



**COURSE OF STUDY AND SCHEME OF EXAMINATION OF B.TECH
NATIONAL INSTITUTE OF TECHNOLOGY, RAIPUR**

Branch- Computer science & Engineering

Course- B.Tech.(NIT Scheme)

Semester- VI

S.No	Board of Studies	Sub. Code	Subject Name	Periods/week			Examination Scheme					Total Marks	Credits L+(T+P)/2
				L	T	P	TA	FE	SE	T.C.A	ES E		
1	Comp. Sc. & Engg.	CS20611(CS)	Analysis & Design of Algorithms	3	1	-	20	15	15'	50	70	120	4
2	Comp. Sc. & Engg.	CS20612(CS)	Computer Network	3	1	-	20	15	15	50	70	120	4
3	Comp. Sc. & Engg.	CS20613(CS)	Unix & Shell Programming	3	1	-	20	15	15	50	70	120	4
4	Comp. Sc. & Engg.	CS20614(CS)	Software Engineering	3	1	-	20	15	15	50	70	120	4
5	Comp. Sc. & Engg.	CS20615(CS)	Compiler Design	3	1	-	20	15	15	50	70	120	4
6	Comp. Sc. & Engg.	CS20616(CS)	Parallel Processor & Computing	4	1	-	20	15	15	50	70	120	5
7	Comp. Sc. & Engg.	CS20621(CS)	Analysis & Design of Algorithms(Lab)	-	-	3	30	-	-	30	20	50	2
8	Comp. Sc. & Engg.	CS20622(CS)	Computer Network(Lab)	-	-	3	30	-	-	30	20	50	2
9	Comp. Sc. & Engg.	CS20623(CS)	Unix & Shell Programming(Lab)	-	-	3	30	-	-	30	20	50	2
10	Humanities	EN20624(CS)	I & E Skill	-	-	2	25	-	-	25	-	25	1
11	Comp. Sc. & Engg.	CS20625(CS)	Discipline	-	-	-	25	-	-	25	-	25	1
			Total	19	6	11	260	90	90	440	480	920	33

H.O.D

Comp.Sc. & Engg.

MEMBER

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS

Name of Subject	ANALYSIS & DESIGN OF ALGORITHMS	Subject Code	CS20611(CS)
Semester	B.Tech VI Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks	70	Minimum Marks	28
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
3	1		4

Unit –I

Analyzing algorithms, Algorithm types, Recurrence Equations, Growth function: Asymptototation, Standard notation & common functions, Recurrence relation, different methods of solution of recurrence equations with examples.

Unit –II

Introduction to Divide and Conquer paradigm, Quick and merge sorting techniques, Linear time selection algorithm, the basic divide and conquer algorithm for matrix multiplication Strassen Multiplication and, Red Black tree, Binary Search tree , heap sort, shell & bucket sort.

Unit –III

Overview of the greedy paradigm examples of exact optimization solution (minimum cost spanning tree), Knapsack problem, Single source shortest paths. Overview, difference between dynamic programming and divide and conquer, Applications: Shortest path in graph, Matrix multiplication, Traveling salesman Problem, longest Common sequence.

Unit –IV

Representational issues in graphs, Depth first search & Breath first search on graphs, Computation of biconnected components and strongly connected components using DFS, Topological sorting of nodes of an acyclic graph & applications, Shortest Path Algorithms , Bellman-Ford algorithm, Dijkstra's algorithm & Analysis of Dijkstra's algorithm using heaps, Floyd-Warshall's all pairs shortest path algorithm

Unit –V

The general string problem as a finite automata, Knuth Morris and Pratt algorithms, Linear time analysis of the KMP algorithm, The Boyer-Moore algorithm. Backtracking & Recursive backtracking, Applications of backtracking paradigm ,Complexity measures, Polynomial Vs non polynomial time complexity; NP- hard and NP-complete classes, examples.

