0-0)3 | CSD402Project # 2 /Internship6 Credits |  |  |  |  | CSS402CS-VIII 70 Hrs2 Credits |  | 6 |  |  | 12+2 = 14  |
|  | **Total** |  |  | 102 | 0 | 86 | **161+10= 171** |

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

**Program Electives for each track**

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| 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 |  |