



**J.C. Bose University of Science & Technology YMCA, Faridabad**

(A Haryana State Government University)

(Established by Haryana State Legislative Act No. 21 of 2009 & Recognized by UGC Act 1956 u/s 22 to Confer Degrees)

Accredited 'A' Grade by NAAC

**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**

Sub: **Minutes of 7<sup>th</sup> Meeting of Board of Studies (BOS) Community College of Skill Development held on 18/05/2020 at 1.00 PM on the Zoom Application.**

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**Present:**

- |  |               |
|--|---------------|
| 1. Dr. Sanjeev Goyal, Principal CCSD<br>& Nodal Officer, B.Voc               | : Chairperson |
| 2. Dr. Rashmi Popli, Nodal officer, Community College                        | : Member      |
| 3. Dr. Anju Gupta, Associate Professor, JCBUST, Faridabad                    | : Member      |
| 4. Dr. Sandhya Dixit, Associate Professor,<br>JCBUST, YMCA, Faridabad        | : Member      |
| 5. Sh. Parbhakar Yadav, Op. Manager, M/s Durga Threading<br>Tools, Faridabad | : Member      |

The following members could not attend the meeting: -

1. Mr. Pankaj Munjal
2. Representative of SSCs

At the outset, Dr.Sanjeev Goyal, Principal CCSD and Chairman-Board of Studies warmly welcomed all the members of the Board of Studies of Community College of Skill Development. The Chairman also appreciated the interest and the presence of outside members, who took pain to attend this meeting out of their busy schedule, for the healthy discussion on the academic development of the Community College.

Thereafter, the Agenda Items taken up and after detailed deliberation/discussion, the following decisions were taken.

**Item No. BOS/07/01: To consider and confirm the Minutes of its previous meeting held on 24/10/2019.**

The Board considered and confirmed the Minutes of its 6<sup>th</sup> meeting held on 24/10/2019.

**Item No. BOS/07/02: To note the Action Taken Report (ATR) on the Minutes of BOS meeting held on 24/10/2019.**

The Chairman informed the Board regarding the action taken on the minutes of BOS meeting held on 24/10/2019, where necessary. The Board noted the Action Taken Report, as placed before it.

**Item No. BOS/07/03: To note the matter of starting of new course B.Voc in Banking financial and Insurance Services (BFSI) and also consider & approve the Scheme & syllabi with elective courses of B.Voc in Banking financial and Insurance Services (BFSI). (Annexure – A)**

The Board noted the matter regarding the starting of the course B.Voc in Banking financial and Insurance Services (BFSI) from the session 2020-21 and after detailed deliberations/discussions approved the scheme & syllabi to be followed in B.Voc courses in Banking financial and Insurance Services (BFSI).

**Item No. BOS/07/04: To consider and approve the scheme & syllabus of B.Voc courses in Automobile, Manufacturing, Electrical and Web Development. (Annexure – B)**

It was brought to the notice of the Board that earlier the scheme & syllabi upto 2<sup>nd</sup> year of above courses were approved by the Board. It was informed by the Chairman (BOS) that as per requirement, some modifications have been made in the scheme and syllabi of these courses and elective subjects have been also introduced in the syllabus. However, the modified scheme & syllabi of B.Voc courses in Automobile, Electrical, Manufacturing, Web Development are placed before the Board for consideration and approval.

The board after detailed deliberations/discussions approved the scheme & syllabi to be followed in B.Voc courses in Automobile, Electrical, Manufacturing and Web Development.

**Item No. BOS/07/04: To consider and approve the scheme & syllabus of PG Diploma Courses (Data Science & Analytics and Yoga Science & Naturopathy). (Annexure – C)**

The board after detailed deliberations/discussions approved the scheme & syllabi to be followed in PG Diploma Courses (Data Science & Analytics and Yoga Science & Naturopathy).

**Item No. BOS/07/05: To consider and approve the Fee structure-2020 of Community College of Skill Development.**

The Board considered and approved the Fee Structure of Community College of Students.

**Item No. BOS/07/06 : To consider and approve the proposal regarding following the University Examination Ordinances.**

It was brought to the notice of the Board that conduct of examination in respect of CCSD students has been assigned to the Controller of Examination Office of the University. The Board considered and approved to follow the University Examination Ordinance for all courses.

**Item No. BOS/07/07 : To consider and approve syllabus of Entrance Test for admission in B.Voc Courses.**

The Board was informed that from the session 2020-21, the CCSD is going to organize an Entrance Test for all B.Voc Courses. The board considered and approved the syllabus of Entrance Test.

**Item No. BOS/07/08: To consider and approve the list of teachers for taking classes and conducting internal examinations of CCSD students.**

The Board after going through the agenda note approved the list of teachers for taking classes and conducting Internal Examinations of CCSD students with the suggestion that area of specialization of teachers should be mentioned in the list.

**Item No. BOS/07/9: To consider and approve the Information Brochure of CCSD for Academic Session 2020-2021.**

The Board after going through the Information Brochure-2020 of CCSD considered and approved the Information Brochure2020.

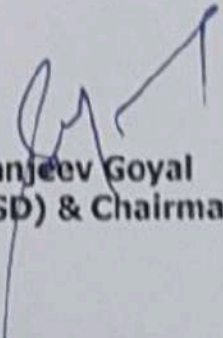
**Item No. BOS/07/10: To consider and approve the Online Application Fee of B.Voc and Diploma Courses.**

The Board considered and approved the Online Application Fee of B.Voc and Diploma Courses.

**Item No. BOS/07/11: To consider and approve the minimum stipend Criteria for On Job Training (OJT) in Industries.**

The Board considered and approved that the minimum stipend payable to the students for On Job Training (OJT) in Industries is Rs. 5000/- per month.

Meeting ended with a vote of thanks to the Chair.

  
**Dr. Sanjeev Goyal**  
**Principal (CCSD) & Chairman-BOS**

**J.C BOSE UNIVERSITY OF SCIENCE AND TECHNOLOGY, YMCA FARIDABAD**

**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**



**CURRICULAM FOR**

**B.VOC**

**WEB DEVELOPMENT**

**(2020-21)**

**1<sup>ST</sup> SEMESTER**

## 1. Introduction

All India Council for Technical Education (AICTE) Ministry of HRD, Government of India has introduced Entrepreneurship oriented Skill development courses of B.Voc/D.Voc/Skill Diploma. These courses will be run by AICTE approved institutes by using available infrastructure and facilities. In these courses the institute will conduct general education content and sector specific skills will be imparted by Skill Knowledge Providers/ Training Providers/ Industries.

### 1.1 Key Features:

#### 1. Objectives

1. To provide judicious mix of skills relating to a profession and appropriate content of General Education.
2. To ensure that the students have adequate knowledge and skills, so that they are work ready exit point of the programme.
3. To provide flexibility to the students by means of pre-defined entry and multiple exit points.
4. To integrate NSQF within the Diploma, undergraduate level of higher education to enhance employability of the students and meet industry requirements. Such student apart from meeting the needs of local and national industry are also expected to be equipped to become part of the global workforce.
5. To provide vertical mobility to students admitted in such vocational courses.
6. The certification levels will lead to Diploma/Advanced Diploma/B. Voc. Degree in Web Development and will be offered by respective affiliating University. Students may be awarded Level Certificate/Diploma/Advance Diploma /Degree as out-lined in the Table below:

Award	Duration after class X	Corresponding NSQF level
Diploma	3 Year	5
Advance Diploma	4 Years	6
B.Voc Degree	5 Years	7

#### 2. Course Objectives

After successfully completing the vocational course, the student would have acquired relevant appropriate and adequate technical knowledge together with the professional skills and competencies in the field of Web Development so that he/she is properly equipped to take up gainful employment in this Vocation.

Thus he/she should have acquired Understanding of:

- (a) The relevant basic concepts and principles in basic science subjects (Communication Skills and Mathematics) so that he/she is able to understand the different vocational subjects.
- (b) The basic concepts in networking.
- (c) The concepts, principles of working of basic computing devices and circuits.

