Date: 25.08.2025

Ref.: SEAT/Autonomous/First BOS Meeting/CSE(AI&ML)/MoM/AY: 2025-26 /01

First Board of Studies (BoS) Meeting held on 25.08.2025
Minutes of the Meeting (MoM)

The Fresh Autonomous Status has been conferred upon Siddartha Educational Academy, Gollapalli (SEAT) by University Grants Commission (UGC), New Delhi and the Jawaharlal Technological University Anantapur (JNTUA), Ananthapuramu. As part of Autonomous process, the First Board of Studies Meeting of Department of CSE (Artificial Intelligence & Machine Learning), Siddartha Educational Academy Group of Institutions, C. Gollapalli was conducted in blended mode in the E-Class Room No. 138 at 03:00 PM on 25th August 2025 (Monday).

The following online link was used.

Google meeting link: https://meet.google.com/wia-voez-vea

Agenda of the meeting:

Agenda of the meeting is as follows:

1. Welcoming Members of BoS
2. Profile of the Institution
3. Profile of the Department
4. Approval of Course Structure and Syllabus
5. Approval of Question Paper Setters & Evaluators
6. Any other suggestions

Members Present:

The following members attended the meeting:

S. No.	Name of the Member	Designation	Role
Head of the Department concerned (Chairman)			
1.	Dr Sujeeth.T	Head of the Department	Chairman
All faculty members of the Department.			
2	Dr D. Suresh Reddy	Associate Professor	Member
3	Mrs. P. Lavanya	Assistant Professor	Member
4	Mr. D. Mukesh	Assistant Professor	Member
5	Mr. K. Jagadeesh	Assistant Professor	Member
6	Mrs. M. Praneetha	Assistant Professor	Member
7	Mrs. P. Anitha	Assistant Professor	Member

Two subject experts from outside the parent University are to be nominated by the Academic Council.			
8	Dr N. Ramakrishnaiah	Professor Computer Science and Engineering, University College of Engineering, JNTUK, Kakinada.	Member
9	Dr. G. Sreedhar	Professor, Department of Computer Science, National Sanskrit University, Tirupati	Member
One expert is to be nominated by the Vice-Chancellor from a panel of six recommended by the Autonomous College Principal.			
10	Dr. D. Vivekananda Reddy	Professor in CSE Department S.V University, Tirupati	Member
One representative from Industry/Corporate sector/allied areas to be nominated by the principal.			
11	Mr S. Karthik	Software Engineer-Developer, HCL Technologies, Bangalore.	Member
One member of the College Alumni to be nominated by the principal.			
12	Mr. V. Diwakar	System Engineer, TCS, Chennai	Member

Members Absent: - NIL –

Item – 1: Welcoming Board of Studies Members.

The BOS Chairman, Dr. Sujeeth T, welcomed all BoS members and introduced the purpose of the first BoS meeting under autonomous status.

Item -2: Presentation of Institute Profile by CSE (Artificial Intelligence & Machine Learning) BoS Chairman.

The BoS Chairman, Department of CSE (Artificial Intelligence & Machine Learning) has presented the Institute profile.

Item -3: Presentation of Department Profile by the CSE (Artificial Intelligence & Machine Learning) BoS Chairman.

The BoS Chairman, Department of CSE (Artificial Intelligence & Machine Learning) has presented the Department profile which includes:

- Department Vision & Mission
- Intake Details
- Teaching Methods
- Department Laboratories Infrastructure
- Freshers Induction Program
- Student Achievements
- Faculty Achievements
- Department Best Practices

Item – 4: Presentation on Review & Approval of Course Structure and Detailed Syllabus for the Academic Year 2025–26 for I B. Tech CSE (AI & ML) by the BoS Chairman.

Item – 4.1 Course Structure for I B. Tech CSE (AI & ML) - (0 Semester, I Semester and II Semester).

B. Tech (CSE-AI&ML) 0th Semester INDUCTION PROGRAMME

S.No.	Course Name	Category	L-T-P-C
1	Physical Activities -- Sports, Yoga and Meditation, Plantation	MC	0-0-6-0
2	Career Counselling	MC	2-0-2-0
3	Orientation to all branches -- career options, tools, etc.	MC	3-0-0-0
4	Orientation on admitted Branch -- corresponding labs, tools and platforms	EC	2-0-3-0
5	Proficiency Modules & Productivity Tools	ES	2-1-2-0
6	Assessment on basic aptitude and mathematical Skills	MC	2-0-3-0
7	Remedial Training in Foundation Courses	MC	2-1-2-0
8	Human Values & Professional Ethics	MC	3-0-0-0
9	Communication Skills -- focus on Listening, Speaking, Reading, Writing skills	BS	2-1-2-0
10	Concepts of Programming	ES	2-0-2-0

B. Tech (CSE-AI&ML). – I Year I Semester

S. No.	Course Code	Course Name	L/D	T	P	Credits
1	25BTHS103T 25BTHS104T	Engineering Chemistry Chemistry	3	0	0	3
2	25BTHS105T	Linear Algebra & Calculus	3	0	0	3
3	**25BTCS101T**	**Introduction to Programming**	3	0	0	3
4	25BTEE101T	Basic Electrical & Electronics Engineering	3	0	0	3
5	25BTME101T	Engineering Graphics	1	0	4	3
6	25BTHS103P 25BTHS104P	Engineering Chemistry Lab Chemistry Lab	0	0	2	1
7	**25BTCS102P**	**Computer Programming Lab**	0	0	3	1.5
8	25BTEE101P	Electrical & Electronics Engineering Workshop	0	0	3	1.5
9	**25BTCS103P**	**IT Workshop**	0	0	2	1
10	25BTHS108L	NSS/NCC/Scouts &Guides/Community Service	-	-	1	0.5
Total			**13**	**00**	**15**	**20.5**

B. Tech (CSE-AI&ML). – I Year II Semester

S. No.	Course Code	Course Name	L	T	P	Credits
1	25BTHS101T	Communicative English	2	0	0	2
2	25BTHS102T	Engineering Physics	3	0	0	3
3	25BTHS106T	Differential Equations & Vector Calculus	3	0	0	3
4	25BTCE101T	Basic Civil & Mechanical Engineering	3	0	0	3
5	**5BTCS104T** 25BTCE102T	**Data Structures** Engineering Mechanics	3	0	0	3
6	25BTHS101P	Communicative English Lab	0	0	2	1
7	25BTHS102P	Engineering Physics Lab	0	0	3	1
8	**25BTCS104P** 25BTCE102P 25BTCE103P	**Data Structures Lab** Engineering Mechanics Lab Engineering Mechanics & Building Practices Lab	0	0	3	1.5
9	25BTME102P	Engineering Workshop	0	1	3	1.5
10	25BTHS107L	Health and Wellness, Yoga and Sports	-	-	1	0.5
Total			**15**	**2**	**10**	**19.5**

Discussion:

Presentation of Course Structure pertaining to Introduction to Programming (25BTCS101T), Computer Programming Lab (25BTCS102P), IT Workshop (25BTCS103P), Data Structures (25BTCS104T) and Data Structures Lab (25BTCS104P) as formulated by JNTUA towards the department of CSE(AI&ML) in the I year B. Tech program (I Semester and II Semester).

