DAV UNIVERSITY JALANDHAR

FACULTY OF SCIENCE

SYLLABI

FOR

BACHELOR OF COMPUTER APPLICATIONS
(THREE YEARS COURSE)
(SEMESTER: I-VI)

Batch 2013

DAV UNIVERSITY JALANDHAR

Instruction for candidates (Theory Paper)

- The question paper for end-semester examination will have a weightage of 25%. It will consist of 100 objective questions of equal marks. All questions will be compulsory.
- Two preannounced test will be conducted having a weightage of 25% each. Each preannounced test will consist of 20 objective type, 5 short questions/problems on the UGC-NET (objective type) pattern as well as one long answer type question. The student is expected to provide reasoning/solution/working for the answer. The candidates will attempt all question. Choice will be given only in long answer type. The question paper is expected to contain problems to the extent of 40% of total marks.
- Four objective/MCQ type surprise test will be taken. Two best out of four objective/MCQ type surprise test will be considered towards final each of 12.5% weightage to the final. Each surprise test will include 20-25 questions.
- The books indicated as text-book(s) are suggestive However, any other book may be followed.

* Wherever specific instructions are required these are given at the starting of that particular subject/paper

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Instruction for candidates (Theory Paper)

- Total marks of practical will include 20% weightage of Continuous Assessment and 80% end semester exam including Notebook / Viva / Performance/ written test**.**

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Semester 1

S.No	Paper Code	Course Title	L	T	P	Cr	A	B	C	D	E
1	CSA101	Introduction to Computers and Information Technology	4	0	0	4	25	25	25	25	**100**
2	CSA102	Office Automation and Productivity Tools	4	0	0	4	25	25	25	25	**100**
3	CSA103	Principles of Digital Electronics	4	0	0	4	25	25	25	25	**100**
4	ENG151	Basic Communication Skills	4	0	0	3	25	25	25	25	**75**
5	ENG152	Basic Communication Skills Laboratory	0	0	2	1	20	-	-	80	**25**
6	MGT101	Principles & Practices of Management	3	1	0	4	25	25	25	25	**100**
7	SGS101	Human Values & Ethics	2	0	0	2	25	25	25	25	**50**
8	CSA104	Office Automation Laboratory	0	0	4	2	20	-	-	80	**50**
			20	**2**	**6**	**24**					**600**

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Semester 2

S.No	Paper Code	Course Title	L	T	P	Cr	A	B	C	D	E
1	CSA105	Principles of Programming and Algorithms using C	4	0	0	4	25	25	25	25	**100**
2	CSA106	Web Designing	4	0	0	4	25	25	25	25	**100**
4	CSA108	C Programming Laboratory	0	0	4	2	20	-	-	80	**50**
5	CSA109	Web Designing Laboratory	0	0	4	2	20	-	-	80	**50**
6	MTH190	Mathematical Foundation of Computer Science	4	0	0	4	25	25	25	25	**100**
7	EVS101	Environment Education, Road Safety & Legal Awareness	4	0	0	4	25	25	25	25	**100**
8	SGS102	General Knowledge & Current Affairs	2	0	0	2	25	25	25	25	**50**
9	SGS104	Stenography	3	0	0	1	25	25	25	25	**25**
10	SGS105	Stenography Lab	0	0	1	1	20	-	-	80	**25**
			21	**0**	**9**	**24**					**600**

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Semester 3

S.No	Paper Code	Course Title	L	T	P	Cr	A	B	C	D	E
1	CSA201	Computer Oriented Numerical and Statistical Techniques	4	0	0	4	25	25	25	25	**100**
2	CSA202	Object Oriented Programming Structures	4	0	0	4	25	25	25	25	**100**
3	CSA203	Database Concepts	4	0	0	4	25	25	25	25	**100**
4	CSA204	Computer System Architecture	4	0	0	4	25	25	25	25	**100**
5	CSA205	Computer Networks-I	2	0	0	2	25	25	25	25	**50**
6	CSA206	Workshop on Corel Draw	0	0	4	2	20	-	-	80	**50**
6	CSA207	Database Concepts Laboratory	0	0	4	2	20	-	-	80	**50**
7	CSA208	Object Oriented Programming Structures Laboratory	0	0	4	2	20	-	-	80	**50**
			18	**0**	**12**	**24**					**600**

Semester 4

S.No	Paper Code	Course Title	L	T	P	Cr	A	B	C	D	E
1	CSA209	Data Structures	4	0	0	4	25	25	25	25	**100**
2	CSA210	Programming in C#	4	0	0	4	25	25	25	25	**100**
3	CSA211	Information Systems	4	0	0	4	25	25	25	25	**100**
4	CSA212	Computer Networks-II	2	0	0	2	25	25	25	25	**50**
5	CSA213	Software Engineering	4	0	0	4	25	25	25	25	**100**
6	CSA214	2D Animation with Flash	0	0	4	2	20	-	-	80	**50**
7	CSA215	Workshop on Photoshop	0	0	4	2	20	-	-	80	**50**
7	CSA216	Programming in C# Laboratory	0	0	4	2	20	-	-	80	**50**
			18	**0**	**12**	**24**					**600**

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Semester 5

S.No	Paper Code	Course Title	L	T	P	Cr	A	B	C	D	E
1	CSA301	Internet Applications	4	0	0	4	25	25	25	25	**100**
2	CSA302	Core JAVA	4	0	0	4	25	25	25	25	**100**
3	CSA303	Operating Systems	4	0	0	4	25	25	25	25	**100**
4	CSA304	e-Commerce	2	0	0	2	25	25	25	25	**50**
5	CSA305	System Analysis and Design	4	0	0	4	25	25	25	25	**100**
6	CSA306	Workshop on 3-D Modelling	0	0	4	2	20	-	-	80	**50**
7	CSA307	Internet Applications Laboratory	0	0	4	2	20	-	-	80	**50**
8	CSA308	Core JAVA Laboratory	0	0	4	2	20	-	-	80	**50**
			18	**0**	**12**	**24**					**600**

Semester 6

S.No	Paper Code	Course Title	L	T	P	Cr	A	B	C	D	E
1	CSA309	Computer Graphics and Multimedia	4	0	0	4	25	25	25	25	**100**
2	CSA310	Web Engineering using ASP.NET	4	0	0	4	25	25	25	25	**100**
3	CSA311	Computer Graphics Laboratory	0	0	4	2	20	-	-	80	**50**
4	CSA312	Web Engineering using ASP.NET Laboratory	0	0	4	2	20	-	-	80	**50**
5	CSA313	Major Project*	0	0	12	12	20	-	-	80	**300**
			8	**0**	**20**	**24**					**600**

*The Major Project will be of 20 to 24 weeks duration. It will include the development of application/system software. For evaluation, 20% weightage will be given to the synopsis of the project and 80% weightage will be given to the Viva, Project Execution, and Project Report.

DAV UNIVERSITY JALANDHAR

Course Title: Introduction to Computers and Information Technology
Course Code: CSA101
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: This course will enable the student to gain an understanding of the core concepts andtechnologies which constitute Information Technology. The intention is for the student tobe able to articulate and demonstrate a basic understanding of the fundamentalconcepts of Information Technology.

UNIT-A

Computer Fundamentals **12 Hours**

- Block Structure of a Computer, Characteristics of Computers
- Problem Solving With Computers, Generations of Computers
- Classification of Computers on the Basis of Capacity,
- Purpose and Generation, Applications of Computers.

Number System

- Bit, byte, binary, decimal, hexadecimal, and octal systems, conversion from one system to the other, representation of characters, integers andfractions.

Binary Arithmetic

- Addition, subtraction and multiplication

UNIT-B **12 Hours**

Memory Types

- Magnetic core, RAM, ROM, Secondary, Cache, Bubble Memory.

Input and Output UNITs

- Keyboard, Mouse (Mechanical, Optical, Wireless), Monitor (CRT, LCD, LED, and 3D), Light pen, Joystick, Mouse, Touch screen; OCR, OMR, MICR.

Overview of storage devices

- Floppy disk, tape, hard disk, compact disk, DVD, flash drive, (memory card).

Printers

- Impact, nonimpact, working mechanism of Drum printer, Dot Matrix printer, Inkjet printer and Laser printer.

System Configuration

UNIT-C **8 Hours**

Computer languages

- Machine language, assembly language, higher level language, 4GL.
- Introduction to Compiler, Interpreter, Assembler, Assembling, System Software, Application Software.

Applications of Information Technology and Trends

- IT in Business and Industry, IT in Education & training, IT in Science and Technology
- IT and Entertainment, Current Trends in IT Application AI
- Virtual Reports, voice recognition, Robots, Multimedia Technology

UNIT-D **13 Hours**

Operating system

- Batch, multiprogramming, time sharing, network operating system, online and real time operating system,
- Distributed operating system, multiprocessor, Multitasking, ANDROID.

Computer Network and Communication

- Network types, network topologies, network communication devices, physical communication media.

Security management tools

- PC tools, Norton Utilities, Virus, worms, threats
  Virus detection, prevention and cure utilities, Firewalls, Proxy servers.

Reference Books

1. Sinha, P.K. and Sinha, P.,*Foundations of Computing*. New Delhi: BPB First Edition, 2002.
2. Norton Peter , *Introduction to Computers*, McGraw Hill.
3. Rajaraman V, *Fundamentals of Computers*,New Delhi: Prentice Hall of India, Second Edition, 1996.
4. Subramanian N, *Introduction to Computers*, Noida, UP, India : Tata McGraw-Hill, 1989
5. Cyganski D, Orr J A,*Information Technology Inside and Outside*, New Jersey USA : Pearson Education 2002.

DAV UNIVERSITY JALANDHAR

Course Title: Office Automation and Productivity Tools
Course Code: CSA102
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: To familiarize the students with computers and their use, and make them proficient in the use of computer applications such as word, excel, access, presentation slides relevant to their upcoming project and their reports.

UNIT-A

Concept of an Office **12 Hours**

- Purpose of an Office, Activities in an Office, Structure of an Office,
- Office System, Office Manual, Document Flow Management in an Office.

Office Automation

- Introduction, Today's Office, Need for Office Automation, Its Advantages, Disadvantages and Office Automation Tools.

Office Automation Technology

- Office Equipment, Workstation Communication and Convergence of Technologies

UNIT-B

DOS **12 Hours**

- DOS – History, Files and Directories, Internal and External Commands, Batch Files

Windows

- Installing WINDOWS with Setup, Starting and Quitting WINDOWS
- Basic Elements of WINDOWS, Working with Menus Dialogue Boxes,
- Window Applications, Program Manager, File Manager, Print Manager,
- Control Panel, Write, Paint Brush, Accessories Including Calculator, Calendar, Clock, Card File, Note Pad, Recorder Etc.

UNIT-C **10 Hours**

MS Word

- Salient Features Of MS WORD, File, Edit, View, Insert, Format, Tools, Tables, Window, Help Options and all of their Features, Options and Sub Options etc.
- Transfer of Files between MS WORD and other Word Processors and Software Packages.

Excel

- Excel Worksheet, Data Entry, Editing, Cell Addressing Ranges, Commands, Menus
- Copying &Moving Cell Content, Inserting and Deleting Rows and Column, Column Formats, Cell Protection, Printing, Creating, displaying and Printing Graphs, Statistical Functions.

UNIT-D **11 Hours**

MS Access

- Getting Familiar with Microsoft Access 2007 for Windows, Creating Microsoft Access Tables
- Working with Microsoft Access Tables, Sorting, Filtering, and Creating Relationships, Creating Microsoft Access Queries
- Creating Forms, Creating Reports.

