

SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE
(An Autonomous Institution)
Puducherry - 605 107

Department of Computer Science and Engineering

Minutes of 10th Board of Studies Meeting

on

4th February 2026



Department of Computer Science and Engineering

Minutes of 10th Board of Studies Meeting (UG)

The Tenth Board of Studies meeting of Computer Science and Engineering Department was held on **04th February 2026 at 02.15 P.M** at Seminar Hall, Engineering block Computer Science and Engineering department, Sri ManakulaVinayagar Engineering College, with Head of the Department in the Chair through online mode.

The following members were present for the BoS meeting

Sl. No	Name of the Member with Designation and official Address	Responsibility in the BoS
1	Dr. N. Danapaquiame, M.E, Ph.D., Professor and Head Sri ManakulaVinayagar Engineering College hodcse@smvec.ac.in 9629124512	Chairman
2.	Dr. M. Shanmugam, M.E., Ph.D. Professor, Sri Manakula Vinayagar Engineering College shanmugam.mm@smvec.ac.in 9444370963	Member Secretary
3	Dr.T.Chithralekha Professor, Department of Computer Science, School of Tehnology, Pondicherry University,Pudhucherry tchithralekha.csc@pondiuni.ac.in 9443181282	Subject Expert (Pondicherry University Nominee)
4.	Dr.M.Ramakrishnan Professor and Head, School of Information Technology, Department of Computer Applications, Madurai Kamaraja University, Madurai. ramkrishod@gmail.com 8939432261	Subject Expert (Academic Council Nominee)
5.	Dr.A.Kalaivani Professor, Department of Information Technology, Rajalakshmi Engineering College, Chennai. kalaivani.a@rajalakshmi.edu.in 7904977893	Subject Expert (Academic Council Nominee)
6.	Mr.Aroulvel S Technical Leader, CISCO,Bangalore. aroshanm@cisco.com 9003898387	Representative from Industry

7.	<p>Ms.Shakin Banu.H Design Engineer Specialist British Telecommunication,UK Shakin2cse@gmail.com 9791854301</p>	Postgraduate Alumnus(nominated by the Principal)
8.	<p>Dr. M. Ganesan,M.E.,Ph.D., Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry ganesan@smvec.ac.in 9486341535</p>	Internal Member
9.	<p>Dr. N. Pazhaniraja, M.E., Ph.D. Associate Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry pazhaniraja.cse@smvec.ac.in 9944808218</p>	Internal Member
10.	<p>Dr. S. Saravanan, M.E., Ph.D. Associate Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry s.saravanan13021973@gmail.com 9894676654</p>	Internal Member
11.	<p>Mr. P. Karthikeyan, M.E,Ph.D (Pursuing) Associate Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry karthikcse@smvec.ac.in 9791553404</p>	Internal Member
12.	<p>Mr.B.Thiyagarajan, M.Tech,Ph.D (Pursuing) Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry thiyagarajan@smvec.ac.in 9791857984</p>	Internal Member
13.	<p>Mr.S.Kumarakrishnan, M.Tech,Ph.D (Pursuing) Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry skumarakrishnan@smvec.ac.in 9943073700</p>	Internal Member
14.	<p>Mrs.P.Bhavani, M.Tech,Ph.D (Pursuing) Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry bhavani@smvec.ac.in 9790176658</p>	Internal Member

15.	Mr.D.Rajesh, M.Tech Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry rajesh@smvec.ac.in 9600551422	Internal Member
16.	Mr.Arokiaraj Christian Hubert, M.Tech,Ph.D (Pursuing) Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry arokiaraj@smvec.ac.in 8056471203	Internal Member
17.	Ms. Swathilakshmi. V, M.Tech Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry swathilakshmi@smvec.ac.in 9655020592	Internal Member
18.	Mrs. S. Subasree, M.Tech Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry subasree.cse@smvec.ac.in 9488405612	Internal Member
19.	Mrs. S. Deeba,M.E Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry deebacse@smvec.ac.in 9500564937	Internal Member
20.	Mrs. R. Deepa, M.Tech Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry deepa.cse@smvec.ac.in 6380547250	Internal Member
21.	Mrs. C. Karthika, M.E Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry karthika1me@gmail.com 9715612122	Internal Member
22.	Mr. K. Anbuthiruvaraman, M.E Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry anbuthiruvaraman.cse@smvec.ac.in 9789371731	Internal Member

23.	<p>Ms.V. Nivetha, M.Tech Assistant Professor, Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry <u>nivetha@smvec.ac.in</u> 7094503098</p>	Internal Member
24.	<p>Mrs.D.Maladhy, M.Tech,Ph.D (Pursuing) Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry <u>maladhy.cse@smvec.ac.in</u> 9787094912</p>	Internal Member
25.	<p>Mrs.M.Manjula, M.Tech Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry <u>manjula.cse@smvec.ac.in</u> 9791854392</p>	Internal Member
26.	<p>Mrs.V.Indumathy, M.Tech,Ph.D (Pursuing) Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry <u>indumathy.cse@smvec.ac.in</u> 9786637652</p>	Internal Member
27.	<p>Mrs.R.Ilamathii, M.Tech Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry <u>illamathy.cse@smvec.ac.in</u> 6362084983</p>	Internal Member
28.	<p>Mr. M. Elamaran Professor, Department of English Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry</p>	Internal Member
29.	<p>Dr. T. Jayavarthanam, Professor and Head, Department of Physics Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry</p>	Internal Member
30.	<p>Dr. K.Raja, Associate Professor Department of Mathematics Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry</p>	Internal Member

Agenda of the Meeting	
Item No.:BoS/UG/CSE 10.1	Welcome Address and to confirm the minutes of the ninth meeting of Board of Studies held on 14.03.2025.
Item No.:BoS/UG/CSE 10.2	To discuss and approve Curriculum for 8 th semester and syllabi of eighth Semester for the B. Tech Computer Science and Engineering students admitted from the academic year 2023-24 under R-2023 Regulation.
Item No.:BoS/UG/CSE 10.3	To discuss the curriculum and syllabi of semester I for B.Tech CSE- 2026-27 of R-2026 Regulation for the students who are going to get admitted in the academic year 2026-2027.
Item No.:BoS/UG/CSE 10.4	To discuss about the Curriculum of (R-2026) <ul style="list-style-type: none"> • Theory Courses • Practical Courses • Theory cum Practical Courses • Mini Project, Project Phase-I and Project Phase-II • Ability Enhancement Courses <ul style="list-style-type: none"> ○ Skill Enhancement Courses ○ Certification Courses • Mandatory courses • Comparison of our Curriculum with other Autonomous colleges and Universities • Comparison of our R2026 Curriculum with AICTE's Model Curriculum
Item No.:BoS/UG/CSE 10.5	To discuss the academic calendar for the even semester of 2025-2026 academic year.
Item No.:BoS/UG/CSE 10.6	To apprise about the Industry Institute Interactions of the department of Computer Science and Engineering. <ul style="list-style-type: none"> • Guest lectures • Internship details • MOUs • Industrial Visits • Value Added Courses Extra-Curricular and Co-Curricular activities of the students
Item No.:BoS/UG/CSE 10.7	To apprise the End Semester Results of the students admitted in the Academic Year 2022-2023 (VII sem), 2023-2024 (V sem), 2024-2025 (III sem).
Item No.:BoS/UG/CSE 10.8	Any other item with the permission of chair.

Minutes of the Meeting

Dr. N. Danapaquame , Chairperson, BoS opened the meeting by welcoming and introducing the external members to the internal members and the meeting thereafter deliberated on agenda items that had been approved by the Chairperson

Item No.:BoS/UG/CSE 10.1Confirmation of minutes of 9th BoS meeting held on 14.03.2025.

Chairperson, BoS, apprised the minutes of 9th BoS. Then it is confirmed that suggestion and minor revision stated at 9th BoS meeting was incorporated and mentioned below.

S.No	Regulation	Semester	Subject Name with code	Unit	Particulars
1	R-2023	VII	Data Science and Digital Marketing course to be reframed to Data Analytics	-	Course has been replaced with Data Analytics course
2	R-2023	VII	Incorporate 5G technology oriented courses in Elective	-	Fundamentals of 5G Technology course is added as elective course
3	R-2023	VII	Reframe IoT and Edge Computing into Internet of Things course	-	IoT and Edge Computing course is reframed as Internet of Things and its Applications
4	R-2023	VII	Neural Computation course syllabus to be reframed	-	Neural Computation is reframed
5	R-2023	VII	Remove Digital Security and Steganography course from elective	-	Digital Security and Steganography is removed and 5G Technology course is included in elective
6	R-2023	-	Include Go Programming in any one of the application areas either cloud or networks	-	Suggestions incorporated
7	R-2023	-	Suggested to prepare lab exercises by reflecting theory course	-	Suggestions incorporated

The above correction was incorporated and approved by BoS members in 9th BoS meeting

Item No.: BoS / UG / CSE 10.2

To discuss and approve Curriculum for 8th semester and syllabi of eighth Semester for the B.Tech Computer Science and Engineering students admitted from the academic year 2023-24 under R-2023 Regulation.

The B.Tech Degree curriculum and syllabus approval of VIII semester under Regulation 2023 for the B.Tech programme and the students admitted in the academic year 2023–24 were discussed and recommended with the following modifications

S.No	Regulation	Semester	Subject Name with code	Unit	Particulars
1	R-2023	VIII	Introduction to Industry 4.0 U23CSEC02	-	Replace this with new programming course such as Generative AI ,Prompt Engineering etc.
2	R-2023	VIII	Scalable Data Science U23CSE825	-	The subject may be removed and replaced with High Performance Computing, Parallel Computing, <i>or</i> Quantum Computing.
3	R-2023	VIII	Testing and Automation U23CSE823	III	In Unit III along with Selenium tool suggested to include other Java-based testing tools such as Apache Groovy
4	R-2023	VIII	Kotlin Programming U23CSE824	-	Hands-on sessions, workshops, and practical activities need to include in Kotlin Programming
5	R-2023	VIII	Quantum Informatics U23CSE826	-	To rename the course Quantum Informatics as Quantum Information Science and to place greater emphasis on quantum computing algorithms, including the design and application of quantum algorithms.
6	R-2023	VIII	IoT Security U23CSE827	V	In Unit V, Blockchain along with IoT has been incorporated.

The above correction was incorporated and approved by BoS members in 10th BoS meeting, and the details are enclosed in Annexure – I.

Item No.:BoS/UG/CSE 10.3

To Discuss the curriculum and syllabi of semester I of R-2026 Regulation for the students who are going to get admit in the academic year 2026-2027.

S.No	Regulation	Semester	Subject Name with code	Unit	Particulars
1	R-2026	I	Computing Technologies and Problem Solving	IV	in Unit IV, Sorting and Searching is enough and in Unit V Digital Electronics can be removed.
2	R-2026	I	AI tools for engineering lab	-	<ul style="list-style-type: none"> ✓ Give a specific title such as “AI for Computer Science.” ✓ In this lab, include programs demonstrating how to create a website using Generative AI tools. ✓ It was suggested to include small mobile applications that can be used in everyday life. ✓ It was suggested to include common computing-related tasks, with at least two tasks in each unit. ✓ It was suggested to demonstrate how to develop and optimize a website to achieve top ranking using Generative AI. ✓ It was suggested to show how to generate PowerPoint presentations using Generative AI

The above correction was incorporated and approved by BoS members in 10th BoS meeting, and the details are enclosed in Annexure – II

Item No.:BoS/UG/CSE 10.4

To discuss about the Curriculum of (R-2026)

- Theory Courses
- Practical Courses
- Theory cum Practical Courses
- Mini Project, Project Phase-I and Project Phase-II
- Ability Enhancement Courses
 - Skill Enhancement Courses
 - Certification Courses
- Mandatory courses
- Comparison of our Curriculum with Other Autonomous Colleges and Universities Comparison of our R2026 Curriculum with AICTE's Model Curriculum

- Discussed about the approval of Theory cum Practical Courses and Mini Projects, Syllabus Credits, Ability Enhancement Courses, Mandatory courses Introduction of Universal Human Values II and Sustainable Development Goals (SDG) introduced for B. Tech Computer Science and Engineering under R-2026 Regulation from the Academic Year 2026-2027 and the same is approved by BoS members.

Item No.:BoS/UG/CSE 10.5

To discuss and Approve the academic calendar for the even semester of 2025-2026 academic year

The Panel of Experts discussed and approved the calendar for the even semester 2025-26 and details are attached in Annexure-III

Item No.:BoS/UG/CSE 10.6

To apprise about the Industry Institute Interactions of the department of Computer Science and Engineering.

- Guest lectures
- Internship details
- MOUs
- Industrial Visits
- Value Added Courses

Extra-Curricular and Co-Curricular activities of the students

The Panel discussed about the Industry Institute Interactions Annexure IV

Item No.:BoS/UG/CSE 10.7

To apprise the End Semester Results of the students admitted in the Academic Year 2022-2023 (VII sem), 2023-2024 (V sem), 2024-2025 (III sem).

The Panel discussed about the Results of III,V and VII semester and encouraged students to participate in Extra-Curricular and Co-Curricular activities. Annexure V

Item No.:BoS/UG/CSE 10.8

Any other item with the permission of chair.

The panel discussed about the Honours and Minor Degree Curriculum and the students admitted in 2025-2026 Annexure VI

The panel discussed **including how the curriculum contributes to the achievement of Program Outcomes (PO) and Program Specific Outcomes (PSO), and how students attain these program outcomes.**

The meeting for the above Agenda regarding B.Tech-Computer Science and Engineering was concluded by 3.30 pm with by **Dr. N. Danapaquame,** chairperson-BoS and Head of Department of Computer Science and Engineering, Sri Manakula Vinayagar Engineering College.



Minutes of 10th Board of Studies Meeting

(M.Tech-Computer Science and Engineering)

M.Tech – Computer Science Engineering (Big Data and Analytics)

Agenda of the Meeting

Item No.:BoS/PG/CSE/BDA 10.1	Welcome Address and to confirm the minutes of the ninth meeting of Board of Studies held on 14.03.2025
Item No.:BoS/PG/CSE/BDA 10.2	To discuss about the Curriculum and syllabus of R-2026 regulation of M.Tech CSE and M.Tech CSE (BDA) for the students going to be admitted in the academic year 2026 - 2027.
Item No.:BoS/PG/CSE/BDA 10.3	Any other item with the permission of chair

Minutes of the Meeting

Dr. N. Danapaquame, Chairperson, BoS opened the meeting by welcoming and introducing the external members to the internal members and the meeting thereafter deliberated on agenda items that had been approved by the Chairperson

Item No.:BoS/PG/CSE/BDA 10.1

Confirmation of minutes of 9th BoS meeting held on 14.03.2025

Chairperson, BoS, apprised the minutes of 9th BoS.

Item No.:BoS/PG/CSE/BDA 10.2

To discuss about the Curriculum and syllabus of R-2026 Regulation of M.Tech CSE and M.Tech CSE (BDA) for the students going to be admitted in the academic year 2026 - 2027.

The M.Tech Degree curriculum and syllabus approval of semester I to semester IV under Autonomous Regulation 2026 for the M.Tech programme and the students admitted in the academic year 2026–27 were discussed and recommended with the following modifications.

S.No	Regulation	Semester	Subject Name with code	Unit	Particulars
1	R-2026	I	Mathematical Foundation of Formal Approach P26MAT103	-	The Title Mathematical Foundation of formal approach can be changed to Mathematical Foundation of Computer Science
2	R-2026	I	Advanced Databases P26CST102	V	The Data Warehousing section in Unit V has been removed and may be offered as a separate course if necessary.

					Unit V now incorporates Database Security, Cloud Databases, and Emerging Trends.
3	R-2026	I	Applied Machine Learning P23BDT103	-	It is suggested to replace Applied Machine Learning with Data Visualization, while Applied Machine Learning may be offered in the next semester.
4	R-2026	I	Machine Learning & Big Data Analytics Lab P23BDP101	-	It is proposed that the Big Data Computing Laboratory be replaced, and the Machine Learning & Big Data Analytics Lab be scheduled for the upcoming semester

The above correction were incorporated and approved by BoS members in 10th BoS meeting, and the details are enclosed in Annexure – VII.

Item No.:BoS/PG/CSE/BDA 10.3

Any other item with the permission of chair

The panel discussed about bringing up new research topic in curriculum and to increase admission

The meeting for the above Agenda regarding M.Tech-Computer Science and Engineering and M.Tech-Computer Science Engineering(Big Data and Analytics) was concluded by 3.45 pm with by **Dr. N. Danapaquame** ,Chairman-BoS and Head of the Department,Department of Computer Science and Engineering,Sri Manakula Vinayagar Engineering College.



Department of Computer Science and Engineering

Minutes of 10th Board of Studies Meeting

(Ph.D-Computer Science and Engineering)

Agenda of the Meeting	
Item No.:BoS/Ph.D/CSE 10.1	Welcome Address and to confirm the minutes of the ninth meeting of Board of Studies held on 14.03.2025
Item No.:BoS/Ph.D/CSE 10.2	To discuss about the progress of the various scholars of Ph. D. in the department of Computer Science and Engineering.
Item No.:BoS/Ph.D/CSE 10.3	Any other item with the permission of chair

Minutes of the Meeting

Dr. N. Danapaquame , Chairperson, BoS opened the meeting by welcoming and introducing the external members to the internal members and the meeting thereafter deliberated on agenda items that had been approved by the Chairperson

Item No.:BoS/Ph.D/CSE 10.1

Welcome Address and to confirm the minutes of the ninth meeting of Board of Studies held on 14.03.2025

Chairperson, BoS, apprised the minutes of 9th Bos, its implementation and then it is confirmed with the approval in 9th BoS meeting for the incorporation without any revision

Item No.:BoS/Ph.D/CSE 10.2

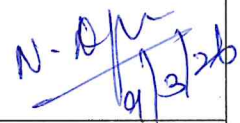



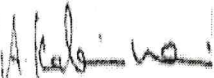
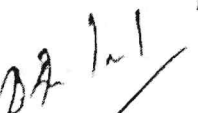
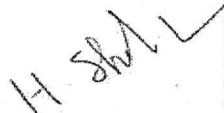

To discuss about the progress of the various scholars of Ph. D. in the department of Computer Science and Engineering.







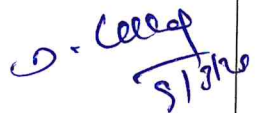

The details about Scholars and their progress is discussed and details is enclosed in Annexure-VIII





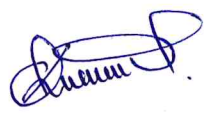



Item No.:BoS/Ph.D/CSE 10.3

Any other item with the permission of chair.
The panel discussed about the publication of scholar

The meeting for the above Agenda regarding Ph.D-Computer Science and Engineering was concluded by 4.30 pm with by **Dr. N. Danapaquame** ,Chairman-BoS and Head of the Department,Department of Computer Science and Engineering,Sri Manakula Vinayagar Engineering College.