References:

1. Coreman, Rivest, Lisserson, : "Algorithm", PHI.
2. Basse, "Computer Algorithms: Introduction to Design & Analysis", Addison Wesley.
3. Horowitz & Sahani, "Fundamental of Computer Algorithm", Galgotia.



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS

Name of Subject	COMPUTER NETWORKS	Subject Code	CS20612(CS)
Semester	B.Tech VI Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks	70	Minimum Marks	28
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
3	1		4

UNIT- I:- INTRODUCTION TO COMPUTER NETWORK: -

Uses of Computer Network, Network hardware, Layered Architecture, function of the layers, OSI & TCP/IP Reference model, Physical layer services & Transmission Media, Guided Media and Unguided Media, Switching technique (Circuit Switching, Message Switching, Packet Switching) and its timing diagram.

UNIT –II:- DATA LINK CONTROL: -

Framing, Flow Control : Stop and wait Protocols, Sliding Window Protocols. Error Detection & Error Control, High Level Data Link Control (HDLC),MAC Protocols: Pure ALOHA & Slotted ALOHA, CSMA, CSMA/CD, IEEE Standards(IEEE 802.3, IEEE 802.4, IEEE 802.5), FDDI : access method , addressing, electrical specification, frame format, comparison of FDDI-I & FDDI-II . DQDB.

UNIT-III :- NETWORK LAYER :-

Network Layer Protocols: Design issues : Virtual Circuits and datagram's, Repeaters, Bridge Routers & Gateways, Routing Algorithms: Optimality principle, Shortest path routing- Dijkstra's algorithms, Distance Vector routing, Link state routing, Flow and Congestion Control: packet discarding , Traffic shaping , Choke packets, RSVP, IP fragment, RIP, OSPF, IP protocol, IP addresses, ARP, RARP, ICMP, Mobile IP.

UNIT-IV:- TRANSPORT LAYER:-

Functions of the transport layer: end to end delivery, addressing, reliable delivery, flow control, multiplexing, Connection Management : Establishment and releases , Crash recovery, TCP & UDP, Wireless TCP and UDP.

UNIT-V:- UPPER LAYERS: -

Session Layer Protocols: Dialog Management, Synchronization.

Presentation layer functions: translation, encryption, compression.

Application layer protocols & services: Network Security Email, World Wide Web, file transfer protocol, DNS.

Text Books:-

1. Computer networks”, Second Ed., A.S. Tannenbaum, Prentice Hall India.
2. Data Communication & Networking, B.A. Forouzan, Tata Mc Graw Hill.

Reference Books :-

1. Data Networks, D.Bertsekas and R. Gailagher, PHI Second Ed.
2. Internetworking with TCP/IP, Vol. 1, D.E. Comer, Prentice Hall India.
3. Computer Networking with IP, Stalling, Pearson Education.



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS

Name of Subject	UNIX and SHELL Programming	Subject Code	CS20613(CS)
Semester	B.Tech VI Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks	70	Minimum Marks	28
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
3	1		4

UNIT – 1: INTRODUCTION :

Introduction to Multi user System, History of UNIX, Features & Benefits, Versions of UNIX, Features of UNIX File System,, Commonly Used Commands like who, pwd, cd, mkdir, rm, rmdir, ls, mv, ln, chmod, cp, grep, sed, awk ,tr yacc etc. getting Started (Login/Logout)

Vi Editor: Introduction to Text Processing, Command & edit Mode, Invoking vi, deleting & inserting Line, Deleting & Replacing Character, Searching for Strings, Yanking, Running Shell Command Macros, Set Window, Set Auto Indent, Set No.

UNIT-2 : INTRODUCTION TO SHELL SCRIPTS & AWK PROGRAMMING :

Bourne Shell, C Shell, Shell Variables, Scripts, Meta Characters and Environment, if and case Statements, for, while and until loops. Awk Pattern Scanning and Processing, begin and end Patterns, Awk Arithmetic and Variables, built In functions and Operators, Arrays, Strings.

