

**ChhattisgarhSwamiVivekanand Technical University, Bhilai**  
**SCHEME OF TEACHING & EXAMINATION**  
**BE (Computer Science & Engineering) III Semester**

Sl.No.	Board of Study	Subject Code	Subject Name	Periods per week			Scheme of Exam			Total Marks	Credit L+(T+P)/2
				L	T	P	ESE	CT	TA		
1	Appl. Mathematics	322351(14)	Mathematics-III	4	1	-	80	20	20	120	5
2	Electronics & Telecom.	322352(28)	Basic Electronics	3	1	-	80	20	20	120	4
3	Comp. Science & Engg.	322353(22)	Computational Science	3	1	-	80	20	20	120	4
4	Comp. Science & Engg.	322354(22)	Problem Solving & Logic Building using C	3	1	-	80	20	20	120	4
5	Comp. Science & Engg.	322355(22)	Computer Concepts & Web Technology	3	1	-	80	20	20	120	4
6	Electronics & Telecom.	322356(28)	Digital Electronics & Logic Design	3	1	-	80	20	20	120	4
7	Electronics & Telecom.	322361(28)	Basic Electronics Lab	-	-	3	40		20	60	2
8	Comp. Science & Engg.	322362(22)	Problem Solving & Logic Building using C Lab	-	-	3	40		20	60	2
9	Electronics & Telecom.	322363(28)	Digital Electronic and Logic Design Lab	-	-	3	40		20	60	2
10	Comp. Science & Engg.	322364(22)	Web Technology Lab(HTML / DHTML/CSS/XML)	-	-	3	40		20	60	2
11	Humanities	322365(46)	Value Education	-	-	2			40	40	1
12			Library	-	-	1					
			<b>TOTAL</b>	<b>19</b>	<b>6</b>	<b>15</b>	<b>640</b>	<b>120</b>	<b>240</b>	<b>1000</b>	<b>34</b>

*L: Lecture, T: Tutorial, P: Practical, ESE: End Semester Exam, CT: Class Test, TA: Teachers Assessment*

*Note: Duration of all theory papers will be of Three Hours.*

# Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program:	<b>Bachelor of Engineering</b>	Semester:	<b>III</b>
Branch:	<b>Computer Science &amp; Engineering</b>		
Subject:	<b>Mathematics – III</b>	Code:	<b>322351(14)</b>
Total Theory Periods:	<b>40</b>	Total Tutorial Periods:	<b>10</b>
Class Tests:	<b>Two (Minimum)</b>	Assignments:	<b>Two (Minimum)</b>
ESE Duration:	<b>Three Hours</b>	<b>Maximum Marks: 80</b>	<b>Minimum Marks: 28</b>

## Course Objectives:

1. To make the students understand the Fourier series analysis is a powerful method where the formulas are integrals and to have knowledge of expanding periodic functions that explore variety of applications of Fourier series.
2. To provide knowledge of Laplace transform of elementary functions including its properties and applications to solve ordinary differential equations.
3. To provide a sound background of complex analysis to perform a thorough investigation of major theorems of complex analysis and to apply these ideas to a wide range of problems that includes the evaluation of both complex line integrals and real integrals.
4. To have a thorough knowledge of PDE which arise in mathematical descriptions of situations in engineering.
5. To study about a quantity that may take any of a given range of values that can't be predicted as it is but can be described in terms of their probability.

**UNIT-I Fourier series:** Expansion of function as Fourier series, Change of interval, Even and odd functions, Half-range Fourier series, Practical harmonic analysis.

**UNIT-II Laplace Transformation:** Laplace transform of elementary functions, Properties of Laplace transform, Laplace transform of derivatives and integrals, multiplication by  $t^n$  and division by  $t$ , Laplace transform of periodic functions. Inverse Laplace transform, Convolution theorem, Application of Laplace transform to solutions of ordinary differential equations.

**UNIT-III Theory of Complex Variables:** Limit, Derivative and Analytic functions; Cauchy-Riemann equations and its applications to flow problems; Complex Integration: Line and Contour integral, Cauchy integral theorem and Integral formula; Taylor series, Laurent series; singularities; Poles and their orders and residues; Evaluation of real definite integrals.

**UNIT-IV Partial Differential Equation:** Formation of partial differential equations, Equations solvable by direct integration, Lagrange's linear equations, Homogeneous linear differential equations with constant coefficients, Non-homogeneous linear equations, Solution of partial differential equations by the method of separation of variables.

**UNIT-V Random variable:** Discrete and continuous probability distributions, Mathematical expectation, Mean and Variance, Moments, Moment generating function, probability distribution, Binomial, Poisson and Normal distributions.

## Text Books:

1. Higher Engg. Mathematics by Dr. B.S. Grewal– Khanna Publishers.
2. Advanced Engg. Mathematics by Erwin Kreyszig – John Wiley & Sons.

