VIGNAN'S
FOUNDATION FOR SCIENCE, TECHNOLOGY & RESEARCH

(Deemed to be University) - Estd. u/s 3 of UGC Act 1956

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CIRCULAR

Date: 30.04.2025

Department of CSE is going to conduct Board of Studies (BoS) meeting for the B.Tech and M.Tech programmes on **15.05.2025** from 10.00 AM in blended mode. With the Zoom meeting link https: //us06web.zoom.us/j/86045799470?pwd=yb7iSVomIdOaxVQK9PcKbIs24ZwtQE.1). All the members are requested to make it convenient to attend the meeting.

The members are

S.No.	Name and Designation of the Member	Position
1.	Dr. K.V. Krishna Kishore, Professor and Dean SOC&I	Member
2.	Dr. S. V. Phani Kumar, HOD, Dept. of CSE, VFSTR	Chairperson
3.	Prof. R.B.V.Subramanyam, Professor, Dept. of CSE, NIT Warangal	External Member (Academia)
4.	Mr.Bala Prasad Peddigari, Chief Innovation Officer, TCS	External Member (Industry)
5.	Prof. C.R.Rao, Professor, SCIS, University of Hyderabad	Invited Member(Academia)
6.	Dr.B.Venkata Ramana, Associate Professor, HoD-CSE, IIT, Tirupathi.	Invited Member(Academia)
7.	Mr.Sai Kumar Jadam, Quality Engineering Manager, DASSAULT SYSTEMES Solutions Lab	Invited Member(Industry)
8.	Dr. M. Umadevi, Associate Professor.	Internal Member(R&D nominee)
9.	Dr. D. Yakobu Associate Professor.	Internal Member(School nominee)
10.	Dr. S. Deva Kumar, Associate Professor.	Internal Member(Programme Coordinator)
11.	Dr. S. Satish Kumar, Assistant Professor	Internal member
12.	Dr.S.Manikandan, Assistant Professor	Off Campus, Hyderabad
13.	Dr. P. Siva Prasad, Associate Professor, (BOA)	Member Secretary

Agenda of the BoS Meeting:

1. Approval of B.Tech. and M.Tech. CSE Programs under the R-25 and C-25 Regulations

2. To Discuss and finalize the elective courses list (Department/ Open/ Minor / Honour) and stream of B.Tech..& M.Tech Programme for the regulation R25-C25.

3. Academic Performance Review of B.Tech and M.Tech Programs – I Semester, Academic Year 2024–25.

4. Assessment of Question Paper Standards based on Bloom's Taxonomy for the II Semester, Academic Year 2024–25.

5. Recommendation of NPTEL Courses for Students Admitted in 2022-23 and 2023-24 Years.

6. Approval of Vision, Mission, and Program Educational Objectives (PEOs) of the B.Tech. CSE Program.

7. Any other matter with the permission of the Chair.

P.S.P

[Dr.P.Siva Prsad]

Member Secretary

Chairperson

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Annexure – V

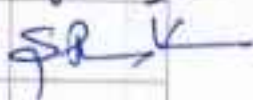## DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Date: 16.05.2025

Minutes of Board of Studies Meeting

Board of Studies (BoS) meeting of B.Tech & M.Tech degree programmes were conducted on 15.05.2025 in blended mode from 10.00 AM to 11.30 A.M. in blended mode. With the Zoom meeting link https://us06web.zoom.us/j/86045799470?pwd=yb7iSVomIdOaxVQK9PeKbls24Z wtQE.1). All the members are requested to make it convenient to attend the meeting).

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5. Recommendation of NPTEL Courses for Students Admitted in 2022-23 and 2023-24 Years.
6. Approval of Vision, Mission, and Program Educational Objectives (PEOs) of the B.Tech. CSE Program.
7. Any other matter with the permission of the Chair.

The following members were present either thorough offline or online.

S.No.	Name and Designation of the Member	Position	Signature
1.	Dr. K.V. Krishna Kishore, Professor and Dean SOC&I	Member	
2.	Dr. S. V. Phani Kumar, HOD, Dept. of CSE, VFSTR	Chairperson	
3.	Prof. R.B.V.Subramanyam, Professor, Dept. of CSE, NIT Warangal	External Member (Academia)	Online
4.	Mr.Bala Prasad Peddigari, Chief Innovation Officer, TCS	External Member (Industry)	Online

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5.	Prof. C.R.Rao, Professor, SCIS, University of Hyderabad	Invited Member(Academia)	Online
6.	Dr.B.Venkata Ramana, Associate Professor, HoD-CSE, IIT, Tirupathi.	Invited Member(Academia)	Online
7.	Mr.Sai Kumar Jadam, Quality Engineering Manager, DASSAULT SYSTEMES Solutions Lab	Invited Member(Industry)	Online
8.	Dr. M. Umadevi, Associate Professor.	Internal Member(R&D nominee)	
9.	Dr. D. Yakobu Associate Professor.	Internal Member(School nominee)	
10.	Dr. S. Deva Kumar, Associate Professor.	Internal Member(Programme Coordinator)	
11.	Dr. S. Satish Kumar, Assistant Professor	Internal member	
12.	Dr.S.Manikandan, Assistant Professor	Off Campus, Hyderabad	Online
13.	Dr. P. Siva Prasad, Associate Professor, (BOA)	Member Secretary	

Chairperson Dr. S. V. Phani Kumar, Professor and Head, department of CSE, VFSTR initiated the meeting by welcoming and introducing the external members and invitees to the internal members. Chairperson presented about the *NEP 2020 Compliant Regulation - R25-C25* which emphasis on creating *learning centric* (continuous learning and continuous assessment model), offering B.Tech., B.Tech. with Honours / Research Honours / Minor / Add-on Diploma, providing lateral entry and honorable exit, as well as M.Tech degree programs.

The following key points were discussed and approved to be adopted in B.Tech. CSE curriculum of R25C25 during this BoS meeting:

1. Approved the introduction and adoption of **Regulation R25-C25** for the B.Tech. and M.Tech. CSE programs with the following .
    o Self-Learning (SL) as a structured component in the curriculum.
    o Course design consisting of **two modules:**
        1. Module 1: Two fundamental units
        2. Module 2: Three application-oriented units
    o **Assessment methods** encompassing **formative (60%) and summative (40%) evaluations.**
    o **Relative grading system** with clear qualifying criteria and grade point calculations.

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- o **Departmental Electives and Honors** Courses are well integrated into well-defined streams or pools. **Open Electives and Minor Programs**, allowed for interdisciplinary learning through defined streams/pools.
- o Approved the list of updated **Program Outcomes (POs)** as per the latest **NBA** guidelines.
- o Recommended to adopt of the **T-Shaped Learning Philosophy** to foster both depth and breadth in student competencies.
- o Approved the inclusion of **Creative Work-in-Lieu** credits to support self-directed and project-based learning.
- o **Relative grading mechanism** introduced across all courses with transparent standards.
- o **Pre-semester bridge courses** planned to strengthen foundational skills prior to semester commencement.
- o Revised **credit allocation** assigning **30 out of 160 credits** to Basic Sciences in the first year.
- o **Common first-year curriculum** designed to address both MPC and BiPC student backgrounds.
- o The **Choice-Based Credit System (CBCS)** now constitutes **47 credits (~29.3%)** of the program.
- o Launched of **field-based projects** beginning in the second year and continuing into the third year.
- o Mandatory **75% course-wise attendance** requirement for eligibility in assessments.
- o Approved comprehensive list of **elective tracks**, including **AI/ML, Data Science, and Cybersecurity**.
- o Discussed **embedding SDGs** to nurture ethical, sustainable, and socially responsible engineers. Reinforcement of SDG integration to build **globally conscious and environmentally aware professionals**.
- o Proposed to incorporate **Indian Knowledge Systems (IKS)** as a **binary-graded 1-credit course**. Flexibility for departments to decide on **IKS content embedding** in select courses.

