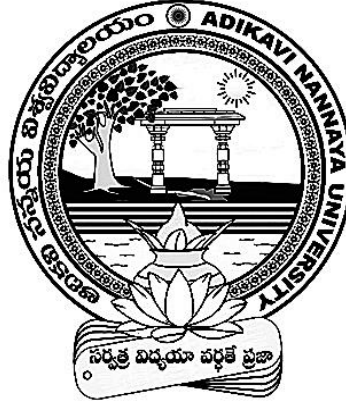


Course Structure and Syllabus

I BTech (CSE & IT) – I Semester

(From the admitted batch of 2017 – 2018 under CBCS Scheme)



**University College of Engineering
Adikavi Nannaya University
Rajamahendravaram – 533 296**

I BTech I Semester CSE & IT wef 2017-18

Sub Code	Subject	Hrs/Week		Max Marks		Total Marks	Credits
		Theory	Lab	Internal	External		
CSEINF101	ENGLISH-I	4	--	25	75	100	3
CSEINF102	MATHEMATICS-I	4	--	25	75	100	4
CSEINF103	COMPUTER PROGRAMMING AND NUMERICAL METHODS	4	--	25	75	100	4
CSEINF104	PHYSICS	4	--	25	75	100	4
CSEINF105	ENGINEERING DRAWING	2	3	25	75	100	4
CSEINF106	PROFESSIONAL ETHICS AND MORAL VALUES	3	--	25	75	100	--
CSEINF107	ENGLISH COMMUNICATION SKILLS LAB	--	3	50	50	100	2
CSEINF108	COMPUTER PROGRAMMING AND NUMERICAL METHODS LAB	--	3	50	50	100	2
CSEINF109	PHYSICS LAB	--	3	50	50	100	2
TOTAL		23	9	300	600	900	25

Audit Course: CSEINF106 - Professional Ethics and Moral Values

CSEINF101: ENGLISH-I

Theory : 4 Hrs/week
Int Marks : 25

Credits : 4
Ext Marks : 75

UNIT-I

Grammar

Clause Analysis
Tenses
Active and Passive Voice
Reported Speech
Use of connectives in complex and Compound sentences
Question tags

UNIT – II

Vocabulary

Word Formations (by adding suffixes and prefixes);
Technical Word Formation; Synonyms, Antonyms, Homophones, and Homonyms;
One Word Substitution; Misappropriations; Indianisms; Redundant words; Collocations
Idioms & Phrasal Verbs

UNIT - III

Reading Comprehension

The Last Leaf-O.Henry
Ozymandias- Percy Bysshe Shelley

UNIT - IV

Writing Devices

Expansion of an Idea Explain the idea ‘Make hay while the sun shines’
Paragraph Writing
Essay Writing

REFERENCE BOOKS:

1. Krishna Swamy N., “Modern English Grammar”, MacMillan India Ltd.
2. Oxford Advanced Learner’s Dictionary of Current English.8th ed. Oxford: Oxford UP,2010
3. Raman, Meenakshi. Technical Communication: Theory and Practice. New Delhi:Oxford UP,2006
4. RIZVI, M. Ashraf. Effective Technical Communication. Tata MCGraw Hill,2005.
5. Mirror Images- A Text book fo general English, Orient Blackswan

CSEINF102: MATHEMATICS – I

Theory	: 4 Hrs/week	Credits	: 4
Int Marks	: 25	Ext Marks	: 75

UNIT – I

Partial Differentiation

Functions of two or more variables – Partial derivatives – Homogeneous Functions – Euler’s Theorem – Total Derivative – Change of Variables – Jacobians – Geometrical Interpretation: Tangent Plane and Normal to a Surface.

UNIT – II

Application of Partial Differentiation

Taylor’s Theorem for functions of two variables – Errors and Approximations – Total Differential – Maxima and Minima of functions of two variables – Lagrange’s Method of Undetermined Multipliers – Differentiation Under the Integral Sign – Liebnitz’s Rules.

UNIT – III

Ordinary Differential Equations of First Order and First Degree

Formation of the ordinary differential equations (ODEs) – Solution of an ordinary differential equation – Equations of the First Order and First Degree – Linear Differential Equation – Bernoulli’s Equation – Exact Differential Equations – Equations Reducible to exact equations.

UNIT – IV

Applications of Differential Equations of First Order

Orthogonal Trajectories – Simple electric (LR & CR) Circuits – Newton’s Law of Cooling – Law of Natural growth and decay.

Linear Differential Equations of Higher Order

Solutions of Linear Ordinary Differential Equations With Constant Coefficients – Rules for finding the Complimentary Functions – Rules for finding the particular integral – Method of variation of parameters – Cauchy’s linear equation – Legendre’s Linear Equation – Simultaneous linear equations.

