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**CENTRAL INSTITUTE OF TECHNOLOGY**

**(Centrally Funded Institute Under the Ministry of HRD, Govt. of India)**

Bodoland Territorial Areas Districts :: Kokrajhar :: Assam :: 783370

**Website:** [**www.cit.ac.in**](http://www.cit.ac.in)

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**Syllabus**

**of**

**Information Technology (IT)**

**B.Tech Programme**

**STUDY PLAN**

**Total Credit Requirements : 232**

 **Total Number of Semesters: 8**

**1st YEAR: 1st SEMESTER (JULY-DEC)**

|  |
| --- |
| 1. **Theory**
 |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **MA101** | **Engineering Mathematics -I** | **3** | **1** | **0** | **4** | **4** |
| **2.** | **PH101** | **Engineering Physics** | **3** | **1** | **0** | **4** | **4** |
| **3.** | **CS101** | **Introduction to Computer Programming** | **3** | **1** | **0** | **4** | **4** |
| **4.** | **HU101** | **Communication Skills**  | **3** | **0** | **0** | **3** | **3** |
| **5.** | **ES101** | **Environmental Engineering** | **3** | **1** | **0** | **4** | **4** |
| **Total of theory** |  |  |  |  | **19** |

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| **B. Practicals** |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **PH171** | **Physics Lab** | **0** | **0** | **3** | **3** | **2** |
| **2.** | **CE101** | **Engineering Graphics** | **0** | **1** | **0** | **1** | **1** |
| **3.** | **CE171** | **Engineering Graphics Lab** | **0** | **0** | **3** | **2** | **2** |
| **4.** | **WS171** | **Workshop Practice -I** | **0** | **1** | **3** | **4** | **3** |
| **5.** | **CS171** | **Computing Lab** | **0** | **0** | **3** | **3** | **2** |
| **Total of practicals** |  |  |  |  | **10** |

**Total of 1st Semester: 29**

**1st YEAR: 2nd SEMESTER (JAN-JUNE)**

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| --- |
| **A. Theory** |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **MA201** | **Engineering Mathematics -II** | **3** | **1** | **0** | **4** | **4** |
| **2.** | **CY201** | **Engineering Chemistry** | **3** | **1** | **0** | **4** | **4** |
| **3.** | **ES201** | **Basic Electrical Engineering** | **3** | **1** | **0** | **4** | **4** |
| **4.** | **ME201** | **Engineering Mechanics** | **3** | **1** | **0** | **4** | **4** |
| **5.** | **EC201** | **Basic Electronics** | **3** | **1** | **0** | **4** | **4** |
| **6.** | **HU201** | **Professional Ethics and Human value** | **2** | **0** | **0** | **2** | **2** |
| **Total of Theory** |  |  |  |  | **22** |

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| --- |
| **B. Practicals** |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **CY271** | **Engineering Chemistry Lab** | **0** | **0** | **3** | **3** | **2** |
| **2.** | **WS271** | **Workshop Practice -II** | **0** | **1** | **3** | **4** | **3** |
| **3.** | **EE271** | **Basic Electrical and Electronics Lab** | **0** | **0** | **3** | **3** | **2** |
| **Total of Practicals** |  |  |  |  | **7** |

**Total of 2nd Semester: 29**

**2nd YEAR: 3rd SEMESTER (JULY-DEC)**

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| --- |
| 1. **Theory**
 |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **MA301** | **Engineering Mathematics-III** | **3** | **1** | **0** | **4** | **4** |
| **2.** | **MA302** | **Discrete Mathematics** | **3** | **1** | **0** | **4** | **4** |
| **3.** | **IT301** | **Computer Organization and Architecture** | **3** | **0** | **0** | **3** | **3** |
| **4.** | **IT302** | **Data Communication** | **3** | **0** | **0** | **3** | **3** |
| **5.** | **IT303** | **Digital Logic Design**  | **3** | **0** | **0** | **3** | **3** |
| **6.** | **IT304** | **Data structure**  | **3** | **0** | **0** | **3** | **3** |
| **Total of Theory** |  |  |  |  | **20** |

