

ORDINANCES
for
B. VOC.-PRINTING TECHNOLOGY
and
B. VOC.-WEB DESIGNING

SEMESTER SYSTEM

Sem	I & II	(SESSION 2016 -2017)
Sem	III & IV	(SESSION 2017-2018)
Sem	V & VI	(SESSION 2018 -2019)

Bachelor of Vocation (B.Voc.) is launched under the scheme of University Grants Commission on skill development based higher education leading to Bachelor of Vocation (B. Voc.) Degree with multiple exits as Diploma/Advanced Diploma under the National Skill Qualification framework. The B.Voc. programme incorporate specific job roles and their National Occupational Standards along broad based general education.

1. B. Voc. Programme :

The B.Voc. Programme has been designed as per National Skill Qualification Framework (NSQF) emphasizing on skill based education.

2. Duration of Course : The duration of course is 3 Years integrated course with 3 exit points.

Award	Duration	CORE LEVEL / RESPONDING / NSQF
Diploma	1 Year	5
Advance Diploma	2 Year	6
B. VOC Degree	3 Year	7

Note:

1. After successful completion of second semester (1st Year) a Diploma will be awarded to the candidate.
2. After successful completion of fourth semester (2nd Year) an Advance Diploma will be awarded to the candidate.
3. After successful completion of sixth semester (3rd Year) B.Voc. Degree will be awarded to the candidate

3. Eligibility criteria for admission:

12th Class or equivalent in any stream. (UGC Guidelines for B.Voc. See Annexure A , 5)

4. Total number of seats:

- (i) B.Voc.- Printing Technology: 50
- (ii) B.Voc.- Web Designing : 50

5. Reservation of Seats: As per rules of University of Delhi.

6. Course Fee : Student fee should be decided as per the prevalent mechanism for fee fixation for aided courses in the university/college. (*UGC Guidelines for B.Voc. See Annexure A , 9*)

7. Admission Process: Based on Merit (As per University rule).

8. Curriculum:

(i) Generic Component:

The general education component should adhere to the normal university standards. It should emphasise and offer courses which provide holistic development. However, it should not exceed 40% of the total curriculum. (*UGC guidelines for B.Voc. , Annexure A, 6.3(i)*)

(ii) Skill Component :

National Skill development Corporation (NSDC)& Sector Skill Council (SSC) will share the curriculum of the identified job roles which will be in alignment to Qualification Packs and National Occupational Standards. (*UGC - NSDCMoU, Annexure B, IV(7)*)

The university/college should develop the curriculum in consultation with industry. The industry representatives should be an integral part of the academic bodies of the university/college. While doing so, they should work towards aligning the skill components of the curriculum with the NOSs developed by the respective Sector Skill Council. (*UGC guidelines for B.Voc. , Annexure A, 6.6*).

In case NOS is not available for a specific area / job role, the university/college should get the curriculum for this developed in consultation with industry experts. (*UGC guidelines for B.Voc. , Annexure A, 6.4(iv)*)

9. Faculty:

The university/college should use its regular faculty for the conduct of general education component and also for the skills components, if existing. Additionally, they may hire faculty on contractual basis and guest faculty in the core trades only as per UGC norms. (*UGC guidelines for B.Voc. , Annexure A, 8.2*).

NSDC will coordinate the availability of the services of the trained skills faculty, subject to the requirement of institution, from its funded training partners at UGC approved remuneration as per guidelines of Community Colleges and NSDC funded training partner. (*UGC - NSDCMoU, Annexure B, IV(8)*).

10. Credit Calculation:

The following formula should be used for conversion of time into credit hours.

- a) One Credit would mean equivalent of 14 to 15 periods of 60 minutes each, for theory, workshops/labs and tutorials;
- b) For internship/field work, the credit weightage for equivalent hours shall be 50% of that for lectures/workshops;
- c) For self-learning, based on e-content or otherwise, the credit weightage for equivalent hours of study should be 50% or less of that for lectures/workshops. (*UGC Guidelines for B.Voc. See Annexure A , 6.5.1 to 6.5.3*).

NSQF Level	Skill Component Credits	General Education Credits	Total Credits (Cumulative)	Normal calendar duration	Exit Points / Awards
5 (Year 1)	36	24	60	Two semesters	Diploma
6 (Year 2)	36	24	120	Four Semesters	Advanced Diploma
7 (Year 3)	36	24	180	Six Semesters	Degree
Total	108	72			

10. Internal Assessment

- Generic Component: As per University guidelines (will be done by college).
- Skill Component: As per NSDC - SSC guidelines (will be done by SSCs)

11. EXAMINATION

(I) GENERAL EDUCATION COMPONENT (GEC)

The assessment for the General Education Component (GEC) should be done by the University of Delhi as per their prevailing standards and procedures (*UGC guidelines for B.Voc., Annexure A, 7.1*).

The course of study of B.Voc. shall be divided in to six semesters and university examination will be held at the end of every semester in the months of November/December (for semester I, III & V) and May/June (for semester II, IV & VI) or as fixed by the University of Delhi.

The medium of instruction and examination will be English/Hindi, except for the language subjects whose medium of instruction and examination will be that of the language subject.

The minimum number of marks required to pass the GEC examination in each part shall be 40% and details as per Delhi University rules.

Internal assessment and its Components: Internal assessment, in each subject, shall be 25% of the total marks in each paper and shall be uniformly applicable to all the Subjects/Papers. The

three Components for Internal Assessment shall be as follows (to be divided equally, as per the credit of the paper:

(i)	Attendance:	20%	% of the Total Marks of the internal Assessment
(ii)	Written Assignment/Project :	40%	
(iii)	Mid-Semester Tests/Internal Examination	40%	

Papers having practical/viva, the marks of theory and practical/viva will be reduced equally percentage wise, to make room for 20% internal assessment(as per (b) above).

The Successful candidates shall be classified on the basis of aggregate marks secured

- a) 75% or more with Distinction.
- b) 60% or more in the First division.
- c) 50% or more but less than 60% in the Second division.
- d) 40% to below 50% in the Third division.

Attendance and Other Requirements: Every candidate will be required to attend a minimum of 66.6% lectures delivered to that class in each paper as well as 75% of the laboratory work, seminars etc. separately. Provided that a deficiency in attendance may be condoned for special reasons, as per the relevant ordinances on the subject.

Re-evaluation of scripts: Re-evaluation of scripts as per University of Delhi Rule.

Award of Medal/Prizes: The general rules and conditions of the University for the Award of Medal/Prizes etc.

(II) ASSESSMENT OF SKILL EDUCATION COMPONENT (SEC):

- NSDC will ensure that post training, the assessment and certification of vocational component is done by NSDC approved Sector Skill Councils. The assessment will be done by Sector Skill Councils(SSC)/Industry Partner through its affiliated Assessment Bodies who have SSC trained certified assessors. (*UGC -NSDC MoU, See Annexure B, II(4)*).
- The university may like to consult the respective Sector Skill Council for designing the examination and assessment pattern for the skill development components. The university may also consider using the designated assessors of Sector Skill Councils/Industry Partners for the conduct of practical assessment. (*UGC guidelines for B.Voc., Annexure A, 7.2*).

DETAILED SYLLABUS

B. VOC. (WEB DESIGNING)

B. VOC. (WEB DESIGNING)**DETAILED SYLLABUS****SEMESTER - I**

Subject Code	Title of Subject	Paper Types	Credits
GEC1.1	English Communication	GEC	4
GEC1.2	Computer Fundamentals		4
GEC1.3	Computer Applications in Communication And Media Design		4
WD 1.1	Fundamentals of Mathematics & Statistics	SEC	4
WD 1.2	Computer Programming Using C		3
WD1.3	Web Development (HTML & CSS)		3
WD 1.4	Databases		2
WD1.5	Lab-1: Computer Programming Using C		2
WD1.6	Lab-3: Web Development (HTML & CSS)		2
WD1.7	Lab-4: Databases		2
	Total		30

SEMESTER – II

Subject Code	Title of Subject	Paper Types	Credits
GEC2.1	Environmental Sciences	GEC	4
GEC2.2	Internet and Java Programming		4
GEC2.3	Soft Skills		4
WD 2.1	Java Script	SEC	4
WD 2.2	Adobe Photoshop & Illustrator		4
WD 2.3	Lab-1: Java Script		4
Wd 2.4	Lab-2: Adobe Photoshop & Illustrator		4
Wd 2.5	Lab-3: Web Designing Project		2
	Total		30



Dean
Faculty of Applied Social Sciences and Humanities
University of Delhi South Campus
New Delhi - 110021



Principal
KALINDI COLLEGE
(University of Delhi)
West Patel Nagar, N. Delhi

SEMESTER – III

Subject Code	Title of Subject	Paper Types	Credits
GEC 3.1	Hindi (कार्यालयहिन्दी)	GEC	4
GEC 3.2	Statistical Data Analysis Using R		4
GEC 3.3	Life Skills Education		4
WD 3.1	Programming Using C++	SEC	4
WD 3.2	PHP & MY SQL		4
WD 3.3	Windows & Linux		4
WD 3.4	Lab-2: Programming Using C++		2
WD 3.5	Lab- 2: PHP & MY SQL		2
WD 3.6	Lab-3: Windows & Linux		2
	Total		30

SEMESTER – IV

Subject Code	Title of Subject	Paper Types	Hours
GEC4.1	Management Information System	GEC	4
GEC4.2	Cyber Crime and Law		4
GEC4.3	Effective Decision Making		4
WD 4.1	Programming with Python	SEC	4
WD 4.2	Responsive Web Development		4
WD 4.3	PHP Advance		4
WD 4.4	Lab-1: Programming with Python		2
WD 4.5	Lab-2: Responsive Web Development		2
WD 4.6	Lab-3: PHP Advance		2
	Total		30



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Faculty of Applied Social Sciences and Humanities
University of Delhi South Campus
New Delhi - 110021



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KALINDI COLLEGE
(University of Delhi)
Rast Patel Nagar, N. Delhi

SEMESTER – V

Subject Code	Title of Subject	Paper Types	Hours
GEC5.1	E-Commerce	GEC	4
GEC5.2	Geographical Information System		4
GEC 5.3	Quality Management		4
WD 5.1	Software Engineering	SEC	4
WD 5.2	Search Engine Optimisation&Digital Marketing		4
WD 5.3	Core Java Programming		4
WD 5.4	Lab-1: Software Engineering		2
WD 5.5	Lab-2: Search Engine Optimisation & Digital Marketing		2
WD 5.6	Lab-3: Core Java Programming		2
	Total		30

SEMESTER – VI

Subject Code	Title of Subject	Paper Types	Credits
GEC6.1	Communication Competency	GEC	4
GEC6.2	Effective Leadership		4
GEC 6.3	Entrepreneurship		4
WD 6.1	Android Technology	SCC	4
WD 6.2	Introduction to Data Science		4
WD 6.3	Lab 1: Android Technology		3
WD 6.4	Lab-2: Introduction to Data Science		3
WD 6.5	Internship Project		4
	Total		18

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Faculty of Applied Social Sciences and Humanities
University of Delhi South Campus
New Delhi - 110021

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KALINDI COLLEGE
(University of Delhi)
East Patel Nagar, N. Delhi

B. VOC. (B VOV (WEB DESIGNING))

ENGLISH COMMUNICATION

Semester - I GEC 1.1

Credit – 4

Maximum Marks – 100

Hours : 3

Course Content :

Introduction:

Theory of Communication: Types and modes of Communication

Language of Communication:

Verbal and Non-verbal

(Spoken and Written)

Personal, Social and Business Barriers and Strategies Intra-personal, Inter-personal and Group communication

Speaking Skills

Monologue

Dialogue

Group Discussion

Effective Communication / Mis- Communication

Interview

Public Speech

Reading and Understanding

Close Reading

Comprehension

Summary Paraphrasing

Analysis and Interpretation

Translation(from Indian language to English and vice-versa) Literary/Knowledge Texts

Writing Skills

Documenting

Report Writing

Making notes

Letter writing

Recommended Readings:

1. Fluency in English - Part II, Oxford University Press, 2006.
2. Business English, Pearson, 2008.
3. Language, Literature and Creativity, Orient Blackswan, 2013.
4. Language through Literature (forthcoming) ed. Dr. Gauri Mishra, DrRanjanaKaul, DrBratiBiswas

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COMPUTER APPLICATIONS IN COMMUNICATION AND MEDIA DESIGN

Semester - I GEC 1.3

Credit – 4 (Lecture 2 + Lab 2)

Maximum Marks – 100

Hours : 3

COURSE CONTENT & PRACTICAL

1 Computer Application Designing

Concept of Computer and Designing. Need of computer Application Designing in Extension and Communication. Scope of Computer Application Designing for Extension and Communication. Use of Computer Application Designing for Extension and Communication.

2. Computer Software for Designing

Use of the following software for making IEC material and Teaching Aids.
Word Processor, Presentation Software, Corel Draw, Paint, Photoshop, PageMaker.

3. Issues in Use of Computer Designing

Issues and Challenges in use of Computer for Designing in Extension and Communication.

Learning Experiences

- Preparing various IEC material with the use of different software.
- Arranging expert talk on computer designing.
- Viewing different computer designs.
- Preparing charts/poster/flash cards etc with the help of computer.
- Preparing designed brochures, leaflets with the help of various software.
- Preparing presentation with the help of presentation software on development programmes.

RECOMMENDED READINGS

- Kihrwadkar A, Pushpanadan, (2006), Information and Communication Technology in Education, Sarup and Sons, Delhi
- Sampath K (1998), Introduction to Educational Technology, Sterling Publishers Pvt. Ltd
- SagarKrshna (2007), ICTs and Teacher Training, Authors Press, Delhi
- Valerie Q (1998), Internet in a nutshell, Shroff Publishers and Distributors Pvt. Ltd, Delhi

Fundamentals of Mathematics & Statistics

Paper Code : WD1.1

Credit : 4

Lectures : 60

PART - A : MATHEMATICS

Unit I: Matrices and Determinants

- 1.1 Definition of a matrix. Types of matrices. Algebra of matrices.
- 1.2 Calculation of values of determinants up to third order. Adjoint of a matrix. Finding inverse of a matrix through adjoint. Applications of matrices.

