Study & Evaluation Scheme

of

Diploma in Computer Science & Engineering

Lateral Entry

[Applicable w. e. f. session 2017-18 till revised]

TEERTHANKER MAHAVEER UNIVERSITY
Delhi Road, Moradabad, Uttar Pradesh-244001
Website: www.tmu.ac.in

TEERTHANKER MAHAVEER UNIVERSITY

(Established under Govt. of U. P. Act No. 30, 2008)
Delhi Road, Moradabad (U.P)

Study & Evaluation Scheme
of
Diploma in Engineering (Computer Science - Lateral)
SUMMARY

Programme	:	**Diploma in Engineering Lateral Entry**
Duration	:	**2 Years (Semester system)**
Medium	:	**English/Hindi**
Minimum Required Attendance	:	75 %

Assessment (Theory and Project) :

Internal	External	Total
30+10 (Project)	60	100

Maximum Credit : **120**

Minimum Credit Required for the degree : **116**

Internal Evaluation (Theory Papers & Project) :

Class Test I	Class Test II	Class Test III	Class Quiz/Assign /Project	Attendance	Grand Total
Best two out of the three					
10 Marks	10 Marks		10 Marks	10 Marks	40 Marks

Evaluation of Practical/ Dissertation & Project Report :

Internal	External	Total
50	50	100

Duration of Examination :

Internal	External
1 ½ hrs.	3 hr.

To qualify the course a student is required to secure a minimum of 45% marks in aggregate including the semester-end examination and teachers' continuous evaluation. (i.e. both internal and external).

A candidate who secures less than 45% of marks in a course shall be deemed to have failed in that course. The student should have at least 45% marks in aggregate to clear the semester.

Question paper structure

1. *The question paper shall consist of 6 questions. Out of which first question shall be of short answer type (not exceeding 50 words) and will be compulsory. Question No. 1 shall contain 8 parts representing all units of the syllabus and students shall have to answer any five (weightage 2 marks each).*
2. *Out of the remaining 5 questions, the long answer pattern will have internal choice with unit wise questions with internal choice in each unit. In units having numerical, weightage and information should be available in the syllabus & the paper pattern. The weightage of question No.2 to 6 shall be 10 marks each.*

Study & Evaluation Scheme
Program: Diploma in Computer Science Engineering – Lateral Entry
Semester-III

S. No.	Course Code	Subject	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	DCS301	Operating System	3	2	-	4	40	60	100
2	DCS302	Computer Programming in C	3	2	-	4	40	60	100
3	DCS304	Software Engineering	3	2	-	4	40	60	100
4	DEC301	Digital Electronics	3	2	-	4	40	60	100
5	DIP399	English Communication & Soft Skills – III	3	-	2	4	50	50	100
6	DCS351	Operating System Lab (Linux)	-	-	4	2	50	50	100
7	DCS352	C Programming Lab	-	-	4	2	50	50	100
8	DEC351	Digital Electronics Lab	-	-	4	2	50	50	100
Total			**15**	**8**	**14**	**26**	**360**	**440**	**800**

***Additional course for Lateral entry students with Intermediate background to be taken in III Semester & course should be passed with minimum of 45% marks: credits will not be added.**

1	DIP359*	Concept of Information System Lab	-	-	3	-	50	50	100

Semester-IV

S. No.	Course Code	Subject	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	DCS401	Data Structures Using C	3	2	-	4	40	60	100
2	DCS403	Computer Organization & Microprocessor	3	2	-	4	40	60	100
3	DCS404	Management Information System	3	1	-	4	40	60	100
4	DCS406	Object Oriented Programming in C++	3	1	-	4	40	60	100
5	DCS407	Computer Network	3	1	-	4	40	60	100
6	DIP499	English Communication & Soft Skills – IV	3	-	2	4	50	50	100
7	DCS451	Data Structures Using C Lab	-	-	4	2	50	50	100
8	DCS453	Computer Organization & Microprocessor Lab	-	-	4	2	50	50	100
9	DCS456	Object Oriented Programming in C++ Lab	-	-	3	2	50	50	100
10	DCS457	Computer Network Lab	-	-	3	2	50	50	100
Total			**18**	**7**	**16**	**32**	**450**	**550**	**1000**

Semester-V

S. No.	*Course Code*	*Subject*	*Periods*			*Credit*	*Evaluation Scheme*		
			L	*T*	*P*		*Internal*	*External*	*Total*
1	DCS501	Computer Graphics	3	2	-	4	40	60	100
2	DCS502	Java Programming	3	2	-	4	40	60	100
3	DCS503	Multimedia	3	1	-	4	40	60	100
4	DCS506	Database Management System	3	2	-	4	40	60	100
5	DIP502/ DIP503❖	Industrial Ecology/ Environment Studies	4	-	-	4	40	60	100
6	DCS551	Computer Graphics Lab	-	-	4	2	50	50	100
7	DCS552	Java Programming Lab	-	-	4	2	50	50	100
8	DCS553	Multimedia Lab	-	-	3	2	50	50	100
9	DCS555	Industrial Training	-	-	-	4	50	50	100
10	DCS556	Database Management System Lab	-	-	4	2	50	50	100
Total			**16**	**7**	**15**	**32**	**450**	**550**	**1000**

Semester-VI

S. No.	*Course Code*	*Subject*	*Periods*			*Credit*	*Evaluation Scheme*		
			L	*T*	*P*		*Internal*	*External*	*Total*
1	DCS601	Web Technology	3	2	-	4	40	60	100
2	DCS602	E-Commerce	3	2	-	4	40	60	100
3	DCS603	Visual Basic .Net	3	2	-	4	40	60	100
4	DIP602	Industrial Economics & Principles of Management	3	2	-	4	40	60	100
5	DIP604/ DIP603❖	Environment Studies/ Industrial Ecology	4	-	-	4	40	60	100
6	DCS651	Web Technology Lab	-	-	6	3	50	50	100
7	DCS652	Major Project	-	-	-	4	50	50	100
8	DCS653	Visual Basic .Net Lab	-	-	6	3	50	50	100
Total			**16**	**8**	**12**	**30**	**350**	**450**	**800**

❖Subject can be taught either in Vth or VIth Semester.

OPERATING SYSTEM
Third Semester

Course Code: DCS301	**L**	**T**	**P**	**C**
Course Contents:	**3**	**2**	**-**	**4**

Unit I

Introduction: Operating System and function, evolution of operating system, batch, interactive, time sharing and real time system, system protection, operating system structure, system components, operating system services. **(Lectures 08)**

Unit II

Concurrent Processes: process concept, principle of concurrency, producer / consumer problem, critical section, problem, semaphores, classical problems in concurrency, inter processes communication, process scheduling. **(Lectures 08)**

Unit III

CPU Scheduling: Scheduling concept, performance criteria scheduling algorithm, multiprocessor scheduling.

Deadlock: System model, deadlock characterization, prevention, avoidance and detection, recovery from deadlock. **(Lectures 08)**

Unit IV

Memory Management: basic machine, resident monitor, multiprogramming with fixed partition, multiprogramming with variable partition, multiple base register, paging, segmentation, paged segmentation, virtual' memory concept, demand paging, performance, paged replaced algorithm. **(Lectures 08)**

Unit V

I/O Management & Disk Scheduling: I/O devices and organization of I/O function, I/O buffering, disk I/O, operating system design Issues.

File System: file concept, file organization and access mechanism, file Principalies, file sharing. **(Lectures 08)**

The question paper shall have weightage to case study 20% and to theoretical 80%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Book:

1. Milenekovie, *"Operating System Concept",* McGraw Hill, Delhi.
2. Petersons, *"Operating Systems",* Addision Wesley.
3. Dietal, *"An Introduction to Operating System",* Addision Wesley.
4. Tannenbaum, *"Operating System Design and Implementation",* PHI, Delhi.
5. Gary Nutt, *"Operating System, A Modern Perspective"*, Addision Wesley.

References Books:

1. Stalling, *Willium, "Operating System",* Maxwell Macmillan.
2. Silveschatza, Peterson J, *"Operating System Concepts",* Willey.
3. Crowley, *"Operating System*", TMH, Delhi.

***Latest editions of all the suggested books are recommended.**

COMPUTER PROGRAMMING IN 'C'

Third Semester

Course Code: DCS302	**L**	**T**	**P**	**C**
Course Contents:	**3**	**2**	**-**	**4**

Unit I

Algorithm and Programming Development steps in development of a program, flow charts, algorithm development, program debugging.

Program Structure: - I/O statements, assign statements. Constants, variables and data types, operators and expressions, standards and formatted, use of header & library files.

(Lectures 08)

Unit II

Control Structures: Introduction, decision making with IF – statement, IF – Else and Nested IF, While and do-while, for loop, break and switch statements.

Functions: Introduction to functions, global and local variables, function declaration, standard functions, parameters and parameter passing, call – by value/reference, recursion.

(Lectures 08)

Unit III

Introduction to Array: Array declaration and initialization, single and multidimensional array, arrays of characters. **(Lectures 08)**

Unit IV

Pointers: Introduction to pointers, address operator and pointers, declaring and initializing pointers, assignment through pointers.

Structures and Unions: Declaration of structures, accessing structure members, structure initialization, unions. **(Lectures 08)**

Unit V

Strings: Introduction, declaring and initializing string variables, reading and writing strings, string handling functions, array of strings.

Files: Introduction, file reading/writing in different modes, file manipulation using standard function types. **(Lectures 08)**

The question paper shall have weightage to case study 80% and to theoretical 20%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Salaria RS*, Application Programming in C*, Khanna Book Publishing Co (P) Ltd. New Delhi.
2. Schaum Series*, Programming in C*, McGraw Hills Publishers, New York.

