



BTECH CYBER SECURITY & CYBER DEFENSE

Semester wise Courses

| SEMESTER 1 | SEMESTER 2 |
|---|---|
| Mathematics | Discrete Mathematics |
| Applied Physics | Computer System & Organization Architecture |
| Programming and Data structures. | Database Management Systems |
| IT Landscape and Cyber Security Fundamentals | Computer Networking Basics and Systems Security |
| Cyber Laws Basics & Cyber Hygiene | Introduction to Cloud Computing and Virtualization |
| Web Technologies | Course Elective - 1 |
| Human wellbeing Personality Development Program - OE | <ul style="list-style-type: none"> • CISCO |
| Business Communication | <ul style="list-style-type: none"> • Cyber Defense |
| Open Elective - 1 | <ul style="list-style-type: none"> • Emerging Technologies in Cyber Space - Online (JIT) |
| <ul style="list-style-type: none"> • Yoga and Meditation | <ul style="list-style-type: none"> • Colloquium |
| <ul style="list-style-type: none"> • Blog Writing | <ul style="list-style-type: none"> • Cyber Volunteering (Social Internship) |
| <ul style="list-style-type: none"> • Agriculture Organic Farming | Practical |
| <ul style="list-style-type: none"> • Design Thinking - PE | Computer System Organization & Architecture - Lab |
| Practical | Computer Networking Basics and Systems Security - Lab |
| Applied Physics | Database Management Systems - Lab |
| Programming and Data Structures - Lab | Introduction to Cloud Computing and Virtualization - Lab |
| Web Technologies - Lab | Course Elective Lab |

| SEMESTER 3 | SEMESTER 4 |
|--|--|
| Advanced Data Structures using Object Oriented Programming | Design and Analysis of Algorithms |
| Security Attack Modeling using Formal Languages and Automata | Scripting Languages |
| Critical Information Infrastructure | Threat Intelligence Sensors |
| Open Source Intelligence | Specialization Elective - 1 |
| Basic Electronics Engineering with Microprocessors and Embedded Systems | <ul style="list-style-type: none"> • IT Application & Data Security • Data Communication & Networks Security • Electronic Data Privacy and Security Standards • CyberSecurity Strategy, Policy and Diplomacy/Security Management |
| Operating Systems | Open Elective - 3 |
| Cryptography | <ul style="list-style-type: none"> • Advance Yoga and Meditation • Dance and Music • Digital Journalism • CyberPeace Corps Social Internship |
| Open Elective - 2 | |
| <ul style="list-style-type: none"> • Digital Detox • Environmental Science • Professional Report Writing Mix Mode | |
| Practical | Practical |
| Advanced Data Structures using Object Oriented Programming - Lab | Threat Intelligence Sensors - Lab |
| Basic Electronics Engineering with Microprocessors and Embedded Systems - Lab | Design and Analysis of Algorithms - Lab |
| Operating Systems Lab | Scripting Languages |
| Security Attack Modeling using Formal Languages and Automata - Lab | Specialization Elective 1 - Lab |
| Cryptography - Lab | Electronic Data Privacy and Security Standards - Lab |
| Open Source Intelligence - Lab | Project 1 |
| Advance Technologies in CyberSpace | |

| SEMESTER 5 | SEMESTER 6 |
|---|---|
| Introduction to SOC and SIEM | Artificial Intelligence and Machine Learning |
| Elementary Assembly Language and Malware Analysis | Parallel and High Performance Computing |
| Cloud Computing Architecture and Deployment | Real Time Operating System and Security |
| Distributed Database System | Course Elective - 3 |
| Course Elective - 2 | <ul style="list-style-type: none"> • Multimedia and Image Processing • Computer Graphics • Software Project Management Using Agile Methods • Dataware Warehousing and Data Mining • Java Programming and Android Application Development |
| <ul style="list-style-type: none"> • Blockchain Technologies • IOT & Automation • Computational Logics • Business Process Reengineering | |
| Specialization Elective 2 | Specialization Elective - 2 |
| <ul style="list-style-type: none"> • NOC • Return Oriented Programming • Attack Analysis and Reverse Engineering • Digital Forensic | <ul style="list-style-type: none"> • Privacy and Security and Online Social Media • IT Risk Analysis, Mitigation and Compliances • DNS Architecture and Security • Digital Image Forensic |
| Open Elective - 4 | Open Elective - 5 |
| <ul style="list-style-type: none"> • Internet Governance • Indian Constitution • IPR • Cyber Insurance • Recent Trends in CyberSpace 3 • Project 2 Ideation and Synopsis Submission | <ul style="list-style-type: none"> • Disaster Management • Business Accounting • Business Ideation and Entrepreneurship Practices • Sensatization for Gender and Physical Ability • Cyber Terrorism and Digital Warfare • Project 2 Implementation and Presentation |
| Practical | Practical |
| Assembly Language fundamental and Malware Analysis - Lab | Artificial Intelligence and Machine Learning - Lab |
| Cloud Computing Architecture and Deployment - Lab | Parallel and High Performance Computing - Lab |
| Distributed Database System - Lab | Real Time Operating System and Security - Lab |
| Specialization Elective 2 Lab | Java Programming and Android Application Development - Lab |
| Cyber Marshal - Social Internship | |

| SEMESTER 7 | SEMESTER 8 |
|---|--|
| E-Waste and Data Security Practices | Professional Ethics |
| Course Elective - 4 | Course Elective 7 |
| <ul style="list-style-type: none"> • Computational Intelligence | <ul style="list-style-type: none"> • Search Engine Logic and Information Retrieval Techniques |
| <ul style="list-style-type: none"> • System Software / Compiler Design | |
| <ul style="list-style-type: none"> • Web Services and Service Oriented Architecture | <ul style="list-style-type: none"> • Information Life Cycle management |
| <ul style="list-style-type: none"> • Enterprise Resource Planning and Customer Relation Management | <ul style="list-style-type: none"> • IT Business Continuity & Disaster Recovery planning |
| Course Elective - 5 | Course Elective 8 |
| <ul style="list-style-type: none"> • Big Data Analytics | <ul style="list-style-type: none"> • Predictive Analysis |
| <ul style="list-style-type: none"> • Business Analytics | <ul style="list-style-type: none"> • Business Simulation Modelling |
| <ul style="list-style-type: none"> • Digital Business Management | <ul style="list-style-type: none"> • Optimization Techniques |
| <ul style="list-style-type: none"> • E-Commerce | Major Project Dissertation |
| Course Elective - 6 | |
| <ul style="list-style-type: none"> • Data Encoding and Compression Techniques | |
| <ul style="list-style-type: none"> • Security Metrics and Key Performance Indicators | |
| Specialization Elective - 4 | |
| <ul style="list-style-type: none"> • Mobile Application Security | |
| <ul style="list-style-type: none"> • Steganography | |
| <ul style="list-style-type: none"> • Information Security Management Certification | |
| Open Elective - 6 | |
| <ul style="list-style-type: none"> • CSR | |
| <ul style="list-style-type: none"> • Digital Media Marketing | |
| <ul style="list-style-type: none"> • Cyber Law Basics | |
| <ul style="list-style-type: none"> • Mental Conditioning and Stress Management | |
| <ul style="list-style-type: none"> • Employability Planning and Preparation | |
| <ul style="list-style-type: none"> • Summer Internship Report and Presentation | |
| Major Project | |