

# Syllabus Book

**First Year B. Sc (IT)**  
(Offered under School of Sciences)



**P P Savani University**  
Host Institute: School of Engineering

Effective From: 2018-19  
Authored by: P P Savani University

**P P SAVANI UNIVERSITY**

**SCHOOL OF ENGINEERING**

**TEACHING & EXAMINATION SCHEME FOR FIRST YEAR B. SC. (IT) PROGRAMME**

Sem	Course Code	Course Title	Teaching Scheme					Examination Scheme						
			Contact Hours				Credit	Theory		Practical		Tutorial		Total
			Theory	Practical	Tutorial	Total		CE	ESE	CE	ESE	CE	ESE	
1	SSIT1010	Introduction to Computer Science - I	3	4	0	7	5	40	60	40	60	0	0	200
	SSIT1020	Web Application Development - I	2	4	0	6	4	40	60	40	60	0	0	200
	SEPD1010	Academic English and Technical Writing	2	2	0	4	3	40	60	20	30	0	0	150
	SSIT1030	Computer Applications	2	4	0	6	4	40	60	40	60	0	0	200
	SESH1040	Mathematics for Computer Applications	3	0	2	5	5	40	60	0	0	50	0	150
	<b>Total</b>						<b>28</b>	<b>21</b>						
2	SSIT1040	Data Structures	3	2	0	5	4	40	60	20	30	0	0	150
	SSIT1050	Database Management Systems	3	4	0	7	5	40	60	40	60	0	0	200
	SSIT1061	Web Application Development-II	0	4	0	4	2	0	0	40	60	0	0	100
	SSIT1071	Introduction to Computer Science- II	3	4	0	7	5	40	60	40	60	0	0	200
	SESH1061	Discrete Mathematics for Computer Applications	3	0	2	5	5	40	60	0	0	50	0	150
	SEPD1020	Communication Skills	2	2	0	4	3	40	60	20	30	0	0	150
<b>Total</b>						<b>32</b>	<b>24</b>							<b>950</b>

# CONTENTS

## Semester 1

<b>Sr No</b>	<b>Course Code</b>	<b>Name of Course</b>	<b>Page No</b>
1	SSIT1010	Introduction to Computer Science – I	01-03
2	SSIT1020	Web Application Development – I	04-06
3	SEPD1010	Academic English and Technical Writing	07-09
4	SSIT1030	Computer Applications	10-11
5	SESH1040	Mathematics for Computer Applications	12-14

## Semester 2

<b>Sr No</b>	<b>Course Code</b>	<b>Name of Course</b>	<b>Page No</b>
1	SSIT1040	Data Structures	15-17
2	SSIT1050	Database Management Systems	18-20
3	SSIT1061	Web Application Development-II	21-22
4	SSIT1071	Introduction to Computer Science – II	23-25
5	SESH1061	Discrete Mathematics for Computer Applications	26-27
6	SEPD1020	Communication Skills	28-30

**P P Savani University**  
**School of Sciences**

Course Code: SSIT1010

Course Name: Introduction to Computer Science – I

Prerequisite Course(s): --

**Teaching & Examination Scheme:**

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
3	4	-	5	40	60	40	60	-	-	200

CE: Continuous Evaluation, ESE: End Semester Exam

**Objective(s) of the Course:**

To help learners to

- understand basic components of a computer system.
- identify appropriate approach to computational problems.
- develop logic building and problem-solving skills.

**Course Content:**

<b>Section I</b>			
Module	Content	Hours	Weightage in %
1.	<b>Introduction to Computer and its Architecture</b> Introduction and Characteristics, Generation, Classification, Applications, Central Processing Unit and Memory, Communication between various units, processor speed.	05	10
2.	<b>Memory and various Input and Output Devices</b> Introduction to Memory, Memory hierarchy, Primary memory and its type, Secondary memory, Classification of Secondary memory, Various secondary storage devices and their functioning, their merits and demerits.	05	10
3.	<b>Operating Systems and Computer Languages</b> Evolution of Operating System, types and functions of operating systems, Evolution and classification of programming language, Selection of a programming language.	04	08
4.	<b>Introduction to C Programming</b> Features of C language, structure of C Program, Development of program, Algorithm and flowchart, Types of errors, debugging, tracing/stepwise execution of program, watching variables values in memory.	04	10
5.	<b>Constants, Variables and Data Types</b> Character Set, C tokens, Keyword, Constants and Variables, Data types - Declaration and initialization, User define type declarations typedef, enum, basic input and output operations, symbolic constants.	04	12

<b>Section II</b>			
Module	Content	Hours	Weightage in %
1.	<b>Operators and Expression and Managing I/O Operations</b> Introduction to Operators and its types, Evaluation of expressions, Precedence of arithmetic operators, Type conversions in expressions, Operator precedence and associativity. Introduction, reading a character, writing a character, formatted input, formatted output.	05	10
2.	<b>Conditional Statements and Branching</b> Decision Making & branching: Decision making with if & if ... else statements, if - else statements (Nested Ladder), The Switch & go-to statements, The ternary (? :) Operator Looping: The while statement, The break statement & The Do. While loop, The FOR loop, Jump within loops - Programs.	07	16
3.	<b>Arrays and Strings</b> Introduction to array, One dimensional array, Two dimensional arrays, Declaring and initializing string variables, Arithmetic operations on Characters, Putting strings together, Comparison of two strings, Basic String Handling Functions.	06	12
4.	<b>User-Defined Functions, Structure and Union</b> Concepts of user defined functions, prototypes, definition of function, parameters, parameter passing, calling a function, recursive function, Structure definition, declaring and initializing Structure variables, Accessing Structure members, Union.	05	12

#### List of Practical:

Sr No	Name of Practical	Hours
1.	Introduction to Basic Unix Commands-I	02
2.	Introduction to Basic Unix Commands-II	02
3.	Implement Basic C Programs using scanf() and printf()	02
4.	Implement Basic C Programs to demonstrate different types of operators	02
5.	Implementation in C for conditional statement: if()...else{}	02
6.	Implementation in C for conditional statement: Nested if()...else{}	02
7.	Implementation in C for conditional statement: if()...else if().....else{}	02
8.	Implementation in C for conditional statement using switch()...case{}	02
9.	Implementation in C for branching using goto	02
10.	Implement C program using while and do....while loop	06
11.	Implement C program using for loop for different problems	04
12.	Implement C program using loops to print different types of patterns	04
13.	Implement C program using for loop for series problems	04
14.	Implementation in C using 1D Array	04
15.	Implementation in C using 2D Array	04
16.	Implement String using character Array in C and implement logic to find length of a given string.	02
17.	Implement String programs in C to copy, concatenate and compare given strings	04
18.	Implement a user defined function to add two numbers and demonstrate different categories of functions	02
19.	Implement a program to demonstrate recursive solution for factorial problem	04
20.	Implementation in C Structures and Unions	04

**Text Book(s):**

<b>Title</b>	<b>Author/s</b>	<b>Publication</b>
Programming in ANSI C	E. Balagurusamy	Tata McGraw Hill
Introduction to Computer Science	ITL Education Solutions Limited	Pearson Education

**Reference Book(s):**

<b>Title</b>	<b>Author/s</b>	<b>Publication</b>
Programming in C	Ashok Kamthane	Pearson
Let Us C	Yashavant P. Kanetkar	Tata McGraw Hill
Introduction to C Programming	Reema Thareja	Oxford Higher Education
Programming with C	Byron Gottfried	Tata McGraw Hill

**Course Evaluation:****Theory:**

- Continuous Evaluation consists of two tests of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination consists of 60 marks.

