Anjuman Khairul Islam's

POONA COLLEGE OF ARTS, SCIENCE AND COMMERCE

Camp, Pune

Bachelor of Vocation (B. Voc.)

Course Structure

(As per UGC guidelines for implementing B. Voc. program)

For

SOFTWARE DEVELOPMENT

(Choice Based Credit System)

POONA COLLEGE OF ARTS, SCEINCE AND COMMERCE PROPOSED STRUCTURE AND SYLLABUS FOR BACHELOR IN VOCATION -SOFTWARE DEVELOPMENT SEMESTER PATTERN WITH CREDIT SYSTEM

Eligibility and Admission

I:Students already acquired NSQF certification Level 4 in a particular industry sector and opted admission in the skill-based courses under NSQF in the institutions recognized under Community Colleges / B. Voc Degree programme / Deen Dayal Upadhyay KAUSHAL Kendras in same trade with job role for which he /she was previously certified at school level.

II: Students who have acquired NSQF Certification Level 4 but may like to change their trade and may enter into skill-based courses in a different trade.

III: Students who have passed 10+2 examination (Regular or Vocational) from a recognized board.

Duration and Structure of Programme

The B. Voc (Travel, Tourism and Hospitality Management) Semester pattern with credit system) degree programme shall be of 3 years duration divided into three parts, Part I, Part II and Part III and 6 semesters. (At each part there will be 14 courses of 60 credits (1200 marks). Each part would comprise of two semesters each with 4 subjects of 3 credits each for general components and 3 subjects for skilling component. The B. Voc (Travel, Tourism and Hospitality Management) degree examination Part I, II and III in aggregate shall be of 180 credits (72 General and 108 Skilling) for 3600 marks. The contents of the courses are subject to change keeping in mind the industry requirements on timely basis.

Scheme of Examination

The assessment will be based on 50:50 ratio of continuous internal assessment (CIA) and semester end examination (SEE). Separate and independent passing in CIA and SEE will be mandatory. In case of failure in CIA of a particular course, students will have to appear for the same CIA, at his/her own responsibility in the next academic year, when the same course is offered during regular academic session. However, in case of failure in SEE in particular course(s), exam will be conducted in immediate subsequent semester. In case a student fails in certain course(s) in a particular semester and the same course(s) are modified/ revised/ removed from the curriculum in due course, the student will have to appear as per the newly framed curriculum and/or pattern in subsequent semester, at his/her own responsibility.

Continuous Internal Assessment (CIA)

There will be 50 marks for Continuous Internal Assessment. Distribution of 50 marks will be as follows -20 marks for assignments, 10 marks for seminar presentation / tutorials and 20 marks for class tests. The setting of the question papers and the assessment will be done by the concerned teacher.

Semester End Examination (SEE)

The semester end theory examination for each theory course will be of 50 marks. The total marks shall be 100 for 3 credit theory courses (50 marks semester end exam + 50 marks CIA).

Earning Credits:

At the end of every semester, a letter grade will be awarded in each course for which a student had registered. A student's performance will be measured by the number of credits that he/she earned by the weighted Grade Point Average (GPA). The SGPA (Semester Grade Point Average) will be awarded after completion of respective semester and the CGPA (Cumulative Grade Point Average) will be awarded at the respective exit point.

Standards of Passing

Int Passing Marks (30%)	Ext Passing Marks (30%	Total Passing Marks (40%)

Grading System

- One Credit would mean equivalent of 15 periods of 60 minutes each, for theory, workshops/labs and tutorials
- For internship/field work, the credit weightage for equivalent hours shall be 50% of that for lectures/workshops
- For self-learning, based on e-content or otherwise, the credit weightage for equivalent hours of study should be 50% or less of that for lectures/workshops
- The award of 'Certificate' / 'Diploma' / 'Advanced Diploma' / Degree to the successful learners in both skills and general education components of the curriculum may be done

- Grade points are based on the total number of marks obtained by him / her in all heads of the examination of the course. The grade points and their equivalent range of marks are shown in Table-I

Table I: Grades and Grade Points

Grade	Grade Point
O (Outstanding)	10
A+ (Excellent)	9
A (Very Good)	8
B+ (Good)	7
B (Above Average)	6
C (Average)	5
P (Pass)	4
F(Fail)	00
Ab (Absent)	00

- A student obtaining Grade F shall be considered failed and will be required to reappear in the examination.
- Non-appearance in any examination / assessment shall be treated as the students have secured zero marks in that subject examination / assessment.
- A student with F grade will be considered as "failed" in the concerned course and he / she has to clear the course by appearing in the next successive semester examinations. There will be no revaluation or recounting under this system.
- Every student shall be awarded grade points out of maximum 10 points in each subject (based on 10-point scale). Based on the grade points obtained in each subject, Semester Grade Point Average (SGPA) and then Cumulative Grade Point Average (CGPA) shall be computed. Results will be announced at the end of each semester and CGPA will be given at respective exit point.

Computation of SGPA and CGPA

Following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA) may be adopted:

- The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the course components taken by a student and the sum of the number of credits of all the courses undergone by a student in a semester, i.e.

$$\mathbf{SGPA\ (Si) = \sum(Ci \times Gi) / \sum Ci}$$

where 'Ci'is the number of credits of the ith course component and 'Gi' is the grade point scored by the student in the ith course component.

- The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$\mathbf{CGPA = \sum(Ci \times Si) / \sum Ci}$$

where 'Si' is the SGPA of the ith semester and Ci is the total number of credits in that semester.

The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

Credits for each of the years are as follows

NSQF Level	Skill Component Credits	General Education Credits	Normal calendar duration	Exit Points / Awards
Year 3	36	24	Six Semesters	B.Voc.
Year 2	36	24	Four semesters	Advanced Diploma
Year 1	36	24	Two semesters	Diploma
TOTAL	108	72		

Departmental Committee

The Departmental Committee of Poona college (DC) of the Centre will monitor the smooth functioning of the programme.

Results Grievances / Redressal Committee

Grievances / redressal committee will be constituted in the department to resolve all grievances relating to the evaluation. The committee shall consist of Principal, Vice Principal, Head of the department, the concerned teacher of a particular course and senior faculty member of Concerned Department. The decision of Grievances / redressal committee will have to be approved by Department committee.

B. Voc Software Development Syllabus for First Year											
First year (Certificate) NSQF -Level-4 *Semester-I (Credit 30)*											
Course Code	**Course Name**	**Teaching Scheme (Hours/Week)**		**Examination Scheme and Marks**					**Credits**		
		Theory	**Pract.**	**CIA**	**SSE**	**PR**	**OR**	**Total**	**TH**	**PR**	**Total**
THEORY											
SW- 101 (T)	Basics Of Computer Hardware And Networking	03		50	50			100	03		03
SW- 102 (T)	Programming in C	03		50	50			100	03		03
SW- 103 (T)	Database Management Systems (DBMS)	03		50	50			100	03		03
SW- 104 (T)	Communication for Professional	03		50	50			100	03		03
PRACTICAL											
SW- 105 (P)	Lab - Programming in C		02			50	--	50	--	02	02
SW- 106 (P)	Lab - DBMS		02			50	--	50	--	02	02
SW- 107 (P)	On the job Training*		18				100	100		14	14
	TOTAL	12	22	200	200	100	100	600	12	18	30

B. Voc Software Development Syllabus for First Year											
First year (Certificate) NSQF -Level-5 *Semester-II (Credit 30)*											
Course Code	**Course Name**	**Teaching Scheme (Hours/Week)**		**Examination Scheme and Marks**					**Credits**		
		Theory	**Pract.**	**CIA**	**SSE**	**PR**	**OR**	**Total**	**TH**	**PR**	**Total**
THEORY											
SW- 108 (T)	Web Designing	03		50	50			100	03		03
SW- 109 (T)	Object Oriented Programming using C++	03		50	50			100	03		03
SW- 110 (T)	Operating System	03		50	50			100	03		03
SW- 111 (T)	Personal Enhancement	03		50	50			100	03		03
PRACTICAL											
SW- 112 (P)	Lab – Web Designing		02			50	--	50	--	02	02
SW- 113 (P)	Lab – C++		02			50	--	50	--	02	02
SW- 114(P)	On the job Training*		18				100	100		14	14
	TOTAL	12	22	200	200	100	100	600	12	18	30

*****On Job Training should be carried out in any one subject per semester as per NSDC Guide lines

B. Voc Software Development Syllabus for Second Year

Second year (Certificate) NSQF -Level-6

Semester-III (Credit 30)

Course Code	Course Name	Teaching Scheme (Hours/Week)		Examination Scheme and Marks					Credits		
		Theory	Pract.	CIA	SSE	PR	OR	Total	TH	PR	Total
THEORY											
SW- 201 (T)	Software Engineering	03		50	50			100	03		03
SW- 202 (T)	Relational Database Management Systems (RDBMS)	03		50	50			100	03		03
SW- 203 (T)	Core JAVA	03		50	50			100	03		03
SW- 204 (T)	Quantitative Techniques	03		50	50			100	03		03
PRACTICAL											
SW- 205 (P)	Lab – Core Java		02			50	--	50	--	02	02
SW- 206 (P)	Lab – RDBMS		02			50	--	50	--	02	02
SW- 207 (P)	On the job Training		18				100	100		14	14
	TOTAL	12	22	200	200	100	100	600	12	18	30

B. Voc Software Development Syllabus for Second Year

Second year (Certificate) NSQF -Level-6

Semester-IV (Credit 30)

Course Code	Course Name	Teaching Scheme (Hours/Week)		Examination Scheme and Marks					Credits		
		Theory	Pract.	CIA	SSE	PR	OR	Total	TH	PR	Total
THEORY											
SW- 208 (T)	ASP.NET using C#	03		50	50			100	03		03
SW- 209 (T)	Advanced JAVA	03		50	50			100	03		03
SW- 210 (T)	E-Commerce	03		50	50			100	03		03
SW- 211 (T)	Research Methodology	03		50	50			100	03		03
PRACTICAL											
SW- 212 (P)	Lab – ASP.NET using C#		02			50	--	50	--	02	02
SW- 213 (P)	Lab – Advanced JAVA		02			50	--	50	--	02	02
SW- 214(P)	On the job Training*		18				100	100		14	14
	TOTAL	12	22	200	200	100	100	600	12	18	30

*****On Job Training should be carried out in any one subject per semester as per NSDC Guide lines

B. Voc Software Development Syllabus for Third Year											
Third year (Certificate) NSQF -Level-7 *Semester-V (Credit 30)*											
Course Code	**Course Name**	**Teaching Scheme (Hours/Week)**		**Examination Scheme and Marks**					**Credits**		
		Theory	**Pract.**	**CIA**	**SSE**	**PR**	**OR**	**Total**	**TH**	**PR**	**Total**
THEORY											
SW- 301 (T)	Android App Development	03		50	50			100	03		03
SW- 302 (T)	PHP	03		50	50			100	03		03
SW- 303 (T)	Cyber Security	03		50	50			100	03		03
SW- 304 (T)	Enterprise Resource Planning and Management	03		50	50			100	03		03
PRACTICAL											
SW- 305 (P)	Lab - Android App Development		02			50	--	50	--	02	02
SW- 306 (P)	Lab - PHP		02			50	--	50	--	02	02
SW- 307 (P)	On the job Training		18				100	100		14	14
	TOTAL	12	22	200	200	100	100	600	12	18	30

B. Voc Software Development Syllabus for Third Year											
Third year (Certificate) NSQF -Level-7 *Semester-VI (Credit 30)*											
Course Code	**Course Name**	**Teaching Scheme (Hours/Week)**		**Examination Scheme and Marks**					**Credits**		
		Theory	**Pract.**	**CIA**	**SSE**	**PR**	**OR**	**Total**	**TH**	**PR**	**Total**
THEORY											
SW- 308 (T)	Python	03		50	50			100	03		03
SW- 309 (T)	Advanced PHP	03		50	50			100	03		03
SW- 310 (T)	Digital Marketing	03		50	50			100	03		03
SW- 311 (T)	Professional Ethics and Values	03		50	50			100	03		03
PRACTICAL											
SW- 312 (P)	Lab - Python		02			50	--	50	--	02	02
SW- 313 (P)	Lab - Advanced PHP		02			50	--	50	--	02	02
SW- 314 (P)	On the job Training		18				100	100		14	14
	TOTAL	12	22	200	200	100	100	600	12	18	30

*****On Job Training should be carried out in any one subject per semester as per NSDC Guide lines

SEMESTER - I

SW- 101 BASICS OF COMPUTER HARDWARE AND NETWORKING

Course Objectives

Student will able to learn

- Identify and analyze computer hardware, and network components.
- Understand and describe the basic structure of a computer and their execution.
- Understand fundamental underlying principles of computer networking.
- Describe fundamental units of computer system.
- Identify different types of control unit.
- Study the basic taxonomy and terminology of the computer networking and enumerate the layers of OSI model

Learning Outcome:

Student will able to

- Demonstrate a basic understanding of computer hardware and Network
- Install, configure, and remove software and hardware.
- Establish small network involving two or more Pcs

No of Lectures: 45 (3 Credits) Lectures/Week -3

Unit 1: Basics of Computer Organization		**15 Lectures**
1.1	Evolution of Computers	
1.2	Numbering and Coding Systems	
1.3	Data Representation	
1.4	Inside the Computer: Important computer terminology, Basic organization of computer and block level description of the functional units	
1.5	Primary Memory	
1.6	Registers	
1.7	Memory Organization	
1.8	Cache Memory	
1.9	Virtual memory	
1.10	Processors	
1.11	Input / Output devices	
Unit2: Networking Concepts		**15 Lectures**
2.1	Data Communications: Components, Data Representation, Direction and Flow	
2.2	Networks: Physical Structures and Categories of Network, Protocols and Standard, Standard Organization	
2.3	Network Model: Internet Model and OSI Model, Transmission modes, Transmission Media, Internetworking Devices Network Models.	

