

SYLLABUS – SEMESTER V

Unit I Data Communication, Networking and Internet (18 L)

- (a) Data Communication Component, Data representation, Distributed processing. (Concepts only)
- (b) Network Basics and Infrastructure
 - i) Definition, Types (LAN, MAN, WAN) Advantages.
 - ii) Network Structures – Server Based, Client server, Peer to Peer.
 - iii) Topologies – Star, Bus, Ring.
 - iv) Network Media, Wired and Wireless.
 - v) Network Hardware: Hubs, Bridges, Switches, Routers.
 - vi) Network Protocols – TCP/IP, OSI Model.
- (c) Internet
 - i) Definition, Types of connections, sharing internet connection.
 - ii) Services on net- WWW, Email-Blogs.
 - iii) IP addresses, Domain names, URLs.
 - iv) Searching Directories, Search engines, Boolean search (AND, OR, NOT), Advanced search, Meta Search Engines.
 - v) Email – POP/SMTP accounts in Email, Different parts of an Email address. Receiving and sending emails with attachments by scanning attachments for viruses.

Unit II Database and SQL (18 Lectures)

- a) Introduction :** To Databases, Relational and Non-relational database system MySQL as a Non-procedural Language. View of data.
- b) SQL Basics :** Statements (Schema Statements, Data statements, Transaction statements, names (table & column names), data types (Char, Varchar, Text, Mediumtext, Longtext, Smallint, Bigint, Boolean, Decimal, Float, Double, Date, Date Time, Timestamp, Year, Time, Creating Database, inserting data, Updating data, Deleting data, expressions, built-in-functions, missing data(NULL and NOT NULL DEFAULT values) CREATE,USE, ALTER (Add, Remove, Change columns), RENAME, SHOW, DESCRIBE (CREATE TABLE, COLUMNS, STATUS and DATABASES only) and DROP (TABLE, COLUMN, DATABASES statements), PRIMARY KEY FOREIGN KEY (One and more columns) Simple Validity checking using CONSTRAINTS.
- c) Simple queries:** The SELECT statement (From, Where, Group By, Having, Order By, Distinct, Filtering Data by using conditions. Simple and complex conditions using logical, arithmetic and relational operators (=, !=, <, >, <>, AND, OR, NOT, LIKE, BETWEEN).
- d) Multi-table queries:** Simple joins (INNER JOIN), SQL considerations for multi table queries (table aliases, qualified column names, all column selections self joins).
- e) Nested Queries (Only up to two levels) :** Using sub queries, sub query search conditions, sub queries & joins, nested sub queries, correlated sub queries, sub queries in the HAVING clause.

Simple Transaction illustrating START, COMMIT, and ROLLBACK.

Unit III Spreadsheet (9 Lectures)

a) Creating and Navigating worksheets and adding information to worksheets

- i) Types of data, entering different types of data such as texts, numbers, dates, functions.
- ii) Quick way to add data Auto complete, Autocorrect, Auto fill, Auto fit. Undo and Redo.
- iii) Moving data, contiguous and non contiguous selections, Selecting with keyboard. Cut-Copy, Paste. Adding and moving columns or rows. Inserting columns and rows.
- iv) Find and replace values. Spell check.
- v) Formatting cells, Numbers, Date, Times, Font, Colors, Borders, Fills.

b) Multiple Spreadsheets

- i) Adding, removing, hiding and renaming worksheets.
- ii) Add headers/Footers to a Workbook. Page breaks, preview.
- iii) Creating formulas, inserting functions, cell references, Absolute, Relative (within a worksheet, other worksheets and other workbooks).

c) Functions

- i) Financial functions: FV, PV, PMT, PPMT, IPMT, NPER, RATE, NPV, IRR
- ii) Mathematical and statistical functions. ROUND, ROUNDDOWN, ROUNDUP, CEILING, FLOOR, INT, MAX, MIN, MOD, SQRT, ABS, AVERAGE

d) Data Analysis

- i) Sorting, Subtotal.
- ii) Pivot Tables- Building Pivot Tables, Pivot Table regions, Rearranging Pivot Table.