MS–Power Point

- Presentation overview, entering information, Presentation creation,opening and saving presentation, inserting audio and video

Internet

- Search engine, email, Google scholar, social networking, edrive, gmap, Internet chat

Reference Books

1. Jain Satish , *MSOffice 2010 Training Guide*, Delhi : BPB Publications, 2010
2. Shelly G. B , Cashman Thomas J., and Vermaat Misty E., *Microsoft Office Word 2007: Complete Concepts and Techniques*, New Delhi:Cengage Learning, 2007
3. Chopra R.K.,*Office Organization and Management*.New Delhi :Himalaya Publishing house, 2013

DAV UNIVERSITY JALANDHAR

Course Title: Principles of Digital Electronics
Course Code: CSA103
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: To give knowledge about the various electronics components and digital circuits to the students and designing of various building blocks of computer system. After studying this subject students will be able to easily understand the internal working of digital electronic circuits.

UNIT-A **15 Hours**

Fundamentals

- Definitions of Digital Signals, Digital Waveform
- Digital Logic, Gate propagation delay time
- Digital Operations, Digital Integrated Circuits, Digital IC signal levels.

Number System

- Decimal Number System, Binary Number System,
- Octal Number System, Hexadecimal Number System,
- Conversion from One Number System to another,
- Arithmetic Operation without Changing the Base, 1"s Complement and 2"s Complement.

Logic Gates

- AND, OR, NOT, NAND, NOR, XOR, XNOR, NAND & NOR as Universal Gates, Logic Gates Applications.

UNIT-B **12 Hours**

Boolean Algebra

- Introduction, Theorems, Simplification of Boolean Expression using Boolean
- Algebra,
- SOP & POS Forms, Realization of Boolean Expression using Gates,
- KMaps, Simplification of Boolean Expression using KMaps.

Combinational Logic Circuits

- Half Adder & Half Subtractor, Full Adder & Full Subtractor,
- Parallel Binary Adder, Binary Adder/Subtractor.

UNIT-C **10 Hours**

Combinational Logic Circuits

- Multiplexers & Demultiplexers, Implementation of Boolean equations using Multiplexer and Demultiplexer
- Encoders & Decoders.

Sequential Logic Circuits

- Latch, FlipFlops RS FlipFlop, JK FlipFlop, MasterSlave JK FlipFlop
- Race Condition, Removing RaceCondition, D FlipFlop, T FlipFlop,

Applications of FlipFlops

UNIT-D **8 Hours**

Semiconductor memories

- Introduction, Static and dynamic devices, read only & random access memory chips, PROMS and EPROMS Address selection logic.
- Read and write control timing diagrams for ICs.

Reference Books

1. Malvino, *Digital Computer Electronics*, Delhi: McGraw Hill, Second Edition.
2. Mano D. Morris, *Digital Logic & Computer Design*, New Delhi: PHISecond Edition
3. Halkias Millman, *Integrated Electronics*, Delhi: McGraw Hill.
4. Hodges D.A. &Jackson H.G., *Analysis and Design of Integrated Circuits,* New York: InternationalMcGraw Hill*,* , 1983.
5. Ujjenbeck, John, *Digital Electronics: A Modern Approach*, New Delhi: Prentice Hall, 1994

DAV UNIVERSITY JALANDHAR

Course Title: Basic Communication Skills
Course Code: ENG151
No. of Lectures: 60

L	T	P	Credits	Marks
4	0	0	3	75

Course Objective:

- To enhance students' vocabulary and comprehensive skills through prescribed texts.
- To hone students' writing skills.

Learning Outcomes: Students will be able to improve their writing skills as well as will enrich their word power.

Unit – A Applied Grammar (Socio-Cultural Context)

- Parts of Speech: Noun, Pronoun, Adjective, Verb, Adverb, Preposition, Conjunction, Interjection — 5 hours
- Tenses (Rules and Usages in Socio-cultural contexts) — 6 hour
- Modals: Can, Could, May, Might, Will, Would, Shall, Should, Must, Ought to — 5hours
- Passives — 5 hours
- Reported/Reporting Speech — 5 hour

Unit – B Reading (Communicative Approach to be Followed)

- J M Synge: Riders to the Sea (One Act Play) — 7 hours
- Anton Chekhov : Joy (Short Story) — 5 hours
- Swami Vivekanand : The Secret of Work (Prose) — 7 hours

Unit – C Writing

- Paragraph and Essay Writing — 5Hours
- Letter Writing: Formal and Informal — 5 hours
- Notice and Email — 5hours

References:

a. Books

1. Kumar, Sanjay and PushpLata. *Communication Skills*. India: OUP, 2012.
2. Vandana, Singh R. *The Written Word* by. New Delhi: Oxford University Press, 2008.

b. Websites

1. www.youtube.com (to download videos for panel discussions)
2. www.letterwritingguide.com
3. www.teach-nology.com
4. www.englishforeveryone.org
5. www.dailywritingtips.com
6. www.englishwsheets.com
7. www.mindtools.com

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Course Title: Basic Communication SkillsLaboratory
Course Code: ENG152
Course Duration: 30 Hours

L	T	P	Credits	Marks
0	0	2	1	25

Course Objective:

- To improve fluency in speaking English.
- To promote interactive skills through Group Discussions and role plays.

Learning Outcomes:

Students will get exposure to speaking through the above mentioned interactive exercises. In addition, they will develop a technical understanding of language learning software, which will further improve their communicative skills

Unit – A Speaking/Listening	**30 Hours**
• Movie-Clippings	10 hours
• Role Plays	10 hours
• Group Discussions	10 hours

Instructions:

1. Each student will prepare a scrap file on any of the topics given by class teacher. Student should be able to justify the contents of his/her Scrap file, which carries the weightage of 10 marks.Marks will be given for originality, creativity and presentation of thoughts.
2. In the end of semester, viva exam will be conducted. Viva will be for 10 marks. Spoken English will be the focus of exam. Examiner will ask questions related to scrap file and other general (non-technical) topics.
3. In the End-term exam, lab activity will carry the weightage of 10 marks.

Acknowledge all the sources of information in your scrap file

References:

Books

1. Gangal, J. K. *A Practical Course In Spoken English.* India: Phi Private Limited, 2012.
2. Kumar, Sanjay and PushpLata. *Communication Skills*. India: OUP, 2012.

Websites

1. www.youtube.com (to download videos for panel discussions)
2. www.englishforeveryone.org
3. www.talkenglish.com
4. www.mindtools.com

DAV UNIVERSITY JALANDHAR

Course Title: Principles and Practices of Management
Course Code: MGT101
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
3	1	0	4	100

Course Objective: Student will learn about the development of management theory and will understand the importance of management. The course also aims at explaining the basic functional elements of management.

Learning Outcomes: After completion of course students will be able understand basic management theories and modern practices. Learning will be on the basic roles, skills and functions of management. Students can use and follow modern techniques and strategies of management in the light of ethics and social responsibility.

Unit – A **11 Hours**

- Meaning, nature, scope and importance of management — 2 hours
- Levels of management, Managerial roles — 2 hours
- Principles of functional management — 2 hours
- Evolution of management thought, contributions of F.W Taylor, Henry Fayol, Elton Mayo, Peter Drucker — 3 hours
- Professionalization of Management — 2 hours

Unit – B **12 Hours**

- Planning- Meaning, need & importance, Fundamentals & components of planning — 2 hours
- Planning: Types, process — 2 hours
- Concept of MBO, Advantages & Limitations of MBO — 1 hour
- Decision Making: Concept and process — 2 hours
- Organizing: Concept, significance, processes, Types of organisations — 2 hours
- Span of control. Authority and Responsibility relationships, Delegation — 2 hours
- Decentralization and Departmentation — 1 hour

Unit – C **11 hours**

- Direction & Coordination- Meaning, features, Tools & Techniques — 3 hours
- Leadership- Concept, importance, role & skills — 2 hours
- Communication and supervision — 1 hour
- Controlling- Nature, concept, process, types, scope, importance — 2 hours
- Controlling by exception. Controlling techniques. Key problems in controlling — 3 hours

Unit – D **11 hours**

- Emerging issues in management: American and Japanese styles — 2 hours
- TQM, Six-sigma, MIS, QWL. — 3 hours
- Strategic Management- Concept & process, SWOT analysis, Porter 5-forces model. — 2 hours
- Creativity and innovation. — 1 hour

- Managerial ethics: need, importance, Corporate social responsibility: concept, need, tools — 3 hours

Text Book:

1. Rudani Ramesh, *Principles of Management*, Delhi: Tata, McGraw-Hill Education, 1st Edition 2013

Reference Books:

1. Koontz H & Weihrich, *Essentials of Management*, Delhi: Tata, McGraw-Hill9th Edition 2013
2. Prasad L M, *Principles and Practices of Management*, New Delhi : Sultan Chand & Sons,
3. Stoner J A F, Freeman R E and Gilbert D R, *Management*, New Delhi: Pearson Education, 6th Edition (2004)

DAV UNIVERSITY JALANDHAR

L	T	P	Credits	Marks
2	0	0	2	50

Course Title: Human Values and Ethics
Course Code: SGS101
Course Duration: 35 Hours

Course Objective:

- To sensitize students about the role and importance of human values and ethics in personal, social and professional life.
- To encourage students to read and realize the values of enlightened human beings.
- To enable students to understand and appreciate ethical concerns relevant to modern lives.

Learning Outcomes:

Students will become responsible citizens and better professionals who practise Values and Ethics in every sphere of life.

UNIT-A
Human Values **8 Hours**

Concept of Human Values: Meaning, Types and Importance of Values
Human Values : Lessons from the lives and teachings of
Value Education : The content of value education
Value crisis and its redressal

UNIT-B **10 Hours**

Being Good and Responsible

- Self-Exploration and Self Evaluation
- Acquiring Core Values for Self Development
- Living in Harmony with Self, Family, Society and Nature
- Values enshrined in the Constitution : Liberty, Equality Fraternity and Fundamental Duties

UNIT-C **8 Hours**

Value – based living

- edic values of life
- arma Yoga and Jnana Yoga
- shta Marga and Tri-Ratna
- ruth, Contentment and Wisdom

UNIT-D **9 Hours**

Ethical Living:
Ethics: Difference between Ethics and Values

- ersonal Ethics
- rofessional Ethics
- thics in Governance
- thics in Education

Suggested Readings:

1. Restoring Values (ed.) E. Sreedharan and Bharat Wakhlu, Sage Publications Ltd., New Delhi 2010.
2. Indian Ethos and Values by Nagarajan K, Tata McGraw Hill, 2011
3. Human Values, A N Tripathi, New Age International Publishers, New Delhi, Third Edition, 2009
4. Indian Ethos and Values in Management, 1st Edition by Sankar, Tata McGraw Hill Education Pvt. Ltd.
5. Values and Ethics, Osula, Asian Books, 2001.
6. Professional Ethics, R. Surbiramanian, Oxford University Press, New Delhi, 2013.
7. Human Values and Professional Ethics, Rishabh Anand, Satya Prakashan, New Delhi, 2012
8. Human Values and Professional Ethics, Sanjeev Bhalla, Satya Prakashan, New Delhi, 2012.
9. Human Values and Professional Ethics, Ritu Soryan Dhanpat Rai & Co. Pvt. Ltd., First Edition, 2010.
10. Human Values and Professional Ethics by Suresh Jayshree, Raghavan B S, S Chand & Co. Ltd. , 2007.
11. Human Values and Professional Ethics, Dr. R K Shukla, Anuranjan Misra, A B Publication 2010.
12. Human Values and Professional Ethics, Sharma, Vayu Education of India Language publishers, 2012.
13. Human Values and Professional Ethics, S. Kannan, K. Srilakshmi, Taxmann Publication, Pvt. Ltd., 2009
14. Human Values and Professional Ethics, Smriti Srivastava, S K Kataria & Sons, 2001
15. Human Values and Professional Ethics, Yogendra Singh, Ankur Garg, Aitbs publishers, 2011.
16. Human Values and Professional Ethics, Vrinder Kumar, Kalyani Publishers, Ludhiana, 2013.
17. Human Values and Professional Ethics, R R Gaur, R. Sangal, GP Bagaria, Excel Books, New Delhi 2010.
18. Values and Ethics, Dr. Bramwell Osula, Dr. Saroj Upadhyay, Asian Books Pvt. Ltd., 2011.
19. Complete works of Swami Vivekanand, Advaita Ashram, Calcutta – 1931.
20. Indian Philosophy, S. Radhakrishnan, George Allen & Unwin Ltd., New York: Humanities Press INC, 1929.
21. Essentials of Hinduism, Jainism and Buddhism, A N Dwivedi, Books Today, New Delhi – 1979