**Practical:**

- Continuous Evaluation consists of the performance of practical, which will be evaluated out of 10 per each practical. At the end of the semester, the average of the entire practical will be converted to 20 marks.
- Internal viva consists of 20 marks.
- Practical performance/quiz/test consists of 30 marks.
- External viva consists of 30 marks.

**Course Outcome(s):**

After completion of the course, the students will be able to

- learn the fundamentals of programming.
- develop efficient programs with their own logic & capabilities.
- understand the syntax and semantics of the 'C' language.

**P P Savani University**  
**School of Sciences**

Course Code: SSIT1020

Course Name: Web Application Development - I

Prerequisite Course(s): --

**Teaching & Examination Scheme:**

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
2	4	-	4	40	60	40	60	-	-	200

CE: Continuous Evaluation, ESE: End Semester Exam

**Objective(s) of the Course:**

To help learners to

- understand basic components of internet.
- learn basic web technologies such as HTML, JavaScript and CSS.
- develop basic knowledge of website designing.

**Course Content:**

<b>Section I</b>			
Module	Content	Hours	Weightage in %
1.	<b>Introduction</b> World Wide Web, Web Server, Website, Website design principles, planning the website, navigation	05	10
2.	<b>HTML</b> HTML Basics, HTML Attributes, HTML Headings, HTML Paragraphs, HTML Styles, HTML Text Formatting, HTML Links, HTML Images	05	20
3.	<b>CSS</b> CSS Syntax, CSS Colors, CSS Background, CSS Border, CSS Margin, CSS Box Model, CSS Text, CSS Fonts.	05	20
<b>Section II</b>			
Module	Content	Hours	Weightage in %
1.	<b>JavaScript</b> Syntax of JavaScript, JavaScript inside head, body, external file, folder, URL, JavaScript Statements, JavaScript Variables, JavaScript Arithmetic, JavaScript String Concatenation, JavaScript Datatypes, JavaScript Functions, JavaScript Number Methods, JavaScript Maths, JavaScript Arrays.	08	25
2.	<b>Bootstrap CSS</b> Introduction to Bootstrap CSS, Content Delivery Network, Bootstrap classes.	07	25

**List of Practical:**

Sr. No	Name of Practical	Hours
1.	Implement HTML Attributes, HTML Headings and HTML Paragraphs.	04
2.	Implement HTML Styles and HTML Text Formatting.	02

3.	Implement code to add Links in HTML.	02
4.	Implement code to add Images in HTML.	02
5.	Implement code to create different types of frame using HTML.	04
6.	Create a static web page using HTML to display P P Savani University information.	04
7.	Write JavaScript program to show the implementation of JavaScript inside head, body, external file, folder, URL.	02
8.	Write a program to perform arithmetic operations in JavaScript.	02
9.	Write a program to concatenate two Strings in JavaScript.	02
10.	Write a program to show the use of functions in JavaScript.	02
11.	Write a JavaScript function to check whether a string is blank or not.	04
12.	Write a program to show the use of math functions in JavaScript.	02
13.	Write a program to show the use of random function in JavaScript.	02
14.	Write a program to implement arrays in JavaScript.	04
15.	Write a program to implement CSS Colors, CSS Background, CSS Border and CSS Margin.	04
16.	Write a program to show the use of CSS Box Model.	04
17.	Write a program to implement CSS Text colors and size.	02
18.	Write a program to implement CSS Fonts styles.	02
19.	Write a program to implement Bootstrap classes.	02
20.	Create a website as a mini project in this subject.	08

#### Reference Book (s):

Title	Author/s	Publication
HTML Black Book	Steven Holzner	Dreamtech press
JavaScript by Examples	Dani Akash	Packt
HTML & CSS: Design and Build Web Sites	Jon Duckett	Wiley
Step By Step Bootstrap 3: A Quick Guide To Responsive Web Development Using Bootstrap 3	Riwanto Megosinarso	Kindle Edition

#### Web Material Link(s):

<https://www.w3schools.com/>

#### Course Evaluation:

##### Theory:

- Continuous Evaluation consists of two tests of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination consists of 60 marks.

##### Practical:

- Continuous Evaluation consists of the performance of practical, which will be evaluated out of 10 per each practical. At the end of the semester, the average of the entire practical will be converted to 20 marks.
- Internal viva consists of 20 marks.
- Practical performance/quiz/test consists of 30 marks.
- External viva consists of 30 marks.



**Course Outcome(s):**

After completion of the course, the students will be able to

- learn the fundamentals of Website designing.
- apply knowledge of HTML, CSS, and JavaScript to build static and dynamic websites.

**P P Savani University**  
**School of Sciences**

**Centre for Skill Enhancement & Professional Development**

Course Code: SEPD1010

Course Name: Academic English and Technical Writing

Prerequisite Course(s): --

**Teaching & Examination Scheme:**

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
2	2	-	3	40	60	20	30	-	-	150

CE: Continuous Evaluation, ESE: End Semester Exam

**Objective(s) of the Course:**

To help learners to

- improve speaking, listening, reading and writing skills in an academic environment.
- write academic texts effectively, as well as improve grammar and vocabulary.
- express ideas clearly and accurately with accurate writing.
- form and practice strategies for reading in the academic contexts quickly and effectively.
- gain confidence in speaking English in an academic context and also analyze and improve pronunciation.