SYLLABUS – SEMESTER VI

Unit I E - Commerce (18 Lectures)

- (a) Definition of E-commerce
- (b) Features of E-commerce
- (c) Types of E-commerce (B2C, B2B, C2C, P2P)
- (d) Business Models in E-commerce (Advertising, Subscription, Transaction Fee, Sales Revenue, Affiliate Revenue)
- (e) Major B2C models (Portal, Etailer, Content Provider, Transaction Broker, Market Creator, Service Provider, Community Provider).
- (f) E-Commerce Security: Integrity, Non repudiation, Authenticity, Confidentiality, Privacy Availability.
- (g) Encryption: Definition, Digital Signatures, SSL.
- (h) Payment Systems: Digital Cash, Online stored value, Digital accumulating balance payment, Digital credit accounts, digital checking.
- (i) How an Online credit card transaction works. SET protocol.
- (j) Limitation of E-commerce.
- (k) M-commerce (Definition and Features).

Unit II Introduction to C Programming (18 Lectures)

- a) Introduction :** C-character set, reserved words, identifiers, C-data types, C-type modifier, constants, variables, expressions, operators (unary, binary, relational, logical), C-assignment statements, operators precedence, concept of header files (stdio.h, math.h, conio.h only)
- b) Simple programming concepts :** Form of a C program, printf() (%d, %f, %c, %s, %lf, %ld), scanf(), gets(), getchar(), puts(), putchar(), getch(), getche(), getch(), pow(), sqrt(), clrscr(), storage class specifies, Preprocessor directive #include<>
- c) Control statements :** If else, for, while, do while, switch, break, continue.
- d) Arrays :** Concept of one dimensional array (character and integer), sorting array of numbers, printing array of numbers.

OR

Unit II Visual Basic (18 Lectures)

- a) Introduction to Visual Basic, Introduction Graphical User Interface (GUI). Programming Language (Procedural, Object Oriented, Event Driven), Writing VB Projects. The Visual Basic Environment, Finding and fixing errors [Chapter 1 of 19]
- b) Introduction to VB Controls
Text boxes, Frames, Check boxes, Option button, Images, Setting a Border & Styles. The Shape Control, The line Control, Working with multiple controls and their properties, Designing the User Interface, Keyboard access keys, Default & Cancel property, tab order, Coding for controls using Text, Caption, Value property and Set Focus method [Chapter 2 of 19]
- c) Variables, Constants, and Calculations
Variable and Constant, Data Type (Boolean, Byte, String, Integer, Currency, Single, Double, Date), Naming rules/conventions, Constants (Named & Intrinsic), Declaring variables, Scope of variables, Val Function, Arithmetic Operations, Formatting Data. [Chapter 3 of 19]
- d) Decision and Condition
Condition, Comparing numeric variables and constants, Comparing Strings, Comparing Text Property of text box, Compound Conditions (And, Or, Not). If Statement, if then-else Statement, Nested If Statements, LCase and Ucase function, Using If statements with Option Buttons & Check Boxes. MsgBox (Message box) statement Input Validation : Is Numeric function. Planning the project. [Chapter 4 of 19].
- e) Menus, Sub-procedures and Sub-functions, Defining/Creating and Modifying a Menu, Using common dialog box, Creating a new sub-procedure, Passing Variables to procedures, Passing Argument By Val or By Ref, Writing a Function procedure [Chapter 5 of 19].
- f) Lists, Loops and Printing
List boxes and Combo Boxes, Do/ Loops, For/ Next loops, Functions : MsgBox with multiple buttons, Strings. Sending information to the printer using Printer.Print, Printer.New Page, Printer.EndDoc methods. [Chapter 7 of 19].

Unit III Spreadsheet (9 Lectures)

a) Multiple Spreadsheets

- i) Creating and using templates.
- ii) Creating and Linking Multiple Spreadsheets.
- iii) Using formulas and logical operators.
- iv) Creating and using named ranges.

b) Functions

- i) Database Functions LOOKUP, VLOOKUP, HLOOKUP
- ii) Conditional Logic functions IF, COUNTIF, SUMIF
- iii) String functions LEFT, RIGHT, MID, LEN, UPPER, LOWER, PROPER, TRIM.
- iv) Date functions TODAY, NOW, DATE, TIME, DAY, MONTH, YEAR, WEEKDAY, DAYS360

c) Data Analysis

- i) Filter with customized condition.
- ii) The Graphical representation of data.

Note :

- a) Theory 3 lectures per week.
- b) Practical batch size 20-25, 1 practical = 3 theory lectures per week.
- c) 10 Practical's are to be completed in each semester.

