Yashoda Prasarsk Mandal's

# Yashoda Technical Campus,Satara

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Faculty of Engineering
Department of Computer Science and Engineering

# COURSE OUTCOMES

## SECOND YEAR B.TECH

| Course Outcomes (CO's): Engineering Mathematics-III |  |
| --- | --- |
| Upon successful completion of this course, the students will be able to | |
| BTBS301_1 | Apply the various techniques of Laplace transform to find the solutions of special, periodic & Heaviside's functions. |
| BTBS301_2 | Apply the Inverse Laplace transform to applications of higher order linear differential equation using appropriate techniques. |
| BTBS301_3 | Compute the Fourier transform of various functions and their applications to engineering problems. |
| BTBS301_4 | Obtain Interpolating polynomials, numerically differentiate and integrate functions, numerical solutions of differential equations using single step and  multi-step iterative methods used in modern scientific computing. |
| BTBS301_5 | Analyze conformal mappings, transformations and perform contour integration of complex functions in the study of signal processing. |

| Course Outcomes (CO's): Discrete Mathematics |  |
| --- | --- |
| Upon successful completion of this course, the students will be able to | |
| BTCOC302_1 | To understand propositional logic and operations on set, functions, relation,graph tree,algrbraic systems |
| BTCOC302_2 | To solve problems using  operations on sets,fuctions,relations,counting techniques and generating function. |
| BTCOC302_3 | Apply various algorithms and use of graphs, trees as tools to visualize and solve problems.. |
| BTCOC302_4 | Summarize various properties of algebraic systems using one or two operations,boolean algebra. |

| Course Outcomes (CO's): Data Structure |  |
| --- | --- |
| Upon successful completion of this course, the students will be able to | |
| BTCOC303_1 | Define data structures like array, stack, queues and linked list. |

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| BTCOC303_2 | Explain insertion, deletion and traversing operations on data structures and identify the asymptotic notations to find the complexity of an algorithm. |
|---|---|
| BTCOC303_3 | Analyze various searching and sorting techniques |
| BTCOC303_4 | Choose appropriate data structure while designing the algorithms and Design advance data structures |

| **Course Outcomes (CO's): Computer Architecture & Organization** **Upon successful completion of this course, the students will be able to** | |
|---|---|
| **BTCOC304 _1** | Discuss the basic concepts and structure of computers. |
| **BTCOC 304_2** | Understand concepts of register transfer logic and Instruction set |
| **BTCOC 304_3** | Discuss Computer Arithmetic and understand arithmetic coprocessor |
| **BTCOC 304_4** | Explain different types of addressing modes and memory organization. |
| **BTCOC 304_5** | Discuss the Control Unit and Input / Output Organization |

| **Course Outcomes (CO's): Object Oriented Programming in Java** **Upon successful completion of this course, the students will be able to** | |
|---|---|
| BTCOC305_1 | Understand use the syntax and semantics of java programming language and basic concept of OOP |
| BTCOC305_2 | Develop reusable programs using the concept of inheritance, polymorphism interfaces and Packages. |
| BTCOC305_3 | Apply the concepts of exception handling to develop efficient and error free code. |
| BTCOC305_4 | Design web related applications using JAVA scripts and JAVA |

| **Course Outcomes (CO's): Data Structure & Object Oriented Programming in Java Lab** **Upon successful completion of this course, the students will be able to** | |
|---|---|
| BTCOL306_1 | implement various data structures like stack, queue, tree and Linked List |
| BTCOL306_2 | Implement different graph traversal, searching and sorting techniques. |

