Jabalpur Engineering College, Jabalpur

Semester V Credit Based Grading System (CBGS) w.e.f. July 2017

Scheme of Examination

Bachelor of Engineering B.E. (Information Technology)

Subject wise distribution of marks and corresponding credits

Scheme of Examination w.e.f. July-2017 Academic Session-2017-18

S. No.	Subject Code	Subject Name & Title	Maximum Marks Allotted						Hours / week.			Total Credits	Total Marks
			Theory			Practical		Total Marks					
			End Sem	Mid Sem. MST	Quiz, Assign ment	End Sem.	Lab Work		L	T	P		
1	**IT5001**	IT Enabled Services, Ethics and Management	70	20	10	-	-	100	3	1	-	4	
2	**IT5002**	Computer Network	70	20	10	30	20	150	3	1	2	6	
3	**IT5003**	Operating System	70	20	10	30	20	150	3	1	2	6	
4	**IT5004**	Automata and Compiler Design	70	20	10	30	20	150	3	1	2	6	
5	**IT5005**	Elective-I	70	20	10	-	-	100	3	1	-	4	
6	**IT5006**	Structured Query Language Lab	-	-	-	30	20	50	-	-	2	2	
7	**IT5007**	Linux and Shell Programming	-	-	-	-	50	50	-	-	2	2	
8	**IT5008**	Evaluation of Industrial Training (Internal Assessment) (2 Weeks)	-	-	-	-	50	50	-	-	2	2	
Total			**350**	**100**	**50**	**120**	**180**	**800**	**15**	**5**	**12**	**32**	**800**

MST: Minimum of two mid semester tests to be conducted.

L: Lecture **T: Tutorial** **P: Practical**

Elective-I	
Subject Code	**Subject Name**
IT5005A	Data Base Management System
IT5005B	E-Commerce, E-Business and E-Governance
IT5005C	Computer Graphics and multimedia
IT5005D	Management Information System

B.E.CBGS V SEMESTER
IT ENABLED SERVICES, ETHICS AND MANAGEMENT

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	IT Enabled Services, Ethics and Management	IT5001	Min. "D"	Min. "D"	5.0

Unit I: Business Strategy: Challenges and Opportunities for IT:

Business Strategy: Challenges and Opportunities in the Globalized, Interconnected, Convergent World, Establish Principles before Practice, IT Strategy, Application Strategy, Technology Strategy for IT , IT Management Strategy, Developing IT Strategy for Competitive Advantage, Stages of IT Strategy Development and Implementation, Challenges of IT and Business Strategy Alignment, Inhibitors of Business and IT Strategy Alignment, Three-D Framework for Business and IT Strategy Alignment

Unit II : Strategic IT Planning:

Business Implications for IT Strategic and Planning, Strategic IT Planning Motivations, SITP Process: Prevalent Planning Approaches, Difficulties in Developing and Executing SITP, Best Practices for Achieving Good SITP, SITP Approaches: Prevalent Researches, Defining EITA, Contents of a Typical Enterprise IT Architecture, Standard for Enterprise IT Architecture, Technology Management strategy Framework, Prevalent Technology Reference Architectures Framework and Standards, Program Management, Benefits of PMO, Desired Qualities of a Program Office Manager, Maturity of PMO, Implementation of PMO Strategy, Measuring PMO Performance, Success Factors for PMO, Project t Scope Management, PMO Dashboard and Reporting

Unit III : IT Service Management Strategy:

Information Technology Infrastructure Library (ITIL), ITIL Overview, ITIL Service Support Processes, Incident Management, Problem Management, Service Delivery, Service Level Management, Financial Management, Capacity Management, IT Service Continuity Management (ITSCM),Availability Management, Imperatives for Outsourcing, IT Management Layers, Variants of Outsourcing, Business Process Outsourcing, In sourcing

Unit IV : Copyright and IPR:

Understanding the concepts of Copyright, Intellectual Property Law, Patents, Indian Standards Institution and its role Indian copyright la w of 1957 and its most important amendment from a software review point, Understanding Intellectual property, Caution with Internet , Email Etiquette, Spamming. Broadcasting.