Resolution:

The Board of Studies members have accepted the course structure unanimously without any modification.

Item – 4.2: Approval of detailed syllabus for B. Tech CSE(AI&ML) - I Year

Discussion:

To review and approve the syllabus of 1st and 2nd Semester of UG programme in CSE(AI&ML).

Resolution:

The CSE(AI&ML) Board of Study members have approved the detailed syllabus based on the CSE Board of Study resolution for the following courses.

1. 25BTCS101T - Introduction to Programming
2. 25BTCS102P - Computer Programming Lab
3. 25BTCS103P - IT Workshop
4. 25BTCS104T - Data Structures
5. 25BTCS104P - Data Structures Lab

Copies of the syllabus are attached in **Appendix – I.**

Item – 4.3: Approval of detailed syllabus for M. Tech (Embedded Systems) - I Year

Discussion:

To review and approve the syllabus of Second Semester of PG programme in ECE (Embedded Systems)

Resolution:

The CSE(AI&ML) Board of Study members have approved the detailed syllabus for the following courses without any modification.

1. Artificial Intelligence and Machine Learning (25MTAM101T)
2. Soft Computing Techniques (25MTAM102T)

Copies of the syllabus are attached in **Appendix – II.**

Item -5: Approval of Question Paper Setters & Evaluators

The BoS Chairman, Department of CSE (Artificial Intelligence & Machine Learning) has presented the details of question papers setters and examiners. The Approved panel of examiners are as follows.

S. No	Name of the Examiner	Designation	Address	Mobile No. and Email ID
1.	Dr.J S V R S Sastry	Sr. Associate Professor	Department of CSE GITAM UNIVERSITY Hyderabad	sjosyula@gitam.edu 7702708025
2.	Dr SVG Reddy	Sr.Associate professor	Department of CSE GITAM UNIVERSITY Visakhapatnam	vsaragad@gitam.edu 996 333 2363
3.	P. Aditya Sharma	Assistant Professor,	Department of AI, School of Engineering, Anurag University	adityasharma.ai@anurag.edu.in 8919991306
4.	Dr. Nagesh Vadaparthi	Professor	Department of IT MVGR College of Engineering, Vizianagaram	itsnageshv@gmail.com 9440250038
5.	Dr V Venkata Ramana	Professor,	Department of CSESri Sai Institute of Technology and Science, Autonomous, Rayachoty	viceprincipal@ssits.ac.in 9849777831
6.	Mr. G. Bala Gangadhara	Assistant Professor	School of Computing MB University, Tirupati	balabgangadhar@gmail.com 9951293329
7.	Dr. P. Jaya Prakash	Associate Professor,	Department of IT Sri Venkateswara College of Engineering Tirupathi. Andhra Pradesh	pokalajayaprakash@gmail.com 9908876781

S. No	Name of the Examiner	Designation	Address	Mobile No. and Email ID
8.	Dr.B. Ramakantha Reddy	Associate Professor,	Dept of CSE (AI ML) Sri Venkateswara College of Engineering Tirupathi. Andhra Pradesh	ramakanthareddy@gmail.com 7989634627
9.	Dr P Nageswara Rao	Professor	Dept. Of CSE VEMU Institute of Technology P Kothakota, Tirupati-Chittoor Highway, Chittoor	puttanr@gmail.com 9550195534
10.	E D Pavankumar	Assistant professor Department of CSE	Annamacharaya institute of technology and sciences, Tirupati	pavankumar5490@gmail.com 8801180459
11.	Mr. G. Lakshmikanth	Associate Professor	Dept. Of CSE, Sree Rama Engineering College, Tirupati	svlakshmikanth21@gmail.com 6300146556

Discussion:
To approve the question papers setters and examiners by the Bos Members

Resolution: The CSE(AI&ML) Board of Study members approved the question papers setters and examiners.

Item -6: Any other suggestions
Recommendations: -NIL-

BOS resolved to recommend the following Academic Council for further approval

a) Curriculum of I Year (I Semester and II Semester) of I B.Tech CSE(Artificial Intelligence & Machine Learning).

b) Curriculum of I Year (II Semester) of I M.Tech (Embedded Systems).

The meeting was concluded with vote of thanks by Dr Sujeeth.T, BoS Chairman, Department of CSE (Artificial Intelligence & Machine Learning).

HoD & Chairman – Board of Studies

(Dr Sujeeth. T)

First Board of Studies Meeting

Attendance

Academic Year : 2025-26

Date of Meeting: 25.08.2025

Mode of Meeting Conducted: Blended Mode

Total Number of Committee Members: 12

S. No.	Name of the Member	Designation	Role	Signature
Head of the Department concerned (Chairman)				
1.	Dr Sujeeth	Head of the Department	Chairman	
All faculty members of the Department.				
2	Dr D. Suresh Reddy	Associate Professor	Member	
3	Mrs. P. Lavanya	Assistant Professor	Member	
4	Mr. D. Mukesh	Assistant Professor	Member	
5	Mr. K. Jagadeesh	Assistant Professor	Member	
6	Mrs. M. Praneetha	Assistant Professor	Member	
7	Mrs. P. Anitha	Assistant Professor	Member	
Two subject experts from outside the parent University are to be nominated by the Academic Council.				
8	Dr N. Ramakrishnaiah	Professor Computer Science and Engineering, University College of Engineering, JNTUK, Kakinada.	Member	ONLINE
9	Dr. G. Sreedhar	Professor, Department of Computer Science, National Sanskrit University, Tirupati	Member	
One expert is to be nominated by the Vice-Chancellor from a panel of six recommended by the Autonomous College Principal.				
10	Dr. D. Vivekananda Reddy	Professor in CSE Department S.V University, Tirupati	Member	
One representative from Industry/Corporate sector/allied areas to be nominated by the principal.				
11	Mr. S. Karthik	Software Engineer-Developer, HCL Technologies, Bangalore.	Member	
One member of the College Alumni to be nominated by the principal.				
12	Mr. V. Diwakar	System Engineer, TCS, Chennai	Member	

