



**GURU NANAK INSTITUTE OF ENGINEERING & TECHNOLOGY**

Dahegaon, Kalmeshwar Road, Nagpur-441 501

**DEPARTMENT OF INFORMATION TECHNOLOGY\_**



**Session -2017-2018(ODD / EVEN)**

**ODD SEMESTER**

**III SEM**

**Applied Mathematics-III: BEIT301**

**Year of Study 2017-2018**

CO1: Able to Perform operations on various discrete structures such as sets, functions, relations, and sequences.

CO2: Able to solve problems using Counting techniques, Permutation and Combination, Recursion and generating functions.

CO3: Able to Apply algorithms and use of graphs and trees as tools to visualize and simplify Problems.

**Programming Logic and Design using 'C': BEIT302**

**Year of Study 2017-2018**

CO1: Read, understand and trace the execution of programs written in C language.

CO2: Write the C code for a given algorithm.

CO3: Implement Programs with pointers and arrays, perform pointer arithmetic.

CO4: Write programs that perform operations using derived data types.

**Ethics in Information Technology:BEIT303**

**Year of Study 2017-2018**

CO1: Discuss what ethics is and what constitutes an ethical issue.

CO2: Identify and discuss ethical issues that arise in the media, in routine conversations and in personal everyday professional practice.

CO3: Discuss the role of emotions in ethical deliberations.

CO4: Discuss how negotiation might resolve apparent ethical differences.

CO5: Identify and discuss the ethical issues presented and rhetorical Styles used in play and dialogue excerpts, with focus on explaining how language is used to alter other people's ethical perceptions and convince them of specific points.

**Digital Electronics & Fundamentals  
of Microprocessor: BEIT304**

**Year of Study 2017-2018**

CO1: Able to apply the principles of number system, binary codes and Boolean algebra to minimize logic expressions

CO2: Ability to Develop K-maps to minimize and optimize logic functions upto 5 variables.

CO3: Ability to Design various combinational and sequential circuits such as encoders, decoders and counters using multiplexers and flip-flops

CO4: Understand the various memory systems, shift registers and analog to digital and digital to analog conversion circuits.

**Data Communication: BEIT305**

**Year of Study 2017-2018**

CO1: Describe the components of a data communications system

CO2: To be familiar with wireless networking concept

CO3: To be familiar with various transmission media in network

CO4: Explain the role of line codes in a data communications network

CO5: Describe the various types of signals and their features.

CO6: Describe the features and functions of multiplexing and modulation.

**Environmental Engineering: BEIT306**

**Year of Study 2017-2018**

CO1: Understand the key current environmental problems.

CO2: Ability to identify and value the effect of the pollutants on the environment atmosphere, water and soil.

CO3: Ability to analyse an industrial activity and identify the environmental problems.

CO4: Ability to select the most appropriate technique to purify and/or control the emission of pollutants.

## V SEM

### **System Programming: BEIT501T**

**Year of Study 2017-2018**

CO1: Understand the basics of system programs like editors, compiler, assembler, linker, loader, interpreter and debugger.

CO2: Described the various concepts of assemblers and macro- processors.

CO3: Understand the various phases of compiler and compare its working with assembler.

CO4: Understand how linker and loader create an executable program from an object module created by assembler and compiler.

CO5: Understand the various editors and debugging techniques.

### **Design and Analysis of Algorithm: BEIT502T**

**Year of Study 2017-2018**

CO1: Understand the basic concepts of algorithms and analyze the performance of algorithms.

CO2: Understand various algorithm design techniques for developing algorithms.

CO3: Ability to apply various searching, sorting and graph traversal algorithms.

CO4: Understand NP completeness and identify different NP complete problems.

### **Computer Graphics: BEIT503T**

**Year of Study 2017-2018**

CO1: To list the basic concepts used in computer graphics.

CO2: To implement various algorithms to scan, convert the basic geometrical primitives, transformations, Area filling, clipping.

CO3: To describe the importance of viewing and projections.

CO4: To define the fundamentals of animation, virtual reality and its related technologies.

### **Software Engineering: BEIT504T**

**Year of Study 2017-2018**

CO1: An ability to design a system, component, or process to meet desired needs within realistic Constraints such as economic, environmental, social, political, ethical, health and safety, Manufacturability and sustainability

CO2: An ability to function on multi-disciplinary teams.

CO3: An ability to identify, formulate, and solve engineering problem

CO4: The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

CO5: An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

**Java Programming: BEIT505T****Year of Study 2017-2018**

CO1: To understand the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.

CO2: To understand use of constructors, destructors and various keywords like this, abstract, final, super, static etc etc.

CO3: To understand the concept of function overloading, operator overloading & polymorphism.

CO4: To Understand the Classification of inheritance, usage of exception handling and Multithreading.