22. Light of Truth : Satyarth Parkash, Maharishi Dayanand Saraswati, Arya Swadhyay Kendra, New Delhi, 1975.
23. Dayanand : His life and work, Suraj Bhan, DAVCMC, New Delhi – 2001.
24. Moral and Political Thoughts of Mahatma Gandhi, V. Raghavan, N Iyer, Oxford University Press India, New Delhi, 2000.
25. Guru Nanak Dev's view of life, Amplified by Narain Singh, Published by Bhagat Puran Singh All India Pingalwara Society, Amritsar 2010.
26. Esence of Vedas, Kapil Dev Dwivedi, Katyayan Vedic Sahitya Prakashan, Hoshiarpur, 1990.
27. Vedic Concepts, Prof. B B Chaubey, Katyayan Vedic Sahitya Prakashan, Hoshiarpur, 1990.
28. Mahatma Gandhi : Essays and Reflections on his life and work by Saravapalli Radhakrishnan, Zaico Publication, Mumbai, 1977.
29. Lala Har Dayal, Hints for Self Culture, Jaico Publishing House, Mumbai, 1961.
30. Maharishi Swami Dayanand Saraswati, The Light of Truth (The Satyartha Prakashan), available at URL :
    www. aryasamajjamnagar.org/download/satyarth_prakash_eng.pdf
31. Krishnamurti J, The First and Last Freedom, available at URL :
    http://www.jiddu-krishanmurti.net/en/th-first-and-last-freedom/
32. Sri Raman Maharishi, Who Am I, available at URL :
    http://www.sriramanamaharshi.org/resource_centre/publicatins/who-am-i-books/
33. Ramesh S Balsekar, Peace and Harmony in Daily Living, Yogi Impressions; 1st edition

DAV UNIVERSITY JALANDHAR

Course Title: Office Automation Laboratory
Course Code: CSA104

L	T	P	Credits	Marks
0	0	4	2	100

- Familiarizing with PC and WINDOWS commands
- File creation
- Editing
- Directory creation
- Mastery of DOS internal & external commands
- Learning to use MS Office: MS WORD, MS EXCEL & MS PowerPoint
- Use of Internet browsers, email, search, etc.

DAV UNIVERSITY JALANDHAR

Course Title: Principles of Programming and Algorithms using C
Course Code: CSA105
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: The objective of this course is to help the students in finding solutions to various real life problems and converting the solutions into computer program using C language (structured programming). Students will learn to write algorithm for solutions to various real-life problems. Converting the algorithms into computer programs using C language.

UNIT-A **15 Hours**

Logic Development and Program Development Tools

- Data Representation, Flowcharts, Problem Analysis
- Decision Trees/Tables, Pseudo Code and Algorithms,
- Program Debugging, Compilation and Execution.

Fundamentals

- Character Set, Identifiers and Key Words, Data Types
- Constants, Variables, Expressions, Statements, Symbolic Constants.

Operations and Expressions

- Arithmetic Operators, Unary Operators, Relational Operators,
- Logical Operators, Assignment and Conditional Operators, Library functions.

UNIT-B **12 Hours**

Data Input and Output

- Single Character Input, Single Character Output, Entering Input Data
- More About Scan Functions, Writing Output Data, More About Print Functions
- Gets and Puts Functions, Interactive Programming.

Control Structures

- Introduction, Decision Making with If – Statement, If Else and Nested If,
- While And Do-While, For Loop.
- Jump Statements: Break, Continue, Goto, Switch Statement.

Functions

- Introduction To Functions, Function Declaration, Function Categories
- Standard Functions, Parameters And Parameter Passing, Pass – By Value/Reference
- Recursion, Global and Local Variables, Storage Classes.

UNIT-C **10 Hours**

Arrays

- Introduction to Arrays, Array Declaration, Single and Multidimensional

Array, Memory Representation, Matrices, Strings, String Handling Functions.

Structure and Union

- Declaration of Structure, Accessing Structure Members, Structure Initialization, Arrays of Structure, Nested Structures, Unions.

UNIT-D **8 Hours**

Pointers

- Introduction To Pointers, Address Operator And Pointers, Declaring and Initializing Pointers,
- Assignment through Pointers, Pointers and Arrays.

Files

- Introduction, Creating a Data File, Opening and Closing a Data File, Processing a Data File.

Preprocessor Directives

- Introduction and Use, Macros, Conditional Preprocessors, Header Files

Reference Books

1. Kanetkar Yashvant P, *Let us C*, New Delhi :BPB Publications, Seventh Edition (2007).
2. Balagurusami E, *Programming in ANSI C*, New Delhi: Tata McGraw Hill, Fourth Edition (2010).
3. Gottfried Byron S., *Programming in C*, New Delhi: McGraw Hills, Second Edition 1996.
4. Kernighan & Richie,*The C Programming Language*, New Delhi: PHI Publication, Second Edition(2009) .
5. Gottfriet Bryon, *Schaum Outline Series, Programming in C,* New Delhi: McGraw Hills, 2010

DAV UNIVERSITY JALANDHAR

Course Title: Web Designing
Course Code: CSA106
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: This course will enable the student to build and publish web sites using Dreamweaver, a popular visual web site production andmanagement program, using HTML, DHTML, CSS and PHP. This course willenable the student to build and publish web sites using Dreamweaver, a popular visual web site production and management program.

UNIT-A **15 Hours**

Introduction to Web Development

- Website, Webpage, Static Website, Dynamic Website.

Introduction to HTML/DHTML:

- HTML Basics, HTML Elements (Tags), Structure of HTML Program, Attributes, Headings, Paragraphs
- Formatting, Links, Images, Tables, Lists, Forms, Frames, Where to put Tables, Lists, Images, Forms
- CSS in DHTML, Implementation of WebPages using CSS
-

UNIT-B **12 Hours**

Dreamweaver

- Understanding Workspace Layout, Managing Websites, Creating a Website, Using Dreamweaver Templates
- Adding New WebPages, Text and Page Format, Inserting Tables, Lists, Images, Adding Links.

UNIT-C **10 Hours**

Introduction to PHP

- PHP Environment, Syntax Overview, Variable Types, Constants, Operator Types, Decision Making
- Arrays, Strings, Web Concepts, GET & POST
- File Inclusion, Files & I/O, Functions, Cookies, Sessions, Sending Emails, Uploading, Coding Standards.
-

UNIT-D **8 Hours**

Purchasing a Domain Name & Web Space

- Domain Name & Web Space, Getting a Domain Name & Web Space (Purchase or Free), Uploading the Website to Remote Server

Reference Books

1. Powell Thomas, *HTML & CSS: The Complete Reference*, New Delhi: McGraw-Hill, Fifth Edition (2010).

2. Andy Harris, *HTML, XHTML and CSS All inOne For Dummies*, Delhi: Willey ,Second Edition (2010).
3.LerdorfRasmus, Tatroe Kevin,MacIntyre Peter, *Programming PHP*, Delhi: O'Reilly Media, 2013
.
4.UllmanLarry, *PHP for the World Wide Web,Visual QuickStart Guide*.**New Delhi: Peachpit Press, fourth edition (2011)**

DAV UNIVERSITY JALANDHAR

Course Title: Mathematical Foundation of Computer Science
Course Code: MTH190
Course Duration: 45 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: The syllabus of this course is specially designed for the beginners in computer science with the first exposure to mathematical topics essential to their study of computer science or digital logic. Topics like algorithm complexity will help them in learning the important concepts of C language and algorithm design and analysis.

UNIT-A **15 Hours**

Matrix Algebra

- Matrix Algebra Matrices, Types of Matrices, Operations on Matrices, and Properties Of Determinants (Statement Only)
- Minors, Cofactors, Adjoint and Inverse of a Matrix, Elementary Transformations in a Matrix Rank of a Matrix,
- Solution of Simultaneous Equations using Crammer'S Rule and Matrix Inversion Method. Characteristics of Polynomial
- Eigen Values, Nature of Eigen values, Certain Types of Matrices, Cayley – Hamilton Theorem.

UNIT-B **12 Hours**

Differentiation and Integration

- Laws of Derivative, Chain Rule
- Differentiation Using Log, Repeated Derivatives, Derivatives of Implicit Functions Integration of Algebraic, Logarithmic and Exponential Function, Integration of Functions Using Partial Fraction (Simple Form Using Properties)
- Integration of Functions by Parts, Definite Integral

UNIT-C **10 Hours**

Statistics

- Introduction to Statistics, Measures of Central Tendency Mean, Median and Modes
- Measures of Dispersion, Mean Deviation, Standard Deviation and Coefficient of Variation.

Applications of Logarithms

- Problems Related To Compound Interest, Depreciation and Annuities.

UNIT-D **8 Hours**

Algorithms and Complexity

- Algorithms, Searching Algorithms, Sorting
- Growth of Functions, Big O Notation, Big Omega and Big Theta Notation
- Complexity of Algorithms, Mathematical Induction, The Basic of Counting, The Pigehole Principle

Reference Books

1. Bali N.P, *Text Book of Engineering Mathematics,*Lakshmi Publications, fifth edition (2012)
2. Grimaldi Ralph P, *Discrete and Combinational Mathematics*, Delhi :Pearson Education, Forth Edition (2011)
3. Rajaraman*, Computer Oriented Numerical Methods*, New Delhi :PHI Publications, Third Edition (2010).
4. Sancheti D.C., *Business Mathematics*, New Delhi: Sultan Chand & Sons, Eleventh Edition (2012)
5. Tremblay J. P &Manohar R. P, *Discrete Mathematical Structures with Applications to Computer Science*,Delhi: MGH Publications, Ninth Edition(2010).

DAV UNIVERSITY JALANDHAR

Course Title: Environment Education, Road Safety and Legal Awareness

Course Code: EVS101
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: This course aims at understanding the students in aspects of environmental problems, its potential impacts on global ecosystem and its inhabitants, solutions for these problems as well as environmental ethics which they should adopt to attain sustainable development.

UNIT-A

The multidisciplinary nature of environmental studies **14 Hours**

- Definition, scope and importance, Need for public awareness

Natural Resources: Renewable and non-renewable resources:

Natural resources and associated problems.

- **Forest resources:** Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
- **Water resources:** Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
- **Mineral resources:** Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
- **Food resources:** World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
- **Energy resources:** Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies.
- **Land resources:** Land as a resource, land degradation, man induced landslides, soil erosion and desertification.
  - Role of an individual in conservation of natural resources.
  - Equitable use of resources for sustainable lifestyles.

Ecosystem:

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem:
  a. Forest ecosystem
  b. Grassland ecosystem

c. Desert ecosystem
d. Aquatic ecosystems (ponds, streams, lakes, rivers, ocean estuaries)

UNIT-B **14 Hours**

Biodiversity and its conservation

- Introduction – Definition: Genetic, Species and Ecosystem Diversity
- Bio-geographical classification of India
- Value of biodiversity: Consumptive use, Productive use, Social, Ethical, Aesthetic and Option values
- Biodiversity at global, national and local levels
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity, global and national efforts.
- Genetically modified crops
- Cartagena Protocol
- Biodiversity Act

Environmental Pollution

- Definition, causes, effects and control measures of:
  a. Air pollution
  b. Water pollution
  c. Soil pollution
  d. Marine pollution
  e. Noise pollution
  f. Thermal pollution
  g. Nuclear pollution
- Solid waste management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution
- Pollution case studies
- Disaster management: floods, earthquake, cyclone and landslides

Indoor Pollution

- Practical tips on how to save the self from self-inflicted pollution.
- Basics of toxicity.
- Problems of lifestyle based diseases.
- Solutions needed for safety.