Hood & Chairman – Board of Studies

(Dr Sujeeth. T)

First BOS Meeting of CSE(AI&ML) Department

Photos – Online & Offline

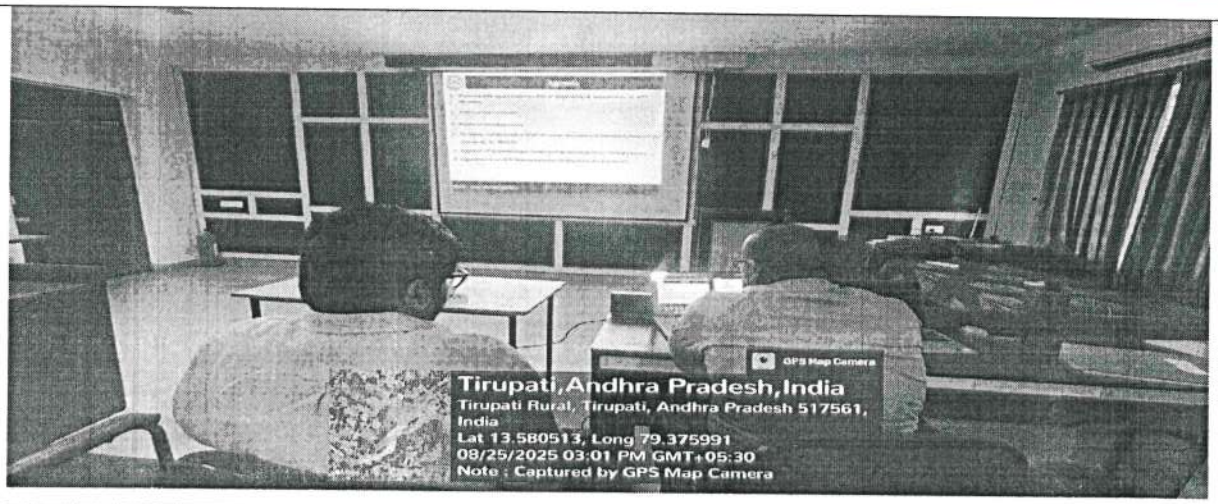
Academic Year : 2025-26

Date of Meeting: 25.08.2025

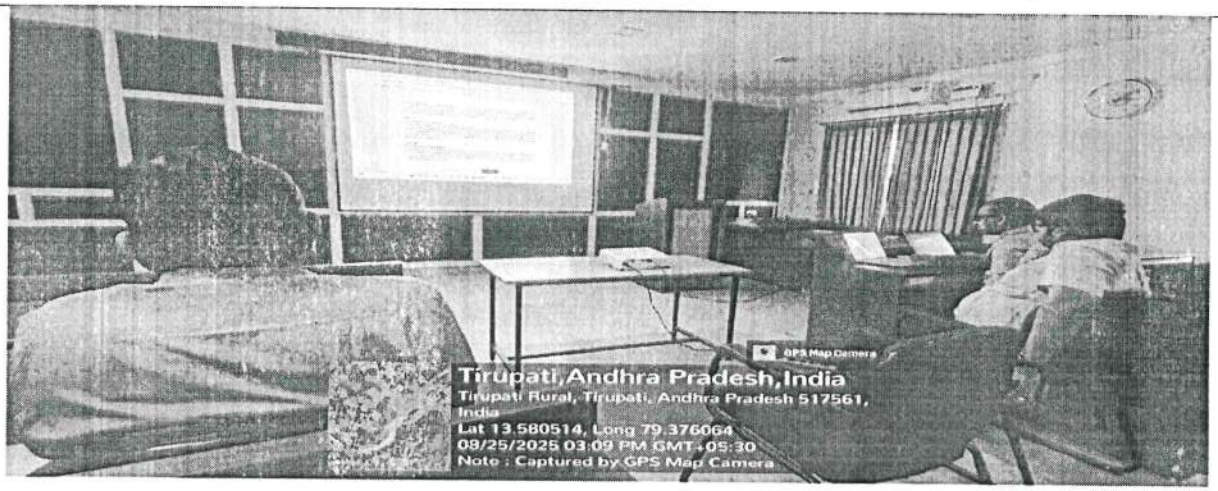
Mode of the Meeting : Blended Mode

1st BOS Meeting Photo: Welcoming the BOS members by the HOD Dr Sujeeth.T

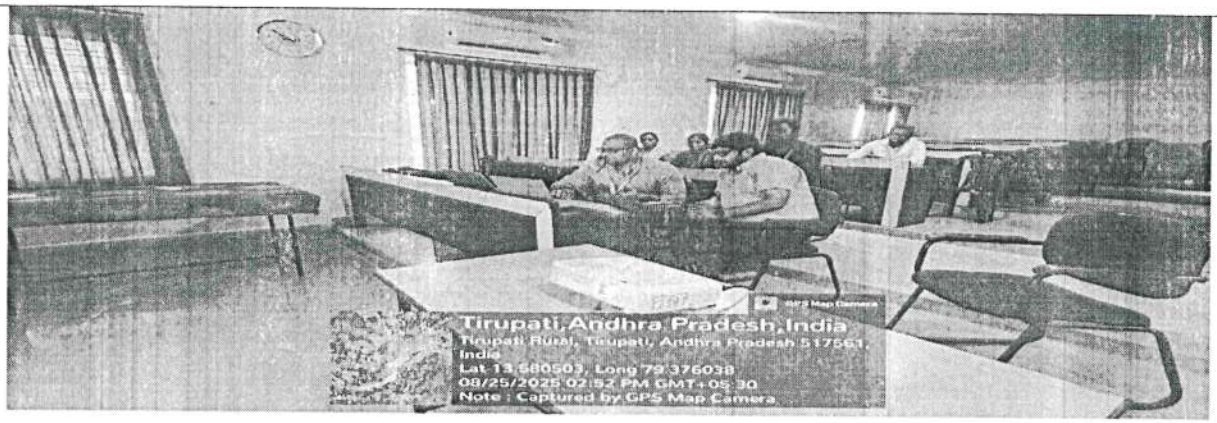
1st BOS Meeting Geotagged Photo: Welcoming the BOS members by the HOD Dr Sujeeth.T



1st BOS meeting Geotagged Photo: The presentation by the HOD Dr Sujeeth.T



1st BOS meeting Geotagged Photo: Discussions between the BOS Members



1st BOS meeting Geotagged Photo: The presentation by the HOD Dr Sujeeth.T

HOD & Chairman – Board of Studies

(Dr Sujeeth. T)

Appendix – I

Course Code	Category	Name of the Course	L	T	P	C
25BTCS101T	ES	**Introduction to Programming** (Common to all branches of Engineering)	3	0	0	3

Pre-Requisites: Nil

Course Objectives:

1. To introduce students to the fundamentals of computer programming.
2. To provide hands-on experience with coding and debugging.
3. To foster logical thinking and problem-solving skills using programming.
4. To familiarize students with programming concepts such as data types, control structures, functions, and arrays.
5. To encourage collaborative learning and teamwork in coding projects.