## Reference Books:

1. Advanced Engg. Mathematics by R.K. Jain and S.R.K. Iyengar – Narosa Publishing House.
2. Applied Mathematics by P.N. Wartikar & J.N. Wartikar. Vol- II– Pune Vidyarthi Griha Prakashan, Pune.
3. Applied Mathematics for Engineers & Physicists by Louis A. Pipes- TMH.

## COURSE OUTCOME:

After completion of this course the students will be able to apply Fourier series, Laplace transformation, Theory of complex variable, Partial differential equations and Random variable to Computer Science problems and solve them. Hands on these Mathematical topics will make them equipped to prepare for higher studies through competitive examinations.

# Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program:	<b>Bachelor of Engineering</b>	Semester:	<b>III</b>
Branch:	<b>Computer Science &amp; Engineering</b>		
Subject:	<b>Basic Electronics</b>	Code:	<b>322352(28)</b>
Total Theory Periods:	<b>40</b>	Total Tutorial Periods:	<b>10</b>
Class Tests:	<b>Two (Minimum)</b>	Assignments:	<b>Two (Minimum)</b>
ESE Duration:	<b>Three Hours</b>	<b>Maximum Marks: 80</b>	<b>Minimum Marks: 28</b>

## Course Objectives:

1. To learn basic concepts of semiconductors
2. To understand working principle of Diode, Transistor and FET
3. To gain knowledge of applications of Diode and Transistor
4. To learn concepts of transport phenomenon and amplifications through numerical

- UNIT-I** Introduction, Transport Phenomena in semiconductor, Formation of P-N Junction, Properties of P-N Junction, P-N Junction Diodes; Semiconductor Diodes, V-I Characteristics, Effect of Temperature on V-I Characteristics, Ideal Diode, Diode equation, Diode Resistance, Diode Capacitance: Transition and Diffusion Capacitance.
- UNIT-II** Rectifying circuits and DC Power Supplies: Load line analysis of diode circuit, Half wave rectifier: Voltage regulation, Ripple factor, Ratio of rectification, Transformer Utilization factor. Full wave rectifier, Bridge rectifier, Filter circuits for power supply: Inductor filter, Capacitor filter, LC filter, Multiple LC filter, CLC or filter. Zener diode: Break down mechanism, Characteristics, Specifications, Voltage regulator circuit using zener diode.
- UNIT-III** Transistor: Introduction, Construction, Types: npn and pnp, Current components. Transistor as an amplifier, Transistor Characteristics, Transistor Circuit Configuration: Common Base (CB) Configuration, Common Emitter (CE) Configuration, Common Collector Configuration (CC), Early Effect, Ebers-Moll Model, Maximum Voltage Ratings.
- UNIT-IV** Transistor Biasing and Thermal stabilization: The operating point, Bias stability, Stability factor, Emitter bias, Collector – to – base bias, Voltage divider bias with emitter bias, Emitter bypass capacitor, Bias compensation.
- UNIT-V** Field Effect Transistor (FET): Introduction, Construction, Operation, V-I Characteristics, Transfer Characteristics, Drain Characteristics, Small-Signal Model.  
Metal Oxide Semiconductor Field Effect Transistor (MOSFET): Introduction, Construction, Operation and characteristics, Depletion MOSFET, Enhancement MOSFET.

## TEXT BOOKS:

1. Integrated Electronics: Analog & Digital Circuit Systems – Jacob Millman&Halkias, TMH.
2. Electronic Devices & Circuits – Allen Mottershead, PHI.

## REFERENCE BOOKS:

1. Electronic Devices and Circuit Theory – Boylestad&Nashelsky, 8th Ed. PHI.
2. Electronic Devices & Circuit Analysis – K. Lal Kishore, BS Publications

## COURSE OUTCOME:

After completion of this course the students will be able to -

1. Gain the knowledge of basics of semiconductor devices and their applications
2. Apply concepts of Junction theory in designing and solving basic circuits
3. Develop basic knowledge of PN junction diode, BJT and FET
4. Implement transistor based circuits that are used in IC technology

# Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program:	<b>Bachelor of Engineering</b>	Semester:	<b>III</b>
Branch:	<b>Computer Science &amp; Engineering</b>		
Subject:	<b>Computational Science</b>	Code:	<b>322353(22)</b>
Total Theory Periods:	<b>40</b>	Total Tutorial Periods:	<b>10</b>
Class Tests:	<b>Two (Minimum)</b>	Assignments:	<b>Two (Minimum)</b>
ESE Duration:	<b>Three Hours</b>	<b>Maximum Marks: 80</b>	<b>Minimum Marks: 28</b>

## Course Objectives:

1. To understand fundamental design concepts, flowchart
2. To get idea of programming language processors & data types
3. To study basics of functional programming languages
4. To familiarize with neuron and neural networks
5. To study basics fuzzy logic & genetic algorithms

**UNIT-I Program Design:** Introduction- fundamental design concepts - Modules and modularization criteria - Design notation: Procedure template, Pseudo code - Structured flow chart decision. Tables - Design techniques: Stepwise refinement, Levels of abstraction, Top down- Test plans-Design guidelines. Characteristics of programming languages, Factors influencing the evolution of programming language, Development in programming methodologies, desirable features and design issues.

