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
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) :

<table>
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<tr>
<th></th>
<th>Internal</th>
<th>External</th>
<th>Total</th>
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<tbody>
<tr>
<td>30+10 (Project)</td>
<td></td>
<td>60</td>
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Maximum Credit : 120

Minimum Credit Required for the degree : 116

Internal Evaluation (Theory Papers & Project) :

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<th>Class Test II</th>
<th>Class Test III</th>
<th>Class Quiz/Assign /Project</th>
<th>Attendance</th>
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<td>10 Marks</td>
<td>10 Marks</td>
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Evaluation of Practical/Dissertation & Project Report :

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</thead>
<tbody>
<tr>
<td>50</td>
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Duration of Examination :

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1 ½ hrs.</td>
<td>3 hr.</td>
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</table>

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**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Course Code</th>
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<th>Periods</th>
<th>Credit</th>
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<td>T</td>
<td>P</td>
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<tr>
<td>1</td>
<td>DCS301</td>
<td>Operating System</td>
<td>3</td>
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<tr>
<td>2</td>
<td>DCS302</td>
<td>Computer Programming in C</td>
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<td>DCS304</td>
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<td>Operating System Lab (Linux)</td>
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*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.

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**Semester-IV**

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<td>Data Structures Using C</td>
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<td>3</td>
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<td>3  1 -</td>
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<td>Web Technology</td>
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<td>2</td>
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<td>E-Commerce</td>
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<tr>
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<td>Industrial Economics &amp; Principles of Management</td>
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**Total**

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*Subject can be taught either in Vth or VIth Semester.*
OPERATING SYSTEM
Third Semester

Course Code: DCS301  
Course Contents:  

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:**

**References Books:**

*Latest editions of all the suggested books are recommended.*
COMPUTER PROGRAMMING IN ‘C’
Third Semester

Course Code: DCS302
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.

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.

Unit III
Introduction to Array: Array declaration and initialization, single and multidimensional array, arrays of characters.

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.

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.

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:

References Books:

*Latest editions of all the suggested books are recommended.
SOFTWARE ENGINEERING
Third Semester

**Course Code:** DCS304  
**Course Contents:**  
**L T P C**  
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:**

**Reference Books:**
*Latest editions of all the suggested books are recommended.
DIGITAL ELECTRONICS
Third Semester

Course Code: DEC301
Course Contents: 

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, 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:**

**Reference Books:**

*Latest editions of all the suggested books are recommended.*
ENGLISH COMMUNICATION & SOFT SKILLS-III
(For All Undergraduate & Diploma Courses)
Third Semester

Course Code-DIP399
Course Content

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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

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Internal Assessment: 50

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

External Assessment: 50

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<td>25 Marks</td>
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(The external evaluation would be done by an external examiner based on the Practical Exam 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.
OPERATING SYSTEM LAB (LINUX)
Third Semester

Course Code: DCS351

<table>
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<tr>
<th>L</th>
<th>T</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>EXPERIMENT (30 MARKS)</th>
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<th>VIVA (10 MARKS)</th>
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</thead>
</table>

External Evaluation (50 marks):

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</thead>
</table>
C PROGRAMMING LAB
Third Semester

Course Code: DCS352

LIST OF PRACTICALS:
1. Write a Program (WAP) to calculate temperature in Fahrenheit to Celsius using formula \( C = \frac{F - 32}{1.8} \).
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, \( 2+5+8+\ldots\ldots\ldots\ldots\ldots+n \).
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.

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</thead>
</table>
DIGITAL ELECTRONICS LAB
Third Semester

Course Code: DEC351

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.

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</thead>
</table>
### CONCEPTS OF INFORMATION SYSTEM 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
Course Contents:  L  T  P  C
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, traversing 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:
5. Tanenbaum, Data Structures, Prentice Hall of India, New Delhi.

