# Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

## Name of Program: B.Tech. in Computer Science and Engineering

| SUBJECT CODE | Category | SUBJECT NAME | THEORY | | | PRACTICAL | | Th | T | P | CREDITS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | END SEM University Exam | Two Term Exam | Teachers Assessment* | END SEM University Exam | Teachers Assessment* | | | | |
| BTEC104 | EC | Digital Logic & Circuit Design | 60 | 20 | 20 | 30 | 20 | 3 | 1 | 2 | 5 |

Legends: Th - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
Q/A – Quiz/Assignment/Attendance, MST Mid Semester Test.
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

**Course Educational Objectives:-**
The objective of this course is to-
1. Use of Boolean algebra and Karnaugh Map to simplify logic function.
2. Describe the operation of different Combinational and Sequential Logic Circuits.

**Course Outcomes:**
After completion of this course the students will be able to-
1. Design an optimal digital logic circuit to meet the given specifications.
2. Evaluate the performance of the given digital logic circuit based on specific criteria for reliable system implementation.

**UNIT I**

**Number System:** Introduction to number systems: Decimal, Binary, Octal and Hexadecimal, Base Conversion. Signed Binary Numbers: Signed magnitude, 1's Complement and 2's Complement representation and their arithmetic operations, 32-bit Floating point representation,
**Codes:** Types of code, Binary code, BCD, Gray code, Excess-3. BCD Addition, Code Conversion, Error Detecting and Correcting code: Even and Odd Parity, Hamming code.

**UNIT II**

**Boolean algebra and Logic gates:** Introduction to logic gates, Boolean Laws, De-morgan's theorem, Consensus theorem, Implementation using logic gates, Simplification of Boolean Expression using Boolean Laws, Canonical and Standard (SOP and POS) forms. Universal gates, NAND-NOR implementation of logic functions. Karnaugh Maps (K-maps), Minimization of logic functions using K-map. Don't Care Conditions.

**UNIT III**

**Combinational circuits:** Arithmetic circuits- Half adder, Full adder, Half subtractor, Full subtractor, Parallel Adder, BCD adder, Multiplexer, De-multiplexer, Encoder and Decoder. Design of Combinational circuits using Multiplexer and Decoder.

## UNIT IV

**Sequential Circuits:** Introduction, Asynchronous and Synchronous Sequential circuits, Latches and Flip Flops: SR, D, JK and T. Characteristic equation, Characteristic and Excitation table. Master-Slave Flip-flop, Race around conditions, Flip flop conversion.

## UNIT V

**Applications of Flip-flop:**
**Shift Register:** SISO, SIPO, PISO, PIPO, Left and Right Shift Register, Bidirectional Shift Register.
**Counter:** Ring counter, Johnson Counter, Asynchronous Up/down counter, Synchronous Up/down counters: State diagram, state table and realization, Mod-N Counter.

## Text Books:

1. M. Morris Mano, "Digital Logic and Computer Design", Pearson Education, 2016.
2. S Salivahanan and S Arivazhagan: Digital Circuits and Design, 4th Edition, Vikas Publishing House, 2012.

## Reference Books:

1. A. Anand Kumar, "Fundamentals of Digital Circuits", 4th Edition, PHI, 2016.
2. Floyd and Jain, "Digital Fundamentals", 10th Edition, Pearson Education India, 2011.
3. Roland J. Tocci, Widmer, Moss, "Digital Systems Principles and Applications", 10th Edition, Pearson 2009.
4. Stephen Brown, Zvanko Vranesic, "Fundamentals of Digital Logic Design", 3rd Edition, McGraw Hill, 2017.

## List of experiments:

1. To study the operation of various logic gates and verify their truth tables.
2. To verify De morgans theorem
3. To verify the versatility of NAND and NOR gates
4. To compare and verify standard SOP/POS expression with minimized Boolean form using K-map.
5. To design and verify Adder and subtractor circuits.
6. To design and verify multiplexer and demultiplexer using basic logic gates.
7. To realize 4-bit parallel adder circuit.
8. To design and verify encoder and decoder circuits using ICs.
9. To verify the truth table of different flip flops.
10. To verify the functionality of shift register.
11. To verify the functionality of counter circuit.

# Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
## Shri Vaishnav Institute of Information Technology
## Choice Based Credit System (CBCS) in the Light of NEP-2020
## B.Tech. (Non CSE & IT Branch)
## (2021-2025)

| COURSE CODE | CATEGORY | COURSE NAME | TEACHING&EVALUATION SCHEME | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | THEORY | | | PRACTICAL | | | | | |
| | | | ENDSEM University Exam | Two Term Exam | Teachers Assessment* | ENDSEM University Exam | Teachers Assessment* | L | T | P | CREDITS |
| BTCS101 | BEC | COMPUTER PROGRAMMING-I | 0 | 0 | 0 | 30 | 20 | 0 | 0 | 2 | 1 |

**Legends**: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical;   **C** - Credit;
**\*Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

## Course Objectives:
1.    To introduce the fundamental concepts of computer programming.
2.    To design programs in C involving different data types, decision structures, loops and functions, arrays and pointers.
3.    To equip students with techniques for developing structured computer programs.
4.    To equip students with sound skills in C/C++ programming language.