Unit II: Calculus

- 2.1 Mathematical functions and their types – linear, quadratic, polynomial. Concepts of limit, and continuity of a function.
- 2.2 Concept of differentiation. Rules of differentiation – simple standard form
- 2.3 Applications of differentiation – elasticity of demand and supply. Maxima and Minima of functions (involving second or third order derivatives) relating to cost, revenue and profit.

PART - B: STATISTICS

Unit I: Univariate Analysis

Descriptive Statistics:

- 1.1 Measures of Central Tendency

(a) Mathematical averages:

Arithmetic mean, Geometric mean and Harmonic mean: Properties and applications.

(b) *Positional Averages:*

Mode and median and other partition values - quartiles, deciles, and percentiles (including graphic determination).

- 1.2 Measures of Variation: absolute and relative. Range, quartile deviation, mean deviation, standard deviation, and variance.

Unit II: Bi-Variate Analysis

- 2.1 *Correlation:* Meaning, and measurement. Karl Pearson's co-efficient and rank correlation.

- 2.2 *Regression Analysis:* Linear regression defined. Regression equations and estimation

Unit III: Index Numbers

- 3.1 Meaning and uses of index numbers. Construction of index numbers: Aggregative and average of relatives – simple and weighted. Tests of adequacy of index numbers.

Construction of consumer price indices.

Unit IV: Time Series Analysis

- 4.1 Components of time series, additive and multiplicative models.

- 4.2 Trend analysis. Finding trend by moving average method, Fitting of linear trend line using principle of least squares.

Suggested Readings:

J.K. Thukral, *Mathematics for Business Studies*, Mayur Publications

E.T. Dowling, *Mathematics for Economics*, Schaum's Outlines Series, McGraw Hill

Mizrahi and Sullivan, *Mathematics for Business and Social Sciences*, John Wiley and Sons

J. K. Sharma, *Business Statistics*, Pearson Education.

S.C. Gupta, *Fundamentals of Statistics*, Himalaya Publishing House.

Richard Levin and David S. Rubin, *Statistics for Management*, Prentice Hall of India, New Delhi.

Computer Programming Using C

Paper Code : WD1.2

Credit : 3

Lectures : 45

Unit-I: Applications Problem Solving: Notion of algorithms, stepwise methodology of developing an algorithm.

Unit-II: Steps Involved in Computer Programming – Problem Definition – Outlining The Solution – Flow Chart – Developing Algorithms – Efficiency of Algorithms - Analysis of Algorithms.

Unit-III: Exchanging the Values – Counting – Summation of Set of Number – Factorial Computation –Sine Computation – Fibonacci Sequence – Reversing the Digits of an Integer – Base Conversion – Character to Number Conversion.

Unit-IV: Structure of C program, keywords, identifiers, constants, variables, data types,typeconversion, Types of operators and expressions, Input and output functions in C. Decision Statement – IF-ELSE statement, break, continue, goto, switch() case and nested IF statement.

Unit-V: Loop Control Statements – For loop, While loop , Do-while loop and nested loops. Arrays – Definition, Initialization, characteristics, One, Two, Three and Multidimensional Arrays, scanf() and printf() functions, Working with Strings & Standard Functions.

Unit-VI: Pointers – Introduction, features, Declaration, Arithmetic operations, pointers and Arrays, Array of pointers, pointers to pointers, pointers and strings, Void pointers.

Unit -VII: Functions – Declaration, Prototype, Types of functions, call by value and reference, Function with operators, function with decision statements, function with Loop statements, Function with Arrays and Pointers, Types of Storage Classes.

Unit-VIII: Structure and Union – Declaration, Initialization, structure within structure, Array of structure, Enumerated data types, Union of structure, Files – Streams and file types, file operations, File I/O, Read ,Write and Other file function.

READINGS:

1. E. Balagurusamy, Fundamentals of Computers, McGraw Hill Education, 2009
2. E. Balaguruswamy, "Programming In C ", TMH Publications
3. Complete Reference by Herbert Schildt, 4th Ed.
4. P.K. Sinha , P. Sinha, Fundamentals of Computers, BPB Publisher, 2007

WEB DEVELOPMENT (HTML & CSS)

Paper Code : WD1.3

Credit : 3

Lectures : 45

Unit-1: Web Design Principles, Basic principles involved in developing a web site , Planning process, Five Golden rules of web designing, Designing navigation bar, Page design, Home Page Layout, Design Concept. Basics in Web Design, Brief History of Internet, What is World Wide Web, Why create a web site, Web Standards, Audience requirement.

Unit-2 :Introduction to HTML, What is HTML, HTML Documents, elements of HTML, Basic structure of an HTML document, Creating an HTML document, Mark up Tags, Heading-Paragraphs, Line Breaks, HTML Tags. Elements of HTML, Introduction to elements of HTML,

Unit-3 :Working with Text, Working with Lists, Tables and Frames, Working with Hyperlinks, Images and Multimedia, Working with Forms and controls.

Unit-4 : Introduction to Cascading Style Sheets, Concept of CSS, Creating Style Sheet, CSS Properties, CSS Styling(Background, Text Format, Controlling Fonts), Working with block elements and objects, Working with Lists and Tables,

Unit-5 : CSS Id and Class, Box Model(Introduction, Border properties, Padding Properties, Margin properties) CSS Advanced(Grouping, Dimension, Display,Positioning, Floating, Align,Pseudo class, Navigation Bar,Image Sprites, Attribute sector), CSS Color, Creating page Layout and Site Designs. Introduction to Web Publishing or Hosting, Creating the Web Site, Saving the site, Working on the web site, Creating web site structure, Creating Titles for web pages, Themes-Publishing web sites.

Suggested Readings:

1. A beginner's guide to HTML 4th Edition, Wendy Willard, McGraw-Hill, 2009
2. Beginning CSS: Cascading Style Sheets for Web Design, Ian Pouncey, Richard York, Wiley India Pvt. Ltd.

DATABASES

Paper Code : WD1.4	Credit : 2	Lectures : 30
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Content Outline :-

Unit 1. (15 Hours)

File Systems Organization - Sequential, Pointer, Indexed, Direct - Purpose of Database System- Database System Terminologies-Database characteristics- Data models – Types of data models – Components of DBMS- Relational Algebra.

Unit 2. (20 Hours)

LOGICAL DATABASE DESIGN: Relational DBMS - Codd's Rule - Entity-Relationship model, Types of Keys and Constraints, Normalization – Functional Dependencies, Anomaly- 1NF to 3NF.Views and Triggers.

Unit 3 (20 Hours)

SQL Standards - Data types - Database Objects- DDL-DML-DCL-TCL-Embedded SQL-Static Vs Dynamic SQL - QUERY OPTIMIZATION: Query Processing and Optimization - Heuristics and Cost Estimates in Query Optimization.

Unit 4(20 Hours)

Brief History of MySQL - Relational Databases and Popular Databases - SQL Statements Section INSERT- UPDATE – DELETE – SELECT, Order By, Like , And & Or, Where , Between -Joins & Unions - Aggregate Functions and Grouping.

READINGS:

Fundamentals of database systems by RamezElmasri and B.Navathe, Fifth Edition, Pearson Education.

An Introduction to database system by C.J. Date, 8th edition.

LAB-1: Computer Programming USING 'C'

Paper Code : WD1.5	Credit : 2	Practical Hours : 60
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Practical:

1. Write a program to find greatest of three numbers.
2. Write a program to find gross salary of a person
3. Write a program to find grade of a student given his marks.
4. Write a program to find divisor or factorial of a given number.
5. Write a program to print first ten natural numbers.
6. Write a program to print first ten even and odd numbers.
7. Write a program to find grade of a list of students given their marks.
8. Create Matrix class. Write a menu-driven program to perform following Matrix operations (2-D array implementation): a) Sum b) Difference c) Product d) Transpose.
9. Development a Project Using programming Methodology - C++ or



LAB-2: WEB DEVELOPMENT (HTML & CSS)

Paper Code : WD1.6	Credit : 2	Practical Hours : 60
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Practical

1. Designing of web page working with elements, Tags and basic structure of HTML files.
2. Develop the concept of basic and advanced text formatting.
3. Designing of webpage-Document Layout.
4. Designing of webpage-Working with List.
5. Designing of webpage-Working with Tables.
6. Practicing Hyper linking of webpages.
7. Designing of webpage-Working with Frames.
8. Designing of webpage-Working with Forms and Controls.
9. Practicing use of multimedia components (Image, Video & Sound) in HTML document.
10. Prepare creating style sheet, CSS properties, Background, Text,Font and styling etc.
11. Working with List, HTML elements box, Positioning and Block properties in CSS.
12. Designing with cascading style sheet-Internal and External style sheet.
13. Acquaintance with creating style sheet, CSS properties and styling.
14. Working with Positioning and Block properties in CSS.
15. Designing with cascading style sheet-Internal style sheet.
16. Designing with cascading style sheet-External style sheet.



LAB:3DATABASE

Paper Code : WD1.7	Credit : 2	Practical Hours : 60
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Practical List

1) Create a database having two tables with the specified fields, to computerize a library system of a Delhi University College.

LibraryBooks (Accession number, Title, Author, Department, PurchaseDate, Price)

IssuedBooks (Accession number, Borrower)

a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.

b) Delete the record of book titled "Database System Concepts".

c) Change the Department of the book titled "Discrete Maths" to "CS".

d) List all books that belong to "CS" department.

e) List all books that belong to "CS" department and are written by author "Navathe".

f) List all computer (Department="CS") that have been issued.

g) List all books which have a price less than 500 or purchased between "01/01/1999" and "01/01/2004".

2) Create a database having three tables to store the details of students of Computer Department in your college.

Personal information about Student (College roll number, Name of student, Date of birth, Address, Marks(rounded off to whole number) in percentage at 10 + 2, Phone number)

Paper Details (Paper code, Name of the Paper)

Student's Academic and Attendance details (College roll number, Paper code, Attendance, Marks in home examination).

a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.

b) Design a query that will return the records (from the second table) along with the name of student from the first table, related to students who have more than 75% attendance and more than 60% marks in paper 2.

c) List all students who live in "Delhi" and have marks greater than 60 in paper 1.

d) Find the total attendance and total marks obtained by each student.

e) List the name of student who has got the highest marks in paper 2.

3) Create the following tables and answer the queries given below:

Customer (CustID, email, Name, Phone, ReferrerID)

Bicycle (BicycleID, DatePurchased, Color, CustID, ModelNo)

BicycleModel (ModelNo, Manufacturer, Style)

Service (StartDate, BicycleID, EndDate)

a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.

b) List all the customers who have the bicycles manufactured by manufacturer "Honda".

c) List the bicycles purchased by the customers who have been referred by customer "C1".

d) List the manufacturer of red colored bicycles.

e) List the models of the bicycles given for service.

4) Create the following tables, enter at least 5 records in each table and answer the queries given below.

EMPLOYEE (Person_Name, Street, City)

WORKS (Person_Name, Company_Name, Salary)

COMPANY (Company_Name, City)

MANAGES (Person_Name, Manager_Name)

a) Identify primary and foreign keys.

b) Alter table employee, add a column "email" of type varchar(20).

c) Find the name of all managers who work for both Samba Bank and NCB Bank.

d) Find the names, street address and cities of residence and salary of all employees who work for "Samba Bank" and earn more than \$10,000.

e) Find the names of all employees who live in the same city as the company for which they work.

f) Find the highest salary, lowest salary and average salary paid by each company.

g) Find the sum of salary and number of employees in each company.

h) Find the name of the company that pays highest salary.

5) Create the following tables, enter at least 5 records in each table and answer the queries given below.

Suppliers (SNo, Sname, Status, SCity)

Parts (PNo, Pname, Colour, Weight, City)

Project (JNo, Jname, Jcity)

Shipment (Sno, Pno, Jno, Qunatity)

a) Identify primary and foreign keys.

b) Get supplier numbers for suppliers in Paris with status>20.

c) Get suppliers details for suppliers who supply part P2. Display the supplier list in increasing order of supplier numbers.

d) Get suppliers names for suppliers who do not supply part P2.

e) For each shipment get full shipment details, including total shipment weights.

f) Get all the shipments where the quantity is in the range 300 to 750 inclusive.

g) Get part nos. for parts that either weigh more than 16 pounds or are supplied by suppliers S2, or both.

h) Get the names of cities that store more than five red parts.

i) Get full details of parts supplied by a supplier in Delhi.

j) Get part numbers for part supplied by a supplier in Allahabad to a project in Chennai.

k) Get the total number of project supplied by a supplier (say, S1).

l) Get the total quantity of a part (say, P1) supplied by a supplier (say, S1).

SEMESTER - II

ENVIRONMENTAL SCIENCES

Semester - II

GEC 2.1

Credits: 4

Lecture : 60

Max Marks : 100

Hours : 3

Course Content:

Unit 1 : Introduction to environmental studies

- Multidisciplinary nature of environmental studies;
- Scope and importance; Need for public awareness.

Unit 2 : Ecosystems

What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems :

1. a) Forest ecosystem
2. b) Grassland ecosystem
3. c) Desert ecosystem
4. d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit 3 : Natural Resources : Renewable and Non-renewable Resources

- Land resources and land use change; Land degradation, soil erosion and desertification.
- Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.
- Water : Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).
- Energy resources : Renewable and non renewable energy sources, use of alternate energy sources, growing energy needs, case studies.

Unit 4 : Biodiversity and Conservation

- Levels of biological diversity : genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots
- India as a mega-biodiversity nation; Endangered and endemic species of India
- Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
- Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.

Unit 5 : Environmental Pollution

- Environmental pollution : types, causes, effects and controls; Air, water, soil and noise pollution
- Nuclear hazards and human health risks
- Solid waste management: Control measures of urban and industrial waste.
- Pollution case studies.

Unit 6 : Environmental Policies & Practices

- Sustainability and sustainable development.
- Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture
- Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act.
- Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.

Unit 7 : Human Communities and the Environment

- Human population growth: Impacts on environment, human health and welfare.
- Resettlement and rehabilitation of project affected persons; case studies.
- Disaster management: floods, earthquake, cyclones and landslides.
- Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan.
- Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.
- Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).