Unit V : IT ethics:

Theoretical basis of Computer Ethics, defining Computer Ethics, computer professional's behavior, and social conduct, ease of misuse, do and don'ts with proprietary data, Understanding computer crime, Social Networking, Understanding Software Compliance, Software Piracy, Understanding Professional responsibilities

Books References:-

1. IT strategy and Management by Sanjiva Shankar Dubey, PHI
2. Marketing of Information Technology,by K.Venkatesh,TMH

B.E.CBGS V SEMESTER
COMPUTER NETWORKS

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	Computer Networks	IT5002	Min. "D"	Min. "D"	5.0

Unit-I:

Importance of computer networks, broadcast and point to point networks, Local area networks and Wide area networks , Introduction to ISO-OSI reference model, TCP/IP reference model , function of each layer, interfaces and services, Protocol data unit, connection oriented and connectionless services, service primitives, comparison of TCP/IP and ISO-OSI reference model, Novel Netware, Arpanet ,X.25

Unit -II: Data-Link layer:

Data link layer design issues, framing , flow & error control , physical addressing, Stop & Wait protocol ,Go back N ARQ ,selective repeat ARQ, piggybacking and pipelining ,HDLC LAN Protocol stack-Logical link control and Media Access Control sub layer, IEEE 802.2 LLC Frame format Data link layer in the internet, Serial line IP and Pont to point protocol

Unit-III: MAC layer Protocols:

static and dynamic allocation , Pure and slotted ALOH A protocols, Carrier sense multiple access, Persistent and non persistent CSMA, IEEE standard 802.3 and Ethernet,802.3cabling, IEEE 802.4, IEEE 802.5, FDDI Wireless LAN , Zigbee, Bluetooth, 6lowPan, Comparison of wired and wireless LAN, WIMAX

Unit –IV: The Network layer:

logical addressing, class full & classless addressing , address mapping ,packet delivery & forwarding. unicast routing protocols , multicast routing protocols, Routing algorithm-Least Cost, Dijkstra's, Bellman-ford, congestion control algorithms, Internetworking devices, Introduction to Internet protocol IPv4 & IPv6

Unit –V: Transport layer:

Transport services , Process to process delivery, UDP ,TCP ,congestion control , quality of service , Integrated services, Differentiated services LAN-WAN Design and implementation-Configuring TCP/IP, using IP configure, ping command , study of structured LAN , study of internetworking devices an d their configuration– switches, hubs, Bridges, routers and Gateways.

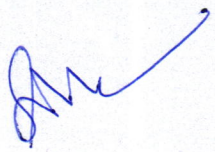
Books References:-

1. "Local area networks ", Forouzan, TMH, 1st edition
2. "Computer Networks" - Tanenblaum ,PHI Learning.
3. "Computer Networks" ,N Olifer and V Olifer ,Wiley publication
4. "Computer Communications & Networking Technologies"-Michael A. Gallo & William M. Hancock -Cengage pearsen publications.
5. "Computer Networks: Protocols, Standards and Interfaces"- By Black, PHI learning pub.

COMPUTER NETWORKS

List of Experiments

1. Establishment and configuration of LAN
2. Color coding standard of CAT 5,6,7 and crimping of cable in RJ-45
3. Study of WAN
4. Case study of STOP AND WAIT Protocols
5. Study of sliding window protocol
6. study of IEEE 802.3 , 802.4 ,802.5
7. Study of FDDI
8. Study of basic networking commands like ping, ipconfig, etc
9. Case study of va rious Routing Strategies
10. Case studies of various Network Topologies
11. Establishing & studying the various parameters of a home LAN Network
12. Study of IOS of routers
13. Configuring routers, bridges and switches and gateways



B.E.CBGS V SEMESTER
OPERATING SYSTEM

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	Operating System	IT5003	Min. "D"	Min. "D"	5.0

Unit –I: Introduction to Operating System:

Evolution of Operating System Types of Operating system Batch Processing, Real Time, Multitasking & Multiprogramming, time-sharing system. Operating system services, Operating system structure, System Call & System Boots, Operating system design & Implementations, System protection, Buffering & Spooling.