TEXT BOOK:

1. Scope and Treatment as in “Higher Engineering Mathematics”, by Dr. B. S. Grewal, 43rd edition, Khanna Publishers.

REFERENCE BOOKS:

1. Advanced Engineering Mathematics by Erwin Kreyszig.
2. A text book of Engineering Mathematics, by N. P. Bali and Dr. Manish Goyal, Lakshmi Publications.
3. Advanced Engineering Mathematics by H. K. Dass, S. Chand Company.
4. Higher Engineering Mathematics by B. V. Ramana, Tata Mc Graw Hill Company
5. Higher Engineering Mathematics by Dr. M. K. Venkataraman.

CSEINF103: COMPUTER PROGRAMMING AND NUMERICAL METHODS

Theory : 4 Hrs/week
Int Marks : 25

Credits : 4
Ext Marks : 75

UNIT I

Introduction to C: Basic structure of C program, Constants, Variables and data types, Operators and Expressions, Arithmetic Precedence and associativity, Type Conversions. Managing Input and Output Operations, Formatted Input, Formatted Output.

Decision Making, Branching, Looping , Arrays & Strings: Decision making with if statement, Simple if statement, The if...else statement, Nesting of if...else statement, the else..if ladder, switch statement, the (?:) operator, the GOTO statement., The while statement, the do statement, The for statement, Jumps in Loops ,One, Two-dimensional Arrays, Character Arrays. Declaration and initialization of Strings, reading and writing of strings, String handling functions, Table of strings.

UNIT II

Functions: Definition of Functions, Return Values and their Types, Function Calls, Function Declaration, Category of Functions: No Arguments and no Return Values, Arguments but no Return Values, Arguments with Return Values, No Argument but Returns a Value, Functions that Return Multiple Values. Nesting of functions, recursion, passing arrays to functions, passing strings to functions, The scope, visibility and lifetime of variables.

Pointers: Accessing the address of a variable, declaring pointer variables, initializing of pointer variables, accessing variables using pointers, chain of pointers, pointer expressions, pointers and arrays, pointers and character strings, array of pointers, pointers as function arguments, functions returning pointers, pointers to functions, pointers to structures-Program Applications

UNIT III

Structure and Unions: Defining a structure, declaring structure variables, accessing structure members, structure initialization, copying and comparing structure variables, arrays of structures, arrays within structures, structures within structures, structures and functions and unions, size of structures and bit-fields- Program applications.

File handling: Defining and opening a file, closing a file, Input/ Output operations on files, Error handling during I/O operations, random access to files and Command Line Arguments-Program Applications.

UNIT IV

Numerical Methods: Solutions of Algebraic and Transcendental Equations: Bisection Method, Newton Raphson Method. Interpolation: Newton's forward and backward Interpolation, Lagrange's Interpolation in unequal intervals. Numerical Integration: Trapezoidalrule, Simpson's 1/3 rule.Solutions of Ordinary First Order Differential Equations: Euler's Method, Modified Euler's Method and Runge-Kutta Method.

TEXT BOOKS

1. Programming in ANSI C, E Balagurusamy, 6th Edition. McGraw Hill Education (India) Private Limited.
2. Introduction to Numerical Methods, SS Sastry, Prentice Hall.

REFERENCE BOOKS

1. Let Us C ,YashwantKanetkar, BPB Publications, 5th Edition.
2. Computer Science, A structured programming approach using C", B.A.Forouzan and R.F.Gilberg, " 3rd Edition, Thomson, 2007.
3. The C –Programming Language' B.W. Kernighan, Dennis M. Ritchie, PHI

CSEINF104: PHYSICS

Theory : 4 Hrs/week

Credits : 4

Int Marks : 25

Ext Marks : 75

UNIT – I

Thermodynamics

Introduction, Heat and Work, First Law of Thermodynamics and applications, Reversible and Irreversible Process, Carnot Cycle and Efficiency, Second Law of Thermodynamics, Carnot's Theorem, Entropy, Second Law in terms of entropy, Entropy and disorder, Third Law of Thermodynamics (Statement Only).

UNIT – II

Electromagnetism

Concept of Electric Flux, Gauss's Law – Some Applications, Electric Potential and Field Strength, Potential due to Point Charge and Dipole, Magnetic Field – Magnetic Force on Current, Torque on Current Loop, The Biot-Savart's Law, B near a Long Wire, B for a Circular Current Loop, Ampere's Law, B for a Solenoid, Hall Effect, Faraday's Law of induction, Lenz's law, Inductance, L-R Circuit, Induced Magnetic Fields, Displacement Current, Maxwell's Equations (Both differential and integral forms), Magnetic Materials: Classification of Magnetic Materials and properties.