Unit 8: Field work

- Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc.
- Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.
- Study of common plants, insects, birds and basic principles of identification.
- Study of simple ecosystems-pond, river, Delhi Ridge, etc.

Suggested Readings:

1. Bharucha, E. 2003, Textbook for Environmental Studies, University Grants Commission, New Delhi and BharatiVidyapeeth Institute of Environmental Education and Research, Pune. 361.
2. Carson, Rachel. 1962. Silent Spring (Boston: Houghton Mifflin, 1962), Mariner Books, 2002
3. Economy, Elizabeth. 2010. The River Runs Black: The Environmental Challenge to China's Future.
4. Gadgil, M. & Ramachandra, G. 1993. This fissured land: an ecological history of India. Univ of California Press.
5. Gleeson, B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge.
6. Grumbine, R. Edward, and Pandit, M.K. Threats from India's Himalaya dams. Science 339.6115 (2013): 36-37.
7. Heywood V.H. & Watson, R.T. 1995. Global Biodiversity Assessment. Cambridge University Press.
8. McCully, P. 1996. Silenced rivers: the ecology and politics of large dams. Zed Books.
9. McNeill, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century.
10. Odum, E.P., Odum, H.T. & Andrews, J. 1971. Fundamentals of Ecology. Philadelphia: Saunders.
11. Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. Environmental and Pollution Science. Academic press, 2011.
12. Rao MN and Datta AK, 1987. Waste Water Treatment. Oxford and IBH Publishing Co. Pvt. Ltd.
13. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. Environment. 8edition. John Wiley & Sons.
14. Ricklefs, R. E., & Miller, G.L. 2000. Ecology. W. H. Freeman, New York.
15. Robbins, P. 2012. Political ecology: A critical introduction. John Wiley & Sons.
16. Rosencranz, A., Divan, S. & Noble, M.L.. Environmental law and policy in India. 2001. Tripathi 1992.
17. Sengupta, R. 2003. Ecology and economics (OUP): An approach to sustainable development." OUP Catalogue.
18. World Commission on Environment and Development. 1987. Our Common Future. Oxford: Oxford University Press.

19. Singh, J.S., Singh, S.P. and Gupta, S.R. 2006. Ecology, Environment and Resource Ecology, Environment and Resource Conservation. Anamaya Publishers.
20. Sodhi, N.S., Gibson, L. & Raven, P.H.G. (eds). 2013. Conservation biology: voices from the Tropics. John Wiley & Sons.
21. Van Leeuwen, C. J., & Vermeire, T. G. 2007. Risk assessment of chemicals.

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INTERNET AND JAVA PROGRAMMING

Semester - II

GEC 2.3

Credit – 4

Maximum Marks – 100

Hours : 3

Internet: Introduction, Understanding the Internet, Internet Addressing, Hardware Requirements to Connect to the Internet.

Data types, Arrays, Operators, Flow control: Branching, Looping. Classes, New Operator, Dot Operator, Method Declaration and Calling, Constructors, Inheritance, Super, Method Overriding Final, Finalize, Static, Package and Import Statement, Interface and Implements

Exception Handling: Exception Types, Uncaught and Calling, Nested Try Statements, Java Thread Model, and Thread, Runnable, Thread Priorities, Synchronization, Deadlock

File: Input Stream, Output Stream, and File Stream. Applets-Tag, Order of Applet Initialization, Repainting, Sizing Graphics- Abstract Window Tool Kit Components

Suggested Books:

1. Harley Hahn, The internet complete reference, Tata McGraw publicity, 2nd Edition, 1997
2. Patrick Naughton, The Java hand book, Tata McGraw, 1997



SOFT SKILLS

Semester - II

GEC 2.3

Credit – 4

Maximum Marks – 100

Hours : 3

Course Content:

- * Teamwork
- * Emotional Intelligence
- * Adaptability
- * Leadership
- * Problem solving.

Suggested Readings

1. S.P. Dhanavel. English and Soft Skills. Orient BlackSwan, 2013
2. Dale Carnegie. How to Win Friends and Influence People. Gallery Books, 1936.
3. Gopalaswamy Ramesh & Mahadevan Ramesh. The Ace of Softskills: Attitude, Communication and Etiquette for Success. Pearson, 2010.



JAVA SCRIPT

Paper Code : WD2.1

Credit : 4

Lectures : 60

Objectives: Scripting Language for web designing enables students to create the dynamic web pages.

Unit-1: The Evolution of Scripting Languages, JavaScript –Definition.Comparison between Java, JavaScript & VB Script. Introduction to Objects, Methods, and Events, Events and Program Flow, Running Scripts.

Unit-2: Enhancing HTML Documents with JavaScript, Basic Building Blocks, Names and References in JavaScript, Built-in Objects, Using Methods, Operators and Variables, Keywords, Functions, Object interaction.

Unit-3: Controlling Script Flow, Storing Tasks within Functions, Using Conditional Statements for Decision Making, ifStatements, if-else Conditional Statements, Using the Date Object, for Conditional Statements, while Conditional Statements, break and continue Statements, withStatements, Creating Functions in JavaScript, Declaring a Function, Designing a Simple Function.

Unit-4: Changing Pages Based on Time and Date, Displaying the Quote of the Day, Using Arrays, Constructing the Quotes Script, Considerations When Accessing External Files, Changing the Background Color through a Random Number, Turning the Color Generator into a Function, Using the Image and Area Objects, Creating an Image Object, Creating an Area Object, Selecting a Guide.

Unit-5: Basic Script Construction, Form Objects, Organizing Your Objects and Scripts, Field-Level Validation, Check Required Fields ,Validate Zip Code, Automated Formatting, Format Phone, Format Money, Automatic Calculation, Calculate Expiration Date, Calculate Amount.

Suggested Readings:

1. JAVA SCRIPT: A BeginnersGUIDE , 4TH ED. By John Pullock, McGraw-Hill
2. JAVA SCRIPT: The Definitive Guide by David Elanagan, O'Reilly 6th Ed.
3. Lee Purcell, Mary Jane Mara The ABCs of JavaScript BPB Publication
4. Douglas Crockford JavaScript: The Good Parts, 2nd Edition O'Reilly Fritz
5. Schneider, Thomas Powell JavaScript : The Complete Reference 2nd Edition Tata McGraw - Hill Education.

ADOBE PHOTOSHOP & ILLUSTRATOR

Paper Code : WD2.2

Credit : 4

Lectures : 60

ADOBE PHOTOSHOP

Unit-1. The Interface (8 Hours)

Touring the interface, Working with tabbed documents, Using tools efficiently, Arranging panels, Customizing keyboard shortcuts, Saving a custom workspace, Changing screen modes, Touring the Bridge interface, Opening images from Bridge, Reviewing images, Finding images, Basics, Setting preferences, Choosing color settings, Zooming and panning, Resizing and image resolution, Adding to the canvas, Rotating the canvas, Choosing color, Sizing a brush tip, Undoing and the History panel, Saving and file formats, Creating a file from scratch.

Unit-2. Selections & Layers (8 Hours)

Making geometric selections, Modifying selections, Combining selections, Using the Quick Selection tool, Refining selection edges, Using Quick, Mask mode, Selecting with the improved Color Range command, Selecting with the Magnetic Lasso tool, Using the Background Eraser tool, Saving selections, Understanding layers, Creating layers, Working in the Layers panel, Locking layers, Working with multiple layers, Merging and flattening layers, Adding a shape layer, Basic layer masking, Using layer blend modes and opacity.

Unit-3. Photo Manipulation, Retouching & Adjustments (7 Hours)

Cropping, Straightening, Transforming, Working with Smart Objects, Using Content-Aware Scaling, Reading histograms, Using adjustment layers and the Adjustment panel, Adjusting tones with Levels, Limiting adjustments with layer masks, Using masks in the new Masks panel, Limiting adjustments by clipping, Adjusting with Shadow/Highlight, Adjusting with Curves, Adjusting with Hue/Saturation, Adjusting with Vibrancy, Removing a color cast, Using the Black & White adjustment layer, Using the Dodge, Burn, and Sponge tools, Reducing noise, Sharpening, Using the Spot Healing Brush tool, Using the Healing Brush tool, Using the Patch tool, Using the Clone Stamp tool, Enhancing eyes, Changing facial structure, Softening skin

Unit-4. Painting, Text & Effects (7 Hours)

Using the Brushes panel, Filling with color, Replacing color, Using gradients, Working with point type, Working with paragraph type, Warping text, Adding a layer style, Customizing a layer style, Copying a layer style, Creating a new style, Using Smart Filters, Working in the Filter Gallery, Auto-blending focus, Creating Photomerge panoramas, Combining group photos, Automation, Creating an action, Batch processing with an action, Using the Image Processor, Making a contact sheet from Bridge, Creating a web gallery from Bridge, Preparing photos for the web.

ADOBE ILLUSTRATOR

Unit-1 (8 Hours)

Introduction to Adobe Illustrator, Setting Up Preferences, Setting up Workspaces and Panels, Web vs Print Artboards and Preview Modes, Working with Multiple Documents and All About Art, Measuring and Guides, Navigation and Saving and Using Views.

Unit-2 (8 Hours)

Basic Illustrator features, Basic Shapes, The Pen Tool Part 1 (All about the pen tool), The Pen Tool Part 2, Transforming, Layers and Grouping, Pathfinder and More with Anchors and Paths,

Unit-3 (7 Hours)

Working with Colors and Patterns, Fill, Stroke, Gradients and Color, Create a Flower, Pattern Fills and Brushes, Effects and Appearances, Make a Glossy Button, Basic Effects, Effects (AI Type), Effects (PS type), Appearances, Adobe Illustrator Tutorial - Moving Appearances and Another Look at Styles

Unit-4 (7 Hours)

Making a design in AI, Setting up for Perspective Drawing, Using the Perspective Grid, Make a City in Perspective, AI - Advance Features, Symbol Sprayer and Friends, Advanced Selection (tolerance, group selection, isolation mode, etc), Actions and Automation Basics, Actions and automation, Background Mastery, Shortcuts.

Suggested Readings:

The Adobe Illustrator CS5 Wow!, Peachpit Press

Adobe Illustrator CS5 Classroom in a Book, Adobe Press

Adobe Photoshop CC. Classroom in a book, Adobe Press, 1st Edition.



LAB-1: JAVA SCRIPT

Paper Code : WD2.3	Credit : 4	Practical Hours : 120
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PRACTICAL

1. Create a form and validate it using javascript.
2. Display the current date and time using javascript
3. Create a form that takes two numbers as input, validate and display the sum.
4. Display the browser information using javascript
5. Alter the properties of an element in HTML using javascript.
6. Display the greeting message depending on the time of the day.
7. Change the background color of an HTML page using Javascript.
8. Create an onClick event that calls a function.
9. Create a form that takes some integers as input and sort them.
10. Create a form that inputs a number, validate it and compute the factorial and display it on the screen.



LAB-2: ADOBE PHOTOSHOP & ILLUSTRATOR

Paper Code : WD2.4	Credit : 4	Practical Hours : 120
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PRACTICAL :

1. Design a traffic light.
2. Create a car in flash and then add motion to it
3. Create a wall clock that displays and updates correct time
4. Using tweanimate the letter M into N.
5. Create a working model of the Universe (sun at centre and planets revolving in fixed orbits).
6. Design any business project using Adobe Photoshop& Adobe illustrator.



LAB-3: WEB DESIGNING PROJECT-I

Paper Code : WD2.5	Credit : 2	Hours : 60
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The students are able to use their theoretical and practical learning through this project. Students may develop and design professional / business / scientific type web portal. The faculty member or Industry Partner will supervise the student during their internship. The project must be market oriented under guidance of a faculty member and / or Industry Partner.

Student must use theoretical and practical learning in the assigned project. The student will present the outcome in form of hard and soft copy to the examiner / Industry Partners. The Industry Partners (Examiner/s) and External Academic Expert (Examiner/s) will evaluate the outcome of assigned project. The report and the specimens of the work done by the student should be attested by the organization/faculty.



SEMESTER – III

Hindi (कार्यालयीहिंदी)

Semester - II

GEC 3.1

Credit – 4

Maximum Marks – 100

Hours : 3

इकाई-1 : कार्यालयी हिंदी का स्वरूप, उद्देश्य तथा क्षेत्र

- अभिप्राय तथा उद्देश्य
- कार्यालयी हिंदी का क्षेत्र
- सामान्य हिंदी तथा कार्यालयी हिंदी : संबंध तथा अंतर
- कार्यालयी हिंदी की स्थिति और संभावनाएँ

इकाई-2 : कार्यालयी हिंदी की शब्दावली

- कार्यालयी हिंदी की पारिभाषिक शब्दावली
- पदनाम तथा अनुभाग के नाम
- मुख्य कार्यालय, क्षेत्रीय कार्यालय और अन्य प्रशासनिक अधिकारियों के लिए प्रयुक्त होने वाले संबंधन, निर्देश आदि
- औपचारिक पदावली/अभिव्यक्तियाँ (सूची विभाग द्वारा तैयार की जाएगी)

इकाई-3 : कार्यालयी पत्राचार के विविध प्रकार

- सामान्य परिचय
- कार्यालय से निर्गत पत्र (ज्ञापन, परिपत्र, अनुस्मारक, पत्रांकन, आदेश, सूचनाएँ, निवेदन आदि)
- रिक्त पदों पर भर्ती हेतु विज्ञापन
- आवेदन-लेखन

इकाई-4 : टिप्पण, प्रारूपण और संक्षेपण

- टिप्पण का स्वरूप, विरोपताएँ और भाषा शैली
- प्रारूपण के प्रकार, भाषा शैली, प्रारूपण की विधि
- संक्षेपण के प्रकार, विरोपताएँ और संक्षेपण की विधि
- उपरोक्त सभी इकाइयों पर आधारित व्यावहारिक प्रश्न

सहायक ग्रंथ

- प्रयोजनमूलक हिंदी - माधव सोनटक्के
- प्रारूपण शासकीय पत्राचार और टिप्पण लेखन विधि - राजेंद्र प्रसाद श्रीवास्तव
- प्रयोजनमूलक हिंदी की नई भूमिका - कलशराज्य पाण्डेय
- प्रयोजनमूलक भाषा और कार्यालयी हिंदी - कृष्ण कुमार गोम्बामों
- प्रयोजनमूलक हिंदी : सिद्धांत और प्रयोग - दंगल झालटे

STATISTICAL DATA ANALYSIS USING – R

Paper Code : GEC3.2	Credit : 4	Lectures : 60
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This course will review and expand upon core topics in probability and statistics through the study and practice of data analysis and graphical interpretation using 'R'.