Unit-II: Process Management:

Basic concepts of CPU scheduling, Scheduling criteria, Scheduling algorithms, algorithm evaluation, multiple processor scheduling. Process concept, operations on processes, threads, inter process communication, precedence graphs, critical section problem, semaphores, classical problems of synchronization. Deadlock problem, deadlock characterization, deadlock prevention, deadlock avoidance, deadlock detection, recovery from deadlock, Methods for deadlock handling.

Unit-III: Memory Management:

Concepts of memory management, logical and physical address space, swapping, Fixed and Dynamic Partitions, Best-Fit, First-Fit and Worst Fit Allocation. Virtual Memory Management-paging, segmentation, and paging combined with segmentation. Cache Memory Organization, demand paging, page replacement algorithms, allocation of frames, thrashing, demand segmentation.

Unit –IV: File Management:

File systems: What is a file, user view of files, file types and file operations, file types in Unix and Microsoft, file operation commands, file access rights, file storage management, Inode or FAT structure, file control blocks, root file system, directory and file paths, blocks, impact of block size selection, contiguous allocation, chained and indexed allocations, Impact of allocation policy on fragmentation, mapping file blocks on the disk platter, cylinder, disk access control and scheduling

Unit-V: Input Output management & Security:

Issues in human centric, device centric and computer centric IO management, input output modes, programmed IO, polling, interrupt mode of IO, various types of interrupts, interrupt servicing, priority interrupts, interrupt vectors, direct memory access (DMA) mode of transfer, setting up DMAs, device drivers, interrupt handling using device drivers, buffer management, device scheduling, disk scheduling algorithms and policies. Role of Operating System in Security, Security Breaches, System Protection, and Password Management.

Case study: Linux, Unix, Window XP

Books Reference :

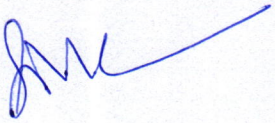
1. Tanenbaum " Modern Operating System" PHI Lea rning.
2. M. Flynn " Operating Systems", Cengage Learning.
3. Silberschatz ,"Operating system", Willey Pub
4. Dhamdhere, "System Programming and Operating System",TMH.

5. Stuart,"Operating System Principles, Design & Applications", Cengage Learning
6. Operating System : Principle and Design by Pabitra Pal Choudhury, PHI Learning

OPERATING SYSTEM

List of Experiments :

1. Program to implement FCFS CPU scheduling algorithm.
2. Program to implement SJF CPU scheduling algorithm.
3. Program to implement Priority CPU Scheduling algorithm.
4. Program to implement Round Robin CPU scheduling algorithm.
5. Program to implement classical inter process communication problem(producer consumer).
6. Program to implement classical inter process communication problem(Reader Writers).
7. Program to implement classical inter process communication problem(Dining Philosophers).
8. Program to implement FIFO page replacement algorithm.
9. Program to implement LRU page replacement algorithm
10. Program to implement LFU page replacement.
11. Program to implement Optimal page replacement.



B.E.CBGS V SEMESTER
AUTOMATA AND COMPILER DESIGN

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	Automata and Compiler Design	IT5004	Min. "D"	Min. "D"	5.0

Unit -I: Introduction:

Alphabets, Strings and Languages; Automata and Grammars, Deterministic finite Automata (DFA)-Formal Definition, Simplified notation: State transition graph, Transition table, Language of DFA, Nondeterministic finite Automata (NFA), Equivalence of NFA and DFA, Minimization of Finite Automata, Regular expression, Regular Grammar, Regular languages, closure properties of Regular languages.

Unit -II: Context free grammars, Properties of context free languages. Pushdown Automata:

Non deterministic push down automata: Definition of a push down automata, the language accepted by a push down automata, Push down automata for context free languages, CFG's for PDA, Deterministic Push down automata and Deterministic Context free languages.