Unit3: Internet and Recent Advancements in IT		**15 Lectures**
3.1	The Internet: a World-Wide Resource. What's on the Internet, All about Domain Name System (DNS), Making an Internet Connection, Dial-Up Connections, mail services and search engines	
3.2	Brief Introduction to Advanced computing technologies and applications: Distributed Computing, Mobile Computing, Grid and Cluster Computing, Parallel Computing and Cloud Computing, Big Data Analysis, Fuzzy and Neural Computing.	

References:

- Carl Hamacher, Zvonko Vranesic and Safwat Zaky, "Computer Organization", Fifth Edition, Tata McGraw-Hill.
- John P. Hayes, "Computer Architecture and Organization", Third Edition.
- William Stallings, "Computer Organization and Architecture: Designing for Performance", Eighth Edition, Pearson.
- B. Govindarajulu, "Computer Architecture and Organization: Design Principles and Applications", Second Edition, Tata McGraw-Hill.
- S. Tanenbaum,"Computer Networks", 4th edition, Prentice Hall
- F. Ferouzan,"Data and Computer Communication", Tata McGraw Hill.
- Andrew S. Tanenbaum,"Structured Computer Organization",5th Edition,TataMcGraw Hill. 8. The 8051 Microcontroller and Embedded Systems.

SW- 102 (T) PROGAMMING IN C– THEORY

Course Objectives

Student will able to learn

- To develop a programming logic
- To teach basic principles of programming
- To develop skills for writing programs using 'C'

Learning Outcome:

Student will able to

- Demonstrate a basic understanding of C Programming Language
- Development of programming skill.

PROGAMMING IN C– THEORY		
Course Code- SW- 102 (T)		**(3 Credits) Lectures/Week -3**
Unit No	**Topic**	**Total Lectures-45**
UNIT I	**Introduction to C language** 1.1 History,Basic structure of C Programming , Language fundamentals , 1.3.1 Character set, tokens , Keywords and identifiers , Variables and data types , Operators ,Types of operators , Precedence and associativity ,Expression	
UNIT II	Managing I/O operations - Console based I/O and related built-in I/O functions, printf(), scanf() , getch(), getchar() , Formatted input and formatted output.	
UNIT III	Decision Making and looping - Introduction , Decision making structure , If statement , If-else statement , Nested if-else statement , Conditional operator , Switch statement , Loop control structures - while loop , Do-while loop , For loop ,Nested for loop ,Jump statements - break, continue , goto , exit	
UNIT VI	Programs through conditional and looping statements , Addition / Multiplication of integers ,Determining if a number is +ve / -ve / even / odd Maximum of 2 numbers, 3 numbers Sum of first n numbers, given n numbers Integer division, Digit reversing, Table generation for n, ab Factorial, sine series, cosine series, nCr , Pascal Triangle Prime number, Factors of a number, Other problems such as Perfect number, GCD of 2 numbers etc (Write algorithms and draw flowcharts)	
UNIT V	Arrays and Strings - Introduction to one-dimensional Array , Definition , Declaration , Initialization , Accessing and displaying array elements , Finding smallest and largest number from array , Reversing array , Finding odd/even/prime number from array , Introduction to two-dimensional Array - Definition , Declaration , Initialization , Accessing and displaying array elements , Matrices: Addition, Multiplication, Transpose, Symmetry, upper/lower triangular , Introductions to Strings - Definition ,Declaration , Initialization , Standard library functions, Implementations without standard library functions.	
UNIT VI	**Functions** Introduction - Purpose of function, Function definition, Function declaration. Function call,Types of functions , Call by value and call by reference , Storage classes	
UNIT VII	Introduction to pointer - Definition , Declaration , Initialization , Indirection	

	operator and address of operator , Pointer arithmetic , Dynamic memory allocation , Functions and pointers
UNIT VIII	Structures - Introduction to structure , Definition , Declaration , Accessing members , structure operations , nested structure

Reference Book:-

1) Let us C –YashwantKanetkar, BPB publication.
2) Ansi C- Balagurusamy
3) The complete Reference- HerbeltSchildt

SW- 103 (T) Database Management Systems (DBMS) - THEORY – (03 Credit)

Course Objectives

Student will able to learn

- To teach fundamental concepts of files
- To teach principles of databases
- To teach database management operation

Learning Outcome:

Student will able to

- Demonstrate a basic understanding of DBMS
- Development of writing queries using DDL,DML,DCL & TCL

SW- 103 (T) Database Management Systems (DBMS) - THEORY		
Course Code- SW- 103 (T)		**(3 Credits) Lectures/Week -3**
Unit No	**Topic**	**Total Lectures-45**
UNIT I	Introduction of DBMS Overview, File system Vs DBMS, Describing & storing data (Data models (relational, hierarchical, network)), Levels of abstraction , data independence, Queries in DBMS (SQL : DDL, DML,DCL,TCL), Structure of DBMS, People who deal in DBMS, Advantages of DBMS	
UNIT II	Conceptual Design (E-R model) . Overview of DB design, ER data model (entities, attributes, entity sets, relations, relationship sets) , Additional constraints (key constraints, participation constraints, weak entities, aggregation / generalization, Conceptual design using ER (entities VS attributes, Entity Vs relationship, binary Vs ternary, constraints beyond ER), Conceptual design for small to large enterprises, Case studies.	
UNIT III	Relational data model Relations (concepts, definition), Conversion of ER to Relational model , integrity constraints (key, referential integrity, general constraints)	
UNIT VI	Relational algebra Preliminaries, Relational algebra (selection, projection, set operations, renaming, joins, division)	
UNIT V	SQL DDL (create, drop, alter), forms of a basic SQL query (egs, expressions, strings in SQL), union / intersection / except, nested queries(introduction, correlated queries, set comparison operators), Aggregate operators (group by, having), aggregate functions, Null values (comparison using NULL, logical connections (AND,OR,NOT) impact on SQL commands, outer joins, disallowing NULL), examples on SQL (case studies)	

References

1. Database systems, By KORTH
2. Database systems By Nawathe
3. Postgresql , O'Reilly publications
4. Database systems, by Raghuramakrishnan

SW- 104 (T) - Communication for Professional – THEORY – (03 Credit)

Course Objectives

Student will able to learn

- The aim of Functional English course is to develop communicative skills of the learners in listening, speaking, reading and writing.
- The main focus is on how English is used in real-life situations. Through the items listed in the syllabus the learners are expected to develop fluency in conversation and efficiency in interactional skills.
- They are also expected to learn to use grammar communicatively so that they become effective and efficient communicators in English.

Learning Outcome:

Student will able to

- Reading and listening Skills: Students will become accomplished, active readers and listeners who are able to appreciate ambiguity and complexity and who can articulate their own interpretation with an awareness and curiosity for other's perspectives.
- Writing Skills: Students will be able to write effectively for a variety of professional and social settings.
- Oral Communication Skills: Students will demonstrate the skills needed to participate in conversation that builds knowledge collaboratively. They will learn to listen carefully and respectfully to other's viewpoints; articulating their own ideas and framing their own questions clearly. Students will be able to prepare, organize and deliver an engaging oral presentation.

SW- 104 (T) - Communication for Professional – THEORY – (03 Credit)		
Course Code- SW- 104 (T)		**(3 Credits) Lectures/Week -3**
Unit No	**Topic**	**Total Lectures-45**
UNIT I	**Developing Conversational Ability through role play and dialogue writing (Listening and speaking skills involved)** 1. Greetings and Introduction 2. Participating in small talks- At the office, At the railway station, At the airport, At the travel agency, At the bank, At the doctor's clinic, At the hospital. 3. Making enquiries 4. Making requests and seeking permissions 5. Expressing gratitude and apologizing 6. Complaining 7. Expressing sympathy and offering condolences 8. Congratulating people and responding to congratulations 9. Telephone Etiquettes	
UNIT II	**Functional Reading** 1. Reading official Letters and Profiles 2. Reading News Reports/Newspapers	

	3. Reading Online Content 4. Reading Comprehension, Description and Narration (Objects, Places and People)
UNIT III	**Writing Skills** 1. Letter Writing in Email format 2. Precis of a given passage 3. Report writing and blog writing 4. d) Resume Writing
UNIT VI	**Grammar and Vocabulary** 1. Types of Sentences 2. Active and Passive Voice 3. Direct and Indirect Speech 4. Process of Word Formation 5. e) Enriching Business English Vocabulary
UNIT V	**Communication and Life skills:** 1. Non-Verbal Communication 2. Group Discussion 3. Interview Skills 4. d) Presentation Skills

References

1. Allen and Unwin, 2004 Hamp-Lyons, Liz and Ben Heasiey. Second edition. Study Writing:
2. Bellare, Nirmala. Reading Strategies. Vols. 1 and 2. New Delhi. Oxford University Press, 1998.
3. Bhasker, W. W. S & Prabhu, N. S.: English through Reading, Vols. 1 and 2. Macmillan, 1975
4. Brown, Ralph: Making Business Writing Happen: A Simple and Effective Guide to Writing Well. Sydney:
5. Boves. Thill Business Communication Today Mcycans Hills Publication.
6. Dark Studying International Communication Sage Publication.
7. Murphy Hidderandt Thomas Effective Business Communication Mc Graw Hill.

SW- 105 (P) Lab - Programming in C – PRACTICAL (2 Credit)

Sr.No.	Practical's	Total Hours-30
1	**Data types and operators** 1) Write a C Program to demonstrate the working of arithmetic operators (Associativity and precedence of arithmetic operators is expected) 2) Write a C program to find maximum of two numbers using conditional operator. 3) Write a C Program to find maximum of three numbers using logical operators.	
2	**Managing Input and Output** 1. Accept dimensions of a cylinder and print the surface area and volume. 2. Accept temperatures in Fahrenheit (F) and print it in Celsius(C) and Kelvin (K) (Hint: C=5.0/9(F-32), K = C + 273.15) 3. Accept initial velocity (u), acceleration (a) and time (t). Print the final velocity (v) and the distance travelled (s) (Hint: v = u + at, s = u + at2) 4. Accept two numbers and print arithmetic and harmonic mean of the two numbers (Hint: AM= (a+b)/2, HM = ab/(a+b))	
3	**Decision Making using if and if-else** 1. Write a program to accept an integer and check if it is even or odd. 2. Accept a character as input and check whether the character is a digit. (Check if it is in the range '0' to '9' both inclusive) 3. Accept a character from the user and check whether the character is a vowel or consonant. (Hint: a,e,i,o,u, A, E, I, O, U are vowels) **4.** Accept any year as input through the keyboard. Write a program to check whether the year is a leap year or not. (Hint leap year is divisible by 4 and not by 100 or divisible by 400)	
4	**Decision Making using Switch** 1. Accept a single digit from the user and display it in words. For example, if digit entered is 9, display Nine. 2. Write a program, which accepts two integers and an operator as a character (+ - * /), performs the corresponding operation and displays the result	
5	**Loop Control structures** 1. Write a program to calculate sum of digits of a given input number. 2. Write a program to accept two numbers as a range and display sum of all numbers between that range. 3. Write program to check whether a input number is Armstrong number or not 4. Write a program to check whether a input number is perfect number of not. 5. Write a program to calculate x^y.	
6	**Nested Loops** 1. Write a program to generate following triangle up to n lines. 1 1 2 1 2 3 2. Write a program to generate following triangle up to n lines. 1 2 3 4 5 6	
7	**Demonstration of 1-D Arrays**	

	1. Write a program to accept n elements of 1D array and then display sum of all elements of array. 2. Write a program to find maximum and minimum elements of 1D array. 3. Write a program to calculate sum of all odd elements of 1-D array.
8	**Demonstration of 2-D Arrays** 1. Write a program to find maximum and minimum elements of a matrix. 2. Write a program to calculate sum of all elements of a matrix. 3. Write a program to calculate sum of all even elements of a matrix. 4. Write a program to calculate sum of all upper triangular matrix elements. 5. Write a program to calculate sum of all diagonal elements of a matrix
9	**Strings** 1. Write a menu driven program to perform the following operations on strings using standard library functions: 1. Length 2. Copy 3. Concatenation 4. Compare 2. Write a program which accepts a sentence from the user and alters it as follows: Every space is replaced by *, case of all alphabets is reversed, digits are replaced by ? 3. Write a program to accept a string and then count the occurrences of a specific character of a string. 4. Write a program to count the occurrences of vowel from a input string.
10	**Functions** 1. Write a function isEven, which accepts an integer as parameter and returns 1 if the number is even, and 0 otherwise. Use this function in main to accept n numbers and check if they are even or odd. 2. Write a program to calculate sum of digits of a input number using function. 3. Write a program to calculate xy using user defined fuction. 4. Write a function which accepts one number. Function should return 1 if the number is Perfect No, otherwise function should return 0. Use this function in main to display whether a input number is perfect number or not.
11	**Pointers and Structure** 1. Write a program to display the elements of an array containing n integers in the reverse order using a pointer to the array. 2. Accept n integers in array A. Pass this array and two counter variables to a function which will set the first counter to the total number of even values in the array and the other to the total number of odd values. Display these counts in main. (Hint: Pass the addresses of the counters to the function) 3. Accept n integers in an array. Copy only the non-zero elements to another array (allocated using dynamic memory allocation). Calculate the sum and average of non-zero elements. 4. Write a program to allocate memory dynamically for n integers such that the memory is initialized to 0. Accept the data from the user and find the range of the data elements.