UNIT – III

Optics

Interference: Principles of Super Position – Young's Experiment – Coherence – Inference in thin films, Wedge shaped film, Newton's Rings, Michelson Interferometer and its applications.

Diffraction: Single slit (Qualitative and Quantitative Treatment)

Polarization: Polarization by reflection, refraction and double refraction in uniaxial crystals, Nicol Prism, Quarter and Half wave plate, Circular and elliptical polarization and detection.

UNIT - IV

Lasers: Introduction, spontaneous and stimulated emissions, population inversions, pumping, Ruby Laser, Gas Laser (He-Ne Laser), Semiconductor Laser, Applications of Lasers.

Fiber Optics: Optical Fiber and Total Internal Reflection, Acceptance Angle and cone of a Fiber, Numerical Aperture, Fiber optics in Communications, Optical Parts in Fiber, Application of Optical Fibers.

Ultrasonics: Introduction, Production of Ultrasonics by Magnetostriction and Piezoelectric effects, Ultrasonics and diffraction pattern, Applications of Ultrasonics.

TEXT BOOKS:

1. Engineering Physics by R.K. Gaur and S.L. Gupta
2. Physics by David Halliday and Robert Resnick – Part I and Part II

REFERENCE BOOKS:

1. Engineering Physics by M.N. Avadhanulu & P.G. Kshirasagar; S. Chand & Company Ltd.
2. Modern Engineering Physics by A.S. Vadudeva
3. University Physics by Young and Freedman
4. Nonconventional Energy by Ashok V. Desai

CSEINF105: ENGINEERING DRAWING

Theory	: 2+3L Hrs/week	Credits	: 4
Int Marks	: 25	Ext Marks	: 75

UNIT – I

Introduction: Lines, Lettering and Dimensioning.

Polygons: Constructing regular polygons by general methods, inscribing and describing polygons on circles.

Curves: Parabola, Ellipse and Hyperbola by general and special methods, tangents & normal for the curves.

UNIT – II

Scales: Plain scales, diagonal scales and vernier scales

Orthographic Projections: Horizontal plane, vertical plane, profile plane, importance of reference lines, projections of points in various quadrants, projections of lines, lines parallel either two of the reference planes (HP, VP or PP)

UNIT – III

Projections of Straight Lines: Projections of straight lines inclined to both the planes, determination of true lengths, angle of inclination and traces- HT, VT

Projections of Planes: Regular planes perpendicular/parallel to one plane and inclined to the other reference plane; inclined to both the reference planes.

UNIT – IV

Projections of Solids: Projections of Solids – Prisms, Pyramids, Cones and Cylinders with the axis inclined to one of the planes.

Isometric Views: Introduction to Isometric projection, Isometric scale and Isometric view. Isometric views of simple planes. Isometric view of Prisms, Pyramids, cylinder and cone. Isometric view of an object when projections are given.

TEXT BOOK

1. Elementary Engineering Drawing by N.D.Bhatt, Charotar Publishing House.

REFERENCE BOOKS

1. Engineering Drawing by K.L.Narayana & P. Kannaiah, Scitech Publishers
2. Engineering Drawing 2nd Edition– K Venugopal, V. Prabhu Raja, New Age

CSEINF106: PROFESSIONAL ETHICS AND MORAL VALUES

Theory	: 3 Hrs/week	Credits	: 0
Int Marks	: 25	Ext Marks	: 75

UNIT – I

Ethics and Human Values: Understanding Value Education: Need for Value Education, Content of Value Education; Process of Value Education. Self Exploration as the Process for Value Education: Introspection; Process of Self Exploration. Ethics: Ethical Vision and Ethical Decisions Human Values: Classification of Values and Universality of Values .

UNIT – II

Engineering Ethics: Nature of Engineering Ethics, Profession and Professionalism, Professional Ethics Code of Ethics, Sample codes- IEEE, ASCE, ASME and CSI. Engineering as Social Experimentation; Engineering Professionals – Life Skills. Engineers as Managers, Consultants and Leaders; Role of Engineers in promoting ethical climate

UNIT – III

Safety Social Responsibility and Rights: Safety and Risk, Moral Responsibility of Engineers for safety. Case Studies: Bhopal Gas Tragedy, Chernobyl disaster, Fukushima Nuclear disaster. Professional Rights; Gender discrimination, Sexual harassment at work place. Balanced outlook on Law.

UNIT – IV

Global Issues: Globalization and MNCs, Environmental Ethics. Computer Ethics; Cyber crimes. Ethical Living; Concept of Harmony in Life

TEXT BOOKS

1. Govindharajan, M., Natarajan, S. and Senthil Kumar, V.S., Engineering Ethics, Prentice Hall of India, (PHI) Delhi, 2004.
2. Subramaniam, R., Professional Ethics, Oxford University Press, New Delhi, 2013.