2. Discussed and thoroughly reviewed the **academic performance review** for the I-Semester of AY 2024-25 (R22 curriculum).

3. Reviewed in detail about the **pass percentages and grade distributions** in major subjects (e.g., Data Structures, DBMS, DLD, Java) and **third-year core courses**, including AI, Compiler Design, and Computer Networks.

4. Approved **NPTEL course recommendations** for student batches admitted in **2022-23 and 2023-24.**

5. Approved the **Vision and Mission of the Department** and **Program Educational Objectives (PEOs)** of the B.Tech. CSE program. BoS also approved the inclusion of **Computer Organization** course to be re-introduced in the II Year II Semester with 2-2-0-3 as LTPC in C24 curriculum and **Theory of Computing** is moved into Department Elective stream. Further, BoS approved for the revision of **DLD LTPC to 3024 respectively.** Revision of **L-T-P-C structures** for key courses such as Object-Oriented

Programming through JAVA, Design and Analysis of Algorithms, Computer Networks, Machine Learning and Cryptography and Network Security. In addition, BoS members also recommended to update the course title of **Privacy and Intrusion Detection** as **Privacy Preserving and Intrusion Detection**.

Board of Studies – Suggestions and Actions Taken

1. Awareness on Indian Knowledge Systems (IKS)

Suggestion: External members recommended conducting departmental or institute-level workshops to enhance faculty awareness and understanding of IKS. **Action Taken:** Plan initiated to organize faculty development workshops on IKS during the upcoming semester.

2. Web Technology as a major practice course

Suggestion: Prof. K.V. Krishna Kishore, Dean – SoCI, suggested offering the Web Technology course purely as a practice course (with additional transactional components). **Action Taken:** Web Technology course adopted as a practice major course with additonal transactional sessions with revised structure: **L-T-P-SL-C: 0-2-2-0-2**.

3. Machine Learning – Transaction Hour Allocation

Suggestion: Dr. S.V. Phani Kumar, Chairman, BoS, recommended assigning one theory (transaction) hour for the Machine Learning course.
Action Taken: Course retained with one transaction hour in structure **L-T-P-SL-C: 2-2-2-2-4**, pending external review.

4. Sequencing of DAA and Machine Learning Courses

Suggestion: Prof. C.R. Rao advised offering Design and Analysis of Algorithms (DAA) prior to Machine Learning to maintain conceptual continuity. **Action Taken:** Course sequence updated accordingly; DAA precedes Machine Learning in the 3rd Year 1st Semester timetable.

5. Swapping of DAA and ML Semesters

Suggestion: Mr. Sai Kumar Jadam supported swapping DAA and ML offerings to improve learning progression.
Action Taken: Implemented – DAA moved to **II Year II Semester**, Machine Learning to **III Year I Semester**.

6. **Revision of Parallel and Distributed Computing (PDC) Structure**
7. **Suggestion:** Prof. C.R. Rao proposed reducing lab hours and increasing theory content for advanced conceptual coverage.
   Action Taken: Course structure updated to **L-T-P-SL-C: 3-2-0-3-4**; syllabus revised accordingly.
8. **Department Electives Format Revision**

   Suggestion: Prof. C.R. Rao recommended a standardized format to balance contact hours.
   Action Taken: All departmental electives revised to **L-T-P-SL-C: 3-2-0-3-4**; lab components redistributed into lecture-based delivery.

9. **Course Title Revision – "Computing Ethics"**

   Suggestion: Prof. C.R. Rao advised renaming the course to "Computer Ethics."
   Action Taken: Title changed to "Computer Ethics" across all official curriculum documents.

10. **Clarification: Honors vs. Minor Programs**

    Suggestion: Prof. C.R. Rao highlighted the need to distinguish Honors (research-intensive) from Minors (application-based).
    Action Taken: Clarification added in the curriculum handbook, including structure and credit differences.

11. **Defining Transaction Hours for Electives**

    Suggestion: Dean of SoCI recommended specifying transaction hours for each elective.
    Action Taken: A detailed transaction-hour matrix has been included in the academic handbook.

12. **Inclusion of Communication Skills Electives**

    Suggestion: Prof. C.R. Rao proposed electives such as "Professional Communication" and "Technical Presentation Skills."
    Action Taken: Two new electives approved and scheduled for introduction in the upcoming odd semester.

13. **Research Methodology Placement in M.Tech.**

    Suggestion: Prof. C.R. Rao advised offering Research Methodology in the 1st semester instead of pre-semester.
    Action Taken: Research Methodology course moved to **Semester I** of M.Tech; pre-semester offering discontinued.

14. Review of M.Tech Course Titles

Suggestion: Prof. C.R. Rao emphasized the need to update course titles to align with current industry standards.

Action Taken: Title review initiated; changes will reflect in the next academic catalog.

15. Course-wise and Year-wise Results Analysis

Suggestion: Prof. C.R. Rao suggested a results dashboard for real-time monitoring and intervention planning.

Action Taken: Result analysis dashboard implemented; faculty training scheduled to enhance data-driven interventions.

16. Alignment with NPTEL Courses

Suggestion: Prof. C.R. Rao proposed mapping NPTEL courses to avoid syllabus overlap and redundancy.

Action Taken: Mapping completed; redundant content removed and curriculum updated with complementary material.

17. Hands-on Java Tools and Applications

Suggestion: Mr. Sai Kumar Jadam recommended strengthening Java labs with tools such as Apache Ant and SBT.

Action Taken: Java lab sessions enriched with tool-based exercises; Ant/SBT workshops added in Year II.

18. M.Tech Curriculum Tracks and Objectives

Suggestion: Mr. Sai Kumar Jadam emphasized creating distinct tracks for research and applied learning in M.Tech.

Action Taken: Curriculum now includes "Research Track" and "Application Track" with respective advising guidelines.

19. Cyber Security Course Title Update

Suggestion: Dr. B. Venkata Ramana proposed renaming the course to "Introduction to Cyber Security."

Action Taken: Title updated in the official syllabus and course catalog.

20. Industry Involvement in Competitive Coding

Suggestion: Dr. B. Venkata Ramana highlighted the growing mentorship from industry professionals.

Action Taken: "Coding Mentorship Cell" established; industry-led contests and mentorship programs formally launched.