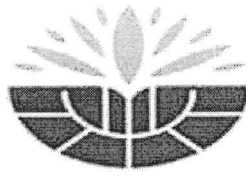
Sl.No	Name of the Member with Designation and official Address	Responsibility in the BoS	Signature
1	Dr. N. Danapaquiame, M.E, Ph.D., Professor and Head Sri Manakula Vinayagar Engineering College hodcse@smvec.ac.in 9629124512	Chairman	
2.	Dr. M. Shanmugam, M.E., Ph.D. Professor, Sri Manakula Vinayagar Engineering College shanmugam.mm@smvec.ac.in 9444370963	Member Secretary	
3	Dr.T.Chithralekha Professor, Department of Computer Science, School of Tehnology, Pondicherry University,Pudhucherry tchithralekha.csc@pondiuni.ac.in 9443181282	Subject Expert (Pondicherry University Nominee)	
4.	Dr.M.Ramakrishnan Professor and Head, School of Information Technology, Department of Computer Applications, Madurai Kamaraja University, Madurai. ramkrishod@gmail.com 8939432261	Subject Expert (Academic Council Nominee)	
5.	Dr.A.Kalaivani Professor, Department of Information Technology, Rajalakshmi Engineering College, Chennai. kalaivani.a@rajalakshmi.edu.in 7904977893	Subject Expert (Academic Council Nominee)	
6.	Mr.Aroulvel S Technical Leader, CISCO,Bangalore. aroshanm@cisco.com 9003898387	Representative from Industry	
7.	Ms.Shakin Banu.H Design Engineer Specialist British Telecommunication,UK Shakin2cse@gmail.com 9791854301	Postgraduate Alumnus(nominated by the Principal)	
8.	Dr. M. Ganesan,M.E.,Ph.D., Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry ganesan@smvec.ac.in 9486341535	Internal Member	

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27.	Mrs.R.Ilamathii, M.Tech Assistant Professor Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry illamathy.cse@smvec.ac.in 6362084983	Internal Member	<i>Illamathii</i>
28.	Mr. M. Elamaran Professor, Department of English Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry	Internal Member	<i>Elamaran</i>
29.	Dr. T. Jayavarthanam, Professor and Head, Department of Physics Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry	Internal Member	<i>Jayavarthanam</i>
30.	Dr. K.Raja, Associate Professor Department of Mathematics Sri Manakula Vinayagar Engineering College Madagadipet,Pudhucherry	Internal Member	<i>K.Raja</i>

ANNEXURE -I



**SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
(An Autonomous Institution)**

Puducherry

**B.TECH.
COMPUTER SCIENCE AND ENGINEERING**

**ACADEMIC REGULATIONS 2023
(REGULATION - 2023)**

CURRICULUM AND SYLLABI

SEMESTER – VIII										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	U23HSTC03	Entrepreneurship and Business Management	HS	3	0	0	3	25	75	100
2	U23CSE8XX	Professional Elective V #	PE	3	0	0	3	25	75	100
3	U23CSE8XX	Professional Elective VI #	PE	3	0	0	3	25	75	100
Project Work										
4	U23CSW805	Project phase - II	PA	0	0	16	8	50	100	150
							17	125	325	450

Professional Elective –I (Offered in Semester IV)		
Sl. No.	Course Code	Course Title
1.	U23CSE401	Programming in C++
2.	U23CSE402	Computer Graphics
3.	U23CSE403	Distributed Systems
4.	U23CSE404	IoT Design Protocols
5.	U23CSE405	UI / UX Development
Professional Elective –II (Offered in Semester V)		
Sl. No.	Course Code	Course Title
1.	U23CSE506	Programming in C#
2.	U23ECEC01	Digital Image Processing
3.	U23CSE507	Network Security
4.	U23CSE508	Open-Source Programming for IOT
5.	U23CSE509	Software Project Management
Professional Elective –III (Offered in Semester VI)		
Sl. No.	Course Code	Course Title
1.	U23CSE610	Haskell Programming
2.	U23CSE611	Game Design and Development
3.	U23CSE612	NOSQL Database
4.	U23CSE613	IOT challenges and Future
5.	U23CSE614	Server-Side Scripting Languages
Professional Elective –IV (Offered in Semester VII)		
Sl. No.	Course Code	Course Title
1.	U23CSEC01	Go Programming
2.	U23CSE715	Augmented Reality
3.	U23CSE716	Fundamentals of 5G Network
4.	U23CSE717	Digital Security
5.	U23CSE718	Drone Technology
Professional Elective –V (Offered in Semester VIII)		
Sl. No.	Course Code	Course Title
1.	U23CSE819	Redux Programming
2.	U23CSE820	Virtual Reality
3.	U23CSE821	Social Networking
4.	U23CSEC02	Generative AI and its application
5.	U23CSE822	Testing and Automation
Professional Elective –VI (Offered in Semester VIII)		
Sl. No.	Course Code	Course Title
1.	U23CSE823	Kotlin Programming
2.	U23CSE824	High Performance Computing
3.	U23CSE825	Quantum Information Science
4.	U23CSE826	IoT Security
5.	U23CSE827	Open AI

**PROFESSIONAL
ELECTIVE
V**

Academic Curriculum and Syllabi R-2023

Department	Computer Science and Engineering			Programme: B.Tech						
Semester	VIII			Course Category: PE		End Semester Exam Type: TE				
Course Code	U23CSE819			Periods/Week			Credit	Maximum Marks		
				L	T	P	C	CAM	ESE	TM
Course Name	Redux Programming			3	-	-	3	25	75	100
CSE										
Prerequisite	React basics, JavaScript									
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)	
	CO1	Understand the core principles of Redux							K2	
	CO2	Apply Redux to React applications.							K3	
	CO3	Analyze and handle asynchronous operations in Redux.							K3	
	CO4	Apply advanced Redux patterns, Redux Toolkit and optimize state updates.							K3	
	CO5	Evaluate Redux applications using testing,							K4	
UNIT - I	Introduction to Redux					Periods:09				
Introduction: Redux – Need for Centralized State Management – Core Principles: Single Source of Truth, Immutability, Predictable State. Redux Concepts: Actions, Reducers, Store. Redux Flow: Action Dispatch – Reducer Execution – State Updates – Subscription and Listeners. Hands-on: Setting up Redux Project – Creating First Action, Reducer, and Store.									CO1	
UNIT - II	Integrating Redux with React					Periods:09				
React-Redux: Provider, connect() HOC, Mapping State and Dispatch. Redux Hooks: useSelector, useDispatch. Component Integration: Connecting Functional and Class Components. Advanced Hooks: Memoization, Custom Hooks. Best Practices: Container vs Presentational Components, Redux State Structure.									CO2	
UNIT - III	Middleware and Asynchronous Operations					Periods:09				
Middleware: Concept and Usage in Redux. Redux-Thunk: Handling Asynchronous Actions, API Calls. Redux-Saga: Generator Functions, Watchers and Workers, Complex Async Workflows. Error Handling: Managing Errors, Loading and Failure States. Comparison: Redux-Thunk vs Redux-Saga and Use Cases.									CO3	
UNIT - IV	Advanced Redux Patterns and Optimization					Periods:09				
Redux Toolkit: Reducers, Async Operations, Store Setup. State Normalization and Denormalization. Selectors and Memoization. Immutable Updates with Immer. Code Organization and Handling Large State.									CO4	
UNIT - V	Testing, DevTools, and Best Practices					Periods:09				
Testing: Actions, Reducers, Selectors. Redux DevTools: Setup and Debugging. Performance: Profiling and Optimization. Production: Code Splitting and Persistent State.									CO5	
Lecture Periods:45			Tutorial Periods: -			Practical Periods: -			Total Periods:45	
Text Books										
<ol style="list-style-type: none"> 1. The Complete Redux Book – Boris Dinkevich & Ilya Gelman – 1st Edition – 2023 2. Redux: An A-to-Z Walkthrough of the Most Important JavaScript State Management Library – Chong Lip Phang – 1st Edition – 2022 3. Redux Quick Start Guide – James Lee, Tao Wei & Suresh Kumar Mukhiya – 1st Edition – 2019 → Updated Edition – 2023 (use this instead). 										

Reference Books

1. Redux From Scratch – Mike Mangialardi – 1st Edition – 2025
2. The Redux Official Course Tutorial: Code Along for All Levels – 1st Edition – 2023
3. Human Redux: Practical Patterns for Redux – Henrik Joreteg – 1st Edition – 2023
4. Learning React: Modern Patterns for Developing React Apps – Alex Banks & Eve Porcello – 2nd Edition – 2020

Web References

1. <https://redux.js.org>
2. <https://github.com/reduxjs/redux>
3. <https://www.geeksforgeeks.org/web-tech/introduction-to-react-redux/>
4. <https://React-Redux Quick Start Tutorial>
5. <https://Redux Official Tutorials and Learning Path>

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	2	1	1	1	-	-	-	-	-	-	2	1	-
2	3	3	3	2	3	1	-	-	1	1	-	3	2	2
3	3	3	2	3	3	1	-	-	1	-	-	3	3	2
4	3	2	3	2	3	1	1	-	1	1	1	3	2	2
5	3	2	2	3	2	1	1	2	1	2	2	2	2	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

*Application oriented / Problem solving / Design / Analytical in content beyond the syllabus



Academic Curriculum and Syllabi R-2023

Department	Computer Science and Engineering			Programme: B.Tech						
Semester	VIII			Course Category: PE		End Semester Exam Type: TE				
Course Code	U23CSE820			Periods/Week			Credit	Maximum Marks		
				L	T	P	C	CAM	ESE	TM
Course Name	Virtual Reality			3	-	-	3	25	75	100
(Common to CSE and CSBS)										
Prerequisite	Familiarize yourself with Basic Internet & Computer Skills , Social Media Usage Experience									
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)	
	CO1	Know basic notation and terminology used in network science							K1	
	CO2	Be able to visualize, summarize and compare networks							K3	
	CO3	Be capable of analyzing real work networks							K4	
	CO4	Design extraction and mining tools for Social networks							K5	
	CO5	Develop personalized visualization for Social networks							K5	
UNIT - I	INTRODUCTION						Periods:09			
Virtual Reality: What is Virtual Reality - Modern VR Experiences - History Repeats. Bird's-Eye View: Hardware - Software - Human Physiology and Perception										CO1
UNIT - II	GEOMETRY AND LIGHT AND OPTICS						Periods:09			
Geometric Models - Changing Position and Orientation - Axis-Angle Representation of Rotation - Viewing Transformations - Chaining the Transformations.										CO2
Light and Optics: Basic Behavior - Lenses - Optical Aberrations - The Human Eye - Cameras – Displays.										
UNIT - III	PHYSIOLOGY OF HUMAN VISION						Periods:09			
From the Cornea to Photoreceptors - From Photoreceptors to the Visual Cortex - Eye Movements - Implications for VR										CO3
UNIT - IV	VISUAL PERCEPTION, VISUAL RENDERING AND MOTION IN REAL AND VIRTUAL WORLD						Periods:09			
Perception: Depth - Motion - Color - Combined sources of Information. Rendering: Ray Tracing and Shading Models - Rasterization - Correcting Optical Distortions. Motion: Velocities and Accelerations - The Vestibular System - Physics in the Virtual World - Mismatched Motion and Vection										CO4
UNIT - V	TRACKING, INTERACTION AND AUDIO						Periods:09			
Tracking: Tracking 2D Orientation - Tracking 3D Orientation - Tracking Position and Orientation - 3D Scanning of Environments. Interaction: Motor Programs and Remapping.- Locomotion - Social Interaction.										CO5
Audio: The Physics of Sound - The Physiology of Human Hearing - Auditory Perception - Auditory Rendering - Perceptual Training - Recommendations for Developers.										
Lecture Periods:45			Tutorial Periods: -			Practical Periods: -		Total Periods:45		
Text Books										
1. Stevan M. LaValle, <i>Virtual Reality</i> , Cambridge University Press, 2020. 2. Alan B. Craig, <i>Understanding Augmented Reality: Concepts and Applications</i> , Morgan Kaufmann, 2021 Edition. 3. Dieter Schmalstieg & Tobias Höllerer, <i>Augmented Reality: Principles and Practice</i> , Addison-Wesley, Updated Edition, 2021.										
Reference Books										
1. Jonathan Linowes, <i>Unity Virtual Reality Projects</i> , Packt Publishing, Updated Edition, 2023. 2. Woodrow Barfield & Marc J. Blitz, <i>Research Handbook on the Law of Virtual Reality and Augmented Reality</i> , Edward Elgar Publishing, 2020. 3. Jeff W. Murray, <i>Building Virtual Reality with Unity and SteamVR</i> , CRC Press, 2nd Edition, 2020.										



4. Erin Pangilinan, Steve Lukas & Vasanth Mohan, *Creating Augmented and Virtual Realities: Theory and Practice for Next-Generation Spatial Computing*, O'Reilly Media, Updated Edition, 2021.
5. Tony Parisi, *Learning Virtual Reality: Developing Immersive Experiences and Applications for Desktop, Web, and Mobile*, O'Reilly Media, 2021.

* TE – Theory Exam, LE – Lab Exam

Web References

1. <https://www.investopedia.com/terms/v/virtual-reality.asp>
2. <https://www.iberdrola.com/innovation/virtual-reality>
3. <https://www.marxentlabs.com/what-is-virtual-reality>
4. <https://www.vrs.org.uk/virtual-reality/what-is-virtual-reality.html>
5. <https://arvr.google.com/vr>

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	2	1	1	1	-	-	1	1	1	1	3	1	1
2	3	3	2	2	2	-	-	1	1	1	1	3	2	2
3	2	3	3	2	2	-	-	1	1	1	1	3	2	2
4	2	2	3	3	3	1	-	1	1	2	1	3	3	2
5	2	2	2	3	3	1	-	1	1	2	1	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Computer Science and Engineering			Programme: B.Tech						
Semester	VIII			Course Category: PE		End Semester Exam Type: TE				
Course Code	U23CSE821			Periods/Week			Credit	Maximum Marks		
				L	T	P	C	CAM	ESE	TM
Course Name	Social Networking			3	-	-	3	25	75	100
CSE										
Prerequisite	Familiarize yourself with Basic Internet & Computer Skills , Social Media Usage Experience									
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)	
	CO1	Know basic notation and terminology used in network science							K1	
	CO2	Be able to visualize, summarize and compare networks							K3	
	CO3	Be capable of analyzing real work networks							K4	
	CO4	Design extraction and mining tools for Social networks							K5	
	CO5	Develop personalized visualization for Social networks							K5	
UNIT - I	Introduction					Periods:09				
Introduction to social network, Networks examples. Graph theory basics, Statistical network properties, Node centrality metrics: degree, closeness and betweenness centrality. Eigenvector centrality and PageRank.										CO1
UNIT - II	Network models					Periods:09				
Properties of real world networks, Random Graph model, Small world model, Preferential attachment model, Community Structure: Community detection, Community Evolution, Community evaluation.										CO2
UNIT - III	Process on networks					Periods:09				
Network topology and diffusion, complex contagion, innovation and coordination, Cool and unusual Applications, predicting recipe ratings using ingredient networks, Network Resilience, Resilience and assortivity, Network visualization, Data mining and text mining										CO3
UNIT - IV	Social Network Mining					Periods:09				
Detecting and discovering Communities in Social Networks - Definition of Community - Evaluating Communities - Methods for Community Detection – divisive, spectral and modularity optimization algorithms - Applications of Community Mining Algorithms - Overview of tools for Detecting Communities - Understanding and Predicting Human Behavior for Social Communities										CO4
UNIT - V	Visualization And Applications Of Social Networks					Periods:09				
Visualization of Social Networks - Node-Edge Diagrams - Random Layout - Force-Directed Layout - Tree Layout - Matrix Representations - Hybrid Representations - Visualizing Online Social Networks - Applications - Covert Networks – Community Welfare - Collaboration Networks - Co-Citation Networks										CO5
Lecture Periods:45			Tutorial Periods: -			Practical Periods: -			Total Periods:45	
Text Books										
<ol style="list-style-type: none"> 1. Matthew O. Jackson, <i>Social and Economic Networks</i>, Princeton University Press, 2020 Edition. 2. Eric D. Kolaczyk & Gábor Csárdi, <i>Statistical Analysis of Network Data with R</i>, Springer, 2nd Edition, 2020. 3. Petter Holme & Jari Saramäki, <i>Temporal Network Theory</i>, Springer, 2021. 4. Borko Furht (Ed.), <i>Handbook of Social Network Technologies and Applications</i>, Springer, Updated Edition, 2021. 5. John G. Breslin, Alexandre Passant & Stefan Decker, <i>The Social Semantic Web</i>, Springer, Updated Edition, 2020 										
Reference Books										
<ol style="list-style-type: none"> 1. Maarten van Steen, <i>Graph Theory and Complex Networks: An Introduction</i>, Revised Edition, 2021. 2. Reza Zafarani, Mohammed Ali Abbasi & Huan Liu, <i>Social Media Mining: An Introduction</i>, Cambridge University Press, Updated Edition, 2021. 3. Maksim Tsvetovat & Alexander Kouznetsov, <i>Social Network Analysis for Startups</i>, O'Reilly Media, Updated Edition, 2022. 4. Robert Knell, <i>Introductory R: A Beginner's Guide to Data Visualisation, Statistical Analysis and Programming in R</i>, Packt Publishing, 2nd Edition, 2021. 5. Robert Kabacoff, <i>R in Action: Data Analysis and Graphics with R</i>, Manning Publications, 3rd Edition, 2023. 										

Web References

1. Useful Links: <http://www.r-project.org>
2. <http://www.rstudio.com>
3. <http://igraph.org>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	1	-	-	1	-	-	-	-	-	-	2	1	1
2	3	2	1	1	2	-	-	-	-	1	-	2	2	1
3	3	3	2	2	2	-	-	-	1	-	-	3	2	2
4	3	3	3	2	3	-	-	1	1	-	1	3	3	2
5	2	2	3	2	3	-	-	-	1	1	-	3	2	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Academic Curriculum and Syllabi R-2023

Department	Computer Science and Engineering			Programme: B.Tech.						
Semester	VIII			Course Category Code: PE		*End Semester Exam Type: TE				
Course Code	U23CSEC02			Periods / Week			Credit			
				L	T	P	C	Maximum Marks		
Course Name	Generative AI & Its Application			3	0	0	3	25	75	100
Prerequisite	Basic Mathematics, Probability and Statistics, Programming in Python									
Course Outcome	On completion of the course, the students will be able to									BT Mapping (Highest Level)
	CO1	Explain theoretical foundations and mathematical principles of generative modeling.								K2
	CO2	Describe and analyze sequence-based generative architectures for text modeling.								K2
	CO3	Explain image generation techniques using GANs, VAEs, and diffusion models								K2
	CO4	Apply and adapt Large Language Models using fine-tuning, prompt engineering and alignment techniques.								K3
	CO5	Evaluate, design and deploy LLM-based applications with consideration of ethical and societal impact.								K4
Unit- I	INTRODUCTION TO GENERATIVE AI								Periods: 09	
Introduction to Generative AI – Generative vs Discriminative models – Probability distributions and density estimation – Maximum Likelihood Estimation – Latent variable models –Autoregressive models – Flow-based models – Energy-based models –Representation learning – Manifold hypothesis –Training objectives –Overfitting.										CO1
Unit- II	SEQUENCE AND TEXT GENERATION MODELS								Periods: 09	
Probabilistic language modelling – N-gram models – Neural language models –Recurrent Neural Networks (RNN) LSTM and GRU for text generation –Attention mechanism – Transformer architecture – Encoder-only, Decoder-only Encoder-Decoder models –Autoregressive generation – Sampling techniques (Greedy, Beam Search, Top-k, Top-p) –Pre-training objectives (Masked LM, Causal LM).										CO2
Unit- III	IMAGE AND MULTIMODAL GENERATIVE MODELS								Periods: 09	
Generative Adversarial Networks (GAN) – Minimax objective – Generator and Discriminator –Variants of GAN – DCGAN, CycleGAN, Conditional GAN –Variational Autoencoders (VAE) – Encoder-decoder structure – Latent space sampling –Diffusion models – Forward and reverse diffusion process –Evaluation of image models – FID score – Inception score –Challenges in image generation – Mode collapse, data bias.										CO3
Unit- IV	ADVANCED LARGE LANGUAGE MODELS AND ADAPTATION								Periods: 09	
Evolution of Large Language Models – Scaling laws – Pre-training objectives (Masked LM, Causal LM) – Architecture of GPT-style models – Training pipeline of LLMs – Tokenization techniques (BPE, SentencePiece) – Fine-tuning strategies –Benchmarks (MMLU, HELM) – Perplexity and accuracy – Hallucination detection										CO4
Unit- V	GEN AI TOOLS AND APPLICATIONS								Periods: 09	
Retrieval-Augmented Generation (RAG) – Vector databases – Embeddings and similarity search –LLM Agents – Tool usage and function calling – Autonomous agents – Multi-agent systems –Open-source LLMs – GPT, LLaMA, Mistral overview – Hugging Face ecosystem –Data privacy – Copyright – Responsible AI governance.										CO5
Lecture Periods: 45			Tutorial Periods:			Practical Periods: -		Total Periods: 45		
Text Books										
1. Ian Goodfellow, Yoshua Bengio, Aaron Courville, Deep Learning, MIT Press, Updated Edition, 2021. 2. David Foster, Generative Deep Learning, 2nd Edition, O'Reilly Media, 2022. 3. Lewis Tunstall, Leandro von Werra, Thomas Wolf, Natural Language Processing with Transformers, O'Reilly Media, 2022.										