**Reference Books:**


*Latest editions of all the suggested books are recommended.*
Course Code: DCS403

Course Contents:

<table>
<thead>
<tr>
<th>L</th>
<th>T</th>
<th>P</th>
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</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>-</td>
<td>4</td>
</tr>
</tbody>
</table>

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:

Reference Book:

*Latest editions of all the suggested books are recommended.*
MANAGEMENT INFORMATION SYSTEM
Fourth Semester

Course Code: DCS404
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:

Reference Book:

*Latest editions of all the suggested books are recommended.
OBJECT ORIENTED PROGRAMMING IN C++
Fourth Semester

Course Code: DCS406
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:

**Reference Books:**
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
Course Contents:  

<table>
<thead>
<tr>
<th>Unit I</th>
<th>Networks Basics: What is network, network criteria, peer-to-peer network, Client-Server network, LAN, MAN and WAN, topologies, transmission media. (Lectures 08)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit II</td>
<td>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)</td>
</tr>
</tbody>
</table>
| 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:
4. Schatt Stan, Area Networks , Prentice Hall of India, New Delhi
5. Evanson Tami, Network+ Lab manual,- BPB Publications, Delhi.
References Books:


*Latest editions of all the suggested books are recommended.*
ENGLISH COMMUNICATION & SOFT SKILLS-IV
(For All Undergraduate & Diploma Courses)
Fourth Semester

Course Code-DIP499
Course Content

L T P C
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

<table>
<thead>
<tr>
<th>External Exam</th>
<th>Internal Assessment</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Internal Assessment: 50

<table>
<thead>
<tr>
<th>Best 2 out of Three CTs</th>
<th>Attendance</th>
<th>Workbook Assignments &amp; Viva</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>10</td>
<td>10+10</td>
<td>50</td>
</tr>
</tbody>
</table>

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

External Assessment: 50

<table>
<thead>
<tr>
<th>PRACTICAL EXAM*</th>
<th>VIVA</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 Marks</td>
<td>25 Marks</td>
<td>50 Marks</td>
</tr>
</tbody>
</table>

(The external evaluation would be done by an external examiner based on the Practical Exam 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.
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.
7. Array implementation of Stack, Queue, Circular Queue.
8. Implementation of Stack, Queue.
10. Program for Tree Traversals (preorder, in order, post order).

Evaluation of Practical Examination:

Internal Evaluation (50 marks):

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</table>
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 keyboard 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:
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OBJECT ORIENTED PROGRAMMING IN C++ LAB
Fourth Semester

Course Code: DCS456

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):
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</table>
COMPUTER NETWORK LAB
Fourth Semester

Course Code: DCS457

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
3. Establishment of a LAN.
4. Use of protocols in establishing LAN.
5. Trouble shooting of networks.
6. Installation of network device drivers.
8. Use/installation of proxy server.

Evaluation of Practical Examination:

Internal Evaluation (50 marks):
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</table>
### COMPUTER GRAPHICS
Fifth Semester

**Course Code:** DCS501  
**Course Contents:**

<table>
<thead>
<tr>
<th>Unit</th>
<th>Title</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Graphic Systems</td>
<td>Introduction to Computer Graphics, display devices, types, applications of display devices,</td>
</tr>
<tr>
<td></td>
<td>Scan conversion and Output Primitives</td>
<td>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.</td>
</tr>
<tr>
<td>II</td>
<td>Graphic primitives in algorithms</td>
<td>Graphic primitives in algorithms, point plotting, line drawing algorithms – DDA algorithms, Bresenham’s line algorithms, circle-generating algorithms, ellipses.</td>
</tr>
<tr>
<td></td>
<td>Two-Dimensional Transformations</td>
<td>Basic transformations-translation, scaling, rotation, matrix representations and homogeneous coordinates, composite transformations, viewing transformation.</td>
</tr>
<tr>
<td>III</td>
<td>Windowing and Clipping Techniques</td>
<td>Windowing concepts, clipping algorithms, area clipping, line clipping, polygon clippings, text clipping, blanking, window to-viewpoint transformation, Cohen Sutherland clipping algorithm.</td>
</tr>
<tr>
<td>IV</td>
<td>2-D and 3-D Graphics</td>
<td>Three dimensional transformation, Z-buffer algorithm, Curve, Bezier, B-spline surface, concept of projection.</td>
</tr>
</tbody>
</table>

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:**

**Reference Books:**

*Latest editions of all the suggested books are recommended.*
JAVA PROGRAMMING
Fifth Semester

Course Code: DCS502
Course Contents: L T P C

Unit I
Core Java: Introduction, operator, data type, variable, arrays, control statements, methods &
classes, inheritance, 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, labels, 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:
2. Naughton, Schildt, “The Complete Reference JAVA2”, TMH, Delhi

Reference Books:

*Latest editions of all the suggested books are recommended.
## MULTIMEDIA  
### Fifth Semester

