# M.L. Dahanukar College of Commerce

## Teaching Plan: 2018 - 19

**Department: I.T.**     **Class: F.Y.B.Sc. (I.T)**     **Semester: I**

### Subject: Imperative Programming

### Name of the Faculty: Sweta Chheda

| Month | Topics to be Covered | Internal Assessment | Number of Lectures |
|---|---|---|---|
| July | **Unit I** - **Introduction:** Types of Programming languages, History, features and application. Simple program logic, program development cycle, pseudocode statements and flowchart symbols, sentinel value to end a program, programming and user environments, evolution of programming models., desirable program characteristics. **Fundamentals:** Structure of a program. Compilation and Execution of a Program, Character Set, identifiers and keywords, data types, constants, variables and arrays, declarations, expressions, statements, Variable definition, symbolic constants. | | 6 |
| August | **Unit II** - **Operators and Expressions:** Arithmetic operators, unary operators, relational and logical operators, assignment operators, assignment operators, the conditional operator, library functions. **Data Input and output:** Single character input and output, entering input data, scanf function, printf function, gets and puts functions, interactive programming. **Unit III** - **Conditional Statements and Loops:** Decision Making Within A | | 28 |

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|---|---|---|---|
| | Program, Conditions, Relational Operators, Logical Connectives, If Statement, If-Else Statement, Loops: While Loop, Do While, For Loop. Nested Loops, Infinite Loops, Switch Statement<br><br>+ Practicals | | |
| September | **Functions:**<br>Overview, defining a function, accessing a function, passing arguments to a function, specifying argument data types, function prototypes, recursion, modular programming and functions, standard library of c functions, prototype of a function: foo1lal parameter list, return type, function call, block structure, passing arguments to a function: call by reference, call by value.<br>**Unit IV** - **Program structure:**<br>Storage classes, automatic variables, external variables, static variables, multifile programs, more library functions,<br>**Preprocessor:** Features, #define and #include, Directives and Macros<br>+ Practicals | Internal Test | 18 |
| October | **Arrays:**<br>Definition, processing, passing arrays to functions, multidimensional arrays, arrays and strings.<br>**Pointers:**<br>Fundamentals, declarations, Pointers Address Operators, Pointer Type Declaration, Pointer Assignment, Pointer Initialization, Pointer Arithmetic, Functions and Pointers, Arrays And Pointers, Pointer Arrays, passing functions to other functions<br>+ Practicals | | 6 |

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# M.L.Dhanukar College of Commerce

## Teaching Plan: 2018 - 19

**Department:  BScIT**                          **Semester: I**

**Class: F.Y.BScIT**

**Subject: Digital Elelctronics**

**Name of the Faculty: Ms.Shruti Save**

| Month | Topics to be Covered | Internal Assessment | Number of Lectures |
|---|---|---|---|
| July | **UNIT  I**<br>**Number System**<br>• Analog System, digital system<br>• binary number system, octal number system, hexadecimal number system conversion from one number system to another<br>• weighted codes binary coded decimal non-weighted codes Excess – 3 code, Gray code, Alphanumeric codes – ASCII Code, EBCDIC,  Hollerith Code, Morse Code, Teletypewriter (TTY), Error detection and correction,  Code conversion.<br><br>**Binary Arithmetic**<br>• Binary addition<br>• Binary subtraction<br>• Negative number representation<br>• Subtraction using 1's complement and 2's complement<br>• Binary multiplication and division<br>• Arithmetic in octal number system, Arithmetic in hexadecimal number system, BCD and Excess – 3 arithmetic | | 10 |

| Month | | | |
|---|---|---|---|
| | **UNIT II**<br>**Boolean Algebra and Logic Gates**<br>• Introduction, Logic (AND OR NOT)<br>• Boolean theorems, Boolean Laws, De Morgan's Theorem | | |
| August | **UNIT II**<br>**Boolean Algebra and Logic Gates**<br>• Reduction of Logic expression using Boolean Algebra<br>• Deriving Boolean expression from given circuit<br>• exclusive OR and Exclusive NOR gates Universal Logic gates, Implementation of other gates using universal gates<br>• Input bubbled logic<br><br>**Minterm, Maxterm and Karnaugh Maps:**<br>• Introduction, minterms and sum of minterm form, maxterm and Product of maxterm form.<br>• Reduction technique using Karnaugh maps – 2/3/4/5/6 variable K-maps.<br>• Grouping of variables in K-maps, K-maps for product of sum form, minimize Boolean expression using K-map and obtain K-map from Boolean expression.<br>• Quine Mc- Cluskey Method.<br><br>**UNIT III**<br>**Combinational Logic Circuits:**<br>• Introduction, Multi-input, multi-output Combinational circuits<br>• Code converters design and implementations | | 20 |
| September | **UNIT III**<br>**Arithmetic Circuits:**<br>• Introduction, Adder, BCD Adder, Excess – 3 Adder<br>• Binary Subtractors, BCD Subtractor, Multiplier, Comparator. | CLASS TEST | 22 |