#### 3. Course Structure

The course will consist of combination of practice, theory and hands on skills in the IT sector.

#### 4. Curriculum

- The curriculum in each of the years of the programme would be a suitable mix of general education and skill components.
- The focus of skill components shall be to equip students with appropriate knowledge, practice and attitude, to become work ready. The skill components will be relevany to the industry as per its requirements.
- The curriculam will neccessarily embed within itself, National Occupational Standards (NOSs) of specific job roles withon the industry. This would enable the students to meet the learning outcomes specified in the NOSs.
- Adequate attention will be given in curriculam design to practical work, on the job training, development of student portfolios and project work.
- General Education Component:
- The general education component adhere to the normal senior secondary and university standards. It will emphasize and offer courses which provide holistic development. However, it will not exceed 40% of total curriculam. Adequate emphasis is given to language and communication skills.

## SEMESTER – I SCHEME

Paper Code	Paper	L	T/P	Credits
PCC-WD-101	BASICS OF OPERATING SYSTEM	3	0	3
PCC-WD-104	FUNDAMENTALS OF NETWORK AND SAFETY	3	0	3
BSC-102	ENGINEERING CALCULATIONS	3	0	3
BSC-101	COMMUNICATION SKILLS	3	0	3
PCC-WD-106	COMPUTER WORKSHOP	0	18	18

**Detailed Curriculum**  
**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**Community college of skill development**  
**Basics of operating system**  
**Paper Code: PCC - WD - 101**

Semester: 1st  
Stream: Web Development  
L T P Total Credits  
3 0 0 3

Sessional : 25 Marks  
Theory: 75 Marks  
Total: 100 Marks

Duration of Exam: 3 Hours

**Course Objectives:**

1. To learn the fundamentals of Operating Systems.
2. To learn the mechanisms of OS to handle processes.
3. To learn the mechanisms involved in memory management in contemporary OS.
4. To gain knowledge on file management aspects of Operating systems

**Course Content:**

Unit 1: Operating Systems: Concept of Operating Systems, Need of operating system, Types of Operating Systems, Services of operating system, Structure of an operating system, Functions of operating system.

Unit 2: Processes: Definition, Different states of a Process, Process Scheduling, Types of Schedulers, and Scheduling criteria: CPU utilization, Throughput, Turnaround Time, Waiting Time, Response Time. Scheduling algorithms, FCFS, SJF, Priority, RR, Multiprocessor scheduling.

Unit 3: Memory & File Management: Logical and Physical address space, Swapping, Contiguous Memory allocation, Virtual Memory, Paging, Segmentation. Concept of File, Access methods, Directory structure, File System structure, Allocation methods.

Unit 4: Study of various Operating Systems: Windows, Dos, Linux etc.

**Key Learning Outcomes:**

Candidates will be able to:

1. Create processes.
2. Develop algorithms for process scheduling for a given specification of CPU utilization, Throughput, Turnaround Time, Waiting Time, and Response Time.
3. For a given specification of memory organization, develop the techniques for optimally allocating memory to processes by increasing memory utilization and for improving the access time.
4. Design and implement file management system.

**Reference Books:**

1. Operating System Concepts by Silberchatz et al, 5th edition, 1998, AddisonWesley.
2. Modern Operating Systems by A. Tanenbaum, 1992, Prentice-Hall.
3. Operating Systems Internals and Design Principles by William Stallings, 4th edition, 2001, Prentice Hall.



**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**Community college of skill development**  
**Fundamentals of Network and Safety**  
**Paper Code: PCC– WD - 104**

Semester: 1st  
Stream: Web Development  
L T P Total Credits  
3 0 0 3

Sessional : 25 Marks  
Theory: 75 Marks  
Total: 100 Marks

Duration of Exam: 3 Hours

**Course Objectives:**

1. To learn about computer networks and its various types.
2. To learn about underlying areas of web programming.
3. To learn about basics of internet.
4. To learn about various health and safety procedures.

**Course Contents:**

Unit 1 : Basics of Computer Networks : Introduction of computer network, need for networking, advantages of computer network, network topologies.Types of computer networks: LAN, MAN, WAN, (features, advantages and disadvantages), difference between LAN and WAN.

Unit 2 : Introduction to Internet : Introduction to Web browser, WWW, Searching Internet.Services of internet: E-mail, Social Internet Media and its benefits.

Unit 3 : Web Programming : Introduction to web programming, Basics of HTML: HTML tags, page structure, lists, tables, Introduction to CSS and Java Script.

Unit 4 : Managing Health and Safety : Importance of safety, Objectives of safety management, Hazards and its types, Health safety, Different types of breaches, Evacuation procedures, Medical assistance, Security policies and procedures.Government agencies in the areas of safety, health and security and their norms and services.

**Key Learning Outcomes**

Candidates will be able to:

1. Demonstrate basic computer networking concepts.
2. Operating a browser, searching the internet, managing mails and using social internet media.
3. Understand web programming.
4. Comply with organization's current health, safety and security policies and procedures.

**Reference Books:**

1. Sudhakshina Kundu, Fundamentals of Computer Networks.
2. Tenenbaum, Computer Networks.
3. Fundamentals of Web Development by Randy Connolly.
4. Industrial Safety Management by L.M Deshmukh, Tata Mcgraw Hill Publication.

**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**Community college of skill development**  
**Communication Skills**  
**Paper Code: BSC – 101**

Semester: 1st  
Stream: Web Development  
L T P Total Credits  
3 0 0 3

Sessional : 25 Marks  
Theory: 75 Marks  
Total: 100 Marks

Duration of Exam: 3 Hours

**Course Objectives:**

1. To discuss types of communication and their forms
2. To improve comprehension
3. To improve spoken English and ability to articulate ideas
4. To improve formal writing skills

**Course Contents:**

Unit 1 : Introduction to Communication : Meaning of communication, Importance and function of communication, Types of communication; language of communication; advantages and disadvantages, Barriers to Communication.

Unit 2 : Grammar : Parts of speech, Articles, Tenses, Formation of Sentences, Active and Passive Voice, Direct and Indirect speech.

Unit 3 : Writing and Comprehension : Comprehension, Composition, Letter writing, Translation, Paraphrasing.

Unit 4 : Practical Communication : 7 Cs of Communication, Grice's Cooperative Principle, Group Discussions; Public Speaking; Facing Interviews.

**Key Learning Outcome:**

Candidate will be able to:

1. To learn about communication process, and ways to make communication effective by giving attention to all elements involved.
2. To improve grammar and gain confidence by enhancing their abilities to articulate their ideas.
3. To acquire better writing skills in formal communication.
4. To be able to revise documents for fruitful reading and comprehension.

**Reference Books:**

1. 1. Wren and Martin. High School English Grammar and Composition. New Delhi: RRP, 2007
2. 2. Murphy, Raymond. Essential English Grammar . New Delhi: Cambridge, 2017
3. 3. Malhotra, Prerna and Halder, Deb. Communication Skill s: Theory and Practice. New Delhi: M.S. Indian

**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**Community college of skill development**  
**Computer Workshop**  
**Paper Code: PCC- WD - 108**

Semester: 1st  
Stream: Web Development  
L T P Total Credits  
0 0 18 18

Internal: 30 Marks  
External: 20 Marks  
Total: 50 Marks  
Duration of Exam: 3 Hours

**Course Objectives:**

1. To be familiar with syntax and structure of C-Programming
2. To learn problem solving techniques using C.
3. To be familiar with different data types, Operators and Expressions in C.
4. To be familiar with formatted and unformatted I/O in C with preprocessor directives.
5. To understand the programming using Loop & nested loop Statements (for, while, do-while).
6. To understand programming using different dimensions of Array.
7. To understand programming with Pointer, String and Function call by reference.