**Course Content:**

<b>Section I</b>			
Module	Content	Hours	Weightage in %
1.	<b>Introduction to Academic English</b> <ul style="list-style-type: none"> <li>• General English Vs Academic English</li> <li>• Academic Vocabulary</li> <li>• Grammar for Academic Purposes</li> </ul>	03	10
2.	<b>Academic Reading</b> <ul style="list-style-type: none"> <li>• Introduction to Reading</li> <li>• Types of Reading</li> <li>• Techniques of Reading</li> </ul>	06	20
3.	<b>Academic Listening</b> <ul style="list-style-type: none"> <li>• Introduction to Listening</li> <li>• Types of Listening</li> <li>• Techniques of Listening</li> </ul>	06	20
<b>Section II</b>			
Module	Content	Hours	Weightage in %
1.	<b>Academic Speaking</b> <ul style="list-style-type: none"> <li>• Introduction to Speech and Its importance</li> <li>• Phonetics and Transcription to effective pronunciation</li> <li>• Speaking in various contexts</li> </ul>	07	25
2.	<b>Technical Writing</b> <ul style="list-style-type: none"> <li>• Understanding clauses and Syntax</li> <li>• Cohesion and Coherence/ Building Paragraphs</li> <li>• Flow/ structure of Writing</li> <li>• Punctuations</li> </ul>	08	25

	<ul style="list-style-type: none"> <li>• Application/ Letter Writing</li> <li>• Review/ Report Writing</li> <li>• E-mail etiquettes</li> </ul>		
--	--	--	--

#### List of Practical:

Sr. No	Name of Practical	Hours
1.	Introduction to Academic English – Ice Breaker	02
2.	Introduction to Academic English – Vocabulary Games and Grammar Activity	02
3.	Reading for Summarizing and Paraphrasing	02
4.	Reading for review writing/ Skimming and Scanning Web Resources	02
5.	Comprehensive Listening: Note Taking and Note Making	02
6.	Comprehensive Listening: Summarizing and Paraphrasing	02
7.	Critical Listening: An analysis	02
8.	Speech for Pronunciation	02
9.	Speech for Presentation	02
10.	Speech for Fluency	02
11.	Conversational Skills	02
12.	Academic Writing: Paragraph Building	02
13.	Academic Writing: Critical Review Writing	02
14.	Leave Application/ Request Letter/Business Letter	02
15.	Notice/Memo/Agenda/ Minutes	02

#### Text Book(s):

Title	Author/s	Publication
Practical Techniques to Develop Communication Skills	Parul Popat & Kaushal Kotadia	Pothi Prakashan, 2015

#### Reference Book(s):

Title	Author/s	Publication
English for Academic Purposes: A Guide and Resource Book for Teachers	R. R. Jordan	Cambridge University Press, 1997
English for Academic Purposes: An Advanced Resource Book	Ken Hyland	Routledge, 2006
Engineers' Guide to Technical Writing	Kenneth G. Budinski	ASM International, 2001
Communication Skills	Parul Popat & Kaushal Kotadia	Pearson, 2015

#### Web Material Link(s):

- <https://msu.edu/course/be/485/bewritingguideV2.0.pdf>
- <https://www.khanacademy.org>
- <http://www.kantakji.com/media/6494/t121.pdf>

#### Course Evaluation:

##### Theory:

- Continuous Evaluation consists of two tests of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination consists of 60 marks.

**Practical:**

- Continuous Evaluation consists of the performance of practical, which will be evaluated out of 10 per each practical. At the end of the semester, the average of the entire practical will be converted to 10 marks.
- Internal viva consists of 10 marks.
- Practical performance/quiz/test consists of 15 marks.
- External viva consists of 15 marks.

**Course Outcome(s):**

After completion of the course, the students will be able to

- effectively use LSRW skills in English in an academic environment.
- write Academic English effectively with improved grammar and vocabulary.
- practice strategies for comprehensive reading in English.
- speak English in an academic context fluently and efficiently.

**P P Savani University**  
**School of Sciences**

Course Code: SSIT1030

Course Name: Computer Applications

Prerequisite Course(s): --

**Teaching & Examination Scheme:**

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
2	4	-	4	40	60	40	60	-	-	200

CE: Continuous Evaluation, ESE: End Semester Exam

**Objective(s) of the Course:**

To help the learners to

- understand various components of a computer.
- learn assembling and disassembling of computer hardwares.
- learn and apply various office automation tools.

**Course Content:**

<b>Section I</b>			
Module	Content	Hours	Weightage in %
1.	<b>Introduction</b> Introduction to various components of computer hardware, input / output peripherals.	02	10
2.	<b>Softwares</b> Introduction and installation of software, significance of software, system softwares and application softwares with examples.	03	15
3.	<b>Operating System</b> Basics and Introduction and installation of operating system, functions of operating system, types of operating system,	05	15
4.	<b>Dual Booting</b> Introduction to dual booting, its significance, concept of virtualization, implementation of virtualization.	05	10
<b>Section II</b>			
Module	Content	Hours	Weightage in %
1.	<b>Device Drivers</b> Installation of device drivers and other required software, need and method of backup.	02	05
2.	<b>Internet</b> Computer network, topology, LAN, MAN, WAN, Advantages	02	10
3.	<b>Security Issues</b> Basic security issues: computer viruses, malware, Trojan horse etc.	03	15
4.	<b>Various Processing Tools</b> Various word processing tools: spreadsheet, presentation etc., various development tools: flow, animation, website development tools etc.	08	20

**List of Practical:**

Sr. No	Name of Practical	Hours
1.	Introduction to different hardware components of PC and Assembling of PC.	04
2.	Installation of OS and other Softwares. and understanding Dual Booting.	04

3.	Understanding LAN connections.	02
4.	Understanding how to create bootable pen drive.	02
5.	Working with browsers, internet, email, google drive etc.	04
6.	Working with Microsoft Word to create simple document and applying various types of font formatting features.	02
7.	Working with Microsoft Word to insert different objects like pictures, links, files and other objects in a document.	04
8.	Create a Flier using Microsoft Word.	04
9.	Working with Microsoft Excel to understand basic features like creating numerical database, applying simple formulas using =.	04
10.	Create a Grade sheet in Microsoft Excel.	04
11.	Create a Pivot table and Pivot chart for the given data: Order ID, Product, Category, Amount, Date and Country	04
12.	Creating presentation template using Microsoft Presentation.	04
13.	Create a presentation including features like Master Slide, animation, rehearse time, custom animation and other suitable features	06
14.	Create a presentation for celebration of any event in your college.	04
15.	Draw a Flowchart for any C program using Flowchart Development Tool (For example: Edraw)	04
16.	Learning Virtualization using VMware	04

#### Reference Book(s):

Title	Author/s	Publication
Upgrading and repairing PCs	Scott Mueller	Pearson Education
The Complete PC upgrade and Maintenance guide	Mark Minasi	Sybex
Computer Hardware: installation, interfacing, troubleshooting, and maintenance	James, K. L.	PHI Learning

#### Course Evaluation:

##### Theory:

- Continuous Evaluation consists of two tests of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination consists of 60 marks.

##### Practical:

- Continuous Evaluation consists of the performance of practical, which will be evaluated out of 10 per each practical. At the end of the semester, the average of the entire practical will be converted to 20 marks.
- Internal viva consists of 20 marks.
- Practical performance/quiz/test consists of 30 marks.
- External viva consists of 30 marks.