References

1. Forouzan B. and Gilbert R, "Structured Programming approach using C", 2nd Edition , Thomson learning Publications

2. Brian W. Kernighan and Dennis M. Ritchie, "The C Programming Language", Second Edition, Prentice Hall, Englewood Cliffs, NJ,
3. Herbert Schildt, "The Complete Reference – C", Fourth Edition, Osborne Publications

SW- 106 (P) Lab - DBMS – PRACTICAL (2 Credit)

Sr.No.	Practical's	Total Hours-30
1	To create simple tables , with only the primary key constraint (as a table level constraint & as a field level constraint) (include all data types)	
2	To create more than one table, with referential integrity constraint, PK constraint.	
3	To create one or more tables with Check ,unique and not null constraint	
4	To drop a table from the database and to alter the schema of a table in the Database	
5	To insert / update / delete records using tables created in previous Assignments. (use simple forms of insert / update / delete statements)	
6	To query the tables using simple form of select statement	
7	To query table, using set operations (union, intersect)	
8	To query tables using nested queries	
9	To query tables , using nested queries (use of 'Except', exists, not	
10	Assignment related to small case studies (Each case study will involve creating tables with specified constraints, inserting records to it & writing queries for extracting records from these tables)	

References

1. Ramez Elmasri and S. Navathe, "Fundamentals of Database Systems", 4th Edition, Pearson Education
2. Abraham Silberschatz, Henry F. Korth and S. Sudarshan, "Database System Concepts", 5th Edition. McGraw-Hill
3. Raghu Ramakrishnan and Johannes Gehrke , "Database Management Systems" , McGraw Hill

SW- 107 (P) On the job Training (14 Credits)

SEMESTER - II

SW- 108 (T) WEB DESIGNING

LEARNING OBJECTIVES:

- To understand how to develop web based applications using HTML, CSS, Jquery and JavaScript.

LEARNING OUTCOMES:

After completion of this course, student will be able to

- Gain the skills and project-based experience needed for entry into web design and development careers.
- Use a variety of strategies and tools to create websites.
- Develop awareness and appreciation of the many ways that people access the web, and will be able to create standards-based websites that can be accessed by the full spectrum of web access technologies.

No of Lectures: 45 (3 Credits)

UNIT 1	**HTML**	15 Lectures
1.1	Introduction to HTML	
1.2	Basic HTML Structure	
1.3	HTML Tags	
	Common HTML tags Text Formatting tags Block level tags HTML Linking	
1.4	Physical and Logical HTML	
1.5	HTML IMAGES	
	Types of Images, client side and server-side Image mapping	
1.6	List: ordered, In ordered Table : Understanding Tables, Describing the TABLE Elements	
1.7	FRAMES : Frame Tag, Frameset tag, No frames Tag, iframe tag	
1.7	Embedding Audio, Video	
1.8	HTML form and form elements	
	Input Tag: Text field, Password field, Hidden field, Radio buttons, Checkbox controls. Label Tag, Fieldset Tag, Textarea Tag, Select Tag. Creating button: submit , reset, button	
1.9	Introduction to HTML Front Page	
UNIT 2	**STYLE SHEETS**	15 Lectures
2.1	Introduction, Need for CSS	
2.2	Introduction to CSS , Basic syntax and Structure	
2.3	Types of Style Sheets Inline CSS, Internal CSS, External CSS	

2.4	**Using CSS :** Background Properties, CSS Font Properties, CSS text Properties, CSS border Properties, CSS box Properties CSS list styles Properties, CSS Links, Positioning with style sheet, CSS Margins, CSS Padding	
2.5	Features of CSS2 and CSS3	
2.6	**Effects of a stylesheet** : hover effect, Drop shadow effect, Blur, rotating an image(rotate, rotateX, rotateY, skew)	
2.7	**Defining Inheritance in CSS** Backgrounds and Color Gradients, Fonts and Text Styles, Creating Boxes and Columns, Displaying, Positioning, Floating an Element, List Styles, Table Layouts	
UNIT 3	**Java Script & jQuery**	15 Lectures
3.1	Introduction, Features of JavaScript	
3.2	Client-Side JavaScript, Server-Side JavaScript	
3.3	**Identifier & Operators:** Operators Assignment Operators, Comparison Operators, Arithmetic Operators, % (Modulus), ++ (Increment), -- (Decrement), - (Unary Negation), Logical Operators, Short-Circuit Evaluation, String Operators, Special Operators, ?: (Conditional operator), (Comma operator), delete, new, this, void	
3.4	**Statements :** Break, comment, continue, delete, function, return, switch, var	
3.5	**Core JavaScript (Properties and Methods of Each):** Array, Boolean, Date, Function, Math, Number, Object, String, regExp	
3.6	**Events and Event Handlers:** General Information about Events, Defining Event Handlers, Event, onAbort, onBlur, onChange, onClick, onDblClick, onDragDrop, onError, onFocus, onKeyDown, onKeyPress, onKeyUp, onLoad, onMouseDown, onMouseMove, onMouseOut, onMouseOver, onMouseUp, onMove, onReset, onResize, onSelect, onSubmit, onUnload	
3.7	**jQuery:** Fundamentals of jQuery, Loading and using jQuery, jQuery Syntax, jQuery Selectors, Element properties and attributes, Methods to access HTML Attributes, Methods for Traversing, jQuery Events, CSS using jQuery	

References:

- Web Design The Complete Reference by Thomas Powell, Tata McGraw Hill
- HTML black book, Steven Holzner
- HTML and XHTML The Complete Reference by Thomas Powell, Tata McGraw Hill

SW- 109 (T) Object Oriented Programming using C++ - (3 Credits)

LEARNING OBJECTIVE:

The objective of course is to develop programming skills of students, using object oriented programming concepts, learn the concept of class and object using C++ and develop classes for simple applications.

LEARNING OUTCOMES:

After completion of this course, student will be able to

- Identify importance of object oriented programming and difference between structured¬ oriented and object oriented programming features.
- Able to make use of objects and classes for developing programs.
- Able to use various object oriented concepts to solve different problems.

No of Lectures: 45 (3 Credits)

Unit 1. 'C++' Programming Language Fundamentals		**15 Lectures**
1.1	Need for a programming language? Origin of C++,	
1.2	How to write an algorithm for a given problem, Converting an algorithm to a flowchart.	
1.3	Elementary C++ programming basics: Characters and Literals, Tokens, Keywords, Identifiers, Variables, Constants, Data types, Comments.	
1.4	Operators: Types of Operators, Operator Precedence and Associativity, Expression, types of statements: Input and Output, cin, cout, escape sequences, include directives and Namespaces,	
1.5	Need for Indentation and Comments, Dry runs, testing and debugging tips	
Unit 2. Flow control and Functions		**15 Lectures**
2.1	Compound statements Loops: while, for, do while, nested loops. Decision making: if – else, nested if else, switch, break and continue.	
2.2	Manipulators: endl ,setw,sizeof. Increment and decrement operators. Type Cast Operators, Overflow and Underflow problem, Scope resolution operators, Logical Operators, Comparison Operators	
2.3	Function Prototypes , built in functions and user defined functions, Lifespan of a variable, return statement, ternary operator, Function overloading, Call by reference, Call by value, const member functions. Inline Functions and recursive functions, Math Library Functions	
Unit 3.Derived Data types		**15 Lectures**
3.1	Introduction to arrays, arrays in functions, 2-D arrays, Multidimensional arrays.	
3.2	Introduction to pointers, void pointers, pointers in function, pointer to constant and constant pointer, generic pointer.	

3.3	String functions: strcmp, strcat, strlen, strcpy . Structures: Structures concept, Application. Union: Union Concept, Application

References:

- Problem Solving with C++ , Walter Savitch, Sixth Edition, Pearson Education.
- J. R. Hubbard, Schaum's outlines "Programming with C++", Second Edition , Tata
- McGrawHill
- Y.P.Kanetkar, "Let us C++" , seventh edition, BPB publication
- Object Oriented programming with C++ ,EBalagurusamy , Third Edition , Tata McGraw Hill.
- Object oriented programming with C++ PoonamchandraSarang, PHI Second Edition.
- Computer Science – A structured Approach using C++ bu B. Forouzan, R. F. Gilberg, Cengage Publication

SW- 110 (T) Operating System - (3 Credits)

Course Objectives

Student will able to learn

- To understand different types of operating systems.
- To understand how to interact with operating systems.
- Understand and execute basic commands
- Identify and understand concept of file systems in shell script
- Create partitioning of hard disk

Learning Objective:

Student will able to

- Develop the understanding the fundamentals of modern operating system
- Understand what is an operating system and the role it plays

No of Lectures: 45 (3 Credits)

Unit 1: Introduction To Operating System		**10 Lectures**
1.1	History of Operating System	
1.2	Types of Operating System Batch, Multiprogramming, Multitasking, Real-Time,	
1.3	Operating System Structure-Layered, Monolithic, Microkernal	
Unit2: Navigating the System		**13 Lectures**
2.1	List Directories in a GUI and CLI	
2.2	Changing Directories in the GUI and CLI	
2.3	Make Directories in the GUI & CLI	
2.4	Copying Files & Directories – Windows	
2.5	Moving and Renaming Files, Directories – Windows	
2.6	Removing Files & Directories – Windows	
2.7	Display File Contents – Windows	
2.8	Modifying Text Files – Windows	
2.9	Input, Output, and the Pipeline - Windows	
Unit3: Users and Permissions		**12 Lectures**
3.1	View User and Group Information – GUI and CLI	
3.2	Passwords - Windows	
3.3	Adding and Removing Users - Windows	
3.4	File Permissions - Windows	
3.5	Modifying Permissions - Windows	
3.6	Special Permissions - Windows	

Unit 4: File Systems		10 Lectures
4.1	Disk Partitioning and Formatting a Filesystem – Windows	
4.2	Mounting and Unmounting a Filesystem - Windows	
4.3	Disk Usage - Windows	
4.4	Filesystem Repair - Windows	

Reference:

- Modern Operating Systems, Andrew Tanenbaum
- Operating System Concepts, 8th Edition, Abraham Silberschatz, Peter B.Galvin, Greg Gagne, Wiley publication
- Operating Systems, 2nd Edition, K. A.Sumitra Devi and N.P Banashree, SPD
- Operating Systems- A concept based approach , 2nd Edition, D.M. Dhamdhere, McGrawHill publications
- Operating Systems, 3rd Edition , Godbole and Kahate, McGrawHill publications.

SW – 111 (T) - Personal Enhancement

Course Objectives

Student will able to learn

- To make the students aware about the dimensions and importance of effective personality.
- To understand personality traits and formation and vital contribution in the world of business.
- To make the students aware about the various dynamics of personal enhancement.

Learning Objective:

Student will able to

- Develop the professional and inter-personal communications and facilitate an all-round enhancement of personality.
- Develop hard or technical skills help securing a basic position in one's life and career.