Observations and Key Recommendations Incorporated in the R25-C25 Curriculum

The following observations and recommendations were made during the curriculum review process, many of which have been implemented in the revised R25-C25 curriculum:

1. Curriculum Restructuring:

A comprehensive restructuring has been carried out to promote continuous learning and assessment. The curriculum is now modular in nature, emphasizing phased learning and evaluation across all courses.

2. Honors/Specialization and Minor Programs:

The curriculum now enables students to pursue an Honors/Specialization degree or a Minor degree through the addition of 16 extra credits via specially designed courses, thereby encouraging academic depth and interdisciplinary exposure.

3. Curriculum Structure and Course Listings:

The complete curriculum structure, including the list of professional core, departmental electives, open electives, Minor, Honors, and NPTEL-integrated courses for both B. Tech. and M.Tech. programs, is presented in **Appendix I**.

4. Skill-Oriented Course Design:

The revised curriculum integrates courses aimed at enhancing employability, entrepreneurial abilities, and skill development. Details are provided in **Appendix II**.

5. Syllabus Revision Summary:

On average, **45%** of the syllabus has been revised when compared to the previous curriculum, as outlined in **Appendix III**.

6. New Course Framework:

Significant content changes across courses have led to their reclassification as new courses, detailed in **Appendix IV**.

7. Indian Knowledge System (IKS) Integration:

Relevant IKS components have been incorporated into applicable courses. A summary of courses with IKS integration is provided in **Appendix V**.

8. Sustainable Development Goals (SDG) Mapping:

All courses have been mapped to appropriate SDGs to align with global educational standards and promote responsible engineering practices. Mapping details are in **Appendix VI**.

9. **Web Technology Course Format:**

Based on the recommendation of the Dean, School of Computing and Informatics, the Web Technology course is now offered as a purely transactional (theory-based) subject.

10. **Transaction Hours in Machine Learning:**

The Machine Learning course includes one theory (transaction) hour in its **L-T-P-SL** structure, as advised by the Dean.

11. **Sequencing of Core Courses – DAA and Machine Learning:**

Based on Prof. C.R. Rao's recommendation, Machine Learning has been positioned after Design and Analysis of Algorithms (DAA) in the curriculum to maintain conceptual continuity.

12. **Course Swap – DAA and Machine Learning:**

The DAA course is now scheduled for **II Year II Semester**, while Machine Learning has been shifted to **III Year I Semester** to enhance learning progression.

13. **Revision of Parallel and Distributed Computing (PDC):**

The structure of the PDC course has been modified from **L-T-P-SL-C: 2-2-2-2-4** to **3-2-0-3-4**, as suggested by Prof. C.R. Rao, to increase theoretical depth.

14. **Department Elective Course Structure:**

All departmental electives now follow a uniform structure of **L-T-P-SL-C: 3-2-0-3-4**, based on suggestions to streamline instructional hours.

15. **Course Title Revision – Privacy and Intrusion Detection:**

The course title has been revised to **"Privacy Preserving and Intrusion Detection"**, aligning better with the evolving subject scope.

16. **Course Title Revision – Computing Ethics:**

As per expert suggestion, the course title has been updated to **"Computer Ethics"** for consistency and relevance.

17. **Clarification – Honors vs. Minor Programs:**

A distinction has been added in the curriculum guide: **Honors** programs are research-focused and advanced, while **Minors** focus on application of core technical subjects.

18. **Defined Transaction Hours for Electives:**

Each elective now includes clearly defined transaction hours, as recommended by the Dean. A comprehensive table is available in the academic handbook.

19. Communication Skills Electives:

New electives such as **"Professional Communication"** and **"Technical Presentation Skills"** have been introduced to strengthen soft skills.

20. Revised C24 Course Structure:

The C24 course structure has undergone revision as recommended by Prof. C.R. Rao, with detailed changes captured in **Appendix VII.**

21. M.Tech – Research Methodology Placement:

The **Research Methodology** course has been moved to the **First Semester** of the M.Tech program, replacing the earlier pre-semester module.

22. Review of M.Tech Course Titles:

Titles of several M.Tech courses are under review for alignment with industry trends and academic relevance. Updates will reflect in the next academic cycle.

23. Course-wise and Year-wise Results Dashboard:

A dashboard system is being implemented to present and analyze academic results by course and year. Faculty intervention plans will be developed accordingly.

24. Alignment with NPTEL Curriculum:

Redundant content between NPTEL and internal curriculum (e.g., overlap between **Advanced Business Decision Support Systems** and **Big Data Analytics**) has been audited and addressed through syllabus revisions.

25. Hands-On Java Development and Tools:

Enhanced focus on practical Java applications, including tools such as **Apache Ant** and **SBT**, has been implemented in lab components, per Mr. Sai Kumar Jadam's suggestion.

26. Importance of Documentation Practices:

Emphasis has been placed on maintaining robust academic documentation. **Computer Ethics** now explicitly addresses ethical practices in documentation and teaching.

27. M.Tech Curriculum Design Objectives:

As articulated by Mr. Sai Kumar Jadam, the curriculum offers two tracks:

- A **Research Track** to prepare students for Ph.D. pursuits
- An **Application Track** aligned with project-based academic or professional outcomes

28. Course Title Revision – Cyber Security:

Based on Prof. B. Venkata Ramana's suggestion, the course title has been revised to **"Introduction to Cyber Security"** in the I Year I Semester.

29. Industry Support for Competitive Coding:

Notable industry mentorship and collaboration have been formalized through the establishment of a **Coding Mentorship Cell** and a structured calendar of coding contests.

30. Stakeholder Feedback Integration:

Feedback received from faculty, students, alumni, and industry experts has been appropriately incorporated into the final R25-C25 curriculum design.

Curriculum Enhancement: Action Points and Implementation Summary (R25-C25 Curriculum)

The following key improvements and refinements have been suggested by internal and external academic experts, reviewed by the Board of Studies, and implemented as appropriate in the revised R25-C25 curriculum:

Parallel and Distributed Computing (PDC) Structure

- **Suggestion:** Prof. C.R. Rao advised increasing lecture hours for deeper theoretical coverage.
- **Action Taken:** Course structure updated to **L-T-P-SL-C: 3-2-0-3-4**; lab components reduced accordingly.

Department Electives Restructuring

- **Suggestion:** Prof. C.R. Rao recommended a uniform format for all electives to avoid contact hour overload.
- **Action Taken:** All department electives now follow **L-T-P-SL-C: 3-2-0-3-4** structure.

Course Title Revisions

- **Suggestions:** Prof. C.R. Rao recommended renaming *"Computing Ethics"* to *"Computer Ethics"*. He also clarified the distinction between **Honors** (research-intensive) and **Minor** (application-oriented) programs.
- **Action Taken:** Titles and curriculum documentation have been updated; a clarification section on Honors vs. Minors has been added.

Defined Transaction Hours for Electives

- **Suggestion:** Dean – SoCI suggested providing clear transaction hour details for all elective courses.
- **Action Taken:** A comprehensive elective structure with transaction hour details is included in the academic handbook.

Communication Skills Electives

- **Suggestion:** Prof. C.R. Rao proposed the inclusion of electives focused on soft skills.
- **Action Taken:** Two new electives – *"Professional Communication"* and *"Technical Presentation Skills"* – have been introduced for odd-semester offerings.