**Course Code:** DCS503  
**Course Contents:**

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### 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:  

### Reference Books:  
1. *Flash 5 Bible by Rein Hardit*, IDG Books India Pvt. Ltd, Delhi.  

*Latest editions of all the suggested books are recommended.*
DATABASE MANAGEMENT SYSTEM  
Fifth Semester

Course Code: DCS506  
Course Contents:  
L T P C
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 architecture; 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:  

Reference Books:  

*Latest editions of all the suggested books are recommended.*
INDUSTRIAL ECOLOGY
Fifth Semester

Course Code: DIP502/DIP603

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</table>

Course Content:

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:
6. Luthers Fred “Organizational Behavior”.

Reference Books:
2. Prasad L.M. “Principles of Management”.

*Latest editions of all the suggested books are recommended.
ENVIRONMENT STUDIES
Fifth Semester

Course Code: DIP503/DIP604

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.


(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

(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:

Reference Books:
1. “Biodiversity and Conservation”, Bryant, P. J., Hypertext Book

*Latest editions of all the suggested books are recommended.
COMPUTER GRAPHICS LAB
Fifth Semester

Course Code: DCS551

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:

<table>
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<tr>
<th>EXPERIMENT (30 MARKS)</th>
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External Evaluation (50 marks):
The external evaluation would also be done by the external examiner based on the experiment conducted during the examination:

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JAVA PROGRAMMING LAB
Fifth Semester

Course Code: DCS552

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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.
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.

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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.

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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 before 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.

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External Evaluation (50 marks):
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WEB TECHNOLOGY
Sixth Semester

Course Code: DCS601
Course Contents: L T P C

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

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:
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.

**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.
3. Chapman, *Web Development with Visual Basic with CD ROM*; Prentice Hall of India,

*Latest editions of all the suggested books are recommended.*
E – COMMERCE
Sixth Semester

Course Code: DCS602
Course Contents:  L  T  P  C

Unit I

Unit II

Unit III

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:

Reference Books:

*Latest editions of all the suggested books are recommended.
VISUAL BASIC.NET
Sixth Semester

Course Code: DCS603
Course Contents: 3 2 - 4

Unit I

(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, SqlDataAdapter, Dataset Class, Data Binding, Data view.

(Lectures 08)

Unit V
Windows Services, Web Services, Web Forms.

(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:

Reference Books:

*Latest editions of all the suggested books are recommended.
INDUSTRIAL ECONOMICS AND PRINCIPLES OF MANAGEMENT
Sixth Semester

Course Code: DIP602

Course Contents:

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

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:

Reference Books:

*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.

(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 
(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:**

**Reference Books:**
1. “Biodiversity and Conservation”, Bryant, P. J., Hypertext Book

*Latest editions of all the suggested books are recommended.*
INDUSTRIAL ECOLOGY
Sixth Semester

Course Code: DIP603/DIP502
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:
6. Luthers Fred “Organizational Behavior”.

Reference Books:
2. Prasad L.M. “Principles of Management”.

*Latest editions of all the suggested books are recommended.
WEB TECHNOLOGY LAB
Sixth Semester

Course Code: DCS651

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.
7. Designing forms using input tags
8. Write a java script to calculate factorial of input nos.
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:

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External Evaluation (50 marks):
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MAJOR PROJECT
Sixth Semester

Course Code: DCS652

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.
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:

<table>
<thead>
<tr>
<th>EXPERIMENT (30 MARKS)</th>
<th>ATTENDANCE (10 MARKS)</th>
<th>VIVA (10 MARKS)</th>
<th>TOTAL INTERNAL (50 MARKS)</th>
</tr>
</thead>
</table>

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

<table>
<thead>
<tr>
<th>EXPERIMENT (30 MARKS)</th>
<th>File Work (10 MARKS)</th>
<th>VIVA (10 MARKS)</th>
<th>TOTAL INTERNAL (50 MARKS)</th>
</tr>
</thead>
</table>
ANNEXURE – A

Evaluation of Practical Examination:

**EVALUATION CRITERIA (INTERNAL)**

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

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 CRITERIA (EXTERNAL)**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Details</th>
<th>Marks (50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Performance of Experiment/ Practical and Observations taken</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Result/ Conclusion</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Records/ File Presentation</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Viva – Voce</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td><strong>Total (Out of 50)</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>
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.
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