#### Course Outcome(s):

After completion of the course, the students will be able to

- design assemble and disassemble computer components.
- install various software and hardware.
- apply and design various office automation applications.

**P P Savani University**  
**School of Sciences**

Course Code: SESH1040

Course Name: Mathematics for Computer Applications

Prerequisite Course(s): --

**Teaching & Examination Scheme:**

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
3	-	2	5	40	60	-	-	50	-	150

CE: Continuous Evaluation, ESE: End Semester Exam

**Objective(s) of the Course:**

To help the learners to

- provide foundation of data representation, logical implementation of data.
- educate mathematical concepts to recognize their applications in computer domain.
- demonstrate a basic understanding of a function, its inverse, composition, and notation.
- model and analyze computational processes using analytic and combinatorial methods.

**Course Content:**

<b>Section I</b>			
Module	Content	Hours	Weightage in %
1.	<b>Number System</b> Introduction to Number System, Base, Types of Number Systems, Conversion Between Number Bases, Arithmetic Operations-Addition, Subtraction, Multiplication and Division for Binary, Octal, Hexadecimal Systems, Signed Unsigned Numbers, Binary Coding-BCD, ASCII, EBCDIC, Floating Point Representation of Numbers and Arithmetic Operation with Normalized Floating-Point Numbers.	08	18
2.	<b>Mathematical Logic</b> Propositional Logic, Propositional Equivalences, Predicates and Quantifiers, Nested Quantifiers.	07	16
3.	<b>Set, Relation and Function</b> Basics of Set Theory, Operations on Sets, Relation, Properties of Relation, Equivalence Relation, Hasse Diagram, Introduction to Function, Types of Functions, Exponentials, Logarithms, Rational Functions, Composition of function, Inverse function.	07	16
<b>Section II</b>			
Module	Content	Hours	Weightage in %
1.	<b>Elementary Combinatorics</b> Introduction, Basic Counting Principles, Permutation and Combination, Mathematical Induction.	06	14
2.	<b>Determinants</b> Formation of Determinants, Minors and Cofactors of the Elements of a Determinant, Properties of Determinants, Application of Determinants in Computer Science, Cramer's Rule.	08	17

3.	<b>Analytical Geometry</b> Introduction to Cartesian coordinate system, Straight line, Slope of Straight line, Intersection of two straight lines, Equation of circle, Centre and Radius, Tangent, Equation of Parabola, Hyperbola and Ellipse.	09	19
----	--	----	----

**List of Tutorial(s):**

Sr. No.	Name of Tutorial	Hours
1.	Number System-1	2
2.	Number System-2	4
3.	Mathematical Logic	4
4.	Set, Relation and Function-1	2
5.	Set, Relation and Function-2	4
6.	Elementary Combinatorics	4
7.	Determinants-1	2
8.	Determinants-2	4
9.	Analytical Geometry-1	2
10.	Analytical Geometry-2	2

**Text Book(s):**

Title	Author/s	Publication
Discrete Mathematics	T. Veerarajan	Tata McGraw Hill

**Reference Book(s):**

Title	Author/s	Publication
Discrete Mathematics and its Applications	Kenneth H. Rosen	Tata McGraw Hill
Analytical Geometry: 2D and 3D	P R Vittal	Pearson
Discrete Mathematical Structures with Applications to Computer Science	J. P. Tremblay, R. Manohar	Tata McGraw Hill
Introduction to Computer Science	ITL ESL	Pearson

**Web Material Link(s):**

- <http://nptel.ac.in/courses/106106094/>
- <http://nptel.ac.in/courses/117103064/4>
- <http://nptel.ac.in/courses/122107036/17>

**Course Evaluation:**

**Theory:**

- Continuous Evaluation consists of two tests of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination consists of 60 marks.

**Tutorial:**

- Continuous evaluation consists of performance of tutorial which will be evaluated out of 10 marks for each tutorial and average of the same will be converted to 30 marks.
- MCQ examination/Application based small project report writing of 10 marks.
- Internal Viva consists of 10 marks.



**Course Outcome(s):**

After completion of the course, the students will be able to

- convert decimal to binary, hexadecimal and 2's complement data representation; perform arithmetic operations like addition, subtraction, division and multiplication.
- use concepts of set theory for understanding & fetching data from database using query.
- apply permutations and combinations on given set of data.

**P P Savani University**  
**School of Sciences**

Course Code: SSIT1040

Course Name: Data Structures

Prerequisite Course(s): --

**Teaching & Examination Scheme:**

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
3	2	-	4	40	60	20	30	-	-	150

CE: Continuous Evaluation, ESE: End Semester Exam

**Objective(s) of the Course:**

To help learners to

- understand linear and non-linear data structures and its applications.
- analyze various searching and sorting algorithms and its impacts on data structures.
- develop logic building and problem-solving skills.

**Course Content:**

<b>Section I</b>			
Module	Content	Hours	Weightage in %
1.	<b>Introduction</b> Object and Instance, Object Oriented Concepts, Data types, Types of Data Structure, Abstract Data Types.	04	10
2.	<b>Array</b> Array Representation, Array as an Abstract Data Type, Programming Array in C, Sparse Matrices, Sparse Representations and its Advantages, Row-measure Order and Column-measure Order representation.	05	10
3.	<b>Searching and Sorting</b> Linear Search, Binary Search, Bubble Sort, Insertion Sort, Selection Sort, Radix sort.	05	10
4.	<b>Stack and Queue</b> Stack Definition and concepts, Operations on stack, Programming Stack using Array in C, Prefix and Postfix Notations and their Compilation, Recursion, Tower of Hanoi, Representation of Queue, Operation on Queue, Programming Queue using Array in C. Types of Queue, Applications of Stack & Queue.	08	20
<b>Section II</b>			
Module	Content	Hours	Weightage in %
1.	<b>Linked List-Part I</b> Dynamic Memory Allocation, Structure in C, Singly Linked List, Doubly Linked List, circular linked list.	06	14

2.	<b>Linked List-II and Applications of Linked List</b> Linked implementation of Stack, Linked implementation of Queue, Applications of Linked List.	06	14
3.	<b>Trees</b> Tree Definition, concepts and Representation. Binary Tree, Binary Tree Traversals, conversion from general to binary Tree. Threaded Binary Tree, Heap, Binary Search Tree, 2-3 Tree, AVL tree.	07	15
4.	<b>Graphs</b> Graph Definition, Concepts and Representation, Types of Graphs	04	07