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| BTCOL306_3 | Learn To implement Object Oriented Programs with JAVA and to extend JAVA classes with OOP principles |
| BTCOL306_4 | Learn to use exception handling, creation of user interface and packages in JAVA applications and to Implement Java scripts programs |

| **Course Outcomes (CO's): Seminar-I** <br> **Upon successful completion of this course, the students will be able to** | |
|---|---|
| BTCOS307_1 | Identify and Analyze recent topics of any domain |
| BTCOS307_2 | Enhance technical writing skills |
| BTCOS307_3 | Identify an engineering problem, analyze it and propose a work plan to solve it. |
| BTCOS307_4 | Communicate with professional technical presentation skills and Apply modern documentation tools to write the report |

| **Course Outcomes (CO's): Field Training/Industrial Training** <br> **Upon successful completion of this course, the students will be able to** | |
|---|---|
| BTES211P_1 | Demonstrate competency in relevant field of engineering. |
| BTES211P_2 | Demonstrate knowledge with ethical and professional responsibilities. |
| BTES211P_3 | Apply appropriate techniques, resources and modern tools. |
| BTES211P_4 | Communicate effectively and represent the processes in the industry. |

| **Course Outcomes (CO's): Design & Analysis of Algorithms** <br> **Upon successful completion of this course, the students will be able to** | |
|---|---|
| BTCOC401_1 | Understand the basic terminologies of algorithms & flowchart, Analyze the time complexity of a given algorithm |
| BTCOC401_2 | Identify appropriate data structure as applied to specific problem domain and examine computational complexities |

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| BTCOC401_3 | Decide the appropriate design methodology for a given problem from among the paradigms of Divide & Conquer, Dynamic Programming, Greedy and Backtracking. |
|---|---|
| BTCOC401_4 | Distinguish between P and NP classes of problems |

| **Course Outcomes (CO's): Operating Systems** | |
|---|---|
| **Upon successful completion of this course, the students will be able to** | |
| BTCOC402_1 | Demonstrate various basic concepts related to OS |
| BTCOC402_2 | Implement various CPU scheduling algorithm |
| BTCOC402_3 | Describe the concepts of process synchronisation and deadlock |
| BTCOC402_4 | Distinguish between various memory management schemes, implement various page replacement algorithm |
| BTCOC402_5 | Demonstrate I/O management and file system and implement disk scheduling algorithms. |

| **Course Outcomes (CO's): Basic Human Rights** | |
|---|---|
| **Upon successful completion of this course, the students will be able to** | |
| BTHM403.1 | Identify and evaluate the historical,philosophical,political and cultural developments establishing human rights as a set of global norms, agreements and procedures. |
| BTHM403.2 | Explore global human right institutions,law,and processes and assess the impact of their interaction with national and local cultural practices and norms |
| BTHM403.3 | Critically examine the impact of diverse geographic cultural and theoretical contexts on the social acceptance and practical application of human rights norms |

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| | |
|---|---|
| BTHM403.4 | Synthesize interdisciplinary approaches and contributions to topics such as gender,race,poverty,violence and post colonialism within a human rights |

| **Course Outcomes (CO's): Probability Theory & Random Process** |
|---|
| **Upon successful completion of this course, the students will be able to** |

| BTBSC404.1 | Understand the fundamental knowledge of the concepts of the probability |
|---|---|
| BTBSC404.2 | Understand the basic concepts of one and two dimensional random variables. |
| BTBSC404.3 | Apply the concept of random process in engineering decision |
| BTBSC404.4 | Apply the concept of correlation and spectral densities |

| **Course Outcomes (CO's): Digital Logic Design & Microprocessor** |
|---|
| **Upon successful completion of this course, the students will be able to** |

| BTES405_1 | Contribute combinational logic circuits, Simplification of algebraic equations using Karnaugh maps. |
|---|---|
| BTES405_2 | Illustrate Synchronous and Asynchronous Sequential Equation. |
| BTES405_3 | Acquire the knowledge of fundamentals of microprocessor and microcontrollers architecture. |
| BTES405_4 | Apply Knowledge and demonstrate programming proficiency using the various addressing modes of data transfer instructions. |

| **Course Outcomes (CO's): Operating System & Python Lab** |
|---|
| **Upon successful completion of this course, the students will be able to** |

| BTCOL406_1 | Demonstrate UNIX command and implement shell scripts |
|---|---|
| BTCOL406_2 | Implementation: on CPU scheduling algorithms, page replacement algorithms, Disk Scheduling algorithms and concepts based on threads and process. |
| BTCOL406_3 | To develop the programming skills in core Python. |