Unit -III: Compiler Structure:

Compilers and Translators, Various Phases of Compiler. Lexical Analysis: The role of Lexical Analyzer, A simple approach to the design of Lexical Analyzer, Implementation of Lexical Analyzer. The Syntactic Specification of Programming Languages: CFG, Derivation and Parse tree, Ambiguity, Capabilities of CFG. Basic Parsing Techniques: Top-Down parsers with backtracking, Recursive Descent Parsers, Predictive Parsers, Bottom-up Parsers, Shift-Reduce Parsing, Operator Precedence Parsers, LR parsers (SLR, Canonical LR, LALR)

Unit -IV: Intermediate Code Generation:

Different Intermediate forms: three address code, Quadruples & Triples. Syntax Directed translation mechanism and attributed definition. Translation of Declaration, Assignment control flow, Boolean expression, Array References in arithmetic expressions, procedure calls, case statements, postfix translation.

Unit- V:Run Time Memory Management:

Static and Dynamic storage allocation, stack based memory allocation schemes, Symbol Table management. Code Optimization and Code Generation: Local optimization, Loop optimization, Peephole optimization, Basic blocks and flow graphs, DAG, Data flow analyzer, Machine Model, Order of evaluation, Register allocation and code selection

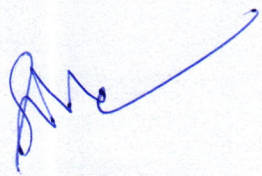
Books References:-

1. Louden, "Compiler construction", Cengage learning .
2. Alfred V Aho, Jeffrey D. Ullman, "Principles of Compiler Design", Narosa.
3. A.V. Aho, R. Sethi and J.D Ullman, "Compiler: principle, Techniques and Tools", AW.
4. Michal Sipser, "Theory of Computation", Cengage learning.
5. H.C. Holub, "Compiler Design in C", Prentice Hall Inc.
6. Hopcroft, Ullman, "Introduction to Automata Theory, Languages and Computation", Pearson Education.
7. K.L.P. Mishra and N.Chandrasekaran, "Theory of Computer Science : Automata, Languages and Computation",PHI.

AUTOMATA AND COMPILER DESIGN

List of Experiment

1. Write a program for executing the Deterministic Finite Automata (DFA). The program should able to accept an input string, and able to result as ACCEPTED/NOT ACCEPTED. Design a DFA which accepts input string only if the pattern e.g. 'abc', is available in the input string. Example : Pattern "abc" I/P String : "xyabcp" ACCEPTED I/P String : "abxsc" NOT ACCEPTED I/P String : "abc" ACCEPTED
2. Design a lexical analyzer for given language and the lexical analyzer should ignore redundant spaces, tabs and new lines. It should also ignore comments. Although the syntax specification states that identifiers can be arbitrarily long, you may restrict the length to some reasonable value. Simulate the same in C language.
3. Write a C program to identify whether a given line is a comment or not.
4. Write a C program to recognize strings under 'a', 'a*b+', 'abb'.
5. Write a C program to test whether a given identifier is valid or not.
6. Write a C program to simulate lexical analyzer for validating operators.
7. Implement the lexical analyzer using JLex, flex or other lexical analyzer generating tools
8. Write a C program for implementing the functionalities of predictive parser for the mini language specified in Note 1.
9. Write a C program for constructing of LL (1) parsing.
10. Write a C program for constructing recursive descent parsing.
11. Write a C program to implement LALR parsing.
12. Write a C program to implement operator precedence parsing.
13. Write a C program to implement Program semantic rules to calculate the expression that takes an expression with digits, + and * and computes the value.



B.E.CBGS V SEMESTER
(ELECTIVE-I) DATA BASE MANAGEMENT SYSTEM

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	(Elective-I) Data Base Management System	IT5005A	Min. "D"	Min. "D"	5.0

Unit -I Basic Concepts:

DBMS Concepts and architecture Introduction, Database approach v/s Traditional tile accessing approach, Advantages of database systems, Data models, Schemas and instances, Data independence, database users and DBA.