SEMESTER V

Topic	Number of Practical's
Word processing	1
Spreadsheet	3
SQL	6

Minimum 6 practical's are to be recorded in the journal in the Semester V
(Minimum 4 on SQL, 2 on spreadsheet)

SEMESTER VI

Topic	Number of Practical's
Presentation skills	1
Spreadsheet	3
Introduction to C Programming/Visual Basic	6

Minimum 6 practical's are to be recorded in the journal in the Semester VI
(Minimum 4 on C/VB, 2 on spreadsheet)

d) Scheme of Examination

Type	Marks	Duration
Theory	60	2 hours
Practical	20	1 hour per batch of 10
Assignment & Presentation	10	
Active Participation and Class conduct	10	

THEORY EXAMINATION PATTERN FOR SEMESTER V AND VI

All questions compulsory

Question No.	Unit No.	Marks	Marks with Internal Option
Q.1.	I	15	30
Q.2.	II, III	15	25
Q.3.	II, III	15	25
Q.4.	Objective type based on I,II and III	15	23

PRACTICAL EXAMINATION PATTERN SEMESTER V

No.	Topic	Marks
1.	Spreadsheet	3
2.	SQL	7
3.	Journal	5
4.	Viva	5

SEMESTER VI

No.	Topic	Marks
1.	Spread sheet	3
2.	Introduction to C/VB Programing	7
3.	Journal	5
4.	Viva	5

- e) Practical examination to be conducted 2 to 3 weeks before the theory examination. Marks out of 40 to be submitted to the University before commencement of theory examination.
- f) Software Requirement :
Suitable spread sheet application, MySQL, 5 or 5.1 version, C language and VB [Visual studio]
- g) Hardware
For a batch of 120 students minimum 10 computers with appropriate hardware and software installed on each computer. During practical hours maximum two student may share one computer.
- h) For in house computing facility fee of rupees 750/- be charged for each student per Semester in the existing fee structure against head of computer fee/computer practical.

References:

Semester V

Unit I Data Communication, Networking and Internet

1. Data Communication and Networking -Behrouz A Forouzan
2. Introduction to Computers – Peter Norton, Tata McGraw Hill

Unit II Database and SQL

3. Fundamentals of Database Systems - Elmasri Navathe, Somayajulu, Gupta
4. Database Systems and Concepts - Henry F. Korth, Silberschatz, Sudarshan McGraw Hill
5. DBMS - Date
6. The complete reference SQL - Vikram Vaswani TMH
7. The complete reference SQL - James R. Groff & Paul N. Weinberg TMG
8. Learning SQL - Alan Beaulieu O'REILLY.
9. Learning MySQL - Seyed M. M. and Hugh Williams, O'REILLY.
10. SQL a complete reference - Alexis Leon & Mathews Leon TMG.

Semester VI

Unit I E – Commerce

11. E- Commerce - Kenneth Laudon, Carol Traver , Pearson Education
12. Frontiers of Electronic Commerce - Kalakota & Whinston
13. E- Commerce - Rajaraman
14. E- Commerce - Whitley
15. E- Commerce concepts and cases - Rao and Deshpande.

Unit II Introduction to C Programming

16. C programming - Schaum series
17. Let us C - Yashvant Kanitkar
18. C programming - Rajaraman

OR

Unit II Visual Basic

19. Programming in VB 6.0 - Julia case Bradley, Anita C. Milspaugh, TMH
20. Visual Basic 6.0 Programming - Content Development Group, TMH
21. The Complete Reference to Visual Basic 6 - Noel Jerke, TMH
22. Visual Basic 6 Programming Black Book - Steven Holzner, Dreamtech Press.

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COMPUTER SYSTEMS AND APPLICATIONS
Paper Pattern Semester V(2013-14 onwards)