## Course Outcomes:
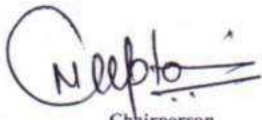### Upon completion of the course, students will be able to:
1.    Understand the basic terminologies used in computer programming.
2.    Be proficient in using the basic constructs of C/C++, to develop a computer program.
3.    Understand the use of functions, pointers, arrays and files in programming.
4.    Understand the fundamentals of object-oriented programming and be able to apply it in computer program development.
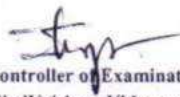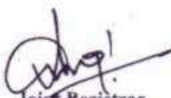
## Syllabus

### Unit - I

**Introduction to Programming Languages**: Introduction to Programming Language; Types of Programming Languages – Machine-level, Assembly-level and High-level Languages, Scripting Languages, Natural Languages, Advantages and Limitations of programming language, High-

Chairperson
Board of Studies
ShriVaishnavVidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
ShriVaishnavVidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
ShriVaishnavVidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
ShriVaishnavVidyapeeth
Vishwavidyalaya, Indore

# Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
## Shri Vaishnav Institute of Information Technology
## Choice Based Credit System (CBCS) in the Light of NEP-2020
## B.Tech. (Non CSE & IT Branch)
## (2021-2025)

| COURSE CODE | CATEGORY | COURSE NAME | TEACHING&EVALUATION SCHEME | | | | | | | | |
| | | | THEORY | | | PRACTICAL | | | | | |
| | | | ENDSEM University Exam | Two Term Exam | Teachers Assessment* | ENDSEM University Exam | Teachers Assessment* | L | T | P | CREDITS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BTCS101 | BEC | COMPUTER PROGRAMMING-I | 0 | 0 | 0 | 30 | 20 | 0 | 0 | 2 | 1 |

**Legends**: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

level Programming Language Tools – Compiler, Linker, Interpreter, Intermediate Language Compiler and Interpreter, Editor, MATLAB, GUI, Overview of some popular High level Languages – FORTRAN, COBOL, BASIC, Pascal, C, C++, JAVA, LISP, Characteristics of a Good Programming Language.

## Unit - II

**Design of Program**: Introduction to Algorithms, Complexities and Flowchart, Introduction to Programming, Categories of Programming Languages, Program Design, programming language processing, Algorithm / pseudo code, program development steps, selecting a Language out of many Available Languages for Coding an Application, Subprograms and subroutines.

## Unit - III

**Basics of C language** : Introduction to C language, Basic Programming concepts, Program structure in C ,header files, C preprocessor, Variables and Constants, Data types, User Defined Data Types – Structure and Union, Conditional statements, control statements, Functions, Arrays, Structures, pointers, strings, File Systems, c preprocessor and macro expansion.

Structure of C program, Expressions, type conversion, selection making decisions, initialization and updating, loops in C, Standard Library functions, Control Structures, Loop Structures, Functions, Scope Rule of Functions, Calling Convention, Advanced Features of Functions.

Chairperson
Board of Studies
ShriVaishnavVidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
ShriVaishnavVidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
ShriVaishnavVidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
ShriVaishnavVidyapeeth
Vishwavidyalaya, Indore

# Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
## Shri Vaishnav Institute of Information Technology
## Choice Based Credit System (CBCS) in the Light of NEP-2020
## B.Tech. (Non CSE & IT Branch)
## (2021-2025)

| COURSE CODE | CATEGORY | COURSE NAME | TEACHING&EVALUATION SCHEME | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | THEORY | | | PRACTICAL | | | | | |
| | | | ENDSEM University Exam | Two Term Exam | Teachers Assessment* | ENDSEM University Exam | Teachers Assessment* | L | T | P | CREDITS |
| BTCS101 | BEC | COMPUTER PROGRAMMING-I | 0 | 0 | 0 | 30 | 20 | 0 | 0 | 2 | 1 |

**Legends**: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
**\*Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

## Unit - IV

**C Programming :** Arrays - Pointers and arrays, two-dimensional arrays, arrays of pointer, String Manipulation functions, Structures & Unions, Processing and use of structures, arrays of structure.
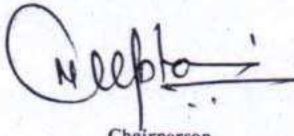
Pointers - Operations on Pointers, Pointers and Multidimensional Arrays, Array of pointers, pointers to pointers, bitwise operators, and dynamic memory managements functions.
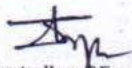
Files - File creation, File processing, Opening and closing a file, text files and binary files, streams, error handling.

