

SANKALCHAND PATEL UNIVERSITY, VISNAGAR

Faculty of Engineering and Technology



Structure, Teaching Scheme and Syllabus of B.Sc. in Information Technology

Program Code: ET110

With effect from: 2023-24

Program Outcomes:

Program Outcomes POs

PO	Details
1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2	Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4	Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specification Out Comes:

Program Specific Outcomes PSOs

PSO1	Develop Information Technology-based solutions into the competitive environment.
PSO2	Possess professional skills of software design using cutting-edge technologies.
PSO3	Apply concepts of core areas of Information Technology– Data Structures, Database Management Systems, Operating Systems, Computer Network and Software Engineering to for innovative solutions.
PSO4	Develop effective oral and written communication skills and to introduce them to write ethical codes and guidelines, show leadership, can work as a team leader/team member and communicate efficiently with a team in developing software of multidisciplinary nature.

Semester- III

Branch Name:	B.Sc. (IT)
Program Code:	ET110
Course Title:	Database Management Systems
Course Code:	13-ITM205-2C
Pre-requisite Course:	--

Course Objectives:

1. The core objective of this course is to make the students aware and have some expertise with various facets of database design methodology in oracle database, Microsoft SQL Server, MySQL etc. used in industry now days.
2. This course aims to present various, Relational Database, Storage Architecture, Query Language & Processing, Normalization, Function Dependency used for database design during software development.
3. This course shall act as platforms for the students wishing to carry out further development in database management for large enterprise.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	0	2	4	50	25	-	25	100

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1	Introduction: Purpose & Applications, Database Architecture, Type of DBMS, Data Model, Users Role & Responsibility, Transaction Management	2	05
2	Relational Model: Structure of Relational Database, Database Schema, Keys, Relational Algebra Operations, Relational Algebra Query Language	4	10
3	SQL: Overview of the SQL Query Language, SQL Data Definition, Basic Structure of SQL Queries, Integrity Constraint, Additional Basic Operations, Set Operations, Null Values, Aggregate Functions, Nested Sub queries, Modification of the Database, Join Expressions, Aggregation Features	4	10
4	E-R Model: Overview, Constraints, E-R Diagrams, E-R Design Issues, Advance E-R Model	3	10
5	Database Design: Features of Good Database Design, Redundancy, Functional Dependency, Decomposition, Normalizations, Normal Forms	5	15
6	Query Processing & Optimization: Overview, Estimating of Query Cost, Evaluation of Expressions, Evaluation Plan, Selection Operation, Sorting, Join Operations, Indexing, Ordered Indices, B+ Tree Index, Static and Dynamic Hashing	5	15
7	Transaction Management: Concept, Transaction Model, ACID Property, Serializability, Transaction Protocols, Deadlock Handling, Recovery	5	15
8	Advance SQL: Views, Index, Transactions, Authorization, Functions and Procedures, Triggers, Cursor	2	10
9	Case Study: Postgre SQL, MySQL	2	10

Text Books:

1. Database System Concepts, Abraham Silberschatz, Henry F. Korth & S. Sudarshan, McGraw Hill.
2. An introduction to Database Systems, C J Date, Addison-Wesley

Reference Books:

1. SQL- PL/SQL by Ivan bayross
4. Oracle – The complete reference – TMH /oracle press
2. Oracle – The complete reference – TMH /oracle press

Course Learning Outcomes (CLO):

On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Understand the business data and relation between data	Understanding
CLO2	Use of Technology to store the large data	Applying, Understanding
CLO3	Efficiently usage of data in short response time.	Applying
CLO4	Access control over the data.	Analyzing
CLO5	Design of database for real life project	Analyzing Creating
CLO6	Interpret the architecture and components of a computer system	Creating

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes(PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	H	M	M	L	L	M			L		M	L	H	H	M	L
CLO2	M	H	M	L	L	M			L		M	L	H	H	H	M
CLO3	H	M	M	L	M	L			M		M	L	H	H	H	
CLO4	M	H	M		L	L			M		L		M	M	M	L
CLO5	H	M	M	L	L	M			L		L	M	M	H	H	
CLO6	M	H	M		M	L			M		M	L	M	H	M	L

H:High, M:Medium, L:Low

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

- (1) To study DDL and DML commands.
- (2) Create table and insert sample data in tables.
- (3) Perform query involving retrieve, update, and delete record in a table.
- (4) Perform query using arithmetic and logical operators.
- (5) Perform queries involving pattern matching predicates.
- (6) Perform query using aggregate, numeric and string functions.
- (7) Using Union, Intersect and Minus Clause.
- (8) Perform query using order by, group by and having clause.
- (9) To study transaction control commands.