UNIT I

Learn how to load data, plot a graph viz. histograms (equal class intervals and unequal class intervals), box plot, stem-leaf, frequency polygon, pie chart, ogives with graphical summaries of data

UNIT II

Generate automated reports giving detailed descriptive statistics, correlation and lines of regression.

UNIT III

Random number generation and sampling procedures. Fitting of polynomials and exponential curves. Application Problems based on fitting of suitable distribution, Normal probability plot.

UNIT IV

Simple analysis and create and manage statistical analysis projects, import data, code editing, Basics of statistical inference in order to understand hypothesis testing and compute p-values and confidence intervals.

SUGGESTED READING:

1. Gardener, M (2012) Beginning R: The Statistical Programming Language, Wiley Publications.
2. Braun W J, Murdoch D J (2007): A First Course in Statistical Programming with R. Cambridge University Press. New York

LIFE SKILLS EDUCATION

Semester - III

GEC 3.3

Credit – 4

Maximum Marks – 100

Hours : 3

Unit 1: Concept and Meaning of life skills

- Definitions and concept of life skills and life skills education.
- Importance in daily living; Criteria for using life skills.
- Evolution of Life Skills
- Core Life Skills- classification and concept
- Theoretical perspectives and models to understand life skills education.

Unit 2: Components for Planning & Organizing Life Skills Programs

A. Understanding group characteristics and needs

- Life skills in context: importance of focusing on contextual specificities and cultural ideologies as important aspects affecting individual ideas.
- Focusing on cultural practices that govern everyday life.
- Analyzing the gender nuances that exist within the group.
- Self components to imparting life skills program: critical thinking skills, decision making skills, interpersonal communication skills, coping with stress and emotions; self-management skills, etc.

B. Importance of communication in imparting life skills education

- Concept and Importance of communication
- Aspects to develop social potentials (effective listening, speaking, building and maintaining relationships, understanding group dynamics and functioning in groups, delegating responsibilities)

C. Core Approaches and Strategies to Implement Life Skills Program

- Understanding and developing self-skills/potential: self-awareness, self-esteem self-confidence, creative thinking, interpersonal skills, etc.
- Use of participatory techniques and methods: Individual exercises, Group activities, games etc.
- Communicating with the audience: receiving feedback, handling questions, etc.

D. Organizing a Life Skills Program

- Planning a need based viable life skills program (select components)
- Determining the purpose, collecting materials, organizing content.
- Getting prepared for the presentation: psychological level
- Delivering the presentation

E. Life Skills Assessment

- Scales and quantitative techniques
- Qualitative approaches

Unit 2: Life Skills and Youth Development

- Adolescence and Youth- Definitions, Conception- socio cultural perspectives

- Youth demographics and role in society
- Challenges of adolescence and youth development
- Formal and Non formal approaches to youth development
- Positive Youth Development

Learning Experiences

Students may be given several in house experiences to observe and evaluate existing life skills programs. They may also get experiences to interact with experts in the discipline through panel discussions and similar organized experiences.

- Visiting and observing Life skills education programme
- Critique formal and non-formal life skills programmes
- Evaluate approaches and activities of life skills education for different target groups

RECOMMENDED READINGS

- Agochiya D. 2010, life competencies for adolescents. Training manual for facilitators, teachers and parents. Sage Publications.
- Dakar Framework for Action, (2000). Education for All: Meeting our Collective Commitments, Dakar, Senegal
- Peace Corps, OPATS. 2001, Life Skills Manual.
- Robbins S.P, Hunsaker P.L, Training in Interpersonal Skills (5th eds), PHI Learning Pvt. Ltd.
- National Aids Control Organization, 2008, Adolescence Education Programme, Life Skills Development.
- Nair. A. Radhakrishnan, (2010). Life Skills Training for Positive Behaviour , Rajiv

Gandhi National Institute of Youth Development, Tamil Nadu.

Nair .V. Rajasenan, (2010). Life Skills, Personality and Leadership , Rajiv Gandhi National Institute of Youth Development, Tamil Nadu.

Url: multimedia.peacecorps.gov/.../pdf/.../M0063_lifeskillscomplete.pdf

Url: www.nacoonline.org/.../AEP%20-%20Teachers%20Workbook.pdf

PROGRAMMING USING C++

Paper Code : WD3.1	Credit : 4	Lectures : 60
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1. Introduction to C and C++

History of C and C++, Overview of Procedural Programming and Object-Oriented Programming, Using main() function, Compiling and Executing Simple Programs in C++.

2. Data Types, Variables, Constants, Operators and Basic I/O

Declaring, Defining and Initializing Variables, Scope of Variables, Using Named Constants, Keywords, Data Types, Casting of Data Types, Operators (Arithmetic, Logical and Bitwise), Using Comments in programs, Character I/O (getc, getchar, putc, putchar), Formatted and Console I/O (printf(), scanf(), cin, cout), Using Basic Header Files (stdio.h, iostream.h, conio.h).

3. Expressions, Conditional Statements and Iterative Statements

Simple Expressions in C++ (including Unary Operator Expressions, Binary Operator Expressions), Understanding Operator Precedence in Expressions, Conditional Statements (if construct, switch-case construct), Understanding syntax and utility of Iterative Statements (while, do-while, and for loops), Use of break and continue in Loops, Using Nested Statements (Conditional as well as Iterative)

4. Functions and Arrays

Utility of functions, Call by Value, Call by Reference, Functions returning value, Void functions, Inline Functions, Return data type of functions, Functions parameters, Differentiating between Declaration and Definition of Functions, Command Line Arguments/Parameters in Functions, Functions with variable number of Arguments.

Creating and Using One Dimensional Arrays (Declaring and Defining an Array, Initializing an Array, Accessing individual elements in an Array, Manipulating array elements using loops), Use Various types of arrays (integer, float and character arrays / Strings) Two-dimensional Arrays (Declaring, Defining and Initializing Two Dimensional Array, Working with Rows and Columns), Introduction to Multi-dimensional arrays

5. Derived Data Types (Structures and Unions)

Understanding utility of structures and unions, Declaring, initializing and using simple structures and unions, Manipulating individual members of structures and unions, Array of Structures, Individual data members as structures, Passing and returning structures from functions, Structure with union as members, Union with structures as members.

6. Pointers and References in C++

Understanding a Pointer Variable, Simple use of Pointers (Declaring and Dereferencing Pointers to simple variables), Pointers to Pointers, Pointers to structures, Problems with Pointers, Passing pointers as function arguments, Returning a pointer from a function, using arrays as pointers, Passing arrays to functions. Pointers vs. References, Declaring and initializing references, Using references as function arguments and function return values

7. Memory Allocation in C++

Differentiating between static and dynamic memory allocation, use of malloc, calloc and free functions, use of new and delete operators, storage of variables in static and dynamic memory allocation

8. File I/O, Preprocessor Directives

Opening and closing a file (use of fstream header file, ifstream, ofstream and fstream classes), Reading and writing Text Files, Using put(), get(), read() and write() functions, Random access in files, Understanding the Preprocessor Directives (#include, #define, #error, #if, #else, #elif, #endif, #ifdef, #ifndef and #undef), Macros

9. Using Classes in C++

Principles of Object-Oriented Programming, Defining & Using Classes, Class Constructors, Constructor Overloading, Function overloading in classes, Class Variables & Functions, Objects as parameters, Specifying the Protected and Private Access, Copy Constructors, Overview of Template classes and their use.

10. Overview of Function Overloading and Operator Overloading

Need of Overloading functions and operators, Overloading functions by number and type of arguments, Looking at an operator as a function call, Overloading Operators (including assignment operators, unary operators)

11. Inheritance, Polymorphism and Exception Handling

Introduction to Inheritance (Multi-Level Inheritance, Multiple Inheritance), Polymorphism (Virtual Functions, Pure Virtual Functions), Basics Exceptional Handling (using catch and throw, multiple catch statements), Catching all exceptions, Restricting exceptions, Rethrowing exceptions.

Reference Books

1. HerbtzSchildt, "C++: The Complete Reference", Fourth Edition, McGraw Hill.
2. BjarneStroustrup, "The C++ Programming Language", 4th Edition, Addison-Wesley , 2013.
3. BjarneStroustrup, "Programming -- Principles and Practice using C++", 2nd Edition, Addison-Wesley 2014.
4. E Balaguruswamy, "Object Oriented Programming with C++", Tata McGraw-Hill Education, 2008.
5. Paul Deitel, Harvey Deitel, "C++ How to Program", 8th Edition, Prentice Hall, 2011.
5. John R. Hubbard, "Programming with C++", Schaum's Series, 2nd Edition, 2000.
6. Andrew Koeni, Barbara, E. Moo, "Accelerated C++", Published by Addison-Wesley , 2000.
7. Scott Meyers, "Effective C++", 3rd Edition, Published by Addison-Wesley, 2005.
8. Harry, H. Chaudhary, "Head First C++ Programming: The Definitive Beginner's Guide", First Create space Inc, O-D Publishing, LLC USA.
9. Walter Savitch, "Problem Solving with C++", Pearson Education, 2007.
10. Stanley B. Lippman, JoseeLajoie, Barbara E. Moo, "C++ Primer", Published by Addison-Wesley, 5th Edition, 2012



PHP & MY SQL

Paper Code : WD3.2

Credit : 4

Lectures : 60

Learning Objectives: The subject enables the student to incorporate and handle the data in a website.

Content Outline:-

Unit-I (15 Hours)

Fundamentals of PHP, OOPS concepts, Software Engineering, SQL Queries, Basics of Designing, Web Programming.

Unit-II (20 Hours)

Learning the Language, Introduction to PHP, PHP with Web Design, PHP Syntax, Variables in PHP, Expressions, PHP Operators, Conditions, Events and Flows, Loops, PHP Functions, PHP Arrays, String Functions, Date And Time Functions, PHP Include File, HTTP Protocol, Header Function, Forms And User Input, Form Validation, PHP \$_Get, PHP \$_Post

Unit-III (25 Hours)

Database Connectivity, DBMS & RDBMS, PHP & MySQL, MySQL Database and Queries, Connection to MySQL Database, Creating database and Tables in MySQL, MySQL Data Types, Database Terminology, PHP MySQL Insert into, MySQL Select, PHP MySQL Where Clause, PHP MySQL Order By Keyword, Difference Between Group By and Order By, Joins, PHP MySQL Update, PHP MySQL Delete Form, Normalization.

Suggested Readings:

1. Head First PHP and Mysql, 2nd Ed. O'Reilly, Lynn Beighley.
2. PHP and Mysql web development 4th edition Addison-Wesley Professional Luke Welling



WINDOWS & LINUX

Paper Code : WD3.3

Credit : 4

Lectures : 60

Learning Objectives : The objective of this subject is to learn the fundamentals of basic s of different operating system.

Content Outline:-

Unit-I (10 Hours)

Foundational concepts – What an OS is, the functions or what it does, the design and construction of an OS, common and fundamental concepts of all OS's, OS evolution, and hardware concepts that are important to OS design.

Unit-II (10 Hours)

Process management – What a process (or unit of work) is, process scheduling, separation of user and system processes and their management, concurrency issues, process synchronization, and deadlock management.

Unit-III (7 Hours)

Memory management – including virtual memory, file systems and I/O management

Unit-IV (8 Hours)

Summary of distributed systems from conceptual point of view to include structures and algorithms for networking, distributed communication, coordination and distributed file systems

Unit-V (10 Hours)

Windows Installation and Management: Create and format a hard disk partition, To create a partition or volume (the two terms are often used interchangeably) on a hard disk, Formatting disks and drives, To create and format a new partition, To format an existing partition , Windows Installation and setup

Unit-V (15 Hours)

Linux Installation and Management : Linux Ideas and History, Linux Installation and Configuration, Running Commands and Getting Help, Users, Groups and Permissions, Advanced Topics in Users, Groups and Permissions. Using the bash Shell, Configuring the Bash Shell, Standard I/O and Pipes, Text Processing Tools, vim: An Advanced Text Editor, Basic System Configuration Tools, Investigating and Managing Processes, Finding and Processing Files, File system Management

Suggested Readings:

1. Unix – syedmansoorsarwar, Robert kortskey - Pearson Education
2. Using Linux – David Bandel and napier – Pearson Education
3. Windows 8, Nick Vandome, MacGrawHil Education

LAB-1: Programming using C++

Paper Code : WD3.4	Credit : 2	Lectures : 60
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Practical

1. WAP to print the sum and product of digits of an integer.
2. WAP to reverse a number.
3. WAP to compute the sum of the first n terms of the following series
 $S = 1 + 1/2 + 1/3 + 1/4 + \dots$
4. WAP to compute the sum of the first n terms of the following series
 $S = 1 - 2 + 3 - 4 + 5 - \dots$
5. Write a function that checks whether a given string is Palindrome or not. Use this function to find whether the string entered by user is Palindrome or not.
6. Write a function to find whether a given no. is prime or not. Use the same to generate the prime numbers less than 100.
7. WAP to compute the factors of a given number.
8. Write a macro that swaps two numbers. WAP to use it.
9. WAP to print a triangle of stars as follows (take number of lines from user):

```
*  
***  
*****  
*****  
*****
```

10. WAP to perform following actions on an array entered by the user:
 - i) Print the even-valued elements
 - ii) Print the odd-valued elements
 - iii) Calculate and print the sum and average of the elements of array
 - iv) Print the maximum and minimum element of array
 - v) Remove the duplicates from the array
 - vi) Print the array in reverse order

The program should present a menu to the user and ask for one of the options. The menu should also include options to re-enter array and to quit the program.