#### List of Practical:

Sr No	Name of Practical	Hours
1.	Introduction to Dynamic Memory Allocation	02
2.	Revision of Structures in C	02
3.	Write a program to perform Insertion sort.	02
4.	Write a program to perform Selection sort.	02
5.	Write a program to perform Insertion sort.	02
6.	Write a program to perform Bubble sort.	02
7.	Write a program to perform Linear Search sort.	02
8.	Write a program to perform Binary Search sort.	02
9.	Write a program to implement stack and perform push, pop operation.	02
10.	Write a program to perform the following operations in linear queue – Addition, Deletion and Traversing.	02
11.	Write a program to perform the following operations in circular queue – Addition, Deletion, and Traversing.	02
12.	Write a program to perform the following operations in singly linked list – Creation, Insertion, and Deletion.	02
13.	Write a program to perform the following operations in doubly linked list – Creation, Insertion, and Deletion.	02
14.	Write a program to create a binary tree and perform – Insertion, Deletion, and Traversal.	02
15.	Write a program to create a binary search tree and perform – Insertion, Deletion, and Traversal.	02

#### Text Book(s):

Title	Author/s	Publication
An Introduction to Data Structures with Applications	Jean-Paul Tremblay, Paul G. Sorenson	Tata McGraw Hill

#### Reference Book(s):

Title	Author/s	Publication
Data Structures using C & C++	Tanenbaum	Prentice-Hall
Fundamentals of Computer Algorithms	E. Horowitz, Sahni, and S. Rajsekar	Galgotia Publication
Data Structures: A Pseudo-code approach with C	Gilberg & Forouzan	Thomson Learning
Data & File Structure	Rohit Khurana	Vikas Publication
C & Data Structures	P S Deshpande, O. G. Kakde	CharlesRiver Media

**Course Evaluation:****Theory:**

- Continuous Evaluation consists of two tests of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination consists of 60 marks.

**Practical:**

- Continuous Evaluation consists of the performance of practical, which will be evaluated out of 10 per each practical. At the end of the semester, the average of the entire practical will be converted to 10 marks.
- Internal viva consists of 10 marks.
- Practical performance/quiz/test consists of 15 marks.
- External viva consists of 15 marks.

**Course Outcome(s):**

After completion of the course, the students will be able to

- differentiate primitive and non-primitive structures.
- design and apply appropriate data structures for solving computing problems.
- implement different data structures.
- apply sorting and searching algorithms to the small and large data sets.
- analyze algorithms for specific problems.

**P P Savani University**  
**School of Sciences**

Course Code: SSIT1050

Course Name: Database Management Systems

Prerequisite Course(s): --

**Teaching & Examination Scheme:**

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
3	4	-	5	40	60	40	60	-	-	200

CE: Continuous Evaluation, ESE: End Semester Exam

**Objective(s) of the Course:**

To help learners to

- learn the basic concept of database design and development of database management system.
- understand Query processing of SQL.
- understand importance of back end design and Relational Database Management System (RDBMS).

**Course Content:**

<b>Section I</b>			
Module	Content	Hours	Weightage in %
1.	<b>Introduction</b> File Organization, Comparison of File with DBMS, Application of DBMS, Purpose of DBMS, Views of data - level of abstraction, Data Independence, Database Architecture, Database Users & Administrators.	04	10
2.	<b>Relational Model</b> Structure of relational databases, Domains, Relations, Relational algebra- operators and syntax, Relational algebra queries.	04	10
3.	<b>SQL Concepts</b> Basics of SQL, DDL,DML,DCL, Structure: creation, alteration, Defining constraints: Primary key, Foreign key, Unique key, Not null, check, IN operator, Aggregate functions , Built-in functions: numeric, date, string functions, set operations, Sub queries, correlated sub-queries: Join, Exist, Any, All, view and its types. Transaction Control Commands- Commit, Rollback, Savepoint.	10	22
4.	<b>Query Processing</b> Overview, Measures of query cost, Selection operation, Sorting, join, Evaluation of expressions.	04	08
<b>Section II</b>			
Module	Content	Hours	Weightage in %
1.	<b>Entity Relational Model</b> Entity-Relationship Model: Basic concepts, Design process Constraints, Keys, Design issues, E-R diagrams, Weak entity sets, extended E-R features- Generalization, Specialization, Aggregation, Reduction to E-R Database Schema.	08	20
2.	<b>Database Design Concepts</b> Functional Dependency, Definition, Trivial and non-trivial FD, Closure of FD set, closure of attributes, Irreducible set of FD, Normalization:	07	14

	1NF, 2NF, 3NF, Decomposition using FD, Dependency preservation, BCNF, Multivalued dependency, 4NF Join Dependency and 5NF, RAID Concepts.		
3.	<b>Transaction Management</b> Transaction concepts, Properties of Transactions, Serializability of Transactions, Testing for serializability, system recovery, Two- Phase Commit protocol, Recovery and Atomicity, Log-based recovery, Concurrent executions of transactions and related problems, Locking mechanisms, Solution to Concurrency Related Problems, Deadlock, Two phase locking protocol.	05	10
4.	<b>PL/SQL Concepts</b> Cursors, Stored Procedures, Stored Function, Database Triggers, Indices.	03	06

#### List of Practical:

Sr. No	Name of Practical	Hours
1.	Introduction to DBMS, SQL and SQL tools.	02
2.	Implementation of a client-server architecture using tightVNC Server and Client software (remote access of a server by clients)	02
3.	Introduction to Data Dictionary concepts.	02
4.	Create all the master tables using Data Definition Language Commands like Create and Describe.	02
5.	Implement the use of alter table command.	02
6.	Introduction to Transaction Control Commands like Commit, Rollback and Savepoint.	02
7.	Use insert command to add data into created tables.	02
8.	Solve queries using update command.	02
9.	Implement SQL queries based on update and delete command.	02
10.	Write SQL queries to solve problems with use of select command.	02
11.	Generate different reports using select command.	02
12.	Introduction to SQL functions.	02
13.	Write the required SQL scripts to implement the listed queries, which require the usage of numerous SQL functions.	02
14.	Introduction to group functions and demonstration of their usage.	02
15.	Implement queries based on group by and having clause.	02
16.	Execution of queries based on natural and inner Joins.	02
17.	Implement SQL queries based on outer join and self-join.	02
18.	Write SQL queries based on group function and join.	02
19.	Introduction to sub-queries and demonstration of their usage.	02
20.	Write SQL queries based on concept of single row sub-queries.	02
21.	Write SQL queries based on concept of multiple row sub-queries.	02
22.	Write SQL scripts to generate desired reports using group by, join and sub-queries.	02
23.	Write SQL script to solve the questions based on all SQL concepts.	02
24.	Write the required SQL scripts to implement all the listed queries using Data Control Commands like Grant and Revoke.	02
25.	Introduction to different objects in SQL and create views based on given scenarios.	02
26.	Write the required SQL script to implement the given triggers.	02
27.	Write the required SQL script to implement the given triggers.	02
28.	Write the required SQL script to implement the given functions and procedures using PL/SQL block scripts.	02
29.	Write the required SQL scripts to implement the given cursors.	02
30.	Submission of DBMS Mini Project Design.	02