Branch Name:	B.Sc. (IT)
Program Code:	ET110
Course Title:	Object Oriented Programming Using Java
Course Code:	13-ITM206-2C
Pre-requisite Course:	Basic computer skills and should be familiar with general coding concepts like variables and data types.

Course Objectives:

1. Provide students with a solid understanding of Object-Oriented Programming principles in Java.
2. Develop proficiency in Java programming language syntax and constructs.
3. Introduce and implement common design patterns in Java programming.
4. Emphasize best practices in software development, including code organization, documentation, and version control.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	0	2	4	50	25	-	25	100

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1	Introduction to Java : Basics of Java programming, Data types, Variables, Operators, Control structures including selection, Looping, Java methods, Overloading, Math class, Arrays in java.	2	05
2	Objects and Classes : Basics of objects and classes in java, Constructors, Finalizer, Visibility modifiers, Methods and objects, Inbuilt classes like String, Character, StringBuffer, File, this reference.	4	10
3	Inheritance and Polymorphism : Inheritance in java, Super and sub class, Overriding, Object class, Polymorphism, Dynamic binding, Generic programming, Casting objects, Instance of operator, Abstract class, Interface in java, Package in java, UTIL package.	4	10
4	Event and GUI programming : Event handling in java, Event types, Mouse and key events, GUI Basics, Panels, Frames, Layout Managers: Flow Layout, Border Layout, Grid Layout, GUI components like Buttons, Check Boxes, Radio Buttons, Labels, Text Fields, Text Areas, Combo Boxes, Lists, Scroll Bars, Sliders, Windows, Menus, Dialog Box, Applet and its life cycle, Introduction to swing.	8	20
5	I/O programming: Text and Binary I/O, Binary I/O classes, Object I/O, Random Access Files.	7	15
6	Multithreading in java : Thread life cycle and methods, Runnable interface, Thread synchronization, Exception handling with try-catch-finally, Collections in java, Introduction to JavaBeans and Network Programming.	7	15

Text Books:

1. The Complete Reference, Java 2 (Fourth Edition), Herbert Schild, TMH.

Reference Books:

1. Programming in Java, Sachin Malhotra & Saurabh Chaudhary, Oxford University Press
2. Big Java, 3rd Edition, Horstmann, Wiley-India

Course Learning Outcomes (CLO):

On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Understand the concept and underlying principles of Object-Oriented Programming.	2. Understanding
CLO2	Understand how object-oriented concepts are incorporated into the Java programming language.	1. Remembering
CLO3	Develop problem-solving and programming skills using the OOP concept.	2. Understanding
CLO4	Develop the ability to solve real-world problems through multithreaded programming using Java.	3. Applying, 2. Understanding
CLO5	Become familiar with creating packages and working with files in Java.	2. Understanding 3. Evaluating

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes(PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	H	M	M	L	L	M			L		M	L	H	M	M	L
CLO2	H	M	H	L	L	L			M		M	L	M	H	H	M
CLO3	M	H	M	M	M	M			M		L	L	H	M	M	
CLO4	M	H	M		L	L			M		L		M	M	H	M
CLO5	H	M	M	L	L	M			L		L	M	M	H	H	

H:High, M:Medium, L:Low

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

1. Write a java program to find the Fibonacci series using recursive and non recursive functions
2. Write a java program to multiply two given matrices.
3. Write a java program for Method overloading and Constructor overloading
4. write a java program that prompts the user for an integer and then printouts all prime numbers up to that integer
5. Write a java program to display the employee details using Scanner class
6. Write a java program that checks whether a given string is palindrome or not
7. Write a java program to represent Abstract class with example.
8. Write a java program to implement Interface using extends
9. Write a Java program that implements a multi-thread application that has three threads
10. Write an applet program that displays a simple message
11. Write a java program that works as a simple calculator. Use a Grid Layout to arrange Buttons for digits and for the + - * % operations. Add a text field to display the result

Branch Name:	B.Sc. (IT)
Program Code:	ET110
Course Title:	Network Basics
Course Code:	13-ITM207-2C
Pre-requisite Course:	Basic understanding of computer hardware and software, as well as a working knowledge of operating systems.