Unit-II :Data models and their Comparison, Entities and attributes, Entity Sets, Relationships, Extended E-RFeatures Defining the E-R diagram of database Relational Data models:

Domains, Tuples, Attributes, Relations, and Integrity constraints. Key (super key, candidate key, primary key, foreign key, and referential key)

Unit -III: Structured Query Language ,Relational Query languages:

Relational algebra, Relational algebra operations like select, Project, Join, Division, outer union. SQL: DDl, DML and their commands, Aggregate function, nested subquery, views in SQL, join Data retrieval queries, accessing SQL from programming language.

Unit- IV: Database Design Data Base Design:

Introduction to normalization, Normal forms, Functional dependency, Decomposition, Dependency preservation and lossless join, multi-valued dependencies.

Unit -V: Transaction Processing Concepts:

Transaction System, Testing of Serializability, Serializability of schedules, conflict & view serializable schedule, recoverability, Recovery from transaction failures. Log based recovery. Checkpoints deadlock handling. Concurrency Control Techniques: - Concurrency Control, locking Techniques for concurrency control, time stamping protocols for concurrency control, validation based protocol, multiple granularity. Multi version schemes, Recovery with concurrent transaction. Introduction to Distributed databases, data mining, data warehousing.

Books References:

1. Database System Concepts, Silberschatz, Korth and Sudarshan
2. Fundamental of database system by Elmasri / Navathe the Benjamin / Cunnings Publishing company inc.
3. Data Base Management System by C.J. Date
4. Data Base Management System by Ullman
5. Data base design by Gio Wiederhold. McGraw Hill
6. Data base design by Gio Wiederhold. McGraw Hill
7. Fundamental of Data Base Management System by Leon & Leon, Vikas Publishing House Pvt. Ltd.
8. Oracle 9i Database Administration Fundamental-I, Volume I, Oracle Press, TMH.

B.E.CBGS V SEMESTER
(ELECTIVE-I) E-COMMERCE, E-BUSINESS AND E-GOVERNANCE

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	(Elective-I) E-Commerce, E-Business and E-Governance	IT5005B	Min. "D"	Min. "D"	5.0

Unit- I: Introduction to e-commerce:

History of e-commerce, e-business models B2B, B2C, C2C, C2B, legal; environment of e-commerce, ethical issues, electronic data interchange, value chain and supply chain, advantages and disadvantages of e-commerce.

Unit- II: Electronic Payment Systems:

Credit cards, debit cards, smart cards, e-credit accounts, e-money, Marketing on the web, marketing strategies, advertising on the web, customer service and support, introduction to m-commerce, case study: e-commerce in passenger air transport.

Unit- III:

E-Government, theoretical background of e-governance, issues in e-governance applications, evolution of e-governance, its scope and content, benefits and reasons for the introduction of e-governance, e-governance models- broadcasting, critical flow, comparative analysis, mobilization and lobbying, interactive services / G2C2G.

Unit -IV:

E-readiness, e-government readiness, E- Framework, step & issues, application of data warehousing and data mining in e-government, Case studies: NICNET-role of nation wide networking in egovernance, e-seva.

Unit -V: E-Government systems security:

Challenges and approach to e-government security, security concern in e-commerce, security for server computers, communication channel security, security for client computers.

Books References:-

1. Gary P. Schneider, "E-commerce", Cengage Learning India.
2. C.S.R. Prabhu, "E-governence: concept and case study", PHI Learning Private Limited.
3. V. Rajaraman, "Essentials of E-Commerce Technology", PHI Learning Private Limited.
4. David Whiteley, "E-commerce study , technology and applications", TMH.
5. J. Satyanarayan, "E-government: The science of the possible", PHI Learning Private Limited.
6. P.T. Joseph, "E-Commerce An Indian Perspective", PHI Learning Private Limited.
7. Hanson and Kalyanam, "E-Commerce and Web Marketing", Cengage Learning India.

B.E.CBGS V SEMESTER
(ELECTIVE-I) COMPUTER GRAPHICS & MULTIMEDIA

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	(Elective-I) Computer Graphics & Multimedia	IT5005C	Min. "D"	Min. "D"	5.0

Unit-I:

Introduction to raster scan displays, Pixels, frame buffer, Vector & Character generation, random scan systems, Graphics Primitives, Display devices, Display file structure, Scan Conversion techniques, line drawing: simple DDA, Bresen ham's Algorithm, Circle Drawing Algorithms. Scan line polygon fill algorithm, boundary-fill and flood-fill algorithms.

