VISION OF THE INSTITUTION

To ignite the minds of the students through academic excellence so as to bring about social transformation and prosperity.

MISSION OF THE INSTITUTION

1. To expand the frontiers of knowledge through Quality Education.
2. To provide valued added Research and Development.
3. To embody a spirit of excellence in Teaching, Creativity, Scholarship and Outreach.
4. To provide a platform for synergy of Academy, Industry and Community.
5. To inculcate high standards of Ethical and Professional Behavior.

VISION OF CSE DEPARTMENT

To build a strong teaching-learning base with a flair for innovation and research that responds to the dynamic needs of the software industry and the society.

MISSION OF CSE DEPARTMENT

1. To provide strong foundation both in theory and applications of Computer Science & Engineering, so as to solve real-world problems
2. To empower students with state-of-art knowledge and up to date technological skills, making them globally competent
3. To promote research, innovation and entrepreneurship with focus on industry and social outreach
4. To foster civic minded leadership with ethics and values among students

PROGRAM EDUCATIONAL OBJECTIVES OF CSE DEPARTMENT

1. Graduates will have knowledge of mathematics, science, engineering fundamentals, and in-depth studies in Computer Science Engineering, and will be able to apply them for formulating, analysing and solving real world problems.
2. Graduates will succeed in earning coveted entry level positions in leading Computer Software and Hardware Firms in India and abroad.
3. Graduates will succeed in the pursuit of advanced degrees and research in engineering or other fields and will have skills for continued, independent, lifelong learning and professional development throughout life.
4. Graduates will have good communication skills, leadership qualities, ethical values and will be able to work in teams with due attention to their social responsibilities.

PROGRAM OUTCOMES OF CSE DEPARTMENT

Engineering Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES OF CSE DEPARTMENT

1. An ability to demonstrate basic knowledge in databases, programming languages and algorithm analysis in the development of software applications.

2. An ability to design and develop projects using open source tools and efficient data structures.

VISHNU INSTITUTE OF TECHNOLOGY:: BHIMAVARAM
(Autonomous)
Approved by AICTE, Accredited by NAAC-A^{++}, NBA& Affiliated to JNTUK, Kakinada

Department of Basic Science
(R-20 Regulations)
Syllabus: I B.Tech-II Semester
(Common to all Branches except CS&BS)

Course Title: Mathematics-II (Vector Calculus& Transform Calculus)

L	T	P	C
3	0	0	3

Course Objectives:

1. find the vector differentiation and Integration
2. apply the techniques of Laplace transforms in engineering studies
3. learn the Fourier series of periodic functions and expand a function in sine and cosine series
4. solve problems related to engineering applications using integral transform techniques
5. evaluate the problems to engineering applications using Z- transform techniques

UNIT-I: Vector Differentiation

Vector Differentiation - Scalar and Vector Fields, Level surfaces, Directional Derivative, Gradient of a Scalar Field, Divergence, Curl of a vector field and applications, Vector Identities

UNIT-II: Vector Integration

Vector Integration - Line integral, work done, areas, Surface integrals.

Vector integral theorems - Green's theorem, Stokes theorem and Gauss Divergence theorem (All theorems without proof) and applications areas,surface areas and volumes.

UNIT-III: Laplace Transforms

Laplace transform-Definition-conditions for existence– Linear Property -Shifting Theorems, Laplace transforms of Standard Functions-Transforms of derivatives and integrals–Unit step function–Dirac delta function.

 Inverse Laplace transforms by Partial fractions–Convolution theorem (without proof) – inverse by convolution,Solving ordinary differential equations with constant coefficients.

UNIT - IV: Fourier Series

Introduction, Periodic function, Dirichlet's conditions, Fourier series of periodic function, Fourier series at the point of discontinuity, Fourier series of even and odd functions, Half-range Fourier Sine and Cosine series.Fourier series in an arbitrary interval.