Reference Books

1. Ian Goodfellow, Yoshua Bengio, Aaron Courville, Deep Learning, MIT Press, Updated Edition, 2021.
2. David Foster, Generative Deep Learning, 2nd Edition, O'Reilly Media, 2022.
3. Lewis Tunstall, Leandro von Werra, Thomas Wolf, Natural Language Processing with Transformers, 2nd Edition, O'Reilly Media, 2024.
4. Sudharsan Ravichandiran, Hands-On Generative Adversarial Networks with PyTorch, 2nd Edition, Packt Publishing, 2022.
5. Zhang, Z., Sabuncu, M. R. (Editors), Deep Learning for Medical Image Analysis, 2nd Edition, Academic Press, 2023.

Web References

1. <https://arxiv.org/abs/1706.03762>
2. <https://arxiv.org/abs/2005.14165>
3. <https://arxiv.org/abs/2006.11239>
4. <https://openai.com/research/clip>

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	3	2	1	1	-	-	1	1	1	1	3	2	1
2	3	3	2	2	2	-	-	1	1	1	1	3	2	2
3	3	3	3	2	2	-	-	1	1	1	1	3	2	2
4	2	3	3	3	3	1	-	1	1	2	1	3	3	3
5	2	2	3	3	3	2	1	2	1	2	1	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10		5	5	5	75	100

*Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Computer Science and Engineering			Programme: B.Tech						
Semester	VIII			Course Category: PE		End Semester Exam Type: TE				
Course Code	U23CSE822			Periods/Week			Credit	Maximum Marks		
				L	T	P	C	CAM	ESE	TM
Course Name	Testing and Automation			3	-	-	3	25	75	100
CSE										
Prerequisite	Familiarize yourself with UI design									
Course Outcomes	On completion of the course, the students will be able to									BT Mapping (Highest Level)
	CO1	Understand fundamentals of software testing and importance of test automation								K2
	CO2	Analyze and design effective test plans and test cases								K4
	CO3	Perform different testing techniques and defect reporting								K3
	CO4	Apply automated testing tools and frameworks								K3
	CO5	Evaluate and select appropriate automation strategies & metrics								K5
UNIT - I	Introduction to Software Testing					Periods:09				
Software Quality and Testing Principles - Testing as an Engineering Activity - SDLC vs STLC - STLC and V-Model - Testing Requirements - Role of testing in software development										CO1
UNIT - II	Test Planning and Test Design Techniques					Periods:09				
Test planning fundamentals - Test cases, test suites - Black Box & White Box Testing Techniques - Boundary Value Analysis, Decision Table Testing - Test data generation										CO2
UNIT - III	Testing Tools and Types					Periods:09				
Manual vs Automated Testing - Testing tools overview: Selenium, JUnit/TestNG, Introduction to Apache Groovy for Test Automation including fundamentals, scripting and OOP features – Integration of Groovy with Selenium and Spock Framework , Load and API testing basics -Defect management life cycle - Reporting & metrics										CO3
UNIT - IV	Test Automation Fundamentals					Periods:09				
Need for Automation and Scope - Test automation architecture and frameworks - Selection criteria for tools - Introduction to Selenium/WebDriver - TestNG reports - Writing automation scripts and assertions.										CO4
UNIT - V	Advanced Automation and Metrics					Periods:09				
Advanced Automation: Page Object / BDD - Integration with CI/CD pipelines - Automation Challenges and Best Practices - Test metrics: productivity and quality metrics - Reporting and continuous testing.										CO5
Lecture Periods:45		Tutorial Periods: -			Practical Periods: -			Total Periods:45		
Text Books										
<ol style="list-style-type: none"> 1. Paul C. Jorgensen,"Software Testing: A Craftsman's Approach",CRC Press, 2023. 2. Rex Black,"Advanced Software Testing", Vol. 1: Guide to the ISTQB Certification,Rocky Nook, 2023 3. Glenford J. Myers, Corey Sandler, Tom Badgett,"The Art of Software Testing", Wiley, 2023. 4. Aditya Garg, "Hands-On Test Management with JIRA", Packt Publishing, 2023. 5. Patanjali Nayak, Navin Kumar,"Software Testing and Quality Assurance for Beginners", BPB Publications, 2023. 										
Reference Books										
<ol style="list-style-type: none"> 1. Dorothy Graham & Mark Fewster — Experiences of Test Automation: Case Studies of Software Test Automation Addison-Wesley, 2023. 2. Ajay Kumar Jena,"Automation Testing with Selenium and Junit", BPB Publications, 2023. 3. Arnon Axelrod,"Complete Guide to Test Automation: Techniques, Practices, and Patterns for Building and Maintaining Effective Software Test Automation", Apress, 2023. 4. Rahul Shende,"Selenium WebDriver 3 Practical Guide: End-to-End Automation Testing for Web and Mobile Browsers with Selenium WebDriver", Packt Publishing, 2023. 5. Naveen Kumar T, "Mastering Software Testing with JUnit and Selenium", BPB Publications, 2023. 										

Web References

1. https://www.selenium.dev/documentation/test_practices/overview/
2. [https://en.wikipedia.org/wiki/Selenium_\(software\)](https://en.wikipedia.org/wiki/Selenium_(software)) Wikipedia
3. <http://digimat.in/nptel/courses/video/106105150/L01.html>

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	2	1	1	1	-	-	1	1	1	1	3	1	1
2	3	3	2	2	2	-	-	1	2	1	1	3	2	2
3	2	3	3	2	2	-	-	1	2	1	1	3	2	2
4	2	2	3	3	3	-	-	1	2	1	1	3	2	3
5	2	2	2	3	3	-	-	1	1	2	1	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

**PROFESSIONAL
ELECTIVE
VI**

Academic Curriculum and Syllabi R-2023

Department	Computer Science and Engineering		Programme: B.Tech						
Semester	VIII		Course Category: ES			End Semester Exam Type: TE			
Course Code	U23CSE823		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	KOTLIN PROGRAMMING		3	0	0	3	25	75	100
(Commen to CSE , IT and CCE)									
Prerequisite	Basic Computer Knowledge								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Explain the concept of computing from logic gates to ALU and memory hierarchy							K2
	CO2	Develop and analyze low-level programs using instruction sets and assembly language.							K3
	CO3	Describe and implement stack-based virtual machine operations and control flow.							K3
	CO4	Apply compiler design concepts to build syntax analyzers and generate low-level code.							K4
	CO5	Analyze operating system design issues including memory, I/O, and efficiency trade-offs.							K4
UNIT I	KOTLIN FUNDAMENTALS						Periods: 09		
Variables, Expressions, and Types – Functions - Conditionals: <i>if</i> and <i>when</i> . Introduction to Classes and Objects - Enum Classes. HANDS ON : Student Grade Management System.									CO1
UNIT II	CORE LANGUAGE CONCEPTS						Periods: 09		
Nulls and Null Safety - Lambdas and Function References - Collections: Lists and Sets - Collections: Maps - Receivers and Extensions. HANDS ON : Student Result Processing using Lambdas and Collections.									CO2
UNIT III	SCOPE & ADVANCED STRUCTURES						Periods: 09		
Scopes and Scope Functions - Introduction to Interfaces - Introduction to Class Delegation - Abstract and Open Classes - Data Classes and Destructuring. HANDS ON : Employee Management System using Data Classes and Destructuring.									CO3
UNIT IV	ADVANCED TYPES & GENERICS						Periods: 09		
Sealed Types - Handling Runtime Exceptions - Introduction to Generics - Generic Variance - Higher-Order Function Concepts. HANDS ON : Payment Processing System using Sealed Types using Higher-Order Functions.									CO4
UNIT V	CONCURRENCY & PRACTICAL TECHNIQUES						Periods: 09		
Coroutine Essentials - Functional Concepts in Kotlin - Applying Kotlin in Real Projects (IDE tools & projects integration) - Best Practices and Code Structuring. HANDS ON : Parallel API Calls Using Kotlin Coroutines (async & await).									CO5
Lecture Periods: - 45			Tutorial Periods: -			Practical Periods: -		Total Periods: 45	
Text Books									
1. Duncan McGregor, Nat Pryce, "Kotlin: An Illustrated Guide", O'Reilly Media, 2021. 2. Marcin Moskala, "Effective Kotlin", Kt. Academy, 2022. 3. Marcin Moskala, "Kotlin Coroutines: Deep Dive", Kt. Academy, 2021. 4. Venkat Subramaniam, "Programming Kotlin", Pragmatic Bookshelf, Updated Edition, 2021. 5. Alexey Soshin, "Kotlin Design Patterns and Best Practices", Packt Publishing, 2021.									
Reference Books									
1. Peter Sommerhoff, "Atomic Kotlin", Leanpub, 2021. 2. Neil Smyth, "Kotlin for Android App Development", Payload Media, 2020. 3. Hadi Hariri, Sebastian Aigner, "Kotlin Cookbook", O'Reilly Media, 2022. 4. Josh Skeen, David Greenhalgh, "Kotlin Programming: The Big Nerd Ranch Guide", Big Nerd Ranch Guides, Updated Edition, 2021. 5. Joseph Annuzzi Jr., Lauren Darcey, Shane Conder, "Android Application Development for Android 12 with Kotlin", Pearson Education, 2022.									

Web References

1. <https://kotlinlang.org/docs/home.html>
2. <https://hackr.io/tutorials/learn-kotlin>
3. <https://developer.android.com/kotlin/campaign/learn>
4. <https://www.geeksforgeeks.org/kotlin/kotlin-programming-language>
5. <https://www.tutorialspoint.com/kotlin/index.htm>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	2	1	1	1	-	-	1	1	1	1	3	1	1
2	3	3	2	2	3	-	-	1	2	1	1	3	2	2
3	2	3	3	2	2	-	-	1	2	1	1	3	2	2
4	2	2	3	3	2	-	-	1	2	1	1	3	3	2
5	2	2	2	2	3	-	-	1	1	1	1	3	2	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Team Work & Self Learning	Attendance		
Marks	5	5	5	5	5	75	100

*Application oriented / Problem solving / Design / Analytical in content beyond the syllabus



Department	Computer Science and Engineering		Programme: B.Tech.						
Semester	VIII		Course Category: ES			End Semester Exam Type: TE			
Course Code	U26CSE824		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	High Performance Computing		3	-	-	3	25	75	100
(Common to All Branches Except CSBS and FT)									
Prerequisite	NIL								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Explain parallel computing models and architectures							K2
	CO2	Illustrate parallel programming paradigms							K2
	CO3	Implement shared memory parallel programs							K3
	CO4	Develop distributed memory programs using MPI							K3
	CO5	Analyze GPU and heterogeneous computing models							K4
UNIT - I	Introduction to Parallel Computing					Periods:09			
Need for HPC – Flynn's Classification – Parallel Computer Models – Memory Architectures – Shared vs Distributed Memory – Interconnection Networks – Performance Metrics – Speedup – Scalability – Amdahl's Law – Gustafson's Law – Benchmarking.									CO1
UNIT - II	Parallel Programming Models					Periods:09			
Parallel Programming Paradigms – Data Parallelism – Task Parallelism – SPMD – SIMD – MIMD – Threads and Processes – Parallel Algorithm Design – Dependency Graphs – Synchronization – Race Condition – Deadlock – Load Balancing.									CO2
UNIT - III	Shared Memory Programming					Periods:09			
Multithreading Concepts – POSIX Threads – Thread Creation – Mutex – Semaphores – Barriers – OpenMP Model – OpenMP Directives – Work Sharing – Scheduling – Reduction – Case Studies: Parallel Sorting and Matrix Multiplication.									CO3
UNIT - IV	Distributed Memory Programming					Periods:09			
Message Passing Model – MPI Architecture – MPI Communication – Point-to-Point Communication – Collective Communication – Broadcast – Scatter – Gather – Reduction – Parallel Matrix Operations – Parallel Search Algorithms.									CO4
UNIT - V	GPU and Heterogeneous Computing					Periods:09			
GPU Architecture – CUDA Programming Model – Kernel Functions – Thread Hierarchy – Memory Types – Optimization Techniques – Heterogeneous Systems – Accelerator Computing – Introduction to Cloud HPC – Case Studies..									CO5
Lecture Periods:45			Tutorial Periods: -			Practical Periods: -		Total Periods:45	
Text Books									
<ol style="list-style-type: none"> 1. Sterling, T., Brodowicz, M., & Anderson, M., "High Performance Computing: Modern Systems and Practices", 2nd Edition, Elsevier, 2024. 2. Diez, O., "High-Performance Computing: Applications and Frontiers", 1st Edition, Elsevier, 2026. 3. Hager, G. & Wellein, G., "Introduction to High Performance Computing for Scientists and Engineers", 2nd Edition (Forthcoming/2026). 									
Reference Books									
<ol style="list-style-type: none"> 1. Kirk, D. B., & Hwu, W.-M. W., Programming Massively Parallel Processors: A Hands-On Approach, 4th Edition, Morgan Kaufmann, 2022. 2. Raghuvanshi, M., Borkar, P., Jhaveri, R., & Raut, R., Parallel and High-Performance Computing in Artificial Intelligence, 1st Edition, Taylor & Francis, 2025. 3. Dongarra, J., et al., High Performance Computing Systems and Applications, Springer, Updated Edition, 2022. 4. Sterling, T., Brodowicz, M., & Anderson, M., High Performance Computing: Modern Systems and Practices, 3rd Edition, Elsevier, 2024. 5. Pacheco, P., Parallel Programming with MPI, 2nd Edition, Morgan Kaufmann, 2021. 									

Web References

1. **MPI Tutorials & HPC Documentation (LLNL)** – MPI and parallel computing tutorials and guides. [MPI & Parallel Computing Tutorials \(LLNL\)](#)
2. **High-Performance and Parallel Computing Specialization (Coursera)** – Course covering HPC fundamentals, MPI, profiling & optimization. [High-Performance & Parallel Computing \(Coursera\)](#)
3. **Introduction to Parallel Programming in OpenMP (NPTEL Archive)** – Open course on shared-memory parallelism using OpenMP. [OpenMP Parallel Programming Course \(NPTEL\)](#)
4. **Practical High-Performance Computing (NPTEL/Class Central)** – Practical oriented HPC course with MPI/OpenMP & GPU topics. [Practical HPC Course \(Class Central\)](#)
5. **HPC Programming Bootcamp Documentation** – Detailed modular resources on MPI/OpenMP programming and performance. [HPC Programming Bootcamp Documentation](#)

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	2	1	1	-	-	1	1	1	1	3	2	1	3
2	3	3	2	2	-	-	1	1	1	1	3	2	2	3
3	3	3	3	3	-	-	1	1	1	1	3	2	2	3
4	3	3	3	3	-	-	1	1	1	1	3	3	2	3
5	3	3	3	3	1	-	1	1	2	1	3	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10		5	5	5	75	100

*Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Computer Science and Engineering			Programme: B.Tech						
Semester	VIII			Course Category: PE		End Semester Exam Type: TE				
Course Code	U23CSE825			Periods/Week			Credit	Maximum Marks		
				L	T	P	C	CAM	ESE	TM
Course Name	Quantum Information Science			3	-	-	3	25	75	100
CSE										
Prerequisite	linear algebra, probability, and complex numbers									
Course Outcomes	On completion of the course, the students will be able to									BT Mapping (Highest Level)
	CO1	Understand quantum mechanics principles and computation basics								K2
	CO2	Analyze quantum states and design quantum circuits using gates								K3
	CO3	Apply quantum algorithms and compare with classical algorithms								K3
	CO4	Explain quantum information and communication protocols								K2
	CO5	Apply basic quantum error correction techniques								K3
UNIT – I	FOUNDATIONS OF QUANTUM INFORMATION SCIENCE						Periods:09			
Overview of Classical Computing– Limitations Of Classical Computation – Efficient And Inefficient Algorithms – Church–Turing Thesis (Strong And Weak Forms) – Motivation For Quantum Computation – Information Is Physical Principle – Qubit And Quantum Information – Superposition And Quantum Measurement – Entanglement (Conceptual Understanding) – Advantages Of Quantum Computation.										CO1
UNIT – II	QUANTUM INFORMATION & QUANTUM GATES						Periods:09			
State of a Quantum System – Representation Of Quantum States – Bra–Ket Notation – Single Qubit Systems – Bloch Sphere Representation – Multi-Qubit Systems – Composite Systems And Tensor Products – Quantum Gates (Pauli, Hadamard, Phase, CNOT) – Universal Sets Of Quantum Gates – Quantum Circuit Model – Construction Of Basic Quantum Circuits.										CO2
UNIT - III	QUANTUM ALGORITHMS						Periods:09			
Quantum Parallelism – Deutsch Algorithm – Deutsch–Jozsa Algorithm – Bernstein–Vazirani Algorithm – Simon's Algorithm – Grover's Search Algorithm – Shor's Factoring Algorithm – Quantum Fourier Transform (QFT) – Comparison Of Classical And Quantum Algorithms.										CO3
UNIT - IV	QUANTUM INFORMATION THEORY & COMMUNICATION						Periods:09			
Classical Versus Quantum Information – Quantum States As Information Carriers – Quantum Measurement Basics – Quantum Channels And Noise (Introductory) – No-Cloning Theorem – Superdense Coding – Quantum Teleportation – Quantum Key Distribution – BB84 Protocol.										CO4
UNIT - V	QUANTUM NOISE, ERROR CORRECTION AND APPLICATIONS						Periods:09			
Quantum Errors And Decoherence – Sources Of Noise In Quantum Systems – Quantum Channels (Introductory) – Types Of Quantum Errors (Bit-Flip And Phase-Flip) – Basic Principles Of Quantum Error Correction – Three-Qubit Bit-Flip Code – Three-Qubit Phase-Flip Code – Concept Of Fault-Tolerant Quantum Computation – Applications And Challenges Of Quantum Computing.										CO5
Lecture Periods:45			Tutorial Periods: -			Practical Periods: -			Total Periods:45	
Text Books										
<ol style="list-style-type: none"> Chris Bernhardt, "Quantum Computing for Everyone", MIT Press, Cambridge, 2020. Jack D. Hidary, "Quantum Computing: An Applied Approach", Springer, 2nd Edition, 2021. Michael A. Nielsen, Isaac L. Chuang, "Quantum Computation and Quantum Information", Cambridge University Press, Updated Edition, 2022. 										