UNIT- 3 : GENERAL OVERVIEW OF THE SYSTEM :

System Structure, User Perspective, Operating System Services Assumption about Hardware, The Kernel and Buffer Cache Architecture of UNIX Operating System, System Concepts, Buffer Headers, Structure of the Buffer Pool, Scenarios for Retrieval of the Buffer, Reading and Writing Disk Blocks, Advantages and Disadvantages of Buffer Cache.

UNIT- 4 : INTERNAL REPRESENTATION OF FILES .:

System Calls for the File System, INODES, Structure of Regular File, Directories, Conversions of a Path, name to an INODE, Super Block, INODE Assignment to a New File, Allocation of Disk Blocks. Open, Read, Write, File and Record Close, File Creation Creation of Special Files, Change Directory and Change Root, Change Owner and Change Mode, STAT and FSTAT, PIPES, Mounting and Unmounting Files System, Link, Unlink.

UNIT –5 : STRUCTURES OF PROCESSES AND PROCESS CONTROL

Process States and Transitions Layout of System Memory, The Context of a Process, Manipulation of the Process Address Space, Sleep Process Creation/Termination, The User ID of a Process, Changing the Size of a Process. The Shell. Case Study of Various LINUX Versions.

Text Book

1. The Design of Unix Operating System, Maurice J. Bach, Pearson Education
2. Advance UNIX, a Programmer's Guide, S. Prata, BPB Publications, New Delhi.
3. Unix Concepts and Applications, Sumitabh Das.

Reference Books :

1. The UNIX Programming Environment, B.W. Kernighan & R. Pike, Prentice Hall of India.
2. Guide to UNIX Using LINUX, Jack Dent Tony Gaddis, Vikas/ Thomson Pub. House Pvt. Ltd.



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

SYLLABUS

Name of Subject	SOFTWARE ENGGINEERNG	Subject Code	CS20614(CS)
Semester	B.Tech VI Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks	70	Minimum Marks	28
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
3	1		4

UNIT –1 SOFTWARE PROCESS

The Evolving role of Software – Software – The changing Nature of Software –Legacy software —A generic view of process– A layered Technology – A Process Framework – The Capability Maturity Model Integration (CMMI) – Process Assessment – Personal and Team Process Models. Product and Process. Process Models – The Waterfall Model – Incremental Process Models – Incremental Model – The RAD Model – Evolutionary Process Models – Prototyping – The Spiral Model –The Concurrent Development Model – Specialized Process Models – the Unified Process.

UNIT –2 SOFTWARE REQUIREMENTS

Functional and non-functional requirements – user and system requirement - requirement engineering process- feasibility studies –elicitation and analysis– validation and management – software prototyping– prototyping in the software process – rapid prototyping techniques – user interface prototyping – SRS Analysis and modeling – data, functional and behavioral models – Data Dictionary.

UNIT– 3 DESIGN CONCEPTS AND PRINCIPLES

Design process and concepts – modular design – design heuristic – design model and document. Architectural design, software architecture data design, architectural design transform and transaction mapping – user interface design – user interface design principles, monitoring and Control system. SCM – Need for SCM – Version control – introduction to SCM process – Software Configuration items

UNIT– 4 TESTING & MAINTENANCE

Taxonomy of software testing – levels – test activities – types of s/w test – black box testing – white box testing – testing boundary condition – structural testing –test coverage criteria Based on data flow mechanisms – regression testing – S/W testing strategies - strategic approach and issue – unit testing – integration testing – validation testing – system testing and debugging, SQA, Software Maintenance, Reengineering and Reverse engineering

UNIT – 5 SOFTWARE METRICS AND ESTIMATION

Measures and metrics – S/W complexity and size measure –data and logic structure measure, information flow measure. Software cost estimation-Function oriented models – COCOMO model-Delphi method - Defining a Task Network – Scheduling Earned Value Analysis – Error Tracking – Risk Management, Software changes – program evolution dynamics software maintenance – Architectural evolution Taxonomy of CASE tools.