UNIT- V: Fourier Transforms and Z-Transforms

Fourier integral theorem (only statement) – sine and cosine integrals, Fourier transforms – sine and cosine transforms –Inverse Formulae-Properties- Finite Fourier Transforms.

Z-transform – properties – Damping rule – Shifting rule – Initial and final value theorems – Inverse Z – transform - Convolution theorem – solving difference equations by using Z-transforms.

Text Books:

1. B. S. Grewal, Higher Engineering Mathematics, 42nd Ed., Khanna Publishers, New Delhi, 2012
2. Erwin.Kreyszig,Advanced Engineering Mathematics,9th Ed., Wiley, 2012

References:

1. T.K.V.Iyengar, B. Krishna Ghandhi, S. Ranganathan and M.V.S.S.N.Prasad*,* Engineering Mathematics, Volume-I, 12th Ed., S. Chand Publishers, 2014
2. B. V. Ramana, Engineering Mathematics, 4th Ed., Tata McGraw Hill, New Delhi, 2009
3. D. S. Chandrashekharaiah, Engineering Mathematics, Volume 1, Prism Publishers, 2010
4. N.P. Bali and Manish Goyal, A text book of Engineering Mathematics, Laxmi Publications, reprint, 2008

Course Outcomes:
After completing this course, the students will be able to

1. understand gradient, divergence, curl and their physical significance
2. compute line, surface and volume integrals and evaluate the work done, flux, potential functions
3. makeuse of Laplace transforms in solving the differential equations with the initial and boundary conditions.
4. compute Fourier series of periodic functions
5. solve problems related to engineering applications using transform techniques

VISHNU INSTITUTE OF TECHNOLOGY:: BHIMAVARAM
(Autonomous)
Approved by AICTE, Accredited by NAAC- A⁺⁺, NBA & Affiliated to JNTUK, Kakinada
Department of Basic Science
Syllabus: I B. Tech-I/II Semester
(R-20 Regulations)
(Common to all circuital branches like ECE, EEE, CSE, IT, AI&DS and AI&ML etc.)

Course Title: Applied Physics

	L	T	P	C
	3	0	0	3

Course Objectives:

➢ To identify the importance of the optical phenomenon i.e. interference, diffraction and polarization related to its Engineering applications

➢ To Understand the mechanism of emission of light, utilization of lasers as coherent light sources for low and high energy applications. Study of propagation of light through optical fibers and their implications in optical communications

➢ To explain the significant concepts of dielectric and magnetic materials that leads to potential applications in the emerging micro devices.

➢ Enlightenment of the concepts of Quantum Mechanics and to provide fundamentals of deBroglie matter waves, quantum mechanical wave equation and its application and to know the importance of free electron theory for metals.

➢ Enlightenment of the importance of band theory for crystalline solids and metals. To understand the physics of Semiconductors and their working mechanism.

UNIT –I: Wave Optics

Interference:

Introduction - Principle of Superposition-Coherence-Conditions for Sustained Interference -Interference in thin films (reflected Geometry)-Newton's Rings-Determination of Wavelength and Refractive Index-Applications of Interference.

Diffraction:

Introduction- Fresnel and Fraunhofer diffraction-Fraunhofer Diffraction due to Single slit, Double slit –N –slits (Qualitative)-Diffraction Grating -Determination of Wavelength-Applications of Diffraction.

Polarization:

Introduction- types of polarized light, Polarization by reflection, refraction and double refraction- Nicol's prism-Half wave and Quarter wave plates

UNIT- II: Lasers and Fiber Optics

Lasers:

Introduction-Characteristics of Laser–Spontaneous and Stimulated emissions of radiation-Einstein's coefficients & Relation between them and their significance – population inversion - Ruby laser – Helium Neon laser –Semiconductor diode laser(Qualitative)- Applications of Lasers.

Fiber Optics:

Introduction to Optical Fibers-Total Internal Reflection- Construction of optical fibers -Acceptance angle-Numerical Aperture-Classification of fibers based on Refractive index profile, modes -Block Diagram of Fiber optic Communication- Applications of optical fibers.