Course Objectives:

1. The core objective of this course is to make the students aware and have some expertise with various facets of network.
2. This course aims to present various Network applications, network hardware, network software, reference models.
3. This course shall act as platforms for the students wishing to carry out further development in understanding of network domain.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	0	2	4	50	25	-	25	100

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1	INTRODUCTION: Network applications, network hardware, network software, reference models: OSI, TCP/IP, Internet, Connection oriented network - X.25, frame relay. THE PHYSICAL LAYER: Theoretical basis for communication, guided transmission media, wireless transmission, the public switched telephone networks, mobile telephone system.	2	05
2	THE DATA LINK LAYER: Design issues, error detection and correction, elementary data link protocols, sliding window protocols, example data link protocols - HDLC, the data link layer in the internet. THE MEDIUM ACCESS SUBLAYER: Channel allocations problem, multiple access protocols, Ethernet, Data Link Layer switching, Wireless LAN, Broadband Wireless, Bluetooth	4	10
3	THE NETWORK LAYER: Network layer design issues, routing algorithms, Congestion control algorithms, Internetworking, the network layer in the internet (IPv4 and IPv6), Quality of Service.	4	10
4	THE TRANSPORT LAYER: Transport service, elements of transport protocol, Simple Transport Protocol, Internet transport layer protocols: UDP and TCP.	8	20
5	THE APPLICATION LAYER: Domain name system, electronic mail, World Wide Web: architectural overview, dynamic web document and http. APPLICATION LAYER PROTOCOLS: Simple Network Management Protocol, File Transfer Protocol, Simple Mail Transfer Protocol, Telnet.	7	15

Text Books:

1. S. Tanenbaum (2003), Computer Networks, 4th edition, Pearson Education/ PHI, New Delhi, India.

Reference Books:

1. Behrouz A. Forouzan (2006), Data communication and Networking, 4th Edition, Mc Graw-Hill, India.
2. Kurose, Ross (2010), Computer Networking: A top down approach, Pearson Education, India

Course Learning Outcomes (CLO):

On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Analyze the requirements for a given organizational structure and select the most appropriate networking Architecture and technologies.	Understanding, Analyzing
CLO2	Specify and identify deficiencies in existing protocols, and then go onto formulate new and better protocols.	Understanding, Applying
CLO3	Analyze, specify and design the topological and routing strategies for an IP based networking infrastructure.	Applying, Analyzing
CLO4	Have a working knowledge of datagram and internet socket programming	Analyzing, Evaluating

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes(PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	M	H	M	M	M	M			M				H	H	M	L
CLO2	H	H	M	M	M	M			L				M	H	M	L
CLO3	M	M	H	L	M	L			M		H		H	M	M	M
CLO4	H	M	H	L	L	L			M		H		M	M	H	

H:High, M:Medium, L:Low

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

1. Study of different types of Network cables and practically implement the cross-wired cable and straight through cable using clamping tool.
2. Install and Configure Wired and Wireless NIC and transfer files between systems in LAN and Wireless LAN.
3. Install and configure Network Devices: HUB, Switch and Routers..
4. Connect the computers in Local Area Network.
5. Configure Host IP, Subnet Mask and Default Gateway in a System in LAN (TCP/IP Configuration)..
6. Establish Peer to Peer network connection using two systems using Switch and Router in a LAN.
7. Configure Internet connection and use IPCONFIG, PING / Tracer and Net stat utilities to debug the network issues.
8. Transfer files between systems in LAN using FTP Configuration, install Print server in a LAN and share the printer in a network.
9. Study of basic network command and Network configuration commands

Branch Name:	B.Sc. (IT)
Program Code:	ET110
Course Title:	Computational Statistics
Course Code:	13-MDC203-2C
Pre-requisite Course:	Basic knowledge of statistics and probability. Familiarity with programming concepts and a programming language

Course Objectives:

1. Understand the basic principles of probability and statistical inference.
2. Implement statistical computations using user-friendly software.
3. Analyze and visualize data using statistical tools.
4. Apply computational techniques to solve simple statistical problems.
5. Interpret and communicate the results of statistical analyses.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	1	-	4	50	50	-	-	100