11. WAP that prints a table indicating the number of occurrences of each alphabet in the text entered as command line arguments.
12. Write a program that swaps two numbers using pointers.
13. Write a program in which a function is passed address of two variables and then alter its contents.

14. Write a program which takes the radius of a circle as input from the user, passes it to another function that computes the area and the circumference of the circle and displays the value of area and circumference from the main() function.
15. Write a program to find sum of n elements entered by the user. To write this program, allocate memory dynamically using malloc() / calloc() functions or new operator.
16. Write a menu driven program to perform following operations on strings:
 - a) Show address of each character in string
 - b) Concatenate two strings without using strcat function.
 - c) Concatenate two strings using strcat function.
 - d) Compare two strings
 - e) Calculate length of the string (use pointers)
 - f) Convert all lowercase characters to uppercase
 - g) Convert all uppercase characters to lowercase
 - h) Calculate number of vowels
 - i) Reverse the string
17. Given two ordered arrays of integers, write a program to merge the two-arrays to get an ordered array.
18. WAP to display Fibonacci series (i)using recursion, (ii) using iteration
19. WAP to calculate Factorial of a number (i)using recursion, (ii) using iteration
20. WAP to calculate GCD of two numbers (i) with recursion (ii) without recursion.
21. Create Matrix class using templates. Write a menu-driven program to perform following Matrix operations (2-D array implementation):
 - a) Sum b) Difference c) Product d) Transpose
22. Create the Person class. Create some objects of this class (by taking information from the user). Inherit the class Person to create two classes Teacher and Student class. Maintain the respective information in the classes and create, display and delete objects of these two classes (Use Runtime Polymorphism).
23. Create a class Triangle. Include overloaded functions for calculating area. Overload assignment operator and equality operator.
24. Create a class Box containing length, breath and height. Include following methods in it:
 - a) Calculate surface Area
 - b) Calculate Volume
 - c) Increment, Overload ++ operator (both prefix & postfix)
 - d) Decrement, Overload -- operator (both prefix & postfix)
 - e) Overload operator == (to check equality of two boxes), as a friend function
 - f) Overload Assignment operator
 - g) Check if it is a Cube or cuboid

Write a program which takes input from the user for length, breath and height to test the above class.

25. Create a structure Student containing fields for Roll No., Name, Class, Year and Total Marks.

Create 10 students and store them in a file.

26. Write a program to retrieve the student information from file created in previous question and print it in following format:

Roll No. Name Marks

27. Copy the contents of one text file to another file, after removing all whitespaces.

28. Write a function that reverses the elements of an array in place. The function must accept only one pointer value and return void.

29. Write a program that will read 10 integers from user and store them in an array. Implement array using pointers. The program will print the array elements in ascending and descending order.



Lab -2: PHP & MY SQL

Paper Code : WD3.5	Credit : 2	Hours : 60
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PRACTICAL

Content Outline :-

Case 1. Consider the following schema

Schema for Film Information

people(person_id, name, year_of_birth);

-- year_of_birth: 4 digit numeric e.g. as the year data type

-- person_id: a number

movies(movie_id, name, production_year)

-- movie_id: a number

-- production_year: 4 digit numeric e.g. as the year data type

role(movie_id, person_id, role, character_name)

-- role: actor, director, ...; string of up to 10 characters

-- character_name: name of character played by the person; string

-- of up to 20 characters

Review(movie_id, reviewer_name, review_location, score, review_text)

-- score: number with one digit before and one digit after fraction

Answer the following questions:

1 – Create tables in MySQL corresponding to this schema. You should make the primary key, foreign key constraints explicit. Use the file insert.sql to insert data into the tables you have created.

2 – Consider a writer relation. You want to store in your database information about writers and the movies that are credited to them. Explain briefly how you extend the given schema. Create the corresponding tables in MySQL.

3 - Insert the following writer data into your database. Give the SQL statements you use to insert the data (writer, movie):

Lars von Trier, Dogville

Daphne Du Maurier, The Birds

4 – Express the following queries each as a single query:

1. List the names of all movies made after 1998.
2. List the names of all people who have acted in movies, along with the names of the movies and the names of the characters they played.
3. List all reviews of the movie named "Dil Se".

4. List names of persons who have acted in a movie that they themselves have directed, along with the name of the movie.
 5. List in order of production year the names and production year of movies that Hitchcock has directed.
 6. List all actors in the database who have not directed any movie at all.
 7. List persons that have been in more movies than Nicole Kidman.
 8. Create a relation called revieweravg(reviewer, avg) containing for each reviewer, the average score given by the reviewer across all movies.
9. List for each reviewer those movies whose review scores from this reviewer are above this reviewer's average.
- Q1. Write a program in PHP to add two numbers and display the result.
 - Q2. Display the current date and time using PHP.
 - Q3. Display the browser information using PHP..
 - Q4. Display the greeting message depending on the time of the day.
 - Q5. Create a form that takes some integers as input and sort them.
 - Q6. Create a form that inputs a number, validate it and compute the factorial and display it on the screen.
 - Q7. Create a form in html, that takes name, roll no., age, and address as inputs, process the information using PHP and display it on the screen.
 - Q8. Connect to a database, create a table, add 5 records into it.
 - Q9. Write a program in PHP to connect with a database and alter the content in a table.
 - Q10. Write a program to connect to a database, and display the records whose age is more than 19 but less than 23.



LAB-3: WINDOWS & LINUX

Paper Code : WD3.6	Credit : 2	Hours : 60
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PRACTICAL

Content Outline:-

Design and construction of Windows, Process management, synchronization, and deadlock management.

Memory management - virtual memory, file systems and I/O.

Algorithms for networking, Distributed communication, Windows Installation and Management.

Create and format a hard disk partition.

Create and format a new partition, To format an existing partition , Windows Installation and setup.

Linux Installation, Configuration, Running Commands, Users, Groups and Permissions, Groups and Permissions.

Using the bash Shell, Configuring the Bash Shell, Standard I/O and Pipes, An Advanced Text Editor,

Basic System Configuration Tools, Investigating and Managing Processes. File system and File Management.

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SEMESTER – IV

Management Information System

Paper Code : GEC4.1	Credit : 4	Lectures : 60
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Objective:To provide the understanding and use of management information systems in an office and organization.

Unit I 12

Management Information Systems - Need, Purpose and Objectives - Contemporary Approaches to MIS - Information as a strategic resource - Use of information for competitive advantage - MIS as an instrument for the organizational change

Information, Management and Decision Making - Models of Decision Making Classical, Administrative and Herbert Simon's Models - Attributes of information and its relevance to Decision Making - Types of information

Unit II 12

Information Technology - Definition, IT Capabilities and their organizational impact - Telecommunication and Networks - Types and Topologies of Networks - IT enabled services such as Call Centers, Geographical Information Systems etc.

Data Base Management Systems - Data Warehousing and Data Mining, Systems Analysis and Design - Systems Development Life Cycle - Alternative System Building Approaches - Prototyping - Rapid Development Tools - CASE .

Unit III 12

Tools – Object Oriented Systems (Only introduction to these tools & techniques), Decision Support Systems - Group Decision Support Systems - Executive Information Systems - Executive Support Systems - Expert Systems and Knowledge Based Expert Systems - Artificial Intelligence.

Unit IV 12

Management Issues in MIS - Information Security and Control - Quality Assurance -Ethical and Social Dimensions - Intellectual Property Rights as related to IT Services / IT Products - Managing Global Information Systems .

Unit V 12

Applications of MIS in functional areas as well as in the service sector should be covered with the help of minimum 5 case studies. Emphasis should be given on management oriented problems and cases as compared to technical problems expected from computer science/ computer management students.

Suggested Readings:

1. Management Information Systems, Laudon and Laudon, 7th Edition, Pearson Education Asia
2. Management Information Systems, Jawadkar, Tata McGraw Hill
3. Management Information Systems, Davis and Olson, Tata McGraw Hill
4. Analysis and Design of Information Systems, Rajaraman, Prentice Hall
5. Decision Support Systems and Intelligent Systems, Turban and Aronson, Pearson Education Asia
6. Management Information Systems, Schulthesis, Tata McGraw Hill
7. Management Information Systems - Sadagopan, Prentice Hall
8. Management Information Systems – JayantOke

CYBER CRIME AND LAW

Paper Code: GEC4.2	Credit : 4	Lectures : 60
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B.Com (Hons.) CBCS

Department of Commerce, University of Delhi, Delhi

**B.Com. (Hons.): Semester - IV
Paper BCH 4.5(d): CYBER CRIMES AND LAWS**

Duration: 2 hrs.

Objective: This paper intends to create an understanding towards the cyber crimes and to familiarize the students with the application of cyber laws in general.

Unit I: Cyber Crimes

Introduction- Computer crime and cyber crimes; Distinction between cyber crime and conventional crimes; cyber forensic; Kinds of cyber crimes- cyber stalking, cyber terrorism, forgery and fraud, crimes related to IPRs, computer vandalism; Privacy of online data; Cyber Jurisdiction; Copyright issues; and Domain name dispute etc.

Unit II: Definition and Terminology (Information Technology Act, 2000)

Concept of Internet, Internet Governance, E-Contract, E-Forms, Encryption, Data Security, Access, Addressee, Adjudicating Officer, Affixing Digital Signatures, Appropriate Government, Certifying Authority, Certification Practice Statement, Computer, Computer Network, Computer Resource, Computer System, Cyber Appellate Tribunal, Data, Digital Signature, Electronic Form, Electronic Record, Information, Intermediary, Key Pair, Originator, Public Key, Secure System, Verify, Subscriber as defined in the Information Technology Act, 2000.

Unit III: Electronic Records

Authentication of Electronic Records; Legal Recognition of Electronic Records; Legal Recognition of Digital Signatures; Use of Electronic Records and Digital Signatures in Government and its Agencies; Retention of Electronic Records; Attribution, Acknowledgement and Dispatch of Electronic Records; Secure Electronic Records and Digital Signatures.

Unit IV: Regulatory Framework

Regulation of Certifying Authorities; Appointment and Functions of Controller; License to issue Digital Signatures Certificate; Renewal of License; Controller's Powers; Procedure to be Followed by Certifying Authority; Issue, Suspension and Revocation of Digital Signatures Certificate, Duties of Subscribers; Penalties and Adjudication; Appellate Tribunal; Offences

Unit V: Case Laws

1. **Communication Device-Section 2(1a)** of the Information Technology (Amendment) Act, 2008-'State v Mohd. Afzal and others (2003), VIIAD (Delhi) 1, 107(2003) DLT385, 2003(71) DRJ178, 2003(3) JCC1669'
2. **Computer Network-Section 2 (j)** of the Information Technology (Amendment) Act, 2008 'Diebold System Pvt Ltd. v The Commissioner of Commercial Taxes. (2006), 144 STC, 59 (Kar)'
3. **Electronic Record Sec. 2 (t)- 'Info Ede(India)Ltd and Ors Vs Sanjeev Goyal. 783, 2006,HC', 'Societe Des Products Nestle S.A & others Vs Essar Industries & Ors, 2006 (33) PTC 496(Del)'**

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4. Time and Place of Dispatch and Receipt of Electronic Record-section 13- 'Groff v America Online, Inc., 1998 WL 307001 (1998)'
5. Penalty for Damage to Computer or Computer System- Section 43-'Umashankar Sivasubramanian v ICICI Bank, 18.04.2010. (Petition No. 2462/2008)'
6. Computer Related Offences: ' Sanjay Kumar Vs State of Haryana, 2013, CRR No. 66 of 2013(O&M)1'
7. Punishment for Disclosure of Information in Breach of Lawful Contract See 72 A- ' Google India Pvt Ltd Vs M/S Vishaka Industries Limited and another, AP High Court.
8. Punishment for Identity Theft-Section 66C-'CBI v Arif Azim Case Judicial Reports (Criminal) 2003 (2) page 272'
9. Punishment for Cheating by Personating by using Computer Resource-section 66D- 'National Association of Software and Service Companies (NAASCOM)v Ajay Sood. (2005) F.S.R. 38; 119 (2005) DLT 596, 2005 (30) PTC 437 Del'
10. Punishment for Publishing or Transmitting Obscene Material in Electronic form-section 67-'Avnish Bajaj v State (N.C.T.) of Delhi, (2005) 3 Comp. LJ 364 (Del), 116(2005) DLT427, 2005(79) DRJ576'
11. Punishment for Publishing or Transmitting of Material Containing Sexually Explicit Act, etc., in Electronic Form-Section 67A-'R v Graham Waddon., Southwark [Crown Court, 30/6/1999]'

Suggested Reading:

1. Efraim, Turban., Jae, Lee., King, David., and Chung, HM. *Electronic Commerce-A managerial Perspective*. Pearson Education
2. Joseph, P.T. *E-Commerce-An Indian Perspective*. PHI
3. Chaffey, Dave. *E-business and E-commerce Management*. Pearson Education.
4. Painttal, D. *Law of Information Technology*. Taxmann Publications Pvt. Ltd., New Delhi.
5. Dietel, Harvey M., Dietel, Paul J., and Kate Steinbuhler. *E-business and E-commerce for managers*. Pearson Education.
6. Brian, Craig, *Cyber Law: The Law of the Internet and Information Technology*. Pearson Education
7. Sharma J. P., and Kanojia, Sunaina . *Cyber Laws*. Ane Books Pvt Ltd, New Delhi.
8. *Information Technology Rules 2000 & Cyber Regulations Appellate Tribunal Rules 2000 with Information Technology Act 2000*. Taxmann Publications Pvt. Ltd., New Delhi.

Note: Latest edition of text book may be used.

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EFFECTIVE DECISION MAKING

Semester - IV GEC 4.3

Credit – 4

Maximum Marks – 100

Hours : 3

Objective: Students will learn various strategies which will enable them to make good decisions in life.

Unit 1: Introduction: What is decision making? Importance of making good decisions.

Unit 2: Decisions regarding career: Discovering self and creating a healthy acceptance of self; Learning to connect with self with vocational choices/career.