**Course Contents:**

C-Programming

1. Write a program to display "hello world" in C.
2. Write a program to add two numbers (5&7) and display its sum.
3. Write a program to multiply two numbers (10&8) and display its product.
4. Write a program to calculate area of a circle having its radius (r=5).
5. Write a program to calculate area of an ellipse having its axes (minor=4cm, major=6cm).
6. Write a program to calculate simple interest for a given P=4000, T=2, R=5.5. ( $I = P * T * R / 100$ )
7. Write a program to declare two integer and one float variables then initialize them to 10, 15, and 12.6. Also print the variable values in the screen.
8. Write a C program to prompt the user to input 3 integer values and print these values in forward and reversed order.
9. Write a program to calculate simple and compound interest.
10. Write a program to swap two variables values with and without using third variables
11. Write a program to check odd or even number
  - (a) using modulus operator
  - (b) using bitwise operator
  - (c) without using bitwise and modulus operator
  - (d) using conditional operator.
12. Print the value of y for given x=2 & z=4 and analyze the output.
  - a.  $y = x++ + ++x;$
  - b.  $y = ++x + ++x;$
  - c.  $y = ++x + ++x + ++x;$
  - d.  $y = x > z;$
  - e.  $y = x > z ? x : z;$
  - f.  $y = x \& z;$
  - g.  $y = x >> 2 + z << 1;$
13. Write a program to print the size of char, float, double and long double data types in C.
14. Write a program to produce the output as shown below:

x	y	expressions	results
6	3	$x = y + 3$	x=6
6	3	$x = y - 2$	x=1
6	3	$x = y * 5$	x=15
6	3	$x = x / y$	x=2

6 | 3 | x=x%y | x=0

15. Demonstrate the differences among getch(), getche(), getchar(). Demonstrate the difference between scanf() & gets(), printf() & puts().
16. Write a program to check whether input alphabet is vowel or not using if-else and switch statement.
17. Write a program that asks a number and test the number whether it is multiple of 5 or not.
18. Write a program to check whether the entered year is leap year or not (a year is leap if it is divisible by 4 and divisible by 100 or 400.)
19. Write a program to input two integer numbers and display the sum of even numbers between these two input numbers.
20. Write a program to find GCD (greatest common divisor or HCF) and LCM (least common multiple) of two numbers.
21. Write a program to display Fibonacci series of last term up to 300.
22. Write a program to enter 10 floating numbers in an array and display it.
23. Write a program to initialize one dimensional array of size 8 and display the sum and average of array elements.
24. Write a program to find biggest among three numbers using pointer.
25. Write a program to find the sum of all the elements of an array using pointers.
26. Write a program to swap value of two variables using pointer.
27. Write a program to read a sentence and count the number of characters & words in that sentence.
28. Write a program to copy one string to another string with and without using string handling function.
29. Write a program to concatenate two strings.
30. Write a program to compare two strings.

## SEMESTER – II SCHEME

<b>Paper Code</b>	<b>Paper</b>	<b>L</b>	<b>T/P</b>	<b>Credits</b>
PCC-WD-203	WEB DESIGNING	3	0	3
PCC-WD-205	OBJECT ORIENTED PROGRAMMING	3	0	3
BSC-206	EMPLOYABILITY SKILLS	3	0	3
BSC-202	ENGINEERING CALCULATIONS - II	3	0	3
PCC-WD-207	HTML LAB	0	6	6
PCC-WD-208	COMPUTER LAB	0	12	12

**Detailed Curriculum**  
**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**  
**WEB DESIGNING - HTML AND CSS**  
**Paper Code: PCC-WD-203**

Semester: 2<sup>nd</sup>  
Stream: Web Development  
L T P Total Credits  
3 0 0 3

Sessional: 25Marks  
Theory: 75 Marks  
Total: 100 Marks  
Duration of Exam: 3 Hours

**Course Objectives:**

1. Understand the principles of creating an effective web page
2. Develop skills in analyzing the usability of a web site.
3. Understand how to plan and conduct user research related to web usability.
4. Learn the language of the web: HTML and CSS.

**Course Contents:**

Unit-I: Web Design Principles : Basic Principles involved in developing a web site, Planning process, Five Golden rules of Web Designing, World Wide Web, Why create a web site, Web Standards

Unit-2: Introduction to HTML : What is HTML, HTML Documents, Basic structure of an HTML document, Creating an HTML document, Mark up Tags, Heading-Paragraphs, Line Breaks, HTML Tags.Elements of HTML: Introduction to elements of HTML, Working with Text, Working with Lists, Tables and Frames; Working with Hyperlinks, Images and Multimedia; Working with Forms and controls.

Unit- 4: Introduction to Cascading Style Sheets: Concept of CSS, Creating Style Sheet, CSS Properties, CSS Styling(Background, Text Format, Controlling Fonts), Working with block elements and objects, Working with Lists and Tables, CSS Id and Class, Box Model(Introduction, Border properties, Padding Properties, Margin properties), CSS Color, Creating page Layout and Site Designs.

Unit – 5 JavaScript introduction : What is JavaScript,Understanding Events, JavaScript Example, External JavaScript

**Key Learning Outcomes**

Candidates will be able to:

1. Discover how does web works really, what makes web sites work.
2. Employ fundamental computer theory to basic programming techniques.
3. Create an Information Architecture document for a web site.
4. How to and where to start research, planning for website
5. Use fundamental skills to maintain web server services required to host a website.

**Reference Books:**

1. Satish Jain, Ambrish K. Rai and M. Geetha, Web Designing and Development, BPB Publications.
2. Hirdesh Bhardwaj, Web Designing.
3. Jon Duckett, HTML & CSS: Design and Build Web Sites

**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**  
**ENGINEERING CALCULATIONS**  
**Paper Code:BSC-202**

Semester: 2<sup>nd</sup>  
Stream: Web Development  
L T P Total Credits  
3 0 0 3

Sessional: 25Marks  
Theory: 75 Marks  
Total: 100 Marks  
Duration of Exam: 3 Hours

**Course Objectives**

1. To familiarize the prospective engineers with Basics of mathematics
2. To understand fundamental arithmetical operations.
3. To learn Unit systems, Fractions and Decimals, roots, percentage.
4. To have Knowledge of differential quantities

**Course Contents**

**UNIT-I Complex number:** Definition of Complex Number, Operations on Complex Number ( Add., Sub., Multiplication, Division), Conjugate Complex Number, Modulus and Amplitude of a Complex Number, Polar form of a Complex Number.

**Unit -II Matrices and Determinants:** Definition and Properties of Determinants, Definition and Types of Matrix, Transpose of a Matrix, Symmetric, Skew Symmetric Matrices, Orthogonal matrices, Hermitian and Skew Hermitian, Minors and Cofactors, Adjoint and Inverse of a Matrix, Cramer's Rule, Solution of Simultaneous Linear Equations by Inverse Matrix Method, Characteristic Matrix, Characteristic Equation, Eigen Values & Vectors, Cayley Hamilton Theorem (verification only).

**Unit - III Differentiation:** Introduction to Derivatives, Product Rule, Quotient Rule, Chain Rule, Derivatives of Algebraic Function, Derivative of Trigonometric Functions, partial derivative.

**Unit - IV Statistics:** Measures of Dispersion: Range, Mean deviation, variance and standard deviation of ungrouped/grouped data. Analysis of frequency distributions with equal means but different variances.

**Course Outcomes:**

1. Students will learn about complex number.
2. Students will learn about matrix and determinants.
3. Students will able to deal with derivative Problems.
4. Students will able solve and learn integration.

**Reference Books:**

1. Mathematics Book by R.D Sharma
2. Advanced Engineering Mathematics By Jain Rk.
3. A Basic Course in Mathematics By Nabjyoti Dutta.
4. Skills in Mathematics By Amit M Aggarwal.

**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**  
**OBJECT ORIENTED PROGRAMMING**  
**Paper Code:PCC-WD-205**

Semester: 2<sup>nd</sup>  
Stream: Web Development  
L T P Total Credits  
3 0 0 3

Sessional: 25Marks  
Theory: 75 Marks  
Total: 100 Marks  
Duration of Exam: 3 Hours

**Course Objectives:**

1. To be familiar with the main features of the C++ language.
2. Be able to understand C++ program to solve a well specified problem.
3. Understand a C++ syntax written by someone else.