UNIT –III: Magnetic Materials & Dielectric Properties

Magnetic Materials:
Introduction -Magnetic dipole moment-Magnetization-Magnetic susceptibility and permeability- Origin of permanent magnetic moment -Classification of Magnetic materials-Weiss theory of ferromagnetism (qualitative)-Hysteresis-soft and hard magnetic materials-Magnetic device applications.

Dielectrics :
Introduction to Dielectrics - Electric polarization - Dielectric polarizability, Susceptibility and Dielectric constant- Types of polarizations - Electronic and Ionic polarizations with mathematical derivations – Orientational polarization (Qualitative)–Internal field in solids -Claussius -Mosotti equation.

UNIT – IV: Quantum Mechanics and Free Electron Theory of Metals

Quantum Mechanics:
Introduction- Dual nature of matter-Matter waves, de-Broglie wavelength, Properties of wave function- time independent and time dependent Schrödinger's wave equation-Particle in a one dimensional infinite potential well.

Free Electron Theory of Meals:
Classical free electron theory (Qualitative with discussion of merits and demerits)-Quantum free electron theory-Equation for electrical conductivity based on quantum free electron theory-Fermi-Dirac Distribution-density of states (3D) - Fermi Energy.

UNIT –V: Band Theory of Solids and Semiconductors

Band Theory of Solids:
Bloch Theorem - Kronig-Penny Model (Qualitative)-E vs K and v vs K diagram- Origin of energy bands - Classification of solids based on energy bands – Effective Mass of an Electron-Concept of a Hole

Semiconductors:
Introduction– Intrinsic semiconductors - density of charge carriers-Fermi level – extrinsic semiconductors - P-type & N-type - Density of charge carriers - Dependence of Fermi energy on carrier concentration and temperature - Drift and Diffusion currents – Einstein's equation - Hall effect- Hall coefficient - Applications of Hall effect.

 Text Books:

1.M.N. Avadhanulu, P.G.Kshirsagar "A Text book of Engineering Physics"-S.Chand Publications,2017
2. H.K.Malik & A.K.Singh "Engineering Physics",- McGraw Hill Publishing Company Ltd, 2018
3. P.K. Palanisamy, Applied Physics, SciTech Publications.

References:

1. Gerd Keiser "Optical Fiber Communications"- 4/e, Tata Mc GrawHill.
2. Charles Kittel "Introduction to Solid State Physics",Wiley Publications.
3. S.M.Sze "Semiconductor devices-Physics and Technology"-Wiley.
4. Halliday, Resnick and Walker, "Fundamentals of Physics", John WileySons.
5. M.R. Srinivasan, Engineering Physics, NewAge International Publishers.
6. Ajoy Ghatak "Optics" Tata Mc GrawHill.

Course Outcomes:

Upon the completion of the course the students will be able to:

CO1: Explain the need of coherent sources and the conditions for sustained interference. Identify the applications of interference in engineering. Analyze the differences between interference and diffraction with applications. Illustrate the concept of polarization of light and its applications.

CO2 Explain various types of emission of radiation. Identify the role of laser in engineering applications. Describe the construction and working principles of various types of lasers. Explain the working principle of optical fibers. Classify optical fibers based on refractive index profile and mode of propagation. Identify the applications of optical.

CO3: Explain the concept of dielectric constant and polarization in dielectric materials. Summarize various types of polarization of dielectrics. Classify the magnetic materials based on susceptibility and their temperature dependence. Explain the applications of dielectric and magnetic materials. Apply the concept of magnetism to magnetic devices.

CO4: Describe the dual nature of matter. Explain the significance of wave function. Identify the role of Schrodinger's time independent wave equation in studying particle in one-dimensional infinite potential well. Identify the role of classical free electron theory in the study of electrical conductivity.

CO5: Explain the concept of quantum free electron theory in the study of electrical conductivity. Classify the energy bands of solids. Outline the properties of charge carriers in semiconductors. Identify the type of semiconductor using Hall effect. Identify applications of semiconductors in electronic devices.