Unit 3: Decision making in interpersonal context: Learning about conflict management in interpersonal relations; negotiation in interpersonal conflict, handling difficult people and finding solutions

Unit 4: Decision making at the workplace: developing competencies and skills required for effective decision making

Readings:

Adler, R.B & Proctor, R.F (2009).Communication Goals and Approaches. Wadsworth cengage Learning, India

Chadha, N.K. & Bhatia, H. (2014).Career Development-different voices, different choices. The Readers Paradise: New Delhi.

Sherfield, R.M., Montgomery, R.J., & Moody, P.G. (2009).Developing soft skills. Pearson Education, India.

PROGRAMMING WITH PYTHON

Paper Code : WD4.1	Credit : 4	Hours : 60
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Planning the Computer Program: Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation.

Techniques of Problem Solving: Flowcharting, decision table, algorithms, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.

Overview of Programming :Structure of a Python Program, Elements of Python

Introduction to Python: Python Interpreter, Using Python as calculator, Python shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings, Operators(Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operator, Increment or Decrement operator)

Creating Python Programs :Input and Output Statements, Control statements(Branching, Looping, Conditional Statement, Exit function, Difference between break, continue and pass.), Defining Functions, default arguments, Errors and Exceptions.

Iteration and Recursion: Conditional execution, Alternative execution, Nested conditionals, The return statement, Recursion, Stack diagrams for recursive functions, Multiple assignment, The while statement, Tables, Two-dimensional tables

Strings and Lists: String as a compound data type, Length, Traversal and the for loop, String slices, String comparison, A find function, Looping and counting, List values, Accessing elements, List length, List membership, Lists and for loops, List operations, List deletion. Cloning lists, Nested lists

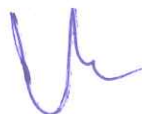
Object Oriented Programming: Introduction to Classes, Objects and Methods, Standard Libraries.

Data Structures: Arrays, list, set, stacks and queues.

Searching and Sorting: Linear and Binary Search, Bubble, Selection and Insertion sorting.

References :

1. T. Budd, Exploring Python, TMH, 1st Ed, 2011
2. Allen Downey, Jeffrey Elkner, Chris Meyers. How to think like a computer scientist : learning with Python / 1st Edition,2012 – Freely available online.
 1. <http://docs.python.org/3/tutorial/index.html>
 2. <http://interactivepython.org/courselib/static/pythonds>



RESPONSIVE WEB DEVELOPMENT

Paper Code : WD4.2

Credit : 4

Lectures : 60

Introduction :Introduction, Course agenda, Brief overview of HTML5, CSS3 and JQuery.

Introduction of HTML-5 :What Is HTML5?History And Major Actors, Vision And Philosophy Behind HTML5, Compatibility, Future Of HTML5

Getting Started With HTML5: The State Of Browser Support, Feature Detection, Support For Legacy Browsers, Developer Tools.

Structure of a Web Page: HTML5 DOCTYPE, Page Encoding, New And Updated Elements, New Attributes, Deprecated Elements and Attributes, HTML5 and CSS3, Browser Support.

Forms and Audio/Video – Part1: What Are The Needs For Web Applications?Current Solutions, New Input Types, New Attributes, Form Validation, Browser Support, What Are The Needs For Web Applications?

Forms and Audio/Video - Part2: Video/Audio Codec And Browser Support, New Audio/Video Markup, Attributes And Methods, Understanding Audio/Video Events, Customizing Audio/Video Controls.

HTML5 Canvas :Overview Of Graphics In The Browser, Canvas Vs. SVG, Accessibility, Using A Canvas, Context And Coordinates, Drawing Shapes, Working With Paths, Drawing Straight Lines, Drawing Circles Or Arcs, Drawing Text, Drawing Images.

HTML5 Geolocation : Introduction to Geolocation, Privacy Considerations, Many Ways To Get User Location, Two Main Methods, The Position Object, Handling Errors, The Position Options Object.

Drag/Drop and Data Storage :Making elements draggable, One way drag, Two way drag, Problems With The Existing Cookie-based Model, Hacks Prior To HTML5, New Storage Options, Web Storage, Web SQL Storage

HTML5 Web Sockets: Overview Of Web Communication Options, Overview Of Web Sockets API And Protocol, Advantages Of Web Sockets, Browser Support.



Overview of CSS3 New Features :Image free Visual Effects, Box transformations, Unique Fonts, Powerful Selectors, Transitions and Animations, Multiple Column Layouts, Changing background color, Adding pure CSS3 animation.

SS3 Graphics Effects: Rounding the Corners, Semitransparent Backgrounds, Image-free Gradients, Image-free Drop Shadows, Image-free Text Shadows.

Introduction to JQuery: Intro, Install, Syntax, Selectors, Events.

jQuery Effects : jQuery Show/Hide, jQuery Fade, jQuery Slide, jQuery Animate, jQuery Stop(),

jQuery Callback, jQuery Chaining.

jQuery html : jQuery Get, jQuery Set, jQuery Add, jQuery Remove, jQuery CSS Classes, jQuerycss(), jQuery Dimensions.

jQuery Ajax : jQuery Ajax-Intro, jQuery Load, jQuery Get/Post, Advanced jQuery – jQuery, plugins.

BootStrap Framework.

Suggested Readings:

1. Introduction to **HTML** and **CSS** -- O'Reilly , 2010
2. Jon Duckett, **HTML** and **CSS**, John Wiley, 2012



PHP ADVANCE

Paper Code : WD4.3

Credit : 4

Lectures : 60

Content Management System

Unit-1 : CMS Introduction, What is CMS.CMS Architecture,Benefits, XAMPP/WAMP/LAMP for CMS Wordpress Introduction, What is WordPress, WordPress Objectives, Benefits, Wordpress – Behind Languages, Wordpress as a CMS, Interactivity Features, Content Organization, Comparison with other CMS.

Unit-2 : WordPress Installation, Create Website with WordPress, Add Multimedia to Post, Create a WordPress Post, Create a WordPressPage,WordPress Categories, WordPress Comments, Install WordPress Themes, Customize WordPress Themes, Customize the Dashboard, WordPress Banners

Unit-3 : WordPress Security ,WordPress Spam Protection, ChangeWordPressUsername, Remove Spam from Comments, StatisticsCounters, CacheManagement, Load Balancing Your WordPressSite, Dealing with Spam, Securing Your WordPressSite, WordPressUser Role management, WordPressAdministration, ResetWordPressPassword, WordPressBackup, Change Admin Color Scheme, WordPress Optimization

Unit4 : WordPress Most Important Plugins, Contact Form 7, Contact Form DB, PhotoGallery, NextGENGallery, Limit Login Attempts, WP-Login-Customizer,User Role Editor, ShareThis, All in One SEO Pack, W3 Total Cache, WP Touch (Making theme mobile friendly), Feedly-RSS, GoogleAnalytics, WordPressTheming,ThemeFrameworks,Theme hierarchy and Child Themes,Creating Your Own Theme, Creating Your Own Theme, ContentDisplay,WordPress Plugin Development , Know Your Hooks: Actions and Filters, Plugin Settings ,Creating a Plugin Example ,Publish to the Plugin Directory,WordPress Advancement, Disable Post Revisions, WordPress SEO, WordPressAdSense, Display Posts From Category, Show Post Author, Change WordPressURL, Display Random Comment, Hide ,specific Category, WordPress in the Enterprise.

E-commerce :OpenCart Installation and setup.

Framework: Cake PHP

Suggested Readings:

1. Steven Holzner, "PHP: The Complete Reference Paperback", McGraw Hill Education (India), 2007.
2. Timothy Boronczyk, Martin E. Psinas, "PHP and MYSQL (Create-Modify-Reuse)", Wiley India Private Limited, 2008.
3. Robin Nixon, "Learning PHP, MySQL, JavaScript, CSS & HTML5", 3rd Edition Paperback, O'reilly, 2014.
4. Luke Welling, Laura Thompson, "PHP and MySQL Web Development", 4th Edition, Addison Paperback, Addison-Wesley Professional,2008.
5. David Sklar, Adam Trachtenberg, "PHP Cookbook: Solutions & Examples for PHP Programmers", 2014.

Lab-1: PROGRAMMING WITH PYTHON

Paper Code : WD4.4	Credit : 2	Practical Hours : 60
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1. Using for loop, print a table of Celsius/Fahrenheit equivalences. Let c be the Celsius temperatures ranging from 0 to 100, for each value of c, print the corresponding Fahrenheit temperature.
2. Using while loop, produce a table of sines, cosines and tangents. Make a variable x in range from 0 to 10 in steps of 0.2. For each value of x, print the value of sin(x), cos(x) and tan(x).
3. Write a program that reads an integer value and prints "leap year" or "not a leap year".
4. Write a program that takes a positive integer n and then produces n lines of output shown as follows.

For example enter a size: 5

```
*  
**  
***  
****  
*****
```

5. Write a function that takes an integer 'n' as input and calculates the value of
 $1 + 1/1! + 1/2! + 1/3! + \dots + 1/n$
6. Write a function that takes an integer input and calculates the factorial of that number.
7. Write a function that takes a string input and checks if it's a palindrome or not.
8. Write a list function to convert a string into a list, as in list ('abc') gives [a, b, c].
9. Write a program to generate Fibonacci series.
10. Write a program to check whether the input number is even or odd.
11. Write a program to compare three numbers and print the largest one.
12. Write a program to print factors of a given number.
13. Write a method to calculate GCD of two numbers.
14. Write a program to create Stack Class and implement all its methods. (Use Lists).
15. Write a program to create Queue Class and implement all its methods. (Use Lists)
16. Write a program to implement linear and binary search on lists.
17. Write a program to sort a list using insertion sort and bubble sort and selection sort

LAB-2: RESPONSIVE WEB DEVELOPMENT

Paper Code : WD4.5

Credit : 2

Lectures : 60

PRACTICAL

Responsive web

- canvas, audio, embed, source, track, video, article, aside, bdi, details, dialog, figcaption, figure, footer, header, main, mark, menuitem, meter, nav, progress, rp, rt, ruby, section, summary, time, wbr

CSS

- Grouping, Nesting, Dimension, Display, Positioning, Floating, Align, Pseudo-class, Pseudo-element, Navigation Bar, Image Gallery, Image Opacity, Image Sprites, Media Types, Attribute Selectors, \$ vs \$(), \$(document), ready().
- Avoiding Conflicts with Other Libraries, Attributes, Selecting Elements. Working with Selections, Manipulating Elements, The jQuery Object, Traversing, Styling, & Dimensions, Data Methods, Utility Methods, Iterating over jQuery and non-jQuery Objects, Using jQuery's .index() Function.
- How do I select an item using class or ID?
- How do I select elements when I already have a DOM element?
- How do I test whether an element has a particular class?
- How do I test whether an element exists?
- How do I determine the state of a toggled element?
- How do I select an element by an ID that has characters used in CSS notation?
- How do I disable/enable a form element?
- How do I check/uncheck a checkbox input or radio button?
- How do I get the text value of a selected option?
- How do I replace text from the 3rd element of a list of 10 items?
- How do I pull a native DOM element from a jQuery object?

LAB-3: PHP ADVANCE

Paper Code : GEC4.6,

Credit : 2

Lectures : 60

PRACTICAL

Content

- WordPress Installation,
- Create Website with WordPress,
- Add Multimedia to Post,
- Create a WordPress Post,
- Create a WordPressPage,
- WordPress Categories,
- WordPress Comments,
- Install WordPress Themes,
- Customize WordPress Themes,
- Customize the Dashboard,
- WordPress Banners
- WordPress Spam Protection
- ChangeWordPressUsername
- Remove Spam from Comments
- Dealing with Spam
- Securing Your WordPressSite,
- WordPressUser Role management,
- WordPressAdministration,
- ResetWordPressPassword
- WordPressBackup
- WordPress Plugins,
- WordPressTheming,
- ThemeFrameworks,
- Theme, hierarchy and Child Themes,
- Creating Your Own Theme,
- ContentDisplay,
- WordPress Plugin Development

SEMESTER – V
E-COMMERCE

Paper Code : GEC5.1

Credit : 4

Lectures : 60

Objectives: To give on hand knowledge on the issues related to E- Commerce. So that student should become familiar with mechanism for conducting business transactions through electronic means

Unit I: 12

Introduction: Meaning, nature, concepts, advantages, disadvantages and reasons for transacting online, types of E-Commerce, e-commerce business models (introduction, key elements of a business model and categorizing major E-commerce business models), forces behind e-commerce.

Unit II 12

Technology: technologies used in E-commerce, The dynamics of world wide web and internet (meaning, evolution and features); Designing, building and launching E-commerce website (A systematic approach involving decisions regarding selection of hardware, software, outsourcing vs. in-house development of a website)

Unit III 12

Security and encryption: Need and concepts, The E commerce security environment: (dimension, definition and scope of E-security), security threats in the E-commerce environment (security intrusions and breaches, attacking methods like hacking, sniffing, cyber vandalism etc.), technology solutions (Encryption, security channels of communication, protecting networks and protecting servers and clients), IT Act 2000 (meaning and provisions)

Unit IV 12

E- payments system: Models and methods of E – payments (Debit Card, Credit Card, smart cards, e-money), digital signatures (procedure, working and legal position), payment gateways, online banking (meaning, concepts, importance, electronic fund transfer, automated clearing house, automated ledger posting etc.), risks involved in E-payments.

Unit V 12

Online business transactions: meaning, purpose, advantages and disadvantages of transacting online, E-commerce applications in various industries like {banking, insurance, payment of utility bills, online marketing, E-tailing (popularity, benefits, problems and features), online services (financial, travel and career), auctions, online portal, online learning, publishing and entertainment)

Suggested readings

- Management Information System: Jawadekar
- Management Information System: Laudon & Laudon
- The Essential Guide to Knowledge management: Amrit Tiwana
- The GIS Book: George B. Karte.
- Internet (Use of Search Engines Google & yahoo etc)
- E – Commerce: Milind Oka
- E – Commerce: C.V.S. Murty
- Fire Wall and Internet Security: William Cheswick, Stevens, Aviel Rubin
- E-Governance Case Studies – Ashok Agarwal

GEOGRAPHICAL INFORMATION SYSTEM

Semester - V

GEC 5.2

Credit – 4

Maximum Marks – 100

Hours : 3

(Practical)

1. Geographical Information System (GIS): Definition and Components.
2. Global Positioning System (GPS) – Principles and Uses; DGPS.
3. GIS Data Structures: Types (spatial and Non-spatial), Raster and Vector Data Structure.
4. GIS Data Analysis: Input; Geo-Referencing; Editing, Output and Query; Overlays.
5. Application of GIS: Land Use Mapping; Urban Sprawl Analysis; Forests Monitoring.

