

**UNIVERSITY SCHOOL
OF
INFORMATION AND COMMUNICATION TECHNOLOGY**

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROGRAMME STRUCTURE

**B.TECH. INFORMATION TECHNOLOGY
2019-2023**



**GAUTAM BUDDHA UNIVERSITY
GAUTAM BUDH NAGAR, GREATER NOIDA, UP, INDIA**

SEMESTER I

| S.No. | Course Code | Course Name | L | T | P | Credits | Types |
|--------------------------------|-------------|----------------------------------|------------|----------|----------|-----------|--------------|
| 1 | MA101 | Engineering Mathematics-I | 3 | 1 | 0 | 4 | GE1 |
| 2 | PH102 | Engineering Physics | 3 | 1 | 0 | 4 | GE2 |
| 3 | EE102 | Basic Electrical Engineering | 3 | 1 | 0 | 4 | GE3 |
| 4 | ME101 | Engineering Mechanics | 3 | 1 | 0 | 4 | GE4 |
| 5 | ES101 | Environmental Studies | 3 | 1 | 0 | 4 | OE1 / AECC |
| 6 | EN151 | Language Lab | 0 | 0 | 2 | 1 | OE-L1 / AECC |
| 7 | EE104 | Basic Electrical Engineering Lab | 0 | 0 | 2 | 1 | GE-L1 |
| 8 | PH104 | Engineering Physics Lab | 0 | 0 | 2 | 1 | GE-L2 / SEC |
| 9 | ME102 | Workshop Practice | 1 | 0 | 2 | 2 | GE-L3 / SEC |
| 10 | GP | General Proficiency | Non Credit | | | | |
| Total Hours and Credits | | | 16 | 5 | 8 | 25 | |

SEMESTER II

| S.No. | Course Code | Course Name | L | T | P | Credits | Types |
|--------------------------------|-------------|-------------------------------------|------------|----------|----------|-----------|-------------|
| 1 | MA102 | Engineering Mathematics-II | 3 | 1 | 0 | 4 | GE5 |
| 2 | CY101 | Engineering Chemistry | 3 | 1 | 0 | 4 | GE6 |
| 3 | CS101 | Fundamental of Computer Programming | 3 | 1 | 0 | 4 | CC1 / SEC |
| 4 | EC101 | Basic Electronics Engineering | 3 | 1 | 0 | 4 | GE7 |
| 5 | BS101 | Human Values & Buddhist Ethics | 2 | 0 | 0 | 2 | OE2 / AECC |
| 6 | EN101 | English Proficiency | 2 | 0 | 0 | 2 | OE3 / AECC |
| 7 | CE103 | Engineering Graphics Lab | 1 | 0 | 2 | 2 | GE-L4 |
| 8 | CY103 | Engineering Chemistry Lab | 0 | 0 | 2 | 1 | GE-L5 |
| 9 | CS181 | Computer Programming Lab | 0 | 0 | 2 | 1 | CC-L1 / SEC |
| 10 | EC181 | Basic Electronics Engineering Lab | 0 | 0 | 2 | 1 | GE-L6 |
| 11 | GP | General Proficiency | Non Credit | | | | |
| Total Hours and Credits | | | 17 | 4 | 8 | 25 | |

SEMESTER III

| S.No. | Course Code | Course Name | L | T | P | Credits | Types |
|--------------------------------|-------------|-------------------------------------|------------|----------|----------|-----------|-------------|
| 1 | IT201 | Animation and Computer Graphics | 3 | 0 | 0 | 3 | CC2 |
| 2 | IT203 | Operating System | 3 | 0 | 0 | 3 | CC3 |
| 3 | IT205 | Data Structure | 3 | 0 | 0 | 3 | CC4 / SEC |
| 4 | IT207 | System Design & Analysis Techniques | 3 | 0 | 0 | 3 | CC5 |
| 5 | IT209 | Web Technologies | 3 | 0 | 0 | 3 | CC6 |
| 6 | MA201 | Engineering Mathematics-III | 3 | 1 | 0 | 4 | GE8 |
| 7 | IT281 | Animation & Computer Graphics Lab | 0 | 0 | 3 | 2 | CC-L2 |
| 8 | IT283 | Data Structure Lab | 0 | 0 | 3 | 2 | CC-L3 / SEC |
| 9 | IT285 | Web Technologies Lab I | 0 | 0 | 3 | 2 | CC-L4 / SEC |
| 10 | GP | General Proficiency | Non Credit | | | | |
| Total Hours and Credits | | | 18 | 1 | 9 | 25 | |