DIGITAL LOGIC DESIGN

UNIT- I: Digital Systems and Binary Numbers: Digital Systems, Binary Numbers, Octal and Hexadecimal Numbers, Complements of Numbers, Signed Binary Numbers, Arithmetic addition and subtraction

UNIT -II: Concept of Boolean algebra: Basic Theorems and Properties of Boolean algebra, Boolean Functions, Canonical and Standard Forms, Minterms and Maxterms,

UNIT- III: Gate level Minimization: Map Method, Two-Variable K-Map, Three-Variable K-Map, Four Variable K-Maps. Products of Sum Simplification, Sum of Products Simplification, Don't – Care Conditions, NAND and NOR Implementation, Exclusive-OR Function

UNIT- IV: Combinational Logic: Introduction, Analysis Procedure, Design Procedure, Binary Adder–Subtractor, Decimal Adder, Binary Multiplier, Decoders, Encoders, Multiplexers.

UNIT- V: Synchronous Sequential Logic: Introduction to Sequential Circuits, Storage Elements: Latches, Storage Elements: Flip-Flops, Analysis of Clocked Sequential Circuits, Mealy and Moore Models of Finite State Machines

UNIT -VI: Registers and Counters: Registers, Shift Registers, Ripple Counters, Synchronous Counters, Ring Counter, Johnson Counter, Ripple Counter

TEXT BOOKS:

1. Digital Design, 5/e, M.Morris Mano, Michael D Ciletti, PEA.

2. Fundamentals of Logic Design, 5/e, Roth, Cengage.

REFERENCE BOOKS:

1. Digital Logic and Computer Design, M.Morris Mano, PEA.

2. Digital Logic Design, Leach, Malvino, Saha, TMH. 3. Modern Digital Electronics, R.P. Jain, TMH.

Year/Semester	I B. Tech/II Sem	L	T	P	C
Regulation Year	2020-21	3	0	0	3
Subject	Programming for Problem Solving				
Branch	CSE,IT, AI&DS,EEE				

Course Objectives:

- Formulating algorithmic solutions to problems and implementing algorithms in C.
- Understanding branching, iteration and data representation using arrays.
- Modular programming and recursive solution formulation.
- Understanding arrays, pointers and dynamic memory allocation.
- Understanding Strings and Structures

UNIT-I:

Introduction to C Programming- Identifiers, The main () Function, The printf () Function **Programming Style** - Indentation, Comments, Data Types**,** Arithmetic Operations, Expression Types, Variables and Declarations, Negation, Operator Precedence and Associativity, Declaration Statements, Initialization.

Assignment - Implicit Type Conversions, Explicit Type Conversions (Casts), Assignment Variations, Mathematical Library Functions, Interactive Input, Formatted Output, Format Modifiers.

UNIT-II:

Control Flow-Relational Expressions - Logical Operators:

Selection: if-else Statement, nested if, examples, Multi-way selection: switch, else-if, examples.

Repetition: Basic Loop Structures, Pretest and Posttest Loops, Counter-Controlled and Condition-Controlled Loops, The while Statement, The for Statement, Nested Loops, The do-while Statement.

UNIT-III:

Arrays & Pointers:

Arrays: One-Dimensional Arrays, Input and Output of Array Values, Array Initialization, Two-Dimensional Arrays, Larger Dimensional Arrays- Matrices

Pointers: Concept of a Pointer, Initialisation of pointer variables, passing by address, Dangling memory, address arithmetic, Dynamic memory management functions, command line arguments.

UNIT-IV:

Modular Programming: Function and Parameter Declarations, Returning a Value, Classifications of Functions, Variable Scope, Variable Storage Class, Local Variable Storage Classes, Global Variable Storage Classes, Pass by Reference, Passing Addresses to a Function, Array as a Function arguments.