## Unit - V

**C++ Programming**: Introduction to C++, Tokens, expressions and control structures, Functions in C++, Basic principles of Object Oriented Programming.

<table>
<tr><td>Chairperson<br>Board of Studies<br>ShriVaishnavVidyapeeth<br>Vishwavidyalaya, Indore</td><td>Chairperson<br>Faculty of Studies<br>ShriVaishnavVidyapeeth<br>Vishwavidyalaya, Indore</td><td>Controller of Examination<br>ShriVaishnavVidyapeeth<br>Vishwavidyalaya, Indore</td><td>Joint Registrar<br>ShriVaishnavVidyapeeth<br>Vishwavidyalaya, Indore</td></tr>
</table>

# Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
## Shri Vaishnav Institute of Information Technology
## Choice Based Credit System (CBCS) in the Light of NEP-2020
## B.Tech. (Non CSE & IT Branch)
## (2021-2025)

| Course code | Category | Course name | TEACHING&EVALUATION SCHEME | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | THEORY | | | PRACTICAL | | | | | |
| | | | ENDSEM University Exam | TwoTerm Exam | Teachers Assessment* | ENDSEM University Exam | Teachers Assessment* | L | T | P | CREDITS |
| BTCS101 | BEC | COMPUTER PROGRAMMING-I | 0 | 0 | 0 | 30 | 20 | 0 | 0 | 2 | 1 |

**Legends**: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical;   **C** - Credit;
**\*Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

## Text Books:

1.      Fundamentals of Computers: E Balagurusamy, TMH

2.      Fundamentals of Computers: V Rajaraman, PHI

3.      Yashavant P. Kanetkar. "Let Us C", BPB Publications, 2011.

4.      Robert Lafore, "Object Oriented Programming in C++", SAMS Publication.
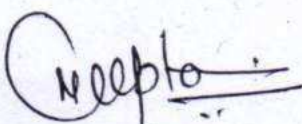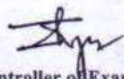
## References:

1.      Byron S Gottfried, "Programming with C", Schaum's Outlines, Second Edition, Tata McGraw-Hill, 2006

2.      Herbert Schildt, "The Complete Reference", 4th Edition, MGH Publication.

3.      Dromey R.G., "How to Solve it by Computer", Pearson Education, Fourth Reprint, 2007

## Practical's List:

1.      Study of procedural programming paradigm and object-oriented programming paradigm.

2.      To demonstrate use of data types.

| Chairperson | Chairperson | Controller of Examination | Joint Registrar |
| --- | --- | --- | --- |
| Board of Studies | Faculty of Studies | ShriVaishnavVidyapeeth | ShriVaishnavVidyapeeth |
| ShriVaishnavVidyapeeth | ShriVaishnavVidyapeeth | Vishwavidyalaya, Indore | Vishwavidyalaya, Indore |
| Vishwavidyalaya, Indore | Vishwavidyalaya, Indore | | |

# Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
## Shri Vaishnav Institute of Information Technology
## Choice Based Credit System (CBCS) in the Light of NEP-2020
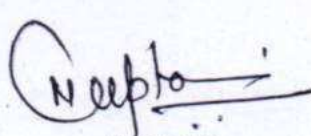## B.Tech. (Non CSE & IT Branch)
## (2021-2025)

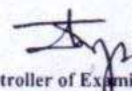| COURSE CODE | CATEGORY | COURSE NAME | TEACHING&EVALUATION SCHEME | | | | | | | | CREDITS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | THEORY | | | PRACTICAL | | | | | |
| | | | ENDSEM University Exam | TwoTerm Exam | Teachers Assessment* | ENDSEM University Exam | Teachers Assessment* | L | T | P | |
| BTCS101 | BEC | COMPUTER PROGRAMMING-I | 0 | 0 | 0 | 30 | 20 | 0 | 0 | 2 | 1 |

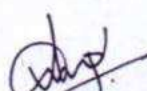**Legends**: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical;   **C** - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