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| | **UNIT  IV**<br>**Multiplexer, Demultiplexer, ALU,**<br>**Encoder and Decoder:**<br>• Introduction, Multiplexer, Demultiplexer, Decoder, ALU, Encoders.<br>**Sequential Circuits: Flip-Flop:**<br>• Introduction, Terminologies used, S-R flip-flop, D flip-fop, JK flip-flop, Race-around condition, Master – slave JK flip-flop, T flip-flop,<br>• Application of flip-flop | | |
| October | **UNIT  IV**<br>**Counters:**<br>• Introduction, Asynchronous counter, Terms related to counters, IC 7493 (4-bit binary counter)<br>• Synchronous counter,  Type T Design, Type JK Design<br>• Presettable counter, IC 7490, IC 7492, Synchronous counter ICs<br>**Shift Register:**<br>• Introduction, parallel and shift registers, serial shifting, serial–in serial–out, serial–in parallel–out , parallel–in parallel–out<br>• Ring counter, Johnson counter,<br>• Applications of shift registers, Pseudo-random binary sequence generator, IC7495, Seven Segment displays, analysis of shift-register | | 12 |

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# M.L.Dhanukar College of Commerce

## Teaching Plan: 2018 - 19

**Department:  BScIT**                    **Semester: I**

**Class: F.Y.BScIT  Div: B**

**Subject: Digital Elelctronics**

**Name of the Faculty: Mrs. Snehal Borade**

| Month | Topics to be Covered | Internal Assessment | Number of Lectures |
|---|---|---|---|
| July | **UNIT  I**<br>**Number System**<br>• Analog System, digital system<br>• binary number system, octal number system, hexadecimal number system conversion from one number system to another<br>• weighted codes binary coded decimal non-weighted codes Excess – 3 code, Gray code, Alphanumeric codes – ASCII Code, EBCDIC, ISCII Code, Hollerith Code, Morse Code, Teletypewriter (TTY), Error detection and correction,  Code conversion.<br><br>**Binary Arithmetic**<br>• Binary addition<br>• Binary subtraction<br>• Negative number representation<br>• Subtraction using 1's complement and 2's complement<br>• Binary multiplication and division<br>• Arithmetic in octal number system, Arithmetic in hexadecimal number system, BCD and Excess – 3 arithmetic |  | 10 |

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| August | **UNIT II**<br>**Boolean Algebra and Logic Gates**<br>• Introduction, Logic (AND OR NOT)<br>• Boolean theorems, Boolean Laws, De Morgan's Theorem<br>**Boolean Algebra and Logic Gates**<br>• Reduction of Logic expression using Boolean Algebra<br>• Deriving Boolean expression from given circuit<br>• exclusive OR and Exclusive NOR gates Universal Logic gates, Implementation of other gates using universal gates<br>• Input bubbled logic<br><br>**Minterm, Maxterm and Karnaugh Maps:**<br>• Introduction, minterms and sum of minterm form, maxterm and Product of maxterm form.<br>• Reduction technique using Karnaugh maps – 2/3/4/5/6 variable K-maps.<br>• Grouping of variables in K-maps, K-maps for product of sum form, minimize Boolean expression using K-map and obtain K-map from Boolean expression.<br>• Quine Mc- Cluskey Method.<br><br>**UNIT III**<br>**Combinational Logic Circuits:**<br>• Introduction, Multi-input, multi-output Combinational circuits<br>• Code converters design and implementations | **CLASS TEST** | 16 |
| September | **UNIT III**<br>**Arithmetic Circuits:**<br>• Introduction, Adder, BCD Adder, Excess – 3 Adder<br>• Binary Subtractors, BCD Subtractor, Multiplier, Comparator. | | 16 |

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| | **UNIT IV**<br>**Multiplexer, Demultiplexer, ALU,**<br>**Encoder and Decoder:**<br>• Introduction, Multiplexer, Demultiplexer, Decoder, ALU, Encoders. | | |
| October | **Sequential Circuits: Flip-Flop:**<br>• Introduction, Terminologies used, S-R flip-flop, D flip-fop, JK flip-flop, Race-around condition, Master – slave JK flip-flop, T flip-flop,<br>• Application of flip-flop<br>**UNIT IV**<br>**Counters:**<br>• Introduction, Asynchronous counter, Terms related to counters, IC 7493 (4-bit binary counter)<br>• Synchronous counter, Type T Design, Type JK Design<br>• Presettable counter, IC 7490, IC 7492, Synchronous counter ICs<br>**Shift Register:**<br>• Introduction, parallel and shift registers, serial shifting, serial–in serial–out, serial–in parallel–out , parallel–in parallel–out<br>• Ring counter, Johnson counter,<br>• Applications of shift registers, Pseudo-random binary sequence generator, IC7495, Seven Segment displays, analysis of shift-register | | 18 |

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# M.L. Dahanukar College of Commerce