**Text Book(s):**

<b>Title</b>	<b>Author/s</b>	<b>Publication</b>
Database System Concept	Abraham Silberschatz, Henry F. Korth , S. Sudarshan	McGraw Hill
SQL, PL/SQL–The Programming Language of Oracle	Ivan Bayross	BPB Publications

**Reference Book(s):**

<b>Title</b>	<b>Author/s</b>	<b>Publication</b>
An Introduction to Database System	C J Date	Addition-Wesley
Fundamental of Database System	R. Elmasri and S.B Navathe	Benjamin/Cumming
SQL,PL/SQL the Programming Language of Oracle	Ivan Bayross	BPB Publications
Oracle: The Complete Reference	George Koch, Kevin Loney	TMH /oracle press

**Course Evaluation:****Theory:**

- Continuous Evaluation consists of two tests of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination consists of 60 marks.

**Practical:**

- Continuous Evaluation consists of the performance of practical, which will be evaluated out of 10 per each practical. At the end of the semester, the average of the entire practical will be converted to 20 marks.
- Internal viva consists of 20 marks.
- Practical performance/quiz/test consists of 30 marks.
- External viva consists of 30 marks.

**Course Outcome(s):**

After completion of the course, the students will be able to

- convert physical, data, conceptual data into relational databases.
- utilize database design for the development of software projects.
- apply various data base constraints on relational databases.

**P P Savani University**  
**School of Sciences**

Course Code: SSIT1061

Course Name: Web Application Development-II

Prerequisite Course(s): Web Application Development-I (SSIT1020)

**Teaching & Examination Scheme:**

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
-	4	-	2	-	-	40	60	-	-	100

CE: Continuous Evaluation, ESE: End Semester Exam

**Objective(s) of the Course:**

To help learners to

- gain the PHP programming skills needed to successfully build interactive, data-driven sites.
- understand how server-side programming works on the web.
- connect to any modern database and perform hands on practice with a MySQL database to create database-driven HTML forms and reports.

**List of Practical:**

Sr. No	Name of Practical	Hours
1.	What is PHP? - Basic PHP Syntax, Hello World Example Error Management - Finding errors present in the program Comments in PHP PHP is a Loosely Typed Language	04
2.	PHP Variable Example Global and locally-scoped variables - Example	02
3.	Static Keyword in PHP - Example ECHO and PRINT statements in PHP - Example	02
4.	String Functions in PHP -strlen() and strpos() functions - Example	02
5.	Constants in PHP Constant string Example, PHP Example to calculate the area of the circle	02
6.	Arithmetic Operators - Example Increment and Decrement Operators - Example Assignment Operators - Example String Operators in PHP - Example	04
7.	The if Statement in PHP - Example The if...else Statement in PHP - Example The if...elseif...else Statement in PHP - Example (Comparing two numbers) Switch Statement in PHP - Example	04
8.	For loop in PHP - Example Declaring multiple variables in for loop - Example While loop in PHP - Example Do While loop in PHP - Example	06
9.	User Defined Function Example PHP Functions - Adding parameters PHP Functions - Return values	02
10.	Break and Continue Statement - Example	02



11.	PHP Global Variables – Superglobals \$GLOBALS – Example \$_SERVER – Example	02
12.	Array in PHP Numeric array in PHP – Example Associative array in PHP – Example Loop through an Associative array Multidimensional array in PHP – Example	06
13.	PHP Forms The \$_GET Function - Example The \$_POST Function – Example Another Example for PHP form	04
14.	Date() and time() function in PHP – Example	02
15.	How to connect to MYSQL database using PHP The functions used to connect web form to the MYSQL database Display the data from MYSQL database in web form Insert the data into MYSQL database using web form Update the data present in MYSQL database using web form Delete the data from MYSQL database using web form Using Cookies with PHP	08
16.	A simple GUI based web-application development using PHP -Finalization of topic -Analysis of problem -Design of GUI -PHP Implementation -Testing -Final Evaluation	08

**Text Book(s):**

Title	Author/s	Publication
Learning PHP, MySQL	Michele Davis, Jon Phillips	'O' riley Press

**Course Evaluation:**

**Practical:**

- Continuous Evaluation consists of the performance of practical, which will be evaluated out of 10 per each practical. At the end of the semester, the average of the entire practical will be converted to 20 marks.
- Internal viva consists of 20 marks.
- Practical performance/quiz/test consists of 30 marks.
- External viva consists of 30 marks.

**Course Outcome(s):**

After completion of the course, the students will be able to

- understand structure of open source technologies.
- learn advance web technology concepts.
- prepare industry ready professionals in the field of web technology.

**P P Savani University**  
**School of Sciences**

Course Code: SSIT1071

Course Name: Introduction to Computer Science - II

Prerequisite Course(s): Introduction to Computer Science-I (SSIT1010)

**Teaching & Examination Scheme:**

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
3	4	-	5	40	60	40	60	-	-	200

CE: Continuous Evaluation, ESE: End Semester Exam

**Objective(s) of the Course:**

To help learners to

- understand basics of object-oriented programming.
- identify appropriate approach to computational problems.
- develop logic building and problem-solving skills.

**Course Content:**

<b>Section I</b>			
Module	Content	Hours	Weightage in %
1.	<b>Introduction</b> Programming language Types and Paradigms, Flavors of Java, Java Designing Goal, Features of Java Language, JVM –The heart of Java, Java’s Magic Byte code.	03	05
2.	<b>Object Oriented Programming Fundamentals</b> Class Fundamentals, Object and Object reference, Object Life time and Garbage Collection, Creating and Operating Objects, Constructor and initialization code block, Access Control, Modifiers, Nested class, Inner Class, Anonymous Classes, Abstract Class and Interfaces, Defining Methods, Method Overloading, Dealing with Static Members, Use of “this” reference, Use of Modifiers with Classes & Methods, Generic Class Types.	06	15
3.	<b>Java Environment and Data Types</b> The Java Environment: Java Program Development, Java Source File Structure, Compilation Executions, Basic Language Elements: Lexical Tokens, Identifiers, Keywords, Literals, Comments, Primitive Data-types, Operators.	05	10
4.	<b>Class and Inheritance</b> Use and Benefits of Inheritance in OOP, Types of Inheritance in Java, Inheriting Data Members and Methods, Role of Constructors in inheritance, Overriding Super Class Methods, Use of “super”, Polymorphism in inheritance, Type Compatibility and Conversion, Implementing interfaces.	07	15
5.	<b>Java Packages</b> Organizing Classes and Interfaces in Packages, Package as Access Protection, Defining Package, CLASSPATH Setting for Packages, Making JAR Files for Library Packages, Import and Static Import, Naming Convention for Packages.	02	05