3.    Write a program on operators (Arithmetic Operator, Relational Operators and Conditional Operators etc.).

4.    Write a program using decision making statements (switch case, if and if-else, nested structures).

5.    Write a program using simple loops and nested loops.(For, While, Do-While Loop)

6.    Write a program to user defined functions using C. .

7.    Write a program for recursive functions.

8.    Write a program for array and multidimensional array (2-d arrays).

9.    Write a program of pointers and strings (strings and pointers).

10.    Write a program of dynamic memory allocation using calloc(), malloc() and realloc().

11.    Write a program on structure and union.

12.    Write a program in C++ using (i) if-then-else (ii) loops

13.    Write a program illustrate Function in C++

14.    Write a program for Operator overloading in C++.

| Chairperson | Chairperson | Controller of Examination | Joint Registrar |
|---|---|---|---|
| Board of Studies | Faculty of Studies | ShriVaishnavVidyapeeth | ShriVaishnavVidyapeeth |
| ShriVaishnavVidyapeeth | ShriVaishnavVidyapeeth | Vishwavidyalaya, Indore | Vishwavidyalaya, Indore |
| Vishwavidyalaya, Indore | Vishwavidyalaya, Indore | | |

# Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
## Shri Vaishnav Institute of Information Technology
## Choice Based Credit System (CBCS) in the Light of NEP-2020
## B.Tech. (Non CSE & IT Branch)
## (2021-2025)

| COURSE CODE | CATEGORY | COURSE NAME | TEACHING&EVALUATION SCHEME | | | | | | | | CREDITS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | THEORY | | | PRACTICAL | | | | | |
| | | | ENDSEM University Exam | Two Term Exam | Teachers Assessment* | ENDSEM University Exam | Teachers Assessment* | L | T | P | |
| BTCS101 | BEC | COMPUTER PROGRAMMING-I | 0 | 0 | 0 | 30 | 20 | 0 | 0 | 2 | 1 |

**Legends**: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
**\*Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

15. Write a program for nested function call.

16. Write a program of call by value using C++

17. Write a program of call by reference using C++

18. Write a program for Inline Function.

19. Write a program for Friend Function.

20. Write a program of dynamic memory management using new and delete.

21. Write a program on file handling using C++ .

Chairperson
Board of Studies
ShriVaishnavVidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
ShriVaishnavVidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
ShriVaishnavVidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
ShriVaishnavVidyapeeth
Vishwavidyalaya, Indore

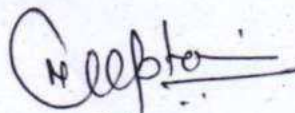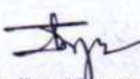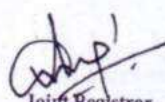# Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
## Shri Vaishnav Institute of Technology and Science
### Choice Based Credit System (CBCS) Scheme in light of NEP-2020
### B. Tech/B.Tech+MBA in Mechanical Engineering
### (2023-2027)

| COURSE CODE | CATEGORY | COURSE NAME | TEACHING &EVALUATION SCHEME | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | THEORY | | | PRACTICAL | | | | | |
| | | | END SEM University Exam | Two Term Exam | Teachers Assessment* | END SEM University Exam | Teachers Assessment* | L | T | P | CREDITS |
| BTME101 | BEC | ENGINEERING DRAWING | 60 | 20 | 20 | 30 | 20 | 1 | 0 | 4 | 3 |

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

## Course Educational Objectives (CEOs):
To familiarize with concepts of (A) scale, conic sections and engineering curves (B) projections of points and line in all quadrants; (C)construction of geometrical figures& solids, with its orientation on horizontal and vertical planes, and its projection; section of solid, (D)development of solid and isometric projection view.

## Course Outcomes:
After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes:
1. Student would be able to draw scale, conic sections and engineering curves.
2. Student would be able to draw projection of point and line; identify the use of these concepts in practical life.
3. Students would be able to understand plain & 3D model at various orientations and draw their projection.
4. Student would be able to draw the projections of with and without sectioning of solid models and surface development.
5. Students would be able to understand the difference between orthographic view and isometric projections.

## Syllabus:

### UNIT I                                                                 (8 Hrs)
**Scales, Conic Section & Engineering Curves Scales:** Representative Factor, types of scales, principle and construction of different scales
**Conic Section:** Construction of ellipse, parabola and hyperbola by different methods; Normal and Tangent
**Engineering Curves:** Cycloid, Epicycloids, Hyper cycloid, Involutes, Archimedean and Logarithmic spirals

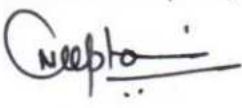### UNIT II                                                               (9 Hrs)
**Projection of Points & Line Projection:** Introduction to projection, Types of projection, terminology, first angle and third angle
**Projection of Points:** Introduction of point, conventional representation

Chairperson
Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of
Examinations
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

# Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
## Shri Vaishnav Institute of Technology and Science
## Choice Based Credit System (CBCS) Scheme in light of NEP-2020
## B. Tech/B.Tech+MBA in Mechanical Engineering
## (2023-2027)

| COURSE CODE | CATEGORY | COURSE NAME | TEACHING & EVALUATION SCHEME | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | THEORY | | | PRACTICAL | | L | T | P | CREDITS |
| | | | END SEM University Exam | Two Term Exam | Teachers Assessment* | END SEM University Exam | Teachers Assessment* | | | | |
| BTME101 | BEC | ENGINEERING DRAWING | 60 | 20 | 20 | 30 | 20 | 1 | 0 | 4 | 3 |

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

**Projection of Lines:** Introduction of straight line, orientation of straight line, true inclination and true length, concepts of end projectors, plan and traces and auxiliary planes.