UNIT-C **17 Hours**

Social Issues and the Environment

- Population growth, variation among nations, Population explosion – Family Welfare Programmes.
- Environment and human health,
- From unsustainable to sustainable development
- Urban problems and related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation
- Consumerism and waste products
- Environmental Laws: The Environment Protection Act, 1986; The Air (Prevention and Control of Pollution) Act, 1981; The Water (Prevention and control of Pollution) Act 1974; The Wildlife Protection Act, 1972; Forest Conservation Act, 1980.
- Issues involved in enforcement of environmental legislation
- Public Awareness

Human Population and Environment

- Population Growth and Variations among Nations
- Population Explosion
- Human Rights
- Value Education
- HIV / AIDS
- Women and Child Welfare
- Role of Information Technology in Environment and Human Health
- Case Studies

Global environmental issues

- Stockholm Conference
- Brundtland Commission
- Montreal Protocol
- Kyoto protocol
- Earth Summit
- World Summit

UNIT-D **15 Hours**

Road Safety

- Road safety: Concept and its importance.
- Attitude of people towards road safety

- Role of traffic police in road safety
- Traffic rules, Traffic signs, How to obtain driving license, Traffic offences, penalties and procedures,
- Common driving mistakes, Significance of first-aid in road safety
- Role of civil society in road safety and Traffic police-public relationship
- Motor Vehicle Act 1998 (2010)

Legal Awareness

- Legal literacy
- Child labour
- Domestic Violence
- Right to Education

Field Work

- Visit to a local area to document environmental assets river/ forest/ grassland/hill/mountain
- Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
- Study of common plants, insects, birds
- Study of simple ecosystems-Pond, river, hill slopes, etc (Field work equal to 5 lecture hours)

Reference Books

1. Odum, E.P. *Basic Ecology*. Japan:Halt Saundurs,International Edition, 1983
2. Botkin, D.B. and Kodler, E.A . *Environmental Studies: The Earth as a living planet*. New York : John Wiley and Sons Inc, 2000
3. Singh, J.S., Singh, S.P and Gupta S.R.. Ecology, *Environment and Resource Conservation*, New Delhi :Anamaya Publishers, (2006).
4. De, A.K. *Environmental Chemistry*.New Delhi: Wiley Eastern Ltd. (1990).
5. Sharma, P.D. *Ecology and Environment*. Meerut:Rastogi Publications, 2004
6. Uberoi, N.K.: *Environmental Management,* New Delhi :Excel Books, 2nd Edition,2006 .

DAV UNIVERSITY JALANDHAR

Course Title: General Knowledge and Current Affairs
Course Code: SGS102
Course Duration: 35 Hours

L	T	P	Credits	Marks
2	0	0	2	50

Course Objective: The study of General Knowledge and Current Affairs has become even more important today. It is not only a major constituent of most competitive examinations but also aids in acquiring general awareness.

The objectives of this course are:

- To introduce students with the course and contents of various competitive examinations
- To prepare a foundation for appearing in various competitive examinations
- To sensitize the students about the current issues and events of national and international importance
- To provide opportunity to the students to study inter disciplinary subjects like Geography, Science, Economy, Polity, History, International Relations etc.

Learning Outcomes:

- Students would get an opportunity to aspire, plan and prepare for various competitive examinations in advance.
- It would polish their personalities and sharpen the skills of debates, group discussions, communication, interview etc.
- Students would acquire general awareness of National and International Events

UNIT-A

12 Hours

General Geography
World Geography

- he Universe, The Solar System, The Earth, Atmosphere, The World we live in, Countries rich in Minerals,
- onders of the World, Biggest and Smallest

Indian Geography :

- Location, Area and Dimensions, Physical Presence,
- Indian States and Union Territories,
- mportant sites and Monuments, Largest-Longest and Highest in India.

General History

- Glimpses of India History, Ancient Indian, Medieval India, Modern India,
- Various Phases of Indian National Movement, Prominent Personalities.
- limpses of Punjab history with special reference to period of Sikh

Gurus.

Glimpses of World History

- mportant Events of World History, Revolutions and Wars of Independence,
- olitical Philosophies like Nazism, Fascism,
- ommunism, Capitalism, Liberalism etc.

UNIT-B **9 Hours**

General Polity

World Politics- Major Actors and their political relations

- UNO and other organizations viz: WTO, EU, SAARC, Bio-geographical classification of India
- ASEAN, BRICS, WTO, OIC, OAU, OPEC, GCC etc.

Indian Polity : Constitution of India :

- The process of liberalization, privatization, globalization and Major World Issues
- . Indian Economy, Indian Financial System
- Major Economic Issues, Economic Terminology

UNIT-C **12 Hours**

General Science :

- General appreciation and understandings of science including the matters of everyday observation and experience
- nventions and Discoveries.

Sports and Recreation

- he World of Sports and recreation. Who's Who is sports, Major Events
- wards and Honours. Famous personalities, Festivals. Arts and Artists

Current Affairs

- ational and International Issues and Events in News
- overnments Schemes and Policy Decisions

India and Neighbours

- urrent phase relations with China, Pakistan, Bangladesh, Nepal, Sri Lanka and Afghanistan

UNIT-D **2 Hours**

Miscellaneous Information

Who is who

-

ooks and Authors, Persons in News, Awards and Honours, Abbreviations and Sports

Refernce Books :

- Advance Objective General Knowledge, R. S. Aggarwal, S. Chand Publisher (2013)
- Concise General Knowledge Manual 2013, S. Sen, Unique Publishers,2013
- Encyclopedia of General Knowledge and General Awareness by R P Verma, Penguin Books Ltd (2010)
- General Knowledge Manual 2013-14, Edgar Thorpe and Showick Thorpe, The Pearson, Delhi.
- General Knowledge Manual 2013-14, Muktikanta Mohanty, Macmillan Publishers India Ltd., Delhi.
- India 2013, Government of India (Ministry of Information Broadcasting), Publication Division, 2013.
- Manorama Year Book 2013-14, Mammen Methew, Malayalam Manorama Publishers, Kottayam, 2013.
- Spectrum's Handbook of General Studies – 2013-14, Spectrum Books (P) Ltd., New Delhi
- Unique Quintessence of General Studies – 2013-14, Unique Publishers, New Delhi.

Current Affairs

Magazines

Economic and Political Weekly, Yojna, the Week, India Today, Frontline, Spectrum.
Competition Success Review, Competition Master, Civil Services Chronicle, Current Affairs, World Atlas Book

Newspapers

The Hindu, Times of India, The Hindustan Times, The Tribune

DAV UNIVERSITY JALANDHAR

Course Title: Stenography
Course Code: SGS104
Course Duration: 45 Hours

L	T	P	Credits	Marks
3	0	0	1	25

Course Objective: The course is to inculcate writing and listening skills among the students. This would act as building blocks for the learner to begin the study of stenography. As the learners are from the senior secondary background the course has been created keeping in mind their requirements for the future.

Learning Outcome:

After going through this course the participant would have understood the basic concepts of shorthand language and would be able to apply them in daily life. Completion of the course will improve their speed of writing and typing. They would be able to pronounce the English words correctly and can use effective English communication.

Unit A 12Hours

I. The Consonants II. The Vowels III. Intervening Vowels and Position Grammalogues, Punctuation IV. Alternative Signs for r and h V. Diphthongs Abbreviated w. VI. Phaseography Tick the VII. Circle s and z—Left and Right Motion VIII. Stroke s and z IX. Large Circles sw and ss or sz X. Loops st and str.

Unit B 12Hours

XI. Initial Hooks to Straight Strokes and Curves XII. Alternative Forms for fr, vr, etc. Intervening Vowels XIII. Circle or Loop Preceding Initial Hook XIV. n and f Hooks XV. Circles and Loops to Final Hooks.XVI The shun hook. XVII. The Aspirate. XVIII. Upward and Downward r.XIX. Upward and downward l and sh. XX. Compound consonants XXI. Vowel indication**.**

Unit C 11 hours

XXII. The halving principle (section 1). XXIII. The halving principle (section 2). XXIV. The Doubling principle. XXV. Diphonic or two vowel signs. XXVI. Medial semicircle. XXVII. Prefixes negative words. XXVIII. Suffixes and terminations. XXIX. Contractions. XXX. Figures, etc .proper names.

Unit D 10 hours

XXXI.Note taking, transcription, etc. XXXII. Essentials vowels. XXXIII. Special contractions. XXXIV. Advanced pharseography. XXXV. Intersections. XXXVI. Business phrases. XXXVIII. Banking and stockbroking phrases. XXXIX. Insurance and shipping phrases. XL. Technical and railway phrases. XLI. Legal phrases. XLIII. Special list of words. XLIV. Shorthand in practice.

Total 45 hours

Text Book:

Pitman Shorthand Instructor and Key, Pearson Publisher.

DAV UNIVERSITY JALANDHAR

Course Title: Stenography Lab
Course Code: SGS105

L	T	P	Credits	Marks
0	0	1	1	25

Course Objective: The course is to inculcate writing and listening skills among the students. This would act as building blocks for the learner to begin the study of stenography. As the learners are from the senior secondary background the course has been created keeping in mind their requirements for the future.

Learning Outcome:

After going through this course the participant would have understood the basic concepts of typing and would be able to apply them in daily life. Completion of the course will improve their speed of typing and typing skills.

Unit A 04 Hours

Beginner :

Basics-fjdk, sla;, ghty,vmbn,ruei,woqp,cx.

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Unit B 03 Hours

Shift keys, numeric pad, Digits and symbols

Unit C 04 Hours

Intermediate- Syllables and words.

Unit D 04 Hours

Expert- Paragraphs and Stories

Total 15 hours

Course Title: C Programming Laboratory
Course Code: CSA108

L	T	P	Credits	Marks
0	0	4	2	50

Implementation of C programming concepts:

- Control Structures, Loops, Arrays, Strings
- Functions, Structures, Union, Files, etc.

L	T	P	Credits	Marks
0	0	4	2	50

Course Title: Web Designing Laboratory
Course Code: CSA109

- Web designing using HTML, DHTML, CSS, and PHP.

DAV UNIVERSITY JALANDHAR

Course Title: Computer Oriented Numerical and Statistical Techniques
Course Code: CSA201
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: The course aims at discussing various significant and fundamental concepts to inculcate in the students an adequate understanding of the application of Numerical Algorithms and Statistical Methods.

UNIT - A **15Hours**

Errors and Sources of Propagation for Errors

- Floating Point Representation of Numbers
- Arithmetic Operations with Normalized Floating Point Numbers and Their Consequences
- Error in Number Representation Pitfalls in Computing

Iterative Methods

- Zeros of aSingle Transcendental Equation and Zeros of Polynomial Using Bisection
- False Position, Newton Raphson, Convergence of Solution
- Simultaneous Linear Equations, Solution Of Simultaneous Linear Equation
- Gauss Elimination Method And Pivoting, ILL Conditioned Equations And Refinement Of Solutions
- Gauss Siedel Iterative Methods

UNIT – B **12 Hours**

Numeric Differentiation and Integration

- Numerical Differentiation Using Interpolation Method
- Numerical Integration, Trapezoidal Rule
- Simpson's 1/8 Rule, Simpson 3/8 Rule.

Numerical Solution of Ordinary Differential equations

- Euler Method, Runga Kutta Method, Predictor Corrector Method.