**Course Contents:**

Unit-1: Concepts of OOP

Introduction OOP, Procedural Vs. Object Oriented Programming, Principles of OOP, Benefits and applications of OOP.

Unit-2: C++ Basics

Overview, Program structure, namespace, identifiers, variables, constants, enum, operators, typecasting, control structures.

Unit-3: C++ Functions

Simple functions, Call and Return by reference, Inline functions, Macro Vs. Inline functions, Overloading of functions, default arguments, friend functions, virtual functions.

Unit-4: Objects and Classes

Basics of object and class in C++, Private and public members, static data and function members, constructors and their types, destructors, operator overloading, type conversion.

Unit-5: Inheritance

Concept of Inheritance, types of inheritance: single, multiple, multilevel, hierarchical, hybrid, protected members, overriding, virtual base class.

Unit-6: Polymorphism

Pointers in C++, Pointers and Objects, this pointer, virtual and pure virtual functions, Implementing polymorphism.

Unit-7: I/O and File Management

Concept of streams, cin and cout objects, C++ stream classes, Unformatted and formatted I/O, manipulators, File stream, C++ File stream classes, File management functions, File modes, Binary and random Files.

Unit-8: Templates, Exceptions and STL

What is template? function templates and class templates, Introduction to exception, try-catch- throw, multiple catch, catch all, rethrowing exception, implementing user defined exceptions, Overview and use of Standard Template Library.

**Course Outcomes:**

1. Describe the important concepts of object oriented programming like object and class, Encapsulation, inheritance and polymorphism.
2. Write the skeleton of C++ program.
3. Write the simple C++ programs using the variables, operators, control structures, functions.
4. Write the simple object oriented programs in C++ using objects and classes, inheritance, file management, exceptions etc..



**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**  
**EMPLOYABILITY SKILLS**  
**Paper Code: BSC-206**

Semester: 2<sup>nd</sup>  
Stream: Web Development  
L T P Total Credits  
3 0 0 3

Sessional: 25 Marks  
Theory: 75 Marks  
Total: 100 Marks  
Duration of Exam: 3 Hours

**Course Objectives:**

1. To discuss types of communication and their forms.
2. To improve comprehension.
3. To improve spoken English and ability to articulate ideas
4. To improve formal writing skills

**Course Contents:**

Unit 01

Communication skill: Oral and written communication Listening skills, written communications, motivation, ethics, Time management, facing job interviews, behaviour skills, Assessing oneself.

Unit -02

English Literacy – Pronunciation, listening speaking and reading: - greetings and introductions describing people, Telephone skills, Office Hospitality, Describing things.

Unit -03

Entrepreneurship skills- 1: - Scope and advantage of self-employment, Entrepreneurial skills, values and attitudes, Characteristics of Successful Entrepreneurs, Identification of entrepreneurs by self-assessment, Micro, small and medium enterprises, Creativity and idea generation.

Unit -04

Entrepreneurship Skills – 2: - Understanding Consumer, Market Survey: Scope & Influence of publicity and advertisement, Accounting and analysis, Assistance provided by Central and State Govt. Organisations, Project formation, feasibility and profitability estimates, Filling up a Preliminary Project Report Proforma, Investment procedure-loan procurement.

**Course Outcome:**

1. To learn about communication process and ways to make communication effective by giving attention to all elements involved.
2. To improve grammar and gain confidence by enhancing their abilities to articulate their ideas.
3. To acquire better writing skills in formal communication.
4. To be able to revise documents for fruitful reading and comprehension

**Reference books:**

1. Wren and Martin. High School English Grammar and Composition. New Delhi: RRP, 2007
2. Murphy, Raymond. Essential English Grammar. New Delhi: Cambridge, 2017
3. Malhotra, Perna and Halder, Deb. Communication Skills: Theory and Practice.

**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**  
**HTML LAB**  
**Paper Code:PCC-WD-207**

Semester: 1st

Stream: Web Development

L T P Total Credits

0 0 6 6

Internal: 30 Marks

External: 20 Marks

Total: 50 Marks

Duration of Exam: 3 Hours

**Course Objectives:**

1. To Acquire knowledge and Skills for creation of Web Site considering both client- and server- side Programming.
2. To create Web application using tools and techniques used in industry.
3. To be well versed with XML and web services Technologies.
4. To be familiarized with open source Frameworks for Software Development .

**Course Contents:**

1. Generic awareness about Hyper Text Markup Language (HTML).
2. Designing of websites.
3. Basics of HTML tags.
4. Functional knowledge of web hosting
5. Basics of Networking

**Course Outcomes:**

1. Design a basic web site using HTML5 and CSS3 to demonstrate responsive web design.
2. Develop simple web application using server side PHP programing and Database Connectivity using MySQL.
3. Build well-formed XML Document and implement Web Service using Java.

**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**  
**COMPUTER LAB**  
**Paper Code:PCC-WD-208**

Semester: 2nd  
Stream: Web Development  
L T P Total Credits  
0 0 12 12

Internal: 30 Marks  
External: 20 Marks  
Total: 50 Marks  
Duration of Exam: 3 Hours

**Course Objectives:**

1. To be familiar with the main features of the C++ language.
2. Be able to write a C++ program to solve a well specified problem.
3. Understand a C++ program written by someone else.
4. Be able to debug and test C++ programs;
5. Understand how to read C++ doc library documentation and reuse library code.
6. To understand the features of object oriented principles and be familiar with virtual functions, templates and exception handling.
7. To develop applications using C++.

**Course Contents:**

1. Write a C++ program to find the largest of three numbers using inline function.
2. Write a C++ program to sort an array of integer in ascending order using a function called exchange( ) which accepts two integer arguments by reference.
3. Write a C++ program to implement function overloading in order to compute power(m,n) where
  - i) m is double and n is int
  - ii) m and n are int.
4. Create a 'DISTANCE' class with : - feet and inches as data members - member function to input distance - member function to output distance - member function to add two distance objects Write a main function to create objects of DISTANCE class. Input two distances and output the sum.
5. Create a class called 'EMPLOYEE' that has - EMPCODE and EMPNAME as data members - member function getdata( ) to input data - member function display( ) to output data Write a main function to create EMP, an array of EMPLOYEE objects. Accept and display the details of at least 6 employees.
6. Create a class called 'TIME' that has - three integer data members for hours, minutes and seconds - constructor to initialize the object to zero - constructor to initialize the object to some constant value - member function to add two TIME objects - member function to display time in HH:MM:SS format Write a main function to create two TIME objects, add them and display the result in HH:MM:SS format.
7. Create a class 'COMPLEX' to hold a complex number. Write a friend function to add two complex numbers. Write a main function to add two COMPLEX objects.
8. Create a 'MATRIX' class of size m X n. Overload the '+' operator to add two MATRIX objects. Write a main function to implement it.
9. Derive a class 'MAT' from MATRIX class created in program No. 8. Add a member function to overload '\*' operator to multiply two objects. (Single Inheritance)
10. Write a c++ program to illustrate multilevel inheritance.
11. Write a c++ program to illustrate multiple inheritance
12. Create a 'STRING' class which overloads '==' operator to compare two STRING objects.
13. Write a C++ program to illustrate 'this' pointer and pointers to derived classes.
14. Create a base class called 'SHAPE' having - two data members of type double - member function get-data( ) to initialize base class data members - pure virtual member function display-area( ) to compute and display the area of the geometrical object. Derive two specific classes 'TRIANGLE' and 'RECTANGLE' from the base class. Using these three classes design a program that will accept dimension of a triangle / rectangle interactively and display the area.