Text Book

1. Software engineering – A practitioner’s Approach, Roger S. Pressman, McGraw-Hill International Edition, 5th edition, 2001
2. Object Oriented Modelling & Design, Remgaugh J. Blaha, M. Premeralant, W. Eddy F. An Lornsen W. (PHI)

References Book

1. Software engineering, Ian Sommerville, Person education Aisa. 6th edition 2000.
2. An Integrated Approach to Software Engineering, Pankaj Jalote, Springer Verlag.
3. Software Engineering – An Engineering Approach, James F. Peters and Witold Pedryez. Wiley and Sons. New Delhi. 2000.



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS

Name of Subject	Compiler Design	Subject Code	CS20615(CS)
Semester	B.Tech VI Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks	70	Minimum Marks	28
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
3	1		4

UNIT –1 INTRODUCTION:

Introduction to Compiler, Translators, interpreter, cousins of compiler, single and multi-pass compilers, Phases of Compilers, Compiler construction tools, Bootstrapping, cross compilers Lexical Analyzer: Role of Lexical Analyzer, Specification of tokens, Recognition of tokens, Regular expression, Finite automata, regular expression to finite automata transition diagrams, Tool for lexical analyzer LEX. Context free grammars (CFG), simplification of CFGs, ambiguity, left factoring, left recursion.

UNIT-2 SYNTAX ANALYSIS AND PARSING TECHNIQUES:

Introduction to parsing techniques, Bottom-up parsing and top down parsing. Top down Parsing , recursive descent parsing, Predicative Parsing ,Bottom Up Parsing : Operator precedence parsing, LR parsers- Construction of SLR, canonical LR and LALR parsing tables, Construction of SLR parse tables for Ambiguous grammar, the parser Generator tools – YACC, error recovery in top down and bottom up parsing.

UNI-3 SYNTAX DIRECTED TRANSLATION & INTERMEDIATE CODE GENERATION:

Syntax directed definitions, Synthesized and inherited attributes, dependency graph, Construction of syntax trees, bottom up and top down evaluation of attributes, S-attributed and L-attributed definitions ,Postfix notation, Three address codes, quadruples, triples and indirect triples, Translation of assignment statements, control flow, Boolean expression, case statements and Procedure Calls.

UNIT-4 TYPE CHEKING AND RUNTIME ENVIRONMENTS:

Introduction, simple type checker, type conversions, overloading of functions and operators, Source language issues, Storage organization, storage allocation strategies, Parameter passing, symbol tables, dynamic storage allocation techniques,

UNIT-5 CODE OPTIMIZATION & CODE GENERATION:

Basic blocks and flow graphs, Optimization of basic blocks, Loop optimization, Global data flow analysis, Loop invariant computations, DAG representation of basic blocks, Peephole optimization, Issue in the design of Code generator, register allocation, the target machine, and simple Code generator.

Text Books:

1. Compilers-Principles, Techniques and Tools, Alfred V. Aho, Ravi Sethi and Ullman J.D.,Addison Wesley.
2. Principle of Compiler Design, Alfred V. Aho, and J.D. Ullman, Narosa Publication.

Reference Books:

1. Compiler design in C, A.C. Holub, PHI.
2. Compiler construction (Theory and Practice), A.Barret William and R.M. Bates, Galgotia Publication.
3. Compiler Design-Principles and Practice by Kenneth C. Louden



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS

Name of Subject	Parallel Processor & Computing	Subject Code	CS20616(CS)
Semester	B.Tech VI Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks	70	Minimum Marks	28
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
4	1		5

UNIT-I: Introduction & Technique of Parallelism:

Trends towards parallel computing, parallelism in Uni-processor systems, Architectural classification schemes, Amdahl's law, Moore's law, Principles of Scalable Performance, Parallel Processing in Memory, Models of Parallel Processing, Cache coherence, Cache coherence Protocols.

UNIT-II: Pipeline & Vector Processing:

Conditions of Parallelism: Data & Resource dependencies, Program flow mechanisms: Control-flow .vs. Data flow computers Principle of pipelining and vector processing: principles of linear pipelining, classification of pipeline processors. General pipelines and reservation tables.