Case Study: Recursion - Mathematical Recursion, Recursion versus Iteration

UNIT-V:

Strings & Structures:

Strings: String Fundamentals, String Input and Output, String Processing, Library Functions.

Structures: Derived types, Structures declaration, Initialization of structures, accessing structures, nested structures, arrays of structures, structures and functions, pointers to structures, self referential structures, unions, typedef, bit-fields.

TEXT BOOKS:
1. ANSI C Programming, Gary J. Bronson, Cengage Learning.
2. Let us C Authentic Guide to C Programming Language by yashavant kanetkar.
3. The C programming Language, Dennis Richie and Brian Kernighan, Pearson Education.

REFERENCE BOOKS:
1. C Programming-A Problem Solving Approach, Forouzan, Gilberg, Cengage.
2. Programming with C, Bichkar, Universities Press.
3. Programming in C, ReemaThareja, OXFORD.
4. C by Example, Noel Kalicharan, Cambridge.

Course Outcomes:

1. Write, compile and debug programs in C language.
2. Use different data types in a computer program.
3. Design programs involving decision structures, loops and functions.
4. Explain the difference between call by value and call by reference
5. Understand the dynamics of memory by the use of pointers
6. Understand the sorting and searching algorithms.

Course Objectives:

The objective of this course is to

• Explain the internal parts of a computer, peripherals, I/O ports, connecting cables

• Demonstrate basic command line interface commands on Linux

• Teach the usage of Internet for productivity and self-paced lifelong learning

• Describe about Compression, Multimedia and Antivirus tools

• Demonstrate Office Tools such as Word processors, Spreadsheets and Presentation tools

Course Outcomes:

Students should be able to:

• Assemble and disassemble components of a PC

• Construct a fully functional virtual machine, summarize various Linux operating system commands,

• Recognize characters & extract text from scanned images, Create audio files and podcasts

Computer Hardware:

Experiment 1: Identification of peripherals of a PC, Laptop, Server and Smart Phones: Prepare a report containing the block diagram along with the configuration of each component and its functionality, Input/ Output devices, I/O ports and interfaces, main memory, cache memory and secondary storage technologies, digital storage basics, networking components and speeds.

Operating Systems:

Experiment 2: Virtual Machine setup: o Setting up and configuring a new Virtual Machine o Setting up and configuring an existing Virtual Machine o Exporting and packaging an existing Virtual Machine into a portable format

Or

Experiment 2: Operating System installation: o Installing an Operating System such as Linux on Computer hardware.

Experiment 3: Linux Operating System commands: o General command syntax o Basic help commands

- Basic File system commands

- Date and Time

- Basic Filters and Text processing

- Basic File compression commands o Miscellaneous: apt-get, vi editor.

Networking and Internet:

Experiment 4: Networking Commands:

- ping, ssh, ifconfig, scp, netstat, ipstat, nslookup, traceroute, telnet, host, ftp, arp, wget, route

Experiment 5: Internet Services:

- Web Browser usage and advanced settings like LAN, proxy, content, privacy, security, cookies, extensions/ plugins o Antivirus installation, configuring a firewall, blocking pop-ups
- Email creation and usage, Creating a Digital Profile on LinkedIn.

Productivity Tools:

Experiment 6: Basic HTML tags, Introduction to HTML5 and its tags, Introduction to CSS3 and its properties. Preparation of a simple website/ homepage,

Assignment: Develop your home page using HTML Consisting of your photo, name, address and education details as a table and your skill set as a list.

Features to be covered:- Layouts, Inserting text objects, Editing text objects, Inserting Tables, Working with menu objects, Inserting pages, Hyper linking, Renaming, deleting, modifying pages, etc.,

Internet of Things (IoT): IoT fundamentals, applications, protocols, communication models, architecture, IoT devices

Office Tools:

Experiment 7: Demonstration and Practice on Text Editors like Notepad++, Sublime Text, Atom, Brackets, Visual code, etc

Experiment 8: Demonstration and practice on Microsoft Word, Power Point, Microsoft Excel

Experiment 9: Demonstration and practice on LaTeX and produce professional pdf documents.