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| BTCOL406_4 | To Implement Object Oriented Skills in Python |
|---|---|

| **Course Outcomes (CO's): Seminar-II** |
|---|
| **Upon successful completion of this course, the students will be able to** |

| BTCOS407_1 | Identify and Analyze recent topics of any domain |
|---|---|
| BTCOS407_2 | Enhance technical writing skills |
| BTCOS407_3 | Identify an engineering problem, analyze it and propose a work plan to solve it. |
| BTCOS407_4 | Communicate with professional technical presentation skills and Apply modern documentation tools to write the report |

## THIRD YEAR B.TECH

| **Course Outcomes (CO's): Database Systems** |
|---|
| **Upon successful completion of this course, the students will be able to** |

| BTCOC501_1 | Illustrate the concept of Database Management System. |
|---|---|
| BTCOC501_2 | Explain Entity Relationship Diagrams apply the SQL, Relational Algebra and Relational Calculus queries. |
| BTCOC501_3 | Illustrate concept of functional dependencies and determine normalization. |
| BTCOC501_4 | Explain and Elaborate the concept of Transaction Processing, Concurrency control and Failure Recovery. |

| **Course Outcomes (CO's): Theory of Computation** |
|---|
| **Upon successful completion of this course, the students will be able to** |

| BTCOC502_1 | Outline the fundamental concepts in automata theory and formal languages |
|---|---|
| BTCOC502_2 | Explain context-free grammars, properties of languages, grammars and automata with rigorously formal mathematical method. |
| BTCOC502_3 | Differentiate and manipulate formal descriptions of push down automata, its applications and transducer machines |

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| BTCOC502_4 | Illustrate the basic properties of Turing machines and computing the tractability and decidability with Turing machine. |
|---|---|

| **Course Outcomes (CO's): Software Engineering** <br> **Upon successful completion of this course, the students will be able to** | |
|---|---|
| BTCOC503_1 | Able to define software engineering process and practices, and demonstrate various process models |
| BTCOC503_2 | Able to identify different types of risks in software development |
| BTCOC503_3 | Able to distinguish different testing strategies and it's working |
| BTCOC503_4 | Able to Estimate the quality of software process & develop SRS document for project. |

| **Course Outcomes (CO's): Human Computer Interaction** <br> **Upon successful completion of this course, the students will be able to** | |
|---|---|
| BTCOE504A_1 | Acquire fundamental concepts of computer components functions regarding interaction with human and vice versa. |
| BTCOE504A_2 | Analyze interface problems to recognize what design approach and interaction styles is required in the light of usability standards and guidelines. |

| BTCOE504A_3 | Apply basic concepts to construct a user-interaction strategy for a given problem its usability evaluation functional deploying, effectual technologies in a range of circumstance and to meet desired needs within realistic world. |
|---|---|
| BTCOE504A_4 | Ability to design and develop an interface by using appropriate HCI techniques that are preferred by the user |

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Faculty of Engineering

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| Course Outcomes (CO's): Business Communication | |
|---|---|
| **Upon successful completion of this course, the students will be able to** | |
| BTCOE505B_1 | Develop concept of communication and speaking skills. |
| BTCOE505B_2 | Develop the ways to improve personality, soft skills and organizational skills. |
| BTCOE505B_3 | Develop the thinking ability and expression improvement in group discussion. |
| BTCOE505B_4 | Design the effective resume as per industry requirement and be ready for personal interview through mock interviews and has knowledge of various interviews. |

| Course Outcomes (CO's): Database System & Software Engg. Lab | |
|---|---|
| **Upon successful completion of this course, the students will be able to** | |
| BTCOL506_1 | Identify appropriate database schema for a given problem and design an E-R model for real world problem |
| BTCOL506_2 | Implement a database, formulate quires using DDL, DML commands and various integrity constraints using SQL |
| BTCOL506_3 | Discuss and Analyses how to develop software requirements specifications for a given problem. |

| | |
|---|---|
| BTCOL506_4 | Understand and Describe basic concept of UML, design, implementation of test cases, DFD models, structure and behaviour UML diagrams. |

| Course Outcomes (CO's): Mini Project-I | |
|---|---|
| **Upon successful completion of this course, the students will be able to** | |
| BTCOM507_1 | Reorganize the procedures of design, development with a concern for society, environment and ethics |