UNIT-III : SIMD & Multiprocessor Architecture:

SIMD Array Processor: Masking & Data Routing mechanisms, Inter-PE communication SIMD Networks: Mesh connected iliac network, Cube interconnection network, Shuffle- Exchange and Omega network, Star versus Dynamic networks. Function Structure: Loosely coupled multiprocessors, Tightly coupled multiprocessors Interconnection network: Time shared or common buses, Crossbar switch& Multiport Memories, Multistage network for multiprocessors, Parallel Memory Organizations: Interleaved Memory configurations.

UNIT-IV: Multiprocessor architecture and Programming:

Emulation and Scheduling, Emulations among Architectures, Distributed Shared Memory ,Data Storage, Input, and Output, Multithreading and Latency Hiding, Parallel I/O Technology, Defect-Level Methods, Fault-Level Methods, Error-Level Methods.

UNIT-V: Parallel System Implementations:

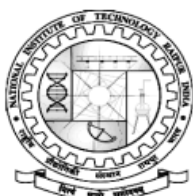
Shared-Memory MIMD Machines, Variations in Shared Memory, MIN-Based BBN Butterfly, Vector-Parallel Cray Y-MP, CC-NUMA Stanford DASH, Message-Passing MIMD Machines, Data-Parallel SIMD Machines.

Name of Text Books:-

- 1.Computer Architecture & Parallel processing - Kai Hwang 7 Briggs.(MGH).
- 2.Parallel Computers Arch.& Prog- Rajaraman & Siva Ram Murthy, PHI.
3. Introduction to Parallel Processing: Algorithms and Architectures-B.Parhami

Name of Reference Books :-

1. R.W. Hockney, C.R. Jesshope, "Parallel Computer 2 –Arch.& Algo.", Adam Hilger.
2. K. Hwang, "Advanced Computer Architecture with ParallelProgramming", MGH.
3. Parallel computing- Theory and practice - Michael J Quinn- Mc Graw Hill



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

SYLLABUS

Name of Subject	ANALYSIS & DESIGN OF ALGORITHMS LAB	Subject Code	CS20621(CS)
Semester	B.Tech VI Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks		Minimum Marks	
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
-	-	2	1

DESIGN AND ANALYSIS OF ALGORITHMS LABORATORY WORK

Programming assignments on each algorithmic strategy:

Sorting : Insertion sort, Heap sort, Bubble sort

Searching : Sequential and Binary Search

Selection : Minimum/ Maximum, Kth smallest element

Divide and conquer method (quick sort, merge sort, Strassen's matrix multiplication),

Greedy method (knapsack problem, job sequencing, optimal merge patterns, minimal spanning trees).

Dynamic programming (multistage graphs, 0/1 knapsack, Matrix multiplication

Back tracking (n-queens problem, graph coloring problem, Hamiltonian cycles)



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING SYLLABUS

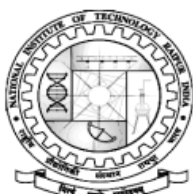
Name of Subject	Computer Networks Lab	Subject Code	CS20622(CS)
Semester	B.Tech VI Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks		Minimum Marks	
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
-	-	2	1

List of experiments to be conducted in Computer Network Lab.

1. Introduction to Local Area Network with its cables, connectors and topologies.
2. Installation of Switch. Hub their cascading and network mapping.
3. Installation of UTP, Co-axial cable, Cross cable, parallel cable NIC and LAN card.
4. Case Study of Ethernet (10 base 5,10 base 2,10 base T)
5. Installation and working of Net meeting and Remote Desktop.
6. Installation and working with Telnet (Terminal Network).
7. Installation and working with FTP (File Transfer Protocol).
8. Installation and Computers via serial or Parallel ports and enable the computers to share disk and printer port.
9. To connect two Personal Computer with Telephone line.
10. Installation of Modem and Proxy Server.
11. Working with Null Modem.
12. Installation of Windows 2003 server/ Windows 2000 server.
13. Configuration of DHCP.
14. Introduction to Server administration.