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| --- |
| **B. Practicals** |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **IT371** | **Computer Organization and Architecture Lab** | **0** | **0** | **2** | **2** | **2** |
| **2.** | **IT373** | **Logic Design Lab** | **0** | **0** | **2** | **2** | **2** |
| **3.** | **IT374** | **Data structure Lab** | **0** | **0** | **2** | **2** | **2** |
| **4.** | **HU370** | **Language Lab** | **0** | **0** | **2** | **2** | **2** |
| **Total of Practical** |  |  |  |  | **8** |

**Total of 3rd Semester: 28**

**2nd YEAR: 4th SEMESTER (JAN-JUNE)**

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| **A. Theory** |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **HU401** | **Engineering Economics** | **3** | **0** | **0** | **3** | **3** |
| **2.** | **IT401** | **Object Oriented Programming & Design**  | **3** | **1** | **0** | **4** | **4** |
| **3.** | **IT402** | **Database Management systems** | **3** | **1** | **0** | **4** | **4** |
| **4.** | **IT403** | **Computer Networks** | **3** | **1** | **0** | **4** | **4** |
| **5.** | **IT404** | **System programming**  | **3** | **0** | **0** | **3** | **3** |
| **6.**  | **MA401** | **Numerical Methods & Computer Programming** | **3** | **1** | **0** | **4** | **4** |
| **Total of Theory** |  |  |  |  | **22** |

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| --- |
| **B. Practicals** |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **MA471** | **NMCP Lab** | **0** | **0** | **2** | **2** | **2** |
| **2.** | **IT471** | **OOP Lab** | **0** | **0** | **2** | **2** | **2** |
| **3.** | **IT472** | **Database Management systems Lab** | **0** | **0** | **2** | **2** | **2** |
| **4.** | **IT473** | **Network Lab** | **0** | **0** | **2** | **2** | **2** |
| **Total of Practicals** |  |  |  |  | **8** |

**Total of 4th Semester: 30**

**3rd YEAR: 5th SEMESTER (JULY-DEC)**

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| **A. Theory** |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **HU501** | **Industrial Management and Entrepreneurship** | **3** | **0** | **0** | **3** | **3** |
| **2.** | **IE501** | **Microprocessor and Microcontrollers** | **3** | **1** | **0** | **4** | **4** |
| **3.** | **IT501** | **Java Programming** | **3** | **1** | **0** | **4** | **4** |
| **4.** | **IT502** | **Operating System**  | **3** | **1** | **0** | **4** | **4** |
| **5.** | **IT503** | **Theory of Computation** | **3** | **1** | **0** | **4** | **4** |
| **6.** | **IT504** | **Design and analysis algorithm** | **3** | **0** | **0** | **3** | **3** |
| **Total of Theory** |  |  |  |  | **22** |

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| --- |
| **B. Practicals** |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **IE571** | **Microprocessor Lab** | **0** | **0** | **2** | **2** | **2** |
| **2.** | **IT571** | **Java Programming Lab**  | **0** | **0** | **2** | **2** | **2** |
| **3.** | **IT572** | **Operating System Lab** | **0** | **0** | **2** | **2** | **2** |
| **Total of Practicals** |  |  |  |  | **6** |

**Total of 5th Semester: 28**

**3rd YEAR: 6th SEMESTER (JAN-JUNE)**

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| --- |
| **A. Theory** |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **HU601** | **Professional Communication** | **2** | **0** | **0** | **2** | **2** |
| **2.** | **IT601** | **E-commerce & ERP** | **3** | **0** | **0** | **3** | **3** |
| **3** | **IT602** | **Computer Graphics & Multimedia** | **3** | **1** | **0** | **4** | **4** |
| **4.** | **IT603** | **Compiler Design** | **3** | **1** | **0** | **4** | **4** |
| **5.** | **IT604** | **Web Technology** | **3** | **1** | **0** | **4** | **4** |
| **6** | **IT605** | **Software Engineering** | **3** | **0** | **0** | **3** | **3** |
| **Total of Theory** |  |  |  |  | **20** |