**UNIT-II Programming language processors:** Structure and operations of translators, software simulated computer, syntax, semantics, structure, virtual computers, binding and binding time. **Data types:** Properties of types and objects – elementary data types – structured data types. **Abstraction:** Abstract data types – encapsulation by subprograms – type definition – storage Management.

**UNIT-III Functional programming languages:** Introduction, fundamentals of FPL, LISP, ML, Haskell, application of Functional programming languages and comparison of functional and imperative languages.

**UNIT-IV Neural Networks (Introduction & Architecture):** Neuron, Nerve structure and synapse, Artificial neuron and its model, activation functions, Neural network architecture: single layer and multilayer feed forward networks, recurrent networks. Various learning techniques; perception and convergence rule, Auto-associative and hetro-associative memory.

**UNIT-V Fuzzy Logic (Introduction):** Basic concepts of fuzzy logic, fuzzy sets and crisp sets, fuzzy set theory and operations, Properties of fuzzy sets, fuzzy and crisp relations, fuzzy to crisp conversion. **Genetic Algorithm (Introduction):** Basic concepts, working principle, procedures of GA, flow chart of GA, Genetic representations (encoding), Initialization and selection, Genetic operators, Mutation, Generational Cycle, applications.

## Text Books:

1. “Software Engineering Concepts” by Richard Fairley, Tata Macgraw Hill,
2. “Programming Languages, Design and implementation” by Terrance W. Pratt, and Marvin V. Zelkowitz, Prentice-Hall of India, Fourth edition, 2002

## Reference Books:

1. “Programming Languages – Concepts and Constructs” by Ravi Sethi, Addison-Wesley, 2<sup>nd</sup> Ed. 1996.
2. “Programming Languages: Principles and Paradigms” by Allen B. Tucker, Robert Noonan, TMH, 2006.
3. “Fundamentals of Programming Languages” by E. Horowitz, Galgotia Publishers, 1984.
4. “Programming Languages” by A.B. Tucker, Robert, Noonan, McGraw-Hill, 2002.
5. “Concepts of Programming Languages” by Robert W. Sebesta, Addison Wesley, Sixth edition, 2003.
6. “Computer Concepts and C Programming “ by Vikas Gupta, Wiley India.

## Course Outcomes:

1. Demonstrate a broad understanding of the role of computer science and computational methods
2. Demonstrate understanding of the theoretical basis of computer science
3. Demonstrate knowledge of computational problem solving strategies
4. Design and implement substantial pieces of software
5. Demonstrate understanding of the importance of theoretical scientific underpinnings for practical work and methodology

# Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program:	<b>Bachelor of Engineering</b>	Semester:	<b>III</b>
Branch:	<b>Computer Science &amp; Engineering</b>		
Subject:	<b>Problem Solving &amp; Logic Building using C</b>	Code:	<b>322354(22)</b>
Total Theory Periods:	<b>40</b>	Total Tutorial Periods:	<b>10</b>
Class Tests:	<b>Two (Minimum)</b>	Assignments:	<b>Two (Minimum)</b>
ESE Duration:	<b>Three Hours</b>	Maximum Marks:	<b>80</b>
		Minimum Marks:	<b>28</b>

## Course Objectives:

1. To differentiate and understand low-level and high-level programming languages
2. To understand modular programming concepts
3. To understand the use of rich set of data types in C appropriate to specific programming problems.
4. Demonstrate the use of various operators
5. Demonstrate the use of the various control flow constructs.
6. Use arrays & pointers to efficiently to design C program to solve problems.
7. Demonstrate creation and use of own data types.