SW – 111 (T) - Personal Enhancement - THEORY		
Course Code- SW- 111 (T)		**(3 Credits) Lectures/Week -3**
Unit No	**Topic**	**Total Lectures-45**
UNIT I	**Determinants of Personal Enhancement:** Define Personality, Determinants of Personal Enhancement, Perception – Definition, Perceptual Process **(4 Lecture)**	
UNIT II	**Personality traits:** Factors of Association – Relationship, Personality Traits, Developing Effective Habits, Sigmund Freud's Id, Ego & Super Ego **(5 Lecture)**	
UNIT III	**Emotional Intelligence:** Meaning of Emotional Intelligence, Motivation, Self Awareness, The Johari Window, Self-Assessment, Self-Appraisal & Self Enhancement, Self Esteem and Maslow's Self Esteem, Erik Erikson's Psychosocial Development, Social Skills. **(6 Lecture)**	
UNIT VI	**Types of Personalities:** Mind Mapping, Competency Mapping & 360 Degree Assessment, Types of Personalities – Introvert, Extrovert & Ambivert person **(8 Lecture)**	
UNIT V	**Conflict: Process & Resolution:** Empathy, Effective Communication & Its key aspects, Assertiveness, Decision making skills, Leadership & Qualities of Successful Leader **(6 Lecture)**	
UNIT VII	**Stress Management:** Expectations Vs. Reality, Goals and Achievements, Exercise, Meditation, Mindfulness, Attitude to Gratitude, Stress management for one's growth. **(6 Lecture)**	
UNIT VIII	**Interpersonal Relationship:** Good manners & Etiquettes, Effective Speech, Understanding Body language, projective positive body language. **(5 Lecture)**	
UNIT IX	**Presentation Skills:** Voice Modulation, Tempo, choice to dress, personal grooming, etiquette. **(8 Lecture)**	
UNIT X	**Personality –** Spiritual journey beyond management of change **(4 Lecture)**	

Reference Books:

1. Personality Traits – 3rd Edition, Gerald Mathews, Ian G. Deary, Martha C. Whiteman – Cambridge University Press
2. The Seven Habits of Effective People – Stephen Covey
3. You Can Win – Shiv Khera
4. Business Communication & Personality Development – Biswajit Das, Ipseeta Satpathy
5. How to Talk to Anyone – Leil Lowndes

SW- 112 (P) Lab – Web Designing (2 Credits)

1	Use of document structure tags and text formatting tags <html>,<head<,<title>,<body>,<b>,<i>, <u>, <strike>,,,<big>,<small>,<sub>,<sup>,<H1> to <H6>
2	Use of List tags - Ordered and unordered list , ,<dl>,<dt>,<dd>
3	Images and Imagemaps - <img>,<map>,<area> tags
4	Use of Table tag - CAPTION, TBODY, THEAD, TFOOT, TR, TD, TH, Spanning Rows and Columns
5	Use of Frame tags - <frame> and <frameset> tags
6	CSS(hover effect, text shadow effect, rounded borders of the table, image as the list item etc.)
7	Use of Form tags(Designing a registration form) <form>,<option>,<input>, Single and Multiple lines text fields, Password Field, Radio Button, Checkboxes, Submit button, Select element, Text Area
8	Create an HTML form that accepts an integer value from the user and then using JavaScript, prints its factorial.
9	Design an HTML form for the billing of items. Using JavaScript calculate the total bill of the items purchased by the user. (make use of check box/radio button/text box etc) use the events like (onchange, onclick, onfocus etc.)
10	Design a form and validate all the controls placed on the Registration form using JavaScript and regular expressions.
11	Write a java script program to accept a number form user and display its multiplication table
12	Write a java script program to accept a number form user and calculate and display its sum of digits
13	Write a java script program to accept a number from user and check whether it is Armstrong number or not
14	Write a java script program to accept a number from user and check whether it is perfect number or not.
15	Write HTML code to design a website for Online Shopping. Design home page which consist of list of items each with hyperlink, clicking on which should display related information on separate web page. (Use external CSS to format each web page)
16	Write a HTML code to display calendar of current month in tabular format. Use proper color for week days and holidays. Display month name, year and images as advertisement at the beginning of the calendar.
17	Write a java script program to accept a string from user and display the count of vowel characters from that string.
18	Write a java script program to accept a string and character from user and check the count of occurrences of that character in string.

SW- 113 (P) Lab –C++ (2 Credits)

1	C++ program to print "Hello World".
2	C++ program to demonstrate cascading cout & cin.
3	Write a C++ program for displaying the menu for a popular coffee shop using the following: endl, '\t', '\n', other special/escape characters as required.
4	First construct a flowchart and then convert it to source code/program in order to perform the following using C++: • Addition and multiplication of integers. • Write a C++ program to Calculate simple and compound interest.
5	Write an algorithm and then develop C++ programs to perform the following using functions via the top-down approach: • Determining if a number is +ve / -ve / even / odd • Calculate sum of the digits of a number • Maximum of 2 numbers, 3 numbers • Find the reverse of a number, entered by the user.
6	C++ program to keep calculate the sum of the digits of a number until the number is a single digit.
7	Write C++ programs that use both recursive and non-recursive functions. To find the factorial of a given integer. To find the GCD of two given integers. To find the nth Fibonacci number.
8	Write functions to perform the following tasks using a C++ program via the bottom-up approach. • Sum of first n numbers, given n numbers • Solving the quadratic equation. • printing all the prime numbers in a given range (ask user input for lower bound and upper bound of the range)
9	Write a C++ program for displaying the Fibonacci series.
10	Write a C++ program for converting a number to words. (switch) example: the number '765' should be written as 'seven six five'. Further now modify it to get the output as "seven hundred sixty five".
11	Write a C++ program having two functions:
12	Write a recursive C++ function for calculating the factorial of a given number
13	Write a C++ program to find both the largest and smallest number in a list of integers.
14	Write a C++ program to sort a list of numbers in ascending order.
15	Write a program for implementing the concept of structures and unions
16	Write a C++ program for finding the greatest and smallest number using vector
17	Implementing the concept of call by value and call by reference.
18	Write a C++ program for: Programs on use of pointers

SW- 114(P) On the job Training (14 Credits)

SEMESTER - III

SW- 201 SOFTWARE ENGINEERING (3 Credits)

Learning Objective:

The Objective of this course is to understand system concepts, to know about software engineering and its application in Software development

Learning Outcome:

1. Basic knowledge and understanding of the analysis and design of complex systems.
2. Ability to apply software engineering principles and techniques.
3. Ability to develop, maintain and evaluate large-scale software systems.
4. To produce efficient, reliable, robust and cost-effective software solutions.

Number of lectures: 45 (3 Credits)

Unit 1: Software Development Approaches	**08 Lectures**
	Introduction; Evolving Role of Software; Software Characteristics; Software Applications.
Unit 2: Introduction to Software Engineering	**07 Lectures**
	2.1 Definition of Software 2.2 Characteristics of Software 2.3 Software Application Domains 2.4 Definition of Software Engineering 2.5 Need for software Engineering 2.6 Mc Call's Quality factors 2.7 The Software Process 2.8 Software Engineering Practice
Unit 3: Software Development Life Cycle(SDLC) and Methodologies	**10 Lectures**
	3.1 Introduction 3.2 Activities of SDLC 3.3 A Generic Process Model 3.4 Prescriptive Process models 3.4.4.1 Waterfall Model 3.4.2 Incremental Process Models 3.4.3 Evolutionary process Models (Prototyping and Spiral Model) 3.5 Concurrent Models, Types
Unit 4: Requirement Engineering	**10 Lectures**
	4.1 Introduction 4.2 Requirement Engineering Tasks 4.3 Establishing Groundwork for understanding of Software Requirement 4.4 Requirement Gathering 4.5 Feasibility study 4.6 F act Finding Techniques
Unit 5: Analysis A nd Design Tools	**10 Lectures**
	5.1 Decision Tree and Decision Table 5.2 Data Flow Diagrams (DFD) 5.3 Data Dictionary 5.3.1 Elements of DD 5.3.2 Advantages of DD 5.4 Input and Output Design 5.5 PseudoCode 5.6 Case Studies on above topics

Reference Books:

1. Software Engineering : A Practitioner's Approach- Roger S. Pressman, McGraw hill International Editions 2010(Seventh Edition)
2. System Analysis, Design and Introduction to Software Engineering (SADSE) - S. Parthsarthy, B.W. Khalkar
3. Analysis and Design of Information Systems(Second Edition) - James A. Senn, McGraw Hill
4. System Analysis and Design- Elias Awad, Galgotia Publication, Second Edition
5. Fundamentals of Software Engineering- Rajib Mall, PHI Publication, Fourth Edition

SW- 202 Relational Database Management System

Number of lectures: 45 (03 Credits)

Course Objectives:

1. To understand advanced SQL features and procedural SQL.
2. To study concurrency control and crash recovery techniques.
3. To understand need of database security.
4. To learn different database system architectures.

Course Outcomes:

Student will be able to

1. Formulate SQL queries using advanced SQL features.
2. Perform Database operations using PL/PostgreSQL.
3. Compare and contrast different concurrency control and recovery techniques.
4. Apply mechanisms for database security.
5. Analyze various database system architectures.

Sr.No	Topic	No. Of Lecture
UNTI-I	**Relational Database Design** 1.1. PL/Postgre SQL: Language structure 1.2. Controlling the program flow, conditional statements, loops 1.3. Views 1.4. Functions 1.5. Handling errors and exceptions 1.6. Cursors 1.7. Triggers	**12**
UNTI-II	**Transaction Concepts** 2.1 Transaction, properties of transaction, states of transactions 2.2 Concurrent execution of transactions and conflicting operations 2.3 Schedules, types of schedules, concept of serializability, precedence graph for serializability	**10**
UNTI-III	**Concurrency Control** 3.1 Ensuring serializability by locks, different lock modes 3.2 2PLand its variations 3.3 Multiple Granularity locking protocol 3.4 Basic timestamp method for concurrency, Thomas Write Rule 3.5 Locks with multiple granularity, dynamic database concurrency (Phantom Problem) 3.6 Timestamps versus locking 3.7 Optimistic concurrency control algorithm, multi version concurrency control 3.8 Deadlock handling methods - 3.8.1 Detection and Recovery (Wait for graph). 3.8.2 Prevention algorithms (Wound-wait, Wait-die) 3.8.3 Deadlock recovery techniques(Selection of Victim, Starvation, Rollback)	**10**

UNTI-VI	**Crash Recovery** 4.1 Transaction Failure classification 4.2 4.2 Recovery concepts 4.3 Checkpoints 4.4 Recovery with concurrent transactions (Rollback, checkpoints, commit) 4.5 Log base recovery techniques (Deferred and Immediate update) 4.6 Buffer Management 4.7 Database backup 4.8 Shadow paging	**10**
UNTI-V	**Database Security** 5.1 Introduction to database security concepts 5.2 Methods for database security 5.3 Discretionary access control method 5.4 Mandatory access control and role based access control for multilevel security 5.5 Use of views in security enforcement 5.6 Overview of encryption technique for security 5.7 Statistical database security	**05**
UNTI-VI	**Database System Architectures** 6.1 Centralized and Client – Server Architectures 6.2 Server System Architectures 6.3 Introduction to Parallel Systems 6.4 Introduction to Distributed Systems 6.5 Introduction to Object Based Databases	**04**

References:

1. Database System Concepts – Abraham Silberschatz, Henry F. Korth, S. Sudarshan, 6th editionMcGraw-Hill
2. Fundamentals of Database Systems- Ramez Elmasri, Shamkant B. Navathe, 6th edition– Pearson.
3. Database Management Systems -Raghu Ramakrishnan, Johannes Gehrke, 3rd edition, Tata McGraw Hill
4. Introduction to Database Management System- Bipin Desai, 3rd edition, Galgotia Publication
5. An Introduction to Database Systems - C.J. Date, 7 th edition, Addison-Wesley
6. Practical PostgreSQL- Joshua D. Drake, John C Worsley, O'Reilly Publications

SW- 203 (T) - Core JAVA (03 Credit)

Number of lectures: 45 (03 Credits)

Course Objectives:-

1. To learn the basic concept of Java Programming.
2. To understand how to use programming in day to day applications.

Course Outcomes:-

1. Able to understand the use of OOPs concepts.
2. Able to solve real world problems using OOP techniques.
3. Able to understand the use of abstraction.
4. Able to understand the use of Packages and Interface in java.

Unit No.	Topic	No. of Lectures
1	**Introduction to Java** Features of java JDK Environment & tools like(java, javac, appletviewer, javadoc, jdb) OOPs Concepts Class, Abstraction , Encapsulation, Inheritance, Polymorphism Difference between C++ and JAVA Structure of java program Data types ,Variables ,Operators , Keywords ,Naming Convention Decision Making (if, switch), Looping(for, while) Type Casting Array Creating an array Types of Array - One Dimensional arrays - Two Dimensional array String - Arrays , Methods. - StringBuffer class	8
2	**Classes and Objects** Creating Classes and objects Memory allocation for objects Constructor Implementation of Inheritance Simple, Multilevel, Interfaces	10

	Abstract classes and methods Implementation of Polymorphism Method Overloading, Method Overriding Nested and Inner classes. Modifiers and Access Control Packages Packages Concept Creating user defined packages Java Built in packages java.lang->math java.util->Random, Date, Hashtable Wrapper classes	
3	**Collection** Collection Framework. Interfaces - Collection - List - Set - SortedSet - Enumeration - Iterator - ListIterator Classes - LinkedList - ArrayList - Vector - HashSet - TreeSet - Hashtable Working with maps Map interface Map classes - HashMap - TreeMap	6
4	**File and Exception Handling Exception** Exception types Using try catch and multiple catch Nested try, throw , throws and finally Creating user defined Exceptions **File Handling** Stream ByteStream Classes CharacterStream Classes File IO basics File operations Creating file Reading file(character, byte) Writing file (character, byte)	8

5	**Applet, AWT and Swing Programming Applet** Introduction Types applet Applet Life cycle - Creating applet - Applet tag - Applet Classes - Color - Graphics - Font **AWT** Components and container used in AWT Layout managers Listeners and Adapter classes Event Delegation model **Swing** Introduction to Swing Component and Container Classes	13
	Total no. of Lectures	**45**

Reference Books:

1. Programming with JAVA - E Balgurusamy
2. The Complete Reference – JAVA Herbert Schildt

SW- 204 (T) QUANTITATIVE TECHNIQUES

Course Objective:

- equip students with mathematical and statistical techniques and to develop an analytical approach for developing algorithms;
- provides students with quantitative skills that are required to make business decisions;
- formulate and solve decision problems in quantitative terms;
- discuss business forecasts based on past data;
- compute real monetary values for investment projects;
- explain profitable inventory decisions;