### UNIT III                                                        (9 Hrs)
**Projections of Planes:** Introduction of planes, types of planes, orientation of planes, projection of planes in different positions, traces of planes
**Projection of Solids:** Introduction of solids, classification of solids, recommended naming of corners of solids, orientation of solids

### UNIT IV                                                         (8 Hrs)
**Section of Solids:** Introduction of section of solids, terminology, types of section planes, section of prisms, section of pyramid and section of composite solids
**Development of Surfaces:** Introduction of development of surfaces, classification of surfaces, methods of development, development of prisms, pyramids, cylinder and cone, anti-development

### UNIT V                                                          (7 Hrs)
**Isometric Projections:** Introduction of isometric projection, terminology, isometric projections and isometric views, isometric views of planes, right solids, truncated solids and composite solids.
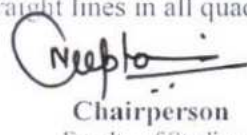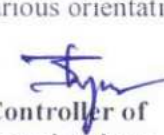
### Text and Reference Books:
1. "Engineering Graphics" by P.I. Varghese, McGraw Hill Edu., 2012.
2. "Engineering Drawing and graphics" by K. Venugopal, New Age (I) Pub., 2004.
3. "Engineering Drawing" by N.D. Bhatt, Charotar Publishing House, 2014.
4. "Engineering Drawing" by Basant Agarwal & C.M. Agarwal, McGraw Hill Edu., 2013.
5. "Engineering Drawing" by P.S. Gill, S.K. Kataria & Sons, 2013.

### List of Experiments:
1. Drawing various types of scales using representative fraction.
2. Drawing various conics section.
3. Projection of points in all quadrants.
4. Projection of straight lines in all quadrants in various orientations.

| Chairperson | Chairperson | Controller of | Joint Registrar |
|---|---|---|---|
| Board of Studies | Faculty of Studies | Examinations | Shri Vaishnav Vidyapeeth |
| Shri Vaishnav Vidyapeeth | Shri Vaishnav Vidyapeeth | Shri Vaishnav Vidyapeeth | Vishwavidyalaya, Indore |
| Vishwavidyalaya, Indore | Vishwavidyalaya, Indore | Vishwavidyalaya, Indore | |

# Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
## Shri Vaishnav Institute of Technology and Science
### Choice Based Credit System (CBCS) Scheme in light of NEP-2020
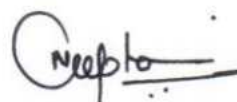### B. Tech/B.Tech+MBA in Mechanical Engineering
### (2023-2027)

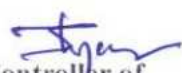| COURSE CODE | CATEGORY | COURSE NAME | TEACHING & EVALUATION SCHEME | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | THEORY | | | PRACTICAL | | L | T | P | CREDITS |
| | | | END SEM University Exam | Two Term Exam | Teachers Assessment* | END SEM University Exam | Teachers Assessment* | | | | |
| BTME101 | BEC | ENGINEERING DRAWING | 60 | 20 | 20 | 30 | 20 | 1 | 0 | 4 | 3 |

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

5. Projection of geometrical planes with various orientations.
6. Projection of solid models with various orientations.
7. Projection of section of solids by using various types of cutting planes.
8. Drawing development of surface using various methods of prisms, pyramids, cone, cylinder, etc.
9. Drawing anti- development of surfaces.
10. Drawing isometric projections using various methods and isometric views.

<table>
<tr><td>Chairperson<br>Board of Studies<br>Shri Vaishnav Vidyapeeth<br>Vishwavidyalaya, Indore</td><td>Chairperson<br>Faculty of Studies<br>Shri Vaishnav Vidyapeeth<br>Vishwavidyalaya, Indore</td><td>Controller of<br>Examinations<br>Shri Vaishnav Vidyapeeth<br>Vishwavidyalaya, Indore</td><td>Joint Registrar<br>Shri Vaishnav Vidyapeeth<br>Vishwavidyalaya, Indore</td></tr>
</table>

**Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore**
**Shri Vaishnav Institute of Social Sciences, Humanities and Arts**
**Choice Based Credit System (CBCS) in Light of NEP-2020**
**HUMANITIES**
Semester I / Semester II

| COURSE CODE | CATEGORY | COURSE NAME | TEACHING &EVALUATION SCHEME | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | THEORY | | | PRACTICAL | | L | T | P | CREDITS |
| | | | END SEM University Exam | Two Term Exam | Teachers Assessment* | END SEM University Exam | Teachers Assessment* | | | | |
| HUCS101 | AECC | Communication Skills | 60 | 20 | 20 | - | 20 | 1 | 0 | 2 | 2 |

**Legends**: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
**\*Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

## Course educational Objectives (CEOs): The students will be

- **CEO1** Provided an overview of Business Communication and an outline to effective Organizational Communication.
- **CEO2**  Explained ways to put in use the basic mechanics of Grammar.
- **CEO3** Understand the features of listening and reading skills.
- **CEO4**  Imparted the nuances of Business correspondence and different types of letter writing required in an official setup.
- **CEO5**  Imparted the different types of Reports used in an organizational setup.