Text Books:

1) Computer Fundamentals, Anita Goel, Pearson Education, 2017 2) PC Hardware Trouble Shooting Made Easy, TMH

References Books:

1) Essential Computer and IT Fundamentals for Engineering and Science Students, Dr.N.B.Vekateswarlu, S.Chand

e-Resources:

1) https://explorersposts.grc.nasa.gov/post631/2006- 2007/computer_basics/ComputerPorts.doc

VISHNU INSTITUTE OF TECHNOLOGY :: BHIMAVARAM

(AUTONOMOUS)

Approved by AICTE, Accredited by NAAC-A⁺⁺, NBA & Affiliated to JNTUK, Kakinada

Year/Semester	I B. Tech/II Sem	L	T	P	C
Regulation Year	2020-21	3	0	0	3
Subject	Programming for Problem Solving				
Branch	CSE,IT, AI&DS,EEE				

Course Objectives:

- Formulating algorithmic solutions to problems and implementing algorithms in C.
- Understanding branching, iteration and data representation using arrays.
- Modular programming and recursive solution formulation.
- Understanding arrays, pointers and dynamic memory allocation.
- Understanding Strings and Structures

UNIT-I:
Introduction to C Programming- Identifiers, The main () Function, The printf () Function **Programming Style** - Indentation, Comments, Data Types**,** Arithmetic Operations, Expression Types, Variables and Declarations, Negation, Operator Precedence and Associativity, Declaration Statements, Initialization.
Assignment - Implicit Type Conversions, Explicit Type Conversions (Casts), Assignment Variations, Mathematical Library Functions, Interactive Input, Formatted Output, Format Modifiers.

UNIT-II:
Control Flow-Relational Expressions - Logical Operators:
Selection: if-else Statement, nested if, examples, Multi-way selection: switch, else-if, examples.
Repetition: Basic Loop Structures, Pretest and Posttest Loops, Counter-Controlled and Condition-Controlled Loops, The while Statement, The for Statement, Nested Loops, The do-while Statement.

UNIT-III:
Arrays & Pointers:
Arrays: One-Dimensional Arrays, Input and Output of Array Values, Array Initialization, Two-Dimensional Arrays, Larger Dimensional Arrays- Matrices
Pointers: Concept of a Pointer, Initialisation of pointer variables, passing by address, Dangling memory, address arithmetic, Dynamic memory management functions, command line arguments.

UNIT-IV:
Modular Programming: Function and Parameter Declarations, Returning a Value, Classifications of Functions, Variable Scope, Variable Storage Class, Local Variable Storage Classes, Global Variable Storage Classes, Pass by Reference, Passing Addresses to a Function, Array as a Function arguments.

Case Study: Recursion - Mathematical Recursion, Recursion versus Iteration

UNIT-V:
Strings & Structures:
Strings: String Fundamentals, String Input and Output, String Processing, Library Functions.
Structures: Derived types, Structures declaration, Initialization of structures, accessing structures, nested structures, arrays of structures, structures and functions, pointers to structures, self referential structures, unions, typedef, bit-fields.

TEXT BOOKS:
1. ANSI C Programming, Gary J. Bronson, Cengage Learning.
2. Let us C Authentic Guide to C Programming Language by yashavant kanetkar.
3. The C programming Language, Dennis Richie and Brian Kernighan, Pearson Education.

REFERENCE BOOKS:
1. C Programming-A Problem Solving Approach, Forouzan, Gilberg, Cengage.
2. Programming with C, Bichkar, Universities Press.
3. Programming in C, ReemaThareja, OXFORD.
4. C by Example, Noel Kalicharan, Cambridge.

Course Outcomes:

7. Write, compile and debug programs in C language.
8. Use different data types in a computer program.
9. Design programs involving decision structures, loops and functions.
10. Explain the difference between call by value and call by reference
11. Understand the dynamics of memory by the use of pointers
12. Understand the sorting and searching algorithms.