Course Outcomes (COs):

On successful completion of the course, Student will be able to

CO1: Demonstrate basics of computers, the concept of algorithm & flow chart and analyse the time & complexities of algorithms. (L4)
CO2: Write the algorithms, draw the flow charts and develop the programs using conditional statements of C-Language. (L3)
CO3: Write the algorithm, draw the flow chart and develop the programs using arrays & strings of C-Language. (L3)
CO4: Apply the Pointers & user defined Data types of C language and Develop solutions to real orld problems. (L3)
CO5: Develop the programs using Functions for real world problems in C language. (L3)

Unit I: Introduction to Programming and Problem Solving:

History of Computers, Basic organization of a computer: ALU, input-output units, memory, program counter, Introduction to Programming Languages, Basics of a Computer Program, Algorithms, flowcharts (Using Dia Tool), pseudo code. Introduction to Compilation and Execution, Primitive Data Types, Variables, and Constants, Basic Input and Output, Operations, Type Conversion, and Casting. Problem solving techniques: Algorithmic approach, characteristics of algorithm, Problem solving strategies: Top-down approach, Bottom-up approach, Time and space complexities of algorithms.

Unit II: Control Structures:

Simple sequential programs Conditional Statements (if, if-else, switch), Loops (for, while, do-while) Break and Continue.

Unit III: Arrays and Strings:

Arrays indexing, memory model, programs with array of integers, two dimensional arrays, Introduction to Strings.

Unit IV: Pointers & User Defined Data types:

Pointers, dereferencing and address operators, pointer and address arithmetic, array manipulation using pointers, User-defined data types-Structures and Unions.

Unit -5: Functions & File Handling:

Introduction to Functions, Function Declaration and Definition, Function call Return Types and Arguments, modifying parameters inside functions using pointers, arrays as parameters. Scope and Lifetime of Variables, Basics of File Handling

Note: The syllabus is designed with C Language as the fundamental language of implementation.

Text Books:

1. "The C Programming Language", Brian W. Kernighan and Dennis M. Ritchie, Prentice-Hall, 1988.
2. "Schaum's Outline of Programming with C", Byron S Gottfried, McGraw-Hill Education, 1996.

Reference Books:

1. "Computing fundamentals and C Programming", Balagurusamy, E., McGraw-Hill Education, 2008.
2. "Programming in C", Rema Theraja, Oxford, 2016, 2nd Edition.
3. "C Programming, A Problem-Solving Approach", Forouzan, Gilberg, Prasad, CENGAGE, 3rd Edition.

Course Code	Category	Name of the Course	L	T	P	C
25BTCS102P	ES	Computer Programming Lab (Common to all branches of Engineering)	0	0	3	1.5

Pre Requisites: Nil

Course Objectives:
The course aims at providing students with hands – on experience and train them on the concepts of the C-programming language.

Course Outcomes(COs):
On successful completion of the course, Student will be able to
CO1: Read, understand, and trace the execution of programs written in C language. (L2)
CO2: Select the right control structure for solving the problem. (L3)
CO3: Develop C programs which utilize memory efficiently using programming constructs like pointers. (L3)
CO4: Develop, Debug and Execute programs to demonstrate the applications of arrays, functions, basic concepts of pointers in C. (L3)

Unit I: Week 1:
Objective: Getting familiar with the programming environment on the computer and writing the first program.
Suggested Experiments/Activities:
Tutorial 1: Problem-solving using Computers.
Lab1: Familiarization with programming environment
i) Basic Linux environment and its editors like Vi, Vim & Emacs etc.
ii) Exposure to Turbo C, gcc
iii) Writing simple programs using printf(), scanf()
Week 2:
Objective: Getting familiar with how to formally describe a solution to a problem in a series of finite steps both using textual notation and graphic notation.
Suggested Experiments /Activities:
Tutorial 2: Problem-solving using Algorithms and Flow charts.
Lab 1: Converting algorithms/flow charts into C Source code.
Developing the algorithms/flowcharts for the following sample programs
i) Sum and average of 3 numbers
ii) Conversion of Fahrenheit to Celsius and vice versa
iii) Simple interest calculation
Week 3:
Objective: Learn how to define variables with the desired data-type, initialize them with appropriate values and how arithmetic operators can be used with variables and constants.
Suggested Experiments/Activities:

Tutorial 3: Variable types and type conversions:
Lab 3: Simple computational problems using arithmetic expressions.
i) Finding the square root of a given number
ii) Finding compound interest
iii) Area of a triangle using heron's formulae
iv) Distance travelled by an object

UNIT – II : Week 4:

Objective: Explore the full scope of expressions, type-compatibility of variables & constants and operators used in the expression and how operator precedence works.

Suggested Experiments/Activities:

Tutorial4: Operators and the precedence and as associativity:

Lab4: Simple computational problems using the operator' precedence and associativity

i) Evaluate the following expressions.

a. A+B*C+(D*E) + F*G

b. A/B*C-B+A*D/3

c. A+++B---A

d. J= (i++) + (++i)

ii) Find the maximum of three numbers using conditional operator

iii) Take marks of 5 subjects in integers, and find the total, average in float

Week 5:

Objective: Explore the full scope of different variants of "if construct" namely if-else, null-else, if-else if*-else, switch and nested-if including in what scenario each one of them can be used and how to use them. Explore all relational and logical operators while writing conditionals for "if construct".

Suggested Experiments/Activities:

Tutorial 5: Branching and logical expressions:

Lab 5: Problems involving if-then-else structures.

i) Write a C program to find the max and min of four numbers using if-else.

ii) Write a C program to generate electricity bill.

iii) Find the roots of the quadratic equation.

iv) Write a C program to simulate a calculator using switch case.

v) Write a C program to find the given year is a leap year or not.

Week 6:

Objective: Explore the full scope of iterative constructs namely while loop, do-while loop and for loop in addition to structured jump constructs like break and continue including when each of these statements is more appropriate to use.