## Course Outcomes (Cos): The students will be able to

- **CO1** Demonstrate strong conceptual knowledge of organizational communication and its different barriers and at the same time develop an understanding of verbal and non verbal communication in a business set up.
- **CO2** Demonstrate his/her ability to write error free sentences and speak in the required Communicative competence.
- **CO3**  Understand and the different aspects of  listening and reading
- **CO4** Draft effective business correspondence (letters) with brevity and clarity depending on the various prescribed formats.
- **CO5** Delineate effective business reports with brevity and clarity depending on the various prescribed Formats.

# COURSE CONTENTS:

**UNIT I**

Communication: Nature, Meaning, Definition, Process, Verbal and Non Verbal Communication, channels of communication, Barriers to Communication.

**UNIT II**
**Basic Language Skills**:  Grammar and usage- Parts of Speech, Tenses, S-V Agreement, Preposition,

# Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
## Shri Vaishnav Institute of Social Sciences, Humanities and Arts
## Choice Based Credit System (CBCS) in Light of NEP-2020
## HUMANITIES
### Semester I / Semester II

| COURSE CODE | CATEGORY | COURSE NAME | TEACHING &EVALUATION SCHEME | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | THEORY | | | PRACTICAL | | L | T | P | CREDITS |
| | | | END SEM University Exam | Two Term Exam | Teachers Assessment* | END SEM University Exam | Teachers Assessment* | | | | |
| HUCS101 | AECC | Communication Skills | 60 | 20 | 20 | - | 20 | 1 | 0 | 2 | 2 |

**Legends**: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
**\*Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Articles.

## UNIT III
## Listening and Reading Skills
Listening: Process, Types, Difference between Hearing and Listening, Barriers to Effective Listening, Developing Reading Skills: Reading Comprehension, Process, Reading speed Strategies, SQ3R Reading technique.

## UNIT IV
**Business Correspondence**: Business Letter, Parts & Layouts of Business letters, Calling/ Sending Quotations/ Orders/ Complaints, Resume and Job application.

## UNIT V
**Technical Report Writing**: Definition, Types, Importance, Structure of a Report.

**Practical:**
- Self Introduction
- Oral Presentation
- Linguistics and Phonetics
- Group Discussion

## Suggested Readings

- Ashraf Rizvi.(200**5).** *Effective Technical Communication*. New Delhi:Tata Mc Graw Hill
- Adair, John (2003). Effective Communication. London: Pan Macmillan Ltd.

| **Chairperson** | **Chairperson** | **Controller of Examination** | **Joint Registrar** |
| --- | --- | --- | --- |
| **Board of Studies** | **Faculty of Studies** | **Shri Vaishnav Vidyapeeth** | **Shri Vaishnav Vidyapeeth** |
| **Shri Vaishnav Vidyapeeth** | **Shri Vaishnav Vidyapeeth** | **Vishwavidyalaya, Indore** | **Vishwavidyalaya, Indore** |
| **Vishwavidyalaya, Indore** | **Vishwavidyalaya, Indore** | | |

**Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore**
**Shri Vaishnav Institute of Social Sciences, Humanities and Arts**
**Choice Based Credit System (CBCS) in Light of NEP-2020**
**HUMANITIES**
Semester I / Semester II

| COURSE CODE | CATEGORY | COURSE NAME | TEACHING &EVALUATION SCHEME | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | THEORY | | | PRACTICAL | | L | T | P | CREDITS |
| | | | END SEM University Exam | Two Term Exam | Teachers Assessment* | END SEM University Exam | Teachers Assessment* | | | | |
| HUCS101 | AECC | Communication Skills | 60 | 20 | 20 | - | 20 | 1 | 0 | 2 | 2 |

**Legends**: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

- A.J. Thomson and A.V. Martinet(1991).*A Practical English Grammar*( 4th ed). Newyork: Oxford IBH Pub.
- Kratz, Abby Robinson (1995). Effective Listening Skills. Toronto: ON: Irwin Professional Publishing.
- Prasad, H. M.(2001*) How to Prepare for Group Discussion and Interview*. New Delhi: Tata McGraw-Hill.
- Pease, Allan. (1998).*Body Language*. Delhi: Sudha Publications.