VISHNU INSTITUTE OF TECHNOLOGY:: BHIMAVARAM

(Autonomous)

Approved by AICTE, Accredited by NAAC- A++ , NBA & Affiliated to JNTUK, Kakinada

Department of Basic Science
Syllabus: I B. Tech-I/II Semester

(R-20 Regulations)

(Common to all circuital branches like ECE, EEE, CSE, IT, AI&DS and AI&ML etc.)

Course Title: Applied Physics Lab

L T P C

0 0 3 1.5

List of Experiments

Conduct 10 out of 15 experiments

1. Determination of wavelength of a source-Diffraction Grating-Normal incidence

2. Newton's rings –Radius of Curvature of Plano Convex Lens.

3. Determination of thickness of a thin object using parallel interference fringes.

4. Determination/ of Rigidity modulus of a material- Torsional Pendulum.

5. Determination of Acceleration due to Gravity and Radius of Gyration- Compound Pendulum.

6. Melde's experiment – Transverse and Longitudinal modes.

7. Verification of laws of stretched string – Sonometer.

8. Determination of velocity of sound – Volume Resonator

9. L C R Series Resonance Circuit

10. Study of I/V Characteristics of Semiconductor diode

11. I/V characteristics of Zener diode

12. Thermistor characteristics – Temperature Coefficient

13. Magnetic field along the axis of a current carrying coil – Stewart and Gee's apparatus.

14. Energy Band gap of a Semiconductor p.n junction.

15. Hall Effect for semiconductor.

REFERENCES:

1. Engineering Physics Lab Manual by Dr.Y. Aparna & Dr.K.Venkateswarao (V.G.S.Book links)

2. Physics Practical Manual, Lorven Publication

I B.Tech – II Sem   **L T P C**

0 0 0 1.5

Programming for Problem Solving Lab

Course Objectives:

● Understand the basic concept of C Programming, and its different modules that includes conditional and looping expressions, Arrays, Strings, Functions, Pointers Structures.
● Acquire knowledge about the basic concept of writing a program.
● Role of constants, variables, identifiers, operators, type conversion and other building blocks of C Language.
● Use of conditional expressions and looping statements to solve problems associated with conditions and repetitions.
● Role of functions involving the idea of Modularity.

Exercise - 1 Basics

a) What is an OS Command, Familiarization of Editors - vi, Emacs
b) Using commands like mkdir, ls, cp, mv, cat, pwd, and man
c) C Program to Perform Adding, Subtraction, Multiplication and Division of two numbers From Command line

Exercise - 2 Basic Math
a) Write a C Program to Simulate 3 Laws at Motion
b) Write a C Program to convert Celsius to Fahrenheit and vice versa

Exercise - 3 Control Flow – I
a)Write a C Program to Find Whether the Given Year is a Leap Year or not.
b)Write a C Program to Add Digits & Multiplication of a number

Exercise – 4 Control Flow – II
a)Write a C Program to Find Whether the Given Number is
     i) Prime Number
     ii) Armstrong Number
b) Write a C program to print Floyd Triangle
c) Write a C Program to print Pascal Triangle

Exercise – 5 Functions
a) Write a C Program demonstrating parameter passing in Functions and returning values.
b) Write a C Program illustrating Fibonacci, Factorial with Recursion without Recursion

Exercise – 6 Control Flow – III
a) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch...case
b) Write a C Program to convert decimal to binary and hex (using switch call function the function)

Exercise – 7 Functions – Continued

Write a C Program to compute the values of sinx and cos x and e^x values using Series expansion. (use factorial function)

Exercise – 8 Arrays

Demonstration of arrays
a) Search-Linear.
b) Sorting-Bubble, Selection.
c) Operations on Matrix.

Exercises - 9 Structures

a)Write a C Program to Store Information of a Movie Using Structure
b)Write a C Program to Store Information Using Structures with Dynamically Memory Allocation
c) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function

Exercise - 10 Arrays and Pointers

a)Write a C Program to Access Elements of an Array Using Pointer
b) Write a C Program to find the sum of numbers with arrays and pointers.