Reference Books

1. Eleanor G. Rieffel, Wolfgang H. Polak, "Quantum Computing: A Gentle Introduction", MIT Press, Updated Edition, 2021.
2. John Watrous, "The Theory of Quantum Information", Cambridge University Press, 2021.
3. Robert S. Sutor, "Dancing with Qubits: How Quantum Computing Works and How It Can Change the World", Packt Publishing, 2021.
4. Mark M. Wilde, "Quantum Information Theory", Cambridge University Press, Updated Edition, 2023.

Web References

1. <https://www.amrita.edu/course/quantum-information-theory>
2. <https://www.amrita.edu/course/quantum-computing-i>
3. <http://euler.phys.cmu.edu/widom/teaching/33-658/>
4. <https://nikhilrajput.com/tutorials/quantum-computing/>
5. <https://learning.quantum.ibm.com/course/utility-scale-quantum-computing/lesson-03-teleportation>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	2	1	1	1	-	-	1	1	1	1	3	1	1
2	3	3	2	2	3	-	-	1	2	1	1	3	2	2
3	2	3	3	2	2	-	-	1	2	1	1	3	3	2
4	2	2	1	2	2	1	-	2	1	1	1	2	2	1
5	2	2	2	2	2	-	-	1	1	1	2	3	2	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus



Department	Computer Science and Engineering			Programme: B.Tech			
Semester	VIII			Course Category: PE		End Semester Exam Type: TE	
Course Code	U23CSE826			Periods/Week		Credit	Maximum Marks
				L	T	P	C
Course Name	IoT Security			3	-	-	3 25 75 100
CSE							
Prerequisite	Familiarize yourself with UI design						
Course Outcomes	On completion of the course, the students will be able to						BT Mapping (Highest Level)
	CO1	Explain the characteristics of IoT environments, security objectives					K2
	CO2	Demonstrate the use of symmetric and asymmetric encryption, lightweight cryptography					K3
	CO3	Design and implement IoT identity management, device onboarding, mutual authentication.					K6
	CO4	Analyze privacy challenges in IoT systems, and implement privacy- by- design strategies.					K3
	CO5	Evaluate and apply security measures in cloud-enabled and edge- integrated IoT systems					K5
UNIT - I	Foundations of IoT Security				Periods:09		
Overview of IoT security challenges, characteristics of IoT environments, security objectives (CIA & trust), layered IoT architecture, and device constraints. IoT threat landscape including common vulnerabilities, authentication and access control issues, IoT-specific attacks, privacy risks, and secure IoT system lifecycle							CO1
UNIT - II	Applied Cryptography for IoT Systems				Periods:09		
Cryptographic fundamentals for IoT, symmetric and asymmetric encryption, lightweight cryptography, hashing, MACs, and data integrity mechanisms. Authentication, key management, secure boot, trust anchors, and secure communication protocols such as TLS, DTLS, MQTT, and CoAP.							CO2
UNIT - III	Identity, Authentication, and Access Control in IoT				Periods:09		
IoT identity management, device onboarding, authentication mechanisms, credentials, and mutual authentication techniques. Authorization models, access control in pub/sub systems, secure IAM infrastructure, scalability, interoperability, and cross-domain trust management.							CO3
UNIT - IV	Cloud and Edge Security for IoT				Periods:09		
Cloud and edge integration with IoT, communication models, cloud IoT platforms, and security challenges in cloud-enabled IoT systems. Cloud security controls, enterprise IoT architectures, compliance, zero-trust models, edge intelligence, and emerging IoT security trends.							CO4
UNIT - V	Blockchain Security for IoT				Periods:09		
Integrating Blockchain with IoT: Blockchain-enabled IoT architecture, device identity management using blockchain, secure data sharing and access control, edge/fog computing with blockchain Security Mechanisms: Decentralized authentication frameworks, Immutable logging and audit trails, Secure firmware updates via blockchain, Privacy preservation techniques Use Cases: smart homes and smart cities, supply chain monitoring, healthcare IoT security, industrial IoT (IIoT).							CO5
Lecture Periods:45		Tutorial Periods: -		Practical Periods: -		Total Periods:45	
Text Books							
1. Qinghao Tang, Fan Du, Internet of Things Security: Principles and Practice, Springer Singapore (Springer Nature), 1st Edition, 2021.							
2. Sravani Bhattacharjee, Debabrata Sarddar, Internet of Things: Security and Privacy Issues, Wiley India, 1st Edition, 2020.							
3. Samuel Greengard, The Internet of Things, MIT Press, Updated Edition, 2021.							
4. Arshdeep Bahga, Vijay Madiseti, Internet of Things: A Hands-On Approach, Universities Press, Updated Edition, 2022.							
5. Perry Lea, Internet of Things for Architects: Architecting IoT Solutions by Implementing Sensors, Communication Infrastructure, Edge Computing, Analytics, and Security, Packt Publishing, 2nd Edition, 2020.							

Reference Books

1. Shancang Li, Jianying Zhou, Security and Privacy in Internet of Things (IoT): Models, Algorithms, and Implementations, Springer International Publishing, 1st Edition, 2020.
2. Fei Hu, Security and Privacy in Internet of Things (IoT): Concepts, Techniques, and Applications, CRC Press, Updated Edition, 2021.
3. Honbo Zhou, The Internet of Things in the Cloud: A Middleware Perspective, CRC Press, Updated Edition, 2021.
4. Brian Russell, Drew Van Duren, Practical Internet of Things Security, Packt Publishing, Updated Edition, 2022.
5. Pethuru Raj, Anupama C. Raman, The Internet of Things: Enabling Technologies, Platforms, and Use Cases, CRC Press, Updated Edition, 2021.

Web References

1. https://www.nist.gov/iot?utm_source=chatgpt.com
2. https://owasp.org/www-project-internet-of-things/?utm_source=chatgpt.com
3. https://www.enisa.europa.eu/topics/iot-and-smart-infrastructures?utm_source=chatgpt.com
4. https://www.cisco.com/site/us/en/solutions/internet-of-things/security.html?utm_source=chatgpt.com
5. https://cloudsecurityalliance.org/research/iot/?utm_source=chatgpt.com

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	2	1	1	1	-	-	2	-	1	-	2	1	1
2	3	2	2	1	2	-	-	1	-	-	-	3	1	1
3	3	3	3	2	2	-	-	2	1	-	1	3	2	2
4	2	3	2	2	1	1	-	3	1	†	-	2	3	1
5	3	3	2	2	3	1	-	2	1	-	1	3	2	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Academic Curriculum and Syllabi R-2023

Department	Computer Science and Engineering			Programme: B.Tech						
Semester	VIII			Course Category: PE		End Semester Exam Type: TE				
Course Code	U23CSE827			Periods/Week			Credit	Maximum Marks		
				L	T	P	C	CAM	ESE	TM
Course Name	Open AI			3	-	-	3	25	75	100
CSE										
Prerequisite	Familiarize yourself with UI design									
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)	
	CO1	Understand the fundamentals of Generative AI, OpenAI, and Large Language Models							K2	
	CO2	Apply prompt engineering techniques to effectively interact with LLMs.							K3	
	CO3	Implement OpenAI APIs to develop and integrate AI-driven applications.							K3	
	CO4	Design and evaluate real-world applications using OpenAI models.							K4	
	CO5	Analyze ethical, safety, and future considerations of OpenAI technologies							K4	
UNIT - I	Fundamentals of Generative AI, OpenAI & LLMs					Periods:09				
Introduction to AI, ML & Deep Learning - Generative AI overview - History and mission of OpenAI - Evolution of GPT models - Transformer architecture & attention mechanisms - Tokenization and model inputs/outputs. Basics of NLP tasks: classification, generation, summarization - Metrics for language models - Challenges & limitations of LLMs										CO1
UNIT - II	Prompt Engineering and Interaction with LLMs					Periods:09				
Introduction to prompts and prompt design - Zero/one/few-shot learning - Prompt templates and chaining - Prompt evaluation & cost optimization - Dialogue and instruction following - Common errors & mitigation (hallucinations, ambiguity) - Best practices for prompt engineering - Tools & interfaces (Playground, SDKs) - Case studies and exercises										CO2
UNIT - III	OpenAI APIs & Integration					Periods:09				
OpenAI API fundamentals & authentication - Model selection & parameters - Text generation, embeddings & semantic search - Error handling and rate limits - Building simple applications (Python) - Using SDKs (Python/Node) - Chatbot backends (Flask/Django/Node) - Logging, monitoring, costs - Mini API projects										CO3
UNIT - IV	Real-World Applications & Systems					Periods:09				
Conversational agents and customer support systems - Summarization, translation & text analytics - Code generation & software assistance - LLMs in research & productivity tools - Retrieval-Augmented Generation (RAG) techniques - Agents and automation pipelines - Integrating with UI/UX frontends - Case studies										CO4
UNIT - V	Responsible AI, Safety & Future Trends					Periods:09				
Ethical considerations & fairness - Bias, toxicity, hallucinations - Model evaluation & robustness - Data privacy & security - Regulatory frameworks and compliance - Explainable AI (XAI) concepts - Multimodal models and AI agents - Future trends and research directions.										CO5
Lecture Periods:45			Tutorial Periods: -			Practical Periods: -			Total Periods:45	
Text Books										
<ol style="list-style-type: none"> 1. Apurv Sibal, Hands-On Prompt Engineering: Learning to Program ChatGPT Using OpenAI APIs, Jhon Wiley & Sons, Inc., First Edition, 2025. 2. Parmy Olson, Supremacy: AI, ChatGPT and the Race That Will Change the World, St. Martin's Press, 2024. 3. James Phoenix and Mike Taylor, Practical Generative AI with ChatGPT – Second Edition, O'Reilly Media, 2024. 4. Vlad Iliescu, Modern Generative AI with ChatGPT and OpenAI Models, Packt Publishing, 2023 5. James Phoenix and Mike Taylor, Prompt Engineering for Generative AI, O'Reilly Media, 2023. 										

Reference Books

1. Karen Hao, *Empire of AI: Dreams and Nightmares in Sam Altman's OpenAI*, First Edition, 2025.
2. Stuart Russell and Peter Norvig, *Artificial Intelligence: A Modern Approach*, 4th Edition, Pearson Education, 2021.
3. David Foster, *Generative Deep Learning*, O'Reilly Media, Second Edition, 2023.
4. Ben Auffarth, *Generative AI with LangChain*, O'Reilly Media, Second Edition, 2024.
5. Paul Iusztin and Maxime Labonne, *LLM Engineer's Handbook: Master the Art of Engineering Large Language Models from Concept to Production*, First Edition, 2024.

Web References

1. OpenAI API Documentation — (platform.openai.com/docs)
2. OpenAI Cookbook (GitHub).
3. GenAI Prep (GitHub) [GitHub](#)
4. Prompt Engineering Guide (OpenAI & community) LLM Engineer's Handbook: Master the Art of Engineering Large Language Models from Concept to Production
5. Udemy — ChatGPT & Generative AI Complete Guide

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	2	1	1	2	-	-	1	1	1	-	3	1	1
2	2	3	2	1	2	-	-	1	1	2	-	2	2	1
3	2	2	3	2	3	-	-	1	1	1	1	3	2	2
4	2	2	3	2	3	1	-	1	2	1	1	3	3	2
5	1	1	2	2	2	2	1	3	1	1	1	2	3	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	5	5	5	5	5	75	100

*Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

ANNEXURE -II



**SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE**
(An Autonomous Institution)

Puducherry

**B.TECH.
COMPUTER SCIENCE AND ENGINEERING**

REGULATION - 2026

CURRICULUM AND SYLLABI

COLLEGE VISION AND MISSION

VISION

To be globally recognized for excellence in quality education, innovation and research for the transformation of lives to serve the society.

MISSION

M1: Quality Education: To provide comprehensive academic system that amalgamates the cutting edge technologies with best practices.

M2: Research and Innovation: To foster value-based research and innovation in collaboration with industries and institutions globally for creating intellectuals with new avenues.

M3: Employability and Entrepreneurship: To inculcate the employability and entrepreneurial skills through value and skill-based training.

M4: Ethical Value: To instill deep sense of human values by blending societal righteousness with academic professionalism for the growth of society.

DEPARTMENT VISION AND MISSION

VISION

To create a productive learning and research environment for graduates to become highly dynamic, competent, ethically responsible, professionally knowledgeable in the field of computer science and engineering to meet the industrial needs on par with global standards.

MISSION

M1: Quality Education: Empowering the students with the necessary technical skills through quality education to grow professionally.

M2: Innovative Research: Advocating the innovative research ideas by incorporating with industries for developing products and services.

M3: Placement and Entrepreneurship: Advancing the education by strengthening the Industry-academic relationship through hands-on training to seek placement in the top most industries or to develop a start-ups.

M4: Ethics and Social Responsibilities: Stimulating professional behaviour and good ethical values to improve the leadership skills and social responsibilities.



PROGRAMME OUTCOMES (POs)

PO1: Engineering knowledge:

Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis:

Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions:

Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems:

Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage:

Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society:

Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability:

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

PO8: Ethics:

Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work:

Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication:

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

PO11: Project management and finance:

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

PO12: Life-long learning:

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

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: Competitive Platform: To create a competitive platform for solving critical problems in a wide variety of fields.

PEO2: Exploration: Enthusiastic participation in learning, understanding, designing and applying new innovative research ideas as the field evolves.

PEO3: Career: Applying cutting-edge technology that improves knowledge and to commit students for life-long learning to reach the leading positions in the career.

PEO4: Professional Values: Simulate the graduates to hold the responsibilities in the context of technology, ethics, society and humanity.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Computational Skills: Graduates with the ability to apply basic knowledge of Computer Science in solving the critical problems.

PSO2: Studios Research: Ability to convert innovative ideas into research or society-oriented projects through current trending technologies.

PSO3: Placement Opportunities: Acquire placement in highly reputed industries or accomplish new technical business skills with the contemporary trends in the industry.



STRUCTURE FOR UNDERGRADUATE ENGINEERING PROGRAMME

S.NO.	COURSE CATEGORY	AICTE CREDIT BREAKUP	SMVEC CREDIT BREAKUP
1.	Humanities and Social Sciences including Management Courses (HS)	16	16
2.	Basic Science Courses (BS)	23	20
3.	Engineering Science Courses including workshop, drawing, basics of electrical/mechanical/computer etc. (ES)	29	35
4.	Professional Core Courses (PC)	59	61
5.	Professional Elective Courses relevant to chosen specialization/Branch (PE)	12	12
6.	Open Elective Courses from other technical and/or emerging subjects (OE)	9	6
7.	Project work, seminar and internship in industry or elsewhere (PA)	15	14
8.	Mandatory Courses (MC)	(Non-Credit)	-
9.	Certification Course (SEC)	(Non-Credit)	6
Total		163*	170

SCHEME OF CREDIT DISTRIBUTION - SUMMARY

Sl. No	AICTE Suggested Course Category	Credits per Semester								Total Credits
		I	II	III	IV	V	VI	VII	VIII	
1	Humanities and Social Sciences (HS)	5	3	1	1	2	-	-	3	15
2	Basic Sciences (BS)	4	7	5	4	-	-	-	-	20
3	Engineering Sciences (ES)	9	5	-	4	-	-	-	-	18
4	Professional Core (PC)	3	8	17	11	12	15	11	-	77
5	Professional Electives (PE)	-	-	-	3	3	3	3	6	18
6	Open Electives (OE)	-	-	-	-	3	3	3	-	9
7	Project Work (PA)	-	-	-	-	1	1	2	8	12
8	Internship (PA)	-	-	-	-	-	-	1	-	1
9	Employability Enhancement Courses (AEC)*	-	-	-	-	-	-	-	-	-
10	Mandatory Courses (MC)*	-	-	-	-	-	-	-	-	-
Total		21	23	23	23	21	22	20	17	170

* AEC and MC are not included for CGPA calculation

HONOURS DEGREE PROGRAMME:

The student is permitted to opt for earning an *honours degree* in the same discipline of engineering in addition to the degree in his/her own discipline. To earn an honours degree the student is required to earn an additional 18 - 20 credits (over and above the total 170 credits prescribed in the curriculum) starting from fourth semester onwards by completing 5 additional courses offered in respective semesters. A student is eligible to exercise this option if he/she has passed all the courses offered upto third semester in the first attempt itself and has earned a CGPA / GPA* (*for lateral entry) of not less than 8.0. The prescribed courses offered for Honours degree are given in Annexure IV.