UNIT – C **08 Hours**

Interpolation Curve Fitting and Cubic Splines

- Lagrange's Interpolation, Newton Interpolation
- Linear Regression, Polynomial Regression, Exponential Regression

UNIT – D **10 Hours**

Introduction to Statistics

- Meaning, Scope, Collection, Classification of Data.
- Application Based on and Processing Logic of Measures of Central Tendency, Dispersion.

Bivariate Data

- Correlation, Meaning, Type of Correlation, Correlation and Causation, Methods of Studying Correlation,
- Algorithm to Compute Karl Pearson's Correlation and Rank Correlation. Applications Based On Correlation.

Linear Regression

- Processing Logic of and Numerical Based on Fitting of Regression Lines (Using Least Square Method)

Reference Books

1. RajaramanV, *Computer Oriented Numerical Methods*, Prentice Hall, India, 1993
2. Gupta S.C, *Fundamental of Statistics*,Himalayas Publication House,2007
3. Gupta & Kapoor,*Applied Statistics*,Sultan Chand & Sons, 2007
4. Gupta S.P, *Statistical Method*,Sultan Chand & Sons, 2009

DAV UNIVERSITY JALANDHAR

Course Title: Object Oriented Programming Structures
Course Code: CSA202
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: This course will expose you to the features of object oriented programming concepts such as inheritance, encapsulation, polymorphism, exception and file handling, which help you design software.

UNIT - A **12 Hours**

Introduction

- Evolution Of OOP, OOP Features Of C++
- Characteristics of Object Oriented Language – Objects, Classes, Inheritance, Reusability, User Defined Data Types, Polymorphism, Overloading
- Comparison of C with C++.

Class Concepts

- Class and Objects,Inline Functions, Static Data Members and Member Functions
- Constructors and Destructors
- Dynamic Objects, Array of Pointers to Object, Pass By Value Vs. Pass By Reference
- Localand Global Class, Nested and Empty Class, Preprocessor Directives, Namespace.

UNIT– B **11 Hours**

Console I/O

- Hierarchy of Console Stream Classes
- Unformatted and Formatted I/O Operations, Manipulators

Operator Overloading

- Overloadable Operators, Overloading Unary and Binary Arithmetic and Relational Operators
- Overloading Subscript, Array, Insertion, Extraction, New and Delete Operators.

UNIT– C **11 Hours**

Friend Function and Type Conversion

- Friend Function, Function Overloading, Overloading Operators through Friend Function
- Basic Type Conversion, Conversion Between Objects and Basic Types
- Conversion Between Objects of Different Classes

Inheritance

- Derivation Rules, Different Forms of Inheritance

- Roles of Constructors and Destructors in Inheritance.

UNIT– D **11 Hours**

Virtual Functions

- Virtual Functions and Their Needs, Pure Virtual Function
- Virtual Destructor, Virtual Derivation, Abstract Class.

File Handling

- Hierarchy of File Stream Classes, Opening and Closing Files
- File Modes, Testing for Errors
- File Pointers and Their Manipulations, ASCII &Binary Files
- Sequential and Random Access Files

Reference Books:

1. Stroustrup Bjarne, *The C++ Programming Language*, New Delhi: Addison-Wesley Professional,2000
2. Lafore Robert, *Object Oriented Programming in C++*.Delhi: Sams Publishing,2000
3. Balaguruswami E, *Object Oriented Programming In C++*,New Delhi: Tata McGrawHill ,2006
4. Lippman, Tom Weiss, *C++ Primer*, New Delhi: AddisonWesley,2005
5. Scildt Herbert,*C++The Complete Reference*, New Delhi: Tata McGrawHill,2007

DAV UNIVERSITY JALANDHAR

Course Title: Database Concepts
Course Code: CSA203
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Objectives: This course covers fundamentals of database architecture, database management systems, and database systems, Principles and methodologies of database design, and techniquesfor database application development.

UNIT – A **10 Hours**

An Overview of DBMS

- Concept of File Processing Systems and Database Systems
- Database Administrator and his Responsibilities
- Physical and Logical Data Independence

Three level Architecture of Database System

- The External Level
- Conceptual Level
- The Internal Level

UNIT-B **12 Hours**

Introduction to Data Models

- Entity Relationship Model, Hierarchical
- Network and Relational Model
- Comparison of Network, Hierarchical and Relational Model
- E–R Diagram
- Different Keys Used In a Relational System, Sql

UNIT – C **10 Hours**

Database Protection

- Recovery
- Concurrency Management
- Database Security
- Integrity and Control
- Disaster Management

Normal Forms

INF, 2NF, 3NF, BCNF, 4th NF, 5th NF, and DBTG

UNIT – D **13 Hours**

Database protection

- Recovery, Concurrency Management
- Database Security, Integrity and Control, Disaster Management

Distributed databases

- Structure of a Distributed Database, Design of Distributed Databases

SQL *PLUS

- Introduction to SQL–DDL, DML, DCL, Join Methods & Sub Query
- Union Intersection, Minus, Tree Walking, Built in Functions
- Views, Security Amongst Users, Sequences, Indexing,

Reference Books:

1. Desai Bipin C, *An Introduction to Database System*, New Delhi: Galgotia Publications, 2010
2. Date C.J, *An Introduction to Data Base Systems*, New Delhi: Narosa Publications, Eighth Edition,2012
3. Korth Henry F, *Database System Concepts*, New Delhi: McGraw Hill, 2010
4. Ullman, *Principles of Database Systems*, New Delhi: Galgotia Publications ,2010.
5. Coronel, Moris,Rob, *Database Systems: Design, Implementation, and Management*, New Delhi South-Western, NinthEdition (2009)

DAV UNIVERSITY JALANDHAR

Course Title: Computer System Architecture
Course Code: CSA204
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: The objective of the course is to provide students with a solid foundation in computer design. Examine the operation of the major building blocks of a computer system Syllabus includes instruction set architecture, control design, memory hierarchy, input/output and communication.

UNIT - A **15 Hours**

Introduction to Computer Organization

- Introduction to Computer and CPU
- (Computer Organization, Computer Design and Computer Architecture), Stored Program Concept- Von Neumann Architecture.

Register Transfer and Micro operations

- Introduction to Registers, Register Transfer Language
- Data movement among Registers and Memory

Micro operations

- Introduction to micro operations, Types of micro operations—Logic Operations, Shift operations, Arithmetic and Shift operations

Common Bus System

- Introduction to Common Bus System, Types of Buses(Data Bus, Control Bus, Address Bus),
- 16 bit Common Bus System--Data Movement among registers using Bus

UNIT– B **11 Hours**

Basic Computer Instructions

- Introduction To Instruction, Types Of Instructions (Memory Reference, I/O Reference And Register Reference), Instruction Cycle,
- Instruction Formats (Direct and Indirect Address Instructions, Zero Address, One Address, Two Address and Three Address Instructions)
- **Interrupt**
  - Introduction to Interrupt and Interrupt Cycle

Design of Control UNIT:

- Introduction to Control UNIT, Types of Control UNIT

(Hardwired & Micro programmed Control UNIT).

Addressing Modes

- Introduction & different types of Addressing Modes

UNIT– C **12 Hours**

Computer Organization

- Microcomputer Organization; Microprocessor Organization, Instruction codes
- Memory Reference, Register Reference and Input-Output Reference Instructions
- Instruction cycle, Instruction formats
- Processing UNIT Design: one, two and three bus Organization.
- Addressing Mode, CISC, RISC

Memory Organization

- Memory Hierarchy, Types of Memory: RAM and ROM Chips,
- Associative Memory, Cache Memory, Auxiliary Memory, Virtual Memory
- Memory Address Map, Memory Connection to CPU.

UNIT– D **7 Hours**

Input Output Organization

- Input output Interface, Memory Mapped I/O; Interrupt
- Asynchronous Data Transfer: Strobe Control, Handshaking
- Priority Interrupts: Daisy-Chaining, Parallel Interrupt, Priority Encoder
- Interrupt Cycle, Types of Interrupt: Program interrupt
- Priority Interrupts, Direct Memory Access (DMA).
- Introduction to Assembly Language.

Reference Books:

1. Mano M.M.,*Computer System Architecture*, Delhi: Prentice Hall of India, 1993
2. Mano M.M., *Digital Logic and Computer Design*, Delhi: Prentice Hall of India 1993.
3. Hayes,*Computer Architecture and Organization*,New Delhi : McGrawHill International Edition,2010.
4. Tannenbaum A.S., *Structured Computer Organization*, Delhi: Prentice Hall of India, 2010
5. Brey B,*The Intel Microprocessors*, New Delhi: Pearson Education, 2008.
6. Sloan M.E, *Computer Hardware and Organization*, 2nd Edition,New Delhi: Galgotia, Pvt. Ltd, 2010

DAV UNIVERSITY JALANDHAR

Course Title: Computer Networks-I
Course Code: CSA205
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
2	0	0	2	50

Course Objective: This course provides knowledge about various types of Network, Network Topologies, and Protocols.

UNIT—A **12Hours**

Introduction:

- Uses Of Computer Networks, Network Hardware, Network Software
- Seven-Layer OSI Architecture of ISO, Concepts of Layer Protocols and Layer Interfaces
- TCP/IP Reference Model, Comparison of OSI &TCP/IP Reference Models
- Physical Layer: Transmission Media , Telephone System (Structure, Trunks , Multiplexing and Switching
- Wireless Transmission

UNIT—B **11 Hours**

Data Link Layer:

- Design Issues
- Error Detection And Correction
- Elementary Data Link Protocols
- Sliding Window Protocols
- Medium Access Sub layer: The channel allocation ,
- IEEE standards 802 for LAN & MAN.

UNIT—C **15 Hours**

Network Layer:

- Design issues
- Routing Algorithms
- Congestion Control Algorithms, IP Protocol
- IP Addresses, Sub Nets
- Transport Layer: Transport Services, Elements of Transport Protocols, TCP Service
- Model , protocol, Header

UNIT—D **7 Hours**

Application Layer

- Network Security
- DNS
- E-Mail
- World Wide Web
- Multimedia

Reference Books

1. Tananbaum A.S. and David J. Wetherall,*Computer Networks*, Delhi: Pearson, Fifth Edition 2010.
2. Stalling W, *Data & Computer Communications*, New Delhi: PHI,Ninth Edition 2010.
3. B. Forouzan, *Data Communication and Networking*, New Delhi: Tata McGraw Hill July 2010.

DAV UNIVERSITY JALANDHAR

Course Title: Workshop on Corel Draw
Course Code: CSA206

L	T	P	Credits	Marks
0	0	4	2	50

Course Objective: This course will be able to understand the fundamental of Corel draw and can able to create, pamphlets, banners, new paper, books.

UNIT—A

- Corel Draw- An overview, menu and tools
- Drawing lines, shapes, inserting –pictures ,objects ,tables and templates

UNIT—B

- Adding special effects, Exporting drawings
- Outlining and Filling Objects
- Inserting symbols and Clip arts

UNIT—C

- Working in Corel Draw Presentation, Adjusting the position
- Resizing, Positioning. Merging, Color Shades and Shadows
- Working with advanced effects, Special interactive effects.

UNIT—D

- Creating- Business cards, Pamphlets, Banners, Newspaper, Books.

Reference Books

1. Bain Steve,*Corel Draw 12. The official Guide*, New Delhi: Tata McGraw Hill, 2010
2. Miller Deborah,*CorelDRAW Bible*.New Delhi: Wiley,1999

DAV UNIVERSITY JALANDHAR

Course Title: Database Concepts Laboratory
Course Code: CSA207

L	T	P	Credits	Marks
0	0	4	2	50

Implementation of SQL

- DDL, DML, DCL, TCL
- Practice of PL/SQL.