References Books:

1. Yashwant Kanetkar, *Exploring* – BPB Publications, New Delhi.

***Latest editions of all the suggested books are recommended.**

SOFTWARE ENGINEERING
Third Semester

Course Code: DCS304	**L**	**T**	**P**	**C**
Course Contents:	**3**	**2**	**-**	**4**

Unit I
Introduction to software engineering, importance of software, the evolving role of software, software characteristics, software components, software applications, software crisis, software engineering problems, software development life cycle, software process.
(Lectures 08)

Unit II
Water Fall Model, The Incremental Model, Prototyping, Spiral Model, role of management in software development.
Design Principles: problem partitioning, abstraction, and top down and bottom up-design, structured approach, functional versus object oriented approach, cohesion, coupling.
(Lectures 08)

Unit III
Programming Approaches: structured programming, programming style and internal documentation, testing, types of testing, levels of testing, life cycle, test plan, verification & validation, debugging. **(Lectures 08)**

Unit IV
The Management Spectrum: The people, the product, the process, the project, cost estimation, project scheduling, staffing, software configuration management, maintenance and its types, quality assurance plan, project monitoring, risk management.
(Lectures 08)

Unit V
Reliability: reliability metrics, reliability growth modeling, software quality, ISO 9000 certification for software industry, SEI capability maturity model, comparison between ISO & SEI CMM. CASE and its Scope, CASE support in software life cycle, documentation, project management, reverse software engineering, architecture of CASE environment.
(Lectures 08)

The question paper shall have weightage to case study 10% and to theoretical 90%.

Project work
A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Pressman, Roger S., "Software Engineering: A Practitioner's Approach", McGraw Hill, Delhi.
2. Jalote, Pankaj, "Software Engineering", Narosa, Delhi.
3. Schaum's Series, "Software Engineering", TMH, Delhi.
4. Alexis, Leon and Mathews Leon, "Fundamental of Software Engineering", Vikas Publications, Delhi.

Reference Books:

1. Sommerville, Ian, "Software Engineering", AWL
2. Bell, "Software Engineering for students", Pearson Education, Delhi.
3. Govil Kapil, Beginner Computer Science Software Engineering", Selective & Scientific Books, ISBN 81 – 89128 – 07 – 8.

***Latest editions of all the suggested books are recommended.**

DIGITAL ELECTRONICS
Third Semester

Course Code: DEC301	**L**	**T**	**P**	**C**
Course Contents:	**3**	**2**	**-**	**4**

Unit I

Introduction: Define digital and analog signals and systems, difference between analog and digital signals, need of digitization and applications of digital systems.

Number System: Decimal, Binary, Octal, and Hexadecimal systems; Binary arithmetic, BCD and Gray code, Boolean algebra and the 'Demerger's Theorems. **(Lectures 08)**

Unit II

Logic Gates: BUFFER, NOT, AND, OR, NAND, NAND, NOR, X-OR, and X_NOR gates.

Combinational Logic Circuits: SOP and POS forms, reduction and inter conversion of forms, logic design using K maps. **(Lectures 08)**

Unit III

Adder & Subtract or circuits: Half adder, full adder, half subtractor, full subtractor, design of all these circuits using discrete gates.

Flip-Flops: RS flip-flop, J-K, D-flip-flop, T-flip-flops; Racing problem and the Master-Slave J-K flip-flop. **(Lectures 08)**

Unit IV

Counters: Asynchronous Counter, 4-bit Asynchronous counters, Asynchronous decade counter , synchronous counters, 4-bit synchronous binary counters, UP/Down Asynchronous counters, divide by n counter MOD-3, MOD-5, MOD-7 , MOD-12 counter, Ring counter, cascaded counter, counter applications. **(Lectures 08)**

Unit V

Shift Registers: Shift register functions, SIPO, SISO, PIPO, and PISO register, universal shift register, shift register counter and applications, Multiplexers, demultiplexers; decoders and encoders. **(Lectures 08)**

The question paper shall have weightage to numerical/case study 70% and to theoretical 30%.

Project work

A project work will be assigned to students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Malvino & Leach "*Digital Principles and Applications*", Tata McGraw Hill, Delhi.
2. Gayakwad R.A. "*Op-Amps and Linear Integrated Circuits*", Prentice Hall of India, Delhi.

Reference Books:

1. Taub & Schilling *"Digital Electronics*", Tata McGraw Hill, Delhi.
2. Nagrath IJ. "*Electronics Analog and Digital*", Prentice Hall of India Ltd Delhi.
3. Jain R.P. "*Modern Digital Electronics*", Tata McGraw Hill Delhi.

***Latest editions of all the suggested books are recommended.**

ENGLISH COMMUNICATION & SOFT SKILLS-III

(For All Undergraduate & Diploma Courses)

Third Semester

Course Code-DIP399	**L**	**T**	**P**	**C**
Course Content	**3**	**-**	**2**	**4**

Objective: To learn job oriented, Presentation and Interview skills and business correspondence.

Module -1: Functional Grammar-II (8 Lectures)

a) Sentence construction: Simple, Complex and Compound.
b) Application writing.
c) Paragraph writing, essay writing and précis writing.
d) Pre-testing of oral and writing skills.
[Note: As part of classroom activity, Review and recap of last semester and update progress of each student refer Module 3 of Workbook]

Module-2: Professional Skills (14 Lectures)

a) Bio-data, CV and resume writing.
b) Joining Letter, Cover Letter & Resignation letter.
c) Inter-Office Memo, Formal Business Letter, Informal Notes.
d) Minutes of the Meeting, Reporting Events, Summary Writing.
[Note: As part of classroom activity, use of standard templates and scenario buildings, practice sessions in classroom and homework assignments, refer to Workbook]

Module -3: Presentation Skills (10 Lectures)

a) Power-point presentations & presentation techniques.
b) Body language.
c) Describing people, places and events.
d) Extempore speech and just-a minute session.
[Note: As part of classroom activity, practice sessions carried out in class on different topics of the domain expertise, refer to Workbook]

Module -4: Interview Skills (8 Lectures)

a) Developing skill to (a) Debate (b) Discussion, Basics of GD & styles of GD.
b) Discussion in groups and group discussion on current issues.
c) Steps to prepare for an interview and mock interviews.
[Note: As part of classroom activity, language games, extensive coverage of contemporary issues for GDs, facing mock interview sessions with faculty, respective TPOs and Director CRC]

Third Semester Outcome:

1. Considerable improvement in student's progression in terms of LSRW to be noted.
2. Students will improve their writing skills for official communication.
3. Students will be able to give presentation and extempore speech on select topics.
4. Students will be able to discuss among peers and participate in group discussions on current issues.

Evaluation & Assessment: Students will be evaluated on all the four parameters of LSRW

External Exam	*Internal Assessment*	*Total*
50	50	100

Internal Assessment: 50

Best 2 out of Three CTs	*Attendance*	*Workbook Assignments & Viva*	*Total*
20	10	10+10	50

Viva to be carried out by external English faculty from within the university

External Assessment: 50

PRACTICAL EXAM*	VIVA	TOTAL
25 Marks	25 Marks	50 Marks

(The external evaluation would be done by an external examiner based on the PracticalExam and viva conducted during the examination. External examiner will be the English faculty from within the university)

*** Practical Exam Paper Structure: (One Hour Duration)**
Question paper should consist of four questions out of which the first question will be objective type of 10 marks. Other three question will be long, each of 05 marks.

Reference Books:

1. ILFS Bi-lingual Course in Basic English, ILFS Skill Development Corporation.
2. Communication Skills for Engineers and Scientists by Sangeeta Sharma & Binod Mishra, PHI Learning Private Limited, New Delhi.
3. Professional Communication by Malti Agarwal, Krishna Prakashan Media (P) Ltd., Meerut.
4. Communication Skills by Sanjay Kumar &PushpLata, Oxford University Press.
5. The Business letters by Madan Sood, Goodwill Publishing House, New Delhi.

OPERATING SYSTEM LAB (LINUX)

Third Semester

Course Code: DCS351

L	T	P	C
-	-	4	2

LIST OF PRACTICALS:

Installing Linux

1. Creating and managing user accounts.
2. Practice on Linux commands.
3. Practice on VI (Visual Interface) commands.
4. Write and execute programmers in Linux using shells such as:
   - Factorial of numbers
   - Even/odd numbers
   - Fibonacci series
   - Prime numbers
   - Arrange of numbers
   - Reverse of numbers
   - Lower case to upper case
   - Greatest of three numbers.
5. Installing and configuring X-windows
6. Create file and folder
7. Searching a file
8. Installation of device drivers
9. Customizing desktop
10. Setting monitor resolution

Evaluation of Practical Examination:

Internal Evaluation (50 marks):

Each sheet prepared would be evaluated by the faculty concerned on the date of preparing the sheet on a 5 point which would include the sheet drawn by the students and a Viva Voce taken by the faculty concerned. The marks shall be entered on the index sheet.

Evaluation Scheme:

EXPERIMENT (30 MARKS)	ATTENDANCE (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

External Evaluation (50 marks):

The external evaluation would also be done by the external examiner based on the experiment conducted during the examination:

EXPERIMENT (30 MARKS)	File Work (10 MARKS)	VIVA (10 MARKS)	TOTAL EXTERNAL (50 MARKS)

C PROGRAMMING LAB

Third Semester

Course Code: DCS352

L	T	P	C
-	-	4	2

LIST OF PRACTICALS:

1. Write a Program (WAP) to calculate temperature in Fahrenheit to Celsius using formula C= (F-32)/1.8.
2. WAP to calculate Sum & average of N numbers.
3. WAP to convert integer arithmetic to a given number of day and month.
4. WAP to find maximum and minimum out of 3 numbers a, b & c.
5. WAP to find e^b.
6. WAP to find factorial of positive integer.
7. WAP to find sum of series up to n number, 2+5+8+……+n.
8. WAP to print all the number between 1 to 100 which are dividing by 7.
9. WAP to generate Fibonacci series up to n.
10. WAP to find position in class first =360, second=240, third=120 otherwise fail. Read marks of 3 subjects.
11. Write an iterative function to calculate factorial of given number.
12. Write a recursive function to calculate factorial of given number.
13. WAP to find whether number is prime or not.
14. WAP to find even & odd up to a given limit.
15. WAP to find addition of two matrix of n*n order.
16. WAP to find multiplication of two matrix of n*n order.

Evaluation of Practical Examination:

Internal Evaluation (50 marks):

Each sheet prepared would be evaluated by the faculty concerned on the date of preparing the sheet on a 5 point which would include the sheet drawn by the students and a Viva Voce taken by the faculty concerned. The marks shall be entered on the index sheet.