SEMESTER – I										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	U26MATC01	Engineering Mathematics – I	BS	3	1	0	4	40	60	100
2	U26ESTC01	Basics of Electrical and Electronics Engineering	ES	3	0	0	3	40	60	100
3	U26CSTC01	Programming in C	ES	3	0	0	3	40	60	100
4	U26CST101	Computing Technologies and Problem Solving	PC	3	0	0	3	40	60	100
5	U26HSTC01	Universal Human Values – II	HS	2	0	0	2	40	60	100
Theory Cum Practical										
6	U26ENBC01	Communicative English – I	HS	2	0	2	3	50	50	100
Practical										
1	U26ESPCXX	Digital Engineering Graphics And 3D Modeling	ES	0	0	2	1	50	50	100
2	U26ESPC01	Basics of Electrical and Electronics Engineering Lab	ES	0	0	2	1	50	50	100
3	U26CSPC01	Programming in C Lab	ES	0	0	2	1	50	50	100
4	U26CSP101	AI Tools for Computer Science Engineers lab	PC	0	0	2	1	50	50	100
Ability Enhancement Course										
1	U26CSC1XX	Certificate Course – I	AEC	0	0	4	-	100	-	100
2	U26AEC101	Aptitude – I	AEC	0	0	2	1	100	-	100
Mandatory Course										
3	U26CSM101	Student Induction Program	MC	3 Weeks			-	-	-	-
							23			

SEMESTER – II										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	U26MATC02	Engineering Mathematics – II	BS	3	1	0	4	40	60	100
2	U26BSTC01	Physical Science for Engineers	BS	3	0	0	3	40	60	100
3	U26ADTC01	Programming in Python	ES	3	0	0	3	40	60	100
4	U26ITTC01	Digital System Design	PC	3	0	0	3	40	60	100
5	U26CSTC02	Data Structures	ES	3	0	0	3	40	60	100
Theory Cum Practical										
6	U26ENBC02	Communicative English - II	HS	2	0	2	3	50	50	100
Practical										
1	U26ADPC01	Programming in Python Laboratory	ES	0	0	2	1	50	50	100
2	U26ITPC01	Digital Design and System Architecture Laboratory	PC	0	0	2	1	50	50	100
3	U26CSPC02	Data Structures Laboratory	ES	0	0	2	1	50	50	100
4	U26ESPCXX	Design Thinking and IDEA Lab	ES	0	0	2	1	50	50	100
Ability Enhancement Course										
1	U26CSC2XX	Certification Course – II	AEC	0	0	4	-	100	-	100
2	U26AEC101	Aptitude – II	AEC	0	0	2	1	100	-	100
Mandatory Course										
1	U26CSM202	Sports Yoga and NSS	MC	0	0	2	-	100	-	100
							24			

** Certification Courses are to be selected from the list given in Annexure III

SEMESTER I

Department	Mathematics			Programme: B.Tech.						
Semester	I			Course Category Code: BS		End Semester Exam Type: TE				
Course Code	U26MATC01			Periods/Week		Credit	Maximum Marks			
Course Name	ENGINEERING MATHEMATICS – I			L	T	P	C	CAM	ESE	TM
				3	1	-	4	40	60	100
(Common to ALL Branches Except CSBS)										
Prerequisite	Basic Mathematics									
Course Outcome	On completion of the course, the students will be able to									BT Mapping (Highest Level)
	CO1	Analyze matrices using rank, eigenvalues, diagonalization, and apply the Cayley– Hamilton theorem for matrix inversion and power.								K4
	CO2	Solve higher-order linear differential equations using standard solution methods and variation of parameters.								K3
	CO3	Apply partial differentiation techniques to analyze functions of several variables and solve optimization problems.								K4
	CO4	Evaluate areas and volumes using double and triple integrals over appropriate regions.								K3
	CO5	Apply vector calculus concepts along with integral theorems to analyze and solve physical and engineering problems.								K4
UNIT – I	MATRICES					Periods:12				
Rank of a Matrix by Row echelon forms – Consistency and inconsistency of a Systems of Linear Equations – Characteristic equation of a matrix – Cayley Hamilton Theorem (excluding proof) – Verification – Application (Finding Inverse and Power of a matrix) – Eigen values and Eigen vectors of a real and symmetric Matrix – Properties of Eigen values and Eigen vectors (excluding proof) – Diagonalization of a Matrices – Diagonalization by orthogonal transformation.										CO1
UNIT – II	DIFFERENTIAL EQUATIONS (HIGHER ORDER)					Periods:12				
Homogeneous Linear Differential equations of higher order with constant coefficients – Euler's linear equation of higher order with variable coefficients – Homogeneous linear differential equations using Method of Variation of parameters.										CO2
UNIT – III	FUNCTIONS OF SEVERAL VARIABLES					Periods:12				
Partial differentiation – Partial derivatives of first order and second order Differential equation – Partial differentiation of implicit functions – Total derivatives – Euler's theorem on homogeneous functions – Jacobians – properties (excluding proof) – Taylor's series for functions of two variables – Maxima and minima of functions of two variables – Lagrange's Method of multipliers										CO3
UNIT – IV	MULTIPLE INTEGRALS					Periods:12				
Double integration (Cartesian form) – constant limits – variable limits – Region of Integration – Application of double integrals – Area by double integration – Change of order of Integration – Triple Integration (Cartesian form) – constant limits- variable limits – Application of triple integrals – Volume by triple integration.										CO4
UNIT – V	VECTOR CALCULUS					Periods:12				
Vector Differentiation – Scalar and vector point functions – Gradient of a Scalar point functions – Directional derivatives – Angle between two surfaces – Divergence and Curl of a vector point function – Properties (Statement only) – Solenoidal and Irrotational vector fields – Scalar potential –Conservative Field– Application of Vector Integration: Gauss Divergence Theorem and Stoke's Theorem (excluding proof).										CO5
Lecture Periods: 45			Tutorial Periods: 15			Practical Periods: -		Total Periods: 60		
Text Books										
1. N. P. Bali and Manish Goyal, A Text Book of Engineering Mathematics, University Science Press, 12th Edition, 2024.										
2. B. S. Grewal, Higher Engineering Mathematics, Khanna Publishers, New Delhi, 46th Edition, 2025.										
3. M. K. Venkataraman, Engineering Mathematics, National Publishing Company, 3rd Edition, 2021.										
Reference Books										
1. G. Balaji, Matrices and Calculus (Engineering Mathematics – I), Balaji Publications, 10th Edition, 2024.										
2. A. Singaravelu, Engineering Mathematics – I, Meenakshi Publications, 2nd Edition, 2023.										
3. Erwin Kreyszig, Advanced Engineering Mathematics, Wiley, 11th Edition, 2020.										
4. B. V. Ramana, Higher Engineering Mathematics, McGraw Hill Education, 7th Edition, 2022.										
5. C. W. Evans, Engineering Mathematics: A Programmed Approach, 4th Edition, 2021.										

Web References

1. <http://www.yorku.ca/yaoguo/math1025/slides/chapter/kuttler-linearalgebra-slides-systems-of-equation-handout.pdf>
2. <http://www.math.cum.edu/~wn0g/2ch6a.pdf>
3. <https://wanwijngaarden.info.yorku.ca/courses/linear-algebra-math-1025/>
4. https://en.wikipedia.org/wiki/System_of_linear_equations
5. https://archive.nptel.ac.in/content/syllabus_pdf/111105121.pdf

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	3	2	2	1	-	-	1	1	1	1	3	2	1
2	3	3	2	2	1	-	-	1	1	1	1	3	2	1
3	3	3	3	2	1	-	-	1	1	1	1	3	2	1
4	3	3	2	2	1	-	-	1	1	1	1	3	2	1
5	3	3	3	3	2	1	-	1	1	1	1	3	2	2

Correlation Level: 1 - Low, 2 - Medium, 3 - High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	10	10	5	5	60	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	EEE and ECE		Programme: B.Tech.						
Semester	I		Course Category: ES			End Semester Exam Type: TE			
Course Code	U26ESTC01		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING		3	-	-	3	40	60	100
(Common to CSE, IT, MECH, CIVIL, MCTR, CCE, AI&DS, and CSE&BS)									
Prerequisite	Mathematics and Physics								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Relate the basic concepts and various laws in DC circuits.							K2
	CO2	Analyze the AC circuits and develop resonance conditions for transmitter and receiver circuits.							K3
	CO3	Gain the knowledge of power system components, importance of electrical safety measures and real time applications of transformer and motor.							K2
	CO4	Infer the operation of semiconductor diode and its applications.							K2
	CO5	Explain the characteristics and operation of BJT and FET.							K2
	CO6	Relate and Explain Different Communication Systems.							K2
Section A – Electrical Engineering									
UNIT - I	DC Circuits					Periods: 8			
Concept of Potential Difference, Current, Resistance, Inductance and Capacitance, Work, Power, Energy, Current and Voltage sources - ideal and practical sources - concept of dependent and independent sources, Source Transformation Techniques, Ohm's law, Kirchhoff's law, Series parallel combination of R, L, C components, Voltage Divider and Current Divider Rules, Mesh and Nodal analysis, Star/Delta transformation.									CO1
UNIT - II	AC Circuits					Periods: 8			
AC waveform definitions - RMS value, average value, form factor, peak factor, R-L, R-C, RLC series circuit, R-L-C parallel circuit, phasor representation in polar and rectangular form, concept of impedance, admittance, active, reactive, apparent and complex power, power factor, Three Phase balanced AC Circuits (Y- Δ and Y-Y) – relationship between line and phase values – Power Measurement – Two Wattmeter method – Smart energy meters.									CO2
UNIT - III	Electrical Safety and Electrical Machines					Periods: 7			
Layout of electrical power system and its functions, Wiring Accessories, Types of domestic wiring, Necessity of earthing, insulators and cables, Safety devices - fuse, relay and circuit breaker, Role of AI in Smart Grids. Faraday's Law of electromagnetic induction, Fleming's Right and Left hand rule - DC Generator and DC Motor - construction, principle, load test and performance characteristics - Single phase transformer- construction, principle, load test - Single phase capacitor start and run induction motor – Load test.									CO3
Section B – Electronics Engineering									
UNIT - IV	Semiconductor Diodes and Applications					Periods: 7			
Introduction semiconductor materials – Doping - Intrinsic and Extrinsic Semiconductor – PN junction diode, structure, characteristics - diffusion and depletion capacitance - Rectifier, Half wave and Full wave rectifier - zener diode characteristics- zener diode as regulator – Light Emitting Diode (LED) - Solar Cell.									CO4
UNIT - V	Transistors					Periods: 7			
Bipolar Junction Transistor - construction – operation - Common Base, Common Emitter, Common collector Configuration – characteristics – Biasing - numerical application. Junction Field Effect Transistor (JFET), Metal oxide semiconductor Field Effect Transistor, EMOSFET-DMOSFET operation characteristics - Numerical application.									CO5
UNIT - VI	Communication Systems					Periods: 8			
Need for Modulation – Block diagram of analog communication System - AM, FM, PM Definitions and Waveforms – Comparison of digital and analog communication system- Block diagram of digital communication system – Electromagnetic Spectrum. Wired and wireless Channel – Block diagram of communication systems – satellite communication – Cellular Mobile Communication – Fibre Optical Communication System.									CO6
Lecture Periods: 45			Tutorial Periods: -			Practical Periods: -		Total Periods: 45	
Text Books									
1. R. K. Rajput, "Basic Electrical and Electronics Engineering", University Science Press, 2nd Edition, 2017.									
2. Dr. R. Saravanakumar, Dr.V. Jegathesan, Dr. K. Vinoth Kumar, Dr. K. Kowsalya, "Basic Electrical and Electronics Engineering", Wiley Publisher, 2nd Edition, 2022.									
3. 3. R. Muthusubramaniam, S. Salivahanan and K. A. Mureleedharan, "Basic Electrical Electronics and Computer Engineering", Tata McGraw Hill, 2018.									

Reference Books

1. A. Sudhakar and S. P. Shyam Mohan, "Circuits and Networks: Analysis and Synthesis", Tata McGraw Hill Publishing Company Ltd., New Delhi, 4th Edition, 2017.
2. D. P. Kothari and I. J. Nagrath, "Electric Machines", Tata McGraw Hill, New Delhi, 5th Edition, 2017.
3. B. L. Theraja, A. K. Theraja, "A Textbook of Electrical Technology – Volume - II", S Chand & Co. Ltd., New Delhi, 23rd Edition, 2009.
4. David. A. Bell, "Electronic Devices and Circuits", PHI Learning Private Ltd, India, 4th Edition, 2020
5. Wayne Tomasi, "Electronic Communication Systems- Fundamentals Theory Advanced", Pearson Education, 6th Edition, 2018.

Web References

1. <https://nptel.ac.in/courses/108/108/108108076/>
2. <https://www.electrical4u.com/>
3. <https://nptel.ac.in/courses/108/102/108102146/>
4. https://onlinecourses.nptel.ac.in/noc21_ee55/
5. <https://nptel.ac.in/courses/117/102/117102059>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	3	2	2	1	-	-	1	1	1	1	3	1	1
2	3	3	3	2	2	-	-	1	1	1	1	3	2	1
3	3	2	2	2	2	1	-	1	1	1	1	3	2	2
4	3	2	2	2	2	-	-	1	1	1	1	3	2	1
5	3	2	3	2	2	-	-	1	1	1	1	3	2	2
6	2	2	2	2	2	1	-	1	1	1	1	3	2	3

Correlation Level: 1 – Low, 2 – Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	10	10	5	5	60	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Computer Science and Engineering	Programme: B.Tech						
Semester	I	Course Category: ES			EndSemester Exam Type: TE			
Course Code	U26CSTC01	Periods/Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	PROGRAMMING IN C	3	0	0	3	40	60	100

(Common CSE, IT and CCE)

Prerequisite	Basic Computer Knowledge						
Course Outcomes	On completion of the course, the students will be able to						BT Mapping (Highest Level)
	CO1	Apply basic C programming constructs to solve simple computational problems.					K3
	CO2	Use arrays and functions effectively to modularize and structure C programs.					K2
	CO3	Implement data organization using structures, unions, and related advanced concepts.					K3
	CO4	Develop programs using pointers and perform various file operations in C.					K3
	CO5	Utilize dynamic memory techniques and preprocessors to build efficient C applications.					K4
UNIT - I	FUNDAMENTALS OF C PROGRAMMING					Periods: 09	
Introduction to C Language Programming – Conversion from Source Code to Object Code – Constants Variables and Data Types – Operators and Expressions – Managing Input and Output Operations – Decision Making and Branching – Looping.							CO1
UNIT - II	ARRAYS, FUNCTIONS AND STRINGS					Periods: 09	
Arrays: One Dimensional Arrays – Two-Dimensional Arrays – Character arrays.							CO2
Functions: Types of Functions – Built-in Functions – User Defined Functions – Category of Functions – Nested Functions – Recursive Functions.							
Strings: String Manipulation using String functions.							
UNIT - III	STRUCTURES AND UNIONS					Periods: 09	
Structures: Declaration and usages of Structures – Array of Structure – Structure within Structure – Self Referential Structure – Structures and Functions.							CO3
Union: Size of Structures – Declaration and usages of Unions - Bit Fields.							
UNIT - IV	POINTERS AND FILE MANAGEMENT					Periods: 09	
Pointers: Declaration and usages – Pointer operators – Pointer Expressions – Pointer Arithmetic – Pointers and Arrays – Pointers and Char Arrays – Call by values and Call by Reference.							CO4
File Management: Opening a File – Modes of the files – I/O operations on Files – Error Handling During I/O operations – Command Line Arguments.							
UNIT - V	DYNAMIC MEMORY ALLOCATION, PREPROCESSORS AND COMMAND LINE ARGUMENTS					Periods: 09	
Dynamic Memory Allocation using functions. Preprocessors: Macro Substitution – File Inclusion – Compiler Control Directives. Command Line Arguments: argv[] and argc.							CO5
Lecture Periods: 45		Tutorial Periods: -		Practical Periods: -		Total Periods: 45	

Text Books

1. E. Balagurusamy, "Programming in ANSI C", McGraw Hill, 8th Edition, 2023.
2. Jens Gustedt, "Modern C", Manning Publications, 3rd Edition, 2025.
3. Robert C. Seacord, "Effective C: An Introduction to Professional C Programming", No Starch Press, 2nd Edition, 2024.
4. Manmohan Singh, Rahul Sharma, Neeraj K. Rathore, Urmila S. Soni, "C Programming", Arcler Press, 1st Edition, 2024.
5. Yashavant Kanetkar, "Let Us C", BPB Publications, 19th Edition, 2022.

Reference Books

1. Reema Thareja, Computer Fundamentals and Programming in C, Oxford University Press, 3rd Edition, 2023.
2. Dr. Bhoomi Shah, Dr. Pratik Kanani & Dr. Rajesh Bansode, Practice Problems in C, RIGI Publications, 1st Edition, 2024.
3. Dr. Dipali P. Meher, Prof. Meenal K. Jabde, Prof. Alaknanda N. Pawar & Prof. Nikita S. Gaikwad, Learning By Doing: C Programming, Bhumi Publishing, 1st Edition, 2024.
4. G. Samidurai, C Programming, Iterative International Publishers (IIP), 1st Edition, 2024.
5. Y. S. Rathore & S. K. Gupta, C Programming: A Practical Approach, Dreamtech Press, 1st Edition, 2023.

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1. <https://www.tutorialspoint.com/cprogramming/index.htm>
2. <https://www.geeksforgeeks.org/c-programming-language/>
3. <https://www.w3schools.com/c/>
4. <https://www.learn-c.org/>
5. <https://www.gnu.org/software/libc/manual/>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	3	2	1	1	-	-	1	1	1	1	3	1	1
2	3	3	3	2	2	-	-	1	1	1	1	3	2	2
3	3	2	3	2	2	-	-	1	1	1	1	3	2	2
4	3	3	3	3	3	-	-	1	1	1	1	3	2	2
5	3	2	3	2	3	-	-	1	1	1	1	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Team Work & Self Learning	Attendance		
Marks	20			15	5	60	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Computer Science and Engineering		Programme: B.Tech						
Semester	I		Course Category: PC			End Semester Exam Type: TE			
Course Code	U26CST101		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	COMPUTING TECHNOLOGIES AND PROBLEM SOLVING		3	0	0	3	40	60	100
(Common CSE, IT and CCE)									
Prerequisite	Basic Computer Knowledge								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Explain the fundamental components of the computer field.							K2
	CO2	Apply office automation tools to create professional documents, spreadsheets, and presentations.							K3
	CO3	Develop and trace algorithms using flowcharts and pseudocode to solve basic computational problems.							K3
	CO4	Analyze and design algorithms using arrays, text processing, sorting, searching, and recursion techniques.							K4
	CO5	Interpret and apply various data representation techniques.							K3
UNIT I	INTRODUCTION TO COMPUTER FIELD						Periods: 09		
Hardware – Programming Languages – Packages – Database Management Systems – System Softwares – Compilers - Operating Systems – Web Technologies – Data Structures & Algorithms – Software Engineering Methodologies – Computer Networks – Artificial Intelligence & Machine Learning – Cyber Security - Extended Reality.									CO1
UNIT II	OFFICE AUTOMATION						Periods: 09		
MS Word: Documents - Spell Check & Grammar - Formatting Tools - Styles & Themes - Table Creation Mail Merge. MS Excel: Formulas & Functions - Charts & Graphs - Pivot Tables - Data Sorting & Filtering Conditional Formatting - Data Validation - Macros & Automation. MS PowerPoint: Slide Design & Layouts - Animations & Transitions - Multimedia Integration.									CO2
UNIT III	INTRODUCTION TO PROBLEM SOLVING						Periods: 09		
Algorithm – Flow Charts – Pseudocode – Branching Statements – Looping Structures – Demo of Tracing Algorithms – Problem Solving Methodologies: GCD, LCM – Prime Number – Prime Factor.									CO3
UNIT IV	ARRAY, TEXT, PATTERN AND RECURSIVE ALGORITHMS						Periods: 09		
Algorithms based on Arrays: Max and Min – Removal of Duplicates – Bubble Sort – Selection Sort– Insertion Sort – Linear Search, Binary Search – Text Line Algorithms: Linear Pattern Search – Sub Linear Pattern Search. Recursion Algorithms: Towers of Hanoi – Sample Generation – Combination – Permutation Generation.									CO4
UNIT V	INTRODUCTION TO DATA REPRESENTATION						Periods: 09		
Number System – Number Conversions – Complement Subtraction – Integer Numbers Representation – Floating Point Numbers Representation – String Representation: ASCII – UNICODE – UTF-8, UTF-16 and UTF-32 - Signed Data Representation.									CO5
Lecture Periods: - 45			Tutorial Periods: -			Practical Periods: -		Total Periods: 45	
Text Books									
1. P. K. Sinha, Priti Sinha, "Computer Fundamentals", BPB Publications, 7th Edition, 2023.									
2. Curtis D. Frye, "Microsoft Office 365 & Office 2021: Illustrated Fundamentals", Cengage Learning, 1st Edition, 2023.									
3. Harsh Bhasin, "Problem Solving and Program Design in C", Cengage Learning, 7th Edition, 2024.									
4. R. G. Dromey, "How to Solve It by Computer", Pearson Education, 3rd Edition, 2023.									
5. M. Morris Mano, Michael D. Ciletti, "Digital Design", Pearson Education, 7th Edition, 2022.									