- UNIT-I** Introduction: Computer systems, Hardware & software concepts.  
Problem Solving: Algorithm / pseudo code, flowchart, program development steps, Computer Languages: machine, symbolic, and high -level languages, Creating and running programs: Writing, editing, compiling, linking, and executing.  
Basics of C: Structure of a C program, identifiers, basic data types and sizes. Constants, variables, arithmetic, relational and logical operators, increment and decrement operators, conditional operator, assignment operators, expressions, type conversions, conditional expressions, precedence and order of evaluation, Sample programs.
- UNIT-II** Bit-wise Operators: logical, shift, rotation, masks.  
Selection – Making Decisions: Two - way selection: if - else, null else, nested-if, examples, Multi- way selection: switch, else-if, examples.  
Strings: concepts, C strings.  
Iterative: Loops -while, do-while and for statements, break, continue, initialization and updating, event and counter controlled loops, looping applications: Summation, powers, smallest and largest.
- UNIT- III** Arrays: Arrays-concepts, declaration, definition, accessing elements, storing elements, Strings and string manipulations, 1-D arrays, 2-D arrays and character arrays, string manipulations, multidimensional arrays, array applications: Matrix Operations, checking the symmetricity of a Matrix.  
Functions -Modular programming: Function basics, parameter passing, storage classes (extern, auto, register, static), scope rules, block structure, user defined functions, standard library functions, recursive functions. Recursive solutions for Fibonacci series and Towers of Hanoi. Header files, C pre-processor. Examples C programs on Passing 1-D arrays and 2-D arrays to functions.
- UNIT-IV** Pointers: Pointers concepts, initialization of pointer variables, pointers and function arguments, passing by address – dangling memory, address arithmetic, Character pointers and functions, pointers to pointers, pointers and multidimensional arrays, dynamic memory management functions, command line arguments.
- UNIT-V** Enumerated, Structure and Union: Derived types – structures, structure declaration, definition and initialization of structures, accessing structures, nested structures, arrays of structures, structures and functions, pointers to structures, self referential structures, unions, typedef, bit-fields, program applications.  
File Handling: Input and output – concept of a file, text files and binary files, Formatted I/O, file I/O operations, example programs.

## Text Books:

1. “The C –Programming Language” by B.W. Kernighan, Dennis M. Ritchie, PHI “
2. “Programming in C” by E. Balagurusamy (TMH)

## Reference Books:

1. “C Programming: A Problem - Solving Approach” by Forouzan, E. V. Prasad, Giliberg, Cengage, 2010.
2. “Programming in C” by Stephen G. Kochan, 3/e Pearson, 2000
3. “C Programming Laboratory Handbook For Beginners” by Sidnal, Wiley India.

## Course Outcomes:

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

1. Use and differentiate between basic concepts of computer hardware and software.
2. Use data representation for the fundamental data types in C and perform conversions between binary-hexadecimal-decimal date representations.
3. Read, understand and trace the execution of programs written in C language
4. Analyze problems and design algorithms in pseudo code.
5. Write C program for a given algorithm using modular approach

# Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program:	<b>Bachelor of Engineering</b>	Semester:	<b>III</b>
Branch:	<b>Computer Science &amp; Engineering</b>		
Subject:	<b>Computer Concepts &amp; Web Technology</b>	Code:	<b>322355(22)</b>
Total Theory Periods:	<b>40</b>	Total Tutorial Periods:	<b>10</b>
Class Tests:	<b>Two (Minimum)</b>	Assignments:	<b>Two (Minimum)</b>
ESE Duration:	<b>Three Hours</b>	<b>Maximum Marks: 80</b>	<b>Minimum Marks: 28</b>

## Course Objectives:

1. To understand the basics of a Computer.
2. To learn basics of network and internet.
3. Write a valid standards-conformant -including hyperlinks, images, lists, tables, and forms
4. Use CSS to implement a variety of presentation effects in HTML and XML documents.
5. Demonstrate techniques for improving the accessibility of an HTML document

- UNIT-I** Computer Basics:ASICS,Computer Generations and Classification, Algorithms, Characteristics of computers, Input/output Units, Description of a processor, Computer Languages (Machine, Assembly, High Level), Introduction of operating system, Functions of operating system, Single User and Multi-user operating systems, Introduction to systems software. Different storage media-CDROM, DVD, BD(Blue Ray Disk ), HDD.
- UNIT-II** Network:Introduction of computer networks - LAN, MAN, WAN, Internet & Intranet, Asynchronous, Synchronous and Isochronous, Transmission Mode  
Internet: Internet, Connecting to Internet: Telephone, Cable, Satellite connection, Choosing an ISP, Introduction to Internet services, E-Mail concepts, Sending and Receiving secure E-Mail, Voice and Video Conferencing. Protocols governing the web, web development strategies, Web applications.
- UNIT- III** WWW: Understanding the WWW and the Internet, Emergence of Web, Web Servers, Web Browsers, Protocols, Building Web Sites  
HTML:Planning for designing Web pages, Model and structure for a Website, Developing Websites, Basic HTML using images links, Lists, Tables and Forms, Frames for designing a good interactive website CSS; XML: Document Type Definition (DTD), Namespaces, XML schemes, presenting and using XML, Entities, XSL, XLINK, XPATH, XPOINTER, XML Parser, Applications, Integrating XML with other applications.
- UNIT-IV** JAVA SCRIPT:Programming Fundamentals, Statements, Expressions, Operators, Popup Boxes, Control Statements, Try.... Catch Statement, Throw Statement, and Objects of JavaScript: Date object, array object, Boolean object, math object  
CSS:External Style Sheets, Internal Style Sheets, Inline Style, The class selector, div & span tag, introduction to AJAX.
- UNIT-V** DOM: HTML DOM, inner HTML, Dynamic HTML (DHTML), DHTML form, XML DOM.  
CGI/PERL: Introduction to CGI, Testing &debugging Perl CGI script, Using scalar variables and operators in Perl.  
Java Applet:Introduction to Java, Writing Java applets, Life cycle of applet.