DAV UNIVERSITY JALANDHAR

Course Title: Object Oriented Programming Structures Laboratory
Course Code: CSA208

L	T	P	Credits	Marks
0	0	4	2	50

- Implementation of OOP concepts using C++
- Write program in 'C++' language
- Using input and output statements
- Using control statements.
- Using functions.
- Using array
- Using Classes and implementation of Constructor and Destructor.
- Using files.
- Using OOP's Concepts (Inheritance, Polymorphism, Encapsulation, Friend and Static Functions, Exception Handling)

DAV UNIVERSITY JALANDHAR

Course Title: Data Structures
Course Code: CSA209
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: The emphasis of this course is on the organization of information, the implementation of common data structures such as lists, stacks, queues, trees, and graphs.

UNIT - A **10 Hours**

Preliminaries

- Introduction to Data Structures: Primitive and Composite, Various Data Structures
- Common Operations on Data Structures, Algorithm Complexity
- Big O Notation, Time, Space Tradeoff Between Algorithms
- Complexity of Algorithms, Records and Pointers.

Arrays

- Arrays Defined, Representing Arrays in Memory, Various Operations on Linear Arrays
- Multi Dimensional Arrays, Records, Matrices, Sparse Matrices
- Linear Search, Binary Search
- Insertion Sort, Selection Sort, Bubble Sort, Merge Sort
- String, Representation and Manipulation

UNIT– B **12 Hours**

Linked Lists

- Types of Linked Lists, Representing Linked Lists in Memory
- Advantage of Using Linked Lists Over Arrays
- Various Operation on Linked Lists

Stacks

- Description of Stack Structure, Implementation of Stack Using Arrays and Linked Lists
- QuickSort Technique to Sort an Array, Parenthesis Checker.

Queues

- Implementation of Queue Using Arrays and Linked Lists
- De-Queues, Priority Queues and Their Implementation, Aapplications of Queues.

UNIT– C **12 Hours**

Trees

- Description of Tree Structure and Its Terminology, Binary Search Tree
- Implementing Binary Search Tree Using Linked Lists
- Various Operations on Binary Search Trees

Heaps

- Description of Heap Structure, Implementing Heaps Using Arrays
- Various Operations on Heaps, Applications of Heaps
- Heap Sort Technique to Sort an Array

UNIT– D **11 Hours**

Graphs

- Representation of Graphs And Applications: Adjacency Matrix, Path Matrix
- Warshall's Algorithm, Linked Representation of A Graph
- Traversing aGraph, DFS and BFS.

Files

- Operations on Files, Types of Files
- File Organizations: Sequential Files, Indexed Sequential File, Directed Files and Multikey Files
- File Performance Criteria and Terms.

Reference Books:

1. LipschutzSeymour, *Theory and Problems of Data Structures*, Schaum Outline Series, New Delhi: Tata McGrawHill Book Company, 2001.
2. Mark Allen Weiss, *Data Structures and Algorithm Analysis In C* ,Mexico City:Addison Wesley, (An Imprint of Pearson Education),.New Delhi: Prentice Hall of India Pvt. Ltd, 1993.
3. Esakov Jeffery, Weiss Tom, *Data Structures: An Advanced Approach Using C*, New Delhi: Prentice Hall International, Inc, 2007.
4. Trembley and Sorenson,*An Introduction to Data Structures with Application*, New York : McGraw Hill Company, 1984.
5. Tanenbaum, *Data Structures using C,* New Delhi: Pearson Education*, 2009.*

DAV UNIVERSITY JALANDHAR

Course Title: Programming in C#
Course Code: CSA210
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: This course provides the knowledge about creating windows forms, namespaces, assemblies, handling exceptions, casting, memory management and pointers. They also learn the concepts of threads and database connectivity.

UNIT-A

Introduction to .NET Environment **10 Hours**

- .Net Architecture, The Relationship of C# To .Net , The Common Language Runtime , Advantages of Managed Code, Use of Attributes, Deployment.
- The Common Language Runtime, Framework Base Classes, User and Programs Interface, Visual Studio .NET, .NET Languages, Benefits of The .NET Approach

UNIT-B

C# Fundamentals **13 Hours**

- C# Basics , Variables , Predefined Data Types : Value Types and Reference Types , CTS Types ,Conditional Statements ,Loops , Jump Statements , Enumerations
- Arrays , Using Statement , Namespace , Aliases , The Main() Method , Multiple Main Methods , Passing Arguments To Main() . More on Compiling C# Files, Console I/O, Using Comments.
- The C# Preprocessor Directives,C# Programming Guidelines. Objects and Type: Classes and Structs, Partial Classes, Static Classes, The Object Class Inheritance: Types of Inheritance, Virtual Methods, Hiding Methods, Calling Base Versions of Functions.
- Sealed Classes and Methods, Constructors of Derived Classes , Modifiers, Interfaces , Derived Interfaces
- Differencebetween C++ and C#, Difference between Java and C#.

UNIT-C **10 Hours**

Operators and Casts

- Operator Shortcuts, The Ternary Operator, The Checked and unchecked Operators, The Is Operator , The as Operator , The Sizeof Operator , The Type of Operator , Nullable Types and Operators , The Null Coalescing Operator , Operator Precedence
- Type Safety, Type Conversions, Boxing and Unboxing , Comparing Objects For Equality , Operator Overloading , User Defined Casts.

Object oriented aspects of C#

- Classes, Objects, Inheritance, Polymorphism, Interfaces,
- Operator Overloading, Delegates, Events, Errors and Exceptions

UNIT-D **12 Hours**

I/O and Object serialization

- I/O: System. I/O, Streams, TextWriter, TextReader

Writing windows forms applications and deploying windows forms applications

- Writing Windows Forms Applications: Understanding Windows Forms, Window Form Controls,Menus, MDI Forms
- Using Inheritance In Windows Forms, Using Common Dialog Controls,
- Deploying Windows Forms Applications
- Introduction To Deployment, ClickOnce Deployment,Creating An Installation Package For Project

Reference Books

1. Nagel Christian, Evgen Bill and GiynnJay, *Professional C# 2005*, Wrox Publications, 2006
2. Dietel&Dietel , *C# How to Program*, New Delhi: Pearson Education, 2007.
3. Sharp John &JaggerJohn,*Visual C#.Net*, New Delhi: PHI, New Delhi, 2005.
4. Francisco, *Visual Studio .Net*, Microsoft Publication, 2012.
5. Jones, Bradley L, *Teach Yourself C# in 21 Days*. Sams publishing, 2001
6. Balagurusamy, E., *Programming in C#*, New Delhi:Tata McGraw-Hill (UNIT I, II),2004.

DAV UNIVERSITY JALANDHAR

Course Title: Information Systems
Course Code: CSA211
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective:To provide knowledge about the concepts and usage of different types of information systems at various managerial levels in the organizations.

UNIT-A **15 Hours**

Introduction

- Fundamental Aspects of Information, Capturing of Information, Converting Information toComputer – Readable Form, Source of Information, On–Line Information Access and Capture
- Basic Systems Concepts, Elements (Components) of System, Characteristics of System, Types of Systems, System Approach.
- Information Systems: Definition &Characteristics, Types of Information, Role Of Information in Decision - Making, Levels ofManagement
- Introduction to Different Kinds Of Information Systems: ESS, EIS, DSS, MIS,KWS, TPS, OAS And EDP.

UNIT-B **12 Hours**

Information Systems

- Categories of Information Systems, Development Life Cycle of Information System
- Technologies For Information System: Latest Trends In Hardware and Software

An overview of Management Information System

- Definition &Characteristics, Components of MIS, Frame Work for Understanding MIS: Robert Anthony's Hierarchy Of Management Activity
- Structured Vs Unstructured Decisions, Formal Vs. Informal Systems, Pitfalls In MIS Development

UNIT-C **8 Hours**

Simon's Model of Decision

- Making. DSS: Concept, Characteristics And Components, Gorry &Scott Morton Grid, Introduction to GDSS

Developing Information Systems

- Analysis & Design of Information Systems: Implementation & Evaluation.

UNIT-D **10 Hours**

Various types of information systems

- Transaction Processing Systems, Office AutomationSystems, MIS

and Decision Support System.

Functional MIS

- A Study of Marketing, Personnel, Financial and Production MIS

Case studies of the Information System

- Accounting Information Systems, Inventory Control Systems &Marketing Systems.

Reference Books

1. Laudon K.C.,*Management Information Systems*, New Delhi:Pearson 11th Ed.
2. Murdick, Robert G., & Ross, Joel E., & Claggett, James R, *Information Systems for Modern Management*, PHI,Third Edition.
3. Kanter, J, *Management Information Systems*, PHI, 3rd Ed
4. Goyal, D.P, *Management Information Systems*, Macmillan, 3rd Ed.
5. Oz, Effy, *Management Information Systems*, Thomson Press Indian Edition

DAV UNIVERSITY JALANDHAR

Course Title: Computer Networks-II
Course Code: CSA212
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
2	0	0	2	50

Course Objective: Fundamental principles as well as the critical role of performance in driving protocol and network design; it explores in detail all the critical technical areas in data communications, and protocol design.

UNIT—A **12 Hours**

Review Of Physical, Data Link Layer, TCP/IP

- Data Link Protocols
- ARP and RARP, Network Layer
- Routing Algorithms and Protocols
- Congestion Control Algorithm
- Router Operation, Router Configuration, Internetworking,
- IP Protocol, IPV 6 (An Overview), Network Layer in ATM Network

UNIT—B **7Hours**

Transport Layer

- Transport Service
- Transport Protocol (TCP, UDP, ATM AAL layer protocol).

UNIT—C **10 Hours**

Application layer:

- Security
- DNS
- SNMP
- RMON
- Electronic Mail, WWW.

UNIT—D **16 Hours**

Network Security

- Malicious Software (Virus, Life Cycle Of Virus, Trojan Horses, Worms, Zombie, Logic Bomb),
- Basic Encryption Techniques (Public Key And Secret Key Encryption),
- Firewalls (Application And Packet Filtering),
- Virtual Private Network, IP SEC (Architecture And Modes Of Operation)
- Digital Signature Standard.

Reference Books

1. Tanenbaum. Andrew S. ,*Computer Networks*, 4th Edition, New Delhi: PHI, 2013.
2. Forouzan B. A., *Data Communications and Networking*, Fourth Edition, New Delhi: Tata McGraw Hill, 2003.
3. Stalling W, *Data & Computer Communications*, New Delhi: PHI, Ninth Edition 2010.

DAV UNIVERSITY JALANDHAR

Course Title: CSA213
Course Code: Software Engineering
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: The course should provide an introduction to the fundamentals principles of software engineering. The present course should seek to equip the student with a repertoire of principles, tools and techniques and make him/her appreciate that software engineering is, after all, an exercise in making compromises.

UNIT—A **8 Hours**

Software Engineering Principles:

- How is Software Engineering an Engineering Discipline
- Information System Characteristics, Software Development Process Models,
- Life Cycle Concepts, Software Phases and Deliverables, Software Development Strategies

UNIT—B **8 Hours**

Technical Development:

- Structured Systems Analysis and Design Requirements
- Collection And Specification, Data Flow and Logical Data Modeling, Cost Benefit Analysis,
- Feasibility Study, Architectural And Detailed Design, Process, Data, Network, Control
- User Interface Designs, Physical Data Design, Dynamic Modeling for Real-Time Systems

UNIT—C **14 Hours**

Software Project Management:

- Principles Of Software Project ManagementOrganizational and Team Structure
- Project Planning, Project Initiation and Project Termination; Technical
- Quality And Management Plans, Project Controls, Cost Estimation Methods-Function Points and COCOMO, Tools
- Software Quality Management: Quality Control, Quality Assurance, Quality Standards
- Software Metrics, Verification And Validation, Testing, Quality Plans, Tools Configuration Management.