Learning Outcome:

Student will able to

- distinguish between different mathematical techniques and applications
- equip the quantitative skills that are required to make business decisions;
- formulate and solve decision problems in quantitative terms;
- discuss business forecasts based on past data;
- compute real monetary values for investment projects;

No of Lectures: 45 (3 Credits)

Unit 1: SETS and RELATION		**12 Lectures**
1.1	SETS: Sets, Subsets, Equal Sets, Universal Sets, Finite and Infinite Sets, Operation of Sets, Union, Intersection and Complement of sets, Cartesian Product, Cardinality of Sets, Simple Applications.	
1.2	RELATION: Properties of Relation, Equivalence Relation, Partial Order Relation. FUNCTIONS: Domain and Range, Onto , Into and One-to One- Functions, Composite and Inverse functions, Hashing functions and Recursive Functions.	
Unit 2: MATHEMATICAL LOGIC		**12 Lectures**
2.1	MATHEMATICAL LOGIC : Introduction, Statements, Logical Connectives and Compound Statements: Negation, Conjunction, Disjunction, Implication, Converse and Inverse, logical Equivalence, Tautologies: Contradiction, Contingency, Algebra of Propositions, Argument, Predicate and Quantifiers.	
Unit 3: DETERMINANTS AND MATRICES		**09 Lectures**
3.1	DETERMINANTS : Definition, Minors, Cofactors, Properties of Determinants	
3.2	MATRICES: Definition, Types of matrices, Multiplication of matrices, Adjoint, Inverse, Cramer's Rule, Rank of matrix, Dependence of vectors, Eigen vectors of a matrix, CayleyHamilton Theorem	
Unit 4: MEASURES OF CENTRAL TENDANCIES AND DISPERSION		**12 Lectures**

4.1	MEASURES OF CENTRAL TENDENCIES: Definition of Average, Types of Average, Mean, Median, Mode for grouped as well as ungrouped data, Quartiles, Deciles, Percentiles
4.2	MEASURES OF DISPERSION: Concept and Idea, Various measures, Range, Quartile deviation, Mean deviation, Standard deviation, Variance.

References:

- Discrete Mathematical structures by Kolman ,Busby, Ross
- Statistical Methods, Medhi J. : An Introductory Text, Second Edition, New Age International Ltd.
- Basic Statistics, Agarwal B.L. : New Age International Ltd.
- Adamu, I. M. (2006). Understanding Basic Statistics. Nile Ventures

SW-205(P) LAB- Core Java

Number of Hours: 30 (02 Credits)

1	Write a java program to read the characters from a file, if a character is alphabet then reverse its case, if not then display its category on the Screen. (Whether it is Digit or Space)
2	Write a java program to accept n names of cites from user and display them in descending order
3	Write a java program to accept the details of 'n' employees (EName , Salary) from the user, store them into the Hashtable and displays the Employee Names having maximum Salary.
4	Define a class Student with attributes rollno and name. Define default and parameterized constructor. Override the toString () method. Keep the count of Objects created. Create objects using parameterized constructor and Display the object count after each object is created.
5	Write a java program to accept Employee name from the user and check whether it is valid or not. If it is not valid then throw user defined Exception "Name is Invalid" otherwise display it
6	Write a java program to accept list of file names through command line and delete the files having extension ".txt". Display the details of remaining files such as FileName and size
7	Define an abstract class Shape with abstract methods area() and volume(). Write a java program to calculate area and volume of Cone and Cylinder
8	Write a Java program to design a screen using Awt that will take a user name and password. If the user name and password are not same, raise an Exception with appropriate message. User can have 3 login chances only. Use clear button to clear the TextFields
9	Write a java program that displays the number of characters, lines & words from a file
10	Write a java program to accept a number from the user, if number is zero then throw user defined Exception "Number is 0" otherwise calculate the sum of first and last digit of a given number (Use static keyword).
11	Write a package for Games in Java, which have two classes Indoor and Outdoor. Use a function display () to generate the list of players for the specific games. (Use Parameterized constructor, finalize() method and Array Of Objects)
12	Define an Interface Shape with abstract method area(). Write a java program to calculate an area of Circle and Sphere.(use final keyword)

13	. Write a java program to accept the details of n Cricket Players from user (Player code, name, runs, innings- played and number of times not out). The program should contain following menus: -Display average runs of a single player. -Display average runs of all players. (Use array of objects, Method overloading and static keyword)
14	Write a Java Program to accept the details of Employee(Eno, EName,Sal) from the user and display it on the next Frame. (Use AWT)
15	Write a java Program to accept 'n' no's through the command line and store all the prime no's and perfect no's into the different arrays and display both the arrays.

SW- 206 (P) Lab – RDBMS (02 credits)

Number of Hours: 30 (02 Credits)

SR NO	PRACTICAL
1	**Q.1) Consider the following entities and their relationship.** **Customer** (c_no, c_name, c_city, c_ph_no) **Ticket** (t_no, booking_date, fare, traveling_date) **Relationship between Customer and Ticket is one-to-many.** **Constraints:** primary key, foreign key c_name should not be null, fare should be greater than zero. **Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:** 1) Write a procedure to display names of customer who have booked bus on given date. 2) Write a trigger that restricts insertion of ticket having traveling date smaller than booking date.(Raise user defined exception and give appropriate message)
2	**Q.2) Consider the following entities and their relationship.** **Student** (s_reg_no, s_name, s_class) **Competition** (comp_no, comp_name, comp_type) **Relationship between Student and Competition is many-to-many with descriptive attribute rank and year.** **Constraints:** primary key, foreign key, primary key for third table(s_reg_no, comp_no, year), s_name and comp_name should not be null, comp_type can be sports or academic. **Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:** 1) Write a function which will accept s_reg_no of student and returns total number of competition in which student has participated in a given year. 2) Write a cursor which will display year wise details of competitions held. (Use parameterized cursor)
3	**Q.3) Consider the following entities and their relationship.** **Owner** (o_no, o_name, o_city, o_ph_no) **Estate** (e_no, e_type, e_city, e_price) **Relationship between Owner and Estate is one-to-many.** **Constraints :** primary key, foreign key, o_name should not be null, e_type can be flat, bungalow or land. **Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:** 1) Write a procedure which will accept owner number and display details of all estates of given owner which belongs to pune city.

	2) Write a cursor which will display type wise estate details. (Use parameterized cursor)
4	**Q.4) Consider the following entities and their relationship.** **Bus**(bus_no, capacity, source, destination) **Driver**(driver_no, driver_name, license_no, addr, age, salary) **Relationship between Bus and Driver is many-to-many with descriptive attribute date_of_duty_allotted and shift.** **Constraints:** primary key, foreign key, primary key for third table (bus_no, driver_no,date_of_duty_allotted), driver_name should not be null, shift can be morning or evening. **Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:** 1) Write a function which will return name of driver having maximum salary. 2) Write a cursor which will display date wise bus and their driver details.
5	**Q.5) Consider the following entities and their relationship.** **Drug**(d_no, d_name, company, price) **Medical _store**(m_no, m_name, m_city, ph_no) **Relationship between Drug and Medical_Store is many-to-many with descriptive attribute quantity.** **Constraints:** primary key, foreign key, m_name and d_name should not be null, m_city can be pune or pimpri. **Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:** 1) Write a package, which consists of one procedure and one function. Pass drug number as a parameter to procedure and display details of that drug. Pass city as a parameter to a function and return total number of medical_store in given city. 2) Write a trigger that restricts insertion and updation of drug having price less than zero. (Raise user defined exception and give appropriate message)
6	**Q.6) Consider the following entities and their relationship.** **Train**(t_no, t_name) **Passenger** (p_no, p_name, addr, age) **Relationship between Train and Passenger is many-to-many with descriptive attribute date, seat_no and amt.** **Constraints :** primary key, foreign key, primary key for third table (t_no, p_no, date), t_name and p_name should not be null, amt should be greater than zero. **Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:** 1) Write a function which will display train details having maximum passenger for a

	given date. 2) Write a cursor which will display date wise train and their passenger details.
7	**Q.7) Consider the following entities and their relationship.** **Route**(route_no, source, destination, no_of_station) **Bus** (bus_no, capacity, depot_name) **Relationship between Route and Bus is one-to-many** **Constraints:** primary key, foreign key, depot_name should not be null, bus capacity should be greater than 40. **Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:** 1) Write a procedure which will display all bus details for a given route. 2) Write a trigger that restricts insertion of route having number of station less than zero. (Raise user defined exception and give appropriate message)
8	**Q.8) Consider the following entities and their relationship.** **University** (u_no, u_name, u_city) **College** (c_no, c_name, c_city, year_of_establishment) **Relationship between University and College is one-to-many** **Constraints:** primary key, foreign key, u_name and c_name should not be null. **Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:** 1) Write a package, which consists of one procedure and one function. Pass university number as a parameter to procedure and display details of that university. Pass city as a parameter to a function and return total number of colleges in given city. 2) Write a cursor which will display university wise their college details. (Use parameterized cursor)
9	**Q.9) Consider the following entities and their relationship.** **Patient** (p_no, p_name, p_addr) **Doctor** (d_no, d_name, d_addr, city) **Relationship between Patient and Doctor is many-to-many with descriptive attribute disease and no_of_visits.** **Constraints:** primary key, foreign key, primary key for third table(p_no, d_no, disease), p_name and d_name should not be null. **Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:** 1) Write a procedure which will display patient detail who has visited more than 3 times to the given doctor for 'Diabetes'. 2) Write a trigger which will restrict insertion or updation of doctor_patient details having no_of_visits less than zero. (Raise user defined exception and give appropriate message)
10	**Q.10) Consider the following entities and their relationship.** **Crop** (c_no, c_name, c_season, pesticides) **Farmer** (f_no, f_name, f_location) **Relationship between Crop and Farmer is many-to-many with descriptive attribute year.** **Constraints:** primary key, foreign key,

	primary key for third table(c_no, f_no, year), c_name and f_name should not be null, c_season can be rabi or kharif. **Create a RDB in 3NF and write PL/SQL blocks in Oracle for the following:** 1) Write a function which will return total number of farmers harvesting given crop in a given year. 2) Write a cursor which will display season wise information of crops harvested by the farmers. (Use parameterized cursor)

SW- 207 (P) - On the job Training

SEMESTER - IV

SW- 208 (T) ASP.NET using C# (03 Credit)

Course Objective:

- To equip the students with skills required in software industry.
- To develop website or application
- To provide the knowledge of Dot Net Frameworks along with ASP.Net

Learning Outcome:

Student will able to

- Equip the students with skills required in software industry.
- Create a Web form with server controls.
- Develop website or application
- Display dynamic data from a data source by using Microsoft ADO.NET and data binding.
- Use the features of Dot Net Framework along with the features of ASP. NET

No of Lectures: 45 (3 CREDITS)

Unit 1: Introduction, Controls, Event and web service	**15 Lectures**
1.1	**Introduction** Understanding Visual studio IDE environment Design view, Source view, Output window, Error list window, Intellisense, Property window, Object Browser window, Start page, Toolbar and Toolbox ASP.NET life cycle. Common Language Runtime (CLR) architecture. Using .NET Framework Class Library.
1.2	**Different Controls** Introduction to control class, TextBox control, Button Control, Label Control, Image control, ImageButton control , ImageMap control, DropDownList control, CheckBox control, RadioButton control, Table control, Calendar control, SiteMap control , TreeView control , Menu control, Validation controls, Login controls, Database controls
1.3	Windows Presentation Foundation (WPF).
1.4	Event handling Application_Start, Application_End, Page_Load , Page_Unload, Click event :OnClick , TextChanged event: OnTextChanged , Command event: OnCommand , CheckedChanged event: OnCheckedChanged , SelectedIndexChanged event: OnSelectedIndexChanged, postback events Using event argument etc.
1.5	Web Service What is a web service? SOAP and Web service. Creating web service, consuming web service.

Unit 2: Validation, Navigation, and Ajax in ASP.NET		15 Lectures
2.1	Validation Control: Introduction, basic validation controls, validation techniques, using advanced validation controls like: Regular Expression Validator Control, Compare Field Validator Control Range Validator Control,Validation Summary Control, Custom Validator Control	
2.2	State Management: Using view state, using session state, using application state, using cookies and URL encoding.	
2.3	Master Pages: Creating master pages, content pages, nesting master pages, accessing master page controls from a content page.	
2.4	Navigation: Understanding Site Maps, Using the Sitemap Path Control, Formatting the Sitemap Path Control, Using the Menu Control, Using Tree View Control.	
2.5	Ajax: Introducing AJAX, Working of AJAX, Using ASP.NET AJAX server controls.	
Unit 3: Database with ADO.NET, LINQ and Crystal Report		**15 Lectures**
3.1	Database Elements ADO.NET Object model, Data Binding, Using Connection, Command, DataReader classes, Queries returning result sets, Passing parameters in queries, Using Repeater control, Data Adapter, Using Data Set (Typed), Data Table, Data Row & Data Column, Introducing the ADO.NET Entity Framework, Mapping Your Data Model to an Object Model, CRUD with ASP.NET, Authentication and Authorization with ASP.NET	
3.2	LINQ Introducing LINQ and its Architecture, LINQ to Objects, LINQ to XML, LINQ to ADO.NET	
3.3	Crystal Report Adding a Crystal Report to an ASP.NET Application, Inserting Fields, Text, and Special Fields, Sorting, Grouping, and Subtotaling, Using Select Expert, Dynamic Formatting, Using the Crystal Reports Viewer	

Text Books

- ASP.NET 4.0 in simple steps dreamtech press
- Murach's ASP.NET 4 Web Programming with C# 2010, 4th Edition, Anne Boehm, Joel Murach, SPD.
- Integrating Crystal Reports into an ASP.NET Application By Vincent Varallo Wrox Publication

Reference Books

- C# and .NET 4 by Christian wrox publication.
- ASP.NET – The Complete Reference Tata McGraw Hill.
- Beginning ASP.NET 4: in C# and VB by Imar Spaanjaars Wrox Publication.

