

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech. in COMPUTER SCIENCE AND ENGINEERING
COURSE STRUCTURE & SYLLABUS (R18)

Applicable From 2018-19 Admitted Batch

I YEAR I SEMESTER

| S. No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------|---|-----------|----------|-----------|-----------|
| 1 | MA101BS | Mathematics - I | 3 | 1 | 0 | 4 |
| 2 | CH102BS | Chemistry | 3 | 1 | 0 | 4 |
| 3 | EE103ES | Basic Electrical Engineering | 3 | 0 | 0 | 3 |
| 4 | ME105ES | Engineering Workshop | 1 | 0 | 3 | 2.5 |
| 5 | EN105HS | English | 2 | 0 | 0 | 2 |
| 6 | CH106BS | Engineering Chemistry Lab | 0 | 0 | 3 | 1.5 |
| 7 | EN107HS | English Language and Communication Skills Lab | 0 | 0 | 2 | 1 |
| 8 | EE108ES | Basic Electrical Engineering Lab | 0 | 0 | 2 | 1 |
| | | Induction Programme | | | | |
| | | Total Credits | 12 | 2 | 10 | 19 |

I YEAR II SEMESTER

| S. No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------|-------------------------------------|-----------|----------|-----------|-----------|
| 1 | MA201BS | Mathematics - II | 3 | 1 | 0 | 4 |
| 2 | AP202BS | Applied Physics | 3 | 1 | 0 | 4 |
| 3 | CS203ES | Programming for Problem Solving | 3 | 1 | 0 | 4 |
| 4 | ME204ES | Engineering Graphics | 1 | 0 | 4 | 3 |
| 5 | AP205BS | Applied Physics Lab | 0 | 0 | 3 | 1.5 |
| 6 | CS206ES | Programming for Problem Solving Lab | 0 | 0 | 3 | 1.5 |
| 7 | *MC209ES | Environmental Science | 3 | 0 | 0 | 0 |
| | | Total Credits | 13 | 3 | 10 | 18 |

II YEAR I SEMESTER

| S. No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------|--|-----------|----------|-----------|-----------|
| 1 | CS301ES | Analog and Digital Electronics | 3 | 0 | 0 | 3 |
| 2 | CS302PC | Data Structures | 3 | 1 | 0 | 4 |
| 3 | MA303BS | Computer Oriented Statistical Methods | 3 | 1 | 0 | 4 |
| 4 | CS304PC | Computer Organization and Architecture | 3 | 0 | 0 | 3 |
| 5 | CS305PC | Object Oriented Programming using C++ | 2 | 0 | 0 | 2 |
| 6 | CS306ES | Analog and Digital Electronics Lab | 0 | 0 | 2 | 1 |
| 7 | CS307PC | Data Structures Lab | 0 | 0 | 3 | 1.5 |
| 8 | CS308PC | IT Workshop Lab | 0 | 0 | 3 | 1.5 |
| 9 | CS309PC | C++ Programming Lab | 0 | 0 | 2 | 1 |
| 10 | *MC309 | Gender Sensitization Lab | 0 | 0 | 2 | 0 |
| | | Total Credits | 14 | 2 | 12 | 21 |



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II YEAR II SEMESTER

| S. No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------|---|-----------|----------|----------|-----------|
| 1 | CS401PC | Discrete Mathematics | 3 | 0 | 0 | 3 |
| 2 | SM402MS | Business Economics & Financial Analysis | 3 | 0 | 0 | 3 |
| 3 | CS403PC | Operating Systems | 3 | 0 | 0 | 3 |
| 4 | CS404PC | Database Management Systems | 3 | 1 | 0 | 4 |
| 5 | CS405PC | Java Programming | 3 | 1 | 0 | 4 |
| 6 | CS406PC | Operating Systems Lab | 0 | 0 | 3 | 1.5 |
| 7 | CS407PC | Database Management Systems Lab | 0 | 0 | 3 | 1.5 |
| 8 | CS408PC | Java Programming Lab | 0 | 0 | 2 | 1 |
| 9 | *MC409 | Constitution of India | 3 | 0 | 0 | 0 |
| | | Total Credits | 18 | 2 | 8 | 21 |

III YEAR I SEMESTER

| S. No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------|--|-----------|----------|----------|-----------|
| 1 | CS501PC | Formal Languages & Automata Theory | 3 | 0 | 0 | 3 |
| 2 | CS502PC | Software Engineering | 3 | 0 | 0 | 3 |
| 3 | CS503PC | Computer Networks | 3 | 0 | 0 | 3 |
| 4 | CS504PC | Web Technologies | 3 | 0 | 0 | 3 |
| 5 | | Professional Elective-I | 3 | 0 | 0 | 3 |
| 6 | | Professional Elective -II | 3 | 0 | 0 | 3 |
| 7 | CS505PC | Software Engineering Lab | 0 | 0 | 3 | 1.5 |
| 8 | CS506PC | Computer Networks & Web Technologies Lab | 0 | 0 | 3 | 1.5 |
| 9 | EN508HS | Advanced Communication Skills Lab | 0 | 0 | 2 | 1 |
| 10 | *MC510 | Intellectual Property Rights | 3 | 0 | 0 | 0 |
| | | Total Credits | 21 | 0 | 8 | 22 |