CO5: Demonstration of File Handling concepts and GUI programming

**Industrial Economics and Entrepreneurship  
Development: BEIT506T****Year of Study 2017-2018**

CO1: To understanding of the scope of an industrial economics and entrepreneurship development

CO2: To understand key concepts of industrial economics.

CO3: To understand market structures.

CO4: To understand the functions of central bank and commercial banks.

CO5: Demonstration of Entrepreneurship

CO6: To understand the need of Finance's Sources and Sickness in small Business.

**VII SEM****DATA WAREHOUSING AND MINING: [BEIT701T]****Year of Study 2017-2018**

CO1: Describe the fundamental concepts, benefits and problem areas associated with data warehousing

CO2: Describe the various architectures and main components of a data warehouse.

CO3: Design a data warehouse, and be able to address issues that arise when implementing a data warehouse.

CO4: Compare and contrast OLAP and data mining as techniques for extracting knowledge from a data ware house

CO5: Implementation of DWH and DM in real life application

**Computer System Security: BEIT702T]****Year of Study 2017-2018**

CO1: Identify information security goals, classical encryption techniques and acquire fundamental knowledge on the concepts of finite fields and number theory.

CO2: Understand, compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication

CO3: Apply the knowledge of cryptographic checksums and evaluate the performance of different message digest algorithms for verifying the integrity of varying message sizes

CO4: Apply different digital signature algorithms to achieve authentication and create secure applications.

CO5: Apply network security basics, analyze different attacks on networks and evaluate the performance of firewalls and security protocols like SSL, IPSec, and PGP.

CO6: Apply the knowledge of cryptographic utilities and authentication mechanisms to design secure applications.

**Artificial Intelligence: [BEIT703T]****Year of Study 2017-2018**

CO1: Ability to identify problems that are amenable to solution by AI methods, and which AI methods may be suited to solving a given problem.

CO2: Ability to apply artificial intelligence techniques, including search heuristics, knowledge representation, planning and reasoning.

CO3: Ability to describe the key components of the artificial intelligence (AI) field.

CO4: Ability to describe the key aspects of machine learning.

CO5: Demonstrate knowledge representation and reasoning techniques.

CO6: Design an Expert System for real world applications.

**Mobile Computing [ELE-I]: [BEIT704T1]  
2018****Year of Study 2017-**

CO1: Understand the characteristics and limitations of mobile hardware devices including their user-interface modalities.

CO2: Ability to develop applications that are mobile-device specific and demonstrate current practice in mobile computing contexts.

CO3: Ability to comprehension and appreciation of the design and development of context-aware solutions for mobile devices.

CO4: Understand an awareness of professional and ethical issues, in particular those relating to security and privacy of user data and user behaviour.

**Software Testing &  
Quality Assurance[ELE-II]: [BEIT705T1]**

**Year of Study 2017-2018**

CO1: Apply modern software testing processes in relation to software development and project management.

CO2: Create test strategies and plans, design test cases prioritize and execute them.

CO3: Manage incidents and risks within a project.

CO4: Contribute to efficient delivery of software solutions and implement improvements in the software development processes.

CO5: To gain expertise in designing, implementation and development of computer based systems and IT process

**EVEN SEMESTER**

**IV SEM**

**Discrete Mathematics and Graph Theory: BEIT401T**

**Year of Study 2017-2018**

CO1: Analyze discrete data structure such as sets, relations and mathematical logic.

CO2: Understands Algebraic structures.

CO3: Ability to use logical notation to define and reason about fundamental mathematical concepts such as sets, relations, functions, and integers.

CO4: Ability to apply graph theory models of data structures and state machines to solve problems of connectivity and constraint satisfaction, for example, scheduling.

CO5: Ability to calculate probabilities and discrete distributions for simple combinatorial processes; calculate expectations.

**Algorithms and Data Structures: BEIT402T**

**Year of Study 2017-2018**

CO1: Understand the concept of Dynamic memory management, data types, algorithms, Big O notation.

CO2: Understand basic data structures such as arrays, linked lists, stacks and queues.

CO3: Understand the hash function and concepts of collision and its resolution methods.

CO4: Ability to Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data.

CO5: To understand key concepts of trees and graphs.

**Theory of Computation: BEIT403T**

**Year of Study 2017-2018**

CO1: Understand, design, construct, analyze and interpret Regular languages, Expression and Grammars.

CO2: Design different types of Finite Automata and Machines as Acceptor, Verifier and Translator.

CO3: Understand, design, analyze and interpret Context Free languages, Expression and Grammars.

CO4: Design different types of Push down Automata as Simple Parser.

CO5: Design different types of Turing Machines as Acceptor, Verifier, Translator and Basic computing machine.

CO6: Compare, understand and analyze different languages, grammars, Automata and Machines and appreciate their power and convert Automata to Programs and Functions.