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1. Reema Thareja, "Fundamentals of Computers", Oxford University Press, 2nd Edition, 2024.
2. Profs. A. K. Sharma & S. Sharma, "Office Automation Tools (MSWord, Excel, PowerPoint)", Wiley India, 2nd Edition, 2024.
3. Richard Gilberg & Behrouz A. Forouzan, "Data Structures: A Pseudocode Approach with C", Cengage Learning, 2nd Edition, 2023.
4. Donald Knuth, "The Art of Computer Programming, Volume 1: Fundamental Algorithms", Addison-Wesley, 3rd Edition, 2024.
5. R. Jagannathan, M. Somashekara, "Digital Logic and Computer Organization", McGraw Hill Education, 3rd Edition, 2023.

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1. <https://www.geeksforgeeks.org/computer-fundamentals/>
2. https://www.tutorialspoint.com/office_automation/index.htm
3. <https://www.programiz.com/dsa>
4. <https://www.geeksforgeeks.org/data-structures/>
5. https://www.tutorialspoint.com/digital_electronics/digital_electronics_number_systems.htm

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	2	1	1	1	-	-	1	1	1	1	3	1	1
2	2	2	1	1	2	-	-	1	1	1	1	3	1	1
3	3	3	2	2	1	-	-	1	1	1	1	3	1	2
4	3	3	3	2	2	-	-	1	1	1	1	3	2	1
5	3	2	2	2	1	-	-	1	1	1	1	3	2	2
								1	1	1	1	3	2	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High Evaluation Methods

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks		
	CAT 1	CAT 2	Model Exam	Team Work & Self Learning	Attendance				
Marks	20					15	5	60	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Computer Science and Engineering			Programme: B. Tech.						
Semester	I			Course Category: HS		End Semester Exam Type: TE				
Course Code	U26HSTC01			Periods / Week		Credit	Maximum Marks			
				L	T	P	C	CAM	ESE	TM
Course Name	UNIVERSAL HUMAN VALUES - II			2	-	-	2	40	60	100
(Common to all Branch)										
Prerequisite	UHV – I									
Course Outcomes	On completion of the course, the students will be able to									BT Mapping (Highest Level)
	CO1	Interpret the concept of value education and its role in realizing right understanding, harmonious relationships, and physical well-being								K2
	CO2	Describe the co-existence of the self and body and interpret how harmony within and between them ensures self-regulation and health.								K2
	CO3	<i>Interpret</i> the values of trust, respect, and justice in relationships and <i>explain</i> how they contribute to harmony in family and society.								K2
	CO4	<i>Summarize</i> the interconnectedness and mutual fulfillment among the four orders of nature and <i>explain</i> the holistic harmony in existence.								K2
	CO5	<i>Describe</i> the implications of holistic understanding for ethical conduct, professional responsibility, and value-based living.								K2
UNIT - I	Introduction to Value Education						Periods: 06			
Right Understanding, Relationship and Physical Facility (Holistic Development and the Role of Education) - Understanding Value Education - Self-exploration as the Process for Value Education - Basic Human Aspirations - Happiness and Prosperity- Current Scenario- Method to Fulfill the Basic Human Aspirations.										CO1
UNIT - II	Harmony in the Human Being						Periods: 06			
Understanding Human being as the Co-existence of the Self and the Body-Distinguishing between the Needs of the Self and the Body-The Body as an Instrument of the Self-Understanding Harmony in the Self-Harmony of the Self with the Body- Programme to ensure self-regulation and Health.										CO2
UNIT - III	Harmony in the Family and Society						Periods: 06			
Harmony in the Family - Basic Unit of Human Interaction- 'Trust' - Foundational Value in Relationship - 'Respect' - as the Right Evaluation - Other Feelings, Justice in Human-to-Human Relationship - Understanding Harmony in the Society-Vision for the Universal Human Order.										CO3
UNIT - IV	Harmony in the Nature / Existence						Periods: 06			
Understanding Harmony in the Nature-Interconnectedness, Self-regulation and Mutual Fulfilment among the Four Orders of Nature - Realizing Existence as Co-existence at All Levels - Holistic Perception of Harmony in Existence.										CO4
UNIT - V	Implications of the Holistic Understanding - A Look at Professional Ethics						Periods: 06			
Natural Acceptance of Human Values - Definitiveness of (Ethical) Human Conduct - Basis for Humanistic Education, Humanistic Constitution and Universal Human Order-Competence in Professional Ethics-Holistic Technologies, Production Systems and Management Models-Typical Case Studies-Strategies for Transition towards Value - Based Life and Profession.										CO5
Lecture Periods: 30			Tutorial Periods: -			Practical Periods: -		Total Periods: 30		
Text Book										
1. R. R. Gaur, R. Asthana, G. P. Bagaria, A Foundation Course in Human Values and Professional Ethics, Excel Books, 3rd Revised Edition, New Delhi, 2022.										
2. R. R. Gaur, R. Asthana, G. P. Bagaria, Teachers' Manual for A Foundation Course in Human Values and Professional Ethics, 3rd Revised Edition, Excel Books, New Delhi, 2022. ISBN 978-93-87034-53.										
3. Premvir Kapoor, Professional Ethics and Human Values, Khanna Book Publishing Company, New Delhi, 2nd Edition, 2024. ISBN 978-93-86173-652										



Reference Books

1. A. Nagraj, Jeevan Vidya: Ek Parichaya, Jeevan Vidya Prakashan, Amarkantak, Revised Edition, 2021.
2. A. N. Tripathi, Human Values, New Age International Publishers, New Delhi, 4th Edition, 2022.
3. Annie Leonard, The Story of Stuff, Free Press, Updated Edition, 2021.
4. Mohandas Karamchand Gandhi, The Story of My Experiments with Truth – Mahatma Gandhi Autobiography, Fingerprint Publisher, Updated Edition, 2021.
5. E. F. Schumacher, Small is Beautiful, Vintage Publisher, Updated Edition, 2020.
6. Cecile Andrews, Slow is Beautiful, New Society Publishers, Updated Edition, 2020.
7. J. C. Kumarappa, Economy of Permanence, Sarva Seva Sangh Prakashan, Revised Edition, 2020.
8. Pandit Sunderlal, Bharat Mein Angreji Raj, Prabhat Prakashan Publisher, Updated Edition, 2023.
9. Dharampal, Rediscovering India, Stosius Inc / Advent Books Division Publisher, Updated Edition, 2021.
10. Mohandas K. Gandhi, Hind Swaraj or Indian Home Rule, Gyan Publishing House, Updated Edition, 2023.
11. Maulana Abul Kalam Azad, India Wins Freedom, Orient BlackSwan Publisher, Updated Edition, 2021.
12. Romain Rolland, The Life of Vivekananda (English), Advaita Ashrama Publisher, India, Updated Edition, 2022.
13. Romain Rolland, Mahatma Gandhi (English), Srishti Publishers & Distributors, Updated Edition, 2022.

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1. <https://www.uhv.org.in/uhv-ii>
2. <http://www.storyofstuff.com>
3. https://www.youtube.com/channel/UCQxWr5QB_eZUnwxSwxXEkQw
4. https://fdp-si.aicte-india.org/8dayUHV_download.php
5. <https://www.youtube.com/watch?v=8ovkLRYXlJE>

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	-	-	-	-	-	2	3	2	2	-	-	3	1	-	-
2	-	-	-	-	-	2	3	2	2	-	-	3	1	-	-
3	-	-	-	-	-	3	3	2	2	-	-	3	1	-	-
4	-	-	-	-	-	2	3	2	2	-	-	3	1	-	-
5	-	-	-	-	-	2	3	2	2	-	-	3	1	-	-

Correlation Level: 1 – Low, 2 – Medium, 3 – High

Department	English		Programme: B. Tech.						
Semester	I		Course Category: HS			*End Semester Exam Type: TE			
Course Code	U26ENBC01		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	COMMUNICATIVE ENGLISH – I		2	-	2	3	50	50	100
(Common to ALL Branches except CSBS)									
Prerequisite	Basics of English Language								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Comprehend the communication flow within organizations and explain their objectives							K2
	CO2	Apply appropriate grammatical structures to write technical content with clarity and accuracy							K2
	CO3	Articulate with correct pronunciation and overcome vernacular impact in speaking							K3
	CO4	Enhance communication skills and confidence through structured activities							K2
	CO5	Apply LSRW skills effectively in interpersonal contexts							K3
UNIT - I	Foundations of Communication & Grammar					Periods:10			
Communication, Definition, Process, Channels, Barriers, Strategies for Effective Communication, Verbal and Nonverbal Communication - Listening, Types, Barriers, Enhancing Listening Skills - Basic Grammar: Parts of Speech, Introduction to Tenses									CO1
UNIT - II	Comprehension Strategies and Common Errors in Writing					Periods:10			
Reading Comprehension: Technical Passage, Strategies: Skimming, Scanning, Prediction, Intensive and Extensive Reading, Spotting Errors: Concord, Articles, Prepositions, Tense									CO2
UNIT - III	Phonetics					Periods:10			
Pronunciation Guidelines to consonants and vowels, Sounds Mispronounced, Silent and Non-silent Letters, Intonation, Spelling Rules and Words often misspelled, Mother Tongue Influence (MTI), Various Techniques for Neutralization of Mother Tongue									CO3
UNIT - IV	Communication Practice – I					Periods:15			
List of Exercises Listening: Self Introduction videos Speaking: Self-Introduction Reading: Non-Technical Comprehension Passage Writing: Free Writing									CO4
UNIT - V	Interpersonal Communication – I					Periods:15			
List of Exercises Listening: Native Speaker's Speech Speaking: Extempore Reading: Assertive Vs Aggressive Communication Writing: Dialogue Writing									CO5
Lecture Periods: 30			Tutorial Periods: -			Practical Periods: 30		Total Periods: 60	
Text Books									
1. Rizvi, M. Ashraf & Priyadarshi Patnaik, Effective Technical Communication, 3rd Edition, McGraw Hill Education (India), 2024.									
2. Richa Mishra, Ratna Rao, A Textbook of English Language Communication Skills, Macmillan Publishers India Private Ltd., Updated Edition, 2023.									
3. T. Balasubramanian, A Textbook of English Phonetics for Indian Students, Macmillan Education, Updated Edition, 2021.									
Reference Books									
1. George Yule, The Study of Language, Cambridge University Press, 7th Edition, 2020.									
2. Debashish Gupta, Interpersonal Communication, Concept Publishing Company, Updated Edition, 2022.									

3. B. Priestly, English Pronunciation and Speech, Pearson Education, Updated Edition, 2021.
4. Michael Swan, Practical English Usage, Oxford University Press, 5th Edition, 2023.
5. Adrian Doff & Christopher Jones, Language in Use (Upper-Intermediate), Cambridge University Press, Updated Edition 2022.

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1. <https://lemongrad.com/subject-verb-agreement-rules/>
2. <https://www.grammarly.com/blog/sentence-structure/>
3. <https://www.wikihow.com/Write-a-Summary>
4. <https://www.skillsyouneed.com/ips/communication-skills.html>
5. <https://pronuncian.com/english-pronunciation-guide>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	1	1	1	1	-	2	1	2	3	3	1	1	1	2
2	1	2	1	1	-	2	1	2	3	3	1	1	1	2
3	-	1	1	1	-	2	1	2	3	3	1	1	1	2
4	-	1	1	1	-	2	1	2	3	3	1	1	1	3
5	-	1	1	1	-	2	1	2	3	3	1	1	1	3

Correlation Level: 1-Low, 2-Medium, 3-High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)			End Semester Examination (ESE) Marks	Total Marks
	Individual Experiments	Model Exam	Attendance		
Marks	20	20	10	50	100

*Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Mechanical Engineering			Programme: B.Tech.						
Semester	I			Course Category: ES			End Semester Exam Type: LE			
Course Code	U26ESPCXX			Periods/Week			Credit	Maximum Marks		
				L	T	P	C	CAM	ESE	TM
Course Name	DIGITAL ENGINEERING GRAPHICS AND 3D MODELLING			0	0	2	1	50	50	100
(Common to all Branches)										
Prerequisite	Basic Mathematics, Computer fundamentals, Spatial & Visualization skills									
Course Outcome	On completion of the course, the students will be able to									BT Mapping (Highest Level)
	CO1	Familiarize with the fundamentals and standards of engineering graphics.								K3
	CO2	Perform drawing of basic geometrical constructions and multiple views of objects.								K2
	CO3	Visualize the isometric and perspective sections of simple solids.								K3
	CO4	Connect side view associate on front view.								K4
	CO5	Correlate sectional views and lateral surface developments of various solids.								K4
List of Experiments										
<ol style="list-style-type: none"> Study of capabilities of software for Drafting and Modeling – Coordinate systems (absolute, relative, polar, etc.) – Creation of simple figures like polygon and general multi-line figures. Drawing a Title Block with necessary text and projection symbol. Drawing 2D sketch by applying modify tools like fillet, mirror, array, etc., Drawing front view and top view of simple solids like prism, pyramid, cylinder, cone, etc., and Dimensioning. Drawing front view, top view and side view of objects from the given pictorial views (eg. Simple stool, V-block, Mixie Base). Drawing a plan of residential building (Two bed rooms, kitchen, hall, etc.) Drawing sectional views of prism, pyramid, cylinder, cone, etc, Drawing lateral surface development of prism, pyramid, cylinder, cone, etc, Drawing isometric projection of simple objects. Creating 3D model of simple object and obtaining 2D multi-view drawings. Note: Plotting of drawings must be made for each exercise and attached to the records written by Students. 										
Lecture Periods: -			Tutorial Periods: -			Practical Periods: 30			Total Periods: 30	
Reference Books										
<ol style="list-style-type: none"> James D. Bethune, Engineering Graphics with AutoCAD: A Spectrum Book, 2nd Edition, Macromedia Press, Pearson, 2023. N. S. Parthasarathy and Vela Murali, Engineering Drawing, Oxford University Press, Updated Edition, 2021. M. B. Shah, Engineering Graphics, ITL Education Solutions Limited, Pearson Education Publication, Updated Edition, 2021. N. D. Bhatt and V. M. Panchal, Engineering Drawing: Plane and Solid Geometry, Charotar Publishing House, Updated Edition, 2022. T. Jeyapooan, Engineering Drawing and Graphics Using AutoCAD, Vikas Publishing House Pvt Ltd., 8th Edition, New Delhi, 2022. C. M. Agrawal, Basant Agrawal, Engineering Graphics, McGraw Hill, Updated Edition, 2021. Dhananjay A. Jolhe, Engineering Drawing: With an Introduction to CAD, McGraw Hill, Updated Edition, 2021. James Leach, AutoCAD Instructor, SDC Publications, Updated Edition, 2022. 										
Web References										
<ol style="list-style-type: none"> http://labs.iitb.ac.in/labs-dev/labs/mit_bootcamp/egraphics_lab/labs/index.php http://www.nptelvideos.in/2012/12/computer-aided-design.html https://mech.iitm.ac.in/meiitm/course/cad-in-manufacturing/ https://autocadtutorials.com https://dwgmodels.com 										

COs/POs/PSOs Mapping

Cos	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	2	1	1	2	-	-	1	1	1	1	3	1	1
2	3	3	2	2	3	-	-	1	1	1	1	3	2	2
3	3	3	3	2	3	-	-	1	1	1	1	3	2	2
4	3	2	2	2	2	-	-	1	1	1	1	3	1	2
5	3	3	2	3	3	-	-	1	1	1	1	3	2	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)			End Semester Examination (ESE) Marks	Total Marks
	Individual Experiments	Model Exam	Attendance		
Marks	20	20	10	50	100

*Application oriented / Problem solving / Design / Analytical in content beyond the syllabus



Department	EEE and ECE		Programme: B.Tech.						
Semester	I		Course Category: ES			End Semester Exam Type: LE			
Course Code	U26ESPC01		Periods/Week			Credit	Maximum Marks		
Course Name	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING LABORATORY		L	T	P	C	CAM	ESE	TM
			0	0	2	1	50	50	100
(Common to CSE, IT, MECH, CIVIL, MCTR, CCE, AI&DS, FT, CSBS Branches)									
Prerequisite	Mathematics and Physics								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Build the different wiring for domestic and commercial applications.							K3
	CO2	Design and analyze the domestic power distribution.							K3
	CO3	Estimate the performance of transformer and motors by conducting load test.							K3
	CO4	Describe characteristics of semiconductor diode and utilize it for different applications							K3
	CO5	Relate the characteristics of various transistor							K3
	CO6	Understand Rectifiers and Regulators							K2
List of Experiments									
Section– A Electrical Experiments									
Demonstration on power sources, ammeter, voltmeter, wattmeter, and energy meter, along with electrical safety precautions and the study of tools, accessories, electrical joints, and electrical symbols, are prerequisites for conducting this Electrical Engineering laboratory.									
<ol style="list-style-type: none"> Domestic Wiring Practice <ul style="list-style-type: none"> Staircase wiring Doctor's room wiring Godown wiring Efficiency Comparison of Incandescent, CFL, and LED Lamps Design of Domestic power distribution. Design and study the principle of electromagnetic induction using a copper coil. Load test on single phase transformer. Load test on single phase Induction Motor. 									
Section – B Electronics Experiments									
Study of Electronic components and equipment: Resistor, Capacitor									
<ol style="list-style-type: none"> Measurement of AC signal parameter (Peak-Peak, rms period, frequency) using CRO. VI Characteristics of PN junction diode, Zener diode Input and output characteristics of Common Emitter configuration of BJT Characteristics of JFET Measurement of Ripple factor of HWR, FWR Voltage Regulator using Zener Diode 									
Lecture Periods: -			Tutorial Periods: -			Practical Periods:30		Total Periods:30	
Reference Books									
<ol style="list-style-type: none"> S. Gowri, T. Jeyapoovan Nadar, Engineering Practices Lab Manual, Vikas Publishing House Private Limited, New Delhi, 6th Edition, 2022. A. Sudhakar and S. P. Shyam Mohan, Circuits and Networks: Analysis and Synthesis, McGraw Hill Education, New Delhi, 6th Edition, 2022. D. P. Kothari and I. J. Nagrath, Electric Machines, McGraw Hill Education, New Delhi, 6th Edition, 2021. Edward Hughes, John Hiley, Keith Brown, Ian McKenzie Smith, Electrical and Electronics Technology, Pearson Education Limited, New Delhi, 13th Edition, 2022. S. K. Sahdev, Fundamentals of Electrical Engineering and Electronics, Dhanpat Rai and Co., Updated Edition, 2021. 									
Web References									
<ol style="list-style-type: none"> http://eie.siet.ac.in/laboratories/basic-electrical-engineering-lab/ https://www.electronics-tutorials.ws/accircuits/series-circuit.html 									

3. <https://www.allaboutcircuits.com/textbook/experiments/>
4. <https://www.electronicshub.org/measurements-of-ac-current/>
5. <http://www.electronics-tutorials.ws>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	2	2	2	2	1	-	1	1	1	1	3	1	2
2	3	3	2	2	2	1	-	1	1	1	1	3	2	2
3	3	3	3	2	2	1	-	1	1	1	1	3	2	2
4	3	2	2	2	2	-	-	1	1	1	1	3	2	1
5	3	2	3	2	2	-	-	1	1	1	1	3	2	2
6	3	2	2	2	2	-	-	1	1	1	1	3	2	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)			End Semester Examination (ESE) Marks	Total Marks
	Individual Experiments	Model Exam	Attendance		
Marks	20	20	10	50	100

*Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Computer Science and Engineering		Programme: B.Tech						
Semester	I		Course Category: ES			End Semester Exam Type: LE			
Course Code	U26CSPC01		Periods/Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	PROGRAMMING IN C LAB		0	0	2	1	50	50	100
(Common CSE, IT and CCE)									
Prerequisite	Basic Computer Knowledge								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Apply basic C programming constructs to solve simple computational problems.							K3
	CO2	Use arrays and functions effectively to modularize and structure C programs.							K2
	CO3	Implement data organization using structures, unions, and related advanced concepts.							K3
	CO4	Develop programs using pointers and perform various file operations in C.							K3
	CO5	Utilize dynamic memory techniques and preprocessors to build efficient C applications.							K4
CYCLE I	FUNDAMENTALS OF C PROGRAMMING						Periods: 09		
1. Write Program in C to find Area of a Triangle. 2. Write Program in C to check odd or even. 3. Write a Program in C to print the sum of n numbers. 4. Write a Program in C to print the Fibonacci series.									CO1
CYCLE II	ARRAYS AND FUNCTIONS						Periods: 09		
5. Write a Program in C to search an element in an array using Linear Search. 6. Write a program in C to sort an array using Bubble Sorting. 7. Write a program in C to find the factorial of a given number using Recursive function.									CO2
CYCLE III	STRUCTURES AND UNIONS						Periods: 09		
8. Write a program in C to achieve Structure within Structure and Self Referential Structure. 9. Write a program in C to create a Union for a student details.									CO3
CYCLE IV	POINTERS AND FILE MANAGEMENT						Periods: 09		
10. Write a program in C to achieve Call by Reference. 11. Write a program in C to read the content of a file and remove all the vowels and store the remaining string in another file. 12. Write a program in C to do an addition of two numbers using Command Line Arguments.									CO4
CYCLE V	DYNAMIC MEMORY ALLOCATION AND PREPROCESSORS						Periods: 09		
13. Write a program in C to allocate multiple blocks of memory and also to release the used space from the allocated memory. 14. Write a program in C include user-defined header files using preprocessors.									CO5
Lecture Periods: -			Tutorial Periods: -			Practical Periods: 30		Total Periods: 30	
Reference Books									
1. Reema Thareja, Computer Fundamentals and Programming in C, Oxford University Press, 3rd Edition, 2023.									
2. Dr. Bhoomi Shah, Dr. Pratik Kanani & Dr. Rajesh Bansode, Practice Problems in C, RIGI Publications, 1st Edition, 2024.									