Suggested Experiments/Activities:

Tutorial 6: Loops, while and for loops

Lab 6: Iterative problems e.g., the sum of series

i) Find the factorial of given number using any loop.

ii) Find if the given number is a prime or not.

iii) Compute sine and cos series

iv) Checking a number palindrome

v) Construct a pyramid of numbers.

Unit III: Week 7:

Objective: Explore the full scope of Arrays construct namely defining and initializing 1-D and 2-D and more generically n-D arrays and referencing individual array elements from the defined array. Using integer 1-D arrays, explore search solution linear search.

Suggested Experiments/Activities:

Tutorial 7: 1 D Arrays: searching.

Lab 7:1D Array manipulation, linear search

i) Find the min and max of a 1-D integer array.

ii) Perform linear search on1D array.

iii) The reverse of a 1D integer array

iv) Find 2's complement of the given binary number.

v) Eliminate duplicate elements in an array.

Week 8:

Objective: Explore the difference between other arrays and character arrays that can be used as Strings by using null character and get comfortable with string by doing experiments that will reverse a string and concatenate two strings. Explore sorting solution bubble sort using integer arrays.

Suggested Experiments/Activities:

Tutorial 8: 2 D arrays, sorting and Strings.

Lab 8: Matrix problems, String operations, Bubble sort

i) Addition of two matrices

ii) Multiplication two matrices

iii) Sort array elements using bubble sort

iv) Concatenate two strings without built-in functions

v) Reverse a string using built-in and without built-in string functions

Unit – IV : Week9:

Objective: Explore pointers to manage a dynamic array of integers, including memory allocation & value initialization, resizing changing and reordering the contents of an array and memory de-allocation using malloc (), calloc (), realloc () and free () functions. Gain experience processing command-line arguments received by C

Suggested Experiments/Activities:

Tutorial 9: Pointers, structures and dynamic memory allocation

Lab 9: Pointers and structures, memory dereference.

i) Write a C program to find the sum of a 1D array using malloc()

ii) Write a C program to find the total, average of n students using structures

iii) Enter n students data using calloc () and display failed students list

iv) Read student name and marks from the command line and display the student details along with the total.

v) Write a C program to implement realloc ()

Week 10:

Objective: Experiment with C Structures, Unions, bit fields and self-referential structures (Singly linked lists) and nested structures

Suggested Experiments/Activities:

Tutorial 10: Bitfields, Self-Referential Structures, Linked lists

Lab10: Bitfields, linked lists

Read and print a date using dd/mm/yyyy format using bit-fields and differentiate the same without using bit-fields

i) Create and display a singly linked list using self-referential structure.

ii) Demonstrate the differences between structures and unions using a C program.

iii) Write a C program to shift/rotate using bitfields.

iv) Write a C program to copy one structure variable to another structure of the same type.

Unit – V: Week 11:

Objective: Explore the Functions, sub-routines, scope and extent of variables, doing some experiments by parameter passing using call by value. Basic methods of numerical integration

Suggested Experiments/Activities:

Tutorial 11: Functions, call by value, scope and extent,

Lab 11: Simple functions using call by value, solving differential equations using Euler's theorem.

i) Write a C function to calculate NCR value.

ii) Write a C function to find the length of a string.

iii) Write a C function to transpose of a matrix.

iv) Write a C function to demonstrate numerical integration of differential equations using Euler's method

Week 12:

Objective: Explore how recursive solutions can be programmed by writing recursive functions that can be invoked from the main by programming at least five distinct problems that have naturally recursive solutions.

Suggested Experiments/Activities:

Tutorial 12: Recursion, the structure of recursive calls

Lab 12: Recursive functions

i) Write a recursive function to generate Fibonacci series.

ii) Write a recursive function to find the lcm of two numbers.

iii) Write a recursive function to find the factorial of a number.

iv) Write a C Program to implement Ackermann function using recursion.

v) Write a recursive function to find the sum of series.

Week 13:

Objective: Explore the basic difference between normal and pointer variables, Arithmetic operations using pointers and passing variables to functions using pointers

Suggested Experiments/Activities:

Tutorial 13: Call by reference, dangling pointers

Lab 13: Simple functions using Call by reference, Dangling pointers.

i) Write a C program to swap two numbers using call by reference.

ii) Demonstrate Dangling pointer problem using a C program.

iii) Write a C program to copy one string into another using pointer.

iv) Write a C program to find no of lowercase, uppercase, digits and other characters using pointers.

Week14:

Objective: To understand data files and file handling with various file I/O functions. Explore the differences between text and binary files.

Suggested Experiments/Activities:

Tutorial 14: File handling

Lab 14: File operations

i) Write a C program to write and read text into a file.

ii) Write a C program to write and read text into a binary file using fread() and fwrite()

iii) Copy the contents of one file to another file.

iv) Write a C program to merge two files into the third file using command-line arguments.

v) Find no. of lines, words and characters in a file

vi) Write a C program to print the last n characters of a given file.

Text Books:

1. Ajay Mittal, Programming in C: A practical approach, Pearson 1st Edition 2010.
2. Byron Gottfried, Schaum's Outline of Programming with C, Mc Graw Hill; 2nd edition 1996.

Reference Books:

1. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice-Hall of India, 1988.
2. C Programming, A Problem-Solving Approach, Forouzan, Gilberg, Prasad, CENGAGE, 3rd edition, 2011.

Course Code	Category	Name of the Course	L	T	P	C
25BTCS103P	ES	IT Workshop (Common to all branches of Engineering)	0	0	2	1

Pre Requisites: Nil

Course Objectives:

1. To introduce the internal parts of a computer, peripherals, I/O ports, connecting cables
2. To demonstrate configuring the system as Dual boot both Windows and other Operating Systems Viz. Linux, BOSS
3. To teach basic command line interface commands on Linux.
4. To teach the usage of Internet for productivity and self-paced life-long learning
5. To introduce Compression, Multimedia and Antivirus tools and Office Tools such as Word processors, Spread sheets and Presentation tools.

Course Outcomes (COs):

On successful completion of the course, Student will be able to

CO1: Perform Hardware troubleshooting. (L3)
CO2: Demonstrate the Hardware components and inter dependencies. (L2)
CO3: Safeguard computer systems from viruses/worms. (L3)
CO4: Prepare Document/ Presentation by utilizing computer tools. (L3)
CO5: Perform calculations using spreadsheets. (L3)

PC Hardware & Software Installation:

Task 1: Identify the peripherals of a computer, components in a CPU and its functions. Draw the block diagram of the CPU along with the configuration of each peripheral and submit it to your instructor.

Task 2: Every student should disassemble and assemble the PC back to working condition. Lab instructors should verify the work and follow it up with a Viva. Also, students need to go through the video which shows the process of assembling a PC. A video would be given as part of the course content.