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| --- |
| **B. Practical** |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **IT672** | **Computer Graphics Lab** | **0** | **0** | **2** | **2** | **2** |
| **2.** | **IT673** | **Compiler Design Lab** | **0** | **0** | **2** | **2** | **2** |
| **3** | **IT674** | **Web Technology Lab** | **0** | **0** | **2** | **2** | **2** |
| **4** | **IT670** | **Mini Project** | **0** | **0** | **2** | **2** | **2** |
| **Total of Practical** |  |  |  |  | **8** |

**Total of 6th Semester: 28**

**4th YEAR: 7th SEMESTER (JULY-DEC)**

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| --- |
| **A. Theory** |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **IT701** | **Data Mining & Data Warehousing** | **3** | **0** | **0** | **3** | **3** |
| **2.** | **IT702** | **Information Security and Cyber Laws** | **3** | **1** | **0** | **4** | **4** |
| **3.** | **IT71\*** | **Elective-I** | **3** | **0** | **0** | **3** | **3** |
| **4.** | **IT71\*** | **Elective-II** | **3** | **0** | **0** | **3** | **3** |
|  |  |  |  |  |  |  |  |
| **Total of Theory** |  |  |  |  | **13** |

|  |
| --- |
| 1. **Sessionals**
 |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **IT791** | **Major Project –I** | **0** | **0** | **12** | **12** | **8** |
| **2.** | **IT792** | **Report and Presentation on Practical Training – II** | **-** | **-** | **-** | **-** | **2** |
| **3.** | **IT770** | **Seminar** | **0** | **0** | **2** | **2** | **2** |
| **4** | **IT772** | **Information Security Lab** | **0** | **0** | **2** | **2** | **2** |
| **Total of Practicals** |  |  |  |  | **14** |

**Total of 7th Semester: 27**

**4th YEAR: 8th SEMESTER (JAN-JUNE)**

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| --- |
| **A. Theory** |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **IT81\*** | **Elective-III** | **3** | **0** | **0** | **3** | **3** |
| **2.** | **IT81\*** | **Elective-IV** | **3** | **0** | **0** | **3** | **3** |
| **3** | **IT81\*** | **Elective-V** | **3** | **0** | **0** | **3** | **3** |
| **Total of Theory** |  |  |  |  | **9** |

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| --- |
| 1. **Sessionals**
 |
|  | **Code** | **Subjects** | **Contacts****(periods per week)** | **Credit points** |
|  |  |  | **L** | **T** | **P** | **Total** |  |
| **1.** | **IT891** | **Major project -II** | **0** | **0** | **18** | **18** | **12** |
| **2.** | **IT892** | **Project Defense** | **-** | **-** | **-** | **-** | **4** |
| **3.** | **IT893** | **Comprehensive Viva Voce** | **-** | **-** | **-** | **-** | **8** |
| **Total of Practicals** |  |  |  |  | **24** |

**Total of 8th Semester: 33**

**List of Elective Courses in Information Technology**

**IT-Elective-I**

IT711: Software Quality Engineering

IT712: Distributed System

IT713: Image Processing and Pattern Recognition

IT 714: Advanced Computer Architecture

**IT-Elective-II**

IT715: Artificial Intelligence

IT716: Parallel Computing

IT717: Graph Theory

IT718: Bioinformatics

**IT-Elective-III**

IT811: Cryptography and Network Security

IT812: Software Testing

IT813: Robotics and Computer Vision

IT814: Natural Language Processing

**IT-Elective-IV**

IT815: Mobile Computing

IT816: Real Time and Embedded Systems

IT817: IT in Forensic Science

IT818: GIS and Remote sensing

**IT-Elective-V**

IT 819: Fuzzy logic and neural networks

IT 820: Intrusion Detection System

IT 821: Internet Protocol

IT 822: Cloud Computing

**Detailed Syllabus**

**of**

**Information Technology**

**B.Tech Programme**