Unit-II: 2D transformation:

Translation, Rotation, Scaling, Shearing, Reflection. Inverse Transformation, Homogenous coordinate system, Matrices Transformation, Composite Transformation. Windowing & Clipping: World Coordinate System, Screen Coordinate System, Viewing Transformation, Line Clipping, Cohen Sutherland, Midpoint Line clipping algorithms, Polygon Clipping: Sutherland – Hodgeman, Weiler-Atherton algorithms.

Unit-III: 3D transformations:

Translation, rotation, scaling. Parallel & Perspective Projection,Types of Parallel & Perspective Projection. Hidden Surface elimination: Depth comparison, Back face detection algorithm, Painters algorithm, Z-buffer algorithm. Curve generation, Bezier and B-spline methods.

Unit-IV:

Basic Illumination Model, Diffuse reflection, Specular reflection, Phong Shading Gourand shading, ray tracing, color models like RGB, YIQ, CMY, HSV.

Unit-V: Multimedia System:

An Introduction, Multimedia hardware, Multimedia System Architecture. Data & File Format standards. i.e RTF, TIFF, MIDI, JPEG, DIB, MPEG,Audio: digital audio, MIDI, processing sound, sampling, compression. Video: Avi, 3GP,MOV, MPEG , compression standards, compression through spatial and temporal redundancy. Multimedia Authoring .

Books References:

1. Donald Hearn and M.P. Becker "Computer Graphics" Pearson Pub.
2. Rogers, "Procedural Elements of Computer Graphics", Tata McGraw Hill
3. Folay Vandam, Feiner, Hughes "Computer Graphics Principle & Practice" , Pearson Pub.
4. Sinha and Udai , "Computer Graphics", Tata McGraw Hill
5. Parekh "Principles of Multimedia" Tata McGraw Hill
6. Prabhat k Andleigh, Kiran Thakral ; "Multimedia System Design " PHI Pub.
7. Shuman "Multimedia in Action", Cengage Learnin

B.E.CBGS V SEMESTER
(ELECTIVE-I) MANAGEMENT INFORMATION SYSTEM

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	(Elective-I) Management Information System	IT5005D	Min. "D"	Min. "D"	5.0

Unit- I: Information System And Organization :

Matching the Information System Plan to the Organizational Strategic Plan – Identifying. Key Organizational Objective and Processes and Developing an Information System. Development – User role in Systems Development Process – Maintainability and Recoverability in System Design.

Unit- II: Pre Presentation And Analysis Of System Structure :

Models for Representing Systems: Mathematical, Graphical and Hierarchical (Organization Chart, Tree Diagram) – Information Flow – Process Flow – Methods and Heuristics – Decomposition and Aggregation – Information Architecture – Application of System Representation to Case Studies.

Unit –III: Systems, Information And Decision Theory:

Information Theory – Information Content and Redundancy – Classification and Compression – Summarizing and Filtering – Inferences and Uncertainty – Identifying Information needed to Support Decision Making – Human Factors – Problem characteristics and Information System Capabilities in Decision Making.

Unit- IV: Information System Application

Transaction Processing Applications – Basic Accounting Application – Applications for Budgeting and Planning – Other use of Information Technology: Automation – Word Processing – Electronic Mail – Evaluation Remote Conferencing and Graphics – System and Selection – Cost Benefit – Centralized versus Decentralized Allocation Mechanism.

Unit- V: Development And Maintenance Of Information Systems 9

Systems analysis and design – System development life cycle – Limitation – End User Development – Managing End Users – off– the shelf software packages – Outsourcing – Comparison of different methodologies.

Books References:

1. Laudon K.C, Laudon J.P, Brabston M.E, "Management Information Systems - Managing the digital firm", Pearon Education, 2004.
2. Turban E.F, Potter R.E, "Introduction to Information Technology"; Wiley, 2 004.
3. . Jeffrey A.Hoffer, Joey F.George, Joseph S. Valachich, "Modern Systems Analysis and Design", Third Edition, Prentice Hall, 2002.