15. Write a C++ program to read a list containing item name, item code and cost interactively and display the data in a tabular format as shown below:

NAME	CODE	COST
------	------	------

16. Design your own manipulator to provide the following output specification for printing money value:
- 1) 10 columns width
  - 2) The character '\$' at the beginning
  - 3) Showing '+' sign.
  - 4) Two digits precision
  - 5) Filling of unused spaces with '\*'
  - 6) Trailing zeros shown
17. Write a C++ program that uses a single file for both reading and writing the data.
18. A file contains a list of names and telephone numbers in the following form:  
Name Tel. No.  
Write a C++ program to read the file and output the list in the tabular format. The name should be left-justified and numbers right-justified. Use a class object to store each set of data.
19. Write an interactive, menu-driven program that will access the file created in program No.17 and implement the following tasks:
- i) To determine the telephone numbers of the specified person.
  - ii) To determine the name if a telephone number is given.
  - iii) To update the telephone number whenever there is a change.
20. Write a C++ program that displays the size (in bytes) of a given file. The name of the file is specified as command line argument.
21. Define a function template for finding the minimum value contained in an array. Write main() function to find the minimum value of integer array and minimum value of floating point numbers in an array.
22. Write a class template to represent a generic vector. Include member functions to perform the following tasks:
- 1) To create the vector.
  - 2) To modify the value of a given element.
  - 3) To multiply the vector by a scalar value.
  - 4) To display the vector in the form (10, 20, 30,.....)

### Key Learning Outcomes

#### Candidates will be able to:

1. Understand and use the basic programming constructs of C/C++
2. Manipulate various C/C++ datatypes, such as arrays, strings, and pointers
3. Isolate and fix common errors in C++ programs
4. Use memory appropriately, including proper allocation/deallocation procedures
5. Apply object-oriented approaches to software problems in C++
6. Write C++ programs using the above skills

### SEMESTER – III SCHEME

<b>Paper Code</b>	<b>Paper</b>	<b>L</b>	<b>T/P</b>	<b>Credits</b>
BSC-301	SOFT SKILLS	3	0	3
PCC-WD-301	HTML AND CSS	3	0	3
PCC-WD-302	COMPUTER GRAPHICS	3	0	3
PCC-WD-303	SOFTWARE ENGINEERING	3	0	3
PCC-WD-304	COMPUTER LAB	0	12	12

**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**  
**HTML & CSS**  
**Paper Code: PCC-WD-301**

Semester: 3rd  
Stream: Web Development  
L T P Total Credits  
3 0 0 3

Sessional: 25Marks  
Theory: 75 Marks  
Total: 100 Marks  
Duration of Exam: 3 Hours

**Course Objectives:**

1. Understand the principles of creating an effective web page
2. Develop skills in analyzing the usability of a web site.
3. Understand how to plan and conduct user research related to web usability.
4. Learn the language of the web: HTML and CSS.

**Course Content**

**UNIT-1: Introduction:**History of HTML, HTML Tags and Attributes?, HTML Tag vs. Element, HTML Attributes. Basic Formatting Tags: HTML Basic Tags,HTML Formatting Tags,HTML Color Coding. Lists: Unordered Lists, Ordered Lists, Definition List. Images and HTML-Hyperlinks: Image and Image Mapping, URL - Uniform Resource Locator, URL Encoding

**UNIT-II : HTML-Table:** <table>, <th>, <tr>, <td>. HTML-Iframe: Attributes Using, Iframe as the Target. HTML-Form: <input>, <textarea>,<button>,<select>,<label> etc. HTML-Headers: Title,Base,Link,Style sheets,Script,Meta.

**UNIT-III: CSS2-Introduction:** Benefits of CSS,CSS Versions History,CSS Syntax,External Style Sheet using <link>,Multiple Style Sheets,Value Lengths and Percentages. CSS2-Syntax: CSS Syntax, single Style Sheets, Multiple Style Sheets,Value Lengths and Percentages. CSS2-Selectors: ID Selectors, Class Selectors, Grouping Selectors, Universal Selector, Descendant / Child Selectors, Attribute Selectors, CSS – Pseudo Classes. Color Background Cursor: background-image, background-repeat, background-position, CSS Cursor.

**UNIT-IV: CSS2-Text Fonts:**color, background-color, text-decoration, text-align, vertical-align, text-indent, text-transform, white-space, letter-spacing, word-spacing, line-height, font-family, font-size, font-style,font-variant, font-weight. CSS2-Lists Tables: list-style-type, list-style-position, list-style-image, list-style, CSS Tables : 1. border 2.width & height 3.text-align 4.vertical-align 5.padding 6.color CSS2-Box Model: Borders & Outline,Margin & Padding, Height and width, CSS Dimensions. CSS2-Display Positioning: CSS Visibility, CSS Display, CSS Scrollbars, CSS Positioning- 1.Static Positioning, 2.Fixed Positioning, 3.Relative Positioning

**Key Learning Outcomes**

**Candidates will be able to:**

1. Discover how does web works really, what makes web sites work.
2. Employ fundamental computer theory to basic programming techniques.
3. Create an Information Architecture document for a web site.
4. How to and where to start research, planning for website
5. Use fundamental skills to maintain web server services required to host a website.

**Reference Books:**

1. Satish Jain, Ambrish K. Rai and M. Geetha, Web Designing and Development, BPB Publications.
2. Hirdesh Bhardwaj, Web Designing.
3. Jon Duckett, HTML & CSS: Design and Build Web Sites

**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**  
**COMPUTER GRAPHICS**  
**Paper Code: BSC-206**

Semester: 3rd  
Stream: Web Development  
L T P Total Credits  
3 0 0 3

Sessional: 25 Marks  
Theory: 75 Marks  
Total: 100 Marks  
Duration of Exam: 3 Hours

**Course Objectives:**

1. Gain knowledge about graphics hardware devices and software used
2. Understand the two dimensional graphics and their transformations.
3. Understand the three dimensional graphics and their transformations.
4. Appreciate illumination and color models.
5. Be familiar with understand clipping techniques.

**Course Content:**

**UNIT-1 Introduction to Computer Graphics:** What is Computer Graphics, Computer Graphics Applications, Computer Graphics Hardware and software, two dimensional Graphics Primitives: Points and Lines, Line drawing algorithms: DDA, Bresenham's; Circle drawing algorithms: Using polar coordinates, Bresenham's circle drawing, midpoint circle drawing algorithm; Filled area algorithms: Scanline: Polygon filling algorithm, boundary filled algorithm. Two/Three Dimensional Viewing: The 2-D viewing pipeline, windows, viewports, window to view port mapping; Clipping: point, clipping line (algorithms):- 4 bit code algorithm, Sutherland-Cohen algorithm.

**UNIT-2 Polygon clipping algorithm:** Sutherland-Hodgeman polygon clipping algorithm. Two dimensional transformations: transformations, translation, scaling, rotation, reflection, composite transformation. Three-dimensional transformations: Three dimensional graphics concept, Matrix representation of 3-D Transformations, Composition of 3-D transformation.

**UNIT-3 Viewing in 3D:** Projections, types of projections, Hidden surface removal: Introduction to hidden surface removal. The Z- buffer algorithm, scanline algorithm, area sub-division algorithm.

**UNIT-4: Illumination, shading, image manipulation:** Illumination models, shading models for polygons, shadows, transparency. What is an image? Filtering, image processing, geometric transformation of images.

**Key Learning Outcomes:**

1. At the end of the course, the student should be able to:
2. Design two dimensional graphics.
3. Apply two dimensional transformations.
4. Design three dimensional graphics.
5. Apply Illumination and color models.

**Reference Books:**

1. Donald Hearn and M. Pauline Baker, Warren Carithers, "Computer Graphics With Open GL", 4th Edition, Pearson Education, 2010.
2. Jeffrey McConnell, "Computer Graphics: Theory into Practice", Jones and Bartlett Publishers, 2006.
3. Hill F S Jr., "Computer Graphics", Maxwell Macmillan", 1990.
4. Peter Shirley, Michael Ashikhmin, Michael Gleicher, Stephen R Marschner, Erik Reinhard, KelvinSung, and AK Peters, Fundamental of Computer Graphics, CRC Press, 2010.