## Teaching Plan: 2018 - 19

**Department: I.T.**        **Class: F.Y.B.Sc.(I.T.)**        **Semester: I**

### Subject: Operating System

### Name of the Faculty: Amit Bane

| Month | Topics to be Covered | Internal Assessment | Number of Lectures |
|---|---|---|---|
| June | 1. What is an operating system? History of operating system, computer hardware, different operating systems, operating system concepts, system calls, operating system structure<br>2. Processes, threads, interprocess communication, scheduling, IPC problems. | | 12 |
| July | 1. No memory abstraction, memory abstraction: address spaces, virtual memory, page replacement algorithms, design issues for paging systems, implementation issues, segmentation.<br>2. Files, directories, file system implementation, file-system management and optimization, MS-DOS file system, UNIX V7 file system, CD ROM file system. | | 12 |
| August | 1. Principles of I/O hardware, Principles of I/O software, I/O software layers, disks, clocks, user interfaces: keyboard, mouse, monitor, thin clients, power management,<br>2. Resources, introduction to deadlocks, the ostrich algorithm, deadlock detection and recovery, deadlock avoidance, deadlock prevention, issues. | | 12 |
| September | 1. History, requirements for virtualization, type 1 and 2 | Internal test (20) | 12 |

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| | hypervisors, techniques for efficient virtualization, hypervisor microkernels, memory virtualization, I/O virtualization, Virtual appliances, virtual machines on multicore CPUs, Clouds.<br>2. Multiprocessors, multicomputers, distributed systems. | | |
| October | 1. History of Unix and Linux, Linux Overview, Processes in Linux, Memory management in Linux, I/O in Linux, Linux file system, security in Linux. Android<br>2. History of windows through Windows 10, programming windows, system structure, processes and threads in windows, memory management, caching in windows, I/O in windows, Windows NT file system, Windows power management, Security in windows. | | 10 |

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# M.L. Dahanukar College of Commerce

## Teaching Plan: 2017 - 18

**Department: I.T.**   **Class: F.Y.B.Sc. (I.T)**   **Semester: I**

### Subject: Discrete Mathematics

### Name of the Faculty: Kubra T.K.

| Month | Topics to be Covered | Internal Assessment | Number of Lectures |
|---|---|---|---|
| July | Introduction: Variables, The Language of Sets, The Language of Relations and Function Set Theory: Definitions and the Element Method of Proof, Properties of Sets, Disproofs, | | 6 |
| August | Algebraic Proofs, Boolean Algebras, Russell's Paradox and the Halting Problem. The Logic of Compound Statements: Logical Form and Logical Equivalence, Conditional Statements, Valid and Invalid Arguments 12 II Quantified Statements: Predicates and Quantified Statements, Statements with Multiple Quantifiers, Arguments with Quantified Statements Elementary Number Theory and Methods of Proof: Introduction to Direct Proofs, Rational Numbers, Divisibility, Division into Cases and the Quotient-Remainder Theorem, Floor and Ceiling, Indirect Argument: Contradiction and Contraposition, Two Classical Theorems, Applications in algorithms Sequences, Mathematical Induction, and Recursion: Sequences, Mathematical Induction, Strong Mathematical Induction and the WellOrdering Principle for the Integers, Correctness of algorithms, defining sequences recursively, solving recurrence relations by iteration, Second order linear homogenous recurrence relations with constant coefficients. | | 28 |

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| | general recursive definitions and structural induction.<br>+ Practicals | | |
| September | Functions: Functions Defined on General Sets, One-to-One and Onto, Inverse Functions, Composition of Functions, Cardinality with Applications to Computability 12 IV Relations: Relations on Sets, Reflexivity, Symmetry, and Transitivity, Equivalence Relations, Partial Order Relations<br> Graphs and Trees: Definitions and Basic Properties, Trails, Paths, and Circuits, Matrix Representations of Graphs, Isomorphism's of Graphs, Trees, Rooted Trees, Isomorphism's of Graphs, Spanning trees and shortest paths.<br>+ Practicals | Internal Test | 18 |
| October | 12 V Counting and Probability: Introduction, Possibility Trees and the Multiplication Rule, Possibility Trees and the Multiplication Rule, Counting Elements of Disjoint Sets: The Addition Rule, The Pigeonhole Principle, Counting Subsets of a Set: Combinations, rCombinations with Repetition Allowed, Probability Axioms and Expected Value, Conditional Probability, Bayes' Formula, and Independent Events.<br>+ Practicals | | 8 |
| Total | | | |

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# M.L. Dahanukar College of Commerce

## Teaching Plan: 2018 - 19

**Department: I.T.**     **Class: F.Y.B.Sc.(I.T.)**     **Semester: I**

**Subject: Communication Skill**

**Name of the Faculty:Manasi Mule**

| Month | Topics to be Covered | Internal Assessment | Number of Lectures |
|---|---|---|---|
| July | The Seven C's of Communication,Introduction to Communication, Cross-Cultural Communication | Class Test | 20 |
| August | Listening, Interviews, Technology enabled communication, Reports,business writing, corporate communication, Group discussion, Resume Building, Communication across Functional areas, Non-Verbal communication | Class Test | 15 |
| September | Presentations, proposals, team presentations, persuasive strategy in ccommunication, Business communication aids, Team Briefing, Career building, Public speaking. | Class Test | 15 |
| October | Presentation skills, conversation, speaking skills, Ethics in Business communication, Nature and Scope of communication | Class Test | 10 |

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