Exercise – 11 Dynamic Memory Allocations

a) Write a C program to find the sum of n elements entered by the user. To perform this program,allocate memory dynamically using malloc () function.
b) Write a C program to find the sum of n elements entered by the user. To perform this program, allocate memory dynamically using calloc () function.

Understand the difference between the above two programs

Exercise – 12 Strings

a) Implementation of string manipulation operations with library function.

      i) copy
      ii) concatenate
      iii) length
      iv) compare

b) Implementation of string manipulation operations without library function.

      i) copy
      ii) concatenate
      iii) length
      iv) compare

Course Outcomes:

1. Apply and practice logical ability to solve the problem.
2. Understand C programming development environment, compiling, debugging and linking and executing a program using the development environment.
3. Analyzing the complexity of problems, modularize the problems into small modules and then convert them into programs.
4. Understand and apply the inbuilt functions and customized functions for solving the problems.
5. Understand and apply the pointers, memory allocation techniques.

VISHNU INSTITUTE OF TECHNOLOGY:: BHIMAVARAM

(Autonomous)
Approved by AICTE, Accredited by NAAC- A⁺⁺ , NBA & Affiliated to JNTUK, Kakinada

Department of Basic Science
Syllabus: I B.Tech-II Semester
(R-20 Regulations)
(Common to CSE, IT & EEE Branches)

Course Title: Constitution of India

L	T	P	C
2	0	0	0

Course Objectives:

➢ To train students in understanding the basic structure of Indian Constitution

➢ To prepare students to live better and happily with other fellow beings through the application of Fundamental Rights in their lives.

UNIT-I: Introduction to Indian Constitution
Meaning of the term Indian Constitution –Preamble- Constituent Assembly- Salient Features of Indian Constitution

UNIT-II: Fundamental Rights
Fundamental Rights -Fundamental Duties -The Directive Principles of State Policy

UNIT-III: Union Government

Union Government -Union Legislature (Parliament) -Lok Sabha and Rajya Sabha (with Powers and Functions) -Union Excecutive -President of India (with Powers and Functions) -Prime Minister of India (with Powers and Functions) -Union Judiciary (Supreme Court) -Jurisdiction of the Supreme Court

UNIT-IV State Government

State Government -State Legislature (Legislative Assembly / Vidhan Sabha, Legislative Council / Vidhan Parishad) -Powers and Functions of the State Legislature -State Executive-Governor of the State (with Powers and Functions) -The Chief Minister of the State (with Powers and Functions) -State Judiciary (High Courts)

UNIT-V: Local Self Governance and Sovereign Bodies
Powers and functions of Municipalities, Panchyats, ZP's and Co – Operative Societies

Election Commission of India (with Powers and Functions) -The Union Public Service Commission (with Powers and Functions)

Text Books:

1. Introduction to constitution of India, Durga Das Basu, Lexis Nexis Publications

2. Constitution of India by PRFESSIONAL BOOK PUBLISHERS

3. The Constitution of India by Arun K Tiru vengadam, Blooms bury publishers.

4. The constitution of India by PM Bakshi, Universal law publishing co

5. The Constitution of India by S.R. Bhansali, Universal law publishing co

Course Outcomes:
Upon the completion of the course, the student will be able to

1. Examine salient features of Indian Constitution and live accordingly in society.

2. Interpret the meaning of Fundamental Rights and Directive Principles of State Policy and,
develop an attitude which paves the way for better living conditions.
3. Discover various aspects of Union Government legislation and live up to the expectations
of the rules.
4. Critically examine State Government legislation and improve your living standards by
following the rules strictly
5. Examine powers and functions of local bodies such as Muncipalities and Panchayats and,
ake advantage of available resources for better living, and analyze the powers and   functions
of Election Commission and The Union Public Service Commission and decide upon it for
safe and secured life.