Evaluation Scheme:

EXPERIMENT (30 MARKS)	ATTENDANCE (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

External Evaluation (50 marks):

The external evaluation would also be done by the external examiner based on the experiment conducted during the examination:

EXPERIMENT (30 MARKS)	File Work (10 MARKS)	VIVA (10 MARKS)	TOTAL EXTERNAL (50 MARKS))

DIGITAL ELECTRONICS LAB
Third Semester

Course Code: DEC351

L	T	P	C
-	-	4	2

LIST OF PRACTICALS:

1. Verify truth tables of various basic logic functions.
2. Verify truth tables of various universal logic functions.
3. Design and verify the truth table of Half Adder
4. Design and verify the truth table of Full Adder
5. Design and verify the truth table of Half Subtractor
6. Design and verify the truth table of Full Subtractor
7. Design 4:1 Multiplexer
8. Design 1:4 Demultiplexer
9. Design 4:1 Encoder
10. Design 1:4 Decoder.
11. To study various types of flip-flop
12. To study various types of counters

Evaluation of Practical Examination:

Internal Evaluation (50 marks):

Each sheet prepared would be evaluated by the faculty concerned on the date of preparing the sheet on a 5 point which would include the sheet drawn by the students and a Viva Voce taken by the faculty concerned. The marks shall be entered on the index sheet.

Evaluation Scheme:

EXPERIMENT (30 MARKS)	ATTENDANCE (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

External Evaluation (50 marks):

The external evaluation would also be done by the external examiner based on the experiment conducted during the examination :

EXPERIMENT (30 MARKS)	File Work (10 MARKS)	VIVA (10 MARKS)	TOTAL EXTERNAL (50 MARKS

CONCEPTS OF INFORMATION SYSEM LAB

Third Semester

Course Code: DIP359*	**L**	**T**	**P**	**C**
	-	**-**	**3**	**-**

LIST OF EXPERIMENTS:

1. Introduction to operating system:
   - How to operate.
   - How to create account.
   - How to use system settings.
   - Install and remove hardware and software.
   - Create a tree structure using basic DOS commands.
2. Introduction to MS Office Tools: MS Word, Excel, Power Point.
   Create a document using functions: page number, Bullets and numbering, font, styles and formatting options.
3. Create a document, using the function page set up, & page preview, page color, page border, Page no. then prints that document.
4. Create a word document and insert the table, image & word art gallery.
5. Create a table, chart in excel and implement all formula as addition, subtraction, multiplication and division.
6. Create a Power point presentation using slide designing, save & print the power point Presentation.
7. Introduction to internet-
   - www
   - web browser
   - web site
   - HTML
   - Search Engine etc.

***Only For Lateral Entry Students.**

DATA STRUCTURES USING C

Fourth Semester

Course Code: DCS401	**L**	**T**	**P**	**C**
Course Contents:	**3**	**2**	**-**	**4**

Unit I

Fundamental Notations: Problem solving concept, top down and bottom up design, structured programming, concept of data types, variables and constants, concept of pointer variables and constants. **(Lectures 08)**

Unit II

Arrays: Concept of Arrays, single dimensional array, two dimensional array, Storage strategy of multidimensional arrays, operations on arrays with algorithms (searching, traversing, inserting, deleting) **(Lectures 08)**

Unit III

Linked Lists: Introduction to linked list and doubly linked list, representation of linked lists in memory, **t**raversing a linked list, searching linked list, insertion and deletion into linked list, introduction to circular link list, doubly link lists. **(Lectures 08)**

Unit IV

Stacks, Queues and Recursions: Introduction to stacks, representation of stacks, implementation of stacks, uses of stacks, introduction to queues, implementation of queues (with algorithm), circular queues, de-queues, recursion. **(Lectures 08)**

Unit-V

Traversing Binary Trees (pre order, post order and in order), searching, inserting and deleting binary search trees, introduction to Binary Search tree.

Sorting and Searching: Introduction, search algorithm (Linear and Binary), sorting algorithms (Bubble Sort, Insertion Sort, Selection Sort, Merge Sort). **(Lectures 08)**

The question paper shall have weightage to case study 60% and to theoretical 40%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Salaria RS, *Data Structures and Algorithm Using C*, Khanna Book Publishing Co. (P) Ltd. New Delhi
2. Patel R.B., *Expert data structures with C* – Khanna Publishers, New Delhi.
3. Schaum's Outline Series – *Data structures* –McGraw Hill, Delhi.
4. Sanjiv Sofat*, Data Structures*, Khanna Publishers, New Delhi.
5. Tanenbaum*, Data Structures*, Prentice Hall of India, New Delhi.
6. Schaum's Series, *Data Structure*, McGraw Hills Publications, Delhi.
7. Tenenbaum*, Data Structure using Pascal*, Prentice Hall of India, Delhi.
8. Kruse Robert*, Data Structure using C*, Prentice Hall of India, Delhi.

9. Kanekar Yashwant, *Data Structure through C*, BPB Publications, Delhi.

Reference Books:

1. Glenn W. Rowe, *Introduction to Data Structure and Algorithm with C++*, Prentice Hall of India, Delhi.
2. Chattopadhyay Sameeran, Chottopadhyay Matangini, *Data Structure through "C" Language*, BPB Publications, Delhi.
3. DOEACC, *Data Structure through "C" Language*, BPB Publications, Delhi.
4. Shukla, *Data Structure using "C" Lab Workbook*, BPB Publications, Delhi.

***Latest editions of all the suggested books are recommended.**

COMPUTER ORGANIZATION & MICROPROCESSOR

Fourth Semester

Course Code: DCS403	**L**	**T**	**P**	**C**
Course Contents:	**3**	**2**	**-**	**4**

Unit I

Logic Gates: Logic gates, Boolean algebra and the 'Demourgon's Theorems

Microprocessor: Evolution of Microprocessor, Microcomputer system, Architecture of a Microprocessor (With reference to 8085 microprocessor) Bus, bus organization of 8085, Block diagram of 8085 and function of each block, Pin details of 8085. **(Lectures 08)**

Unit II

Memory: Basic concept and hierarchy, Memories and I/O interfacing, Concept of memory mapping, partitioning of total memory space. N* M bit RAM, Expansion of word length and capacity, static and dynamic RAM.

Cache memory: concept and design issues, address mapping and page replacement.

Auxiliary memories:- Magnetic disk, magnetic tape and optical disks, Virtual memory: concept and Implementation. **(Lectures 08)**

Unit III

Central Processing Unit: Addition and subtraction of signed numbers, Signed operands multiplication, Booth's algorithm, Division algorithm. Floating point arithmetic operations, general registers organization, stack organization and addressing modes.

Programming: Programming (with respect to 8085 microprocessor), Brief idea of machine and assembly languages, Machines and Mnemonic codes. **(Lectures 08)**

Unit IV

Control Unit: Instruction types, Edge triggered And Level triggered, Instructions formats, instruction cycles and sub cycles (fetch and execute etc), execution of a complete instruction. Explanation of the instructions groups: Data transfer groups. Arithmetic Group, Logic Group, microprogramming sequencing: micro-instruction with next address field, pre-fetching microinstructions. **(Lectures 08)**

Unit V

Input / Output: Peripheral devices (8255 PPI, 8257 DMA controller), I/O interface, I/O ports, Interrupts: types of interrupts .Modes of Data Transfer: Programmed I/O, Direct Memory Access, Serial Communication: Synchronous-asynchronous communication.

(Lectures 08)

The question paper shall have weightage to case study 40% and to theoretical 60%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Patterson, *Computer Organisation and Design,* Elsevier Pub, Delhi.
2. William Stalling*, "Computer Organization",* PHI, Delhi.
3. Mano*,"Computer System Architecture*", PHI, Delhi.
4. Ramesh S Gaonker*, Microprocessor Architecture, Programming and Applications with 8080/8085*, Willey Eastern Ltd. New Delhi.

5. Dr. B.P. Singh, *Microprocessor and Microcontrollers*, Galgotia Publications, New Delhi.

Reference Book:

1. John P Hays, *" Computer Organization*", McGraw Hill, Delhi.
2. Tannenbaum*," Structured Computer Organization'*, PHI, Delhi.
3. Refiquzzaman, *Microprocessor and Microcomputers*, Prentice Hall of India Ltd., New Delhi.
4. Mathur, *Introduction to Microprocessors*, Tata McGraw Hill, New Delhi.

***Latest editions of all the suggested books are recommended.**

MANAGEMENT INFORMATION SYSTEM

Fourth Semester

Course Code: DCS404	**L**	**T**	**P**	**C**
Course Contents:	**3**	**1**	**-**	**4**

Unit I

Introduction to Information system, types of Information system, components of IS, MIS, importance and need of MIS, network and internet, Information System design, IT infrastructure library, decision support system. **(Lectures 08)**

Unit II

Structure of MIS, MIS vs. Data Processing, knowledge requirement of MIS, information flow in MIS, MIS and information resource management, service management, availability management. **(Lectures 08)**

Unit III

Information system in business, problem with MIS, causes and solution, problem management, the planning process, controlling process in an organization, database backup & storage, archive & retrieve, disaster recovery, database & application protection. **(Lectures 08)**

Unit IV

Internet, Intranet, Extranet, computer and internet security, access management, intrusion detection, security information management, identity management, release management **Lectures 08)**

Unit V

Introduction to Cyber Ethics, intellectual property, cyber crimes challenges, electronic commerce, Electronic Data Interchange, Smart Card, Artificial Intelligence, and Expert Systems. **(Lectures 08)**

The question paper shall have weightage to case study 05% and to theoretical 95%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Goel Ritendra*, Computer Application in Management*, New Age International Publishers, New Delhi.
2. Chowdhury G.G.*, Text Retrieval Systems in information Management*, New Age International Publishers, New Delhi.

Reference Book:

1. Bhunia C.T.*, Information Technology Network and Internet* by, New Age International Publishers, New Delhi.

***Latest editions of all the suggested books are recommended.**

OBJECT ORIENTED PROGRAMMING IN C++

Fourth Semester

Course Code: DCS406	**L**	**T**	**P**	**C**
Course Contents:	**3**	**1**	**-**	**4**

Unit I

Introduction: Fundamentals of object oriented programming – procedure oriented programming vs. object oriented programming (OOP).

Object Oriented Programming Concepts: Classes, reusability, encapsulation, inheritance, polymorphism, abstraction. **(Lectures 08)**

Unit II

Language Constructs: Review of constructs of C used in C++, variables, types and type declarations, user defined data types, increment and decrement operators, relational and logical operators, if then else clause, conditional expressions, input and output statement, loops, switch case. **(Lectures 08)**

Unit III

Classes and Objects: Class creation, object accessing class members, Private Vs Public, Constructor and Destructor Objects.