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Placement of Research Methodology in M.Tech.

- **Suggestion:** Prof. C.R. Rao recommended shifting Research Methodology to the **first semester**.

- **Action Taken:** Implemented as suggested; pre-semester modules discontinued.

M.Tech Course Title Revisions

- **Suggestion:** Prof. C.R. Rao urged a comprehensive review of M.Tech. course titles to reflect industry and academic relevance.

- **Action Taken:** Titles are under review; updates will be reflected in the next academic catalog.

Course-wise and Year-wise Results Analysis

- **Suggestion:** Prof. C.R. Rao suggested a results dashboard for real-time academic performance monitoring.

- **Action Taken:** Dashboard implemented; faculty workshop scheduled to develop data-driven improvement strategies.

Alignment with NPTEL Courses

- **Suggestion:** Prof. C.R. Rao highlighted overlaps (e.g., *Advanced Business Decision Support Systems* vs. *Big Data Analytics*) and recommended reducing redundancy.

- **Action Taken:** Audit completed; overlapping content pruned and complemented with new modules.

Java Applications and Tool Usage

- **Suggestion:** Mr. Sai Kumar Jadam recommended strengthening Java labs with tool-based instruction using **Apache Ant** and **SBT**.

- **Action Taken:** Labs revised; workshops on Ant and SBT integrated into the 2nd-year curriculum.

M.Tech Curriculum Design Objectives

- **Suggestion:** Mr. Sai Kumar Jadam proposed structuring the M.Tech. program to support two tracks:

  - **Research Track** (for Ph.D. aspirants)
  - **Application Track** (for academic and practical project roles)

- **Action Taken:** Curriculum documentation updated to reflect these dual objectives.

Cyber Security Course Title

- **Suggestion:** Dr. B. Venkata Ramana recommended renaming the course to *"Introduction to Cyber Security."*

- **Action Taken:** Title revised in both syllabus and official catalog.

Industry Support for Competitive Coding

- **Suggestion:** Dr. B. Venkata Ramana noted strong mentorship support from industry professionals.

- **Action Taken:** *Coding Mentorship Cell* formalized; mentorship events and contest calendar launched.

The following recommendations and approvals are made after the discussion:

1. BoS Members approved the revised regulations, curriculum structure, syllabus, assessment schemes of B.Tech., & M.Tech degree programmes and it follows based on the NEP 2020.
2. The details of elective courses (Department/ Open/ Minor / Honour) of B.Tech., CSE Programme for the regulation R25-C25 are approved.
3. NPTEL courses are approved for the Academic Year 2025-26.
4. SDG mapping and incorporation of the IKS components in the syllabus is approved.
5. Curriculum Restructuring and Course Revisions
6. Standardization of Course Structures:
7. Emphasis on Academic and Industry Alignment:
8. Strengthening Research Orientation
9. Enhancement of Communication and Ethical Competency:
10. Result Analysis and Implementation:

There being no further points for discussion, the Chairperson thanks all the external, internal, invited members and announced that the meeting was concluded.

P. S. H

Member Secretary

Chairperson

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Major Revision - R25 & C25
Course Structure - C25

B.Tech., CSE Program

Induction Program

Course Title	L	T	P	SL	C	Course category
Orientation program (Induction Program)	0	2	0	0	1	Binary graded
Sub-Total	**0**	**2**	**0**	**0**	**1**	
Total			2		1	

Pre - semester

Course Title	L	T	P	SL	C	Course category
Mathematics	0	2	0	0	1	Basic Sciences
English Communication	0	2	0	0	1	Humanities
Aptitude & Logical Reasoning	0	2	0	0	1	Humanities
IT Tools	0	2	0	0	1	Basic Engineering
	0	0	2	0	1	Binary graded
	0	0	2	0	1	Binary graded
Sub-Total	**0**	**8**	**4**	**0**	**6**	
Total			12		6	

I Year I Semester

Course Title	L	T	P	SL	C	Course category
Mathematics	3	2	0	3	4	Basic Sciences
Physics / Chemistry	3	0	2	3	4	Basic Sciences
Basic of Electrical & Electronics Engineering/ Engineering Graphics	2	0	2	2	3	Basic Engineering
Programming in C	2	0	4	2	4	Basic Engineering
English Proficiency & Communication Skills (PET)	0	0	2	0	1	Humanities
Environmental Studies / Management Studies	2	2	0	2	3	Basic Sciences / Humanities

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	L	T	P	SL	C	
	0	0	2	0	1	Binary graded
	0	0	2	0	1	Binary graded
	0	0	2	0	1	Binary graded
Sub-Total	12	4	16	12	22	
Total			44		22	

I Year II Semester

Course Title	L	T	P	SL	C	Course category
Mathematics	3	2	0	3	4	Basic Sciences
Physics / Chemistry	3	0	2	3	4	Basic Sciences
Basic of Electrical & Electronics Engineering/Engineering Graphics	2	0	2	2	3	Basic Engineering
Problem Solving through Python	2	0	2	2	3	Basic Engineering
Technical English Communication	1	0	2	1	2	Humanities
Environmental Studies / Management Studies	2	2	0	2	3	Basic Sciences / Humanities
Cyber security	0	0	2	0	1	Basic Engineering
	0	0	2	0	1	Binary graded
	0	0	2	0	1	Binary graded
	0	0	2	0	1	Binary graded
	0	0	2	0	1	Binary graded
Sub-Total	13	4	18	13	24	
Total			48		24	

II Year I Semester

Course Title	L	T	P	SL	C	Course category
Maths (P&S)	3	2	0	3	4	Basic Sciences
Dept. Specific – Physics / Domain Subject DMS	2	2	0	2	3	Basic Sciences
Data Structures	2	2	2	2	4	Basic Engineering
Web Technology	0	2	2	0	2	Professional Core-1
Database Management Systems	2	2	2	2	4	Professional Core-1
Object-Oriented Programming through JAVA	2	2	2	2	4	Professional Core-2
Digital Logic Design	2	0	2	2	3	Professional Core-3
Sub-Total	13	12	10	13	24	
Total			48		24	

II Year II Semester

Course Title	L	T	P	SL	C	Course category
Dept. Specific – Maths Optimization Techniques	2	2	0	2	3	Basic Sciences
Computer Organization & Architecture	2	2	0	2	3	Professional Core
Design and Analysis of Algorithms	2	2	2	2	4	Professional Core-4
Operating Systems	2	0	2	2	3	Professional Core-5
Computer Networks	3	0	2	3	4	Professional Core-6
Design Thinking	0	0	2	0	1	Basic Engineering
Industry interface course	0	2	0	0	1	DE-1
Field Project	0	0	2	0	1	Project
OE - 1	2	0	2	2	3	Open Elective-1
Sub-Total	13	8	12	13	23	
Total			46		23	

