



RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS

[formerly Known as RISE Gandhi Group of Institutions]
(Approved by AICTE, New Delhi and affiliated to JNTUK, Kakinada)
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Dr. K.V. Subrahmanyam

M.Tech, Ph.D, MISTE, FIE, FIETE.

Principal

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING (DATA SCIENCE)

Minutes of Board of Studies Meeting

Date: 07/01/2025

The Second External Board of Studies Meeting of the Department Computer Science and Engineering was held online on 07.01.2025 at 10:30 AM via Google Meet platform to finalize course structure for the second semester of RG24 (Autonomous) regulation as well as finalizing the syllabus for second semester. The following members were present:

S.No	Name of the Member	Designation	Position	Signature
1	Mr P. Isaac Paul	Head of the Department	Chairman	
2	Dr A S N Chakravarthy	Professor, Department of Computer science and Engineering, JNTUK, Kakinada	University Nominee, Member	
3	Dr E Vamsidhar	Professor in Computer Science and Engineering, KL University, Vijayawada	Subject Expert, Member	
4	Dr T M N Vamsi	Professor in Computer Science and Engineering, GITAM, Visakhapatnam	Subject Expert, Member	Approved via E-mail
5	Mr Ramesh Yejji	Team Lead, Qualcomm , Hyderabad	Member from Industry	
6	Dr M. Bharathi Devi	Associate Professor, Dept of CSE, RGAN	Faculty Member	
7	Mr P Suresh Babu	Assistant Professor, Dept of CSE, RGAN	Faculty Member	
8	Mr N Anohu	Assistant Professor, Dept of CSE, RGAN	Faculty Member	
9	Mr R Sailokesh Singh	Associate IT Consultant, ITC Infotech	Alumni Member	Approved via E-mail

At the onset of the meeting, the Chairman of BoS, P. Isaac Paul, welcomed all the members and introduced members to all. The meeting began with the presentation of course structure by the chair for semesters I-II under RG24 regulations. He then presented the syllabus of “Data Structures and “Data Structures Lab”.

Promoted by

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Resolutions in Meeting

Agenda 1:

To discuss and finalize the course structure of RG24 (Autonomous) regulations for 1st year and syllabus of the proposed I-II Semester courses.

Resolutions:

Resolved that the course structure of first year is found to be satisfactory and mostly in-line with the JNTUK model course structure hence approved.

Agenda 2:

To discuss and finalize the syllabus of “**Data Structures**” for first year and second semester course.

Resolutions:

Resolved that the syllabus of “**Data Structures**” is found to be satisfactory hence approved.

Agenda 3:

To discuss and finalize the syllabus of “**Data Structures Lab**” for first year and second semester course.

Resolutions:

Resolved that the syllabus of “**Data Structures Lab**” is found to be satisfactory and approved.

General Comments

University Nominee **Dr ASN Chakravarthy** agree with the course structure of RG24 regulation in first year first semester. Suggested to add latest editions of the text books and reference books.

Subject expert comments

Dr E Vamsidhar

Agreed with Course structure and syllabus for RG24 regulation in first year second semester. Suggested to add Indian author books.

Dr T M N Vamsi

Agreed with Course structure and syllabus for RG24 regulation in first year second semester.

Mr Ramesh Yejji

Agreed with Course structure and syllabus for RG24 regulation in first year second semester.

Encl: Annexure –I

RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS

(AUTONOMOUS)



I B.TECH – COURSE STRUCTURE-RG24

(Applicable from the Academic Year 2024-25 onwards)

Group-A Branches: CSE

Group-B Branches: ECE & CSE (DS)

B.TECH. – I Year I Semester (for Group-A Branches)

S.No	Category	Course Title	L	T	P	Credits
1	BS&H	Communicative English	2	0	0	2
2	BS&H	Chemistry	3	0	0	3
3	BS&H	Linear Algebra & Calculus	3	0	0	3
4	ES	Basic Civil & Mechanical Engineering	3	0	0	3
5	ES	Introduction to Programming	3	0	0	3
6	BS&H	Communicative English Lab	0	0	2	1
7	BS&H	Chemistry Lab	0	0	2	1
8	ES	Engineering Workshop	0	0	3	1.5
9	ES	Computer Programming Lab	0	0	3	1.5
10	BS&H	Health and wellness, Yoga and Sports	0	0	1	0.5
Total Credits			14	00	11	19.5

B.TECH. – I Year I Semester (for Group-B Branches)

S.No	Category	Course Title	L	T	P	Credits
1	BS&H	Engineering Physics	3	0	0	3
2	BS&H	Linear Algebra & Calculus	3	0	0	3
3	ES	Basic Electrical & Electronics Engineering	3	0	0	3
4	ES	Engineering Graphics	1	0	4	3
5	ES	Introduction to Programming	3	0	0	3
6	ES	IT Workshop	0	0	2	1
7	BS&H	Engineering Physics Lab	0	0	2	1
8	ES	Electrical & Electronics Engineering Workshop	0	0	3	1.5
9	ES	Computer Programming Lab	0	0	3	1.5
10	BS&H	NSS/NCC/Scouts & Guides/Community Service	0	0	1	0.5
Total Credits			13	00	15	20.5