**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**  
**SOFTWARE ENGINEERING**  
**Paper Code: PCC-WD-302**

Semester: 3rd  
Stream: Web Development  
L T P Total Credits  
3 0 0 3

Sessional: 25Marks  
Theory: 75 Marks  
Total: 100 Marks  
Duration of Exam: 3 Hours

**Course Objectives:**

- 1 Basic understanding of software product,
- 2 software design and development process
- 3 software project management and design complexities

**Course Contents:**

**UNIT-1 Software Overview:** Definitions, Software Evolution & its laws, E-Type Software Evolution, Software Paradigm, Need of Software Engineering, Characteristics of Good Software.

**Software Development Life Cycle:** SDLC Activities & Software Development Paradigm. Software Project Management: need of software project management, Software Project manager, Software Management Activities, Project Planning, Scope Management, Project Estimation & its Techniques. Project Scheduling, Resource Management, Project Risk Management, Project Execution & Monitoring, Project Communication Management, Configuration Management, Project Management Tools.

**UNIT-2 Software Requirements:** Requirement Engineering, Requirement Engineering Process, Requirement Elicitation Process, Requirement Elicitation Techniques, Software Requirements Characteristics Software Requirements, User Interface Requirements, Software System Analyst Software Metrics and Measures.

**Software Design Basics:** Software Design Levels, Modularization, Concurrency, Coupling and Cohesion, Design Verification.

**UNIT-3 Software Analysis and Design Tools:** Data Flow Diagram, Structure Charts, HIPO Diagram, Structured English, Pseudo-Code, Decision Tables, Entity-Relationship Model, Data Dictionary

**Software Design Strategies:** Structured Design, Function Oriented Design, Object Oriented Design, Software Design Approaches.

**UNIT-4 Software User Interface Design:** Command Line Interface (CLI), Graphical User Interface, User Interface Design Activities, GUI Implementation Tools

**Software Design Complexity:** Halstead's Complexity Measures, Cyclomatic Complexity Measures, Function Point.

**Software Implementation:** Structured Programming, Functional Programming, Programming Style, Software Documentation, Software Implementation Challenges

**Software Testing Overview:** Software Validation, Software Verification, Manual Vs Automated Testing, Testing Approaches, Testing Levels, Testing Documentation, Testing Vs. Quality Control & Assurance and Audit.

**Key Learning Outcome:**

- 1 Identify the key activities in managing a software project.
- 2 Compare different process models.
- 3 Concepts of requirements engineering and Analysis Modelling.
- 4 Apply systematic procedure for software design and deployment.
- 5 Compare and contrast the various testing and maintenance

**Reference Books:**

1. Software Engineering – A Practitioner's Approach, Roger S. Pressman, 1996, MGH.
2. Fundamentals of software Engineering, Rajib Mall, PHI
3. Software Engineering by Ian Sommerville, Pearson Edu, 5th edition, 1999, AW,



**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**  
**SOFT SKILLS**  
**Paper Code: BSC-301**

Semester: 3rd  
Stream: Web Development  
L T P Total Credits  
3 0 0 3

Sessional: 25 Marks  
Theory: 75 Marks  
Total: 100 Marks  
Duration of Exam: 3 Hours

### Course Objectives

- 1 To help the students in building interpersonal skills.
- 2 To develop skill to communicate clearly.
- 3 To enhance team building and time management skills.
- 4 To learn active listening and responding skills.

### Course Contents

#### UNIT 1: GRAMMAR AND VOCABULARY

1. Tenses, 2. Subject-verb agreement. 3. Sentence Analysis: Simple, Compound and Complex sentences. 4. Phrases: Adjective, Adverb and Noun Phrase, 5. Clauses: Adjective, Adverb and Noun Phrase. 6. Voice, Narration, Gerund, Participle.

#### UNIT 2: ORAL COMMUNICATION

1. Listening Skill – Active listening, Barriers to active listening. 2. Speaking Skill-Stress patterns in English, 3. Questioning skills, 4. Barriers in Speaking 5. Reading Skill-Skimming, Scanning, Intensive reading, 6. linking devices in a text, 7. Different versions of a story/ incident.

#### UNIT 3: WRITING SKILLS

Letter writing, Business letters • Application letters • Covering letters • Report writing o Academic report o Business report o Technical report o Technical project report • Job Application and Resume writing

#### UNIT- IV: SOFT SKILLS

1. Body Language– Gesture, posture, facial expression. 2. Group Discussion– Giving up of PREP, REP Technique. 3. Presentation Skills: a. (i) How to make power point presentation b. (ii) Body language during presentation 4. Resume writing: Cover letter, career objective, Resume writing (tailor made) 5. Interview Skills: Stress Management, Answering skills.

#### UNIT- 5: STRESS AND TIME MANAGEMENT

Introduction • Stress In Today's Time • Identifying The Stress Source • Signs Of Stress • Ways To Cope With Stress • Healthier Ways To Deal With Stress • Time Management • Prioritize Your Work • Smart Work • Four Ds Of Decision Taking.

### Key Learning Outcomes:

- 1 Self-Awareness, Personal Development, and Life Skills
- 2 Leadership and Communication
- 3 Social Justice and Responsibility

### Reference books:

1. Advanced English Usage: Quirk & Greenbaum; Pearson Education.
2. Developing Communication Skills: Banerjee Meera & Mohan Krishna; Macmillan Publications, 1990.
3. Personality Development and Group Discussions by Barun K. Mitra, Oxford University Press

**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**  
**COMPUTER LAB**  
**Paper Code: PCC-WD-304**

Semester: 3rd  
Stream: Web Development  
L T P Total Credits  
0 0 0 12

Internal : 30 Marks  
External: 20 Marks  
Total: 50 Marks  
Duration of Exam: 3 Hours

**Course Objectives:**

1. Understand the principles of creating an effective web page
2. Develop skills in analyzing the usability of a web site.
3. Understand how to plan and conduct user research related to web usability.
4. Learn the language of the web: HTML and CSS.

**List of Practicals:**

1. A Program to illustrate body and pre tags
2. A Program to illustrate text Font tag
3. A Program to illustrate comment, h1...h6, and div tag
4. A Program to illustrate text formatting tags
5. A Program to illustrate Order List tag
6. A Program to illustrate Unorder List tag
7. A Program to illustrate Nested and Definition tag
8. A Program to illustrate Img tag
9. A Program to illustrate Hyper Link tag (Anchor tag)
10. A Program to illustrate Table tag
11. A Program to illustrate Frame tag
12. A Program to illustrate Form tag
13. A Program to illustrate Class & ID selector in style tag.
14. A Program to illustrate CSS (cascading style sheet)
15. A Program to illustrate External CSS in web Page

## SEMESTER – IV SCHEME

S.NO.	PAPER CODE	SUBJECT	TEACHING SCHEDULE	EXAMINATION SCHEDULE (MARKS)		TOTAL MARKS	CREDITS
1	PCC-WD-401	ON-JOB TRAINING	8 hours per day for one semester	200	300	500	30

### Procedure for Annual Examination and continuous Assessment

#### (A) Annual Exams Marks

1. Project Evaluation 50 Marks
2. Project Seminar 50 Marks
3. Project Viva 100 marks

#### (B) Continuous Assessment Marks

1. Assessment by Institute faculty 100 Marks
2. Assessment by Industrial Guide 150 Marks
3. Conduct Marks 50 Marks

**Total 500 Marks**

## SEMESTER – V SCHEME

S.NO.	PAPER CODE	SUBJECT	TEACHING SCHEDULE	EXAMINATION SCHEDULE (MARKS)		TOTAL MARKS	CREDITS
1	OJT-WD-501	ON-JOB TRAINING	8 hours per day for one semester	200	300	500	30

### Procedure for Annual Examination and continuous Assessment

#### (A) Annual Exams Marks

1. Project Evaluation 50 Marks
2. Project Seminar 50 Marks
3. Project Viva 100 marks

#### (B) Continuous Assessment Marks

1. Assessment by Institute faculty 100 Marks
2. Assessment by Industrial Guide 150 Marks
3. Conduct Marks 50 Marks

**Total 500 Marks**

## SEMESTER – VI

### SCHEME

Paper Code	Paper	L	T/P	Credits
PCC-WD-602	INTRODUCTION TO PYTHON	3	0	3
BSC-601	ENTREPRENEURSHIP	3	0	9
BSC-602	MINOR PROJECT	0	12	12
PCC-WD-603	PYTHONLAB	0	09	09
<b>Elective Courses : Select any one</b>				
PCC-WD-601	TECHNOLOGY TRENDS IN IT	3	0	3
PCC-WD-604	INTRODUCTION TO AI	3	0	3
PCC-WD-605	COMPUTER NETWORK SECURITY	3	0	3

## Detailed Curriculum

**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**  
**TECHNOLOGY TRENDS IN IT**  
**Paper Code: PCC-WD-601**

Semester:6th	Sessional: 25Marks
Stream: Web Development	Theory: 75 Marks
L T P Total Credits	Total: 100 Marks
3 0 0 3	

Duration of Exam: 3 Hours

### **Course Objectives:**

1. Student will be able to learn the basics of IOT.
2. Student will be able to analyse basic protocols of wireless and MAC.
3. Students will get familiar with web of things.
4. Students will get basic knowledge of resource management.