## Text Books:

1. Fundamentals of Computer, V. Rajaraman, Prentice-Hall of India
2. Web Warrior Guide to Web Design Technologies, Don Gosselin, Joel Sklar& others, Cengage Learning

## Reference Books:

1. Web Technology and Design by Xavier, C, New Age International
2. HTML, DHTML, Java Script, Perl & CGI by Ivan Bayross, BPB Publication.
3. Internet and Web Design by Ramesh Bangia, New Age International
4. Web Technology: A developer perspective, Gopalan&Akilandeswari, PHI

## Course Outcomes:

After completion of the course students will be able

1. To design web sites utilizing multiple tools and techniques
2. To demonstrate the ability to create dynamic pages that are easy to navigate and easy to update
3. To utilize entry - level system analysis and design principles to solve business problems.
4. To demonstrate the ability to apply testing, debugging, and troubleshooting skills
5. To exhibit the ability to design and implement an internet database.

# Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program:	<b>Bachelor of Engineering</b>	Semester:	<b>III</b>
Branch:	<b>Computer Science &amp; Engineering</b>		
Subject:	<b>Digital Electronics &amp; Logic Design</b>	Code:	<b>322356(28)</b>
Total Theory Periods:	<b>40</b>	Total Tutorial Periods:	<b>10</b>
Class Tests:	<b>Two (Minimum)</b>	Assignments:	<b>Two (Minimum)</b>
ESE Duration:	<b>Three Hours</b>	<b>Maximum Marks: 80</b>	<b>Minimum Marks: 28</b>

## Course Objectives:

1. To study various number systems, knowledge of these number systems is essential in core computer science subjects.
2. To explore brief idea about the different digital circuits which are used to develop the digital devices.
3. Understand the concepts of Memories, Programmable Logic Devices & Digital ICs.
4. To motivate the students to develop their logic to design new digital circuits usable for hardware design.
5. To motivate our students to use these digital circuits in integrated circuit design using VLSI.

- UNIT-I Overview of Boolean algebra and Logic gates:** Codes: Binary codes: Weighted & Non-weighted codes, Sequential codes, self complementing codes, Cyclic codes, 8-4-2-1 BCD code, Excess-3 code, Gray code: Binary to Gray and Gray to binary code conversion, Error detecting code, Error correcting code, 7-bit Hamming code, ASCII code, EBCDIC code. Binary Arithmetic, Boolean Algebra, Minimization of Switching Function, Demorgan's Theorem, Karnaugh's Map Method, Quine-McCluskey's Method (Tabular Method). Basic and Universal logic Gates, Realization of switching functions using gates.
- UNIT-II Digital Logic Families:** Transistor Inverter: Basic Concepts of RTL and DTL; TTL: Open collector gates, TTL subfamilies, IIL, ECL; MOS Logic: CMOS Logic, Dynamic MOS Logic, Interfacing: TTL to ECL, ECL to TTL, TTL to CMOS, CMOS to TTL, and Comparison among various logic families.
- UNIT-III Combinational Circuits:** Adder & Subtractor: Half adder, Full adder, Half-subtractor, Full-subtractor, Parallel Binary adder, Look Ahead carry adder, Serial adder, BCD adder. Code converter, Parity bit generator/Checker, Comparator. Decoder: 3-line to 8-line decoder, 8-4-2-1 BCD to Decimal decoder, BCD to Seven segment decoder. Encoder: Octal to binary and Decimal to BCD encoder. Multiplexer: 2- input multiplexer, 4-input multiplexer. Demultiplexer: 1-line to 4-line, study of Multiplexer as Universal Logic Function Generator.
- UNIT-IV Sequential Circuits:** Flip-Flops and their conversion, Excitation Tables. Introduction to registers and counters: Synchronous and Asynchronous counters and Designing of sequential circuits: code converter and counters. Mod-k and divide by K counters, Counter applications.
- UNIT-V Memories and Machines:** Finite State Machine, Mealy Machine, Moore Machine, Introduction to various semiconductor memories and designing of ROM and PLA & PAL.