<b>Section II</b>			
Module	Content	Hours	Weightage in %
1.	<b>Array and String Concepts</b> Defining an Array, Initializing & Accessing Array, Multi –Dimensional Array, Operation on String, Using Collection Bases Loop for String, tokenizing a String, Creating Strings using String Buffer.	04	10
2.	<b>Exception Handling</b> The Idea behind Exception, Exceptions & Errors, Types of Exception, Control Flow In Exceptions, JVM reaction to Exceptions, Use of try, catch, finally, throw, throws in Exception Handling, In-built and User Defined Exceptions, Checked and Un-Checked Exceptions.	05	10
3.	<b>Thread</b> Understanding Threads, Needs of Multi-Threaded Programming, Thread Life-Cycle, Thread Priorities, Synchronizing Threads, Inter Communication of Threads.	06	15
4.	<b>Applet</b> Applet & Application, Applet Architecture, Parameters to Applet.	03	5
5.	<b>Input Output Operations in Java</b> Streams and the new I/O Capabilities, Understanding Streams, The Classes for Input and Output, The Standard Streams, Working with File Object, File I/O Basics, Reading and Writing to Files, Buffer and Buffer Management, Read/Write Operations with File, Channel, Serializing Objects.	05	10

#### List of Practical:

Sr No	Name of Practical	Hours
1.	Introduction to Java Environment and Netbeans.	02
2.	Implementation of java programs with classes and objects.	04
3.	Implement java programs to showing usage of overloading and overriding.	02
4.	Implementation of java programs to demonstrate different access specifiers.	04
5.	Implementation of java programs using concept of inner classes.	04
6.	Implementation of java programs for variables, data types, operator.	04
7.	Implement of java programs for inheritance (single, multilevel, hierarchical).	04
8.	Implementation of java programs to demonstrate use of super keyword.	02
9.	Implementation of java programs for anonymous and abstract classes.	02
10.	Implementation of java programs for Interface.	02
11.	Implementation of java programs to demonstrate java packages.	02
12.	Implementation of java programs to use arrays and string.	06
13.	Implementation of java programs for exception handling using all keywords (try, catch, throw, throws and finally).	04
14.	Implementation of java programs to demonstrate life cycle of thread.	02
15.	Implementation of java programs for the concepts of thread priority, synchronization, inter- thread communication.	06
16.	Implementation of Applets, AWT and Web Servers.	06
17.	Implementation of file handling operations.	04

**Text Book(s):**

<b>Title</b>	<b>Author/s</b>	<b>Publication</b>
Core Java Volume I – Fundamentals	Cay Horstmann and Gray Cornell	Pearson

**Reference Book(s):**

<b>Title</b>	<b>Author/s</b>	<b>Publication</b>
Thinking in Java	Bruce Eckel	Pearson
Learning Java	Patrick Niemeyer and Jonathan Knudsen	O'reilly Media

**Course Evaluation:****Theory:**

- Continuous Evaluation consists of two tests of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination consists of 60 marks.

**Practical:**

- Continuous Evaluation consists of the performance of practical, which will be evaluated out of 10 per each practical. At the end of the semester, the average of the entire practical will be converted to 20 marks.
- Internal viva consists of 20 marks.
- Practical performance/quiz/test consists of 30 marks.
- External viva consists of 30 marks.

**Course Outcome(s):**

After completion of the course, the students will be able to

- learn the fundamentals of object-oriented programming.
- develop efficient programs with their own logic & capabilities.
- understand the syntax and semantics of the 'Java' language.

**P P Savani University**  
**School of Sciences**

Course Code: SESH1061

Course Name: Discrete Mathematics for Computer Applications

Prerequisite Course(s): Mathematics for Computer Applications (SESH1040)

**Teaching & Examination Scheme:**

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
3	-	2	5	40	60	-	-	50	-	150

CE: Continuous Evaluation, ESE: End Semester Exam

**Objective(s) of the Course:**

To help learners to

- to extend concepts of set theory by study of lattice and group.
- to apply knowledge of discrete mathematics for problem solving skills necessary to succeed in design and analysis of algorithms, database management, software engineering and computer networks.

**Course Content:**

<b>Section I</b>			
Module	Content	Hours	Weightage in %
1.	<b>Matrix Algebra</b> Introduction, Types of Matrices, Operations of Matrices, Adjoint Matrices, Solution of System of Equations by Matrix Inversion Method, Applications of Matrix.	07	18
2.	<b>Lattices</b> Definition & properties of Lattice, Lattices as Algebraic System, Sublattices, Types of lattices, Distributive lattices, Modular lattices, Complemented lattices, Bounded lattices, Complete lattices.	07	16
3.	<b>Group Theory</b> Binary operations, Properties of Group, Groupoid, semigroup & monoid, Abelian group, Subgroup, Cosets, Normal subgroup, Lagrange's theorem, Cyclic group, Permutation group, Homomorphism & Isomorphism of groups.	08	16
<b>Section II</b>			
Module	Content	Hours	Weightage in %
1.	<b>Tree</b> Introduction to trees, Properties of tree, Distance and centre in tree, Rooted tree, Binary tree, Tree Traversal.	07	14
2.	<b>Spanning Tree</b> Introduction to Spanning tree, DFS, BFS Algorithm, Minimum Spanning Tree, Prim's and Kruskal's Algorithm, Application of Spanning Trees.	07	18
3.	<b>Graph Theory</b> Formation of graph, Basic terminologies of directed and undirected graphs, Matrix representation of graphs (Adjacency Matrix and Incidence Matrix), Isomorphism, Walk, Path, Circuit, Euler Path and Circuit, Hamilton Path and Circuit, Shortest path problem, Dijkstra's Algorithm.	09	18

**List of Tutorial(s):**

Sr. No.	Name of Tutorial	Hours
1.	Matrix Algebra-1	02
2.	Matrix Algebra-2	04
3.	Lattices	04
4.	Group Theory -1	02
5.	Group Theory -2	04
6.	Tree	04
7.	Spanning Tree-1	02
8.	Spanning Tree-2	02
9.	Graph Theory-1	04
10.	Graph Theory-2	02

**Text Book(s):**

Title	Author/s	Publication
Discrete Mathematics	T. Veerarajan	Tata McGraw Hill.

**Reference Book(s):**

Title	Author/s	Publication
Discrete Mathematics and its Applications	Kenneth H. Rosen	Tata McGraw Hill
Discrete Mathematical Structures with Applications to Computer Science	J. P. Tremblay R. Manohar	Tata McGraw Hill

**Web Material Link(s):**

- <http://nptel.ac.in/courses/106106094/>
- <http://nptel.ac.in/downloads/111104026/>

**Course Evaluation:****Theory:**

- Continuous Evaluation consists of two tests of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination consists of 60 marks.