B.TECH. – I Year II Semester (for Group-A Branches)

S.No	Category	Course Title	L	T	P	Credits
1	BS&H	Engineering Physics	3	0	0	3
2	BS&H	Differential Equations & Vector Calculus	3	0	0	3
3	ES	Basic Electrical & Electronics Engineering	3	0	0	3
4	ES	Engineering Graphics	1	0	4	3
5	Professional Core	Data Structures	3	0	0	3
6	ES	IT Workshop	0	0	2	1
7	BS&H	Engineering Physics Lab	0	0	2	1
8	ES	Electrical & Electronics Engineering Workshop	0	0	3	1.5
9	Professional Core	Data Structures Lab	0	0	3	1.5
10	BS&H	NSS/NCC/Scouts & Guides/Community Service	0	0	1	0.5
Total Credits			13	00	15	20.5

B.TECH. – I Year II Semester (for Group-B Branches)

S.No	Category	Course Title	L	T	P	Credits
1	BS&H	Communicative English	2	0	0	2
2	BS&H	Chemistry	3	0	0	3
3	BS&H	Differential Equations & Vector Calculus	3	0	0	3
4	ES	Basic Civil & Mechanical Engineering	3	0	0	3
5	Professional Core	Network Analysis / Data Structures	3	0	0	3
6	BS&H	Communicative English Lab	0	0	2	1
7	BS&H	Chemistry Lab	0	0	2	1
8	ES	Engineering Workshop	0	0	3	1.5
9	Professional Core	Network Analysis Lab / Data Structures Lab	0	0	3	1.5
10	BS&H	Health and wellness, Yoga and Sports	0	0	1	0.5
Total Credits			14	00	11	19.5

L	T	P	C
3	0	0	3

DATA STRUCTURES

(Common to CSE & CSE (DS) branches)

Course Objectives:

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

Course Outcomes: At the end of the course, Student will be able to

CO1: Explain the role of linear data structures in organizing and accessing data efficiently in algorithms.

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

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

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

CO5: Devise novel solutions to small scale programming challenges involving data structures such as stacks, queues, Trees.

CO6: Recognize scenarios where hashing is advantageous, and design hash-based solutions for specific problems.

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 array and linked lists, Applications of stacks in expression evaluation, backtracking, reversing list etc.

UNIT IV

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

Dequeues: Introduction to dequeues (double-ended queues), Operations on dequeues and their applications.

UNIT V

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, 2nd Edition.
2. Fundamentals of data structures in C, Ellis Horowitz, Sartaj Sahni, Susan Anderson-Freed, Silicon Press, 2008

Reference Books:

1. Algorithms and Data Structures: The Basic Tool box by Kurt Mehlhorn and Peter Sanders
2. C Data Structures and Algorithms by Alfred V. Aho, Jeffrey D. Ullman, and John E.Hopcroft
3. Problem Solving with Algorithms and Data Structures by Brad Millerand David Ranum
4. Introduction to Algorithms by Thomas H. Cormen, Charles E. Leiserson, Ronald L.Rivest, and Clifford Stein
5. Algorithms in C, Parts1-5 (Bundle): Fundamentals, Data Structures, Sorting, Searching, and Graph Algorithms by Robert Sedgewick

L	T	P	C
0	0	3	1.5

DATA STRUCTURES LAB

(Common to CSE & CSE (DS) branches)

Course Objectives:

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

Course Outcomes: At the end of the course, Student will be able to

CO1: Explain the role of linear data structures in organizing and accessing data efficiently in algorithms.

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

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

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.

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

List of Experiments:

Exercise 1: Array Manipulation

- Write a program to reverse an array.
- C Programs to implement the Searching Techniques–Linear & Binary Search
- C Programs to implement Sorting Techniques–Bubble, Selection and Insertion Sort

Exercise 2: Linked List Implementation

- Implement a singly linked list and perform insertion and deletion operations.
- Develop a program to reverse a linked list iteratively and recursively.
- Solve problems involving linked list traversal and manipulation.

Exercise 3: Linked List Applications

- Create a program to detect and remove duplicates from a linked list.
- Implement a linked list to represent polynomials and perform addition.
- Implement a double-ended queue (deque) with essential operations.

Exercise 4: Double Linked List Implementation

- Implement a doubly linked list and perform various operations to understand its properties and applications.
- 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, 2nd Edition.
2. Fundamentals of data structures in C, Ellis Horowitz, Sartaj Sahni, Susan Anderson-Freed, Silicon Press, 2008

Reference Books:

1. Algorithms and Data Structures: The Basic Tool box by Kurt Mehlhorn and Peter Sanders
2. C Data Structures and Algorithms by Alfred V. Aho, Jeffrey D. Ullman, and John E. Hopcroft
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5. Algorithms in C, Parts 1-5 (Bundle): Fundamentals, Data Structures, Sorting, Searching, and Graph Algorithms by Robert Sedgewick.