Member Functions: - method definition, Inline functions implementation, constant member functions, friend functions, overloading, operator overloading, function overloading, constructor overloading. **(Lectures 08)**

Unit IV

Inheritance: Definition of inheritance, types of inheritance, protected data, private data, public data, inheriting constructors and destructors, constructors and destructors of derived classes, virtual functions. **(Lectures 08)**

Unit V

Polymorphism and Virtual Functions: Polymorphism, types of polymorphism, virtual functions, pure virtual functions, different operation on the file, creation of file streams, stream classes, header files, updating a file, opening and closing a file. **(Lectures 08)**

The question paper shall have weightage to numerical/ case study 70% and to theoretical 30%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. KR Venugopal and Rajkumar, T Ravishankar, *Mastering C++*; Tata McGraw hill Publishing Co. Ltd., New Delhi.
2. E. Balaguruswamy, Object Oriented Programming in C++, TMH Publishing Co. Ltd,, New Delhi.
3. Robert Lafore, *C++*, Galgotia Publications Pvt. Ltd. Daryaganj, New Delhi.

4. Arora Vipan, Object Oriented Programming using C++; Eagle Parkhashan Jalandhar.
5. Gupta & Gupta, *Object Oriented Programming in C++*. Ishan Publication, Delhi.
6. Rajaram R , *Object Oriented Programming and C++*; New Age International (P) Ltd., Publishers, New Delhi.

Reference Books:

1. Singh Gurupkar, *Object Oriented Programming using C ++*.
2. John R. Hubbard, *Schaum's Outline of Programming with C++*.

***Latest editions of all the suggested books are recommended.**

COMPUTER NETWORK
Fourth Semester

Course Code: DCS407	**L**	**T**	**P**	**C**
Course Contents:	**3**	**1**	**-**	**4**

Unit I

Networks Basics: What is network, network criteria, peer-to–peer network, Client-Server network, LAN, MAN and WAN, topologies, transmission media. **(Lectures 08)**

Unit II

OSI Model: Standards, OSI Reference Model, OSI physical layer concepts, OSI data-link layer concepts, OSI networks layer concepts, OSI transport layer concepts, OSI session layer concepts, OSI presentation layer concepts, OSI application layer concepts.

(Lectures 08)

Unit-III

Introduction to TCP/IP: TCP/IP Protocols, concept of physical and logical addressing, different classes of IP addressing, subnetting and supernetting, IPv4 vs. IPv6.

Network Architecture: Ethernet specification and standardization: 10 mbps (Traditional Ethernet), 100 mbps (Fast Ethernet) and 1000 mbps (Gigabit Ethernet), concept of leased lines and backbone lines, channel allocation. **(Lectures 08)**

Unit IV

Network Connectivity: Network connectivity devices, NICs, Hubs, Repeaters, Multiplexers, Modems, Routers and Protocols, Firewall, ATM, VOIP, Remote Procedure Call, connection management. **(Lectures 08)**

Unit V

Application Layer: File transfer, data access management, virtual private network, virtual terminal, internet and public network.

Wireless Networking: Basics of Wireless, Wireless LAN, Wi-Fi, WiMax and Broadband Wireless and Bluetooth technology, Email. **(Lectures 08)**

The question paper shall have weightage to case study 20% and to theoretical 80%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Tanenbaum, *Computer Networks*, Prentice Hall of India, New Delhi.
2. Forouzan*, Data Communications and Networking*, Tata McGraw Hill, New Delhi.
3. William Stallings*, Data and Computer Communication,* Pearson Education, New Delhi.
4. Schatt Stan*, Area Networks* , Prentice Hall of India, New Delhi
5. Evanson Tami*, Network+ Lab manual*,- BPB Publications, Delhi.
6. *Networking Essentials* – BPB Publications New Delhi.
7. *Computer Network and Communications*, Cyber Tech Publications, New Delhi.

References Books:

1. Peterson Richard, Linux – The complete Reference, Tata McGraw Hill, New Delhi.
2. Issac Yates, Linux – Install and Configuration Black Book, IDG Books India Private Limited, Delhi.
3. Unleashed Linux, Tech Media Publishers, New Delhi.

***Latest editions of all the suggested books are recommended.**

ENGLISH COMMUNICATION & SOFT SKILLS-IV

(For All Undergraduate & Diploma Courses)

Fourth Semester

Course Code-DIP499	**L**	**T**	**P**	**C**
Course Content	**3**	**-**	**2**	**4**

Objective: To inculcate behavioural skills in students for the Corporate World

Module -1: Fundamentals of Time Management & Managing Change.(12 Lectures)

a) Time Management.
b) Managing People and managing change.
c) Team building, Leadership and taking decisions.
d) Stress Management.
[Note: As part of classroom activity, refer to the Workbook, guest lecture by management faculty]

Module -2: Public Speaking (8 Lectures)

a) Art of public speaking.
b) Welcome speech.
c) Farewell Speech.
d) Vote of thanks.
[Note: As part of classroom activity, extensive practice sessions in class and home assignments]

Module -3: Personality Development-III (8 Lectures)

a) Rude vs. Polite Behaviour.
b) Ethics and human values.
c) Concern for environment.
d) Crisis Management.
[Note: As part of classroom activity, refer to the Workbook, guest lecture by management faculty and industry representative]

Module -4: Oral Practice (12 Lectures)

a) Debate.
b) Just-a-minute.
c) Group Discussions.
d) Mock Interviews.
[Note: As part of classroom activity, extensively test the oral skills and update the progress card of each student]

Fourth Semester Outcome:

1. Notable improvement in student's progression in terms of LSRW.
2. Students will be able to imbibe good practices of self-discipline and professionalism required in the corporate world.
3. Students will be able to develop the art of public speaking.
4. Students will be able to learn behavioral skills suitable for the corporate world.

Evaluation & Assessment: The students will be evaluated on all four parameters of LSRW

External Exam	*Internal Assessment*	*Total*
50	50	100

Internal Assessment: 50

Best 2 out of Three CTs	*Attendance*	*Workbook Assignments & Viva*	*Total*
20	10	10+10	50

Viva to be carried out by external English faculty from within the university

External Assessment: 50

PRACTICAL EXAM*	VIVA	TOTAL
25 Marks	25 Marks	50 Marks

(The external evaluation would be done by an external examiner based on the PracticalExam and viva conducted during the examination. External examiner will be the English faculty from within the university)

*** Practical Exam Paper Structure: (One Hour Duration)**
Question paper should consist of four questions out of which the first question will be objective type of 10 marks. Other three question will be long, each of 05 marks.

Reference Books:

1. ILFS Bi-lingual Course in Basic English, ILFS Skill Development Corporation.
2. Communication Skills for Engineers and Scientists by Sangeeta Sharma &Binod Mishra, PHI Learning Private Limited, New Delhi.
3. Professional Communication by Malti Agarwal, Krishna Prakashan Media (P) Ltd., Meerut.
4. Communication Skills by Sanjay Kumar &PushpLata, Oxford University Press.
5. The Business letters by Madan Sood, Goodwill Publishing House, New Delhi.

DATA STRUCTURE USING C LAB

Fourth Semester

Course Code: DCS451	**L**	**T**	**P**	**C**
	-	**-**	**4**	**2**

Write Program in C for the following:

1. WAP to calculate Sum & average of N numbers.
2. WAP using switch case to find maximum and minimum out of 3 numbers a, b & c.
3. WAP to print all the number between 1 to 100 which are dividing by 9.
4. WAP to find addition of two matrix of n*n order.
5. Sorting programs: Bubble sort, Merge sort, Insertion sort, Selection sort.
6. Searching programs: Linear Search, Binary Search.
7. Array implementation of Stack, Queue, Circular Queue.
8. Implementation of Stack, Queue.
9. Implementation of Binary tree.
10. Program for Tree Traversals (preorder, in order, post order).

Evaluation of Practical Examination:

Internal Evaluation (50 marks):

EXPERIMENT (30 MARKS)	ATTENDANCE (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

External Evaluation (50 marks):

The external evaluation would also be done by the external examiner based on the experiment conducted during the examination:

EXPERIMENT (30 MARKS)	File Work (10 MARKS)	VIVA (10 MARKS)	TOTAL EXTERNAL (50 MARKS)

COMPUTER ORGANISATION & MICROPROCESSOR LAB

Forth Semester

Course Code: DCS453

L	T	P	C
-	-	4	2

LIST OF PRACTICALS:

1. Study of 8085 Microprocessor Kit used in laboratory Familiarization with Kit and identification of its various parts like keyboard, Memory, Timer,\ Interrupt Controller, Display Unit, Interface Unit.
2. writing an assembly language program using mnemonics and test them on 8 BIT
   - Addition of two 8 bit numbers.
   - Subtraction of 8 bit numbers.
   - Multiplication of 8 bit numbers.
   - Division of 8 bit numbers.
3. Some exercises of assembly language programs using a 8255 input & output ports.
4. To identify various components, devices and sections of computer.
5. To Study the motherboards
6. To interconnect the system unit with the video monitor, mouse and key board and test the operation of the computer.
7. To connect various add on cards and I/O devices to a computer motherboard and test their working.

Evaluation of Practical Examination:

Internal Evaluation (50 marks):

Each sheet prepared would be evaluated by the faculty concerned on the date of preparing the sheet on a 5 point which would include the sheet drawn by the students and a Viva Voce taken by the faculty concerned. The marks shall be entered on the index sheet.

Evaluation Scheme:

EXPERIMENT (30 MARKS)	ATTENDANCE (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

External Evaluation (50 marks):

The external evaluation would also be done by the external examiner based on the experiment conducted during the examination:

EXPERIMENT (30 MARKS)	File Work (10 MARKS)	VIVA (10 MARKS)	TOTAL EXTERNAL (50 MARKS)

OBJECT ORIENTED PROGRAMMING IN C++ LAB

Fourth Semester

Course Code: DCS456	**L**	**T**	**P**	**C**
	-	-	3	**2**

Write programs in C++ for the following:

1. Program illustrating overloading of various operators.
2. Program illustrating use of Friend function.
3. Program illustrating use of Inline function.
4. Program illustrating use of default arguments.
5. Program illustrating use of constructor and various types of constructor.
6. Program illustrating various forms of Inheritance.
7. Program illustrating use of virtual functions.
8. Program illustrating use of virtual Base Class.
9. Program illustrating use of function overloading.