Task 3: Every student should individually install MS windows on the personal computer. Lab instructor should verify the installation and follow it up with a Viva.

Task 4: Every student should install Linux on the computer. This computer should have windows installed. The system should be configured as dual boot (VMWare) with both Windows and Linux. Lab instructors should verify the installation and follow it up with a Viva

Task 5: Every student should install BOSS on the computer. The system should be configured as dual boot (VMW are) with both Windows and BOSS. Lab instructors should verify the installation and follow it up with a Viva

Internet & World Wide Web:

Task1: Orientation & Connectivity Boot Camp: Students should get connected to their Local Area Network and access the Internet. In the process they configure the TCP/IP setting. Finally, students should demonstrate to the instructor how to access websites and email. If there is no internet connectivity preparations need to be made by the instructors to simulate the WWW on the LAN.

Task 2: Web Browsers, Surfing the Web: Students customize their web browsers with the LAN proxy settings, bookmarks, search toolbars and pop-up blockers. Also, plug-ins like Macromedia Flash and JRE for applets should be configured.

Task 3: Search Engines & Netiquette: Students should know what search engines are and how to use the search engines. A few topics would be given to the students for which they need to search on Google. This should be demonstrated to the instructors by the student.

Task 4: Cyber Hygiene: Students would be exposed to the various threats on the internet and would be asked to configure their computer to be safe on the internet. They need to customize their browsers to block pop ups, block active x downloads to avoid viruses and/or worms.

La TeX and Word:

Task 1: Word Orientation: The mentor needs to give an overview of La TeX and Microsoft (MS) office or equivalent (FOSS) tool word: Importance of La TeX and MS office or equivalent (FOSS) tool Word as word Processors, Details of the four tasks and features that would be covered in each, Using La TeX and word –Accessing, overview of toolbars, saving files, Using help and resources, rulers, format painter in word.

Task 2: Using La TeX and Word to create a project certificate. Features to be covered: -Formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option in both LaTeX and Word.

Task 3: Creating project abstract Features to be covered: -Formatting Styles, inserting table, Bullets and Numbering, Changing Text Direction, Cell alignment, Footnote, Hyperlink, Symbols, Spell Check, Track Changes.

Task 4: Creating a Newsletter: Features to be covered: -Table of Content, Newspaper columns, Images from files and clipart, Drawing toolbar and Word Art, Formatting Images, Textboxes, Paragraphs and Mail Merge in word.

Excel:

Excel Orientation: The mentor needs to tell the importance of MS office or equivalent (FOSS) tool Excel as a Spreadsheet tool, give the details of the four tasks and features that would be covered in each. Using Excel –Accessing, overview of toolbars, saving excel files, Using help and resources.

Task 1: Creating a Scheduler -Features to be covered: Gridlines, Format Cells, Summation, auto fill, Formatting Text

Task 2: Calculating GPA -. Features to be covered: -Cell Referencing, Formulae in excel –average, std. deviation, Charts, Renaming and Inserting worksheets, Hyper linking, Count function,

LOOKUP/VLOOKUP

Task 3: Split cells, freeze panes, group and outline, Sorting, Boolean and logical operators, Conditional formatting

Power Point

Task 1: Students will be working on basic power point utilities and tools which help them create basic power point presentations. PPT Orientation, Slide Layouts, Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows in PowerPoint.

Task 2: Interactive presentations -Hyperlinks, Inserting –Images, Clip Art, Audio, Video, Objects, Tables and Charts.

Task 3: Master Layouts (slide, template, and notes), Types of views (basic, presentation, slide slotter, notes etc), and Inserting –Background, textures, Design Templates, Hidden slides.

AI Tools –Chat GPT

Task 1: Prompt Engineering: Experiment with different types of prompts to see how the model responds. Try asking questions, starting conversations, or even providing incomplete sentences to see how the model completes them.

Ex: Prompt: "You are a knowledgeable AI. Please answer the following question: What is the capital of France?"

Task 2: Creative Writing: Use the model as a writing assistant. Provide the beginning of a story or a description of a scene, and let the model generate the rest of the content. This can be a fun way to brainstorm creative ideas

Ex: Prompt: "In a world where gravity suddenly stopped working, people started floating upwards. Write a story about how society adapted to this new reality."

Task 3: Language Translation: Experiment with translation tasks by providing a sentence in one language and asking the model to translate it into another language. Compare the output to see how accurate and fluent the translations are.

Ex: Prompt: "Translate the following English sentence to French: 'Hello, how are you doing today?'"

Reference Books:

1. Comdex Information Technology course tool kit, Vikas Gupta, WILEY Dream tech, 2003
2. The Complete Computer upgrade and repair book, Cheryl A Schmidt, WILEY Dream tech, 2013, 3rd edition
3. Introduction to Information Technology, ITL Education Solutions limited, Pearson Education, 2012, 2nd edition
4. PC Hardware -A Handbook, Kate J. Chase, PHI (Microsoft), 1st Edition, 2004.
5. LaTeX Companion, Leslie Lamport, PHI/Pearson, 1st edition, 1994.
6. IT Essentials PC Hardware and Software Companion Guide, David Anfins on and Ken Quamme. – CISCO Press, Pearson Education, 3rd edition, 2008.
   IT Essentials PC Hardware and Software Labs and Study Guide, Patrick Regan–CISCO Press, Pearson Education, 3rd edition, 2008.

Course Code	Category	Name of the Course	L	T	P	C
25BTCS104T	PC	Data Structures (Common to CSE, CSE(AI), CSE(DS) & CSE (AI&ML))	2	1	0	3

Pre Requisites: Basic Knowledge in C-Language

Course Objectives:

1. To provide the knowledge of basic data structures and their implementations.
2. To understand the importance of data structures in context of writing efficient programs.
3. To develop skills to apply appropriate data structures in problem solving.

Course Outcomes(COs):

On successful completion of the course, Student will be able to

CO1: Implement linear data structures using Abstract Data Types (ADTs) and apply basic searching and sorting techniques to solve computational problems with appropriate time and space complexity considerations. (L3)

CO2: Design, implement, and apply linked lists for dynamic data storage, demonstrating understanding of memory allocation. (L4)

CO3: Develop programs using stacks to handle recursive algorithms, manage program states, and solve related problems. (L3)

CO4: Apply queue-based algorithms for efficient task scheduling and breadth-first traversal in graphs and distinguish between deques and priority queues and apply them appropriately to solve data management challenges. (L3)

CO5: Design novel solutions to small scale programming challenges involving data structures such as stacks, queues, Trees. Recognize scenarios where hashing is advantageous, and design hash-based solutions for specific problems. (L4)

Unit I: Introduction to Linear Data Structures:

Definition and importance of linear data structures, Abstract data types (ADTs) and their implementation, Overview of time and space complexity analysis for linear data structures. Searching Techniques: Linear & Binary Search, Sorting Techniques: Bubble sort, Selection sort, Insertion Sort.