| **Chairperson** | **Chairperson** | **Controller of Examination** | **Joint Registrar** |
|---|---|---|---|
| **Board of Studies** | **Faculty of Studies** | **Shri Vaishnav Vidyapeeth** | **Shri Vaishnav Vidyapeeth** |
| **Shri Vaishnav Vidyapeeth** | **Shri Vaishnav Vidyapeeth** | **Vishwavidyalaya, Indore** | **Vishwavidyalaya, Indore** |
| **Vishwavidyalaya, Indore** | **Vishwavidyalaya, Indore** | | |

# Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
## Program Name: Bachelor of Technology

| SUBJECT CODE | SUBJECT NAME | TEACHING & EVALUATION SCHEME | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | THEORY | | | PRACTICAL | | Th | T | P | CREDITS |
| | | END SEM | MST | Q/A | END SEM | Q/A | | | | |
| BTMA101N | Mathematics I | 60 | 20 | 20 | - | - | 3 | 1 | - | 4 |

## Course Objective

*To introduce the students to the fundamentals of differential calculus, linear algebra, and differential equations.*

## Course Outcomes

*After the successful completion of this course students will be able to:*
1. *understand and apply the basics of differential calculus;*
2. *understand, apply the techniques of matrices and analyze the system of linear equations;*
3. *apply the techniques of approximation to the root finding problems;*
4. *construct and solve the differential equations of first order;*

## Course Content:

**UNIT – I:** Differential Calculus: Rolle's theorem, mean value theorem, expansion of functions of one variable, Taylors series Maclaurin series.

**UNIT – II:** Partial differentiation: Eulers theorem, total differentiations, maxima and minima of functions of two variables only.

**UNIT – III:** Matrices: Matrices, determinants, rank, normal form, Systems of linear equations and their solutions.

**UNIT – IV:** Numerical methods for solving nonlinear equations:

Method of bisection, secant method, false position, Newton-Raphson's method, fixed point method and their convergence.

**UNIT–V:** Differential equations

Formation of differential equations, solution of differential equation of first order and first degree: separation of variable, homogeneous equations, reducible to homogeneous equations, linear equations, reducible to linear equations.

**Chairperson**
Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

**Chairperson**
Faculty of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

**Controller of Examination**
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

**Joint Registrar**
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

## Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
## Program Name: Bachelor of Technology

| SUBJECT CODE | SUBJECT NAME | TEACHING & EVALUATION SCHEME | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | THEORY | | | PRACTICAL | | Th | T | P | CREDITS |
| | | END SEM | MST | Q/A | END SEM | Q/A | | | | |
| BTMA101N | Mathematics I | 60 | 20 | 20 | - | - | 3 | 1 | - | 4 |

Texts:

- T. M. Apostol, Calculus, Volume I, 2nd Ed, Wiley, 1967.
- T. M. Apostol, Calculus, Volume II, 2nd Ed, Wiley, 1969.
- B. S. Grewal, Higher Engineering Mathematics, Khanna Publishers, Delhi.
- Erwin Kreyszig, Advanced Engineering Mathematics, 10th Ed, John Wiley Publisher.
- M.D. Raisinghania, Ordinary and Partial Differential Equations, 14th Ed, S. Chand.

References:

- R. G. Bartle and D. R. Sherbert, Introduction to Real Analysis, 5th Ed, Wiley, 1999.
- J. Stewart, Calculus: Early Transcendentals, 5th Ed, Thomas Learning (Brooks/ Cole), Indian Reprint, 2003.
- G.F. Simmons, Differential Equations with Applications and Historical Notes, 2ndEd, CRC Press.
- M.K Jain, S.R.K Iyengar and R.K Jain, Numerical methods for scientific and engineering computation (Fourth Edition), New Age International (P) Limited, New Delhi, 2004.

# Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
## Shri Vaishnav Institute of Technology and Science
## Choice Based Credit System (CBCS) in Light of NEP-2020
## Bachelor of Technology
## EE/EC/EX/IOT/MTX/EI/RA (2023-2027)

| COURSE CODE | CATEGORY | COURSE NAME | L | T | P | CREDITS | THEORY | | | PRACTICAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | END SEM University Exam | Two Term Exam | Teachers Assessment* | END SEM University Exam | Teachers Assessment* |
| BTEE106 | | Fundamentals of Electrical and Electronics Engineering | 3 | 0 | 2 | 4 | 60 | 20 | 20 | 30 | 20 |

**Legends**: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit.
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

## Course Objectives:
1. To impart the basic knowledge about the Electric and Magnetic circuits.
2. To explain the working principle, construction, applications of Transformers, DC machines and AC machines.
3. To understand the concept of diode, and transistors.