Evaluation of Practical Examination:

Internal Evaluation (50 marks):

Each sheet prepared would be evaluated by the faculty concerned on the date of preparing the sheet on a 5 point which would include the sheet drawn by the students and a Viva Voce taken by the faculty concerned. The marks shall be entered on the index sheet.

Evaluation Scheme:

EXPERIMENT (30 MARKS)	ATTENDANCE (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

External Evaluation (50 marks):

The external evaluation would also be done by the external examiner based on the experiment conducted during the examination:

EXPERIMENT (30 MARKS)	File Work (10 MARKS)	VIVA (10 MARKS)	TOTAL EXTERNAL (50 MARKS)

COMPUTER NETWORK LAB

Fourth Semester

Course Code: DCS457	**L**	**T**	**P**	**C**
	-	**-**	**3**	**2**

LIST OF PRACTICALS:

1. Identification of various networks components
   - Connections, BNC, RJ-45, Cables: Co-axial, twisted pair, UTP
   - NIC (network interface card)
   - Switch, hub
2. Preparing of networks.
3. Establishment of a LAN.
4. Use of protocols in establishing LAN.
5. Trouble shooting of networks.
6. Installation of network device drivers.
7. Installation of networks (Peer to Peer Networking, client server interconnection).
8. Use/installation of proxy server.

Evaluation of Practical Examination:

Internal Evaluation (50 marks):

Each sheet prepared would be evaluated by the faculty concerned on the date of preparing the sheet on a 5 point which would include the sheet drawn by the students and a Viva Voce taken by the faculty concerned. The marks shall be entered on the index sheet.

Evaluation Scheme:

EXPERIMENT (30 MARKS)	ATTENDANCE (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

External Evaluation (50 marks):

The external evaluation would also be done by the external examiner based on the experiment conducted during the examination :

EXPERIMENT (30 MARKS)	File Work (10 MARKS)	VIVA (10 MARKS)	TOTAL EXTERNAL (50 MARKS)

COMPUTER GRAPHICS
Fifth Semester

Course Code: DCS501	**L**	**T**	**P**	**C**
Course Contents:	**3**	**2**	**-**	**4**

Unit I

Graphic Systems: Introduction to Computer Graphics, display devices, types, applications of display devices,

Scan conversion and Output Primitives: Scan converting the point, Scan converting the straight line - Bresenham's line algorithm, Scan converting a circle - defining a circle, Bresenham's circle algorithm, Region filling - introduction, flood filling, and boundary filling. **(Lectures 08)**

Unit II

Graphic primitives in algorithms, point plotting, line drawing algorithms – DDA algorithms, Bresenham' s line algorithms, circle-generating algorithms, ellipses.

Two-Dimensional Transformations: Basic transformations-translation, scaling, rotation, matrix representations and homogeneous coordinates, composite transformations, viewing transformation. **(Lectures 08)**

Unit-III

Windowing and Clipping Techniques: Windowing concepts, clipping algorithms, area clipping, line clipping, polygon clippings, text clipping, blanking, window to-viewpoint transformation, Cohen Sutherland clipping algorithm. **(Lectures 08)**

Unit IV

2-D and 3-D Graphics: Three dimensional transformation, Z-buffer algorithm, Curve, Bezier, B-spline surface, concept of projection. **(Lectures 08)**

Unit-V

Perspective and Parallel transformations, Animation: Introduction, types, applications, languages. image: visual effect (Aliasing & Anti Aliasing). **(Lectures 08)**

The question paper shall have weightage to numerical/ case study 10% and to theoretical 90%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Roy A Plastock and Gordon Kalley, *Theory and problems of Computer Graphics*, Schaum's Outline series, McGraw Hill Publishers, Delhi.
2. Steven Harrington*, Computer Graphics Programming Approach*.

Reference Books:

1. Rajaraman A*, Computer Graphics for Engineers*, Narosa Publishing House Pvt Ltd Daryaganj, New Delhi 110002.

***Latest editions of all the suggested books are recommended.**

JAVA PROGRAMMING
Fifth Semester

Course Code: DCS502	**L**	**T**	**P**	**C**
Course Contents:	**3**	**2**	**-**	**4**

Unit I

Core Java: Introduction, operator, data type, variable, arrays, control statements, methods & classes, **i**nheritance, package and interface, exception handling, multithread, I/O.

(Lectures 08)

Unit II

Java Applet, String handling, networking, event handling, Introduction to AWT, AWT controls, layout managers, menus, images, graphics. **(Lectures 08)**

Unit III

Java Swing: Creating a Swing Applet and Application, programming using panes, pluggable look and feel, **l**abels, text fields, buttons, toggle buttons, checkboxes, radio buttons, view ports, scroll panes, scroll bars, lists, combo box, progress bar, menus and toolbars, layered panes, tabbed panes, split panes, layouts, windows, dialog boxes. **(Lectures 08)**

Unit IV

JDBC: The connectivity model, JDBC/ODBC Bridge, java.sql package, connectivity to remote database, navigating through multiple rows retrieved from a database.

(Lectures 08)

Unit V

Java Servlet: Servlet basics, Servlet API basic, life cycle of a Servlet, running Servlet, debugging Servlets, thread-safe Servlet, introduction to Java Server Pages (JSP).

(Lectures 08)

The question paper shall have weightage to numerical/ case study 70% and to theoretical 30%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Margaret Levine Young, "The Complete Reference Internet", TMH, Delhi.
2. Naughton, Schildt, *"The Complete Reference JAVA2",* TMH, Delhi

Reference Books:

1. Balagurusamy E, *"Programming in JAVA",* TMH, Dlehi.
2. Dustin R. Callway, *"Inside Servlets",* Addison Wesley, Delhi.
3. Mark Wutica, *"Java Enterprise Edition",* QUE.
4. Steven Holzner, *"Java2 Black book",* Dreamtech.

***Latest editions of all the suggested books are recommended.**

MULTIMEDIA
Fifth Semester

Course Code: DCS503	**L**	**T**	**P**	**C**
Course Contents:	**3**	**1**	**-**	**4**

Unit I

Introduction to multimedia: Evolution of multimedia, objects of multimedia, hypertext, hyper graphics, animation, scope of multimedia in business, multimedia H/W & S/W. **(Lectures 08)**

Unit II

Multimedia Hardware: OCR, touch-screen, scanners, digital cameras, speakers, printers, plotters, optical disks and drives as CD-ROM and DVD. Multimedia networks, text, sound (MIDI), audio, and video. **(Lectures 08)**

Unit III

Image and sound file formats, multimedia file formats, compression, standards and techniques, Macromedia products, Basic drawing techniques, multimedia operating systems. **(Lectures 08)**

Unit IV

Photo-shop workshop, image editing tools, specifying and adjusting colors, using gradient tools, selection and move tools, sampling variables. **(Lectures 08)**

Unit V

Multimedia Authoring Tools: Types of Authoring programmes – Icon based, time based, object oriented working in macromedia flash, exploring interface using selection of PEN tools, working with drawing and painting tools, applying colour viewing and manipulating time line, animating, processing, guiding layers, importing and editing sound and video clips in flash. **(Lectures 08)**

The question paper shall have weightage to numerical/ case study 10% and to theoretical 90%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. William Casanova and Molina*, Multimedia An Introduction*; Prentice Hall of India, New Delhi.
2. Vaughan*, Multimedia Making it work*, Tay
3. *Photo-shop for Windows Bible*, Deke Maclelland IDG Books India, Pvt. Ltd., New Delhi.
4. Hillman, *Multimedia Technology and Application*, Galgotia Publications, New Delhi.

Reference Books:

1. *Flash 5 Bible by Rein Hardit*, IDG Books India Pvt. Ltd, Delhi.
2. *Flash 5 in easy steps*, Vandome IDG Books India Pvt. Ltd, Delhi.
3. Li and Drew*, Fundamentals of Multimedia*, Pearson Publications, Delhi.

***Latest editions of all the suggested books are recommended.**

DATABASE MANAGEMENT SYSTEM

Fifth Semester

Course Code: DCS506	**L**	**T**	**P**	**C**
Course Contents:	**3**	**2**	**-**	**4**

Unit I

Database Systems: Database and its purpose, characteristics of the database approach, advantages and disadvantages of database systems, classification of DBMS, database administrators, introduction to SQL, DDL, DML. **(Lectures 08)**

Unit II

Database System Concepts and Architecture: Data models, schemas, instances, data base state. DBMS **a**rchitecture; The External level, The conceptual level, The internal level, mappings. Data independence; Logical data Independence, Physical data Independence. Database Languages and Interfaces; DBMS Language, DBMS Interfaces.

(Lectures 08)

Unit III

Data Modeling using E.R. Model (Entity Relationship Model): Data Models Classification; File based or primitive models, traditional data models, semantic data models. Entities and Attributes, Entity types and Entity sets, Key attribute and domain of attributes, Relationship among entities. **(Lectures 08)**

Unit IV

Relational Model: Relational Model Concepts: Domain, Attributes, Tuples and Relations. Relational constraints and relational database schemes; Domain constraints, Key constraints and constraints on Null. Relational databases and relational database schemes, Entity integrity, referential integrity and foreign key. **(Lectures 08)**

Unit V

Normalization: Non-loss decomposition and functional dependencies, First, Second and Third normal forms, Boyce/Codd normal form, Joining concepts, Transaction control, Locking techniques. **(Lectures 08)**

The question paper shall have weightage to case study 20% and to theoretical 80%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Vig Renu and Walia Ekta*, Fundamentals of Database Management Systems*, ISTE, Publication, New Delhi.

Reference Books:

1. Leon Alexis and Leon Mathews*, Database Management Systems*; Vikas Publishing House Pvt. Ltd., New Delhi.

***Latest editions of all the suggested books are recommended.**

INDUSTRIAL ECOLOGY

Fifth Semester

Course Code: DIP502/DIP603	**L**	**T**	**P**	**C**
Course Content:	**4**	**-**	**-**	**4**

Unit I

Introduction to Industrial Psychology – definition, scope and importance. **(Lectures 08)**

Unit II

Motivation: Meaning, factors, motivation theories (Maslow, Herzberg and McGregor); understanding stress and its consequences, causes of stress, managing stress; group dynamics: features of group, group cohesiveness. **(Lectures 08)**

Unit III

Work Environment: Design of work place; fatigue: causes and prevention, work place boredom, accidents and safety. Conflict: Concept, sources and types. **(Lectures 08)**

Unit IV

Constituents of Indian economy: Agriculture, Industry and Service; Innovation and Entrepreneurship: Industrial growth in India, role and challenges of small scale industries, sources of funding for small scale industries, industrial sickness. **(Lectures 08)**

Unit V

Privatization and globalization in India.
Problems of industry- technology, waste disposal, industrial law and dispute.