III Year I Semester

Course Title	L	T	P	SL	C	Course category
Soft Skills Laboratory	0	0	2	0	1	Humanities
Artificial Intelligence	2	2	0	2	3	Professional Core-8
Machine Learning	2	2	2	2	4	Professional Core-9
Cryptography and Network Security	2	0	2	2	3	Professional Core-10
Software Engineering	2	2	2	2	4	Professional Core-11
Theory of Computation	2	2	0	2	3	Professional Core-7
DE-2	2	0	2	2	3	Dept. Elective-2
Sub-Total	12	8	10	12	21	
Honours/Minors (Add-on)	2	2	2	2	4	Honours/Minors
Sub-Total	14	10	12	14	25	
Total			50		25	

III Year II Semester

Course Title	L	T	P	SL	C	Course category
Quantitative Aptitude & Logical Reasoning	0	2	0	0	1	Humanities
Professional Communication Skills	0	2	0	0	1	Humanities
Privacy Preserving and Intrusion Detection	2	2	0	2	3	Professional Core-12
Parallel & Distributed Computing	2	2	0	2	3	Professional Core-13

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DE-3	2	2	2	2	4	Dept. Elective-3
DE-4	2	2	2	2	4	Dept. Elective-4
OE-2	2	0	2	2	3	Open Elective-2
Inter Department Project	0	0	2	0	1	Project
Sub-Total	**10**	**12**	**8**	**10**	**20**	
Honours/Minors (Add-on)	2	2	2	2	**4**	Honours/Minors
Sub-Total	**12**	**14**	**10**	**12**	**24**	
Total			**48**		**24**	

IV Year I Semester

Course Title	L	T	P	SL	C	Course category
Computing Ethics	0	2	2	0	2	Humanities
DE-5	2	2	2	2	4	Dept. Elective-5
DE-6	2	2	2	2	4	Dept. Elective-6
Work-in-Lieu of Course – Research paper publications/ patents/ presentations/ global certifications	0	4	4	0	4	Dept. Elective-7*
OE-3	2	0	2	2	3	Open Elective-3
Sub-Total	**6**	**10**	**12**	**6**	**17**	
Honours/Minors (Add-on)	2	2	2	2	**4**	Honours/Minors
Sub-Total	**8**	**12**	**14**	**8**	**21**	
Total			**42**		**21**	

IV Year II Semester

Course Title	L	T	P	SL	C	Course category
Project/Internship	0	2	22	0	12	Project/Internship
Sub-Total	**0**	**2**	**22**	**0**	**12**	
Honours/Minors (Add-on)	2	2	2	2	**4**	Honours/Minors
Sub-Total	**2**	**4**	**24**	**2**	**16**	
Total			**32**		**16**	

List of Department Elective Courses

S. No.	Course Title	L	T	P	SL	C	Name of the Stream (if available)
1.	Advanced Data Structures	3	2	0	3	4	Stream-1
2.	Advanced JAVA Programming	3	2	0	3	4	Stream-1
3.	Computer Graphics	3	2	0	3	4	Stream-1
4.	Deep Learning	3	2	0	3	4	Stream-2
5.	Digital Forensics	3	2	0	3	4	Stream-2
6.	Digital Image Processing	3	2	0	3	4	Stream-2
7.	Web and Database Security	3	2	0	3	4	
8.	Mobile Ad-hoc Networks	3	2	0	3	4	
9.	Text Mining	3	2	0	3	4	
10.	Numerical Algorithms	3	2	0	3	4	
11.	Operating System Design	3	2	0	3	4	
12.	Simulation and Modelling	3	2	0	3	4	

II. List of Minor Courses

S. No.	Course Title	L	T	P	SL	C	Name of the Stream (if available)
1.	Introduction to Python Programming	2	2	2	2	4	Stream-1
2.	OOPS through JAVA	2	0	4	2	4	Stream-1
3.	Database Management Systems	2	2	2	2	4	Stream-2
4.	Web Technologies	0	2	2	0	2	Stream-2
5.	Mobile Application Development	2	0	4	2	4	
6.	Design and Analysis of Algorithms	2	2	2	2	4	
7.	Operating Systems and Shell Programming	2	2	2	2	4	
8.	Computer Networks	3	0	2	3	4	
9.	Capstone Project	0	2	6	0	4	

III. List of Honors Courses

S. No.	Course Title	L	T	P	SL	C	Name of the Stream (if available)
1.	Advanced Graph Algorithms	3	0	2	3	4	Stream-1
2.	Biometrics	3	0	2	3	4	Stream-1
3.	Internet of Things	3	0	2	3	4	Stream-2
4.	Wireless Sensor Networks	3	0	2	3	4	Stream-2
5.	Capstone Project	0	2	6	0	4	

IV. List of Open Elective Courses to non-computers

S. No.	Course Title	L	T	P	SL	C
1.	Database Systems	2	0	2	2	3
2.	Mobile Application Design and Development	2	0	2	2	3
3.	Java Programming	2	0	2	2	3
4.	Python Programming	2	0	2	2	3
5.	Design and Development of Internet Applications	2	0	2	2	3

V. List of SWAYAM - NPTEL Courses

S. No.	COURSE TITLE	RESOURCE PERSON	Institute	Duration in Weeks	PRE-REQUISITES
1.	Randomized Methods in Complexity	Prof. Nitin Saxena	IITK	12	Theory of Computation, or Algorithms, or Discrete Mathematics
2.	Quantum Algorithms and Cryptography	Prof. Shweta Agrawal	IITM	12	Theory of Computation, Design and Analysis of Algorithms, Foundations of Cryptography
3.	Privacy and Security in Online Social Media	Prof. Ponnurangam Kumaraguru	IIITH	12	Basic / Intermediate programming course.
4.	GPU Architectures And Programming	Prof. Soumyajit Dey	IITKGP	12	Programming and Data Structure, Digital Logic, Computer architecture
5.	Foundations of Cyber Physical Systems	Prof. Soumyajit Dey	IITKGP	12	Basic Programming Knowledge, Discrete Mathematics
6.	Discrete Structures	Prof. Dipanwita Roy Chowdhury	IITKGP	12	Mathematics and basics Computer Programming

7.	Reinforcement Learning	Prof. Balaraman Ravindran	IITM	12	Basic mathematical foundations
8.	Information Security - 5 - Secure Systems Engineering	Prof. Chester Robeiro	IITM	8	C programming must be strong. Minimum understanding of digital logic/ operating systems/computer organization
9.	Data Science for Engineers	Prof. Ragunathan Rengasamy Prof. Shankar Narasimhan	IITM	8	10 hrs of pre-course material will be provided, learners need to practice this to be ready to take the course
10.	Introduction to parallel programming with OpenMP and MPI	Prof. Yogish Sabharwal	IITD	8	Comfortable with programming in C
11.	Foundation of Cloud IoT Edge ML	Prof. Rajiv Misra	IITP	8	Basics of Computer Architecture and Organization, Networking

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[Dr P. Siva Prasad]

Member Secretary

Chairperson

Major Revision - R25 & C25
Course Structure - C25
M.Tech., CSE Program

M.Tech., CSE Program Curriculum Structure

I Year I Semester

S.No.	Course Title	L	T	P	SL	C
1	Data Structures and Algorithms	2	2	2	2	4
2	Machine Learning	2	2	2	2	4
3	Internet of Things	2	2	2	2	4
4	DepartmentElective-1	2	0	2	2	3
5	DepartmentElective-2	2	0	2	2	3
6	Cyber Security	1	2	0	1	2
7	Employment Orientation Program	0	2	2	0	2
	Grand Total	11	10	12	11	22
		44				22