UNIT—D **15 Hours**

Software Development Method & CASE:

- Formal, Semi-Formal and Informal Methods; Data Function, and Event-Based Modeling, Some of The Popular Methodologies Such as Yourdon's SAD, SSADM Etc.
- CASE Tools, CASE Standards
- Implementation: In 3GL Environment, In 4GL Environment, In Client-Server
  Environments, Coding Styles.
- Documentation, Software Maintenance

Reference Books

1. Pressman R. S., *Software Engineering: A practitioner's Approach*, New York: McGraw Hill, Seventh Edition 2010.
2. JalotePankaj, *An Integrated Approach to Software Engineering*, New Delhi:Pearson 2010.
3. Sommerville I., *Software Engineering*, Addison –Pearson, EighthEdition 2009.

DAV UNIVERSITY JALANDHAR

Course Title: Workshop on 2D animation with Flash
Course Code: CSA214

L	T	P	Credits	Marks
0	0	4	2	50

Course Objective: These courses will Digital portfolios and Flash- Based Games and Sites making use of the Tools and Action Script in Flash.

UNIT—A

- Animation Basics
- Timeline, Frames and Key Frame

UNIT—B

- Creating a basic text animation
- Creating and Manipulating Animations
- Creating a Frame and Frame Animations

UNIT—C

- Creating Action Scrpit Movies.
- Movie Content Action Scrpit.

UNIT—D

- Embedding Video and Sound.

Reference Books

1. WatkinsAdam,*Maya A Professional Guide*,Dreamtech,first edition – 2003.
2. LottJoey and ReinhardtRobert., *Flash 8 Action Script Bible*. Delhi: Wiley India (P) Ltd.2006.
3.MeadeTom and AnimaShinsaka, *The Complete Reference Maya 6*, New Delhi: Tata MC.Graw – Hill Publishing Company Limited edition 2004.
4. HardtRobert Rein and DowdSnow , *Macromedia Flash 8 Bible*. Delhi: Wiley India Pvt Ltd.2006

DAV UNIVERSITY JALANDHAR

Course Title: Workshop on Photoshop
Course Code: CSA215

L	T	P	Credits	Marks
0	0	4	2	50

Course Objective: This course will able to understand the fundamentals of Photoshop and can able to retouch and repair, work with multiple layers, Slice and Clone, Design basic web templates and create animations

UNIT—A

- Photoshop History and Introduction
- The File Menu, The Tools, Drawing Lines and Shapes

UNIT—B

- Inserting Picture and Shapes, Filling Colors
- Text Effects
- Working with Layers
- Filters

UNIT—C

- Creating design patterns, Photoshop presentations static and dynamic
- Web and web Gallery using internet explorer in Photoshop
- Congestion Control Algorithms, IP Protocol

UNIT—D

- Creating animations using image ready, creating animations and presentations

Reference Books

1. Brie Gyncild,*Adobe Photoshop CS6 in Classroom*, Delhi: Wiley Publications.
2. *Adobe Photoshop classroom in a Book*, Delhi: Adobe Press,2012.

DAV UNIVERSITY JALANDHAR

Course Title: Programming in C# Laboratory
Course Code: CSA216

L	T	P	Credits	Marks
0	0	4	2	50

- Implementation of OOPs Concepts
- Namespaces
- Array and Strings
- Structures and Enumerations
- Delegates and Events
- Exception Handling

DAV UNIVERSITY JALANDHAR

Course Title: Internet Applications
Course Code: CSA301
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective:

- Describe The Evolution of The Internet
- Understand The Protocols and Standards Used Throughout The Internet
- Discuss a Variety of Internet and WWW Applications and Related Technologies
- Evaluate The Opportunities and Threats Created By Interconnecting Computers Via The Internet

UNIT—A **13 Hours**

Evolution Of The Internet

- Growth of The World Wide Web.
- Client-Server Model.
- Architecture of The Intranet/ Internet /Extranet.
- Access Methods: Dialup, Isdn, Adsl/2+, Cable, Lan, Wifi, Mobile Satellite.
- Proxy Servers.
- Application Areas: E-Commerce, Education,
- Entertainment such as Games and Gambling.
- Portals, Discussion Forums, Weblogs, Podcasting,Rss / Atom, Wiki, Voip, Video on Demand.
- Search Engines, Webbots, Integrity of Information, Databases Online.

UNIT—B **11 Hours**

Application Layer

- URL
- TCP/IP Fixed and Dynamic IP Addressing.
- Role of DNS.
- Email: Email Clients, Server and Gateways; SMTP,POP3, IMAP & Webmail.
- File Transfer – FTP.
- Remote Login – Telnet.
- WWW – HTTP and HTTPS.
- Role of W3C.
- Accessibility. , Mobile Computing, Wireless, 3G, GPS.

UNIT—C **13Hours**

Static and dynamic HTML.

- Fluency in At Least one of The Following Client-Side Scripting Languages: Javascript or VBscript.
- DOM Model, Style Sheets, CSS and XSL.
- Development Tools: Page And Site Authoring, Delivery And Maintenance Tools.
- Multimedia Content: Text, Graphics, Sound, Animation and Video - Performance and Quality Issues; Streaming.
- Hosting Choices and Issues. Usability Issues.

8 Hours

UNIT—D

Security Policies/Privacy

- Identification/Authentication/Access Control.
- Hardware and Software, Risk Assessment, Vulnerabilities.
- Threats and Attack Methods auch as Viruses, Spam, Root Kits, "Phishing", Firewalls – Spyware Plug-Ins.
- Performance: Speed, Reliability, Downtime, Bandwidth.

Reference Books

1. Bates, C., *Web Programming: Building Internet Applications*, John Wiley and Sons (3rd Ed), 2006.
2. Hofstetter, F.T., *Internet Literacy*, New York:McGraw Hill , 2005.

DAV UNIVERSITY JALANDHAR

Course Title: Core JAVA
Course Code: CSA302
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: To provide the advanced Knowledge about OOPS

UNIT—A

An overview of Java **15 Hours**

- Object Oriented Programming, Two Paradigms
- Abstraction, The, OOP Principles, Java Class Libraries
- Date Types, Variables And Arrays:-Integers, Floating-Point Types, Characters, Boolean, Iterates, Variable, Data Types And Casting
- Automatic Type Promotion in Expressions Arrays.
- Operators: Arithmetic Operators, Bit Wise Operators, Relational Operators
- Boolean Logical Assignment Operators, The? Operator, Operator Precedence ControlStatements
- Java's Selection Statements, Iteration Statements, Jump Statements
- Introduction to Classes: Class Fundamentals, Declaring Object Reference Variable

UNIT—B **10 Hours**

Introducing Methods

- Constructors, The Key Word, Garbage Collection, The Finalize () Method
- Methods And Classes :-Overloading Methods, Using Objects As Parameters,Recursion

Inheritance:

- Inheritance Basics, Using Super, Method Overriding, Dynamic MethodDispatch
- Using Abstract Classes, Using Final With Inheritance, Package and Interfaces
- Package Asses Protection, Importing Packages

UNIT—C **10 Hours**

Exception Handling:

- Exception Handling Fundamentals., Exception Types
- Uncaught Exceptions Using Try and Catch, Multiple Catch Clauses, Nested Try Statements Throw
- Finally Java Built in Exception Creating Your own Exception Sub Classes, Using Exceptions

Multithreaded Programming:

- The Java Thread Model, The Main Thread, Creating Thread, Creating Multiple Thread, Using Is Alive () and Join ()

UNIT—D **10 Hours**

String Handling:

- The String Constructor, String Length, Special String Operator Character
- Extraction, String Comparison, Searching String, Modifying String, Data

Conversion

The Applet Class:

- Its Architecture Displays Methods. The HTML APPLET.
- Passing Parameters to Applet. The Get Documentation Base () and Get Code Base () Methods
- Applet Context And Show Document ()

Reference Books

1. EckelBruce ,*Thinking in Java*, Pearson Education, Fourth Edition, 2006.
2. Schildt Herbert, *The Complete Reference Java 2*, New Delhi: TMH, 2005.
3. Balagurusami E, *Programming In Java*, New Delhi: Tata McGraw Hill Fourth Edition.
4. BayrossIvan, *Advance Java*, New Delhi:BPB Publications.
5. *Mastering Java*, New Delhi:BPB Publications,Second Edition.

DAV UNIVERSITY JALANDHAR

Course Title: Operating Systems
Course Code: CSA303
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: Understand the overall architecture of the operating system and its main components, Functions of Kernel, file system architecture and implementation, concurrent programming and concurrency.

UNIT—A **9 Hours**

Introduction To Operating System

- Computer System Structure
- Operating System Structure
- Process Management

UNIT—B **12 Hours**

CPU Scheduling

- Process Synchronization
- Deadlocks

UNIT—C **12 Hours**

Memory management

- Paging and Segmentation Virtual Memories
- I./O System and Secondary Storage Structure

UNIT—D **12 Hours**

Protection and Security

- Introduction to multiprocessor and distributed operating systems

Case Studies:

- LINUX
- UNIX Operating System with SOLARIS
- SCO-UNIX

Reference Books

1. Galvin and Silberschatz A.,*Operating System Concepts*, Eigth Addition, New York: J. Wiley & Sons, 2009.
2. Crowley, *Operating Systems: A Design Oriented Approach*, New Delhi: Tata McGraw Hill, 2008.
3. Donovan J.J,*Systems Programming*, New York: McGraw Hill, 1972.
4. Dhamdhere. D.M, *System Programming and Operating Systems*, New Delhi: Tata McGraw Hill, 1999.
5. Madnick and Donovan, *Operating System*, New York: McGraw Hill, 1978.
6. Beck Leland L., *System Software*, Delhi: Pearson Education, 2000.
7. Henson P.B., *Operating System Principles*, Delhi: Prentice Hall
8. Tenenbaum A.S., *Operating System: Design and Implementation*, New Delhi: PHI, 2013.

DAV UNIVERSITY JALANDHAR

L	T	P	Credits	Marks
2	0	0	2	50

Course Title: e-Commerce
Course Code: CSA304
Course Duration: 45-60 Hours

Course Objective: The course provides the knowledge about Business transactions using new technologies.

UNIT—A **10 Hours**

- Introduction to Electronics Commerce.
- Defining Electronics Commerce, Forces Fueling Electronics Commerce.
- Electronics Commerce Industry Frame Work, Types of Electronics Commerce.
- World Wide Web and Its Applications:-Brief History and Introduction of WWW, The Web and The Electronicscommerce.
- Key Concepts Behindweb, Web and Database Integration, Websoftware Development Tools (HTML, XML, UML, Java Script, VB Script, ASP, JSP).
- Multimedia Web Extensions (VRML, Real Audio, Internet and Web Based Tech3. Firewalls and Transaction Security.

UNIT—B **15 Hours**

- Introduction to Firewalls and Network Security (Types, Policies and Management).
- Transaction Security, Encryption and Transaction Security, The Comparison of Encryption Methods.
- Security in WWW (Netscape's Secure Socket Layer, Security and Online Web Based Banking).
- Electronic Payment Systems :-Overview of the Electronics payment technology.
- Electronics cash, Electronics checks, online credit cards based system
- Other emerging financial instruments.

UNIT—C **13 Hours**

- Electronics Commerce and banking ,Home Banking
- Banking via the PC using Internet/Intranet, Banking via online services, Banking via Web.
- Electronics Commerce and Retailing, Changing Retail industry dynamics and technology improvements in Electronics retailing, Mercantile models from consumers perspective , Directories and search engines.
- Supply Chain Management Fundamentals and Management of Supply Chains, Supply Chain Application Software Ad Its Future.