Practical Record: A project file consisting of 5 exercises on using any GIS Software on above mentioned themes.

Reading List

1. Bhatta, B. (2010) Analysis of Urban Growth and Sprawl from Remote Sensing, Springer, Berlin Heidelberg.41
2. Burrough, P.A., and McDonnell, R.A. (2000) Principles of Geographical Information System-Spatial Information System and Geo-statistics. Oxford University Press
3. Chauniyal, D.D. (2010) SudurSamvedanevamBhogolikSuchanaPranali, Sharda PustakBhawan, Allahabad
4. Heywoods, I., Cornelius, S and Carver, S. (2006) An Introduction to Geographical Information system. Prentice Hall.
5. Jha, M.M. and Singh, R.B. (2008) Land Use: Reflection on Spatial Informatics Agriculture and Development, New Delhi: Concept.
6. Nag, P. (2008) Introduction to GIS, Concept India, New Delhi.
7. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi
8. Singh, R.B. and Murai, S. (1998) Space Informatics for Sustainable Development, Oxford and IBH, New Delhi.

QUALITY MANAGEMENT

Paper Code : GEC5.3

Credit :4

Lectures : 60

Objectives: The basic objective is to provide basic understanding of quality management.

Unit I 12

Quality, Strategic Planning, and Competitive Advantage: Brief History - Modern Developments in Quality - A Race Without a Finish Line. Definitions of Quality. Quality in Manufacturing and Service Systems. Economic Issues - Quality and Price - Quality and Market Share - Quality and Cost - The Taguchi Loss Function.

Unit II 12

Quality & Competitive Advantage. Perspectives on Leadership for Quality - The Baldrige View of Leadership. The Deming Management Philosophy – Profound Knowledge – The Impact of Profound Knowledge – Deming's 14 Points for Management. The Juran Philosophy – The Juran Quality Trilogy. The Crosby Philosophy.

Unit III 12

Customer Focus: The Customer-Driven Quality Cycle – Identifying Customer Needs – Achieving Customer Requirements in Production – Implications of the Customer-Driven Quality Cycle.

Unit IV 12

Quality Function Deployment – The Quality Function Deployment Process - Building the House of Quality – Implementing Quality Function Deployment. Designing Quality into Services - Service Needs Identification – Service System Design. Customer Satisfaction Measurement Techniques - Customer Relationship Management Techniques.

Unit V 12

Quality Control and Quality Assurance, Managing and organization for quality: Quality Policy – Quality Objectives, – Leadership for Quality, Quality Management Standards: (Introductory aspects only):

- a. The ISO 9001:2000 Quality Management System Standard
- b. The ISO 14001:2004 Environmental Management System Standard
- c. ISO 27001:2005 Information Security Management System
- d. ISO / TS16949:2002 for Automobile Industry e. CMMI Fundamentals & Concepts

Suggested readings

1. Lt. Gen. H. Lal, "Total Quality Management", Eastern Limited, 1990.
2. Greg Bounds, "Beyond Total Quality Management", McGraw Hill, 1994.
3. Menon, H.G, "TQM in New Product manufacturing", McGraw Hill 1992.
4. Handbook of quality standards.

SOFTWARE ENGINEERING

Paper Code : WD5.1	Credit : 4	Hours : 60
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A. LECTURE:

Introduction to Software Engineering: Challenges-Scale-Quality and Productivity-Consistency and Repeatability-Change, Software Engineering approach-Phased Development Process-Managing the Process.

Software Process: Desired characteristics-Predictability-Maintainability-Change supportive-Early Defect Removal, Software Process models: Waterfall model-Prototyping-Iterative-Timebox, Comparison of the models.

More Software Processes: Project Management Process-Inspection Process- Configuration.

Management Process: Requirements change management process-Process management process.

Software Requirement Specification (SRS): Need for SRS-Requirement process, Problem Analysis using UML (Unified Modelling Language) and Data dictionary, Characteristics of SRS, Components of an SRS.

Testing: Psychology of testing -Error, Fault and Failure-Black box testing-Boundary value analysis, Testing Process-Levels of Testing.

Reference Books

1. Pankaj Jalote, An Integrated approach to software engineering (third edition), Narosa, 2003
2. Roger S. Pressman, Software Engineering (Sixth edition), Tata McGraw Hill, 2009

SEARCH ENGINE OPTIMIZATION AND DIGITAL MARKETING

Paper Code : WD5.2

Credit : 4

Lectures : 45

A. SEARCH ENGINE OPTIMIZATION- SEO

Unit-I : Websites - blogs – articles, Creating Content, Best use of page elements, Keyword Analysis, Video, slideshow & document creation, Navigation and Usability, Site navigation, Improving User Experience, Information Architecture, SEO Terminologies, PR and other Ranking benchmarks, Types of SEO practices.

Unit-II : On-Page Optimization, HTML basics, CSS basics, Meta Tags usage, Using Javascript to our Advantage, Graphics Optimization, Contextual interlinking, Micro formats & schemas, Improving demographic score

Unit-III : Off-Page Optimization, Linking Strategies, Competitor Analysis, PR Sculpting, Link Baiting, Professional Article Exchange, Social Book Marking and Promotions, Directory submission.

Unit-IV : Traffic Analysis, Using Google Analytics, Tracking and improving conversions, Analyzing visitor flow, Conversion rate optimization

Digital Marketing

Unit 1 : Introduction to Web Marketing and SEO, The Significance of Web Marketing, Internal Measures for SEO. Do and Dont's for Web Content, Link Building, Introduction to Web Marketing Tools

Unit2 : Introduction to AdWords, Online Advertising and Search Engines, AdWords overview, Creating and Managing Campaigns.

Unit3: Display Network, Advertising on Display Networks, Image Advertizing, Mobile Advertising ,Video Advertising, YouTube Advertising,AdvancedAdWords ,Keyword Planner, Product List Ads.

Unit4 : Social Media Advertising, Creating Effective Content, Do and Dont's for Social Media, Analyzing Target Audience, E-Mail Marketing, Creating E-mail Campaigns, Effective strategies for E-mail Marketing.

Suggested Readings

- Google and other online Manuals
- Kenneth C. Laudon and Carlo Guercio Traver, E-Commerce, Pearson Education.
- David Whiteley, E-commerce: Strategy, Technology and Applications, McGraw Hill
- Bharat Bhaskar, Electronic Commerce: Framework, Technology and Application, 4th Ed., McGraw Hill Education
- PT Joseph, E-Commerce: An Indian Perspective, PHI Learning
- KK Bajaj and Debjani Nag, E-commerce, McGraw Hill Education
- TN Chhabra, E-Commrce, Dhanpat Rai & Co.
- Sushila Madan, E-Commerce, Taxmann

CORE JAVA PROGRAMMING

Paper Code : WD5.3

Credit : 4

Lectures : 60

1. Getting Started with OOPS and Java

Object-Oriented Programming, Introduction to Object-Oriented Programming, Encapsulation, Inheritance, Polymorphism, Abstraction. What is Java? History of Java, How to get Java, Compiling and interpreting application, The JDK Directory Structure, Inside JVM, A first java program, Introduce SOP and Scanner, Comments (Line, Block, Java Doc).

2. Datatypes and Variables

Primitive Datatypes, Non-Primitive Datatypes, Declarations, Variable Names, Numeric Literals, Character Literals, String Literals, The Dot Operator.

3. Operators and Expressions: Assignment Operator, Arithmetic Operator, Relational Operators, Logical Operators, Increment and Decrement Operators, Operate-Assign Operators(+=,etc.), The Conditional Operator, Operator Precedence, Implicit Type Conversions, The Cast Operator

4. Control Flow: Expressions, Statements, Conditional(if) Statements, Adding an else if, Conditional (switch) Statements, While and do-while Loops, For Loops, The continue Statement, The Break Statement

5. Arrays : One Dimensional Arrays, Multi-Dimensional Arrays, Enhanced For Loop

6. Introducing Classes: Classes and Objects, Fields and Methods, Methods - Calling Methods, Defining Methods, Method Parameters, Method Overloading, Variable argument parameters methods. Constructors, Garbage Collection, Access Modifier (private, public, protected, default), Non-Access Modifier (static, final, abstract), keywords: this, Wrapper Classes, String, StringBuilder and StringBuffer.

7. Inheritance in Java: Inheritance, Inheritance in Java, Method Overriding, Keywords (Super & Final), Abstract Classes, Interfaces.

8. Inner Classes and Packages: Inner Classes Concept, Anonymous Inner Class, Static inner class, Packages, Defining Packages, Package Scope, CLASSPATH and Finding Packages, The import Statement, Static Imports.

9. Exception Handling: Exception Overview, Catching Exceptions, The Finally Block, Exception Methods, Declaring Exceptions, Defining and Throwing Exceptions, Errors and RuntimeExceptions.

10. Input/Output Streams : Overview of Streams, Bytes vs. Characters, Converting Byte Streams to Character Streams, File I/O, Binary Input and Output, Basic and Filtered Streams, Serialization, Reading and Writing Objects, Print Writer Class, Scanner Class, File Class.

11. MultiThreading in Java: Non-Threaded Applications, Threaded Applications, Creating Threads, Thread States, Runnable Threads, Coordinating Threads, Interrupting Threads, Runnable Interface, Synchronizing Threads, Interthread Communication, ThreadGroups, Advanced Locking Concepts

12.Collection Framework and Generics: Generics, The Collection Framework, The Set Interface, Set Implementation Classes, The List Interface, List Implementation Classes, The Map Interface, Map Implementation Classes, Sorting with Comparator, Sorting Lists and Arrays, Collections UtilityMethods.

13.Internalization and Property class: Internalizing application, Date Time formatter, Number Formatter, Properties class.

14.Annotation and Reflection API

15.Introduction to Eclipse

Suggested Readings:

1. Ivan Bayross, Web Enabled Commercial Application Development Using Html, Dhtml,javascript, Perl Cgi , BPB Publications, 2009.
2. Cay Horstmann, BIG Java, Wiley Publication , 3rd Edition., 2009
3. Herbert Schildt , Java 7, The Complete Reference, , 8th Edition, 2009.
4. E Balagurusamy , Programming with JAVA, TMH, 2007



LAB-1: SOFTWARE ENGINEERING

Paper Code : WD5.4	Credit : 2	Hours : 60
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B. PRACTICAL:

Problem Statement, Process Model

Requirement Analysis: Creating a Data Flow, Data Dictionary, Use Cases, Survey/Interview Questionnaire.

Design Engineering: Architectural Design / Front End using HTML, DataBase Design

C. SIMPLE PROJECT

1. **Criminal Record Management** : Implement a criminal record management system for jailers, police officers and CBI officers
2. **DTC Route Information**: Online information about the bus routes and their frequency and fares
3. **Car Pooling**: To maintain a web based intranet application that enables the corporate employees within an organization to avail the facility of carpooling effectively.
4. Patient Appointment and Prescription Management System
5. Organized Retail Shopping Management Software
6. Online Hotel Reservation Service System
7. Examination and Result computation system
8. Automatic Internal Assessment System
9. Parking Allocation System
10. Wholesale Management System

LAB-2: SEARCH ENGINE OPTIMIZATION AND DIGITAL MARKETING

Paper Code : WD5.5

Credit : 2

Lectures : 60

PRACTICAL -

1. Install WordPress
2. Create a WordPress Site
3. Install WordPress Themes
4. Transfer WordPress
5. Install WordPress Plugins
6. Update WordPress
7. Backup WordPress
8. Setup Passwordless login with Clef
9. Restore the Old WordPress Admin Panel Look
10. Customize WordPress Themes
11. Customize the WordPress Dashboard
12. Change WordPress Admin Color Scheme



LAB-3: CORE JAVA PROGRAMMING

Paper Code : WD5.5

Credit : 2

Lectures : 60

PRACTICAL :-

Java Lab

S. No Assignment 1 Hello World 2 Accept user Input and print that 3 Input any 3 digit number and print that in reverse order 4 Accept any integer number and print whether it is even or odd 5 Accept any year and print whether it is leap year or not 6 Accept any three integers and print them in ascending order 7 Accept any single digit number and print its value in words 8 Accept any three digit number and print its value in words. 9 Print multiplication table of any integer (eg 1 x n = n etc.) 10 Print series (1,4,9,16,25,36,49,64,81, 100)

*
**

11 Input marks of 5 students and print their average 12 Do above using arrays 13 Sort them.. 14 Check for Palindrome(reverse and equal) 15 Write a program to sort an array in ascending order. 16 Write a program to sum two matrices of 5 by 5 and display the result in the third one. 17 Write a program to display the sum of the diagonals of the 6 by 6 matrix. 18 Read and write file using FileInputStream/FileOutputStream 19 Read and write file using FileReader/Writer 20 List a directory 21 Search a file name in directory.

SEMESTER – VI

COMMUNICATION COMPETENCE

Semester - VI

GEC 6.1

Credit – 4

Maximum Marks – 100

Hours : 3

UNIT I: Communication Skills for effective presentation: Organizing skills of message and context; Presentation skills of message; Situating it to different audience, Handling question/answer.

UNIT II: Communicating skills in the interpersonal context: Engaging in meaningful conversation; Interviewing skills; Art of listening; Non-Verbal skills.

Readings:

Adler, R.B & Rodman, G. (2006) Understanding Human Communication. Oxford University Press.

Sherfield, R.M, Montgomery, R.J. & Moody, P.G. (2009) Developing soft skills, Pearson education, India.

Practicum

Any two, one each from unit I & II using simulated skill training exercise and role play.



EFFECTIVE LEADERSHIP

Semester - VI

GEC 6.2

Credit – 4

Maximum Marks – 100

Hours : 3

UNIT I:

Developing effective behavioural styles of leadership: Communication Skills; Participatory Communication; Consideration for members; Defining goals and distributing task effectively.