### **Course Contents:**

#### **Unit-I**

**Internet of Things (IoT)** – Introduction to IoT, Characteristics of IoT, Physical design of IoT, Logical design of IoT, Functional blocks of IoT, Communication models & APIs ,IoT& M2M Machine to Machine, Difference between IoT and M2M, Software define Network, Challenges in IoT(Design ,Development, Security), Wireless medium access issues, MAC protocol survey, Survey routing protocols, Sensor deployment & Node discovery, Data aggregation & dissemination.

#### **Unit-II**

**Internet of Things (IoT):** Web of Things vs Internet of things, two pillars of web, Architecture and standardization of IoT, Unified multitier-WoT architecture, WoT portals and Business intelligence, Domain specific applications of IoT, Home automation, Industry applications, Surveillance applications, Other IoT applications Clustering, Synchronization, Software agents.

#### **Unit-III**

**Cloud Computing** : SaaS, PaaS, IaaS, Public and Private Cloud; Virtualization, Virtual Server, Cloud Storage, Database Storage, Resource Management, Service Level Agreement, Basics of IoT.

#### **Unit-IV**

**Big Data Systems:** Big Data Characteristics, Types of Big Data, Big Data Architecture, Introduction to Map- Reduce and Hadoop; Distributed File System, HDFS. NOSQL: NOSQL and Query Optimization; Different NOSQL Products, Querying and Managing NOSQL; Indexing and Ordering Data Sets; NOSQL in Cloud.

### **Reference Books:**

1. Computer Today, A. Ravichandran, Khanna Publishing House
2. Internet of Things, Jeeva Jose, Khanna Publishing House
3. Big Data and Hadoop, V.K. Jain, Khanna Publishing House
4. Data Sciences and Analytics, V.K. Jain, Khanna Publishing House

**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**  
**INTRODUCTION TO PYTHON**  
**Paper Code: PCC-WD-602**

Semester:6th	Sessional: 25Marks
Stream: Web Development	Theory: 75 Marks
L T P Total Credits	Total: 100 Marks
3 0 0	Duration of Exam: 3Hours

**Course Objectives:**

1. To learn and understand Python programming basics and paradigm.
2. To learn and understand python looping, control statements and string manipulations.
3. Students should be made familiar with the concepts of GUI controls and designing GUI applications.
4. To learn and know the concepts of file handling, exception handling and database connectivity

**Course Contents:**

**UNIT-I**

**Familiarization with the basics of Python programming:** a simple "hello world" program, process of writing a program, running it, and print statements; simple datatypes: integer, float, string. Introduce the notion of a variable, and methods to manipulate it (concept of L-value and R-value even if not taught explicitly)

**UNIT-II**

**Knowledge of data types and operators:** accepting input from the console, assignment statement, expressions, operators and their precedence.

**Conditional statements:** if, if-else, if-elif-else; simple programs: e.g.: absolute value, sort numbers, and divisibility.

**UNIT-III**

**Notion of iterative computation and control flow:** for, while, flowcharts, decision trees and pseudo code; write a lot of programs: interest calculation, primarily testing, and factorials.

Idea of debugging: errors and exceptions; debugging: pdb, break points.

**UNIT-IV**

**Lists, tuples and dictionary:** finding the maximum, minimum, mean; linear search on • list/tuple of numbers, and counting the frequency of elements in a list using a dictionary. Introduce the notion of accessing elements in a collection using numbers and names.

**Sorting algorithm:** bubble and insertion sort; count the number of operations while sorting. Strings: compare, concat, substring; notion of states and transitions using state transition diagrams.

**Reference Books:**

1. Introduction to Computing and Problem Solving With Python, Jeeva Jose, Khanna Publishing House
2. Taming Python by Programming, Jeeva Jose, Khanna Publishing House

**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**  
**ENTREPRENEURSHIP**  
**Paper Code: BSC-601**

Semester:6th	Sessional: 25Marks
Stream: Web Development	Theory: 75 Marks
L T P Total Credits	Total: 100 Marks
3 0 0 3	Duration of Exam: 3
Hours	

**Course Objectives:**

- Sketching an apt business plan
- Hiring and retaining a skilled workforce
- Financial stability
- Aligning marketing and sales

**Course Contents**

**Unit-1:**

**Entrepreneurship and entrepreneur:** Entrepreneurship concept and process, Entrepreneur, Essential Characteristics of a good Entrepreneur, Types of entrepreneur, Industrial Policy, Classification of industries- Micro, small scale, Medium scale, Large scale, Product identification/ selection, Site selection, Plant layout, Pre-market survey.

**Unit-2:**

**Entrepreneurship Support System and Start-ups:** Introduction to start-up's, Role of District Industries Centre in setting up industry, Function of NSIC, SISI, NISIET, NRDC, SSIC, SIDO, NMTC, KVIC, RSMML, Role of state finance corporation, state electricity corporations, pollution control board, BIS, I.S.O. etc.

**Unit-3**

**Introduction to Tax System, and Acts:** Idea of income tax, Goods and Services Tax and custom duty, Introduction to Industrial Acts, factory Act, Workmen's Compensation Act 1923, Apprentices Act 1961, Environmental Protection Act 1986

**Unit-4:**

**Project Report Preparation:** Procedure of preparing a project report, Format of project report, Preparation of project report, Introduction to ISO: 9000 Series of Quality System

**Key Learning Outcomes**

- Students will be aware about the concepts of entrepreneurship development and significance of entrepreneurship in economic development.
- It will help students to know about various acts related to an industry.
- Students will be able to prepare project report.
- They will be able to know the support available from Govt. to start a new venture.

**Reference Books**

1. Khanka S.S., "Entrepreneurship Development" S.Chand.
2. Desai, A N. "Entrepreneur & Environment" Ashish, New Delhi.
3. Drucker, Peter. "Innovation and Entrepreneurship" Heinemann, London.
4. Jain Rajiv. "Planning a Small Scale Industry: A Guide to Entrepreneurs" S.S. Books, Delhi.
5. Kumar, S A. "Entrepreneurship in Small Industry" Discovery, New Delhi



**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**  
**PYTHON LAB**  
**Paper Code: PCC-WD-603**

Semester: 6th

Internal: 60

Marks

Stream: Web Development

External: 40 Marks

L T P Total Credits

0 0 9 9

Hours

Total: 100 Marks

Duration of Exam: 3

**Course Contents::**

1. Python program to add two numbers
2. Maximum of two numbers in Python
3. Python Program for factorial of a number
4. Python Program for simple interest
5. Python Program for compound interest
6. Python Program to check Armstrong Number
7. Python Program for Program to find area of a circle
8. Python program to print all Prime numbers in an Interval
9. Python program to check whether a number is Prime or not
10. Python Program for n-th Fibonacci number
11. Python Program for How to check if a given number is Fibonacci number?
12. Python Program for n<sup>th</sup> multiple of a number in Fibonacci Series
13. Program to print ASCII Value of a character
14. Python Program for Sum of squares of first n natural numbers
15. Python Program for cube sum of first n natural numbers