**Computer Architecture and Organization: BEIT404T**

**Year of Study 2017-2018**

CO1: Describe basic organization of computer and the architecture of 8086 microprocessor.

CO2: Implement assembly language program for given task for 8086 microprocessor.

CO3: Demonstrate control unit operations and conceptualize instruction level parallelism.

CO4: Demonstrate and perform computer arithmetic operations on integer and real numbers.

CO5: Categorize memory organization and explain the function of each element of a memory hierarchy.

CO6: Identify and compare different methods for computer I/O mechanisms

**Object Oriented Methodology: BEIT405T**

**Year of Study 2017-2018**

CO1: Implement advanced features of the C++ programming language as a continuation of the previous course.

CO2: Implement the characteristics of an object oriented programming language: data abstraction and information hiding, inheritance, and dynamic binding of the messages to the methods.

CO3: Work with principles of object oriented design and software engineering in terms of software reuse and managing complexity.

CO4: Enhance problem solving and programming skills in C++ with extensive programming projects.

**VI SEM**

**Computer Network: BEIT601T**

**Year of Study 2017-2018**

CO1: Understand computer network basics, network architecture, TCP/IP and OSI reference models.

CO2: Understand various techniques and modes of transmission .

CO3: Described data link protocols, multi-channel access protocols and IEEE 802 standards for LAN .

CO4: Understand routing and congestion in network layer with routing algorithms and classify IPV4 addressing scheme.

CO5: Discussed the elements and protocols of transport layer.

**Operating Systems: BEIT602T****Year of Study 2017-2018**

CO1: Understand the basics of operating systems like kernel, shell, types and views of operating systems.

CO2: Understand the various CPU scheduling algorithms and remove deadlocks.

CO3: Understand the various memory management techniques and concept of thrashing

CO4: Ability to Use disk management and disk scheduling algorithms for better utilization of external memory.

**Database Management Systems:BEIT603T****Year of Study 2017-2018**

CO1: Understand DBMS architecture, physical and logical database designs, database modelling, relational, hierarchical and network models.

CO2: Understand basic database storage structures and access techniques such as file organizations, indexing methods including B-tree, and hashing.

CO3: Ability to apply Structured query language (SQL) for database definition and database manipulation.

CO4: Understand of normalization theory and apply such knowledge to the normalization of a database.

**Internet Programming: BEIT604T****Year of Study 2017-2018**

CO1: To understand HTML and common tags

CO2: To understand usage of Java Scripts and XML

CO3: Able to implement java servlet and JSP

CO4: Ability to develop applications based on android

**Functional English:BEIT605T****Year of Study 2017-2018**

CO1: Students will have a deeper understanding of correct English structures in descriptive, narrative, and instructional texts.

CO2: Students will be able to communicate in English with peers, teachers and professionally

CO3: Students will have improved English Reading and Writing Skills

CO4: Students will rely less on their first languages and increase their use of English in formal and informal situations

**VIII SEM****Distributed Systems:BEIT801T****Year of Study 2017-2018**

CO1: Analyze the structure of OS and basic architectural components involved in OS design.

CO2: Analyze and design the applications to run in parallel either using process or thread



models of different OS

CO3: Analyze the various device and resource management techniques for timesharing and distributed systems

CO4: Understand the Mutual exclusion, Deadlock detection and agreement protocols of Distributed operating system

CO5: Interpret the mechanisms adopted for file sharing in distributed Applications.

CO6: Conceptualize the components involved in designing a contemporary OS.

**Gaming Architecture & Programming : BEIT802T**

**Year of Study 2017-2018**

CO1: To Apply a development process to design, evaluate and implement a digital game

CO2: To Apply creative techniques for stimulating the generation of game design ideas

CO3: To Perform early-stage evaluation of games using paper prototyping

CO4: To discuss the elements contributing to the design of a game and use these elements to critique existing designs

CO5: To discuss controversial aspects of game design such as game addiction and violence in games

**Embedded Systems [ELE-III]:BEIT803T1**

**Year of Study 2017-2018**

CO1: Able to understand Hardware and Software design, Co-design and Embedded Software development Tools

CO2: To understand RTOS for Embedded System

CO3: Able to understand Programming for Embedded System.

CO4: To understand working of Microcontroller 8051

**Wireless Sensor Networks [ELE-IV]: BEIT804T4**

**Year of Study 2017-2018**

CO1: To Understand some existing applications of wireless sensor actuator networks.

CO2: To Understand to elements of distributed computing and network protocol design and learn to apply these principles in the context of wireless sensor networks.

CO3: To Able to use the various hardware, software platforms that exist for sensor networks.

CO4: To Understand various network level protocols for MAC, routing, time synchronization, aggregation, consensus and distributed tracking.



**Principal  
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