(Lectures 08)

The question paper shall have weightage to case study 20% and to theoretical 80%.

Text Books:

1. Agarwal G.K. *"Social control and change"* Sahitya Bhawan Publication Agra.
2. Agarwal G.K. *"Social Disorganization"* Sahitya Bhawan Publication Agra.
3. Gillin & Gillin *"Cultural Sociology"* The Macmillian Company.
4. Denis. K *"Human Society"* Surjeet Publication Delhi.
5. Dewett, K.K., *"Modern Economic Theory"* S. Chand & Co.
6. Luthers Fred *"Organizational Behavior"*.

Reference Books:

1. Admas Bert N. *"A Sociological Interpretation"* Rand me Nally Chicago 1975.
2. Prasad L.M. *"Principles of Management"*.
3. Stonier A.W. & D.C. Horgne, *"A Text Book of Economic Theory"*, Oxford Publishing House Pvt. Ltd.

***Latest editions of all the suggested books are recommended.**

ENVIRONMENT STUDIES

Fifth Semester

Course Code: DIP503/DIP604	**L**	**T**	**P**	**C**
	4	**-**	**-**	**4**

Objective: To create awareness among students about environment protection.

Course Outcomes:

Based on this course, the Engineering graduate will understand / evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development.

Course Content:

Unit I

Definition and Scope of environmental studies, multidisciplinary nature of environmental studies, Concept of sustainability & sustainable development.

Ecology and Environment: Concept to fan Ecosystem-its structure and functions, Energy Flow in an Ecosystem, Food Chain, Food Web, Ecological Pyramid& Ecological succession, Study of following ecosystems: Forest Ecosystem, Grass land Ecosystem & Aquatic Ecosystem & Desert Ecosystem.

(Lectures 08)

Unit II

Natural Resources: Renewable & Non-Renewable resources; Land resources and land use change; Land degradation, Soil erosion & desertification. **Deforestation**: Causes & impacts due to mining, Dam building on forest biodiversity & tribal population. **Energy Resources**: Renewable & Non-Renewable resources, Energy scenario & use of alternate energy sources, Case studies.

Biodiversity: Hot Spots of Biodiversity in India and World, Conservation, Importance and Factors Responsible for Loss of Biodiversity, Bio geographical Classification of India.

(Lectures 08)

Unit III

Environmental Pollutions: Types, Causes, Effects & control; Air, Water, soil & noise pollution, Nuclear hazards & human health risks, Solid waste Management; Control measures of urban & industrial wastes, pollution case studies.

(Lectures 08)

Unit IV

Environmental policies & practices: Climate change & Global Warming (Green house Effect),Ozone Layer -Its Depletion and Control Measures, Photochemical Smog, Acid Rain Environmental laws: Environment protection Act; air prevention & control of pollution act, Water Prevention & Control of Pollution Act, Wild Life Protection Act, Forest Conservation Acts, International Acts; Montreal & Kyoto Protocols & Convention on biological diversity, Nature reserves, tribal population & Rights & human wild life conflicts in Indian context.

(Lectures 08)

Unit V

Human Communities & Environment: Human population growth; impacts on environment, human health & welfare, Resettlement & rehabilitation of projects affected person: A case study, Disaster Management; Earthquake, Floods & Droughts, Cyclones & Landslides, Environmental Movements; Chipko, Silent Valley, Vishnoi's of Rajasthan, Environmental Ethics; Role of Indian & other regions & culture in environmental conservation, Environmental communication & public awareness; Case studies.

(Lectures 08)

Field Work:

1. Visit to an area to document environmental assets; river/forest/flora-fauna etc.
2. Visit to a local polluted site: urban/ rural/industrial/agricultural.
3. Study of common plants, insects, birds & basic principles of identification.
4. Study of simple ecosystem; pond, river etc.

Text Books:

1. "Environmental Chemistry", De, A. K., New Age Publishers Pvt. Ltd.
2. "Introduction to Environmental Engineering and Science", Masters, G. M., Prentice Hall India Pvt. Ltd.
3. "Fundamentals of Ecology", Odem, E. P., W. B. Sannders Co.

Reference Books:

1. "Biodiversity and Conservation", Bryant, P. J., Hypertext Book
2. "Textbook of Environment Studies", Tewari, Khulbe & Tewari, I.K. Publication

***Latest editions of all the suggested books are recommended.**

COMPUTER GRAPHICS LAB
Fifth Semester

Course Code: DCS551

L	T	P	C
-	-	4	2

Write the following programs in C:

1. Write a program to draw a pixel.
2. Write a program to draw a line using DDA algorithm.
3. Write a program to draw a line using Bresenham's algorithm.
4. Write a program to draw a circle using Bresenham's algorithm.
5. Write a program to draw ellipsoid.
6. Write a program to rotate a triangle, line & a rectangle.
7. Write a program to shearing triangle, line & a rectangle.
8. Write a program to translate triangle, line & a rectangle.

Evaluation of Practical Examination:

Internal Evaluation (50 marks):
Each sheet prepared would be evaluated by the faculty concerned on the date of preparing the sheet on a 5 point which would include the sheet drawn by the students and a Viva Voce taken by the faculty concerned. The marks shall be entered on the index sheet.

Evaluation Scheme:

EXPERIMENT (30 MARKS)	ATTENDANCE (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

External Evaluation (50 marks):
The external evaluation would also be done by the external examiner based on the experiment conducted during the examination:

EXPERIMENT (30 MARKS)	File Work (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

JAVA PROGRAMMING LAB

Fifth Semester

Course Code: DCS552	**L**	**T**	**P**	**C**
	-	**-**	**4**	**2**

LIST OF PRACTICALS:

1. Write a program in Java for illustrating, overloading.
2. Write a program in Java for illustrating overriding.
3. Write a program in Java for illustrating various forms of inheritance.
4. Write a program to create packages.
5. Write a program to create multiple threads in Java.
6. Write a program in Java using Layout manager create different applications.
7. Write programs in Java to create and manipulate Text Area, Canvas, Scroll Bars, Frames and Menus using swing/AWT.
8. Using Java create Applets.
9. Use Java Language for Client Server Interaction with stream socket connections.
10. Write a program to create a connection to database using JDBC.

Evaluation of Practical Examination:

Internal Evaluation (50 marks):

Each sheet prepared would be evaluated by the faculty concerned on the date of preparing the sheet on a 5 point which would include the sheet drawn by the students and a Viva Voce taken by the faculty concerned. The marks shall be entered on the index sheet.

Evaluation Scheme:

EXPERIMENT (30 MARKS)	ATTENDANCE (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

External Evaluation (50 marks):

The external evaluation would also be done by the external examiner based on the experiment conducted during the examination :

EXPERIMENT (30 MARKS)	File Work (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

MULTIMEDIA LAB
Fifth Semester

Course Code: DCS553

L	T	P	C
-	-	3	2

LIST OF PRACTICALS:

1. Configuring multimedia devices to PC (Personal computer).
2. Installing and use of various multimedia devices:
   - **(i)** Scanner.
   - **(ii)** Digital camera, web camera.
   - **(iii)** Mike and speakers.
   - **(iv)** Touch screen.
   - **(v)** Plotter and printers.
   - **(vi)** DVD.
   - **(vii)** Audio CD and Video CD.
   - **(viii)** Reading and writing of different format on a frame CD.
   - **(ix)** Transporting audio and video files.
   - **(x)** Using various features of Principal.
   - **(xi)** Using various features of Flash.
   - **(xii)** Using various features of Photo-shop.
   - **(xiii)** Making multimedia presentations combining Principal, Flash, Photo-shop, such as department profile, lesson presentation, games and project presentations.

Evaluation of Practical Examination:

Internal Evaluation (50 marks):
Each sheet prepared would be evaluated by the faculty concerned on the date of preparing the sheet on a 5 point which would include the sheet drawn by the students and a Viva Voce taken by the faculty concerned. The marks shall be entered on the index sheet.

Evaluation Scheme:

EXPERIMENT (30 MARKS)	ATTENDANCE (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

External Evaluation (50 marks):
The external evaluation would also be done by the external examiner based on the experiment conducted during the examination:

EXPERIMENT (30 MARKS)	File Work (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

INDUSTRIAL TRAINING
Fifth Semester

Course Code: DCS555	**L**	**T**	**P**	**C**
	-	**-**	**-**	**4**

Students will attend Industrial training of four week in any industry or reputed organization after the IV semester examination in summer vacation. The evaluation of this training shall be included in the V semester evaluation.

The student will be assigned a faculty guide who would be the supervisor of the student. The faculty would be identified before the end of the IV semester and shall be the nodal officer for coordination of the training.

Students will also be required to prepare an exhaustive technical report of the training during the V semester which will be duly signed by the officer under whom training was taken in the industry/ organization. The covering format shall be signed by the concerned office in-charge of the training in the industry. The officer-in-charge of the trainee would also give his rating of the student in the standard University format in a sealed envelope to the Principal of the Polytechnic. (Annexure – II)

The student at the end of the V semester will present his report (Annexure – I) about the training bef ore a committee constituted by the Principal of the Polytechnic which would be comprised of at least three members comprising of the Department Coordinator, Class Coordinator and a nominee of the Principal. The students guide would be a special invitee to the presentation. The seminar session shall be an open house session. The internal marks would be the average of the marks given by each member of the committee separately in a sealed envelope to the Principal.

The marks by the external examiner would be based on the report submitted by the student which shall be evaluated by the external examiner and cross examination done of the student concerned.

Not more than three students would form a group for such industrial training/ project submission.

The marking shall be as follows.