SEMESTER IV

| S.No. | Course Code | Course Name | L | T | P | Credits | Types |
|--------------------------------|-------------|--|------------|----------|-----------|-----------|-------------|
| 1 | IT202 | Software Engineering | 3 | 0 | 0 | 3 | CC7 |
| 2 | IT204 | Database Management System | 3 | 0 | 0 | 3 | CC8 |
| 3 | IT206 | Web Development (PHP) | 3 | 0 | 0 | 3 | CC9 / SEC |
| 4 | IT208 | Discrete Structure | 3 | 0 | 0 | 3 | CC10 |
| 5 | EC221 | Fundamentals of Digital Electronics Circuits | 3 | 0 | 0 | 3 | GE9 |
| 6 | EC230 | Digital Communication & Coding | 2 | 0 | 0 | 2 | GE10 |
| 7 | IT282 | Software Engineering Lab | 0 | 0 | 3 | 2 | CC-L5 |
| 8 | IT284 | Database Management System Lab | 0 | 0 | 3 | 2 | CC-L6 / SEC |
| 9 | IT286 | Web Development (PHP) Lab | 0 | 0 | 3 | 2 | CC-L7 / SEC |
| 10 | IT288 | Digital Electronics Circuits Lab | 0 | 0 | 3 | 2 | CC-L8 |
| 11 | GP | General Proficiency | Non Credit | | | | |
| Total Hours and Credits | | | 17 | 0 | 12 | 25 | |

SEMESTER V

| S.No. | Course Code | Course Name | L | T | P | Credits | Types |
|--------------------------------|-------------|-------------------------------|------------|----------|----------|-----------|--------------|
| 1 | IT301 | Theory of Automata | 3 | 0 | 0 | 3 | CC11 |
| 2 | IT303 | Computer Networks | 3 | 0 | 0 | 3 | CC12 |
| 3 | IT305 | Compiler Design | 3 | 1 | 0 | 4 | CC13 |
| 4 | IT307 | Soft Computing Techniques | 3 | 0 | 0 | 3 | CC14 / SEC |
| 5 | | Elective 1 | 3 | 0 | 0 | 3 | E1 / DSE |
| 6 | | Elective 2 | 3 | 0 | 0 | 3 | E2 / DSE |
| 7 | IT381 | Computer Networks Lab | 0 | 0 | 3 | 2 | CC-L9 |
| 8 | IT383 | Compiler Design Lab | 0 | 0 | 3 | 2 | CC-L10 |
| 9 | IT385 | Soft Computing Techniques Lab | 0 | 0 | 3 | 2 | CC-L11 / SEC |
| 10 | GP | General Proficiency | Non Credit | | | | |
| Total Hours and Credits | | | 18 | 1 | 9 | 25 | |

SEMESTER VI

| S.No. | Course Code | Course Name | L | T | P | Credits | Types |
|--------------------------------|-------------|------------------------------------|------------|----------|----------|-----------|--------------|
| 1 | IT302 | Cloud Computing | 3 | 0 | 0 | 3 | CC15 |
| 2 | IT304 | Algorithm Design & Analysis | 3 | 0 | 0 | 3 | CC16 |
| 3 | IT306 | Computer Organization | 3 | 0 | 0 | 3 | CC17 |
| 4 | IT308 | Information and Network Security | 3 | 1 | 0 | 4 | CC18 |
| 5 | | Elective 3 | 3 | 0 | 0 | 3 | E3 / DSE |
| 6 | | Elective 4 | 3 | 0 | 0 | 3 | E4 / DSE |
| 7 | IT382 | Cloud Computing Lab | 0 | 0 | 3 | 2 | CC-L12 / SEC |
| 8 | IT384 | Algorithm Design & Analysis Lab | 0 | 0 | 3 | 2 | CC-L13 / SEC |
| 9 | IT386 | Information & Network Security Lab | 0 | 0 | 3 | 2 | CC-L14 |
| 10 | GP | General Proficiency | Non Credit | | | | |
| Total Hours and Credits | | | 18 | 1 | 9 | 25 | |

Industrial Training will be done by candidate after third year during the summer break and it will be of minimum 4 weeks. It will be evaluated as per University Examination in VII semester.