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| BTCOM507_2 | Apply modern software tools to implement the software solution of the problem |
|---|---|
| BTCOM507_3 | Apply modern software tools to design test cases and perform testing of the implemented software solution and deploy the software solution after successful testing |
| BTCOM507_4 | Communicate effectively by participating in various competitions, publishing and presenting project work through conference / journal paper |

| **Course Outcomes (CO's): Field Training/Industrial Training** <br> **Upon successful completion of this course, the students will be able to** | |
|---|---|
| BTCOF408_1 | Demonstrate competency in relevant field of engineering. |
| BTCOF408_2 | Demonstrate knowledge with ethical and professional responsibilities. |
| BTCOF408_3 | Apply appropriate techniques, resources and modern tools. |
| BTCOF408_4 | Communicate effectively and represent the processes in the industry. |

| **Course Outcomes (CO's): Compiler Design** <br> **Upon successful completion of this course, the students will be able to** | |
|---|---|
| BTCOC601_1 | Describe phases of a compiler and role for generation of the Lexical analyser |
| BTCOC601_2 | Understand algorithm for parser and parsing technique |
| BTCOC601_3 | Construction of Syntax Trees Explain the concept of intermediate code generation technique |
| BTCOC601_4 | Demonstrate code optimization technique and fundamental of runtime environment. |

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| Course Outcomes (CO's): Computer Networks | |
|---|---|
| Upon successful completion of this course, the students will be able to | |
| BTCOC602_1 | To develop an understanding of modern network architectures from a design and performance perspective. |
| BTCOC602_2 | Apply the most appropriate networking architecture and technologies for a given organizational structure |
| BTCOC602_3 | To study protocols, network standards, the OSI model, IP addressing, cabling, networking components, and basic LAN design. |
| BTCOC602_4 | Ability to write program using socket programming. |

| Course Outcomes (CO's): Machine Learning | |
|---|---|
| Upon successful completion of this course, the students will be able to | |
| BTCOC603_1 | Identify the characteristics of machine learning, binary classification |
| BTCOC603_2 | Solve classification problems using concept learning and multiclass classification |
| BTCOC603_3 | Apply tree based and linear learning models to real world problems. |
| BTCOC603_4 | Analyse Bayesian classifier, distance base classification and clustering algorithms. |

| Course Outcomes (CO's): Internet of Things | |
|---|---|
| Upon successful completion of this course, the students will be able to | |
| BTCOE604B_1 | Understand the concepts of Internet of things and its architectures |
| BTCOE604B_2 | Implement interfacing of various sensors, Actuators and smart objects with Arduino/Raspberry Pi. |
| BTCOE604B_3 | Describe the role of Internet protocol and application level protocols in IOT |
| BTCOE604B_4 | Identify the common challenges in IOT security |

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| BTCOE604B_5 | Understand the tools and techniques used in Big data analytics for IOT |
|---|---|

| **Course Outcomes (CO's): Consumer Behaviour** <br> **Upon successful completion of this course, the students will be able to** | |
|---|---|
| BTHM605C_1 | Identify the dynamics of human behaviour and the basic factors that influence the consumers decision process |
| BTHM605C_2 | Explain skills in the research and analysis of customer segments, demand, and market potential. |
| BTHM605C_3 | understand various models of consumer behaviour and its effect in marketing. |
| BTHM605C_4 | Compare physiological, social and ethical implications of marketing actions on consumer behaviour and adopt appropriate techniques for diffusion. |

| **Course Outcomes (CO's): Competitive Programming & Machine** <br> **Learning Lab** <br> **Upon successful completion of this course, the students will be able to** | |
|---|---|
| BTCOL606_1 | Implement classification problems with decision trees, support vectors, Bayesian learning techniques |
| BTCOL606_2 | Solve distance based supervised and unsupervised learning problems and Demonstrate Neural network, genetic algorithms |
| BTCOL606_3 | Learn to implement various Programming Challenges by Choosing different Programming Languages and object-oriented concepts through programming |
| BTCOL606_4 | Implement various searching and sorting Algorithms, Arithmetic and Algebra technique to solve real-world problems |