## Text Books:

1. R. P. Jain: "Modern Digital electronics", TMH
2. B. Somanathan Nair, "Digital Electronics & Logic Design", Prentice-Hall of India

## Reference Books:

1. R J Tocci, "Digital System principles and Applications"
2. "Digital Electronics" by A.K. Maini, Wiley India.
3. M.M. Mano: "Digital design", PHI.
4. Millman Taub, "Pulse, Digital and Switching Waveforms" TMH
5. M.M. Mano: "Digital logic and computer design", PHI.
6. Floyd: "Digital fundamentals", UBS.

## Course Outcomes:

After completion of this course, students will be able to -

1. Acknowledge about the fundamentals of digital circuit design.
2. Understand the operation of Latch circuits & Flip flops.
3. Take interest to designing & develop ICs in VLSI industries.
4. Learn operation of different Semiconductor Memories.

# Chhattisgarh Swami Vivekanand Technical University, Bilai

Name of program: **Bachelor of Engineering**  
Branch: **Computer Science & Engineering**  
Subject: **Basic Electronics Laboratory**  
Total Lab Periods: **48**  
Maximum Marks: **40**

Semester: **III**  
Code: **322361(28)**  
Batch Size: **30**  
Minimum Marks: **20**

**List of Experiments: (At least Ten experiments are to be performed by each student)**

1. To draw the characteristics of a semi conductor diode and to find cut-in voltage, reverse resistance, static resistance and dynamic resistance.
2. To draw the characteristics of a zener diode
3. To design a half wave rectifier and to determine its efficiency and ripple factor.
4. To design a- full wave rectifier and determine the ripple factor and efficiency with filter.
5. To design a- full wave rectifier and determine the ripple factor and efficiency without filter.
6. To draw the characteristics of FET using BFW – 10
7. To draw the characteristics of CE configuration of a transistor amplifier.
8. To draw the characteristics of CB configuration of a transistor amplifier.
9. To draw the characteristics of CC configuration of a transistor amplifier.
10. To design a Zener regulator circuit and to find the regulation characteristics.
11. To draw the load line of a transistor amplifier under CE configuration.
12. To design and verify the self bias circuit operation.
13. To design and verify the voltage divider biasing circuit.
14. To verify the effect of emitter bypass capacitor.

**List of Equipments/Machine Required:**

Circuit components, Breadboard, Hook-up wire, Power supply, CRO, Function generator

**Recommended Books:**

1. Laboratory Manual for Electronic Devices and Circuits, 4th Ed., David A. Bell, PHI



# Chhattisgarh Swami Vivekanand Technical University, Bilai

Name of program:	<b>Bachelor of Engineering</b>	Semester:	<b>III</b>
Branch:	<b>Computer Science &amp; Engineering</b>	Code:	<b>322362(22)</b>
Subject:	<b>Problem solving &amp; Logic building using C Laboratory</b>		
Total Lab Periods:	<b>48</b>	Batch Size:	<b>30</b>
Maximum Marks:	<b>40</b>	Minimum Marks:	<b>20</b>

## List of Experiments: (At least Ten experiments are to be performed by each student)

1. Write a C program to take the radius of a sphere as input and print the volume and surface area of that sphere.
2. Write a C program to take a 5-digit number as input and calculate the sum of its digits.
3. Write a C program to take three sides of a triangle as input and verify whether the triangle is an isosceles, scalene or an equilateral triangle.
4. Write a C program that will take 3 positive integers as input and verify whether they form a Pythagorean triplet or not.
5. Write a C program to print all prime numbers between a given range of numbers.
6. Write a C program to define a function that will take an integer as argument and return the sum of digits of that integer
7. Write a C program to define a macro that can calculate the greater of two of its arguments. Use this macro to calculate the greatest of 4 integers.
8. Write a C program to define a recursive function that will print the reverse of its integer argument.
9. Write a C program to print the sum of first N even numbers using recursive function.
10. Write a C program to sort an array using Bubble sort technique.
11. Write a C program that will take the elements of two integer arrays of 5 element each, and insert the common elements of both the array into a third array (Set intersection)
12. Write a C program to take 5 names as input and print the longest name.
13. Write a C program to define a structure *Student* that will contain the *roll number*, *name* and *total marks* of a student. The program will ask the user to input the details of 5 students and print the details of all the students whose total marks is greater than a given value.
14. Write a C program to define a union *Contact* that will contain the members *Mobile no* and *E-mail id*. Now define a structure *Employee* that will contain *name*, *UID*, *PhNo*, *emailId* and a variable of type *Contact* as members. The program will ask the user to give the details of five Employees including contact details. Print the details of all the Employees.
15. Write a C program that will ask the user to input a file name and copy the contents of that file into another file.
16. Write a C program that will take any number of integers from the command line as argument and print the sum of all those integers.
17. Write a C program to process sequential file for payroll data.
18. Write a C program to process random file of library data.

## **REQUIRED SOFTWARE/ SOFTWARE TOOL:**

- Linux Operating System and/ or Windows Operating System
- Turbo C/C++ IDE.