Unit II: Linked Lists:

Singly linked lists: representation and operations, doubly linked lists and circular linked lists, Comparing arrays and linked lists, Applications of linked lists.

Unit III: Stacks:

Introduction to stacks: properties and operations, implementing stacks using arrays and linked lists, Applications of stacks in expression evaluation, backtracking, reversing list etc.

Unit IV: Queues, Deques and Graphs:

Queues: Introduction to queues: properties and operations, implementing queues using arrays and linked lists, Applications of queues in breadth-first search, scheduling, etc.

Deques: Introduction to deques (double-ended queues), Operations on deques and their applications, **Graphs**: Basic Terminology and Representations.

Unit V: Trees & Hashing:

Trees: Introduction to Trees, Binary Search Tree –Insertion, Deletion & Traversal.

Hashing: Brief introduction to hashing and hash functions, Collision resolution techniques: chaining and open addressing, Hash tables: basic implementation and operations, Applications of hashing in unique identifier generation, caching, etc.

Text Books:

1. Data Structures and algorithm analysis in C, Mark Allen Weiss, Pearson, 2ndEdition, 2002.
2. Fundamentals of data structures in C, Ellis Horowitz, SartajSahni, Susan Anderson-Freed, Silicon Press, 2008.

Reference Books:

1. Algorithms and Data Structures: The Basic Toolbox by Kurt Mehlhorn and Peter Sanders, 1st edition, 2008.
2. C Data Structures and Algorithms by Alfred V. Aho, Jeffrey D. Ullman, and John E. Hopcroft, 1st edition, 2002.
3. Problem Solving with Algorithms and Data Structures" by Brad Miller and David Ranum, 1st edition, 2006.
4. Introduction to Algorithms by Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, and Clifford Stein, 3rd edition, 2006.
5. Algorithms in C, Parts 1-5 (Bundle): Fundamentals, Data Structures, Sorting, Searching, and Graph Algorithms" by Robert Sedgewick, 3rd edition, 2001.

Course Code	Category	Name of the Course	L	T	P	C
25BTCS104P	PC	Data Structures Lab (Common to CSE, CSE(AIML) CSE (D) & CSE(AI))	0	0	3	1.5

Pre Requisites: Basic Knowledge in C-Language

Course Objectives:

The course aims at strengthening the ability of the students to identify and apply suitable data structure for the given real-world problem. It enables them to gain knowledge in practical applications of data structures.

Course Outcomes (COs):

On successful completion of the course, Student will be able to

CO1: Explain the role of linear data structures in organizing & accessing data efficiently in algorithms. (L2)

CO2: Design, implement, and apply linked lists for dynamic data storage, demonstrating understanding of memory allocation. (L4)

CO3: Develop programs using stacks to handle recursive algorithms, manage program states, and solve related problems. (L3)

CO4: Apply queue-based algorithms for efficient task scheduling and breadth-first traversal in graphs and distinguish between deques and priority queues and apply them appropriately to solve data management challenges. (L3)

CO5: Recognize scenarios where hashing is advantageous, and design hash-based solutions for specific problems. (L3)

List of Experiments:

Exercise 1: Array Manipulation

i) Write a program to reverse an array.

ii) C Programs to implement the Searching Techniques –Linear & Binary Search

iii) C Programs to implement Sorting Techniques –Bubble, Selection and Insertion Sort

Exercise 2: Linked List Implementation

i) Implement a singly linked list and perform insertion and deletion operations.

ii) Develop a program to reverse a linked list iteratively and recursively.

iii) Solve problems involving linked list traversal and manipulation.

Exercise 3: Linked List Applications

i) Create a program to detect and remove duplicates from a linked list.

ii) Implement a linked list to represent polynomials and perform addition.

iii) Implement a double-ended queue (deque) with essential operations.

Exercise 4: Double Linked List Implementation

i) Implement a doubly linked list and perform various operations to understand its properties and applications.

ii) Implement a circular linked list and perform insertion, deletion, and traversal.

Exercise 5: Stack Operations

i) Implement a stack using arrays and linked lists.

ii) Write a program to evaluate a postfix expression using a stack.

iii) Implement a program to check for balanced parentheses using a stack.

Exercise 6: Queue Operations

i) Implement a queue using arrays and linked lists.

ii) Develop a program to simulate a simple printer queue system.

iii) Solve problems involving circular queues.

Exercise 7: Stack and Queue Applications

i) Use a stack to evaluate an infix expression and convert it to postfix.

ii) Create a program to determine whether a given string is a palindrome or not.

iii) Implement a stack or queue to perform comparison and check for symmetry.

Exercise 8: Binary Search Tree

i) Implementing a BST using Linked List.

ii) Traversing of BST.

Exercise 9: Hashing

i) Implement a hash table with collision resolution techniques.

ii) Write a program to implement a simple cache using hashing.

Text Books:

1. Data Structures and algorithm analysis in C, Mark Allen Weiss, Pearson, 2ndEdition, 2002.
2. Fundamentals of data structures in C, Ellis Horowitz, SartajSahni, Susan Anderson-Freed, Silicon Press, 2008

Reference Books:

1. Algorithms and Data Structures: The Basic Toolbox byKurtMehlhorn and Peter Sanders, 1st edition, 2002.

2. C Data Structures and Algorithms by Alfred V. Aho, Jeffrey D. Ullman, and John E. Hopcroft, 1st edition, 2008.
3. Problem Solving with Algorithms and Data Structures" by Brad Miller and David Ranum, 1stedtion, 2006.
4. Introduction to Algorithms by Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, and Clifford Stein, 3rd edition 2006.
5. Algorithms in C, Parts 1-5 (Bundle): Fundamentals, Data Structures, Sorting, Searching, and Graph Algorithms by Robert Sedgewick, 3rd edition, 2001.

Appendix – II

Course Code	Category	Name of the Course	L	T	P	C
25MTAM101T	PC	ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING (Program Elective – III)	3	0	0	3

Course Objectives:

- To learn the difference between optimal reasoning vs human like reasoning
- To understand the notions of state space representation, exhaustive search, heuristic search along with the time and space complexities
- To learn different knowledge representation techniques
- To understand the applications of AI: namely Game Playing, Theorem Proving, Expert Systems, Machine Learning and Natural. Language Processing

Course Outcomes (CO): Student will be able to

- Possess the ability to formulate an efficient problem space for a problem expressed in English.
- Possess the ability to select a search algorithm for a problem and characterize its time and space complexities.
- Possess the skill for representing knowledge using the appropriate technique.
- Possess the ability to apply AI techniques to solve problems of Game Playing, Expert Systems, Machine Learning and Natural Language Processing.