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| Course Outcomes (CO's): Mini Project-II | |
|---|---|
| **Upon successful completion of this course, the students will be able to** | |
| BTCOM607_1 | Reorganize the procedures of design, development with a concern for society, environment and ethics |
| BTCOM607_2 | Apply modern software tools to implement the software solution of the problem |
| BTCOM607_3 | Apply modern software tools to design test cases and perform testing of the implemented software solution and deploy the software solution after successful testing |
| BTCOM607_4 | Communicate effectively by participating in various competitions, publishing and presenting project work through conference / journal paper |

## FINAL YEAR B.TECH

| Course Outcomes (CO's): Software Engineering | |
|---|---|
| **Upon successful completion of this course, the students will be able to** | |
| BTCOC701_1 | Able to define software engineering process and practices, and demonstrate various process models |
| BTCOC701_2 | Able to identify different types of risks in software development |
| BTCOC701_3 | Able to distinguish different testing strategies and it's working |
| BTCOC701_4 | Able to Estimate the quality of software process & develop SRS document for project. |

| Course Outcomes (CO's): Big Data Analytics | |
|---|---|
| **Upon successful completion of this course, the students will be able to** | |
| BTCOE702A_1 | Understand the basic concepts of Big Data Hadoop, Apache Spark & File system. |

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| BTCOE702A_2 | Apply map reduce concepts for desired applications. |
| BTCOE702A_3 | Learn the different big data streaming platforms. |
| BTCOE702A_4 | Understand the Machine learning algorithms & visualize the data. |
| BTCOE702A_5 | To experiment with Database for the Modern Web |

| **Course Outcomes (CO's): Natural Language Processing**<br>**Upon successful completion of this course, the students will be able to** | |
| --- | --- |
| BTCOE703C_1 | Understand core concepts of Natural Language Processing and levels of language analysis |
| BTCOE703C_2 | Application of Probabilistic model of defining language and techniques |
| BTCOE703C_3 | Application of Hidden Markov model and Speech Recognition |
| BTCOE703C_4 | Application of context free grammar and language parsing |
| BTCOE703C_5 | Understanding different applications of Natural Language Processing |

| **Course Outcomes (CO's): Block Chain Technology**<br>**Upon successful completion of this course, the students will be able to** | |
| --- | --- |
| BTCOE704A_1 | Understand  the basics of block chain technology & its features. |
| BTCOE704A_2 | Summarize the basics of  Cryptocurrency & how does it works. |
| BTCOE704A_3 | Identify  the modern currencies and its market usages |
| BTCOE704A_4 | Illustrate the concepts of Bitcoin and their usage. |

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| Course Outcomes (CO's): Full Stack Development Lab | |
|---|---|
| Upon successful completion of this course, the students will be able to | |
| BTCOL705_1 | Construct a basic website using HTML and Cascading Style Sheets. |
| BTCOL705_2 | Build dynamic web page with validation using Java Script objects and by applying different event handling mechanisms. |
| BTCOL705_3 | Construct simple web pages in PHP |
| BTCOL705_4 | Understand the use of PHP as server side language and application of AJAX in web development. |

| Course Outcomes (CO's): System Administration Lab | |
|---|---|
| Upon successful completion of this course, the students will be able to | |
| BTCOL706_1 | Illustrate the role and responsibilities of a Linux system administration. |
| BTCOL706_2 | Make effective use of Linux utilities, and scripting languages. |
| BTCOL706_3 | Detect the problem and troubleshoot them. |
| BTCOL706_4 | Integrate network services on a Linux system |

| Course Outcomes (CO's): Big Data Analytics Lab | |
|---|---|
| Upon successful completion of this course, the students will be able to | |
| BTCOL707_1 | Develop efficient algorithms for analyzing the data from large volumes. |
| BTCOL707_2 | Configure Hadoop and perform File Management Tasks |
| BTCOL707_3 | Apply MapReduce programs to real time issues like word count, weather dataset and matrix operation |
| BTCOL707_4 | Develop Big Data applications Using spark, pig and Hive. |

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**Mission of department:** 1. To create ambience of academic excellence through state of art infrastructure. 2. To create student-centric pedagogy that will lead to en
a software engineering professional with knowledge of multidisciplinary fields, can provide innovative products & service to society. 4.To train and motivate t
learning, employability, and entrepreneurship.