**Array Programs:**

1. Python Program to find sum of array
2. Python Program to find largest element in an array
3. Python Program for array rotation
4. Python Program for Reversal algorithm for array rotation
5. Python Program to Split the array and add the first part to the end
6. Python Program for Find remainder of array multiplication divided by n
7. Python Program to check if given array is Monotonic

**List Programs:**

1. Python program to interchange first and last elements in a list
2. Python program to swap two elements in a list
3. Python | Ways to find length of list
4. Python | Ways to check if element exists in list
5. Different ways to clear a list in Python
6. Python | Reversing a List
7. Python program to find sum of elements in list
8. Python | Multiply all numbers in the list
9. Python program to find smallest number in a list
10. Python program to find largest number in a list

**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**

**Computer Network Security**  
**Paper Code: PCC-WD-605**

Semester:6th	Sessional: 25Marks
Stream: Web Development	Theory: 75 Marks
L T P Total Credits	Total: 100 Marks
3 0 0 3	Duration of Exam: 3 Hours

**Course Objectives:**

1. To understand basics of Cryptography and Network Security
2. To be able to secure a message over insecure channel by various means.
3. To learn about how to maintain the Confidentiality, Integrity and Availability of a data
4. To understand various protocols for network security to protect against the threats in the networks.

**Course Contents:**

**UNIT-I**

Network Concept, Benefits of Network, Network classification (PAN, LAN, MAN, WAN), Peer to Peer, Client Server architecture, Transmission media: Guided & Unguided, Network Topologies. Networking terms: DNS, URL, client server architecture, TCP/IP, FTP, HTTP, HTTPS, SMTP, Telnet OSI and TCP/IP Models: Layers and their basic functions and Protocols, Comparison of OSI and TCP/IP. Networking Devices: Hubs, Switches, Routers, Bridges, Repeaters, Gateways and Modems, ADSL.

**UNIT-II**

Ethernet Networking: Half and Full-Duplex Ethernet, Ethernet at the Data Link Layer, Ethernet at the Physical Layer. Switching Technologies: layer-2 switching, address learning in layer-2 switches, network loop problems in layer-2 switched networks, Spanning-Tree Protocol, LAN switch types and working with layer-2 switches, Wireless LAN

**UNIT- III**

Internet layer Protocol: Internet Protocol, ICMP, ARP, RARP. IP Addressing: Different classes of IP addresses, Sub-netting for an internet work, Classless Addressing. Comparative study of IPv4 & IPv6. Introduction to Router Configuration. Introduction to Virtual LAN.

**UNIT- IV**

Transport Layer: Functions of transport layer, Difference between working of TCP and UDP. Application Layer: Domain Name System (DNS), Remote logging, Telnet, FTP, HTTP, HTTPS. Introduction to Network Security.

**Key Learning Outcomes**

After successful completion of the course, the learners would be able to

1. Provide security of the data over the network.
2. Do research in the emerging areas of cryptography and network security.
3. Implement various networking protocols.
4. Protect any network from the threats in the world.

**Reference Books:**

1. Information & Computer Security, Sarika Gupta, Khanna Publishing House
2. An Integrated Approach to Computer Networks, Bhavneet Sidhu, Khanna Publishing House

**J.C BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD**  
**COMMUNITY COLLEGE OF SKILL DEVELOPMENT**

**Introduction to AI**

**Paper Code: PCC-WD-604**

Semester:6th	Sessional: 25Marks
Stream: Web Development	Theory: 75 Marks
L T P Total Credits	Total: 100 Marks
3 0 0 3	Duration of Exam: 3 Hours

**Course Objectives:**

1. Gain a historical perspective of AI and its foundations.
2. Become familiar with basic principles of AI toward problem solving, inference, perception, knowledge representation, and learning.
3. Investigate applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.
4. Experience AI development tools such as an 'AI language', expert system shell, and/or data mining tool.

**Course Content:**

**UNIT – I**

Overview of A.I: Introduction to AI, Importance of AI, AI and its related field, AI techniques, Criteria for success. Problems, problem space and search: Defining the problem as a state space search, Production system and its characteristics, Issues in the design of the search problem Heuristic search techniques : Generate and test, hill climbing, best first search technique, problem reduction, constraint satisfaction

**UNIT - II**

Knowledge Representation: Definition and importance of knowledge, Knowledge representation, Various approaches used in knowledge representation, Issues in knowledge representation. Using Predicate Logic: Representing Simple Facts in logic, Representing instances and is-a relationship, Computable function and predicate.

**UNIT - III**

Natural language processing: Introduction syntactic processing, Semantic processing, Discourse and pragmatic processing. Learning: Introduction learning, Rote learning, Learning by taking advice, Learning in problem solving, Learning from example-induction, Explanation based learning.

**UNIT - IV**

Expert System: Introduction, Representing using domain specific knowledge, Expert system shells. Knowledge acquisition: General concepts in knowledge acquisition, early work in Machine Learning, examples of Inductive Learners, computer vision, Robotics, overview of LISP- AI language.

**Key Learning outcomes:**

- 1) Demonstrate fundamental understanding of the history of artificial intelligence (AI) and its foundations.
- 2) Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning.
- 3) Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.
- 4) Demonstrate proficiency developing applications in an 'AI language', expert system shell, or data mining tool.

**Reference Books:**

1. Artificial Intelligence, Munish Chandra Trivedi, Khanna Publishing House





**J.C. Bose University of Science & Technology, YMCA, Faridabad**  
(A Haryana State Government University)

(Established by Haryana State Legislative Act No. 21 of 2009 & Recognized by UGC Act 1956 u/s 22 to Confer Degrees)

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**COMMUNITY COLLEGE OF SKILL DEVELOPMENT (CCSD)**

**Program B.Voc Web Development (program Code: 251)**

**Revised Scheme Course Index of the year 2020-2021(BOS Dated 18/05/2020)**

**Mapping of the course with the employability/Entrepreneurship/Skill Development**

S.No	Course	Code	Skills Development	Entrepreneurship	Employability
1	BASICS OF OPERATING SYSTEM	PCC-WD-101	✓		✓
2	FUNDAMENTAL OF NETWORK AND SAFETY	PCC-WD-104	✓		✓
3	ENGINEERING CALCULATIONS	BSC-102	✓	✓	
4	COMMUNICATION SKILLS	BSC-101	✓	✓	
5	COMPUTER LAB	PCC-WD-106	✓	✓	✓
6	WEB DESIGNING	PCC-WD-203	✓	✓	✓
7	OBJECT ORIENTED PROGRAMMING	PCC-WD-205	✓	✓	✓
8	EMPLOYABILITY SKILLS	BSC-206	✓	✓	
9	ENGINEERING CALCULATIONS-II	BSC-202	✓	✓	
10	HTML LAB	PCC-WD-207	✓	✓	✓
11	COMPUTER LAB	PCC-WD-208	✓	✓	✓
12	SOFT SKILLS	BSC-301	✓	✓	
13	HTML AND CSS	PCC-WD-301	✓	✓	✓
14	COMPUTER GRAPHICS	PCC-WD-303	✓		✓
15	SOFTWARE ENGINEERING	PCC-WD-303	✓		✓
16	COMPUTER LAB	PCC-WD-304	✓	✓	✓
17	ON JOB TRAINING	OJT-WD-402	✓	✓	✓
18	ON JOB TRAINING	OJT-WD-501	✓	✓	✓
19	TECHNOLOGY TRENDS IN IT	PCC-WD-601	✓		✓
20	INTRODUCTION TO PYTHON	PCC-WD-602	✓		✓
21	ENTREPRENEURSHIP	BSC-601	✓	✓	
22	MINOR PROJECT	BSC-602	✓	✓	✓
23	PYTHON LAB	PCC-WD-603	✓	✓	✓

  
Principal, CCSD