- Q 1. A) Attempt any *one* sub-question from a, b (Data Communication, Networking and Internet)**
- a) (Long Answer) (8)
 - b) (Long Answer) (8)
- B) Attempt any *one* sub-question from d, e (Data Communication, Networking and Internet)**
- d) (Long Answer) (7)
 - e) (Long Answer) (7)
- Q 2. A) Attempt any *two* sub-questions from a, b, c in MySQL**
- a) MySQL (5)
 - b) MySQL (5)
 - c) MySQL (5)
- B) Attempt any *one* sub-question from d, e in Spreadsheet**
- d) Spreadsheet (5)
 - e) Spreadsheet (5)
- Q 3. A) Attempt any *two* sub-questions from a, b, c in MySQL**
- a) MySQL (5)
 - b) MySQL (5)
 - c) MySQL (5)
- B) Attempt any *one* sub-question from d, e in Spreadsheet**
- d) Spreadsheet (5)
 - e) Spreadsheet (5)
- Q 4. A) Attempt any *two* sub-questions from a, b, c in Spreadsheet (True/False) (2)**
- a) Spreadsheet
 - b) Spreadsheet
 - c) Spreadsheet
- B) Attempt any *four* sub-questions from d, e, f, g, h, i in MySQL (Multiple Choice) (4)**
- d) MySQL
 - e) MySQL
 - f) MySQL
 - g) MySQL
 - h) MySQL
 - i) MySQL
- C) Attempt any *four* sub-questions from j,k,l,m,n,o, in Data Communication, Networking and Internet (True/False) (4)**
- j) Data Communication, Networking and Internet
 - k) Data Communication, Networking and Internet
 - l) Data Communication, Networking and Internet
 - m) Data Communication, Networking and Internet
 - n) Data Communication, Networking and Internet
 - o) Data Communication, Networking and Internet

D) Attempt any *five* sub-questions from p,q,r,s,t,u,v,w in Data Communication, Networking and Internet (Multiple Choice) (5)

p) Data Communication, Networking and Internet

q) Data Communication, Networking and Internet

r) Data Communication, Networking and Internet

s) Data Communication, Networking and Internet

t) Data Communication, Networking and Internet

u) Data Communication, Networking and Internet

v) Data Communication, Networking and Internet

w) Data Communication, Networking and Internet

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COMPUTER SYSTEMS AND APPLICATIONS

Paper Pattern Semester VI(2013-14 onwards)

Q 1. A) Attempt any *one* sub-question from a, b (E-Commerce)

a) (Long Answer) (8)

b) (Long Answer) (8)

B) Attempt any *one* sub-question from d, e (E-Commerce)

d) (Long Answer) (7)

e) (Long Answer) (7)

Q 2. A) Attempt any *two* sub-questions from a, b, c in C Language

a) C Language (5)

b) C Language (5)

c) C Language (5)

OR

A) Attempt any *two* sub-questions from x, y, z in Visual Basic

x) Visual Basic (5)

y) Visual Basic (5)

z) Visual Basic (5)

B) Attempt any *one* sub-question from d, e in Spreadsheet

d) Spreadsheet (5)

e) Spreadsheet (5)

Q 3. A) Attempt any *two* sub-questions from a, b, c in C Language

a) C Language (5)

b) C Language (5)

c) C Language (5)

OR

A) Attempt any *two* sub-questions from x, y, z in Visual Basic

x) Visual Basic (5)

y) Visual Basic (5)

z) Visual Basic (5)

B) Attempt any *one* sub-question from d, e in Spreadsheet

d) Spreadsheet (5)

e) Spreadsheet (5)

Q 4. A) Attempt any *two* sub-questions from a, b, c in Spreadsheet (True/False) (2)

- a) Spreadsheet
- b) Spreadsheet
- c) Spreadsheet

B) Attempt any *four* sub-questions from d, e, f, g, h, i in C Language (Multiple Choice) (4)

- d) C Language
- e) C Language
- f) C Language
- g) C Language
- h) C Language
- i) C Language

OR

B) Attempt any *four* sub-questions from d, e, f, g, h, i in Visual Basic (Multiple Choice) (4)

- d) Visual Basic
- e) Visual Basic
- f) Visual Basic
- g) Visual Basic
- h) Visual Basic
- i) Visual Basic

C) Attempt any *four* sub-questions from j,k,l,m,n,o, in E-Commerce (True/False) (4)

- j) E-Commerce
- k) E-Commerce
- l) E-Commerce
- m) E-Commerce
- n) E-Commerce
- o) E-Commerce

D) Attempt any *five* sub-questions from p,q,r,s,t,u,v,w in E-Commerce (Multiple Choice) (5)

- p) E-Commerce
- q) E-Commerce
- r) E-Commerce
- s) E-Commerce
- t) E-Commerce
- u) E-Commerce
- v) E-Commerce
- w) E-Commerce