Yashoda Prasarsk Mandal's

# Yashoda Technical Campus,Satara

(Approved by AICTE,Delhi/Approved by Govt of Maharastra DTE) Email: principalengg_ytc@yes.edu.in
Web : www.yes.edu.in NH-4, wadhe,Satara,Tele Fax-02162-271238/39/9172220775

Faculty of Engineering

Department of Computer Science and Engineering

| **Course Outcomes (CO's): Natural Language Processing Lab** <br> **Upon successful completion of this course, the students will be able to** ||
|---|---|
| BTCOL708C_1 | To implement basic preprocessing of text |
| BTCOL708C_2 | To implement techniques of word level analysis |
| BTCOL708C_3 | To implement techniques of extracting information from text |
| BTCOL708C_4 | To implement techniques of text analytics |

| **Course Outcomes (CO's): Project Phase -I** <br> **Upon successful completion of this course, the students will be able to** ||
|---|---|
| BTCOL709_1 | Solve real life problems by applying knowledge. |
| BTCOL709_2 | Analyze alternative approaches, apply and use most appropriate one for feasible solution |
| BTCOL709_3 | Write precise reports and technical documents . |
| BTCOL709_4 | Participate effectively in multi-disciplinary and heterogeneous teams exhibiting team work . |
| BTCOL709_5 | Establish Inter-personal relationships, conflict management and leadership quality |

| **Course Outcomes (CO's): Field Training/Industrial Training** <br> **Upon successful completion of this course, the students will be able to** ||
|---|---|
| BTCOF609_1 | Demonstrate competancy in relevant field of engineering. |
| BTCOF609_2 | Demonstrate knowledge with ethical and professional responsibilities. |
| BTCOF609_3 | Apply appropriate techniques, resources and modern tools. |
| BTCOF609_4 | Communicate effectively and represent the processes in the industry. |

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## Faculty of Engineering

### Department of Computer Science and Engineering

| Course Outcomes (CO's): Social Networks<br>Upon successful completion of this course, the students will be able to | |
| --- | --- |
| BTCOE801B_1 | Understand a broad range of network concepts and theories. |
| BTCOE801B_2 | Analyse social network data using various software packages and social network techniques. |
| BTCOE801B_3 | Apply the social networking concepts for solving realworld social network issues. |
| BTCOE801B_4 | Apply Mining for behaviour of the users in the social network |

| Course Outcomes (CO's): Cryptography & Network Security<br>Upon successful completion of this course, the students will be able to | |
| --- | --- |
| BTCOE802B_1 | Understand the basics of information security & mathematical foundations needed for cryptography and network security |
| BTCOE802B_2 | Explain and Compare various Cryptographic Techniques |
| BTCOE802B_3 | Apply various Asymmetric Key Ciphers security techniques. |
| BTCOE802B_4 | To compare Modern Trends in Asymmetric Key Cryptography |
| BTCOE802B_5 | Design Secure applications and Inject secure coding in the developed applications and able to understand about the Intrusion, Viruses, firewalls and its configurations |

| Course Outcomes (CO's): Project Phase-II<br>Upon successful completion of this course, the students will be able to | |
| --- | --- |
| BTCOE803_1 | Reorganize the procedures of design, development with a concern for society, environment and ethics |
| BTCOE803_2 | Apply modern software tools to implement the software solution of the problem |

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## Faculty of Engineering

## Department of Computer Science and Engineering

| BTCOE803_3 | Write precise reports and technical documents . |
|------------|-------------------------------------------------|
| BTCOE803_4 | Apply modern software tools to design test cases and perform testing of the implemented software solution and deploy the software solution after successful testing |
| BTCOE803_5 | Apply Communication Knowledge effectively by participating in various competitions, publishing and presenting project work through conference / journal paper |

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