**Tutorial:**

- Continuous evaluation consists of performance of tutorial which will be evaluated out of 10 marks for each tutorial and average of the same will be converted to 30 marks.
- MCQ examination/Application based small project report writing of 10 marks.
- Internal Viva consists of 10 marks.

**Course Outcome(s):**

After completion of the course, the students will be able to

- determine need of matrices in image processing, computer graphics and cryptography.
- apply knowledge of group theory for data encryption.
- design and use foundational concepts of notations and results of graph theory in information storage and retrieval.
- apply the basic concepts of spanning tree algorithm namely DFA, BFS, prim's and Kruskal's in design of networks.

**P P Savani University  
School of Engineering**

**Centre for Skill Enhancement & Professional Development**

Course Code: SEPD1020

Course Name: Communication Skills

Prerequisite Course(s): --

**Teaching & Examination Scheme:**

Teaching Scheme (Hours/Week)				Examination Scheme (Marks)						
Theory	Practical	Tutorial	Credit	Theory		Practical		Tutorial		Total
				CE	ESE	CE	ESE	CE	ESE	
2	2	-	3	40	60	20	30	-	-	150

CE: Continuous Evaluation, ESE: End Semester Exam

**Objective(s) of the Course:**

To help learners to

- hone basic communication skills by exposing them to the key communication techniques, and thereby.
- improvise comprehension and expressional skills which are required for personal, social, academic and professional environment.
- sharpen Communication Skills with reference to Organizational Structure.
- expose to the modern modes of communication.
- show the importance of team work and give practice in Group Communication with reference to Group Dynamics.

**Course Content:**

<b>Section I</b>			
Module	Content	Hours	Weightage in %
1.	<b>Introduction to Communication Skills</b> <ul style="list-style-type: none"> <li>• Concept and Process of Communication</li> <li>• Types of Communication</li> <li>• Principles of Effective Communication</li> <li>• Barriers to Communication</li> </ul>	06	20
2.	<b>Interpersonal Organizational Communication</b> <ul style="list-style-type: none"> <li>• Styles of Communication</li> <li>• Flows of Communication</li> <li>• Essentials of Organizational Communication</li> <li>• Kinesics, Proxemics and Chronemics</li> <li>• Cross cultural Communication</li> </ul>	06	20
3.	<b>Team/ Group Dynamics and Leadership</b> <ul style="list-style-type: none"> <li>• Introduction to Group Work and Group Dynamics</li> <li>• Types of Groups and Essentials of Group Work and networking</li> <li>• Concept and Types of Leadership</li> <li>• Traits of an Effective Leader</li> </ul>	03	10
<b>Section II</b>			
Module	Content	Hours	Weightage in %
1.	<b>Presentation Skills</b> <ul style="list-style-type: none"> <li>• Introduction to presentation and its importance</li> </ul>	08	25

	<ul style="list-style-type: none"> <li>Modes, means and purposes of presentation</li> <li>Defining purpose, analyzing audience and organizing the contents</li> <li>Visual aids and nuances of delivery</li> <li>Body language and effective presentation</li> </ul>		
2.	<b>Communication and Contemporary World</b> <ul style="list-style-type: none"> <li>Introduction to Contemporary personal, social and professional set ups</li> <li>Modern Day Communication tools and their efficacy</li> <li>Effective usage of Modern-Day Communication tools for personal and professional growth</li> </ul>	07	25

#### List of Practical:

Sr. No	Name of Practical	Hours
1.	Introduction to Communication: An Ice Breaker	02
2.	Verbal/ Non-Verbal Communication Pros and Cons	02
3.	Principles of Communication	02
4.	Interpersonal Communication	02
5.	Organizational Communication	02
6.	Assertive Vs Aggressive Communication	02
7.	Group Dynamics: A Decision-Making Activity	02
8.	Group Dynamics Working together to achieve organizational vision	02
9.	Leadership: Holding a diverse Group Together	02
10.	Presentation Skills; Video Session	02
11.	Presentations by the Students: Self-Peer-teacher assessment	02
12.	Presentations by the Students: Self-Peer-teacher assessment	02
13.	Discussion on Modern Day Communication	02
14.	Modern Day Communication and Contemporary Society	02
15.	Exploring Innovative Communication Tools for effective communication	02

#### Text Book (s):

Title	Author/s	Publication
Practical Techniques to Develop Communication Skills	Parul Popat & Kaushal Kotadia	Pothi Prakashan, 2015

#### Reference Book (s):

Title	Author/s	Publication
Communication Skills	Parul Popat & Kaushal Kotadia	Pearson, 2015
Communication Skills, Second Edition	Sanjay Kumar, PushpLata	Oxford University Press, 2015
Communication Skills for Engineers	Sunita Mishra	Pearson, 2011
Effective Interpersonal and Team Communication Skills for Engineers	Clifford Whitcomb, Leslie E. Whitcomb	John Wiley & Sons, 2012

#### Web Material Link (s):

- <http://www.mindtools.com/page8.html>
- [http://techpreparation.com/soft-skills.htm?gclid=CJf34fyQv5wCFdMtpAodjjX\\_tA](http://techpreparation.com/soft-skills.htm?gclid=CJf34fyQv5wCFdMtpAodjjX_tA)
- <http://lorien.ncl.ac.uk/ming/Dept/Tips/present/comms.htm>



**Course Evaluation:****Theory:**

- Continuous Evaluation consists of two tests of 30 marks and 1 hour of duration and average of the same will be converted to 30 marks.
- Faculty evaluation consists of 10 marks as per the guidelines provided by Course Coordinator.
- End Semester Examination consists of 60 marks.

**Practical:**

- Continuous Evaluation consists of the performance of practical, which will be evaluated out of 10 per each practical. At the end of the semester, the average of the entire practical will be converted to 10 marks.
- Internal viva consists of 10 marks.
- Practical performance/quiz/test consists of 15 marks.
- External viva consists of 15 marks.

**Course Outcome(s):**

After completion of the course, the students will be able to

- follow the process of communication and its components in organizational context.
- express themselves and to participate in the classroom discussions and other such academic or academic support activities.
- comprehend whatever they receive from Informal Interactions with the family, teachers and friends; and from Formal Communications taking Place in Lectures, Laboratories and the like.
- communicate effectively using suitable styles and techniques.
- express themselves through the modern modes of communication and to participate in the group discussions and other such academic or academic support activities.
- use language effectively with reference to communication in groups and group behavior.
- understand and use latest and innovative communication tools to enhance their communication efficacy.