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1	Solutions of Non-Linear Equations: Absolute, Relative and Percentage Error, Roots of an equation, Linear and non-Linear equations (Definition and Difference), Methods for finding roots of non-Linear equations: Bisection Method, False Position Method, Self-Iterative Method(Method of Successive approximation), Newton-Raphson Method and secant Method - Example only- No algorithm	07	15
2	Solution of Simultaneous Linear Equations: Definitions : System of linear equations, Existence of unique roots, multiple roots and no roots, Difference between direct and iterative methods, Gauss-Elimination Method, Gauss Jordan Method, Gauss-seidel Iterative Method, Jaccobi's Iterative Method	08	20
3	Random Variables: Definition of random variable, discrete and continuous random variables, functions of random variables, probability mass function, probability density function, Distribution function, Properties of Distribution function, Definition of bivariate random variable, bivariate distribution	07	15
4	Discrete and Continuous Probability Distributions: Bernoulli distribution, Binomial distribution, Poisson distribution, Uniform distribution, Normal distribution, Exponential distribution	08	20
5	Sampling: Meaning of population and sample, need for sampling, Definition of population size and sample size, Sampling methods (i) Non probabilistic sampling methods- convenience, quota, judgmental, purposive (ii) Probabilistic sampling methods- simple random sampling method, stratified random sampling method, systematic sampling method, two stage sampling method, cluster sampling method, sequential sampling method	07	15

6	Correlation and Regression: Bivariate distribution, Correlation coefficients, Regression lines, Formulas for Regression coefficients, Rank correlation.	07	15
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Text Books:

1. Gupta.S.C. and Kapoor.V.K. (2014): Fundamentals of Mathematical Statistics, Sultan Chand and sons.
2. Numerical Methods in Engineering & Sciences by B.S. Grewal, Khanna Publications
3. Medhi.J. (1992): Statistical Methods and Introductory Text, Wiley Eastern Ltd.
4. Douglas C. Montgomery, George C. Runger(2018), Applied Statistics and Probability for Engineers, Wiley

Reference Books:

1. Härdle, Wolfgang; Okhrin, Ostap; Okhrin, Yarema (2017), Basic Elements of computational Statistics, Springer
2. Sheldon M.Ross (2006): Introductory Statistics , 2/e, Elsevier Publications.
3. Numerical Methods for engineers. S C Chapra and R P Canale. McGraw Hill International Edition

Course Learning Outcomes (CLO):

On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Find an approximate solution of algebraic equations using appropriate method.	2 Understanding
CLO2	Find an approximate solution of system of linear equations using appropriate iterative method.	2 Understanding
CLO3	Understand and apply the basic concepts of probability, random variables, probability	2 Understanding
CLO4	Use statistical methodology and tools in the engineering problem solving process.	3 Applying
CLO5	Understand the basic concepts of Correlation and regression	2 Understanding

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	L		M													
CLO2	M	L														
CLO3	L				L											
CLO4	M	M	L		L											
CLO5	M	L	L													

H: High, M: Medium, L:Low

Branch Name:	B.Sc. (IT)
Program Code:	ET110
Course Title:	Vedic Mathematics
Course Code:	13-IKS202 – 2C
Pre-requisite Course:	Basic knowledge of Differentiation, Integration and Differential Equations.

Course Objectives:

- (1) To enable the learners to explore the power of Vedic Math.
- (2) To make learners strong in Numerical Math.
- (3) To enable learners to recognize and understand simple techniques of Arithmetic Calculations.
- (4) To train learners to use the ideas of Vedic Math in daily calculations and make those calculations with accuracy and speed.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
1	1	0	2	25	25	-	-	50

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1.	High Speed Addition & Subtraction- History and Evolution of Vedic Mathematics, Introduction to Basic Vedic Mathematics formulas: Sutras & Upsutras, Addition in Vedic Math, Subtraction in Vedic Math Fractional Addition & Subtraction. (Should be performed without aid of writing material)	3	20%
2.	Miracle Multiplication & Excellent Division - Multiplication: Base Method (Any two numbers upto three digits), UrdhvaTiryak Sutra, Miracle Multiplication: Any three digit number by series of 1's & 9's. Division: UrdhvaTiryak Sutra, Divisibility tests, Division of numbers near base, Applications of Vinculum. (Should be performed without aid of writing material)	3	20%
3.	Rapid Squares & Cubes (Different Methods of squares – General Method, Duplex Method...) - Squaring of numbers – Base Method, Crisscross System, Formula Method, Square of numbers ending with 5 – Ekadhiken Purven Sutra Easy Square Roots – Dwandwa Yoga (Duplex) Sutra Cubing – Yavadunam Sutra, Cuberoots, General Division, Formula Method	4	27%
4.	Algebra & Geometry - Use of various Vedic Techniques for answering Numerical Aptitude questions from Competitive Examinations: Factoring Quadratic Equations: Anurupyena, Adymadyenantyamanitya Sutra, Simultaneous Equations, General Equations, Verifying answers by use of Digit Sum Method. Geometry: Concept of Baudhayana (Pythagorus) Theorem, Circling a Square: Baudhayana Shulabsutra, Presentation of Point, Angle & Line, Dates & Calenders	5	33%