B.E.CBGS V SEMESTER
STRUCTURED QUERY LANGUAGE LAB

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	Structured Query Language Lab	IT5006	Min. "D"	Min. "D"	5.0

Objectives:

1. Work with basic SQL Select queries on a single database table
2. Develop a column computed from existing columns
3. Use aggregate function to get summary data from database table
4. Make SQL queries with multiple, related tables of a database

Suggested List of Practical :

1. Design a Database and create required tables. For e.g. Bank, College Database
2. Apply the constraints like Primary Key , Foreign key, NOT NULL to the tables.
3. Write a sql statement for implementing ALTER,UPDATE and DELETE
4. Write the queries to implement the joins
5. Write the query for implementing the following functions: MAX(),MIN(),AVG(),COUNT()
6. Write the query to implement the concept of Intergrity constrains
7. Write the query to create the views 8) Perform the queries for triggers
8. Perform the following operation for demonstrating the insertion , updation and deletion using the referential integrity constraints
9. Write the query for creating the users and their role.

B.E.CBGS V SEMESTER
LINUX AND SHELL PROGRAMMING

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	Linux and Shell Programming	IT5007	Min. "D"	Min. "D"	5.0

List of Experiments:

1. Write a shell script to generate a multiplication table.
2. Write a shell script that copies multiple files to a directory.
3. Write a shell script that counts that number of lines and words present in a given file.
4. Write a shell script that displays the list of all files in the given directory.
5. Write a shell script (small calculator) that adds, subtracts, multiplies and divides the given two integers. There are two division options: one returns the quotient and the other returns reminder. The script requires 3 arguments: The operation to be used and two integer numbers. The options are add (-a), subtract (-s), multiply (-m), quotient (-c) and reminder (-r).
6. Write a shell script to reverse the rows and columns of a matrix.
7. Write a C program that counts the number of blanks in a text file (a) Using standard I/O and (b) Using system calls.
8. Implement in C the following Unix commands using system calls: cat, Is, mv
9. Write a program that takes one or more file/directory names as command line input and reports the following information of the file: (a) File type, (b) Number of links, (c) Time of last access, (d) Read, Write and Execute permissions.
10. Write a C program that illustrates uses of the mkdir, opendir, readdir, closedir, and rmdir APIs.
11. Write a C program that illustrates how to execute two commands concurrently with a command pipe.
12. Write a C programs that illustrates Two-way communication using the following: (a) unidirectional pipes and (b) bidirectional pipes.
13. Write a C program that illustrates the creation of child process using fork system cell.
14. Write a C program that displays the real time of a day every 60 seconds.
15. Write a C program that illustrates file-locking using semaphores.
16. Write a C program that implements a producer-consumer system with two processes. (Using semaphores)
17. Write a C program that illustrates inter process communication using shared memory system calls.
18. Write a C program that illustrates the following: (a) Creating a message queue, (b) Writing to a message queue and (c) Reading from a message queue.

Books Reference:

1. Sumitabha Dass,"Unix Concepts and Application", 3rd Edition, Tata McGraw Hill.
2. Rochkind, M. J., "Advanced Unix Programming", 2nd Edition, Pearson Education.

B.E.CBGS V SEMESTER
MINOR/ PROJECT INDUSTRIAL TRAINING

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	Minor/ Project Industrial Training	IT5008	Min. "D"	Min. "D"	5.0

Purpose:

The purpose of this course is to provide an industrial exposure for students in organizations related to their field of study.

Instructional Objectives:

Students are required to undergo two weeks of training or internship in any industry. At the end of the training, students shall submit a report, a certificate from the concerned organization and deliver a presentation

Students have to undergo two-week practical training in any industry of their choice but with the approval of the department. At the end of the training student will submit a report as per the prescribed format to the department.

Assessment process:

This course is mandatory and the student has to pass the course to become eligible for the award of degree. The student shall make a presentation before a committee constituted by the department which will assess the student based on the report submitted and the presentation made. Marks will be awarded out of 50 and appropriate grades assigned as per the regulations.