SW- 209 ADVANCED JAVA

Number of lectures: 45 (3 Credits)

Sr.No	Topic	No. Of Lecture
1	**An Overview of Servlets and JSP terminology** A Servlets jobs Why build web pages dynamically? Advantages of Servlets over traditional CGI The Role of JSP Installing & Configuring the JDK & Apache Tomcat Testing your setup Web application – A Preview	7
2	**Servlet Basics** Basic Servlet structure A Servlet that generate plain text A Servlet that generate HTML text A Servletpackage The Servlet life cycle The Single Thread model interface Servlet debugging	8
3	**Handling Client Request: Form DATA** Reading Form Data from Servlet Example: Reading three parameter Example: Reading all parameter Filtering String for HTML –specific character	5
4	**Handling cookies and session tracking** Benefits of cookies Some problem with cookies Sending and receiving cookies Using cooking to detect first time visitors Using cookies attributes The need for session tracking Session tracking basics Session tracking API Browser session Vs server sessions A Servlets that shows per client access counts	10
5	**JSP Technology: Overview of JSP technology** The Need for JSP Benefits of JSP Installation of JSP Basic syntax	5

6	**Invoking Java code with JSP scripting elements & The JSP page directives** Invoking Java code from JSP Limiting the amount of java code in JSP pages Using JSP Expression Using Scriptlets to make parts of the JSP page conditional The *Import* attribute The *contentType*and*pageEncoding*attribute Generating Excel Spreadsheet The *session* attribute The *isELIgnored*attribute The *errorPage*and*isErrorPage*attribute	**10**

ReferenceBooks:

1. **Core Servlets and Java ServerPages**
By- Marty Hall & Larry Brown vol-1 Low price edition

SW- 210 (T) - E-Commerce

(03 Credit, Lectures- 45)

Objectives -:

1. To know the concept of electronic commerce
2. To know what is Internet and Extranet
3. 3. To know Internet marketing techniques

Sr.No	Topic	No. Of Lecture
1	**Introduction to Electronic Commerce** 1.1. What is E-Commerce (Introduction and Definition) 1.2. Main activities E-Commerce 1.3. Goals of E-Commerce 1.4. Technical Components of E-commerce 1.5. Functions of E-commerce 1.6. Adv / Dis Adv of E-commerce 1.7. Scope of E-commerce 1.8. Electronic commerce Applications 1.9. Electronic commerce and Electronic Business (C2C)(2G , G2G , B2G , B2P,B2A,P2P, B2A, C2A, B2B,B2C)	6
2	**Building own website** 2.1 Reasons for building own website 2.2 Benefits of website 2.3 Bandwidth requirements 2.4 Cost , Time , Reach 2.5 Registering a Domain Name 2.6 Web promotion 2.7 Target email , Baner Exchange, Shopping Bots	6
3	**Internet and Extranet** 3.1 Definition of Internet 3.2 Adv and Disadv of the Internet 3.3 Component of a Intranet Information technology structure 3.4 Development of a Intranet 3.5 Extranet and Intranet Difference 3.6 Role of Intranet in B2B Application	6
4	**Electronic Data Interchange** 4.1 Introduction 4.2 Concepts of EDI and Limitation 4.3 Application of EDI 4.4 Disadvantages of EDI 4.5 EDI model	5

5	**Electronic payment System** 5.1 Introduction 5.2 Types of Electronic payment system 5.3 Payment types 5.4 Traditional payment 5.5 Value exchange system 5.6 Credit card system 5.7 Electronic funds transfer 5.8 Paperless bill 5.9 Modern payment cash 5.10 Electronic cash	**8**
6	**Planning for Electronic Commerce** 6.1 Planning electronic commerce initiaties 6.2 Linking objectives to business strategies 6.3 Measuring cost objectives 6.4 Comparing benefits to costs 6.5 Strategies for developing electronic commerce web sites	**5**
7	**Internet Marketing** 7.1 The PROS and CONS of online shopping 7.2 The PROS and CONS of online shopping 7.3 The cons of online shopping 7.4 Justify an Internet business 7.5 Internet marketing techniques 7.6 The E-cycle of Internet marketing 7.7 Personalisation e – Commerce	**5**
8	**E- Governance for India** 8.1 E- Governance of India 8.2 Indian customer EDI system 8.3 Service centre 8.4 Imports 8.5 Exports	**4**

References

1. E-Commerce Concepts , Models , Strategies by -- G.S.V Murthy
2. E-Commerce by --Kamlesh K Bajaj and Debjani Nag
3. Electronic Commerce by --Gary P. Schneider

SW- 211 (T) - Research Methodology

(03 Credit Lectures-45)

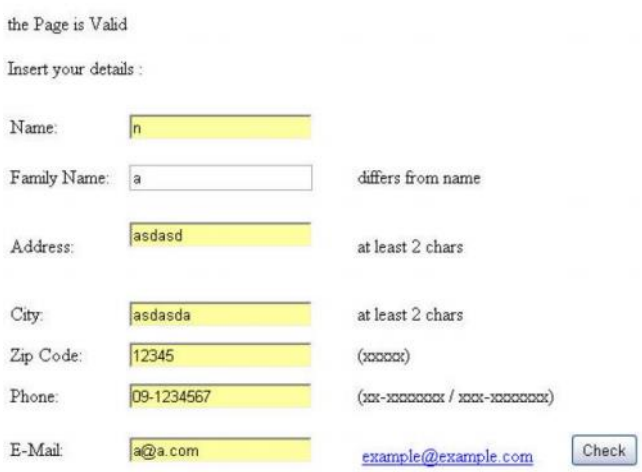
Research Methodology		
Course Code- **SW-211 (T)**		Credit- 3 (Lecture/Week-3)
Theory		
Unit No	**Topic**	**Total Lectures-45**
1	Concepts of Research: Nature, Scope and Significance of Research - Art and Science of Knowing Ontology and Epistemology - Theoretical Development - What is Theory Not, Deductive and Inductive Research - Variables, Construct and Relationship – Reliability and Validity - Methodology and Research Methods - Propositions and Hypothesis	
2	Problem Identification: Review of Old and Current Literature Raising Research Questions – Item Generation- Scale Development - Scale Evaluation – Scale Adoption, Questionnaire Design, Working and Types of Questionnaire – Sampling Methods - Sample Error - Grounded Theory, Formulation of Research and Operational Hypothesis	
3	Qualitative Methods: Ethnography and Case Study - Experimentation, In-depth Interviews - Focused Group Technique, Delphi Technique, Participant Observations - Projective Technique - Content Analysis, Pilot Study, Historical Analysis - Preparation of Field Notes.	
4	Quantitative Methods: Measures of Central Tendency and Dispersion – Normal Distribution - Correlation, Regression Analysis - Testing of Hypothesis - Parametric and Non-Parametric Tools for Hypothesis Test- Multivariate Analytical Techniques - Use of SPSS.	
5	Data Coding Presentation: Data Collection – Coding the Data, Communicating Research Findings - Report Writing Tips -Scientific Writing Styles - Structure and Steps of Preparing Research Proposal - the Art of Writing Research Paper - Art of citing references, Written& Oral Presentation	

References

- C.R Kothari, Research Methodology, Vishwa Prakashana India.
- Naresh Malhotra, John Hall, Mike Shaw &Peter , Market Research, Second Edition, Pentice Hall.
- Blaikie N. , Designing Social Research, Polity Press, Cantebury, UK.
- Marshall. L, Rossman B. Designing Qualitative Research, 3rd Edition, Sage Publications, New Delhi.
- David de Vaus. , Analyzing social sciences, Data, Sage Publication, New Delhi.
- Malhotra.N.K. Marketing Research, An applied Orientation, Fifth Edition, Pearson Education.

SW- 212 (P) Lab – ASP.NET using C#

30 Hours (2 CREDITS)

SR NO	PRACTICAL
1.	Create a simple Web Service that converts the temperature from Fahrenheit to Celsius, and vice versa Also write an ASP program to consume this web service.
2	Design a UI and use validator for following conditions ▪ A password which is entered twice for confirmation · ▪ The age of the user to be over 21 · The date to be after the 10/10/2000
1.3	Design a Login screen in ASP.NET which accepts user name and password. On submit it should check from the server whether the user exists or not . If the user exists in web server then he/she should be directed to proper web page with welcome message.
1.4	Write the following application. The initial page is called Validator.aspx and it has 7 text boxes representing (Name, Family Name, Address, City, Zip Code, Phone and e-mail address) and a Check button. User gets the following page after clicking on Check button:  The required validation actions are: ▪ name different from family name ▪ address at least 2 letters ▪ city at least 2 letters ▪ zip-code 5 digits, ▪ phone according to the format XX-XXXXXXX or XXX-XXXXXXX ▪ e-mail is a valid email. After entering some of the details correctly user gets the following message:

<table>
<tr><td></td><td>
Insert your details :
Name: n
Family Name: a differs from name
Address: asdasd at least 2 chars
City: asdasda at least 2 chars
Zip Code: 123 ** (xxxxx)
Phone: 1234 ** (xx-xxxxxxx / xxx-xxxxxxx)
E-Mail: wer2.com * example@example.com Check

And after a correct submission of all the details:

the Page is Valid
Insert your details :
Name: n
Family Name: a differs from name
Address: asdasd at least 2 chars
City: asdasda at least 2 chars
Zip Code: 12345 (xxxxx)
Phone: 09-1234567 (xx-xxxxxxx / xxx-xxxxxxx)
E-Mail: a@a.com example@example.com Check
</td></tr>
<tr><td>5</td><td>Create a screen which accepts student rollno . On click of submit it should display student result in the gridview.

The database table contains table called student(rollno, name, course , address, year) Result(rollno,subject,marks, totalmarks)</td></tr>
<tr><td>6</td><td>Using crystal report design simple marksheet for SSC result. The data should appear dynamically form database.</td></tr>
<tr><td>7</td><td>Create a Web application that illustrates the use of themes and master pages with Site-Map. And create a web page with CSS.</td></tr>
<tr><td>8</td><td>Write a Program in ASP that has a form taking the users name as input. Store this name in a permanent cookie & whenever the page is opened again, then value of the name field should be attached with the cookie‟s content.</td></tr>
</table>

SW- 213(P) Advanced Java
Hours – 30 (2 credits)

SR NO	PRACTICAL
1	Q1.Write a java program to display IP Address and Name of client machine.
2	Q2. Writea JSP script to accept username, store it into the session, compare it with password in another jsp file, if username matches with password then display appropriate message in html file.
3	Q3. Write a multithreading program in java to display all the vowels from a given String.(Use Thread Class)
4	Q4. Write a SERVLETprogram which counts how many times a user has visited a web page. If user is visiting the page for the first time, display a welcome message. If the user is revisitingthe page, display the number of times visited. (Use Cookie)
5	Q5. Write a JDBC program to displays the details of employees (eno, ename, department,sal) whose department is "Computer Science".
6	Q6. Write a java program to simulate traffic signal using multithreading.
7	Q7.Write a java program to display "Hello Java" message n times on the screen. (Use Runnable Interface).
8	Q8.Write aJSP program to create anonline shopping mall. User must be allowed to do purchase from two pages. Each page should have a page total. The third page should display a bill, which consists of a page total of whatever the purchase has been done and print the total. (Use Session)
9	Q9. Write a java program to create Teacher table(TNo.TName, Sal, Desg) and insert a record in it.
10	Q10. Write a MultiThreading program in java using Runnable interface to draw temple flag on an applet container.

SW- 214(P) On the job Training (14 Credits)

SEMESTER – V

SW-301(T) Android App Development

Objective of the Course:

Android Application Development course is designed to quickly get you up to speed with writing apps for Android devices. The student will learn the basics of Android platform and get to understand the application lifecycle.

Learning Outcomes:

- Install and Configure Android Application Development tool.
- Design and Develop user interface for the Android platform.
- Save state information across important operating System events.

No. Of Lectures- 45 (3 CREDITS)

Sr.No	Topic	No. Of Lecture
1	**Android Testing** Creating a Test Project for Android project Working with Test Packages Writing test cases	05
2	**Fragments** Designing , fragments Fragments lifecycle Fragment management and integration	05
3	**User Interfaces** Creating the Activity XML versus Java UI Selection Widgets, Using fonts Common UI components Handling UI events: a bit about listener	07
4	**Advanced UI** Adapters Complex UI components Menus and Dialogs Tabbed Activities Navigation Drawer Animations Create activity layouts programmatically Testing and optimizing UI	10
5	**Android Material Design** What is material? Material properties Material Styling / Animations Material Patterns	08

6	**SQLite Database** Introducing SQLite SQLiteOpenHelper and creating a database Opening and closing a database Working with cursors Inserts, updates	10

Reference books :

1. Android Development: Interview Questions You'll Most Likely beAsked
2. Professional Android Programming with Mono for Android and .NET /C#

SW- 302(T) PHP

Course Objectives

Student will able to learn

- To equip with PHP for making dynamic web pages and deploy it over server.
- Students can apply this skill for getting job as a web developer.