Text Books:

1. BhatiyaDhaval, Vedic Mathematics Made Easy, Jaico Publishing House
2. Thakur Rajesh Kumar, Vedic Mathematics for students taking Competitive Examinations. Unicorn Books 2015 or Later Edition

Reference Books:

1. Gupta Atul, Power of Vedic Mathematics with Trigonometry , Jaico Books
2. V. G. Unkalkar, Magical World of Mathematics (Vedic Mathematics), Vandana Publishers, Bangalore

Course Learning Outcomes (CLO):

On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Perform simple arithmetic calculations with speed and accuracy and Will be able to generate tables of any number	2 Understand 3 Apply 6 Create
CLO2	To perform products of large numbers quickly	2 Understanding 3 Applying
CLO3	Develop confidence in calculating square roots and cube roots of integers	2 Understand 3 Apply
CLO4	Perform difficult calculations speedily.	3 Apply 5 Evaluate
CLO5	Face Numerical Aptitude part of any Competitive Examination confidently.	2 Understand 3 Apply 5 Evaluate

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	H	M	M				L	L	L			L	L			M
CLO2		H	H		L	L	M				M	L	L	M		
CLO3	H	M	H				M	M			L			M		L
CLO4	M	L	H		L	L	L							L		
CLO5	M	H	H		L											

H: High, M: Medium, L:Low

Branch Name:	B.Sc. (IT)
Program Code:	ET110
Course Title:	Functional Grammar and Composition
Course Code:	13-AEC221-2C
Pre-requisite Course:	Basic and Functional Grammar

Course Objectives:

1. To identify the key concepts of English grammar.
2. To describe the use of appropriate language through the understanding of the sentence patterns in English.
3. To enable the learner to communicate effectively at the written and spoken level appropriately in real-life situations.
4. To learn how to use the structure of language systematically and to get a good command over the language to produce the learned grammatical structures accurately.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
1	1	-	2	25	25	-	-	50

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1	Basic Concepts of Syntax- Word order and Sentence Patterns - Concord/ Subject-Verb Agreement - Types of Sentences based on Functions - Types of Sentences based on Clauses - Transformation of Sentences - Affirmative and Negative Sentences - Connectives- Collocations - Punctuations	10	30
2	Basic Functional Aspects of Grammar: Use of major tense forms (Emphasis on tense forms in use in everyday transactions) – Use of Active and Passive Voice – Making use of Reported Speech – Use of functional elements in sentences – Articles – Prepositions.	6	20
3	Composition: Writing a paragraph Information Transfer-converting information from charts, tables, diagrams etc verbally and vice-a-versa, Common errors.	6	20
4	Phonetics: Organs of speech,. Speech mechanism, Difference between phonetics and phonology, Syllable, word accent, sentence accent, weak forms, intonation	12	30

Text Books:

1. Bansal and Harrion : Spoken English for India. 4th Edition, Orient BlackSwan; 2011
2. Green, David : Contemporary English Grammar, Structure and Composition Macmillan India Ltd, Madras, 1971

Reference Books:

1. Augustine, A.E. Joseph, K.V.: Macmillan Grammar, A Handbook, Macmillan India Ltd, Delhi 1986
2. Narayan Swami, K.R.: Success with grammar and Composition Orient Longman, Hyderabad, 1995
3. Freeman, Sarah: Written Communication in English Orient Longman Orient Black Swan, 1977
4. Home Crofton: Essay, precise, composition and Comprehension Macmillan, Madras Macmillan Publishing Co. 1978
5. S R Inthira & V Saraswathi "Enrich your English – a) Communication skills b) Academic skills" "Publisher CIEFL & OUP
6. Maxwell Nurnberg and Rosenblum Morris, "All About Words", General Book Depot, New Delhi 1995

Course Learning Outcomes (CLO):