I Year II Semester

S.No.	Course Title	L	T	P	SL	C
1	Cloud Computing	2	2	2	2	4
2	Big Data and Analytics	2	2	2	2	4
3	DepartmentElective-3	2	0	2	2	3
4	DepartmentElective-4	2	0	2	2	3
5	Research Methodology & IPR	1	2	0	1	2
6	Inter-Departmental Project	0	1	3	0	2
7	Teaching Activity	0	0	4	0	2
	Total	9	7	15	9	20
8	Add-oncertificationcourse-1	3	0	2	3	4
	Grand Total	12	7	17	12	24
		48				24

II Year I Semester

S.No.	Course Title	L	T	P	SL	C
1	Project/ Internship	0	2	24	0	13
2	Add-on certification course-2(MOOCs/Self-Study Course)	4	0	0	4	4
	Grand Total	4	2	24	4	17

II Year II Semester

S.No.	Course Title	L	T	P	SL	C
1	Project/ Internship	0	2	24	0	13
2	Add-on certification course-3(MOOCs/Self-Study Course)	4	0	0	4	4
	Grand Total	4	2	24	4	17

Department Electives–Stream-wise

Artificial Intelligence and Machine Learning

S.No.	CourseTitle	L	T	P	SL	C
1	Artificial Intelligence	2	0	2	2	3
2	Artificial Neural Networks	2	2	0	2	3
3	Deep Learning	2	0	2	2	3
4	Computer Vision	2	0	2	2	3
5	Pattern Recognition	2	2	0	2	3
6	Digital Image Processing	2	0	2	2	3

Data Science

S.No.	Course Title	L	T	P	SL	C
1	Data Handling and Visualization	2	0	2	2	3
2	Statistical Foundations of Data Science	2	0	2	2	3
3	Natural Language Processing	2	2	0	2	3
4	Deep Learning	2	0	2	2	3
5	Time Series Analysis and Forecasting	2	0	2	2	3
6	Kernel Methods for Pattern Analysis	2	0	2	2	3

Cyber Security

S.No.	Course Title	L	T	P	SL	C
1	Wireless Sensor Networks	2	0	2	2	3
2	Mobile Ad-hoc Networks	2	0	2	2	3
3	Block chain Technologies	2	0	2	2	3
4	Mobile and Wireless Security	2	0	2	2	3
5	Advanced Cryptography	2	0	2	2	3
6	Digital Forensics	2	0	2	2	3

[Dr. P. Siva Prsad]
Member Secretary

Chairperson

List of Courses that Enables Employability or Entrepreneurship or Skill Development

APPENDIX II

S. No.	Course Category	Course Title	Employability / Entrepreneurship / Skill development
1.	Basic Engineering	Programming in C	**Skill Development:** This course develops fundamental programming skills by introducing students to structured programming concepts using the C language.
2.	Basic Engineering	Problem Solving Through Python	**Skill Development:** This course enhances problem-solving abilities through the practical application of Python programming fundamentals.
3.	Basic Engineering	Data Structures	**Skill Development:** Data Structures is fundamentally a **skill development** course because it equips students with core programming and problem-solving abilities that are essential in software development, algorithm design, and efficient data management. Students learn how to use and implement stacks, queues, linked lists, trees, graphs, and hash tables—skills that directly translate into programming proficiency.
4.	Professional Core	Database Management Systems	**Employability:** Database Management Systems is an employability-focused course that equips students with essential skills in data storage, retrieval, and management using SQL and relational models—key competencies required in software and data-driven job roles.
5.	Professional Core	Object-Oriented Programming through JAVA	**Employability:** This course on Object-Oriented Programming through JAVA is designed to enhance employability by equipping learners with essential programming skills widely used in the software industry.
6.	Professional Core	Computer Architecture	**Employability:** The Computer Architecture course enhances employability by providing fundamental knowledge of hardware organization and system design essential for careers in computer engineering and IT.
7.	Professional Core	Front end application Development	**Skill Development:** The Front-End Application Development course focuses on skill development by training learners in designing and building interactive user interfaces using modern web technologies.
8.	Basic Engineering	Design Thinking and	**Entrepreneurship:** The Design Thinking and Engineering Orientation course promotes entrepreneurship by nurturing creative problem-solving and

		Engineering Orientation	innovative thinking essential for developing user-centric solutions.
9	Professional Core	Design and Analysis of Algorithms	**Employability:** The Design and Analysis of Algorithms course enhances employability by building strong problem-solving skills and algorithmic thinking crucial for technical roles in the software industry.
10	Professional Core	Operating Systems	**Employability:** The Operating Systems course boosts employability by providing essential knowledge of system-level software that underpins modern computing environments.
11	Professional Core	Theory of Computation	**Employability:** The Theory of Computation course enhances employability by strengthening the foundational understanding of computation, automata, and formal languages essential for advanced computer science
12	Professional Core	Full Stack Development	**Skill Development:** The Full Stack Development course focuses on skill development by training learners to build complete web applications using both front-end and back-end technologies.
13	Professional Core	Optimization Techniques	**Skill Development:** The Optimization Techniques course supports skill development by teaching methods to find efficient solutions to complex problems in engineering and decision-making processes.
14	Professional Core	Artificial Intelligence	**Employability:** The Artificial Intelligence course enhances employability by equipping learners with foundational knowledge and practical skills in intelligent systems widely applied across industries.
15	Professional Core	Computer Networks	**Employability:** The Computer Networks course improves employability by teaching essential concepts of data communication and network management used in modern IT and telecommunications jobs.
16	Professional Core	Mobile App Development	**Skill Development:** The Mobile App Development course focuses on skill development by teaching learners to design and build applications for mobile platforms using current development tools and technologies.
17	Humanities	Computing Ethics	**Skill Development:** The Computing Ethics course promotes skill development by fostering an understanding of ethical principles and responsible behavior in technology and computing professions.
18	Professional Core	Machine Learning	**Employability:** The Machine Learning course enhances employability by teaching essential techniques for building intelligent systems that are in high

			demand across various industries.
19	Professional Core	Cryptography and Network Security	**Employability:** The Cryptography and Network Security course improves employability by providing critical skills to protect data and secure communication in today's digital world.
20	Project	Inter Departmental Project	**Skill Development:** The Inter Departmental Project course fosters skill development by encouraging collaboration and practical problem-solving across multiple disciplines.
21	Professional Core	Software Project Management	**Employability:** The Software Project Management course enhances employability by teaching essential skills to plan, execute, and manage software development projects effectively.
22	Professional Core	Parallel & Distributed Computing	**Employability:** The Parallel & Distributed Computing course improves employability by equipping learners with skills to design and implement efficient computing systems for handling large-scale data and tasks.
23	Professional Core	Privacy and Intrusion Detection	**Employability:** The Privacy and Intrusion Detection course enhances employability by teaching techniques to safeguard data privacy and detect security threats in computer systems.
24	Department Elective	Advanced Data Structures	**Employability:** The Advanced Data Structures course improves employability by developing in-depth knowledge of efficient data organization and manipulation techniques vital for software development.
25	Department Elective	Advanced Java Programming	**Skill Development:** The Advanced Java Programming course focuses on skill development by enhancing learners' expertise in building robust and scalable applications using advanced Java concepts.
26	Department Elective	Computer Graphics	**Skill Development:** The Computer Graphics course focuses on skill development by teaching techniques to create and manipulate visual content for applications like games, simulations, and animations.
27	Department Elective	Deep Learning	**Employability:** The Deep Learning course enhances employability by equipping learners with advanced skills to develop and apply neural network models used in cutting-edge AI applications.
28	Department Elective	Digital Image Processing	**Employability:** The Digital Image Processing course boosts employability by teaching techniques for analyzing, enhancing, and interpreting visual data used in fields like medical imaging, robotics, and multimedia.