Learning Outcome:

Student will able to

- make dynamic web pages and deploy it over server

No of Lectures: 45 (3 CREDITS)

Unit 1: PHP Basic, Arrays and Functions, Class in PHP		**15 Lectures**
1.1	Understand PHP software environment. PHP Basic syntax, PHP data Types, PHP Variables, PHP Constants, PHP Expressions, PHP Operators, PHP Control Structures, PHP Loops. Array declaration, PHP Associative Arrays, Array Iteration, PHP Multi-Dimensional Arrays, Array Functions.PHP Functions, Syntax, Arguments, Variables, References, Pass by Value & Pass by references, Return Values, Variable Scope, PHP include(), PHP require(). Class, object, Inheritance, Constructors and destructors Class Inheritance.	
Unit2: String and File handling, Form and Session, JQuery		**15 Lectures**
2.1	Strings and Patterns, Matching, Extracting, Searching, Replacing, Formatting.	
2.2	File Handling reading and writing	
2.3	PHP Form handling, PHP GET, PHP POST, PHP Form Validation, PHP Cookie handling, PHP Session Handling, PHP Login Session, Managing user Account	
2.4	Using HTML,CSS, JQuery.	
Unit3: MySQL , Integration with PHP		**15 Lectures**
3.1	Working with PHPMyAdmin. Create, delete and update record, Retrieving specific record. Understand CRUD operation, working with MySQL Truncate, MySQL Drop. WHERE condition, Order By, Group By, Having, LIKE, AND OR operators Importing and Exporting CSV Files. Creating an application in PHP.	

References:

- PHP – Complete Reference – TMH Publication
- Head First PHP and MySQL – O'relly Publication.
- http://www.w3schools.com/php/

SW-303(T) CYBER SECURITY

Course Objective:

Student will able to learn

- Create awareness of cyber security issues and challenges in IT environment
- Secure information within a modern enterprise;
- Assess the current security landscape, including the nature of the threat, the general status of common vulnerabilities, and the likely consequences of security failures;
- Critique and assess the strengths and weaknesses of general cyber-security models, including the CIA triad;
- Assess the role of strategy and policy in determining the success of information security;
- Estimate the possible consequences of misaligning enterprise strategy, security policy, and security plans;

Learning Outcome:

Student will able to

- Secure information within a modern enterprise
- Create awareness of cyber security issues and challenges in IT environment
- Impart basic knowledge and skills to protect one's personal IT assets.
- Learn the techniques needed for providing protection and security to our personal data and information resources.
- Experiment and learn the skills to provide protection and security to organizational data and information to build a secured IT infrastructure in the companies.
- To develop high level of professional ethics in providing security in the cyber world.
- To develop awareness in taking precautions in protecting them from cyber crimes and fraudulent activities.

No of Lectures: 45 (3 CREDITS)

Unit 1: Introduction to Cyber Security		**05 Lectures**
1.1	Introduction: Cyber Security, its needs, Cyber Threats:- Cyber Warfare-Cyber Crime-Cyber terrorism-Cyber Espionage, Hacking Phases, Need for a Comprehensive Cyber Security Policy	
Unit 2: Cyber Security Vulnerabilities and Cyber Security Safeguards		**10 Lectures**
2.1	Cyber Security Vulnerabilities-Overview, vulnerabilities in software, System administration, Complex Network Architectures, Open Access to Organizational Data, Weak Authentication, Unprotected Broadband communications, Poor Cyber Security Awareness.	
2.2	Cyber Security Safeguards- Overview, Access control, Audit, Authentication, Biometrics, Cryptography, Deception, Denial of Service Filters, Ethical Hacking, Firewalls, Intrusion Detection Systems, Response, Scanning, Security	

	policy, Threat Management.
Unit 3: Cryptography and Network Security	**10 Lectures**
3.1	Introduction to Cryptography, Symmetric key Cryptography, Asymmetric key Cryptography, Message Authentication, Digital Signatures, Applications of Cryptography.
3.2	Overview of Firewalls- Types of Firewalls, User Management, VPN Security
3.3	Security Protocols: - security at the Application Layer- PGP and S/MIME, Security at Transport Layer- SSL and TLS, Security at Network Layer-IPSec.
Unit 4: Cyberspace and the Law	**10 Lectures**
4.1	Introduction, Cyber Security Regulations, Roles of International Law, the state and Private Sector in Cyberspace, Cyber Security Standards. The INDIAN Cyberspace, National Cyber Security Policy 2020.
Unit 5: Cyber Forensics	**10 Lectures**
5.1	Introduction to Cyber Forensics, Handling Preliminary Investigations, Controlling an Investigation, Conducting disk-based analysis, Investigating Information-hiding, Scrutinizing E-mail, Validating E-mail header information, Tracing Internet access, Tracing memory in real-time.

References

- William Stallings, "Cryptography and Network Security", Pearson Education, 6th Edition, and SBN 10: 0133354695, 2013.
- Introduction to Cyber Security available at http://uou.ac.in/foundation-course
- Fundamentals of Information Security http://uou.ac.in/progdetail?pid=CEGCS-17
- Cyber Security Techniques http://uou.ac.in/progdetail?pid=CEGCS-17
- Cyber Attacks and Counter Measures: User Perspective http://uou.ac.in/progdetail?pid=CEGCS-17
- Information System http://uou.ac.in/progdetail?pid=CEGCS-17

Websites

https://ncss2020.nic.in/

SW-304(T) Enterprise Resource Planning and Management.

No. Of Lectures- 45 (3 CREDITS)

Unit No.	Topic	No. of Lect.
Unit - I	**ERP : An Overview** 1.1. What is ERP. 1.2. Reasons for Growth Of ERP 1.3. Problem areas in ERP implementations. 1.4. The future of ERP 1.5. Characteristics and features of ERP 1.6. Benefits of ERP.	**04**
Unit – II	**Enterprise Modeling and Integration for ERP** 2.1.Enterprise-An overview 2.2.What is enterprise 2.3.Integrated Management Information 2.4.The role of enterprise 2.5.Business modeling 2.6.Integrated Data Model 2.7.Role of Common/Shared Enterprise Database 2.8.Linkages of the Enterprise 2.8.1.Establishing Customer-Enterprise Link 2.8.2.Establishing Vendor-Enterprise Link 2.8.3.Establishing Links within the Enterprise 2.8.4.Establishing Links with Environment 2.9. Scope of Enterprise system 2.10.Generic Model of ERP System 2.11.Client/Server Architecture and Enterprise – wide Computing 2.11.1. Characteristics of client/Server Architecture 2.11.2. Different Components of ERP Client/Server Architecture	**08**
Unit – III	**ERP And related Technologies** 3.1.BPR(Business Process reengineering) 3.1.1.Definition 3.2.BPR –The different phases 3.3.Enterprise Redesign Principles 3.4.BPR and IT 3.5.Data Warehousing 3.6.Data Warehouse Components 3.7.Structure and Uses of Data Warehouse 3.8.Data Mining 3.9.What Is Data Mining 3.10.Data Mining Process 3.11.Advantages and Technologies Used In Data Mining 3.12.OLAP 3.13.Supply Chain Management 3.13.1.Definition 3.13.2.Stevan's Model 3.13.3.Benefits 3.13.4.ERP Vs SCM 3.14.CRM	**08**

Unit - VI	**ERP Implementation** 4.1.Evolution 4.2.Evolution of ERP. 4.3.Evolution of Packaged Software Solutions. 4.4.The Obstacles in ERP implementation. 4.5.ERP Implementation Lifecycle (Different Phases). 4.6.Implementation Methodology. 4.7.ERP Implementation-The Hidden Costs. 4.8.In-house Implementation-Pros and Cons 4.9.Vendors and role of vendors for ERP 4.10.Consultants and role of consultants for ERP.	**08**
Unit – V	**Technologies In ERP System** 5.1.Introduction 5.2.Electronic Data Interchange(EDI) 5.2.1.Use of EDI 5.2.2.Evolution of EDI 5.2.3.Benefits of the EDI 5.2.4.EDI Standards 5.2.5.EDI Services 5.2.6.EDI Components 5.2.7.EDI Administration 5.3.IDoc Application 5.4.EDI Integration 5.5.ALE Integration 5.6.Internet Integration 5.7 OCR Integration	**05**
Unit - VI	**The ERP Domain** 6.1.Vendors in the ERP Market. 6.2.SAP's Markets 6.2.1.SAP Architecture And Integration 6.2.2.Scalability of SAP 6.2.3.SAP Business Structure 6.2.4.Common SAP Installation 6.2.5.SAP R/3 System 6.2.6.SAP Tools 6.3.Pepole Soft. 6.4.Jd Edwards 6.5.Oracle	**06**
Unit - VII	**ERP Present and Future** 7.1. Limitations of ERP 7.2. EIA(Enterprise Integration Application) 7.3. EIA Products 7.4. Two Flavors of EIA and Messaging 7.5. ERP And E-Commerce 7.6. ERP and Internet. 7.7. Future Directions in ERP.	**06**

Recommended Books:

1. **ERP: Demystified – Alexis Leon (Tata McGraw Hill)**
2. **ERP – Ravi Shankar and S. Jaiswal (Galgotia)**

SW- 305(P) Lab- Advanced APP Development (2 CREDITS – 30 Hours)

SR NO	PRACTICAL
1	Android # Introduction and Installing and Configuring JavaJDK
2	How to install AndroidStudio
3	Building Your First Android App (Hello World Example)
4	Android Activity Lifecycle State changeExample
5	Adding Two Numbers App (SimpleCalculator)
6	wrap_content, fill_parent, Password Field and Toast inAndroid
7	Android RadioButton Basics With Example
8	Android RatingBarBasics
9	Android Alert DialogExample
10	Android Analogclock And DigitalclockExample
11	Android Login ScreenExample
12	Android ImageViewexample
13	AndroidListView
14	AndroidSeekBar
15	AndroidTimePicker

SW- 306(P) LAB-PHP (2 CREDITS – 30 Hours)

1	Create Textbox and Button on screen. In Textbox user writes the string and on click of Button the string gets reversed using PHP.
2	Develop UI using PHP Application for Basic Calculator showing functionality for ADDITION, SUBSTRACTION, MULTIPLICATION and DIVISION.
3	Develop a UI for to accept Registration Details of a student such as RNO, Name, DOB, GENDER, COURSE, HOBBY, HSC PERCENTAGE, ADDRESS, PHONE, EMAIL and CATEGORY. Now store these details in MySQL database on click of ADD button. Also when the user puts only RNO and clicks on SEARCH button all data related to that student gets displayed.
4	Develop a PHP Application to Authenticate User and password. If login is successful then forward user to result Page which shows the result of that student in proper report otherwise shows login failure Message. Also user should not be allowed to vist any page without proper login.
5	Integrate Regular expression in PHP to do validation and then store the details in MySQL. 1)email 2)phone no beginning with 011 3)mobile no 10 digits and starts with 8 or 9 or 7 4)emp name 5)dob Now display the name and dob of all employees who all are >30 years age on click of DISPLAY button.
6	Integrate Ajax with PHP to search check whether the email already exists

	during registration of the user on a website.
7	Write a PHP script to accept the details of Employee (EName, Designation, Department Gender ,Salary) and display it on next page.
8	. Write a PHP script to change Background color of the browser using switch statement according to a day of the week
9	Design a HTML page to accept a number and write a PHP script to display that number in words e.g. 123 -→ one two three
10	Design HTML page to read the value for n. Write a PHP script to display first n even numbers with font size = 12 and color = red and first n odd numbers with font face = Times new Roman , size = 17 & color = yellow
11	Design a HTML form to accept two strings from the user. Write a PHP function to find whether the small string appears at the start of the large string. Provide a text box to accept the string that will replace all occurrences of small string present in the large string. Also split the large string into separate words. (Use regular expressions)
12	. Write a PHP function using regular expressions check for the validity of entered email-id. The @ symbol should not appear more than once. The dot (.) can appear at the most once before @ and at the most twice or at least once after @ symbol. The substring before @ should not begin with a digit or underscore or dot or @ or any other special character.
13	Write a menu driven program in PHP to perform the following operations on an associative array: i. Display the elements of an array along with the keys. ii. Display the size of an array iii. Delete an element from an array from the given index. iv. Reverse the order of each element's key-value pair v. Traverse the elements in an array in random order.
14	Write a PHP Script for the following: a. Declare a Multidimensional Array. b. Display specific element from a Multidimensional array. c. Also delete given element from the Multidimensional array. d. Display an array. e. Search a given element from an array.
15	Write a menu driven program in PHP to perform the following operations on associative arrays: 1. Sort the array by values (changing the keys) in ascending, descending order. 2. Also sort the array by values without changing the keys. 3. Filter the odd elements from an array. 4. Sort the different arrays at a glance using single function. 5. Merge the given arrays. 6. Find the intersection of two arrays.