CSE Dept <csehod@risekrishnasaigandhi.edu.in>

From RGAN(8B) CSE - Req for approval of minutes in BOS Dated. 07-01-2025

Prof. ASN Chakravarthy <asnchakravarthy@jntucek.ac.in>
To: CSE Dept <csehod@risekrishnasaigandhi.edu.in>

Sat, Jan 11, 2025 at 1:35 PM

Approved.

On Sat, 11 Jan, 2025, 12:57 pm CSE Dept, <csehod@risekrishnasaigandhi.edu.in> wrote:

To
Dr. A. S. N Chakravarthy,
Professor,
Department of CSE,
JNTUK,
Kakinada

Respected Sir,

I hope you are doing well.

Please find attached the minutes from the recent Board of Studies (BoS) meeting held on 07-01-2025. I kindly request your approval of these minutes via email. If there are any corrections or suggestions, please share them.

Your prompt response will be appreciated. If you approve the minutes as they are, a simple reply stating your approval will suffice.

Thank you for your cooperation.

Thank you for your time and attention.

thanks with regards

Isaac Paul P,

HOD, Department Of CSE,

RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS, ONGOLE

Mobile: 891 910 8225, 998 951 2789



CSE Dept <csehod@risekrishnasaigandhi.edu.in>

From RGAN(8B) CSE - Req for approval of minutes in BOS Dated. 07-01-2025

Dr Enireddy vamsidhar <vamsidhar@kluniversity.in>
To: CSE Dept <csehod@risekrishnasaigandhi.edu.in>

Sat, Jan 11, 2025 at 1:26 PM

Dear Sir,
Approved.

Dr.E.Vamsidhar
Professor
Department of CSE
Koneru Lakshmaiah Education Foundation.
Vaddeswaram, Guntur.

From: CSE Dept <csehod@risekrishnasaigandhi.edu.in>
Sent: 11 January 2025 13:00
To: Dr Enireddy vamsidhar <vamsidhar@kluniversity.in>
Subject: From RGAN(8B) CSE - Req for approval of minutes in BOS Dated. 07-01-2025

To
Dr. E. Vamsidhar,
Professor in Computer Science and
Engineering, KL University,
Vijayawada.

Respected Sir,

I hope you are doing well.

Please find attached the minutes from the recent Board of Studies (BoS) meeting held on 07-01-2025. I kindly request your approval of these minutes via email. If there are any corrections or suggestions, please share them.

Your prompt response will be appreciated. If you approve the minutes as they are, a simple reply stating your approval will suffice.

Thank you for your cooperation.

Thank you for your time and attention.

thanks with regards

Isaac Paul P,

HOD, Department Of CSE,

RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS, ONGOLE

Mobile: 891 910 8225, 998 951 2789



CSE Dept <csehod@risekrishnasaigandhi.edu.in>

From RGAN(8B) CSE - Req for approval of minutes in BOS Dated. 07-01-2025

Mohana Naga Vamsi Thalatam <mthalata@gitam.edu>
To: CSE Dept <csehod@risekrishnasaigandhi.edu.in>

Sat, Jan 11, 2025 at 1:26 PM

Dear Sir
I just gone through your mail and approved the minutes.

Thank you
Regards
Dr T M N Vamsi

On Sat, Jan 11, 2025, 1:02 PM CSE Dept <csehod@risekrishnasaigandhi.edu.in> wrote:

To
Dr T M N Vamsi
Professor,
Department of CSE
GITAM, Visakhapatnam.

Respected Sir,

I hope you are doing well.

Please find attached the minutes from the recent Board of Studies (BoS) meeting held on 07-01-2025. I kindly request your approval of these minutes via email. If there are any corrections or suggestions, please share them.

Your prompt response will be appreciated. If you approve the minutes as they are, a simple reply stating your approval will suffice.

Thank you for your cooperation.

Thank you for your time and attention.

thanks with regards

Isaac Paul P,

HOD, Department Of CSE,

RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS, ONGOLE

Mobile: 891 910 8225, 998 951 2789



CSE Dept <csehod@risekrishnasaigandhi.edu.in>

From RGAN(8B) CSE - Req for approval of minutes in BOS Dated. 07-01-2025

sailokeshsingh Rajaputra <lokeshrajaputra@gmail.com>
To: CSE Dept <csehod@risekrishnasaigandhi.edu.in>

Sat, Jan 11, 2025 at 2:18 PM

Dear Sir,

I have gone through the documents and no corrections are found from my side I approved the minutes as discussed in the BOS meeting.

On Sat, 11 Jan, 2025, 1:05 pm CSE Dept, <csehod@risekrishnasaigandhi.edu.in> wrote:

To

Mr R Sailokesh Singh,
Associate IT Consultant,
ITC Infotech

Dear R. Sai Lokesh Singh,

I hope you are doing well.

Please find attached the minutes from the recent Board of Studies (BoS) meeting held on 07-01-2025. I kindly request your approval of these minutes via email. If there are any corrections or suggestions, please share them.

Your prompt response will be appreciated. If you approve the minutes as they are, a simple reply stating your approval will suffice.

Thank you for your cooperation.

Thank you for your time and attention.

thanks with regards

Isaac Paul P,

HOD, Department Of CSE,

RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS, ONGOLE

Mobile: 891 910 8225, 998 951 2789