On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Ability to analyze the usage of English words in different contexts and acquire considerable flair in using broad range of vocabulary.	1 Remembering 2 Understanding
CLO2	Ability to upgrade comprehension of technical and academic articles and recognize writings as a process rather than a product.	2 Understanding 3 Applying
CLO3	Ability to identify common errors in various parts of English and give effective expression in oral and written communication.	2 Understanding 3 Applying 4 Analyze
CLO4	Ability to analyze various grammatical units of English and design a language component critically and coherently to meet desired needs within the realistic constraints.	3 Applying 4 Analyze 5 Evaluate

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1				L	M		L	L	M	H		L	L			M
CLO2	L			M		L	M		H	M	M	L	L	M		
CLO3	M	L	M		L		M	M		H	L			M		L
CLO4			M	M		L	L		M	H				L		

H: High, M: Medium, L: Low

Branch Name:	B.Sc. (IT)
Program Code:	ET110
Course Title:	Web Programming
Course Code:	13-SEC203-2C
Pre-requisite Course:	--

Course Objectives:

1. Today's world is driven by Internet based applications. The rationale behind this course is to impart the knowledge of web programming among students of computer engineering.
2. This course covers web programming for both client-side and server-side to develop complete web based applications for various requirements.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
-	-	4	2			25	25	50

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1	Basics of HTML and CSS Structure of HTML page, HTML tags for data formatting, tables, links, images, meta tags, frames, html form tags, media, APIs, HTML5 tags and validation. Need for CSS, Syntax and structure, CSS rules for Backgrounds, Colors and properties, Manipulating texts, Fonts, borders and boxes, Margins, Padding Lists, CSS Positioning. Animations, Tool-Tips, Style images, Variables, Media Queries, Wildcard Selectors (*, ^ and \$) in CSS, Working with Gradients, Pseudo Class, Pseudo elements, basic of frameworks like Bootstrap	10	30
2	Client Side Scripting using JavaScript Syntax of JavaScript, Execution of JavaScript, Internal, Embedded and External Javascript, JavaScript : variables, arrays, functions, conditions, loops, Pop up boxes, JavaScript objects and DOM, JavaScript inbuilt functions, JavaScript validations and Regular expressions, Event handling with JavaScript, Callbacks in Javascript, Function as arguments in JavaScript, Introduction to JSON	6	25
3	Server Side Programming with PHP Difference between Client side and Server side scripting, Structure of PHP page, PHP Syntax: variables, decision and looping with examples, PHP and HTML, Arrays and Functions, String, Form processing, File uploads, Dates and time zone, Working with Regular Expressions, Exception Handling , Basic concepts of Session and State, State management using query string, hidden form controls, Cookies, Session variables	6	30
4	Database programming with PHP and MySQL Basic MySQL commands, PHP functions for database connectivity, Implementation of CRUD operations using PHP, Prepared Statement and stored procedure execution in PHP	12	15

Text Books:

1. Web Technology, Moseley and Savaliya, Wiley India
2. Web Design, Joel Sklar, Cengage Learning

Reference Books:

1. HTML 5 Black Book 2Ed, Kogent Learning Solutions Inc, dreamtech
2. Learning PHP, MySQL, JavaScript, CSS & HTML5, 3rd Edition, Robin Nixon, O'Reilly
3. A Step-by-Step Guide to Creating Dynamic Websites By Robin Nixon Publisher: O'Reilly Media

Course Learning Outcomes (CLO):

On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Use the various HTML tags with appropriate styles to display the various types of contents effectively.	1 Remembering 2 Understanding
CLO2	Develop the dynamic web pages using HTML, CSS and JavaScript applying web design principles to make pages effective.	2 Understanding 3 Applying
CLO3	Develop the server side PHP scripts using various features for creating customized web services.	2 Understanding 3 Applying 4 Analyze
CLO4	Write the server side scripts for designing web based services with database connectivity.	3 Applying 4 Analyze 5 Evaluate

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	H	M	M	L	L	M			L		M	L	H	H	M	L
CLO2	M	H	M	L	L	M			L		M	L	H	H	H	M
CLO3	H	M	M	L	M	L			M		M	L	H	H	H	M
CLO4	M	H	M		L	L			M		L		M	M	M	L

H: High, M:Medium, L:Low

List of Experiments:

Practical list should be prepared based on the content of the subject with following guidelines in mind.

1. Entire syllabus should be covered.
2. Practical list should be designed with real life examples.
3. List should be prepared to cover individual concepts and integration of different concepts on real life problems.