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29	Department Elective	Mobile Ad-hoc Networks	**Employability:** The Mobile Ad-hoc Networks course enhances employability by providing knowledge of dynamic wireless networking essential for careers in mobile communication and network security.
30	Department Elective	Text Mining	**Employability:** The Text Mining course enhances employability by teaching techniques to extract meaningful insights from unstructured text data, valuable in data science and analytics roles.
31	Department Elective	Numerical Algorithms	**Skill Development:** The Numerical Algorithms course focuses on skill development by teaching computational methods to solve mathematical problems accurately and efficiently.
32	Department Elective	Operating System Design	**Employability:** The Operating System Design course enhances employability by providing advanced knowledge and practical skills needed to design and develop modern operating systems.
33	Department Elective	Machine Learning	**Employability:** The Machine Learning course enhances employability by equipping learners with the ability to develop intelligent systems and data-driven solutions sought after in various industries.
34	Department Elective	Simulation and Modeling	**Skill Development:** The Simulation and Modeling course focuses on skill development by teaching learners to create and analyze models for real-world systems to support decision-making and problem-solving.
35	Open Elective	Database Systems	**Employability:** The Database Systems course enhances employability by providing essential skills to design, manage, and query databases used in nearly all software and enterprise applications.
36	Open Elective	Mobile Application Design and Development	**Entrepreneurship:** The Mobile Application Design and Development course fosters entrepreneurship by enabling learners to create innovative mobile apps that can be turned into successful business ventures.
37	Open Elective	Java Programming	**Employability:** The Java Programming course enhances employability by teaching foundational and industry-relevant programming skills widely used in software development roles.
38.	Open Elective	Python Programming	**Skill Development:** The Python Programming course focuses on skill development by teaching versatile coding techniques used in automation, data analysis, and software development.

39	Open Elective	Design and Development of Internet Applications	Skill Development: The Design and Development of Internet Applications course focuses on skill development and Development of Internet Applications course focuses on skill development by training learners to build dynamic and interactive web applications using modern internet technologies.
40	Honors	Advanced Graph Algorithms	Employability: The Advanced Graph Algorithms course enhances employability by developing expertise in solving complex network and graph-related problems critical in computer science and data analysis.
41	Honors	Biometrics	Employability: The Biometrics course improves employability by teaching techniques for secure and reliable identification methods used in modern security systems.
42	Honors	Parallel and Distributed Computing	Employability: The Parallel and Distributed Computing course enhances employability by equipping learners with skills to design and implement efficient large-scale computing systems used in industry.
43	Honors	Internet of Things	Skill Development: The Internet of Things course focuses on skill development by teaching learners to design and manage connected devices and smart systems for various applications.
44	Honors	Wireless Sensor Networks	Employability: The Wireless Sensor Networks course enhances employability by providing knowledge and skills to design and manage sensor-based wireless communication systems used in diverse industries.
45	Honors	Capstone Project	Skill Development: The Capstone Project course focuses on skill development by allowing students to apply their knowledge to solving real-world problems through hands-on, comprehensive projects.
46	Minors	Introduction to Python Programming	Skill Development: The Introduction to Python Programming course focuses on skill development by teaching fundamental coding concepts and practical programming skills using Python.
47	Minors	OOPS through JAVA	Skill Development: The OOPS through JAVA course focuses on skill development by teaching object-oriented programming concepts using Java to build modular and reusable software.
48	Minors	Database Management Systems	Employability: The Database Management Systems course enhances employability by equipping students with essential skills to design, manage, and query databases used in various software applications.

49	Minors	Web Technologies	**Employability:** The Web Technologies course enhances employability by providing practical skills to develop dynamic and interactive web applications using modern tools and frameworks.
50	Minors	Design and Analysis of Algorithms	**Employability:** The Design and Analysis of Algorithms course enhances employability by building strong problem-solving and optimization skills essential for technical roles in the software industry.
51	Minors	Operating Systems and Shell Programming	**Employability:** The Operating Systems and Shell Programming course enhances employability by providing foundational knowledge of OS concepts and hands-on skills in scripting for system-level tasks.
52	Minors	Computer Networks	**Employability:** The Computer Networks course improves employability by imparting essential knowledge of network protocols, architectures, and troubleshooting skills required in IT and networking roles.

P.S. ϕ——ρ
(DnP.Siva Mgt.)
Member Secretary

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Chairperson

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Comparison of Course Contents between R25-C25 and R22-C22/C24 Curriculums

S. No.	Course Category	Course Title	% of Changes	Justification for the changes
1.	Basic Engineering	Programming in C	15%	The syllabus of Programming in C is updated to align with current industry practices and to strengthen foundational programming skills through practical problem-solving.
2.	Basic Engineering	Problem Solving Through Python	5%	The syllabus of Problem Solving through Python is revised to enhance logical thinking and practical coding skills aligned with real-world applications and industry demands.
3.	Basic Engineering	Data Structures	15 %	1. The revision ensures that students gain practical knowledge of key algorithms used in real-world software systems. 2. The added topics build on prior knowledge and push learners towards employability and industry readiness.
4.	PC	Database Management Systems	5%	"Indexing Structures for Files and Physical Database Design: Single level and multi-level indexing; Dynamic multi-level indexing using B-trees and B+ trees" has been included to provide students with practical knowledge of efficient data retrieval mechanisms and modern database storage strategies, which are essential for performance optimization in contemporary database systems
5.	PC	Object-Oriented Programming through JAVA	30%	The newly added topics focus on enhancing practical programming skills in file handling, multithreading, modular design, and GUI development, aligning better with real-world application development, while the removed content is outdated and less relevant to modern industry practices.