## **Recommended Book:**

- 1) C Programming Laboratory by Dr. Nandini S. Sidnal, Wiley India, 2012

# Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program:	<b>Bachelor of Engineering</b>	Semester:	<b>III</b>
Branch:	<b>Computer Science &amp; Engineering</b>	Code:	<b>322363(28)</b>
Subject:	<b>Digital Electronics and Logic Design Laboratory</b>		
Total Lab Periods:	<b>48</b>	Batch Size:	<b>30</b>
Maximum Marks:	<b>40</b>	Minimum Marks:	<b>20</b>

**List of Experiments:** *(At least Ten experiments are to be performed by each student)*

1. To study the characteristics and operations of TTL Inverters, OR, AND, NOR and NAND gate using ICs.
2. To study NAND and NOR gates as a universal logic.
3. To study and prove Demorgan's Theorem .
4. To design Half and Full adder circuits using logic gates.
5. To design Half and full subtractor circuits using logic gates.
6. To study the binary parallel adder.
7. To design 4 bit magnitude comparator circuits.
8. To study the 7 segment decoder .
9. To design 4:16 decoder using two 3:8 decoder and four 2:4 decoder
10. To design 16: 1 Multiplexer using 4:1 Multiplexer.
11. To study various types of flip flops using logic gates and ICs.
12. To design Mode-N and divide by K counter.
13. To construct a 4 bit binary to gray converter and vice versa using IC 7486 .
14. To study Up-Down counter.
15. To study programmable shift registers.

**List of Equipments /Machine Required:**

- Logic gate trainer
- Digital ICs Trainer
- Various ICs 7400,7402,7404,7408,7432,7486,74138,74151,74155 etc.

**Recommended Books:**

M.M. Mano : "Digital Logic and Computer Design"

# Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program: **Bachelor of Engineering**  
Branch: **Computer Science & Engineering**  
Subject: **Web Technology Laboratory**  
Total Lab Periods: **48**  
Maximum Marks: **40**

Semester: **III**  
Code: **322364(22)**  
Batch Size: **30**  
Minimum Marks: **20**

## List of Experiments: (At least Ten experiments are to be performed by each student)

1. To Develop and demonstrate a XHTML document that illustrates the use external style sheet, ordered list, table, borders, padding, color, and the <span> tag.
2. To Develop and demonstrate a XHTML file that includes JavaScript script for the following problems:
  - a) Input: A number n obtained using prompt, Output: The first n Fibonacci numbers
  - b) Input: A number n obtained using prompt, Output: A table of numbers from 1 to n and their squares using alert
3. To Develop and demonstrate a XHTML file that includes Javascript script that uses functions for the following problems:
  - a) Parameter: A string, Output: The position in the string of the left-most vowel
  - b) Parameter: A number, Output: The number with its digits in the reverse order
4. To Develop and demonstrate, using Javascript script, a XHTML document that collects the RollNo ( the valid format is: A digit from 1 to 4 followed by two upper-case characters followed by two digits followed by two upper-case characters followed by three digits; no embedded spaces allowed- e.g. 1AB23CD356, 1GC13CS345) of the user. Event handler must be included for the form element that collects this information to validate the input. Messages in the alert windows must be produced when errors are detected.
5. To Modify the above program to get the current semester also (restricted to be a number from 1 to 8)
6. To Develop and demonstrate, using JavaScript script, a XHTML document that contains three short paragraphs of text, stacked on top of each other, with only enough of each showing so that the mouse cursor can be placed over some part of them. When the cursor is placed over the exposed part of any paragraph, it should rise to the top to become completely visible.
7. To Modify the above document so that when a paragraph is moved from the top stacking position, it returns to its original position rather than to the bottom
8. To Design an XML document to store information about a student in an engineering college affiliated to CSVTU. The information must include RollNo, Name, Name of the College, Branch, Year of Joining, and e-mail id. Make up sample data for 5 students. Create a CSS style sheet and use it to display the document.
9. To Create an XSLT style sheet for one student element of the above document and use it to create a display of that element.
10. To Write a Perl program to display various Server Information like Server Name, Server Software, Server protocol, CGI Revision etc.
11. To Write a Perl program to accept UNIX command from a HTML form and to display the output of the command executed.
12. To Write a Perl program to accept the User Name and display a greeting message randomly chosen from a list of 4 greeting messages.
13. To Write a Perl program to keep track of the number of visitors visiting the web page and to display this count of visitors, with proper headings.
14. To Write a Perl program to display a digital clock which displays the current time of the server.
15. To Write a Perl program to insert name and age information entered by the user into a table created using MySQL and to display the current contents of this table.
16. To Write a PHP program to store current date-time in a COOKIE and display the "Last visited on" date-time on the web page upon reopening of the same page.
17. To Write a PHP program to store page views count in SESSION, to increment the count on each refresh, and to show the count on web page.
18. To Create a XHTML form with Name, Address Line 1, Address Line 2, and E-mail text fields. On submitting, store the values in MySQL table. Retrieve and display the data based on Name.
19. To Using PHP and MySQL, develop a program to accept book information viz. Accession number, title, authors, edition and publisher from a web page and store the information in a database and to search for a book with the title specified by the user and to display the search results with proper headings.