Internal: 50 marks
By the Faculty Guide - 25 marks
By Committee appointed by the Principal – 25 marks

External: 50 marks
By Officer-in-charge trainee in industry – 25 marks
By External examiner appointed by the University – 25 marks

DATA BASE MANAGEMENT SYSTEM LAB
Fifth Semester

Course Code: DCS556

L	T	P	C
-	-	4	2

The program to be implemented using SQL:

1. Create the Database & Table using SQL.
2. Entering the values in Database using insert & delete option.
3. Updation of the tables.
4. WAP for joining (left, right, equivalent).
5. Create a table using primary, Candidate & foreign keys.
6. Implementation of connectivity of front end to back end.
7. Implement Aggregate function.
8. Searching content in a table.

Evaluation of Practical Examination:

Internal Evaluation (50 marks):
Each sheet prepared would be evaluated by the faculty concerned on the date of preparing the sheet on a 5 point which would include the sheet drawn by the students and a Viva Voce taken by the faculty concerned. The marks shall be entered on the index sheet.

Evaluation Scheme:

EXPERIMENT (30 MARKS)	ATTENDANCE (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

External Evaluation (50 marks) :
The external evaluation would also be done by the external examiner based on the experiment conducted during the examination:

EXPERIMENT (30 MARKS)	File Work (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

WEB TECHNOLOGY
Sixth Semester

Course Code: DCS601	**L**	**T**	**P**	**C**
Course Contents:	**3**	**2**	**-**	**4**

Unit I

Internet Basics: Specification and technical details for establishing Internet. Types and functions of modems, IP addressing, internet domains, domain name server, TCP/IP protocols, Internet service providers, Intranets, Internet, Extranet. **(Lectures 08)**

Unit II

World Wide Web (www): World Wide Web and its evolution, web page, web server, HTTP protocol. Examples of web servers. Navigation tools: Netscape and Internet Explorer to surf Internet, Uniform Resource Locator (URL), Hypertext, hyperlinks and hypermedia, URL, its registration, Browsers, search engines, proxy servers. **(Lectures 08)**

Unit III

Internet Security: Basics of authentication and authorization, introduction to firewall, Cryptography, various techniques of encryption and decryption and algorithms, SSL (Secure Socket Layer). **(Lectures 08)**

Unit IV

Internet Applications: E-mail, Telnet, FTP, IRC, NNTP, Video conferencing, e-commerce. Basic structure of HTML, designing a web page, inserting links images, horizontal rules, comments. Formatting text, title, headings, colors, fonts, sizes, simple tables and forms. HTML tags, hyperlinks. Adding graphics and images, image maps, image files. Using tables, forms, style sheets and frames. **(Lectures 08)**

Unit V

Java Script & PHP: Introduction to scripting, Use of Java Script and implementation, Basic of PHP, Syntax, Variables, Operators, Statements, Form, User Inputs and designing.

(Lectures 08)

The question paper shall have weight age to case study 10% and to theoretical 90%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Kraynak and Habraken*, Internet 6-in-1*, Prentice Hall of India Pvt. Ltd., New Delhi.
2. Kasser*, Using the Internet IV edition*, Prentice Hall of India Pvt. Ltd., New Delhi.
3. Wall*, Using the World Wide Web, (IInd edition)*, Prentice Hall of India Pvt. Ltd., ND.
4. Leon Alexis and Leon Mathews, *Internet for Everyone*; Vikas Publishing House Pvt. Ltd. ND.
5. AB Tiwana*, Practical Guide and Internet*; Galgotia Publications Pvt. Ltd., New Delhi.
6. *HTML – 4 for World Wide Web*, Castro Addison Wesley (Singapore) Pvt. Ltd., New Delhi.
7. *Principles of Web Designing Joel Sklar, Web Warrior Series Available* with Vikas PublishingHouse Pvt. Ltd., New Delhi.

8. Chopra Ashish, *Internet & web designing*, Ishan Publication. Rick Dranell, *HTML 4.0 Unleashed*; TechMedia Publications, Delhi
9. Arora Vipan, *Internet & Web page Technologies*; Eagle Parkashan Jalandhar.

Reference Books:

1. *Teach Yourself HTML 4.0 with XML, DHTML and Java Script* by Stephanie, Cottrell, Bryant; IDG Books India Pvt. Ltd., New Delhi.
2. *Using Active Server Pages* by Johnson et.al. Prentice Hall of India, New Delhi.
3. Chapman, *Web Development with Visual Basic with CD ROM*; Prentice Hall of India,
4. New Delhi.

***Latest editions of all the suggested books are recommended.**

E – COMMERCE

Sixth Semester

Course Code: DCS602	**L**	**T**	**P**	**C**
Course Contents:	**3**	**2**	**-**	**4**

Unit I

Introduction, Forces behind E-Commerce Industry Framework, Brief history of Ecommerce, Inter Organizational E-Commerce, Intra Organizational E-Commerce, Network Infrastructure for E-Commerce, Global Information Distribution Network. **(Lectures 08)**

Unit II

Introduction to Mobile Commerce, Mobile Information Devices, Introduction to Web security, Firewalls & Transaction Security, Client Server Network, Network Security. **(Lectures 08)**

Unit III

World Wide Web & Security, Encryption, Secret Key Encryption, Public Key Encryption, Virtual Private Network (VPN), Implementation Management Issues. **(Lectures 08)**

Unit IV

Overview of Electronic payments, Digital Token based Electronic payment System(EPS), Smart Cards, Credit Card , Debit Card based EPS, Home Banking, Online Banking. **(Lectures 08)**

Unit V

Net Commerce EDA, EDI Application in Business, Legal requirement in E - Commerce, Introduction to supply Chain Management, CRM, issues in Customer Relationship Management. **(Lectures 08)**

The question paper shall have weightage to case study 10% and to theoretical 90%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Greenstein and Feinman, *"E-Commerce",* TMH, Delhi.
2. Ravi Kalakota, Andrew Whinston, *"Frontiers of Electronic Commerce",* Addision Wesley, Delhi.
3. Denieal Amor, *"The E-Business Revolution",* Addision Wesley, Delhi.

Reference Books:

1. Diwan, Sharma, *"E-Commerce"* Excel.
2. Bajaj & Nag, *"E-Commerce: The Cutting Edge of Business",* TMH, Delhi.

***Latest editions of all the suggested books are recommended.**

VISUAL BASIC.NET
Sixth Semester

Course Code: DCS603	**L**	**T**	**P**	**C**
Course Contents:	**3**	**2**	**-**	**4**

Unit I

Introduction: common language runtime, common type system, common language specification, The Base class library, The .NET class library Intermediate language, Just-in-Time compilation, garbage collection, application installation & assemblies.

(Lectures 08)

Unit II

The start page, Menu and Tool Bar, Toolbox, Solution Explorer, Class View Window, Properties Window, Task List and Output Window, Server Explorer, keywords, statements, variables, data types, operators, decisions with if, switch statements, using loops, arrays.

(Lectures 08)

Unit III

Procedures, Class and Objects, error handling, working with Textbox, Buttons, Labels, Checkbox, Radio Buttons, List box, Combo Box, Picture Box, and Menu.

(**Lectures 08)**

Unit IV

ADO.NET Data Namespaces, SqlConnection, SqlCommand, SqlData Adapter, Dataset Class, Data Binding, Data view. **(Lectures 08)**

Unit V **(Lectures 08)**

Windows Services, Web Services, Web Forms.

The question paper shall have weightage to case study 80% and to theoretical 20%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Richard Blair and Jonathan Crossland, *"Beginning VB.NET (2 Edition)",* WROX
2. Steven Holzner, *"Visual Basic .NET 2003",* Pearson Education Shouish Chavan, *"Visual Basic .NET",* Pearson Education
3. Richard Blair and Jonathan Crossland, "Professional VB.NET (2 Edition)", Willy.

Reference Books:

1. Jffrey Richter*, "Applied Microsoft .Net Framework Programming",* (Microsoft).

***Latest editions of all the suggested books are recommended.**

INDUSTRIAL ECONOMICS AND PRINCIPLES OF MANAGEMENT

Sixth Semester

Course Code: DIP602	**L**	**T**	**P**	**C**
Course Contents:	**3**	**2**	**-**	**4**

Unit I

Nature and significance of Economics, Meaning of Science, Engineering and Technology and their relationship with economic development. **(Lectures 08)**

Unit II

The concept of demand and supply. Elasticity of Demand and Supply. Indifference Curve Analysis, Price Effect, Income Effect and Substitution Effect. **(Lectures 08)**

Unit III

Money and Banking: Functions of Money, Value of Money, Inflation and measures to control it. Brief idea of functions of banking system, viz., Commercial and central banking, Business fluctuations. **(Lectures 08)**

Unit IV

Nature and Significance of Management. Evaluation of Management thought, Contributions of Max Weber, Taylor and Fayola. **(Lectures 08)**

Unit V

Human Behavior: Factors of Individual Behavior, Perception, Learning and Personality Development, Interpersonal Relationship and Group Behavior. **(Lectures 08)**

The question paper shall have weightage to case study 10% and to theoretical 90%.

Project work

A project work will be assigned to students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Dewett K.K., "*Modern Economic Theory* S.Chand & Co., Delhi.

Reference Books:

1. Stonier A.W. & D.C. Horgne, "*A Text Book of Economic Theory*", Oxford Publishing House Pvt. Ltd, Delhi.

***Latest editions of all the suggested books are recommended.**

ENVIRONMENT STUDIES

Sixth Semester

Course Code: DIP604/DIP503	**L**	**T**	**P**	**C**
	4	**-**	**-**	**4**

Objective: To create awareness among students about environment protection.

Course Outcomes:

Based on this course, the Engineering graduate will understand / evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development.

Course Content:

Unit I

Definition and Scope of environmental studies, multidisciplinary nature of environmental studies, Concept of sustainability & sustainable development.

Ecology and Environment: Concept to fan Ecosystem-its structure and functions, Energy Flow in an Ecosystem, Food Chain, Food Web, Ecological Pyramid& Ecological succession, Study of following ecosystems: Forest Ecosystem, Grass land Ecosystem & Aquatic Ecosystem & Desert Ecosystem.

(Lectures 08)

Unit II

Natural Resources: Renewable & Non-Renewable resources; Land resources and land use change; Land degradation, Soil erosion & desertification. **Deforestation**: Causes & impacts due to mining, Dam building on forest biodiversity & tribal population. **Energy Resources**: Renewable & Non-Renewable resources, Energy scenario & use of alternate energy sources, Case studies.