SEMESTER VII

| S.No. | Course Code | Course Name | L | T | P | Credits | Types |
|--------------------------------|-------------|-----------------------------|------------|----------|-----------|-----------|------------|
| 1 | MA402 | Modeling and Simulation | 3 | 1 | 0 | 4 | GE9 |
| 2 | IT401 | Sensor Networks and IoT | 3 | 0 | 0 | 3 | CC19 |
| 3 | IT403 | Machine Learning | 3 | 0 | 0 | 3 | CC20 |
| 4 | IT405 | Big Data Analytics | 2 | 0 | 0 | 2 | CC21 / SEC |
| 5 | | Elective 5 | 3 | 0 | 0 | 3 | E5 / DSE |
| 6 | IT481 | Sensor Networks and IoT Lab | 0 | 0 | 3 | 2 | CC-L15 |
| 7 | IT491 | Minor Project | 0 | 0 | 6 | 3 | MP1 / E |
| 8 | IT493 | Industrial Training | 0 | 0 | 10 | 5 | IT1 / E |
| 9 | GP | General Proficiency | Non Credit | | | | |
| Total Hours and Credits | | | 14 | 1 | 19 | 25 | |

SEMESTER VIII

| S.No. | Course Code | Course Name | L | T | P | Credits | Types |
|--------------------------------|-------------|---------------------|------------|----------|-----------|-----------|---------|
| 1 | IT490 | Seminar | 0 | 0 | 3 | 2 | S / E |
| 2 | IT492 | Major Project | 0 | 0 | 16 | 8 | MP2 / E |
| 3 | IT494 | Intenship | 0 | 0 | 30 | 15 | I / E |
| 4 | GP | General Proficiency | Non Credit | | | | |
| Total Hours and Credits | | | 0 | 0 | 49 | 25 | |

GRAND TOTAL OF CREDITS = 200

In the **Seminar**, students need to study and present in the group, any latest topic of their specialized area and It will be evaluated as per University Examination Rules.

The **Internship** in Industry will be done by candidate during the 8th semester and it will be for a minimum of 4 (-6) months. It will be evaluated as per University Examination Rules.

Minor and Major Project will be in a group and It will be evaluated as per University Examination Rules.

USICT will provide a mentor/supervisor for industrial training, seminar, internship, minor and major projects.

ELECTIVES FROM DCSE

| S.No. | Course Code | Course Name | L | T | P | Credits | Types |
|-------|-------------|---|---|---|---|---------|-------|
| 1 | IT309 | IT Forensics | 3 | 0 | 0 | 3 | E1 |
| 2 | IT311 | Advanced Communication Systems | 3 | 0 | 0 | 3 | E1 |
| 3 | IT313 | Bio-Informatics | 3 | 0 | 0 | 3 | E1 |
| 4 | IT315 | Computer Based Numerical & Statistical Techniques | 3 | 0 | 0 | 3 | E1 |
| 5 | IT317 | Data Compression | 3 | 0 | 0 | 3 | E2 |
| 6 | IT319 | Software Project Management | 3 | 0 | 0 | 3 | E2 |
| 7 | IT321 | Information Retrieval System | 3 | 0 | 0 | 3 | E2 |
| 8 | IT323 | Andriod | 3 | 0 | 0 | 3 | E2 |
| 9 | IT310 | Digital Image Processing | 3 | 0 | 0 | 3 | E3 |
| 10 | IT312 | Distributed Data Bases | 3 | 0 | 0 | 3 | E3 |
| 11 | IT314 | Expert Systems | 3 | 0 | 0 | 3 | E3 |
| 12 | IT316 | High Speed Networks | 3 | 0 | 0 | 3 | E3 |
| 13 | IT318 | Robotics | 3 | 0 | 0 | 3 | E4 |
| 14 | IT320 | Management Information System | 3 | 0 | 0 | 3 | E4 |
| 15 | IT322 | Evolutionary Computation | 3 | 0 | 0 | 3 | E4 |
| 16 | IT324 | Information Retrieval and Management | 3 | 0 | 0 | 3 | E4 |
| 17 | IT407 | Graph Theory and Algorithms | 3 | 0 | 0 | 3 | E5 |
| 18 | IT409 | Mobile Computing | 3 | 0 | 0 | 3 | E5 |
| 19 | IT411 | Data Warehousing and Data Mining | 3 | 0 | 0 | 3 | E5 |
| 20 | IT413 | Optimization Techniques | 3 | 0 | 0 | 3 | E5 |

IT Information Technology

CC Core Course from USICT

GE General Elective from related discipline of other Deptt./School

GE L General Elective Lab from related discipline of other Deptt./School

OE Open Elective from other discipline of other Deptt./School

AECC Ability Enhancement Compulsary Course

DSE Discipline Specific Course

SEC Skill Enhancement Course

E Elective from USICT

CC-L Core Course Lab from USICT

IT1 Industrial Training

MP Minor / Major Project

S Seminar

I Internship