UNIT II:

Building effective teams: Co-operation in a team; Cohesiveness, trust and interdependence

Readings:

Forsyth, D.R. (2006). Group processes. New Delhi: Cengage learning

Lussier, R. N. & Achua, C.(2007). Effective Leadership. New Delhi: Thomson South Western

Practicum

Any two from the following (based on the above mentioned topics):

Simulated Exercise, Test, Case Study, Interview, Movie analysis

Wc

Handwritten initials in blue and purple ink

ENTREPRENEURSHIP

Semester - VI

GEC 6.3

Credit – 4

Maximum Marks – 100

Hours : 3

Unit I: The Entrepreneurial Mindset

Concept of an entrepreneur, Concept and Evolution of entrepreneurship, Distinction between entrepreneur and manager, Distinction between entrepreneur and intrapreneur, Attributes of entrepreneurs, Core elements of entrepreneurship, Entrepreneurship in a Developing economy, Factors affecting Entrepreneurship development, Entrepreneurship as a Process, Role of entrepreneurship in the developing economy.

Unit II: Launching Entrepreneurial Ventures

Generation of ideas: Methods and process of generating ideas, sources of ideas and screening process

Assessing opportunities: Challenges, pitfalls and critical factors of new venture; Business and Entrepreneurial development organizations

Determining and acquiring required resources (Financial, Physical and Human): Search for entrepreneurial capital- Debt vs. Equity; Venture Capital Market; Angel Financing and Alternative sources of finance for Entrepreneurs

Business Plan Preparation for new Ventures: Meaning of a business plan, benefits, elements and presentation

Unit III: Role of Innovation & Creativity

Creativity: Concept and process of creativity; role and importance of creativity and mental blocks to creativity

Innovation: Meaning and importance of innovation; Types of innovation; Sources of innovation; Conditions for effective innovation at Organization level and Methods of protecting innovation and creativity: branding, trademarks, patents, copyrights and registered design protection

Unit IV: Case Study of selected Indian Business Houses

Note: Case Studies and examples of successful entrepreneurs and entrepreneurial ventures should be discussed at relevant places.

Suggested Readings:

1. Entrepreneurship: A South Asian Perspective, Donald. F Kuratko & T.V Rao, Cengage Learning Publications, 2012
2. Family Business, Ernesto J. Poza, 3rd ed., 2010
3. Entrepreneurship and Small Business Management, C.B Gupta and S.S Khanka, Sultan Chand Publications, 2014
4. Entrepreneur Development, Taneja & Gupta, Galgotia Publishing Company, 2nd ed., 2012

ANDROID TECHNOLOGY

Paper Code : WD6.1

Credit : 4

Lectures : 60

Learning Objective: The purpose of the paper is to orient the learner toward entrepreneurship as a career option and creative thinking and behavior for effectiveness at work and in life.

Content Outline :-

1.Introduction to Mobility

- Why mobile apps and trends, Mobile OS details, Positioning of the Android platform with respect to iPhone, Windows Mobile and BlackBerry, Mobile App Client Architecture

2.Overview of Android, Architecture and Components

- Overview of Android, Android Architecture, Version History and API Level, Component of Android Applications (Activities, Services, Content Providers, Broadcast Receivers), Other building blocks (Intents, Notifications, Resources, Widgets)

3.App development/testing tools and environment, Understanding the app structure

- Android App Dev Environment, Android Development Tools, Android SDK Overview , Installation of Android Development Tools , Overview of Test Environment (Emulator) and creating first emulator, Creating First App (Hello World), App Directory Structure, Structure of AndroidManifest.xml, Components declaration, Useful Classes (Toast, Log, Bundle)

4.User Interface: Screen Containers or Layout

- Screen Layouts: (Linear, Relative, Table, Frame, Absolute, Grid), Scrolling of pages (ScrollView), Re-using layouts (, tags), Attaching Layout to Activity

5.User interface - UI Controls and Event Listeners

- Android Form Widgets(TextView, Button, CheckBox, Radio Button, Edit Text, Image View and Image Button), Events Listener

6. Intent and Activities

- Introduction to intent, Types of intent (Explicit and Implicit), Intent Structure, Overview of Activity, Life Cycle of Activity , Starting New Activity, Finishing Activity, Data Exchange (Sending data to Sub-activity and Receiving data from Sub-activity), Intent Filters, Intent Resolution

7.Android Debug Framework

- Dalvik Debug Monitor Server (DDMS), Log Cat, Uncaught Exception Handler

8.Advance UI

- Advance UI(Fonts, Keyboard Inputs, Menu, Dialogs, Fragments), Fonts: Setting Fonts and custom fonts, Handling Keyboard Input: Keyboard type for inputs, Menus: (Options, Context, Pop over), Dialogs: (Alert, Progress, Date Picker, Time Pickers).
- Fragments
 - Overviews
 - Lifecycle of Fragments
 - Creating Fragments
 - Fragment Manager and Transactions
 - Adding Fragment to Activity
 - Fragment-to-Fragment Communication
 - Fragment Subclasses

9.Adapter and Adapter Views

- Introduction to Adapters
- Type of Adapters
- Introduction to Adapter view

- Linking Adapters to Adapterview
- 10.Services and Broadcast Receivers**
 - Overview of Services and Forms
 - Service Lifecycle
 - Building a Service (Starting, Stopping, Binding, Unbinding)
 - IntentServices
 - Overview of Broadcast Receivers
 - Type of Broadcast Receivers
 - Life Cycle of Broadcast Receiver
 - Implementing a Broadcast Receiver(Registering Broadcast, Class Definition)
- 11.Data Persistence**
 - Data persistence options
 - Shared preference
 - File Storage(Internal/External)
 - SQLite Database Storage
 - Content Providers
- 12.Multi-threading**
 - Introduction to threads
 - Creating a threads
 - Multi-threading
 - Interaction between threads
 - Handler Classes
 - Async Tasks
- 13.Hybrid Applications**
 - Webkit Browser
 - WebView, WebViewClient, WebChromeClient
 - Running web application in Android
 - Enabling java script
 - interfacing web application and Android native app
- 14.Web Services and XML Parsing**
 - XML Parsing using XML Pull parser
 - JSON and JSON Parsing
 - Web Services(SOAP, JSON)
- 16.Notification Manager**
 - Notification Manager
 - Status Bar Notification
 - Alarm Manager
 - Pending Intents
- 17.Map and Location Manager**
 - Location API
 - Location Manager
 - Location Providers
 - Selecting Location Providers via Criteria
 - Getting Current Location
 - Proximity Alert
 - Forward and Reverse Geocoding
 - Prompting User to Enable GPS
 - Testing on Emulator

- Maps
 - Google Play Services
 - MapView
 - Mapfragment
 - Markers

17.Multimedia - Audio & Video

- Media Player
- Playback Audio & Playback Video
- Recording Audio & Video
- Capturing Image
- Handling Camera

18.Telephony Manager

- Accessing Telephone information
- Handling telephone communication (Calls, Messages)

19.Sensors

- Sensor Overview
(Motion Sensor, Environmental Sensor,Position Sensor)
- Sensor Framework
(Sensor Manager, Sensor, Sensor Event, Sensor Event Listener)
- Accelerometer
- Proximity Sensor
- Bluetooth

20.Animations

- View Animations
(Tweened Animations, Frame-by-frame Animations)
- Property Animations
- Activity Transition Animation

21.Drawing

- Drawing with drawables
- Drawing with Canvas(On a View, SurfaceView)
- Touch Drawing
- Gesture Detection

22.App Publishing

- Preparation for Publishing
- Publishing App on App Store
- Monetizing the Apps

Suggested Readings

Android application development for java programmers.By James C. Sheusi. Publisher: Cengage Learning, 2013.



INTRODUCTION TO DATA SCIENCE

Paper Code : WD6.2	Credit : 4	Lectures : 60
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Data Scientist's Tool Box: Turning data into actionable knowledge, introduction to the tools that will be used in building data analysis software: version control, markdown, git, GitHub, R, and RStudio.

R Programming Basics: Overview of R, R data types and objects, reading and writing data, Control structures, functions, scoping rules, dates and times, Loop functions, debugging tools, Simulation, code profiling.

Getting and Cleaning Data: Obtaining data from the web, from APIs, from databases and from colleagues in various formats. basics of data cleaning and making data "tidy".

Exploratory Data Analysis: Essential exploratory techniques for summarizing data, applied before formal modeling commences, eliminating or sharpening potential hypotheses about the world that can be addressed by the data, common multivariate statistical techniques used to visualize high-dimensional data.

Reproducible Research: Concepts and tools behind reporting modern data analyses in a reproducible manner, To write a document using R markdown, integrate live R code into a literate statistical program, compile R markdown documents using knitr and related tools, and organize a data analysis so that it is reproducible and accessible to others.

Reference Books

1. Rachel Schutt, Cathy O'Neil, "Doing Data Science: Straight Talk from the Frontline" by Schrott/O'Reilly, 2013.
2. Foster Provost, Tom Fawcett, "Data Science for Business" What You Need to Know About Data Mining and Data-Analytic Thinking" by O'Reilly, 2013.
3. John W. Foreman, "Data Smart: Using data Science to Transform Information into Insight" by John Wiley & Sons, 2013.
4. Ian Ayres, "Super Crunchers: Why Thinking-by-Numbers Is the New Way to Be Smart" 1st Edition by Bantam, 2007.
5. Eric Seigel, "Predictive Analytics: The Power to Predict who Will Click, Buy, Lie, or Die", 1st Edition, by Wiley, 2013.
6. Matthew A. Russel, "Mining the Social Web: Data mining Facebook, Twitter, LinkedIn, Goole+, GitHub, and More", Second Edition, by O'Reilly Media, 2013.

LAB-1: ANDROID TECHNOLOGY

Paper Code : WD6.3

Credit : 3

Lectures : 90

PRACTICAL -

Creating an Emulator and starting that

First App - Hello Android (Using XML Layout)

First App - Hello Android (Using Android API)

Deploying on real device.

Building the XML layouts and experimenting

Create a screen having fields: Label, Edit Text and Button(Welcome), On click of button, value in edit text will be set in label.

Add one HBD button on screen and show message "Button2 Added" and Update TextView "Happy Birthday and Name Entered in Edit Text"

Add three button on a layout and handle OnClick on these buttons.

=> Having event handled by same class

=> Having event handled by another class

=> Having event handled by method defined in layout file using android:OnClick()

Add compound Buttons (checkBox, Radiogroup, Toggle Button) and try view.OnClickListener and Compound Button.OnCheckChangedLister

Pizza Ordering Sample (Form Widgets, Image Buttons)

Implement Activity Lifecycle Methods. Add simple Toast in these methods. Run the app and see them getting fired.

Implement Activity with Fours Buttons, one Edit Box and One Label and Another activity with one Edit Box, Label and one Button.

Activity Actions:

=> Button1 (Open Web Page): On Click of button open (www.sisoft.in)

=> Button 2 (Call a Phone) : On Click of button, it should call your dad's number.

=> Button 3 (Email) : On Click of button, it should email the text written in text box

=> Button 4(Message): This should call another activity and should pass Name written in Edit Box.

Activity Two Action:

=> It should receive the Name send from Activity one. and add Happy Birthday to that and show in Text Label.

=> Person should be able to write thanks message in edit box.

=> On Click on Button (Back), This message should be passed back.

LAB-2: INTRODUCTION TO DATA SCIENCE

Paper Code : WD6.4

Credit : 3

Lectures : 90

Practical:

1. Write a program that prints 'Hello World' to the screen.
2. Write a program that asks the user for a number n and prints the sum of the numbers 1 to n
3. Write a program that prints a multiplication table for numbers up to 12.
4. Write a function that returns the largest element in a list.
5. Write a function that computes the running total of a list.
6. Write a function that tests whether a string is a palindrome.
7. Implement linear search.
8. Implement binary search.
9. Implement matrices addition , subtraction and Multiplication
10. Fifteen students were enrolled in a course. Their ages were:
20 20 20 20 20 21 21 21 22 22 22 22 23 23 23
 - i. Find the median age of all students under 22 years
 - ii. Find the median age of all students
 - iii. Find the mean age of all students
 - iv. Find the modal age for all students
 - v. Two more students enter the class. The age of both students is 23. What is now mean, mode and median ?
11. Following table gives a frequency distribution of systolic blood pressure. Compute all the measures of dispersion.

Midpoint	95.5	105.5	115.5	125.5	135.5	145.5	155.5	165.5	175.5
Number	5	8	22	27	17	9	5	5	2

12. Obtain probability distribution of X , where X is number of spots showing when a six-sided symmetric die (i.e. all six faces of the die are equally likely) is rolled. Simulate random samples of sizes 40, 70 and 100 respectively and verify the frequency interpretation of probability.
13. Make visual representations of data using the base, lattice, and ggplot2 plotting systems in R, apply basic principles of data graphics to create rich analytic graphics from available datasets.
14. Use Git / Github software to create Github account. Also, create a repo using Github.



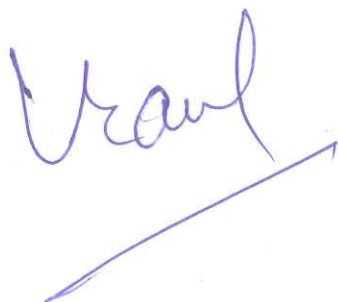

INTERNSHIP

Paper Code : WD6.5	Credit : 4	Hours: 120
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Content Outline:

The students compulsorily complete a minimum of 120 hours internship programme. The project must be in professional web development and designing. An industry professional and a faculty member will supervise the student during their internship. Student compulsorily produce a real web development project. At the end of the internship, the students require to prepare a comprehensive report. The report and the specimens of the work done by the student should be attested/certified by the organization. Student should also produce a completion certificate of internship which will be issued by the organization after successful completion of the project. All the above details should be submitted to the Head of the Department and/or Industry Partner for evaluation.

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Principal
KALINDI COLLEGE
(University of Delhi)
West Patel Nagar, N. Delhi

Dean
Faculty of Applied Social Sciences and Humanities
University of Delhi South Campus
New Delhi - 110021