## Course Outcomes:
After the successful completion of this course students will be able to
1. Understand and Analyze basic circuit concepts.
2. Apply knowledge of mathematics to analyze and solve electrical circuit problems.
3. Illustrate basic knowledge about the Electric and Magnetic circuits.
4. Distinguish the working Principles of various Electrical Machines.
5. Understand the concept of diodes and transistors.

## Syllabus

### UNIT I
**9 Hrs.**

**DC Circuits:** Electrical circuit elements (R, L and C), voltage and current sources, Kirchoff current and voltage laws, analysis of simple circuits with dc excitation. Superposition, Thevenin and Norton Theorems.
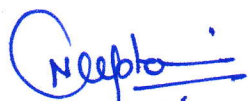
**AC Circuits:** Representation of sinusoidal waveforms, peak and rms values, phasor representation, real power, reactive power, apparent power, power factor. Three-phase balanced circuits, voltage and current relations in star and delta connections.

### UNIT II
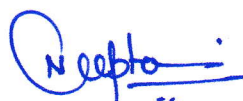**9 Hrs.**

**Magnetic Circuits:** Basic definitions, self-inductance and mutual inductance, magnetic field produced by current carrying conductor, Force on a current carrying conductor. Induced voltage, laws of electromagnetic Induction.

**Single phase transformer:** General construction, working principle, e.m.f. equation, equivalent circuits, phasor diagram, voltage regulation, losses and efficiency, open circuit, and short circuit test.

# Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
## Shri Vaishnav Institute of Technology and Science
## Choice Based Credit System (CBCS) in Light of NEP-2020
## Bachelor of Technology
## EE/EC/EX/IOT/MTX/EI/RA (2023-2027)

**UNIT III**      **8 Hrs.**

**Electrical Machines:** Construction, Classification & Working Principle of DC machine, induction machine and synchronous machine. Working principle of 3-Phase induction motor, Concept of slip in 3- Phase induction motor, Explanation of Torque-slip characteristics of 3-Phase induction motor. Types of losses occurring in electrical machines. Applications of DC machine, induction machine and synchronous machine.

**UNIT IV**      **8 Hrs.**

**PN Junction diode:** Principle of operation, V-I characteristics, Junction breakdown, Avalanche breakdown, various types of diode: Zener diode, Schottky diode, PIN diode, varactor diode, Zener diode as voltage regulator

**Rectifier:** Half wave rectifier and Full wave rectifier.

**UNIT V**      **9 Hrs.**

**Bipolar Junction Transistors:** PNP and NPN transistors, Principle of operation, Ebers-Moll model, early effect, CB, CC, CE configuration and its input and output characteristics, transistor as an amplifier.
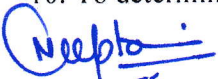
**Textbooks:**
1. E. Hughes, "Electrical and Electronics Technology", Pearson, 2010.
2. D.P Kothari, I.J Nagrath, "Basic Electrical and Electronics Engineering", McGraw Hill Education (India) Private Limited, Second Edition 2020.
3. Boylestad and Nashelsky, "Electronic Devices and Circuit Theory", Pearson Education,11th Edition, 2013
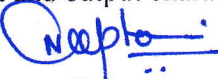
**References:**
1. Basic Electrical engineering, D.P Kothari & I.J Nagrath, TMH, Second Edition.
2. Basic Electrical Engineering, V.N Mittle & Arvind Mittal, TMH, Second Edition.
3. Basic Electrical and Electronics Engineering, R.K Rajput, University Science Press, Second Edition 2012.
4. J.B Gupta, "Electronic Devices and Circuit", S.K. Kataria & Sons, ,2013

**List of Experiments:**
1. Verification of KCL and KVL.
2. Separation of resistance and inductance of choke coil.
3. Study of Transformer and its name plate rating.
4. Determination of Turns ratio and polarity of Single-Phase Transformer.
5. Determination of equivalent circuit parameters of a single-phase transformer by O.C. and S.C. tests.
6. Measurement of power in a three-phase circuit by two wattmeter methods.
7. Measurement of various line & phase quantities for a 3-phase circuit.
8. Study of No-load characteristics of D.C shunt Generators.
9. To determine and analyse the V-I characteristics of PN Junction diode and Zener Diode.
10. To determine input and output characteristics of transistor amplifiers in CE configurations.

| Chairperson | Chairperson | Controller of Examinations | Registrar |
|---|---|---|---|
| Board of Studies | Faculty of Studies | Shri Vaishnav Vidyapeeth | Shri Vaishnav Vidyapeeth |
| Shri Vaishnav Vidyapeeth | Shri Vaishnav Vidyapeeth | Vishwavidyalaya, Indore | Vishwavidyalaya, Indore |
| Vishwavidyalaya, Indore | Vishwavidyalaya, Indore | | |