III YEAR II SEMESTER

| S. No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------|-----------------------------------|-----------|----------|----------|-----------|
| 1 | CS601PC | Machine Learning | 3 | 1 | 0 | 4 |
| 2 | CS602PC | Compiler Design | 3 | 1 | 0 | 4 |
| 3 | CS603PC | Design and Analysis of Algorithms | 3 | 1 | 0 | 4 |
| 4 | | Professional Elective - III | 3 | 0 | 0 | 3 |
| 5 | | Open Elective-I | 3 | 0 | 0 | 3 |
| 6 | CS604PC | Machine Learning Lab | 0 | 0 | 3 | 1.5 |
| 7 | CS605PC | Compiler Design Lab | 0 | 0 | 3 | 1.5 |
| 8 | | Professional Elective-III Lab | 0 | 0 | 2 | 1 |
| 9 | *MC609 | Environmental Science | 3 | 0 | 0 | 0 |
| | | Total Credits | 18 | 3 | 8 | 22 |

IV YEAR I SEMESTER

| S. No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------|---------------------------------|---|---|---|---------|
| 1 | CS701PC | Cryptography & Network Security | 3 | 0 | 0 | 3 |
| 2 | CS702PC | Data Mining | 2 | 0 | 0 | 2 |



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|---|---------|---|-----------|----------|-----------|-----------|
| 3 | | Professional Elective -IV | 3 | 0 | 0 | 3 |
| 4 | | Professional Elective -V | 3 | 0 | 0 | 3 |
| 5 | | Open Elective - II | 3 | 0 | 0 | 3 |
| 6 | CS703PC | Cryptography & Network Security Lab | 0 | 0 | 2 | 1 |
| 7 | CS704PC | Industrial Oriented Mini Project/ Summer Internship | 0 | 0 | 0 | 2* |
| 8 | CS705PC | Seminar | 0 | 0 | 2 | 1 |
| 9 | CS706PC | Project Stage - I | 0 | 0 | 6 | 3 |
| | | Total Credits | 14 | 0 | 10 | 21 |

IV YEAR II SEMESTER

| S. No. | Course Code | Course Title | L | T | P | Credits |
|--------|-------------|----------------------------|----------|----------|-----------|-----------|
| 1 | SM801MS | Organizational Behaviour | 3 | 0 | 0 | 3 |
| 2 | | Professional Elective - VI | 3 | 0 | 0 | 3 |
| 3 | | Open Elective - III | 3 | 0 | 0 | 3 |
| 4 | CS802PC | Project Stage - II | 0 | 0 | 14 | 7 |
| | | Total Credits | 9 | 0 | 14 | 16 |

*MC - Environmental Science – Should be Registered by Lateral Entry Students Only.

*MC – Satisfactory/Unsatisfactory

Note: Industrial Oriented Mini Project/ Summer Internship is to be carried out during the summer vacation between 6th and 7th semesters. Students should submit report of Industrial Oriented Mini Project/ Summer Internship for evaluation.

Professional Elective - I

| | |
|---------|-------------------------------------|
| CS511PE | Information Theory & Coding |
| CS512PE | Advanced Computer Architecture |
| CS513PE | Data Analytics |
| CS514PE | Image Processing |
| CS515PE | Principles of Programming Languages |

Professional Elective - II

| | |
|---------|---------------------------------|
| CS521PE | Computer Graphics |
| CS522PE | Advanced Operating Systems |
| CS523PE | Informational Retrieval Systems |
| CS524PE | Distributed Databases |
| CS525PE | Natural Language Processing |

Professional Elective - III

| | |
|---------|--------------------------------|
| CS611PE | Concurrent Programming |
| CS612PE | Network Programming |
| CS613PE | Scripting Languages |
| CS614PE | Mobile Application Development |
| CS615PE | Software Testing Methodologies |

Courses in PE - III and PE - III Lab must be in 1-1 correspondence.

Professional Elective - IV

| | |
|---------|----------------------------------|
| CS711PE | Graph Theory |
| CS712PE | Introduction to Embedded Systems |



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|---------|--------------------------|
| CS713PE | Artificial Intelligence |
| CS714PE | Cloud Computing |
| CS715PE | Ad-hoc & Sensor Networks |

Professional Elective - V

| | |
|---------|---------------------------------------|
| CS721PE | Advanced Algorithms |
| CS722PE | Real Time Systems |
| CS723PE | Soft Computing |
| CS724PE | Internet of Things |
| CS725PE | Software Process & Project Management |

Professional Elective – VI

| | |
|---------|---------------------------------|
| CS811PE | Computational Complexity |
| CS812PE | Distributed Systems |
| CS813PE | Neural Networks & Deep Learning |
| CS814PE | Human Computer Interaction |
| CS815PE | Cyber Forensics |




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