SVM Institute of Technology, Bharuch

Department of CE & IT

Syllabus: Mid Semester Examination (Even semester 2018-19)

BE – IV(4^{th} Semester) CE and IT

Name of Faculty: S.T Patel, A. D. Patel

Subject Code: 2140709 **Subject Name:**Computer Networks

Sr. No.	Unit	Topics
1	Unit 1	Introduction to computer networks and Internet; Understanding of Delay, Loss and Throughput in the packet-switching network, protocols layers and their service model,
2	Unit 2	Application Layer: Principles of computer applications, Web and HTTP, E-mail, DNS, Socket programming with TCP and UDP
3	Unit 3	Transport Layer: Introduction and transport layer services, Multiplexing and Demultiplexing, Connection less transport (UDP), Principles of reliable data transfer, Connection oriented transport (TCP), Congestion control

Text Book(s):

1. Computer Networking- A Top-Down approach, 5th edition, Kurose and Ross, Pearson

Department of CSE & IT

Syllabus: Mid Semester examination (Even sem 2018-19)
BE – II (4th Sem) CE & IT

Name of Faculty: G I Prajapati, N J Prajapati, J T Patel

Subject Code: 2140707 **Subject Name:** Computer Organization

Sr. No.	Unit	Topics
1	Unit 1	Computer Data Representation : Basic computer data types, Complements, Fixed point representation, Register Transfer and Micro-operations: Floating point representation, Register Transfer language, Register Transfer, Bus and Memory Transfers (Tree-State Bus Buffers, Memory Transfer), Arithmetic Micro-Operations, Logic Micro-Operations, Shift Micro-Operations, Arithmetic logical shift unit
2	Unit 2	Basic Computer Organization and Design : Instruction codes, Computer registers, computer instructions, Timing and Control, Instruction cycle, Memory-Reference Instructions, Input-output and interrupt, Complete computer description, Design of Basic computer, design of Accumulator Unit.
3	Unit 5	Central Processing Unit : Introduction, General Register Organization, Stack Organization, Instruction format, Addressing Modes, data transfer and manipulation, Program Control, Reduced Instruction Set Computer (RISC)
4	Unit 6	Pipeline And Vector Processing : Flynn's taxonomy, Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction, Pipeline, RISC Pipeline, Vector Processing, Array Processors

Text Book/Reference Book:

1) M. Morris Mano, Computer System Architecture, Pearson

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Syllabus: Mid Semester examination (Even sem 2018-19)

BE – II (4^{th} Sem) CE & IT

Name of Faculty: Prof. Kruti J. Dangarwala, Prof. Jignasa N Patel

Subject Name: NUMERICAL AND STATISTICAL METHODS FOR COMPUTER ENGINEERING
Subject Code: 2140706

Sr. No.	Unit	Topics
1	Unit 1	▪ Mathematical modeling ▪ Engineering problem solving. ▪ Approximations and errors. ▪ Significant figures, accuracy and precision, Errors, round-off and truncation errors, error propagation.
2	Unit 2 **Roots of Equations**	▪ Bisection, ▪ RegulaFalsi ▪ NR method, Secant ,Successive approximation method ▪ Budan's Theorem, Barristow's Theorem
3	Unit 3 **Systems of Linear Algebraic Equations**	▪ Gauss elimination; pitfalls and techniques for improvement, matrix inversion and Gauss-Seidel methods ▪ ill- conditional Equations ▪ Predictor-Corrector methods
4	Unit-7 **Statistical Methods**	• Frequency distributions, Data analysis • Expectations and moments, • Co-relation and regression ,Trend analysis, Seasonal effects Cyclical Fluctuation, Moving average • MSE, Predictions • Non-parametric statistics • Computer-based resampling techniques • Confidence intervals and statistical

Text Book:

1) Computer Oriented Numerical Methods, R. S. Salaria.,Khanna Publisher.
2) Numerical Methods for engineers. S C Chapra and R P Canale .McGrow Hill International Edition
3) Numerical Methods for Scientific & Engineering Computation, M. K. Jain, S.R.K.
4) Numerical Methods, J B Dixit, Laxmi Publications, New Delhi

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Syllabus: Mid Semester Examination (Even semester 2018-19)

BE – II(4^{th} Semester) CE& IT

Name of Faculty:A. D. Patel, J. T. Patel, R. R. Patel

Subject Code:2140705 **Subject Name:**Object Oriented Programming With C++

Sr. No.	Unit	Topics
1	Unit 3	**C++ Functions:** Simple functions, Call and Return by reference, Inline functions, Macro Vs. Inline functions, Overloading of functions, default arguments, friend functions, virtual functions
2	Unit 4	**Objects and Classes:** Basics of object and class in C++, Private and public members, static data and function members, constructors and their types, destructors, operator overloading, type conversion
3	Unit 5	**Inheritance:** Concept of Inheritance, types of inheritance: single, multiple, multilevel, hierarchical, hybrid, protected members, overriding, virtual base class
4	Unit 6	**Polymorphism:** Pointers in C++, Pointes and Objects, this pointer, virtual and pure virtual functions, Implementing polymorphism

Text Book(s):

1) Object Oriented Programming With C++, E Balagurusamy, TMH
2) Object Oriented Programming in Turbo C++, Robert Lafore, Galgotia

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Department of CE & IT

Syllabus: Mid Semester Examination (Even semester 2018-19)

BE – IV(4^{th} Semester) CE and IT

Name of Faculty:A. D. Patel, M. V. Chauhan, R. R. Patel,

Subject Code: 2140702 **Subject Name:**Operating Systems

Sr. No.	Unit	Topics
1	Unit 2	**Process Management** **Processes:** Definition , Process Relationship , Process states, Process State transitions , Process Control Block ,Context switching – Threads – Concept of multithreads , Benefits of threads – Types of threads **Process Scheduling:** Definition , Scheduling objectives ,Types of Schedulers ,Scheduling criteria : CPU utilization, Throughput, Turnaround Time, Waiting Time, Response Time (Definition only) , Scheduling algorithms : Preemptive and Non , pre emptive , FCFS – SJF – RR , Multiprocessor scheduling : Types , Performance evaluation of the scheduling
2	Unit 3	**Interprocess Communication** Race Conditions, Critical Section, Mutual Exclusion, Hardware Solution, Strict Alternation , Peterson's Solution, The Producer Consumer Problem, Semaphores, Event Counters, Monitors, Message Passing, Classical IPC Problems: Reader's & Writer Problem, Dinning Philosopher Problem etc., Scheduling , Scheduling Algorithms.
3	Unit 5	**Memory Management** **Basic Memory Management:** Definition ,Logical and Physical address map , Memory allocation : Contiguous Memory allocation – Fixed and variable partition – Internal and External fragmentation and Compaction , Paging : Principle of operation – Page allocation – Hardware support for paging –,Protection and sharing – Disadvantages of paging. **Virtual Memory:** Basics of Virtual Memory – Hardware and control structures – Locality of reference, Page fault , Working Set , Dirty page/Dirty bit – Demand paging (Concepts only) – Page Replacement policies : Optimal (OPT) , First in First Out (FIFO), Second Chance (SC), Not recently used (NRU) and Least Recently used (LRU)

Text Book(s):

1. Operating System Concepts (8th Edition) by Silberschatz, Peter B. Galvin and Greg Gagne, Wiley-Indian Edition (2010).
2. Modern Operating Systems (Third Edition) by Andrew S Tanenbaum, Prentice Hall India (2008).