UNIT – I

Introduction, History, Intelligent Systems, Foundations of AI, Sub areas of AI, Applications. Problem Solving – State-Space Search and Control Strategies: Introduction, General Problem Solving, Characteristics of Problem, Exhaustive Searches, Heuristic Search Techniques, IterativeDeepening A*, Constraint Satisfaction. Game Playing, Bounded Look-ahead Strategy and use of Evaluation Functions, Alpha-Beta Pruning.

(CS. Karthik) (V. Diwakar) (Dr. G. Sreedhar)

UNIT – II

Logic Concepts and Logic Programming

Introduction, Propositional Calculus, Propositional Logic, Natural Deduction System, Axiomatic System, Semantic Tableau System in Propositional Logic, Resolution Refutation in Propositional Logic, Predicate Logic, Logic Programming. Knowledge Representation: Introduction, Approaches to Knowledge Representation, Knowledge Representation using Semantic Network, Extended Semantic Networks for KR, Knowledge Representation using Frames.

UNIT – III

Expert System and Applications

Introduction, Phases in Building Expert Systems, Expert System Architecture, Expert Systems Vs Traditional Systems, Truth Maintenance Systems, Application of Expert Systems, List of Shells and Tools. Uncertainty Measure – Probability Theory: Introduction, Probability Theory, Bayesian Belief Networks, Certainty Factor Theory, Dempster-Shafer Theory.

UNIT – IV

Machine-Learning Paradigms

Introduction. Machine Learning Systems.Supervised and Unsupervised Learning. Inductive Learning. Learning Decision Trees (Text Book 2), Deductive Learning. Clustering, Support Vector Machines. Artificial Neural Networks: Introduction, Artificial Neural Networks, Single- Layer FeedForward Networks, Multi-Layer Feed-Forward Networks, Radial- Basis Function Networks, Design Issues of Artificial Neural Networks, Recurrent Networks.

UNIT – V

Advanced Knowledge Representation Techniques

Case Grammars, Semantic Web Natural Language Processing: Introduction, Sentence Analysis Phases, Grammars and Parsers, Types of Parsers, Semantic Analysis, Universal Networking Knowledge.

Textbooks:

Kartik (S. Karthik) Divakar (V. Divakar)

1. Saroj Kaushik. Artificial Intelligence. Cengage Learning, 2011.
2. Russell, Norvig: Artificial intelligence, A Modern Approach, Pearson Education, Second Edition. 2004.

Reference Books:

1. Rich, Knight, Nair: Artificial intelligence, Tata McGraw Hill, Third Edition 2009.

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Course Code	Category	Name of the Course	L	T	P	C
25MTAM102T	PC	SOFT COMPUTING TECHNIQUES (Program Elective – IV)	3	0	0	3

Course Objectives:

- To understand the concepts of different types neural networks
- To understand the concepts of fuzzy logic systems
- To learn concepts of genetic algorithm

Course Outcomes (CO): Student will be able to

- Understand the concepts of different types neural networks
- Understand the concepts of fuzzy logic systems
- Learn concepts of genetic algorithm

UNIT - I

Fundamentals of Neural Networks & Feed Forward Networks: Basic Concept of Neural Networks, Human Brain, Models of an Artificial Neuron, Learning Methods, Neural Networks Architectures.

Feed Forward Neural Network: Single Layer Feed Forward Neural Network, The Perceptron Model, Multilayer Feed Forward Neural Network, Architecture of a Back Propagation Network(BPN), The Solution, Backpropagation Learning, Selection of various Parameters in BPN. Application of Back propagation Networks in Pattern Recognition & Image Processing.

UNIT – II

Associative Memories & ART Neural Networks: Basic concepts of Linear Associator, Basic concepts of Dynamical systems, Mathematical Foundation of Discrete-Time Hop field Networks(HPF), Mathematical Foundation of Gradient-Type Hopfield Networks, Transient response of Continuous Time Networks, Applications of HPF in Solution of Optimization Problem: Minimization of the Traveling salesman tour length, Summing networks with digital outputs, Solving Simultaneous Linear Equations, Bidirectional Associative Memory Networks; Cluster Structure, Vector Quantization, Classical ART Networks, Simplified ART Architecture

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UNIT – III

Fuzzy Logic & Systems: Fuzzy sets, Crisp Relations, Fuzzy Relations, Crisp Logic, Predicate Logic, Fuzzy Logic, Fuzzy Rule based system, Defuzzification Methods, Applications: Greg Viot's Fuzzy Cruise Controller, Air Conditioner Controller.

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UNIT – IV

Genetic Algorithms: Basic Concepts of Genetic Algorithms (GA), Biological background, Creation of Offsprings, Working Principle, Encoding, Fitness Function, Reproduction, Inheritance Operators, Cross Over, Inversion and Deletion, Mutation Operator, Bit-wise Operators used in GA, Generational Cycle, Convergence of Genetic Algorithm.

UNIT – V

Hybrid Systems: Types of Hybrid Systems, Neural Networks, Fuzzy Logic, and Genetic Algorithms Hybrid, Genetic Algorithm based BPN: GA Based weight Determination, Fuzzy Back Propagation Networks: LR-type fuzzy numbers, Fuzzy Neuron, Fuzzy BP Architecture, Learning in Fuzzy BPN, Inference by fuzzy BPN.

Textbooks:

1.Introduction to Artificial Neural Systems - J.M.Zurada, Jaico Publishers
2.Neural Networks, Fuzzy Logic & Genetic Algorithms: Synthesis & Applications -S.Rajasekaran, G.A. VijayalakshmiPai, July 2011, PHI, New Delhi.
3. Genetic Algorithms by David E. Gold Berg, Pearson Education India, 2006.
4.Neural Networks & Fuzzy Sytems- Kosko.B., PHI, Delhi,1994.

(S. Karthik)

(V. Diwakar)

Reference Books:

1. Artificial Neural Networks - Dr. B. Yagananarayana, 1999, PHI, New Delhi.
2.An introduction to Genetic Algorithms - Mitchell Melanie, MIT Press, 1998
3.Fuzzy Sets, Uncertainty and Information- Klir G.J. & Folger. T. A., PHI, Delhi, 1993.

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