3. Dr. Dipali P. Meher, Prof. Meenal K. Jabde, Prof. Alaknanda N. Pawar & Prof. Nikita S. Gaikwad, Learning By Doing: C Programming, Bhumi Publishing, 1st Edition, 2024.
4. G. Samidurai, C Programming, Iterative International Publishers (IIP), 1st Edition, 2024.
5. Y. S. Rathore & S. K. Gupta, C Programming: A Practical Approach, Dreamtech Press, 1st Edition, 2023.

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1. <https://www.tutorialspoint.com/cprogramming/index.htm>
2. <https://www.geeksforgeeks.org/c-programming-language/>
3. <https://www.w3schools.com/c/>
4. <https://www.learn-c.org/>
5. <https://www.gnu.org/software/libc/manual/>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	3	2	1	2	-	-	1	1	1	1	3	1	1
2	3	3	3	2	2	-	-	1	1	1	1	3	2	2
3	3	2	3	2	2	-	-	1	1	1	1	3	2	2
4	3	3	3	3	3	-	-	1	1	1	1	3	2	2
5	3	2	3	2	3	-	-	1	1	1	1	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)			End Semester Examination (ESE) Marks	Total Marks
	Individual Experiments	Model Exam	Attendance		
Marks	20	20	10	50	100

*Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Computer Science and Engineering			Programme: B.Tech						
Semester	I			Course Category: PC		End Semester Exam Type: LE				
Course Code	U26CSP101			Periods/Week		Credit	Maximum Marks			
				L	T	P	C	CAM	ESE	TM
Course Name	AI TOOLS FOR COMPUTER SCIENCE ENGINEERS LAB			0	0	2	1	50	50	100
(Common CSE, IT and CCE)										
Prerequisite	Basic Computer Knowledge									
Course Outcomes	On completion of the course, the students will be able to									BT Mapping (Highest Level)
	CO1	Utilize AI-powered IDEs and assistants to write, debug, and optimize code in standard languages like C and Python.								K4
	CO2	Apply Prompt Engineering techniques to solve complex logical and mathematical problems.								K3
	CO3	Evaluate and use AI research tools for technical documentation, avoiding plagiarism and maintaining academic integrity.								K4
	CO4	Demonstrate the use of AI for automating routine developer tasks such as documentation and unit testing.								K3
	CO5	Understand the ethical implications and limitations (hallucinations, bias) of using AI in engineering.								K2
CYCLE I	CODING AND LOGIC DEVELOPMENT						Periods:09			
<ol style="list-style-type: none"> Paste a C code with a "Missing Semicolon" or "Loop Error" into Blackbox AI to fix it. Use AI tools of your choice to write both iterative and recursive versions of Fibonacci series in Python. Compare outputs and efficiency. Optimize a Python program using ChatGPT for time complexity using AI suggestions. 										CO1
CYCLE II	MATHEMATICS AND DATA ANALYSIS						Periods:09			
<ol style="list-style-type: none"> Upload a CSV of "Mobile Sales" to Julius AI and ask for a pie chart of the market share. Use Claude.ai to generate a truth table for a complex logic gate expression like (A AND B) OR C. Use Julius AI to clean missing or inconsistent data for a student data or sales data before visualization. 										CO2
CYCLE III	WEB AND UI DESIGN						Periods:09			
<ol style="list-style-type: none"> Describe a "Student Login Page" using proper prompt v0.dev and generate the responsive HTML/React code. Design a basic mobile app using ChatGPT or Gemini for a "Campus Event Notification System". 										CO3
CYCLE IV	RESEARCH AND FOUNDATIONAL SKILLS						Periods:09			
<ol style="list-style-type: none"> Use Perplexity AI to perform SEO(Search Engine Optimization) for a college department website. Use ChatGPT / Gamma / Canva AI to generate a 10-slide presentation on "Applications of Artificial Intelligence in Computer Engineering". Ensure professional slide structure and visuals. 										CO4
CYCLE V	PROFESSIONAL AND ETHICAL SKILLS						Periods:09			
<ol style="list-style-type: none"> Use ChatGPT to write a SEO optimized blog article on "Why First Year student should learn AI tools". Highlight keyword placement and readability score. Use JobScan to check if your resume matches a "Software Developer Intern" job description. 										CO5
Lecture Periods:-			Tutorial Periods: -			Practical Periods: 30		Total Periods:30		
Text Books										
<ol style="list-style-type: none"> Russell, S., & Norvig, P. (2022). Artificial Intelligence: A Modern Approach (4th ed.). Pearson Education India. Thareja, R. (2023). Python Programming using Problem Solving Approach (2nd ed.). Oxford University Press. Géron, A. (2022). Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow (3rd ed.). Shroff/O'Reilly Media. Taneja, S., & Kumar, N. (2021). Python Programming: A Modular Approach (Revised ed.). Pearson Education India. 										

Reference Books

1. Huyen, C. (2024). AI Engineering: Building Applications with Foundation Models (1st ed.). O'Reilly Media / Shroff Publishers India.
2. Vibrant Publishers. (2025). Building Agentic AI Systems with DSPy: A Hands-On Guide to Designing Reasoning Modules, Tool-Using Agents, and Scalable Pipelines (1st ed.). Vibrant Publishers India.
3. Hunt, A., & Thomas, D. (2019). The Pragmatic Programmer: Your Journey to Mastery (20th Anniversary ed.). Pearson Education India.
4. Data Literacy Press. (2024). AI Literacy: Beginner to Advanced (Indian ed.). Data Literacy Press.

Web References

1. <https://www.blackbox.ai>
2. <https://gemini.google.com>
3. <https://chatgpt.com>
4. <https://mintlify.com>
5. <https://julius.ai>
6. <https://claude.ai>
7. <https://v0.dev>
8. <https://www.perplexity.ai>
9. <https://www.jobscan.co>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)											Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
1	3	2	2	1	3	-	-	-	1	-	-	3	1	2
2	3	3	2	1	2	-	-	-	1	-	-	3	2	1
3	2	2	1	2	2	1	-	3	1	2	-	2	3	1
4	2	2	3	1	3	-	-	1	2	-	1	3	2	2
5	1	1	-	-	1	2	1	3	2	2	1	1	2	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Methods

Assessment	Continuous Assessment Marks (CAM)			End Semester Examination (ESE) Marks	Total Marks
	Individual Experiments	Model Exam	Attendance		
Marks	20	20	10	50	100

*Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Department	Computer Science and Engineering	Programme: B.Tech.						
Semester	I	Course Category: AEC				End Semester Exam Type: -		
Course Code	U26CSC1XX	Periods/Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	CERTIFICATION COURSE – I	-	-	4	-	100	-	100
<p>Students shall choose an international certification course offered by the reputed organizations like Google, Microsoft, IBM Texas Instruments, Bentley, Autodesk, Eplan and CISCO, etc. The duration of the course is 40-50 hours specified in th curriculum, which will be offered through Centre of Excellence. Pass /Fail will be determined on the basis of participation attendance, performance and completion of the course. If a candidate Fails, he/she has to repeat the course in the subsequent years. Pass in this course is mandatory for the award of degree.</p>								
Lecture Periods: -		Tutorial Periods: -		Practical Periods: 50			Total Periods: 50	

Department	Programme: B. Tech.							
Semester	I			Course Category: HS		End Semester Exam Type: -		
Course Code	Periods / Week			Credit	Maximum Marks			
	L	T	P	C	CAM	ESE	TM	
Course Name	STUDENT INDUCTION PROGRAM			3 Weeks		-	-	-
(Common to all Branch)								
Prerequisite	-							
Course Outcomes	On completion of the course, the students will be able to							BT Mapping (Highest Level)
	CO1	Understand and reflect on their own values, relationships, and responsibilities through the process of self-exploration						K2
	CO2	Adopt and practice basic health-enhancing routines for physical fitness and well-being.						K2
	CO3	Understand their department's academic scope, institutional environment, and opportunities for innovation and contribution.						K2
	CO4	Observe and relate to the local social, cultural, and community environment through experiential exposure.						K2
	CO5	Gain insights from the experiences of eminent personalities to broaden their perspective on career, values, and life skills.						K2
	CO6	Improve their basic competencies in communication, interpersonal skills, and expression for academic preparedness.						K2
	CO7	Appreciate and interpret literary works to understand cultural, ethical, and contemporary human values.						K2
	CO8	Express their creativity and appreciate humanistic values through participation in various art forms such as music, dance, drama, and visual arts.						K2
	CO9	Engage in diverse extra-curricular and hobby-based activities that support their holistic development beyond academics.						K2
SIP Module-1	Universal Human Values I (UHV I)				Periods: 20			
Welcome and Introductions - Getting to know each other, Aspirations and Concerns - Individual Academic and Career, Expectations of Family, Peers, Society, Nation, Fixing one's Goals, Self-Management - Self-confidence, Peer Pressure, Time Management, Anger, Stress Personality Development, Self-improvement, Health - Health issues, Healthy diet, Healthy lifestyle, Hostel life, Relationships - Home sickness, Gratitude towards Parents, Teachers and others Ragging and interaction, Competition and Cooperation, Peer Pressure, Society - Participation in Society, Natural Environment - Participation in Nature, Sum Up - Role of Education, Need for a Holistic Perspective, Self-evaluation and Closure - Sharing and feedback.							CO1	
SIP Module -2	Physical Health and Related Activities				Periods:30			
Importance of Physical Health and Fitness - Principles of a Healthy Lifestyle - Warm-up and Cool-down Techniques - Daily Exercise Routine: Flexibility, Endurance, Strength -Games and Sports - Indoor and Outdoor Activities - Yoga for Health: Basic Asanas, Breathing Practices, Relaxation Techniques -Hygiene Practices and Preventive Health - Posture Awareness and Ergonomics for Students - Healthy Habits for Hostel and Campus Life Importance of Sleep, Rest and Recovery - Self-Assessment: Tracking Fitness and Progress.							CO2	
SIP Module 3	Familiarization of Department/ Branch and Innovation				Periods: 06			
Introduction to the Institution: Vision, Mission, Core Values - Overview of the Department / Branch: Programs, Laboratories, Facilities - Structure of Curriculum, Credit System, Examination and Evaluation - Introduction to Faculty Members and Mentors - Exposure to Industry Trends Related to the Branch - Innovation and Creativity: Need, Process, and Opportunities - Institutional Innovation Council (IIC) and Start-up - cosystem - Departmental Clubs, Technical Societies, and Student Chapters - Career Prospects and Emerging Areas in the Discipline - Student Responsibilities, Code of Conduct, and Academic Integrity - Interaction and Q&A with Departmental Team.							CO3	
SIP Module 4	Visit to a Local Area				Periods: 8			
Purpose and Importance of Community Exposure - Identification of Local Areas for Visit (Village, Historical Site, Industry, NGO, Local Governance Unit, Ecosystems) - Interaction with Local Community Members - Understanding Local History, Culture, Traditions, and Practices - Observation of Social, Environmental, and Economic Aspects - Exposure to Local Issues, Challenges, and Resources - Community Participation and Civic Sense - Reflection and Group Discussion after Visit - Report Preparation, Presentation, and Sharing of Learning.							CO4	

SIP Module 5	Lectures by Eminent People	Periods: 06	
Introduction to Eminent Speakers from Academia, Industry, Arts, Social Work, and Innovation - Inspirational Life Journeys and Experiences of Speakers - Awareness Sessions on Career Planning, Emerging Technologies, and Higher Education - Talks on Human Values, Leadership, Ethics, and Social Contribution - Sessions on Art, Culture, Literature, and Creative Expression - Interaction with Alumni Achievers - Open Q&A Sessions with Resource Persons - Reflection: Key Takeaways and Personal Learning Logs.			CO5
SIP Module 6	Proficiency Modules	Periods:06	
Basics of English Communication: Listening, Speaking, Reading, Writing - Vocabulary Building and Pronunciation Practice - Fundamentals of Grammar for Effective Communication - Interpersonal Communication and Presentation Skills - Digital Literacy: Basic Tools and Productivity Software - Introduction to Professional Etiquette and Body Language - Awareness of Regional and National Languages - Basic Exposure to NLP (Neuro Linguistic Programming) Concepts - Activities: Group Discussions, Role Play, Speech Practice - Self-Assessment and Feedback for Improvement.			CO6
SIP Module 7	Literature / Literary Activities	Periods:20	
Introduction to Local, National, and International Literature - Reading Sessions: Short Stories, Poems, Essays, Biographies - Themes of Literature: Values, Culture, Society, Human Emotions - Literary Appreciation: Understanding Plot, Character, Tone, Message - Comparative Reading Across Cultures - Creative Writing: Poems, Short Stories, Personal Narratives - Book Review Activities and Group Discussions - Exposure to Classical and Contemporary Literary Works - Dramatization, Recitation, and Storytelling - Reflection on Values Derived from Literature - சிறப்பு சொற்பொழிவு - தமிழர் மரபு மற்றும் தமிழர் தொழில்நுட்பம்.			CO7
SIP Module 8	Creative Practices	Periods:20	
Importance of Creativity and Humanistic Culture - Introduction to Art Forms: Music, Dance, Drama, Painting, Sculpture, Pottery - Basic Techniques and Hands-on Practice in Selected Art Forms - Creative Expression and Emotional Communication - Group Activities: Skits, Songs, Art Exhibitions - Campus Cultural Mapping and Talent Discovery - Role of Arts in Personal Growth and Community Harmony - Presentation of Creative Work and Peer Appreciation - Reflection on Experience and Learning through Art.			CO8
SIP Module 9	Extra Curricular Activities	Periods:06	
Orientation to Various Clubs: Sports, Music, Arts, Photography, Debate, Quiz, Gardening, Social Service - Participation in Club Activities and Competitions - Development of Hobbies and Personal Interests - Leadership and Team-Building Through Activities - Planning and Organizing Events - Cultural and Festival Celebrations - Campus Cleanliness Drives and Volunteer Activities - Encouraging Long-term Participation Beyond SIP - reflection and Sharing of Experience.			CO9
			Total Periods: 120
Reference Books			
<ol style="list-style-type: none"> 1. A Foundation Course in Human Values and Professional Ethics, R.R Gaur, R. Asthana, G.P. Bagaria, 2nd Revised Edition, Excel Books, New Delhi, 2019. ISBN 978-93-87034-47-1 (AICTE Recommended) 2. "Principles and Labs for Fitness and Wellness" – W.K. Hoeger & S.A. Hoeger - 2014 3. "Engineering Exploration: A Practice-Oriented Introduction to Engineering" – S.R. Prasad - 2013 4. "Research Methodology: Methods and Techniques" – C.R. Kothari - 2004 (2nd Edition) 5. "Wings of Fire" - A.P.J. Abdul Kalam - 1999 6. "Technical Communication" – Meenakshi Raman & Sangeeta Sharma - 2015 (3rd Ed.) 7. "World Literature: An Anthology of Great Short Stories, Poetry and Drama" – McGraw Hill - 2004 8. "Dance: A Creative Art Experience" – Margaret H'Doubler - 1998 Edition 9. "Co-Curricular Activities in School Education" – NCERT - 2015 10. தமிழக வரலாறு - மக்களும் பண்பாடும், பிள்ளை, கே. கே. , சென்னை : உலகத் தமிழாராய்ச்சி நிறுவனம் , 2002. 11. கணிணித்தமிழ் - முனைவர் இல.சுந்தரம், விகடன் பிரசுரம். 12. கீழடி - வைகை நதிக்கரையில் சங்க கால நகர நாகரிகம், தமிழக தொல்லியல் துறை. 13. "The Seven Habits of Highly Effective People" - Stephen R. Covey - 1989 14. "Fitness and Wellness" – Carol K. Armbruster - 2017 15. "Engineering Exploration: A Practice-Oriented Introduction to Engineering" – S.R. Prasad - 2013 			
Web References			
1. https://www.aicte-india.org/uhv	6. https://nlpu.com		
2. https://fitindia.gov.in	7. https://www.poetryfoundation.org		
3. https://www.aicte-india.org/education	8. https://www.khanacademy.org/humanities/art-history		
4. https://www.incredibleindia.org	9. https://www.hobbyindia.com		
5. https://media.un.org/en			