REFERENCE BOOKS

1. Charles D, Fleddermann, Engineering Ethics, Pearson/ PHI, New Jersey 2004. (Indian Reprint)
2. Guar, R.R., Sangal, R., and Bagaria, G.P. A Foundation course in Human Values and Professional Ethics, Excel Books, New Delhi, 2010.

CSEINF107: ENGLISH COMMUNICATIONS SKILLS LAB

Lab : 3 Hrs/week

Credits : 2

Int Marks : 50

Ext Marks : 50

Listening skill

Listening to sounds, stress and intonation

Listening for Information

Speaking Skill

Presentation Techniques

Presentation to Oneself

Group Discussions

Interview Skills

Students have to prepare and present an assignment through PPT in the communication Skills laboratory.

REFERENCE BOOKS:

1. Krishna Swamy N., "Modern English Grammar", MacMillan India Ltd.
2. Oxford Advanced Learner's Dictionary of Current English. 8th ed. Oxford: Oxford UP, 2010
3. Raman, Meenakshi. Technical Communication: Theory and Practice. New Delhi: Oxford UP, 2006
4. RIZVI, M. Ashraf. Effective Technical Communication. Tata McGraw Hill, 2005.
5. Mirror Images- A Text book for general English, Orient Blackswan

CSEINF108: COMPUTER PROGRAMMING AND NUMERICAL METHODS LAB

Lab : 3 Hrs/week

Credits : 2

Int Marks : 50

Ext Marks : 50

List of Programs Using C

1. Write a program to read x, y coordinates of 3 points and then calculate the area of a triangle formed by them and print the coordinates of the three points and the area of the triangle. What will be the output from your program if the three given points are in a straight line.
2. Write a program which generates 100 random numbers in the range of 1 to 100. Store them in an array and then print the array. Write 3 versions of the program using different loop constructs (eg. for, while and do-while).
3. Write a set of string manipulation functions eg. for getting a sub-string from a given position, copying one string to another, reversing a string and adding one string to another.
4. Write a program which determines the largest and the smallest number that can be stored in different data types like short, int, long, float and double. What happens when you add 1 to the largest possible integer number that can be stored?
5. Write a program which generates 100 random real numbers in the range of 10.0 to 20.0 and sort them in descending order.
6. Write a function for transporting a square matrix in place (in place means that you are not allowed to have full temporary matrix).
7. First use an editor to create a file with some integer numbers. Now write a program, which reads these numbers and determines their mean and standard deviation.
8. Implement bisection method to find the square root of a given number to a given accuracy.
9. Implement Newton Raphson Method to determine a root of polynomial equation.
10. Given a table of x and corresponding f(x) values, write a program which will determine f(x) value at an intermediate x value using Lagrange's Interpolation.
11. Write a function which will invert a matrix.
12. Implement Simpson's 1/3rd rule for numerical integration.
13. Implement Trapezoidal rule for numerical integration.
14. Write a program to solve a set of linear algebraic equations.
15. Write a program to solve a differential equation using Runge-Kutta Method.

REFERENCE BOOKS

1. Let Us C, Yashwant Kanetkar, BPB Publications, 5th Edition.
2. Computer Science, A structured programming approach using C", B.A. Forouzan and R.F. Gilberg, " 3rd Edition, Thomson, 2007.
3. The C –Programming Language' B.W. Kernighan, Dennis M. Ritchie, PHI

CSEINF109: PHYSICS LAB

Lab : 3 Hrs/week

Credits : 2

Int Marks : 50

Ext Marks : 50

List of Experiments

1. Melde's Experiment – Determination of frequency of an electrically maintained tuning fork.
2. Newton's Rings – Determination of Radius of Curvature of a Convex Lens
3. Diffracting Grating – Determination of wavelengths of lines of mercury spectrum using spectrometer.
4. Wedge Method – Determination of thickness of paper by forming parallel interface fringes.
5. Determination of refractive index of Ordinary (μ_o) and Extraordinary (μ_e) rays
6. Variation of Magnetic field along the axis of current carrying circular coil Stewart and Gee's apparatus.
7. Lee's Method – Determination of coefficient of thermal conductivity of a bad conductor.
8. Determination of Magnetic Moment and Horizontal (M & H) component of Earth's Magnetic field.
9. Determination of band gap of Semi Conductor.
10. Compound Pendulum
11. Sonometer.

REFERENCE BOOKS:

1. Engineering Physics by M.N. Avadhanulu & P.G. Kshirasagar; S. Chand & Company Ltd.
2. Modern Engineering Physics by A.S. Vadudeva
3. University Physics by Young and Freedman
4. Nonconventional Energy by Ashok V. Desai