6.	PC	Computer Architecture	15%	The syllabus is revised to include modern digital logic design concepts and practical applications to better align with current technological trends and industry requirements, replacing outdated theoretical content.
7.	PC	Front end application Development	10%	The syllabus is updated to incorporate modern frameworks and tools such as React and responsive design principles, ensuring students gain relevant skills aligned with current industry standards and employability needs.
8.	Basic Engineering	Design Thinking and Engineering Orientation	10%	Based on the industrial needs this course is included
9.	PC	Design and Analysis of Algorithms	20%	The syllabus of Design and Analysis of Algorithms is modified by including advanced algorithmic techniques like Huffman coding and shortest path algorithms to enhance practical problem-solving and analytical skills for employability.
10.	PC	Operating Systems	15%	The Operating Systems syllabus is updated to include shell programming and real-world process management concepts to improve students' practical skills and industry readiness.
11.	PC	Theory of Computation	10%	Theory of Computation syllabus is revised to include advanced automata and formal language topics for a deeper understanding of computational models and their applications in modern computing.
12.	PC	Full Stack Development	Nil	No Change
13.	PC	Optimization Techniques	20%	The Optimization Techniques syllabus is updated to cover advanced algorithms and real-world applications to enhance students' problem-solving abilities and industry relevance.
14.	PC	Artificial Intelligence	15%	The Artificial Intelligence syllabus is revised to include modern AI techniques and practical applications to better prepare students for current industry demands and emerging technologies.
15.	PC	Computer Networks	20%	The Computer Networks syllabus is updated to incorporate latest networking protocols and security concepts to equip students with

				relevant skills for modern communication systems.
16.	PC	Mobile App Development	15%	The syllabus is revised to include contemporary frameworks and hands-on projects to enhance students' practical skills and employability in the mobile industry.
17.	Humanities	Computing Ethics	25%	The syllabus is updated to address emerging ethical challenges in technology and promote responsible computing practices among students.
18.	PC	Machine Learning	15%	The syllabus is enhanced to include recent algorithms and real-world applications to better prepare students for industry and research demands.
19.	PC	Cryptography and Network Security	20%	The syllabus is updated to cover advanced encryption techniques and emerging security threats to strengthen students' expertise in cybersecurity.
20.	Project	Inter Departmental Project	0%	No Change
21.	PC	Software Project Management	10%	The syllabus is updated to include modern agile methodologies and tools for effective real-world project execution and team collaboration.
22.	PC	Parallel & Distributed Computing	15%	The syllabus of Parallel & Distributed Computing is updated to incorporate current frameworks and cloud-based distributed systems for enhanced practical relevance.
23.	PC	Privacy and Intrusion Detection	12%	The syllabus of Privacy and Intrusion Detection is updated to include emerging threats and advanced detection techniques for better cybersecurity preparedness.
24.	DE	Advanced Data Structures	20%	The syllabus of Advanced Data Structures is revised to incorporate modern data organization techniques for improved algorithm efficiency and real-world application.
25.	DE	Advanced Java Programming	15%	The syllabus of Advanced Java Programming is updated to include modern frameworks and real-time applications, enhancing students' practical development skills for industry needs.
26.	DE	Computer Graphics	12%	The syllabus of Computer Graphics is modified to incorporate modern rendering techniques and interactive

				graphics tools to align with current industry practices and software development trends.
27.	DE	Deep Learning	15%	The syllabus of Deep Learning is modified to include recent advancements such as transformers and generative models to enhance practical knowledge and research capabilities in cutting-edge AI technologies.
28.	DE	Digital Image Processing	15%	The syllabus of Digital Image Processing is updated to incorporate deep learning-based image analysis techniques, enabling students to work on modern applications like medical imaging and computer vision.
29.	DE	Mobile Ad-hoc Networks	20%	The syllabus of Mobile Ad-hoc Networks has been modified to include recent advancements in VANETs and IoT integration, aligning with current research and industry trends.
30.	DE	Text Mining	15%	The syllabus of Text Mining has been updated to include deep learning-based NLP techniques and real-world applications, enhancing students' skills for current industry demands.
31.	DE	Numerical Algorithms	15%	The Numerical Algorithms course was revised to enhance practical skills, align with industry tools, and support advanced computational problem-solving.
32.	DE	Operating System Design	20%	The Operating System Design syllabus was updated to include modern OS concepts and tools, enhancing system-level programming skills.
33.	DE	Machine Learning	15%	The Machine Learning syllabus was revised to focus on core algorithms, practical applications, and alignment with current industry trends.
34.	DE	Simulation and Modeling	12%	The Simulation and Modeling syllabus was updated to incorporate modern tools and techniques for real-world system analysis and decision-making.
35.	OE	Database Systems	15%	The Database Systems syllabus was revised to include advanced database concepts, practical implementation, and emerging technologies like NoSQL.
36.	OE	Mobile Application Design and Development	15%	The Mobile Application Design and Development syllabus was updated to include modern frameworks, platform-specific design principles, and hands-on project-based learning.

37.	OE	Java Programming	30%	The Java Programming syllabus was revised to emphasize object-oriented concepts, real-world application development, and industry-relevant tools and practices.
38.	OE	Python Programming	20%	The Python Programming syllabus was updated to focus on foundational concepts, data handling, and practical applications using modern libraries and tools.
39.	OE	Design and Development of Internet Applications	20%	The syllabus for Design and Development of Internet Applications was revised to include modern web technologies, full-stack development, and industry-aligned practices.
40.	Honors	Advanced Graph Algorithms	15%	The Advanced Graph Algorithms syllabus was updated to cover recent research developments and enhance problem-solving skills with practical applications.
41.	Honors	Biometrics	15%	The Biometrics syllabus was revised to include emerging technologies and improve practical understanding of biometric authentication systems.
42.	Honors	Parallel and Distributed Computing	20%	The Parallel and Distributed Computing syllabus was updated to emphasize modern architectures, efficient algorithms, and real-world distributed system applications.
43.	Honors	Internet of Things	12%	The Internet of Things syllabus was revised to include latest IoT technologies, protocols, and practical implementation aspects.
44.	Honors	Wireless Sensor Networks	15%	The Wireless Sensor Networks syllabus was updated to cover recent advancements, energy-efficient protocols, and real-world deployment challenges.
45.	Honors	Capstone Project	12%	The Capstone Project syllabus was revised to encourage interdisciplinary collaboration and focus on real-world problem-solving and innovation.
46.	Minors	Introduction to Python Programming	15%	The Introduction to Python syllabus was updated to strengthen foundational programming skills and introduce practical applications using modern libraries.
47.	Minors	OOPS through JAVA	13%	The OOPS through Java syllabus was revised to enhance understanding of object-oriented principles with practical Java programming applications.

S. No.		Course Title	% of Change	Justification for the Changes
48.	Minors	Database Management Systems	15%	The Database Management Systems syllabus was updated to include modern data models, SQL advancements, and real-world database application practices.
49.	Minors	Web Technologies	12%	The Web Technologies syllabus was revised to incorporate current front-end and back-end frameworks, enhancing full-stack development skills
50.	Minors	Design and Analysis of Algorithms	14%	The Design and Analysis of Algorithms syllabus was updated to strengthen algorithmic problem-solving and include advanced techniques relevant to current industry needs.
51.	Minors	Operating Systems and Shell Programming	15%	The Operating Systems and Shell Programming syllabus was revised to enhance understanding of OS internals and practical shell scripting for real-time applications.
52.	Minors	Computer Networks	15%	The Computer Networks syllabus was updated to include modern networking protocols, security aspects, and real-time communication technologies.

(Dr. P. Siva Prasad)

Member Secretary

Chairperson

APPENDIX IV

List of New Courses in the R25-C25 Curriculum

S. No.	Course Code	Course Title	% of Change	Justification for the Changes
		Nil		

(Dr. P. Siva Prasad)

Member Secretary

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