UNIT—D **7 Hours**

- Roadmaps to E-Business
- Challenges and strategy creation, Roadmaps to E-Business
- Translating E-Business strategy into action

- Beginning of a virtual factor
- E-business blueprint creation, E-Business project planning checklist, an execution blueprint.
- Failures of E-Business Initiatives.

Reference Books

1. KalkotaRavi, *E-Business - Roadmap for success*, Mexico City:Addison Wesley (Pearson Education Asia),2000.
2. KosiurDavid, *Electronic Commerce*, Microsoft Press,2007.
3. Kalakota Ravi and Andrew B. Whinston, *Electronic Commerce*, Mexico City:Addison Wesley,2007.

DAV UNIVERSITY JALANDHAR

Course Title: System Analysis and Design
Course Code: CSA305
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective: The course has been designed to provide a solid foundation of systems principles and an understanding of how business functions, while heightening students to the issues analysts face daily.

UNIT—A **10 Hours**

Introduction

- System Definition And Concepts: Characteristics and Types of System, Manual and Automated Systems

Real-Life Business Sub-Systems:

- Production, Marketing, Personal, Material, FinanceSystems Models Types Of Models: Systems Environment And Boundaries, Real-Time And Distributed Systems, Basic Principles Of Successful Systems

Systems analyst

- Role and need of systems analyst ,Qualifications and responsibilities ,SystemsAnalyst as an agent of change

System Development cycle

- Introduction to systems development life cycle (SDLC) : Various phases of development :Analysis, Design, Development,Implementation and Maintenance

UNIT—B **13 Hours**

Systems Documentation Considerations:

- Principles of Systems Documentation
- Types of Documentation and Their Importance,Enforcing Documentation Discipline In an organization.
- System Planning, Data and Fact Gathering Techniques: Interviews, Group Communication,Presentations, Site Visits.
- Feasibility Study and Its Importance, Types of Feasibility Reports
- SystemSelection Plan and Proposal.

Prototyping

- Cost-Benefit and analysis: Tools and techniques

Systems Design and modeling

- Process Modeling, Logical and Physical Design, Design Representation, Systemsflowcharts And Structured Charts
- Data Flow Diagrams, Common Diagramming Conventions and Guidelines Using DFD and ERD Diagrams.
- Data Modeling and Systems Analysis , Designing The Internals: Program And Process Design
- Designing Distributed Systems.

UNIT—C **12 Hours**

Input And Output

- Classification of Forms: Input/Output Forms Design,

- User-Interface Design, Graphical Interfaces
- Modular and Structured Design Module Specifications
- Module Coupling and Cohesion, Top-Down and Bottom-UpDesign .

System Implementation And Maintenance

- Planning Considerations, Conversion Methods, Producers and Controls
- Systemacceptance Criteria, System Evaluation and Performance,
- Testing and Validation
- Systems Qualify Control and Assurance
- Maintenance Activities and Issues.

UNIT—D **10 Hours**

System Audit and Security

- Computer system as an expensive resource: Data and Strong media
- Procedures and norms for utilization of computer equipment, Audit of computer systemusage, Audit trails.
- Types of Threats to Computer System and Control Measures: Threat To Computer System and Control Measures, Disaster Recovery and Contingency Planning

Object Oriented Analysis and design

- Introduction to Object Oriented Analysis and Design Life Cycle, Object Modelling
- ClassDiagrams, Dynamic Modeling: State Diagram, Dynamic Modeling:Sequence Diagramming.

Reference Books

1. AwadElias M., *System Analysis and Design,*the University of California:R.D. Irwin,1985
2. Perry Edwards , *System Analysis and Design , New York:*Mitchell McGraw-Hill, 1993
3. James A.Senn , *Analysis and Design of Information Systems,* Tata McGraw-Hill, 2009

DAV UNIVERSITY JALANDHAR

Course Title: Workshop on 3D Modelling
Course Code: CSA306

L	T	P	Credits	Marks
0	0	4	2	50

Course Objective:

UNIT—A

- Basic concepts of 3d studio max: Introduction to space, concepts of time, rendering options. THE MAX INTERFACE, Accessing commands in the menu bar, Accessing features in the shelf area, The command panel, Navigating in view ports,· using specialized user interface tools

UNIT—B

- **ANIMATION KEYS:** Concepts Of Time In Animation, Working With The Max Animation Tool, Getting Started The Animation In Max, Using Controllers To Animate, Using The Track View To Animate, Using Dummy Objects, Animating Hierarchies, Working In Character Studio

UNIT—C

- Basic Materials, Understanding Cg Shading, Multi-Media Technology & D.T.P, Mastering The Material Editor, Understanding Common Material Types, Map Types· Raytrace Materials, Creating Mat/Shadow Materials, Building Compound Materials, New Materials Features In R3 Camera Mapping 23

UNIT—D

- ADDING COLOR AND LIGHT: Understanding Color Model, Exploring The Color And Light Tools In Max, Setting Your Light Parameters, Simulating Light And Color In 2d, Designing Your Lighting

Reference Books

1. MurdockKelly L., *3ds maxTM 4 Bible*,New York: John Wiley & Sons
2. SteedPaul, *Modeling a Character in 3DS Max*, Wordware Publishing;
3. DubedaLukas, *3ds Max 2010 Architectural Visualization - Advanced to Expert*, 3DATS, 2009
4. Kelly L. Murdock, *3ds Max 2010 Bible* , New York: Wiley,2009

DAV UNIVERSITY JALANDHAR

Course Title: Internet Applications Laboratory
Course Code: CSA307

L	T	P	Credits	Marks
0	0	4	2	50

- HTML tags
- DHTML: CSS Style Sheets
- JavaScript basics, constructs and functions
- VBScripting basics, constructs and functions

DAV UNIVERSITY JALANDHAR

Course Title: Core JAVA Laboratory
Course Code: CSA308

L	T	P	Credits	Marks
0	0	4	2	50

- Implementation of OOP concepts using JAVA
- Packages and Interfaces
- Exception Handling
- Applets
- AWT classes

DAV UNIVERSITY JALANDHAR

Course Title: Computer Graphics and Multimedia
Course Code: CSA309
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Objectives: The objective of the study is to let students understand basics of computer graphics, Input/output primitive and basic transformations, which can be applied on objects of graphics.

UNIT – A **10 Hours**

Overview of Graphics Systems

- Video Display Devices
- Raster Scan Systems, Random Scan Systems.
- Graphics Monitors and Workstations,
- CRT Monitors (Random – Scan and Raster Scan, DVST, Plasma – PanelDisplay
- LED and LCD Monitors.

UNIT-B **10 Hours**

Scan Conversion

- Scan Conversion Algorithms For Line, Circle and Ellipse
- Effect of Scan Conversion
- Bresenham's Algorithms for Line and Circle Along with Their Derivations
- Midpoint Circle Algorithm, Area Filling Techniques, Flood Fill Techniques Character Generation

UNIT – C **15Hours**

Two Dimensional Transformations

- Basic Transformations,Ceiling, Translation, Rotation, Deflection,
- Skew Matrix representation of Basic transformations
- Homogenous Coordinates

Composite Transformations.

- Windowing and Clipping, Windowing Concedes, Clipping and its Algorithms.
- Window–to–View Port Transformations
- Three Dimensional Concepts
- 3 D Coordinate Systems
- 3 D transformations:Translation, Scaling, Rotation
- Projections: Parallel Projections, Perspective Projection

UNIT – D **10 Hours**

Technology System Components

- Multimedia Platforms
- Development Tools, Image, Audio
- Video, Storage for Multimedia, Communications

Applications

- Multimedia in the Real World, Training and Education, Image Processing

Reference Books:

1. D. Hearn and M.P. Baker, *Computer Graphics*(2nd ed.), New Delhi: Prentice–Hall of India, 2004.
2. Foley. J.D., Dam A van, FeinerS.K. andHughes J.F., *Computer Graphics: Principals and Practices*(2nd ed.), Addison-Wesley, MA, 1990.
3. Rogers D.F., *Procedural Elements in Computer Graphics (2nd ed.),* New Delhi:McGraw Hill Book Company, 2001.
4. PlastockRoy A., KalleyGordon,*Computer Graphics*, New Delhi: McGraw Hill Book Company, 1996,

DAV UNIVERSITY JALANDHAR

Course Title: Web Engineering using ASP.NET
Course Code: CSA310
Course Duration: 45-60 Hours

L	T	P	Credits	Marks
4	0	0	4	100

Course Objective:

- To build web applications using ASP and client side script technologies use with Microsoft's IIS.
- To build XML applications with DTD and style sheets that span multiple domains ranging from finance to vector graphics to genealogy for use with legacy browsers.

UNIT—A **12 Hours**

Introduction to Three-Tier Architecture

- Overview of .NET Framework , Common Language Runtime (CLR)
- The .NET Framework Class Library, familiarization with visual studio .NET IDE, Design Window, Code Window, Server.
- Explorer, Toolbox, Docking Windows, Properties Explorer, Solution Explorer, Object Browser, Dynamic Help, Task List Explorer.
- Features of VS.NET, XML Editor, Creating a Project, Add Reference, Build the Project, Debugging a Project.

UNIT—B **7 Hours**

Introducing C# Programming

- Introduction, Basic Language Constructs, Types (Reference and Value, Relations Between Types)
- Delegates, Generics, Collections
- Strings , Exceptions, Threads , Networking

UNIT—C **13 Hours**

Windows Forms, Adding Controls

- Adding An Event Handler, Adding Controls at Runtime
- Attaching An Event Handler at Runtime, Writing a Simple Text Editor, Creating a Menu Adding a New Form,
- Creating a Multiple Document Interface, Creating a Dialog Form Using form Inheritance, Adding a Tab-Control, Anchoring Controls,
- Changing the Startup Form, Connecting The Dialog, Using Listview and Treeview Controls,
- Building an Image list and add Them To The Listview, Using Details inside The Listview,
- Attaching A Context Menu, Adding a Treeview, Implementing Drag And Drop, Creating Controls at Run Time, Creating a User Control, Adding a Property, Adding Functionality,
- Writing aCustom Control, Testing the Control.

UNIT—D **13 Hours**

ADO.NET Architecture

- Understanding the Connectionobject
- Building the Connection String, Understanding the Commandobject,
- Understanding Datareaders,Understanding Datasets and Dataadapters, Datatable, Datacolumn, Datarow
- Differences between Datareader Model and Dataset Model, Understanding the Dataviewobject, Working with System.Data.Oledb
- Using Datareaders, Using Datasets, Working with SQL.NET, Using Stored Procedures, Working With Odbc.NET, Using DSN Connection

Introducing The ASP.NET Architecture

- ASP.NET Server Controls, Working with User, Controls, Custom Controls, Understanding the Web.Config File, Using the Global.asax Page

Reference Books

1. Paul J. Deitel and Harvey M. Deitel, *C# 2010 for Programmers*, Forth Edition New Delhi: Pearson 2010.
2. ImarSpaanjaars, *Beginning ASP.NET 4: in C# and VB (Wrox)*, Paperback Edition, 2010.
3. George Shepherd, *Microsoft ASP.NET 4 Step by Step (Microsoft)*, Paperback Edition, 2010.
4. Scott Mitchell, *Teach Yourself ASP.NET 4 in 24 Hours*, Complete Starter Kit.

DAV UNIVERSITY JALANDHAR

Course Title: Computer Graphics Laboratory
Course Code: CSA311

L	T	P	Credits	Marks
0	0	4	2	50

Implementation of Graphics Functions

- Algorithms Implementation (line, circle, ellipse)
- 2D transformation Implementation

DAV UNIVERSITY JALANDHAR

Course Title: Web Engineering using ASP.NET Laboratory

Course Code: CSA312

L	T	P	Credits	Marks
0	0	4	2	50

- Implementation of OOP concepts using C#
- Using input and output statements
- Using control statements.
- Designing Windows forms, adding components
- Database Connectivity using ADO