Recommended Books.

1. Computer Network and internet by Douglas E. Comer (Pearson Education)
2. List of Software required :-
3. Windows 2003 server/Windows 2000 server.
4. List of Hardware required :-
5. LAN Trainer Kit LAN Card Cable, Connectors, HUB, Switch, Crimping Tools.



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS

Name of Subject	UNIX & SHELL Programming Lab	Subject Code	CS20623(CS)
Semester	B.Tech VI Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks		Minimum Marks	
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
-	-	2	1

1. Write a shell script to accept three numbers and display the largest.
2. Write a shell script to find the number of files in a directory.
3. Write a shell script to display first ten positive numbers using until loop.
4. Write a shell script to check if a particular user has logged in or not. If not, continue the loop till he/she logins. Once the required user logins, display a message.
5. Write a shell script to accept the name, grade, and basic salary from the user. Write the details into a file called employee, separating the fields with a colon (,) continue the process till the user wants.
6. Write a menu driven program to display a menu of options and depending upon the user's choice execute the associated command.
7. Write a shell script to check whether a file is existing or not.
8. Write a shell script to find the mode of a file in a directory.
9. Write a shell script which will accept different numbers and find their sum.
10. Write a shell script to calculate the total salary payable to all the employees from the employee file.
The salary should be taken from the 8th field of the employee file.
11. Write a shell script to copy the source file to the target file.
12. Write a shell script to print the first 10 odd numbers using the while loop.
13. Write a shell script to generate the factorial of a given number entered through keyboard.
14. A five digit number is input through the keyboard. Write a shell script to calculate the sum of its digits.
15. Write a shell script to generate the Fibonacci series.
16. Write a shell script to reverse the digits of a given number.

Reference Books:

1. S. Prata, Advance UNIX, a Programmer's Guide, BPB Publications, New Delhi.
2. Sumitabh Das, Unix Concepts and Applications.



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

SYLLABUS

Name of Subject	Innovative and Entrepreneurial Skills	Subject Code	EN20624(CS)
Semester	B.Tech VI Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks		Minimum Marks	
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
-	-	2	1

Unit I

innovation- an abstract concept; creativity, innovation and imagination; types of innovation -classified according to products, processes or business organizations.

Unit II

Entrepreneurship: who is an entrepreneur? Entrepreneurship- A state of Mind, Emergence of entrepreneur; Role of Entrepreneur; A Doer not a Dreamer- Characteristics of an entrepreneur; Factors affecting entrepreneurial growth – Social, cultural, personality factors, psychological and Social Factors. Impact of Entrepreneurship for sustainable development.

Unit III

Difference between entrepreneur and entrepreneurship, Difference between entrepreneur and intra-preneur, Common Entrepreneurial competencies/Traits; Entrepreneurship stimulants, Obstacles inhibiting Entrepreneurship; Types of entrepreneurs, Functions of an entrepreneur.

Unit IV

Identification of Business Opportunities: Introduction, Sources of Business of Product Ideas, Steps in Identification of Business opportunity and its SWOT Analysis.

UNIT-V

Techno-Economic Feasibility of the project: Introduction, Techno- Economic feasibility of the Project, Feasibility Report, Considerations while preparing a Feasibility Report, Proforma of Feasibility Report, Role of Institutions and entrepreneurship.

Text and Reference Books:

1. Competing through Innovation-Bellon & Whittington, Prentice Hall of India
2. A Guide to Entrepreneurship – David Oates- JAICO Publishing House.
3. Entrepreneurship- Rober D Hisrich, Peters, Shepherd- TMH
4. Entrepreneurship in Action- Coulter, Prentice Hall of India
5. Entrepreneurship Management and Development – Ajith Kumar, HPH
6. Fundamentals of entrepreneurship- Mohanty, PHI
7. Patterns of Entrepreneurship- Jack M Kaplan, Wiley, student Edition