	7. Find the union of two arrays. 8. Find set difference of two arrays.

SW- 307(P) On the Job Training (14 CREDITS)

SEMESTER - VI

SW-308(T) - PYTHON

Course Objectives

Student will able to learn

- To do input/output with files in Python.
- To use Python data structures –- lists, tuples, dictionaries
- To define Python functions and call them
- To develop Python programs with conditionals and loops.
- To read and write simple Python programs.

Learning Outcome:

Student will able to

- Develop algorithmic solutions to simple computational problems
- Read, write, execute by hand simple Python programs.
- Structure simple Python programs for solving problems.
- Decompose a Python program into functions
- Represent compound data using Python lists, tuples, dictionaries
- Read and write data from/to files in Python Programs.

No of Lectures: 45 (3 Credits)

Unit 1: Introduction to Python		**15 Lectures**
1.1	Introduction to python, features, downloading and installing python, running python, python virtual machine(PVM),python implementation alternatives, Python interpreter and interactive mode; values and types: int, float, boolean, string, and list; variables, expressions	
Unit2: DATA, EXPRESSIONS, STATEMENTS		**10 Lectures**
2.1	Statements, tuple assignment, precedence of operators, comments; modules and functions, function definition and use, flow of execution, parameters and arguments; Illustrative programs: exchange the values of two variables, circulate the values of n variables, distance between two points.	
Unit3: CONTROL FLOW, FUNCTIONS		**10 Lectures**
3.1	Conditionals: Boolean values and operators, conditional (if), alternative (if-else), chained conditional (ifelif-else); Iteration: state, while, for, break, continue, pass; Fruitful functions: return values, parameters, local and global scope, function composition, recursion; Strings: string slices, immutability, string functions and methods, string module; Lists as arrays.	
Unit4: LISTS, TUPLES, DICTIONARIES		**10 Lectures**
4.1	Lists: list operations, list slices, list methods, list loop, mutability, aliasing,	

	cloning lists, list parameters; Tuples: tuple assignment, tuple as return value; Dictionaries: operations and methods; advanced list processing – list comprehension

Book of Study

1. Allen B. Downey, ``Think Python: How to Think Like a Computer Scientist,,,,, 2nd edition, Updated for Python 3, Shroff/O,,Reilly Publishers, 2016 (http://greenteapress.com/wp/thinkpython/)
2. Guido van Rossum and Fred L. Drake Jr, —An Introduction to Python – Revised and updated for Python 3.2, Network Theory Ltd., 2011.

REFERENCES:

1. John V Guttag, —Introduction to Computation and Programming Using Python,,,,, Revised and expanded Edition, MIT Press , 2013
2. Robert Sedgewick, Kevin Wayne, Robert Dondero, —Introduction to Programming in Python: An Inter-disciplinary Approach, Pearson India Education Services Pvt. Ltd., 2016.
3. Timothy A. Budd, —Exploring Python‖, Mc-Graw Hill Education (India) Private Ltd.,, 2015.
4. Kenneth A. Lambert, —Fundamentals of Python: First Programs‖, CENGAGE Learning, 2012.
5. Charles Dierbach, —Introduction to Computer Science using Python: A Computational ProblemSolving Focus, Wiley India Edition, 2013.
6. Paul Gries, Jennifer Campbell and Jason Montojo, —Practical Programming: An Introduction to Computer Science using Python 3‖, Second edition, Pragmatic Programmers, LLC, 2013

SW-309(T) ADVANCED PHP

Course Objectives

Student will able to learn

- Skills of experienced PHP Programmers.
- How they can leverage common design patterns to build loosely coupled objects and further extends the flexibility of their applications.
- How to develop, maintain of web sites..

Learning Outcome:

Student will able to

- Develop the skills of experienced PHP Programmers.
- leverage common design patterns to build loosely coupled objects and further extended the flexibility of their applications.
- develop, maintain web sites.

No of Lectures: 45 (3 CREDITS)

Unit 1: AJAX		**15 Lectures**
1.1	What is Ajax?	
1.2	Ajax Architecture	
1.3	Overview of Important Concepts of Javascript	
1.4	XMLHttpRequest	
1.5	Onreadystatechange	
1.6	Ajax using HTML, Javascript& DOM	
1.7	Ajax using PHP & MySQL	
Unit2: PHP Database Objects(PDO)		**15Lectures**
2.1	What is PDO?	
2.2	getAvaliableDrivers	
2.3	Exec	
2.4	beginTranscation	
2.5	Commit	
2.6	Rollback	
2.7	query	
2.8	Difference between exec & query	
2.9	Connecting with MySQL using PDO	
2.10	Inserting Values in table	
2.11	Transaction	
2.12	Fetch Values from MySQL	
Unit3: Sending Multi-Part Email		**15 Lectures**
3.1	The PEAR::Mail Class	
3.2	Intializing PEAR::Mail	
3.3	Sending a Message	
3.4	Using the PEAR::Mail_Mime Class	

3.5	Creating a new Mail_Mime Object
3.6	Sending Messages with both HTML and Text
3.7	Attaching Files to Email Messages
3.8	Attaching Graphics to Email Messages
3.9	Generating Message Bodies & Adding Custom Headers

References:

- Advance PHP Programming by George Schlossnagle, Second edition
- PHP5 Advanced by Visual Quickpro Guide

SW-310(T) DIGITAL MARKETING

Objectives:

1. The aim of this syllabus is to give knowledge about using digital marketing in and as business.

2. To make SWOT analysis, SEO optimization and use of various digital marketing tools.

No of Lectures: 45 (3 CREDITS)

Unit	Topic	No. of Lectures
1.	**Introduction to Digital Marketing** Understanding Internet Marketing Search Engine Optimization Search Engine Marketing Email Marketing Digital Display Marketing	4
2.	**Introduction to New Age Media (Digital) Marketing** What is Digital Marketing Digital vs. Real Marketing Digital Marketing Channels Types of Digital Marketing(Overview)-Internet Marketing, Social Media Marketing, Mobile Marketing	4
3.	**Creating Initial Digital Marketing Plan** Content management, SWOT analysis: Strengths, Weaknesses, Opportunities, and Threats, Target group analysis EXERCISE: Define a target group	4
4.	**Marketing using Web Sites** Web design, Optimization of Web sites, MS Expression Web EXERCISE: Creating web sites, MS Expression	4
5.	**Search Engine Optimization** SEO Optimization, Writing the SEO content EXERCISE: Writing the SEO content	4
6.	**Customer Relationship Management** Introduction to CRM,CRM platform,CRM models EXERCISE: CRM strategy	4
7.	**Social Media Marketing** Understanding Social Media Marketing,Social Networking (Facebook, Linkedin, Twitter, etc.) Social Media (Blogging, Video Sharing - Youtube,Photosharing – Instagram, Podcasts)Web analytics – levels,Modes of Social Media Marketing- **Creating a Facebook page** Visual identity of a Facebook page , Types of publications, Facebook Ads, Creating Facebook Ads , Ads Visibility **Business opportunities and Instagram options** Optimization of Instagram profiles ,Integrating Instagram with a Web Site and other social networks, Keeping up with posts **Business tools on LinkedIn** Creating campaigns on LinkedIn , Analyzing visitation on LinkedIn **Creating business accounts on YouTube**YouTube,, Advertising , YouTube Analytics **E-mail marketing** E-mail marketing plan , E-mail marketing campaign analysis ,	19

	Keeping up with conversions Digital Marketing tools: Google Ads, FaceBook Ads, Google Analytic, Zapier, Google Keyword Planner EXERCISE: Social Media Marketing plan. EXERCISE: Making a Facebook page and Google Ads	
8.	**Digital Marketing Budgeting** Resource planning Cost estimating Cost budgeting Cost control	**2**
Total		**45**

SW- 311 (T) Professional Ethics and Values

Course Objectives :-

1. To enable the students to absorb and internalize the Values and Ethical behaviour in the personal and professional lives.
2. To make student recognize the nature of the individual and the relationship between the self and the community.
3. To develop inter personal skills and be an effective goal-oriented leader
4. To create the awareness among students to follow human values.
5. To expose students to right attitudinal and behavioural aspects essential at personal and professional level.

Course Outcome:-

1. Students would understand the core values that shape the ethical behaviour.
2. Students would aware on professional ethics and human values.
3. Students would be able to handle ethical dilemma in a better way.
4. Students would understand how to restrain themselves from unethical behaviour.
5. This course would increase sense of Social Responsibility among students.
6. It helps to understand risk and safety measures in personal and professional life.
7. Students comprehend their positive role in the technological development of the society.

No of Lectures: 45 (3 CREDITS & Lectures -45)

Unit No.	Name of Unit	Lecture Allocated
I	**Introduction of Professional Ethics** Meaning & Significance of Ethics, Types of Ethics – Personal & Professional Ethics, Code of Professional Ethics – Honesty, Integrity, Unity , Inclusiveness, Self-esteem and self- confidence, Work Culture, Punctuality – Time, Task and Resource management, Problem solving and decision making skills, Interpersonal and Intra personal relationship, Team work – Positive and creative thinking.	13
II	**Perspectives of Professional Ethics** Ethics and Profession, Profession and professionalism,	12

	Professional Risks, Professional Accountabilities, Professional Success,. Issues in Professional Ethics.	
III	**Human Values** Meaning & Significance of Human Values, Classification of Values, Personal, Social & Ethical Values, Rights & Duties envisioned in Indian Constitution.	10
IV	**Dimensions of Human Values** Concept of Human Rights, Environment and Ecological balance, Social Evils & their prevention.	10
	TOTAL	**45**

Reference Books:-

1. R. R. Gaur, R Sangal, G.P. Bagaria, ***A Foundation course in Human Values and Professional Ethics***, Excel Books, New Delhi, 2010
2. B L Bajpai, ***Indian Ethos and Modern Management***, New Royal Book Co. Lucknow, 2008
3. P L Dhar, RR Gaur , ***Science and Humanism***, Commonwealth Publisher, 1990
4. A N Tripathy, ***Human Values***, New Age International Publishers, 2003
5. Jayshree Suresh & Raghavan B S , ***Human Values and Professional Ethics***, S Chand Publications.
6. Elizabeth P Tierney, ***Ethics in Workplace***, Oak Tree Press.
7. Fritz Allhoff, ***Business Ethics : Fairness and Justice in the workplace*** – Vol. 2 of Business Ethics, Sage Publications, 2005
8. R. S. Naagarazan, ***A textbook on Professional Ethics & Human Values***, New Age International Publishers, 2006
9. R Subramanium, ***Professional Ethics***, Oxford Publications, New Delhi
10. S B Gogate, ***Human Values and Professional Ethics***, Vikas Publishing House Pvt. Ltd, Noida
11. Prof. D R Kiran, ***Professional Ethics and Human Values***, Tata McGraw-Hill, 2013

PRACTICALS

SW-312(P) LAB- PYTHON (2 Credits)

1	Compute the GCD of two numbers.
2	Compute the sum of n natural numbers.
3	Find the square root of a number (Newton's method)
4	Find the factorial of a number
5	Find the maximum of a list of numbers
6	Linear search and Binary search
7	Selection sort, Insertion sort
8	Merge sort
9	First n prime numbers
10	Programs that take command line arguments (word count)
11	Find the most frequent words in a text read from a file
12	Program to find the sum of natural number
13	Program to display powers of 2 using anonymous function
14	Program to find numbers divisible by another number
15	Program to find ASCII Value of character

SW- 313(P) LAB- ADVANCED PHP (2- credits)

1	Write a PHP program to create a simple calculator that can accept two numbers and perform operations like add, subtract, multiplication and divide (using Self Processing form)
2	Write a PHP script to demonstrate the introspection for examining class(use function get_declared_classes(),get_class_methods() and get_class_vars())..
3	Write an PHP script to search customer name from customer.dat file(Use AJAX concept)
4	Write a PHP Script create login form and validate it (Use database and Sticky form concept)
5	Create employee table as follows Bus(bno, bname, source, designation). Write Ajax program to selectthe bus name and print the selected bus details.
6	. Write a PHP script to accept username and password. If in the first three chances, username and password entered is correct, then display second form, otherwise display error message. (Use Session)
7	Write a PHP script for the following: Design a form to accept a number from the user. Perform the operations and show the results. 1) Factorial of a number using Recursion. 2) Add the digits of that number to reduce it to single digit. (use the concept of self processing page
8	Write a PHP script using AJAX concept, to develop user-friendly and interactive search engine (like a google search engine)
9	Write PHP script to create a CD catalog using XML file.
10	Write a PHP script for the following: Design a form to accept a number from the user. Perform the operations and show the results. 1) Factorial of a number using Recursion. 2) Add the digits of that number to reduce it to single digit. (use the concept of self processing page.)
11	Create student registration form and display details in the next page. (Use sticky form concept).
12	Write a PHP Script to Upload the file and display its information.(use $_FILES)
13	Write a PHP Script to display Server information in table format (Use $_SERVER).
14	Write a PHP program to implement Create, Read, Update and Display operations on Teacher table with attributes (tid, tname, address, subject). (Use Radio Buttons)
15	Write PHP script to demonstrate the concept of introspection for examining object

SW- 314(P) On the Job Training (14 CREDITS)