Bachelor of Technology in 'Computer Science and Engineering- (2020-21)

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| Bachelor of Technology in 'Computer Science and Engineering' (2019-20)  **Sem** | **Semester Course Code, Course Name**  **(L-T-P)Credits** | | | | | | | **GP** | **Community Services** | **Hrs.**  **Per week** | | | **Credits** |
| **L** | **T** | **P** |
| 1 | MAL151  Engg Maths-I  (3-0-2)4 | CSL106  FOCP-I  (2-0-4)4 | CHL150  Engg Chemistry  (2-0-2)3 | CLL101  Effective  Communication-I  (2-1-0)2.5 | MEP110  Engineering Graphics &  Drawing  (1-0-4)3 | CSL110  Problem Solving  and Design  Thinking  (2-0-2)3 |  | CSR118  GP  1 Credit | CSS101  CS-I  (70 Hrs) | 12 | 1 | 14 | 19.5+1  =20.5 |
| 2 | MAL152  Engg Maths-II  (3-0-2)4 | CSL108  FOCP-II  (2-0-4)4 | PHY150  Engineering  Physics  (3-0-2)4 | CLL102  Effective  Communication-II  (2-1-0)2.5 | MEL150  Basic of Mechanical & Civil Engg.  (2-0-2) | ECL110  Basic of Electrical &  Electronics  Engineering  (2-0-2)3 |  | CSR119  GP  1 Credit | CSS102  CS-II  (70 Hrs)  2 Credits | 14 | 1 | 12 | 20.5+3  =23.5 |
| **Summer** | Community Service (Remaining Hours) | | | | | | |  |  |  | | |  |
| 3 | CSL209  Data Structures  (3-0-2)4 | ECL255  DE & CA  (3-0-2)4 | CSL240  Computer  Networks  (3-0-2)4 | CSL223  Discrete Mathematics  (3-0-0)3 | Program  Elective - I  (2-0-4)4 | CSV201  Skill  Development\*  (1-0-2)2 |  | CSR218  GP  1 Credit | CSS201  CS-III  (35 Hrs) | 15 |  | 12 | 21+1  =22 |
| 4 | CSL422  Cyber Security  (3-0-2)4 | CSL214  DBMS  (3-0-2)4 | CSL230  Analysis and  Design of  Algorithms  (3-0-2)4 | Program Elective-  2  (2-0-4)4 | SML300  Entrepreneurship  (3-0-0)3 | SML\*\*\* Liberal Arts  (3-0-0-)3 |  | CS219GP  1 Credit | CSS202  CS-IV  (35 Hrs)  1 Credit | 17 |  | 10 | 22+2  =24 |
| **Summer** | CST201 Industrial Training/internship **(including 70 hrs of community service)** | | | | | | |  |  |  | | | 2 |
| 5 | CSL236  Introduction to  AI & ML / CSL242 AI for Games (3-0-2)4 | CSL303  Operating System  (3-0-2)4 | Program Elective-3  (2-0-4)4 | Program Elective-  4  (2-0-4)4 | Open  Elective – 1\*  (MOOC)  (3-0-0)3 | CLL120 HVPE  (2-0-0-)2 |  | CSR318  GP  1 Credit | CSS301  CS-V  (35 Hrs) | 15 |  | 12 | 21+1  =22 |
| 6 | CSL229  SEPM  (3-0-2)4 | Program Elective-5  (2-0-4)4 | Program Elective-6  (2-0-4)4 | CSL318  Theory of  Computation  (3-0-2)4 | Open  Elective-2  (3-0-0)3 | CLP300  Campus to Corporate  (1-0-0)1 | CSC301  Seminar  1 Credit | CSR319  GP  1 Credit | CSS302  CS-VI  (35 Hrs)  1 Credit | 14 |  | 12 | 21+2  =23 |
| **Summer** | **CST301 Industrial Training (including 70 hrs of community service)** | | | | | | |  |  |  | | | 03 |
| 7 | Program Elective-  7  (2-0-4)4 | Program Elective-  8  (2-0-4)4 | CSD401  Project # 1  4 Credits | Open  Elective – 3\*  (MOOC)  (3-0-0)3 | CHL100  EVS  (3-0-0)3 | Foreign Language  (3-0-0)3 |  |  | CSS401  CS-VII  (70 Hrs) | 13 |  | 8 | 21 |
| 8 | Open  Elective – 4\*  (MOOC)  (3-0-0)3 | Open  Elective – 5\*  (MOOC)  (3-0-0)3 | CSD402  Project # 2 /Internship  6 Credits |  |  |  |  |  | CSS402  CS-VIII  (70 Hrs)  2 Credits | 6 |  |  | 12+2  =14 |
|  | **Total** | | | | | | |  |  | 106 | 2 | 80 | **163+12=175** |

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

**Program Electives for each track**

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| Tracks | Data Science | Cloud Computing | Full Stack | Game Tech | Cyber Security of Forensics | Blockchain | AI & ML | Other Electives |
| Program Elective-1 | CSL 225 Programming for Data Science | CSL225 Programming for Data Science | CSL273 Enterprise Web Applications | CSL243 Game Design & Asset Creation | CSL 281 Secure Communication and Cryptography | CSL239 Mathematics of Modern Cryptography | CSL 225 Programming for Data Science and AI | MAL270 Numerical Methods |
| Program Elective-2 | CSL227 Applied Computational Statistics | CSL238 Introduction to Cloud Computing | CSL274 Middleware Frameworks and ORM | CSL245 Programing for Games | CSL 283 Secure Coding and Vulnerabilities | CSL247 Intro. to blockchain technologies | CSL227 Applied Computational Statistics | CSL223 Web Development Technologies |
| Program Elective-3 | CSL234 Data Engineering | CSL337 Cloud Architecture | CSL276 No SQL Databases | CSL244 Advanced Programming for Games | CSL 284 Digital Forensics and Malware Analysis | CSL355 Bitcoin and Cryptocurrency Technologies | CSL347 Applied Artificial Intelligence and Expert Systems | MAL280 Linear Algebra and its Applications |
| Program Elective-4 | CSL232 Business Intelligence and Data Visualization | CSL338 Virtualization & Cloud Computing | CSL253 Web Frameworks | CSL343 Designing Human Computer Interfaces | CSL 383 Network security | CSL356 Smart Contracts | CSL348 Reinforcement Learning | MAL260 Probability and Statistics |
| Program Elective-5 | CSL313 Machine Learning | CSL339 Big Data on Cloud | CSL371 Mobile Application Development | CSL246 Cross Platform Game Development | CSL387 Web and Mobile Security | CSL357 Blockchain for Cyber Security | CSL349 Artificial Intelligence for Robotics |  |
| Program Elective-6 | CSL311 Big Data | CSL346 Artificial Intelligence & Machine Learning on Cloud | CSL373 Devops | CSL341 AR Development | CSL385 Risk Analysis and Assessment | CSL358 Blockchain Technology in Web Development | CSL312 Deep Learning |  |
| Program Elective-7 | CSL316 Introduction to Image Processing and Recognition | CSL445 Cloud Application Development & Deployment | CSL311 Big Data | CSL345 VR Development | CSL384 Cloud Security Essentials | CSL449 Security and Privacy for Big Data Analytics | CSL447 Computer Vision |  |
| Program Elective-8 | CSL312 Deep Learning | CSL446 Cloud Security | CSL374 Micro service Based Applications | CSL342 XR Studio | CSL382 Blockchain | CSL455 Cloud Infrastructure and Services | CSL448 Computational Linguistics and Natural Language Processing |  |