Biodiversity: Hot Spots of Biodiversity in India and World, Conservation, Importance and Factors Responsible for Loss of Biodiversity, Bio geographical Classification of India.

(Lectures 08)

Unit III

Environmental Pollutions: Types, Causes, Effects & control; Air, Water, soil & noise pollution, Nuclear hazards & human health risks, Solid waste Management; Control measures of urban & industrial wastes, pollution case studies.

(Lectures 08)

Unit IV

Environmental policies & practices: Climate change & Global Warming (Green house Effect),Ozone Layer -Its Depletion and Control Measures, Photochemical Smog, Acid Rain Environmental laws: Environment protection Act; air prevention & control of pollution act, Water Prevention & Control of Pollution Act, Wild Life Protection Act, Forest Conservation Acts, International Acts; Montreal & Kyoto Protocols & Convention on biological diversity, Nature reserves, tribal population & Rights & human wild life conflicts in Indian context.

(Lectures 08)

Unit V

Human Communities & Environment: Human population growth; impacts on environment, human health & welfare, Resettlement & rehabilitation of projects affected person: A case study, Disaster Management; Earthquake, Floods & Droughts, Cyclones & Landslides, Environmental Movements; Chipko, Silent Valley, Vishnoi's of Rajasthan, Environmental Ethics; Role of Indian & other regions & culture in environmental conservation, Environmental communication & public awareness; Case studies.

(Lectures 08)

Field Work:

1. Visit to an area to document environmental assets; river/forest/flora-fauna etc.
2. Visit to a local polluted site: urban/ rural/industrial/agricultural.
3. Study of common plants, insects, birds & basic principles of identification.
4. Study of simple ecosystem; pond, river etc.

Text Books:

1. "Environmental Chemistry", De, A. K., New Age Publishers Pvt. Ltd.
2. "Introduction to Environmental Engineering and Science", Masters, G. M., Prentice Hall India Pvt. Ltd.
3. "Fundamentals of Ecology", Odem, E. P., W. B. Sannders Co.

Reference Books:

1. "Biodiversity and Conservation", Bryant, P. J., Hypertext Book
2. "Textbook of Environment Studies", Tewari, Khulbe & Tewari, I.K. Publication

***Latest editions of all the suggested books are recommended.**

INDUSTRIAL ECOLOGY

Sixth Semester

Course Code: DIP603/DIP502	**L**	**T**	**P**	**C**
Course Content:	**4**	**-**	**-**	**4**

Unit I

Introduction to Industrial Psychology – definition, scope and importance. **(Lectures 08)**

Unit II

Motivation: Meaning, factors, motivation theories (Maslow, Herzberg and McGregor); understanding stress and its consequences, causes of stress, managing stress; group dynamics: features of group, group cohesiveness. **(Lectures 08)**

Unit III

Work Environment: Design of work place; fatigue: causes and prevention, work place boredom, accidents and safety. Conflict: Concept, sources and types. **(Lectures 08)**

Unit IV

Constituents of Indian economy: Agriculture, Industry and Service; Innovation and Entrepreneurship: Industrial growth in India, role and challenges of small scale industries, sources of funding for small scale industries, industrial sickness. **(Lectures08)**

Unit V

Privatization and globalization in India.
Problems of industry- technology, waste disposal, industrial law and dispute.

(Lectures 08)

The question paper shall have weightage to case study 20% and to theoretical 80%.

Text Books:

1. Agarwal G.K. *"Social control and change"* Sahitya Bhawan Publication Agra.
2. Agarwal G.K. *"Social Disorganization"* Sahitya Bhawan Publication Agra.
3. Gillin & Gillin *"Cultural Sociology"* The Macmillian Company.
4. Denis. K *"Human Society"* Surjeet Publication Delhi.
5. Dewett, K.K., *"Modern Economic Theory"* S. Chand & Co.
6. Luthers Fred *"Organizational Behavior"*.

Reference Books:

1. Admas Bert N. *"A Sociological Interpretation"* Rand me Nally Chicago 1975.
2. Prasad L.M. *"Principles of Management"*.
3. Stonier A.W. & D.C. Horgne, *"A Text Book of Economic Theory"*, Oxford Publishing House Pvt. Ltd.

***Latest editions of all the suggested books are recommended.**

WEB TECHNOLOGY LAB

Sixth Semester

Course Code: DCS651	**L**	**T**	**P**	**C**
	-	**-**	**6**	**3**

LIST OF PRACTICALS:

Write a program in HTML:

1. Using HTML Tags, Paired & Singular Tag,
2. Text formatting,
3. Heading style, drawing lines,
4. Image tags list (UL, OL, DL).
5. Adding graphics to HTML Document, Tables: cell spacing, cell padding, BGcolor, colspan, rowspan.
6. Linking document, Image Map, Frames.
7. Designing forms using input tags
8. Write a java script to calculate factorial of input nos.
9. Basic structure of PHP using Dreamweaver.
10. PHP web page using GET and POST method.

Evaluation of Practical Examination:-

Internal Evaluation (50 marks):
Each sheet prepared would be evaluated by the faculty concerned on the date of preparing the sheet on a 5 point which would include the sheet drawn by the students and a Viva Voce taken by the faculty concerned. The marks shall be entered on the index sheet.

Evaluation Scheme:

EXPERIMENT (30 MARKS)	ATTENDANCE (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

External Evaluation (50 marks):
The external evaluation would also be done by the external examiner based on the experiment conducted during the examination:

EXPERIMENT (30 MARKS)	File Work (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

MAJOR PROJECT
Sixth Semester

Course Code: DCS652	**L**	**T**	**P**	**C**
	-	**-**	**-**	**4**

1. Students based on their subject of choice should devote themselves to make a project which preferably should be a working model of their thoughts.
2. The student will be assigned a faculty guide who would be the supervisor of the student. The faculty would be identified before the end of the V semester.
3. The project shall be finalized by the students before the start of the VI semester and shall be completed and submitted at least one month before the last teaching day of the VI semester, date of which shall be notified in the academic calendar.
4. The assessment of performance of students should be made at least twice in a semester and internal assessment shall be for 50 marks. The student shall present the final project live as also using overheads project or power point presentation on LCD to the internal committee as also the external examiner.
5. The evaluation committee shall consist of faculty members constituted by the college which would comprise of at-least three members comprising of the Department Coordinator, Class Coordinator and a nominee of the Principal. The students guide would be a special invitee to the presentation. The seminar session shall be an open house session. The internal marks would be the average of the marks given by each member of the committee separately to the Principal in a sealed envelope.
6. Not more than four students would form a group for such industrial training/ project submission.
7. The marking shall be as follows.

Internal: 50 marks
By the Faculty Guide - 25 marks
By Committee appointed by the Principal – 25 marks

External: 50 marks
By External examiner appointed by the University – 50 marks

Evaluation of Practical Examination: As per Annexure – A

VISUAL BASIC. NET LAB
Sixth Semester

Course Code: DCS653

L	T	P	C
-	-	6	3

Write a program in VB.NET:

1. Using Keywords, Statements, and variables.
2. Using Data types, Operators.
3. Using Decisions with if, switch statements.
4. Using Loops, Arrays, Procedures.
5. Using Class and Objects.
6. Working with Textbox, Buttons, Labels, Checkbox, Radio Buttons, List box, Combo Box.
7. Using Picture Box, Menu, ADO.NET Data Namespaces, SqlConnection.
8. Working with Sql Command, Sql Data Adapter.
9. Working with Dataset Class, Data Binding, Data View.

Evaluation of Practical Examination:

Internal Evaluation (50 marks):
Each sheet prepared would be evaluated by the faculty concerned on the date of preparing the sheet on a 5 point which would include the sheet drawn by the students and a Viva Voce taken by the faculty concerned. The marks shall be entered on the index sheet.

Evaluation Scheme:

EXPERIMENT (30 MARKS)	ATTENDANCE (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

External Evaluation (50 marks):
The external evaluation would also be done by the external examiner based on the experiment conducted during the examination

EXPERIMENT (30 MARKS)	File Work (10 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)

ANNEXURE – A

Evaluation of Practical Examination:

EVALUATION CRITRIA (INTERNAL)

S. No.	Details	Marks (50)
1	Regularity/Attendance	05
2	Performance of Practical/Skill/Creativity/Innovation	20
3	Knowledge, Findings and Results regarding practical conducted	10
4	File Presentation	05
5	Response to questions during Viva	10
	Total (Out of 50)	

External examiner appointed by University shall conduct the practical along with internal faculty and shall assess out of 50 marks. The student would be required to complete an experiment during the practical examination and write the detail process, findings/ result and conclusions in the examination evaluation copy.

EVALUATION CRITRIA (EXTERNAL)

S. No.	Details	Marks (50)
1	Performance of Experiment/ Practical and Observations taken	20
2	Result/ Conclusion	10
3	Records/ File Presentation	10
4	Viva – Voce	10
	Total (Out of 50)	

Annexure – I

INDUSTRIAL TRAINING

After IVth semester examination in the summer vacation students will have a four week industrial training in small scale industry/training institute, on different stages of production, testing quality control and assurance, research & development and maintenance etc. They will work and tours their attention on following points to incorporate them in their report.

1. Name and Address of the organization:

2. (a) Date of Joining:
(b) Date of Leaving:

3. Nature of work
(a) Product:
(b) Research & development:
(c) Maintenance:
(d) Working hours:

4. Details of work visited and activities Going on:

5. Details of Machine/Tools used in the Section of unit visited:

6. Work procedure in the section visited:

7. Specifications of the product of section And materials used:

8. Work of repair and maintenance cell:

9. Manner of keeping store items, their Receiving &distribution-:

10. Safety measures on work place and Working condition in general – Comfortable convenient& hygienic:

Date:-

Student Signature
Name
Class
Branch
Enrollment No.

Annexure – II

TRAINEE ASSESSMENT FORMAT

This institution invites the comments on the training of its students (work and behavior) from their immediate supervisors on the following points.

1. Name of the trainee

2. Date of

    - Joining
    - Leaving

3. i. Regularity & Punctuality
   ii. Sense of responsibility
   iii. Readiness to work/ learn
   iv. Obedience
   v. Skill acquired

4. Name of the works of the Department he attended during his stay.
   His activity/ worth of being there.

5. Anything specify.

Signature of the Assessor

Date: Designation