## **List of equipments/Machine/Software required:**

Dual Core/Core I3 PC, Ubuntu/Fedora/Debian or any Open Source operating System, Mozilla Firefox/Netscape Navigator Web Browser.

## **Recommended Books:**

1. HTML Complete Reference- Tata McGraw hill
2. HTML and XML: An Introduction NIIT, Prentice-Hall of India
3. Building Enhanced HTML Help with DHTML and CSS by Jeannine M.E.Klien. Pearson Education
4. HTML for the World Wide Web, Fifth Edition, with XHTML and CSS
5. Visual QuickStart Guide 5th Edition Elizabeth Castro, Pearson Education Sams Teach Yourself HTML & XHTML in 24 Hours 6th Edition Dick Oliver, Michael Morrison, Pearson Education

# Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of program:	<b>Bachelor of Engineering</b>		
Branch:	<b>Computer Science &amp; Engineering</b>	Semester:	<b>III</b>
Subject:	<b>Value Education</b>	Code:	<b>322365(46)</b>
No. Of Periods:	<b>2 Periods/Week</b>	Total Tutorial Periods:	<b>NIL</b>
<b>Maximum Marks:</b>	<b>40</b>	<b>Minimum Marks:</b>	<b>24</b>

## Course Objectives:

1. This course is designed to provide the importance of education with why, what & how.
2. To impart students with an understanding of fundamental humanitarian viewpoint and its outcomes.
3. To provide the knowledge about whole existence and its impact on values.
4. To bring the awareness about life long exercise so that they can fulfill their responsibility towards themselves, the family, the society, the planet.

**UNIT-I Aim of Education and Necessity for Value Education:** Education in values/wisdom/etc and education in traits/technologies/etc as the two fundamental strands of education; Answer to the frequently asked questions such as “Why to do studies”, “What studies to do in overall”, “How to do studies in a proper way”, “How to think systematically and talk systematically”

**UNIT-II Humanitarian Viewpoint and Basic Human Objective:** Meaning and concept of happiness, Need for a fundamental viewpoint to judge things in all cases of human concerns, Proposal of the natural path of humanitarian coexistentialism; Consciousness development and its expression; Fundamental want of sustainable happiness in human being; Understanding the distinct activities and needs of self (I) and body in human being; Fundamental goal of human being; Sustainable-solution in individual (At the place of delusion); Sustainable-prosperity in family (At the place of poverty); Sustainable-cooperation in society (At the place of competition); Sustainable-coexistence in planet (At the place of struggle)

**UNIT-III Elements of Holistic and Systematic Perspective:** Need for study of fundamental information categories to develop holistic perspective; Particular-time actions and general-time laws; Need for fundamental information sequence to develop systematic perspective, Some examples for systematic study sequence

**UNIT-IV Elements of Society-friendly and Environment-friendly Goals:** Elements of Knowledge of whole existence; Elements of Knowledge of human being; Elements of fundamental Values and Wisdom; Value spectrum with reference to general relationships and particular relationships of the objects in nature; Elements of History and Contemporarity used to set current goals; Elements of Sciences and Techniques to formulate methods to achieve goals; Elements of Motoricity and Mattericity to make actions to execute the methods

**UNIT-V Lifelong Exercise for All-round Sustainability:** Collecting information for sustainability issues; Motivating people towards sustainable life-style; Ability to identify and develop appropriate technologies and management patterns for society-friendly and environment-friendly systems for production /protection/ utilization/ experimentation ; Ability to establish and execute the fundamental five-fold system in order to ensure sustainable peace-and-prosperity worldwide.

## Text Books:

Value Education for Consciousness Development by Dr P B Deshmukh, Radha K Iyer, and Deepak K Kaushik (2<sup>nd</sup> Edition, 2012, ISBN: 978-81-924034-0-3)

## Reference Books:

1. International Research Handbook on Values Education and Student Wellbeing by Terence Lovat, Ron Toomey, Neville Clement (Eds.), Springer 2010, ISBN: 978-90481-86747
2. Values Education and Lifelong Learning: Principles, Policies, Programmes by David N Aspin and Judith D Chapman (Eds.); Springer 2007, ISBN: 978-1-4020-6183-7
3. Fundamentals of Ethics for Scientists and Engineers by E G Seebaur and Robert L Berry, 2000, Oxford University Press