ANNEXURE -III



**Academic Calendar for B. Tech. Programmes
 December 2025 - April 2026**

December 2025

January 2026

February 2026

March 2026

April 2026

Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day
1	Mon			1	Sun		Holiday	1	Sun		Holiday	1	Sun		Holiday
2	Tue			2	Mon	CAT 2 starts (1 st & 2 nd hour)	34	2	Mon		56	2	Thu	Model Practical Exam Ends	80
3	Wed			3	Tue	CAT 2 starts (1 st & 2 nd hour)	35	3	Tue		57	3	Fri	Good Friday	Holiday
4	Thu			4	Wed	CAT 2 Ends (1 st & 2 nd hour)	36	4	Wed		58	4	Sat		Holiday
5	Fri			5	Thu	CAT 1 Starts (1 st & 2 nd hour)	37	5	Thu		59	5	Sun		Holiday
6	Sat			6	Fri	CAT 1 (1 st & 2 nd hour)	38	6	Fri	Phase II - Project Review 3	60	6	Mon	Tentative ESE Practical starts	81
7	Sun			7	Sat	CAT 1 Ends (1 st & 2 nd hour)	39	7	Sat		61	7	Tue		82
8	Mon			8	Sun		40	8	Sun		62	8	Wed		83
9	Tue			9	Mon		41	9	Mon		63	9	Thu		84
10	Wed			10	Tue		42	10	Tue		64	10	Fri	Sub. of Model Exam Result Analysis	85
11	Thu			11	Wed	Phase II - Project Review 2	43	11	Wed		65	11	Sat		86
12	Fri			12	Thu		44	12	Thu		66	12	Sun	ESE Practical Ends	Holiday
13	Sat			13	Fri		45	13	Fri		67	13	Mon		87
14	Sun			14	Sat	Bhogi	46	14	Sat		68	14	Tue	Tamil New Year	Holiday
15	Mon	Commencement of classes for VIII semester	1	15	Sun	Pongal	47	15	Sun		69	15	Wed	Declaration of Attendance/Internal Assessment	88
16	Tue		2	16	Mon	Uzhavar Thirunal	48	16	Mon	Sub. of Attendance & Assessment Record	70	16	Thu	Last Working Day	89
17	Wed		3	17	Tue	Thiruvallavar Dinam	49	17	Tue	Sub. of CAT 2 Result Analysis/Online feedback 3	71	17	Fri		
18	Thu		4	18	Wed		50	18	Wed	Assignment 3	72	18	Sat		Holiday
19	Fri		5	19	Thu	Sub. of Attendance & Assessment Record	51	19	Thu	Sub. of QCM 3/Syllabus Coverage/Completion of all 5 units	73	19	Sun		Holiday
20	Sat		6	20	Fri	Sub. of CAT 1 Result Analysis	52	20	Fri	Ramzan	74	20	Mon		
21	Sun		7	21	Sat		53	21	Sat		75	21	Tue		
22	Mon		8	22	Sun		54	22	Sun		76	22	Wed		
23	Tue		9	23	Mon		55	23	Mon	Model Theory Exam Starts	77	23	Thu		
24	Wed		10	24	Tue		56	24	Tue		78	24	Fri		
25	Thu	Christmas	Holiday	25	Wed	Republic Day	Holiday	25	Wed	Model Theory Exam Ends	79	25	Sat		
26	Fri		11	26	Thu		57	26	Thu		80	26	Sun		Holiday
27	Sat		12	27	Fri	Online feedback - 2	58	27	Fri	Model Project Review	81	27	Mon	Tentative ESE Theory Exam starts	
28	Sun	Online feedback - 1	Holiday	28	Wed		59	28	Sat		82	28	Tue		
29	Mon		13	29	Thu	Assignment - 2	60	29	Fri		83	29	Wed		
30	Tue	Assignment - 1	14	30	Fri	Sub. of QCM 2/Syllabus Coverage	61	30	Mon	Model Practical Exam Starts	84	30	Mon		
31	Wed	Sub. of QCM 1/Syllabus Coverage Phase II - Project Review 1	15	31	Sat	Completion of 2 nd half of the 2 nd unit & 3 rd unit	62	31	Tue		85	31	Tue		
Total number of working days:13			Total number of working days:20			Total number of working days:22			Total number of working days:23			Total number of working days:11			
Total number of holidays:04			Total number of holidays:11			Total number of holidays:06			Total number of holidays:08			Total number of holidays:05			

*Ethnotech courses can be completed between Commencement of Classes and CAT 2.



Academic Calendar for B. Tech. Programmes

December 2025 - April 2026

December 2025

January 2026

February 2026

March 2026

April 2026

Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day		
1	Mon		Holiday	1	Sun		Holiday	1	Sun		Holiday	1	Wed		79		
2	Tue			2	Mon		14	2	Mon	Online feedback-2	56	2	Thu		80		
3	Wed		Holiday	3	Tue			3	Tue	Assignment - 2	57	3	Fri	Good Friday	Holiday		
4	Thu		Holiday	4	Wed		Holiday	4	Wed	Sub. of QCM 2/Syllabus Coverage	58	4	Sat		Holiday		
5	Fri			5	Thu		15	5	Thu	Completion of 3 rd & 4 th units	59	5	Sun		Holiday		
6	Sat		Holiday	6	Fri		16	6	Fri		60	6	Mon		81		
7	Sun		Holiday	7	Sat		17	7	Sat		Holiday	7	Tue	Model Practical Exam Ends	82		
8	Mon			8	Sun		18	8	Sun		Holiday	8	Wed	Tentative ESE Practical starts	83		
9	Tue			9	Mon		19	9	Mon	CAT 2 starts (1 st & 2 nd hour)	61	9	Thu		84		
10	Wed			10	Tue		20	10	Tue	CAT 2 (1 st & 2 nd hour)	62	10	Fri	Sub. of Model Exam Result Analysis	85		
11	Thu		Holiday	11	Wed		Holiday	11	Wed	CAT 2 (1 st & 2 nd hour)	63	11	Sat		86		
12	Fri			12	Thu		21	12	Thu	CAT 2 (1 st & 2 nd hour)	64	12	Sun		Holiday		
13	Sat			13	Fri		22	13	Fri	CAT 2 (1 st & 2 nd hour)	65	13	Mon	ESE Practical Ends	87		
14	Sun		Holiday	14	Sat		Holiday	14	Sat	CAT 2 Ends (1 st & 2 nd hour)	66	14	Tue	Tamil New Year	Holiday		
15	Mon	Commencement of classes for VI semester	1	15	Sun		Holiday	15	Sun			15	Wed	Declaration of Attendance Internal Assessment	88		
16	Tue		2	16	Mon		Holiday	16	Mon	CAT 2 HEM course Sub. of Attendance & Assessment Review	67	16	Thu	Last Working Day	89		
17	Wed		3	17	Tue		Holiday	17	Tue	Sub. of CAT 2 Result Analysis/Online feedback 3	68	17	Fri				
18	Thu		4	18	Wed		Holiday	18	Wed	Assignment 3	69	18	Sat		Holiday		
19	Fri		5	19	Thu		23	19	Thu	Sub. of QCM 3/Syllabus Coverage/Completion of all 5 units	70	19	Sun		Holiday		
20	Sat		Holiday	20	Fri		24	20	Fri	Rainzan		20	Mon				
21	Sun		Holiday	21	Sat		25	21	Sat			21	Tue				
22	Mon		6	22	Sun		26	22	Sun			22	Wed				
23	Tue		7	23	Mon		27	23	Mon	Model Theory Exam Starts	71	23	Thu				
24	Wed		8	24	Tue		28	24	Tue		72	24	Fri				
25	Thu	Christmas	Holiday	25	Sun		Holiday	25	Wed		73	25	Sat				
26	Fri		9	26	Mon		Holiday	26	Thu	Republic Day		26	Sun				
27	Sat		10	27	Tue		29	27	Fri	CAT 1 (1 st & 2 nd hour)	74	26	Sun	Tentative ESE Theory Exam starts	Holiday		
28	Sun		Holiday	28	Wed		30	28	Sat	CAT 1 (1 st & 2 nd hour)	75	27	Mon				
29	Mon		11	29	Thu		31	29	Sun	Model Theory Exam Ends	76	28	Tue				
30	Tue		12	30	Fri		32	30	Mon	Model Exam HEM course	77	29	Wed				
31	Wed		13	31	Sat		33	31	Tue	Model Practical Exam Starts	78	30	Thu				
Total number of working days: 13			Total number of working days: 20			Total number of working days: 22			Total number of working days: 23			Total number of working days: 23			Total number of working days: 11		
Total number of holidays: 04			Total number of holidays: 11			Total number of holidays: 06			Total number of holidays: 08			Total number of holidays: 05			Total number of holidays: 05		



**Academic Calendar for B. Tech. Programmes
December 2025 – April 2026**

December 2025

January 2026

February 2026

March 2026

April 2026

Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day	Date	Day	Schedule	Working Day		
1	Mon			1	Sun	New Year	Holiday	1	Sun		Holiday	1	Wed		79		
2	Tue			2	Mon		14	2	Mon		34	2	Thu		80		
3	Wed			3	Tue		Holiday	3	Tue		35	3	Fri	Good Friday	Holiday		
4	Thu			4	Wed		Holiday	4	Wed		36	4	Sat		Holiday		
5	Fri			5	Thu		15	5	Thu		37	5	Sun		Holiday		
6	Sat			6	Fri		16	6	Fri		38	6	Mon		81		
7	Sun			7	Sat		17	7	Sat		Holiday	7	Tue		82		
8	Mon			8	Sun		18	8	Sun		Holiday	8	Wed	Model Practical Exam starts	83		
9	Tue			9	Mon	Online feedback - 1	19	9	Mon		39	9	Thu		84		
10	Wed			10	Tue	Assignment - 1	20	10	Tue		40	10	Fri		85		
11	Thu			11	Sun		Holiday	11	Wed		41	11	Sat		86		
12	Fri			12	Mon	Sub. of QCM 1/Syllabus Coverage	21	12	Thu		42	12	Sun		Holiday		
13	Sat			13	Tue	Completion of 1 st & 2 nd units	22	13	Fri		43	13	Mon	Model Practical Exam Ends	87		
14	Sun			14	Wed	Bhogi	Holiday	14	Sat	Online feedback 3	44	14	Tue	Tamil New Year	Holiday		
15	Mon	Commencement of classes for IV semester	1	15	Thu	Pongal	Holiday	15	Sun		Holiday	15	Wed	Tentative ESE Practical Exam starts	88		
16	Tue		2	16	Fri	Uzhiavar-Thirunai	Holiday	16	Mon	Online feedback - 2	45	16	Thu	Declaration of Attendance/Internal Assessment/Last Working Day	89		
17	Wed		3	17	Sat	Thiruvalluvar Dinam	Holiday	17	Tue	Assignment - 2	46	17	Fri				
18	Thu		4	18	Sun		Holiday	18	Wed	Sub. of QCM 2/Syllabus Coverage	47	18	Sat		Holiday		
19	Fri		5	19	Mon	CAT 1 starts (1 st & 2 nd hour)	23	19	Thu	Completion of 3 rd & 4 th units	48	19	Sun		Holiday		
20	Sat		6	20	Tue	CAT 1 (1 st & 2 nd hour)	24	20	Fri	Ethnotech course 1 Ends	49	20	Mon				
21	Sun		7	21	Wed	CAT 1 (1 st & 2 nd hour)	25	21	Sat		Holiday	21	Tue	Tentative ESE Practical Exam Ends			
22	Mon		8	22	Thu	CAT 1 (1 st & 2 nd hour)	26	22	Sun		Holiday	22	Wed	Sub. of Model Exam Result Analysis			
23	Tue		9	23	Fri	CAT 1 (1 st & 2 nd hour)	27	23	Mon	CAT 2 starts (1 st & 2 nd hour)	50	23	Thu				
24	Wed		10	24	Sat	CAT 1 Ends (1 st & 2 nd hour)	28	24	Tue	CAT 2 (1 st & 2 nd hour)	51	24	Fri				
25	Thu	Christmas	Holiday	25	Sun	Republic Day	Holiday	25	Wed	CAT 2 (1 st & 2 nd hour)	52	25	Sat				
26	Fri		11	26	Mon	Tentative CAT 1 H/M course / Ethnotech course 1 starts	Holiday	26	Thu	CAT 2 (1 st & 2 nd hour)	53	26	Sun		Holiday		
27	Sat		12	27	Tue	Sub. of Attendance & Assessment Record	29	27	Fri	CAT 2 (1 st & 2 nd hour)	54	27	Mon				
28	Sun		13	28	Wed	Sub. of CAT 1 Result Analysis	30	28	Sat	CAT 2 Ends (1 st & 2 nd hour)	55	28	Tue	Model Exam Theory Ends			
29	Mon		14	29	Thu		31	29	Sun	Model Exam H/M course	77	29	Wed				
30	Tue		15	30	Fri		32	30	Mon		78	30	Thu				
31	Wed		16	31	Sat		33	31	Tue		78	31	Thu				
Total number of working days:13			Total number of working days:20			Total number of working days:22			Total number of working days:23			Total number of working days:23			Total number of working days:11		
Total number of holidays:04			Total number of holidays:11			Total number of holidays:06			Total number of holidays:08			Total number of holidays:05			Total number of holidays:05		

ANNEXURE -IV



SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE
(An Autonomous Institution)
Puducherry - 605 107

Department of computer science and engineering

List of Guest Lectures / Workshops

Academic Year: 2025 to 2026 (Odd semester)

S. No.	Topics	Details of the Expert Member	Date	No. of students
1	Web Designing	Mr. Hercule Kaviarasan, Senior System Engineer, Datatech Genius, Puducherry.	12-07-2025	175
2	AI in Automata	Dr. G. Balamurugan, Assistant Professor, Dept of Computing Technologies, SRM, Chennai.	09-08-2025	298
3	Building scalable applications with NODE JS.	Balaji. R Senior System Analyst TATA Consultancy Services, Chennai	12-07-2025	298
4	Quantum Networking	Mr. P. Arunachalam, Catalog Associate, Amazon Internet services, Chennai.	26-07-2025	298
5	Testing for Cloud-Native Applications	Mr. Praveenkumar S, Associate L1 web developer, Integra software services, Pondicherry.	23-08-2025	298
6	Edge Computing and Embedded AI	Kudupudi chakradhar, Associate Software Engineer, Unisys, Bangalore.	30-08-2025	298



SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE
(An Autonomous Institution)
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

INTERNSHIP DETAILS 2021-2025

S.No	Register Number	Name of the Student	From	To	Company Name	Package
1.	21UCS071	KALAIARASAN S	16/5/2024	16/10/2024	ZOHO	7 LPA
2.	21UCS034	CHANDRAJ N	6/1/25	30/6/25	CONTENTSTACK	11.77 LPA
3.	21UCS055	HARINE S	6/1/2025	19/2/2025	AMERICAN MEGA TRENDS	4 LPA
4.	21UCS144	SARAVANA KUMAR J	6/1/2025	19/2/2025	AMERICAN MEGA TRENDS	4 LPA
5.	21UCS059	HEMA SWETHA	8/1/25	JUNE(Tentative)	MULTICOREWARE	7.20 LPA
6.	21UCS166	VARSHA	6/1/2025	10/1/25	PEGA SYSTEMS	NIL
7.	21UCS068	JEYA MURUGAN	27/1/25	28/7/25	SOCIETE GENERAL	5.43 LPA
8.	21UCS089	MANIBALA V	27/1/25	28/7/25	SOCIETE GENERAL	5.43 LPA
9.	21UCS043	DHANUSHRI T R	18/2/25	18/7/25	PEGA SYSTEMS	10.60 LPA
10.	21UCS092	MITHUNRAJ	19/2/25	29/8/25	PWC	3.25 LPA
11.	21UCS004	ABHAY PRAMOD	24/2/25	30/4/25	TCS	7 LPA
12.	21UCS095	MONISH	6/3/25	6/9/25	CTS	4 LPA
13.	21UCS174	VISWA	6/3/25	6/9/25	CTS	4 LPA
14.	21UCS072	KATHIRVELAN	6/3/25	6/9/25	CTS	4 LPA
15.	24UCS075	HARISH R	7/2/25	21/4/25	TOLROP	NIL
16.	21UCS161	TANNISHTHA	3/3/25	3/8/25	KAAR	6.50 LPA
17.	21UCS111	PAVITRA	3/3/25	3/8/25	KAAR	6.50 LPA
18.	21UCS131	RUBAVARSHINI	3/3/25	3/8/25	KAAR	6.50 LPA
19.	21UCS083	LAVANYA	3/3/25	3/8/25	KAAR	6.50 LPA
20.	21UCS165	VAISHNAVI	3/3/25	3/9/25	CTS	4 LPA
21.	21UCS155	SUBASRI E	17/3/25	17/9/25	CTS	4 LPA
22.	21UCS077	KEERTHIVASAN	17/3/25	17/9/25	CTS	4 LPA
23.	21UCS050	EZHIL KUMARAN	20/3/25	20/9/25	HEXAWARE	4 LPA
24.	21UCS041	DEVAPRIYAN	20/3/25	20/9/25	HEXAWARE	4 LPA



Hi Kalaivasan S

Greetings from ZOHO Corporation.

Congratulations!

Your profile has been shortlisted for the internship process at Zoho.

Your internship process will commence from 16-May-2024

Please make yourself available at our premises by 09.00 AM with a photocopy of this mail.

Venue:

Plot 140, 151, Estancia IT Park, Vallancheri, Chengalpattu District, Tamilnadu, 603 202.

Please note down a few points:

- Taking leave/permission during the period of internship will not be entertained.
- You will be assessed from day one.
- Our intention of conducting this process is to retain the candidate as an Intern/employee upon completing the process successfully and based on the candidate's performance during the period.
- Candidates who are employed (Full time/part time/freelancing/internship) are not eligible for the internship process.
- **Candidates who have been employed previously should inform us about this.** We will verify the previous employment documents as part of the process.
- In case you are asked to come to the office regularly, you will need an ID card. You may contact jacline.s@zohocorp.com for this. This card has to be returned to the Tower - Ground Floor security desk on your date of exit.
- If you are given an office laptop, you need to keep it safe and return it to the Floor pitstop/Sysadmin team on your date of exit. You are not supposed to take the office laptop home. If you must, then please contact the HR team (prince.j@zohocorp.com/saajudeen.s@zohocorp.com) for approval.



OFFER OF INTERNSHIP

Welcome Chandraj Neelakandan!

We are very excited to have you join our Contentstack Tribe.

In the pages that follow you'll find details regarding your compensation.

If you have any questions at all, please reach out to our People Operations Team at peopleops_india@contentstack.com or your manager, Ankireddy Polu at ankireddy.polu@contentstack.com. We're here to help.

Offer Summary

Position | Associate Software Engineering Intern

Start Date | January 6, 2025

End Date | June 30, 2025

Hiring Manager | Ankireddy Polu

Work Location | Chennai

Registered Office | Contentstack India Pvt Ltd., 8th Floor, New Viva College, New Viva College Rd. Opposite Dmart, Vartak Ward, Virar West, Virar, Maharashtra 401303

Stipend | During your internship you will be paid ₹35,000.00 monthly stipend.

Employment Agreement | You will receive an Employment Agreement on your date of joining. This Agreement will include the terms of your employment relationship with Contentstack, including without limitation, a covenant not to disclose confidential client and internal information, a covenant not to compete against Contentstack during the term of the agreement, a covenant not to solicit our associates, and establishes that, during the term of your employment, the benefits of your endeavors accrue to Contentstack.

People Operations Team | Contentstack



Arun Balaji S 2 Jan

to gokulchidambaram... ▾



Hi All

Welcome to AMI Family!!!

We are happy to welcome you all to the AMI family.

As part of our training, we planned to have a virtual COE training to you all, since all are from different colleges. In this virtual COE we will train you all in C & C++ Programming. Our training will start from January 6th as discussed. The training schedule is attached for your information. If there is any change in between, we will inform you in prior.

All the trainees please make sure you have installed the following software's in your system.

1. Visual Studio Code (Visual Studio Code - Code Editing. Redefined)
2. MINGW (Get Started with C++ and MinGW-w64 in Visual Studio Code)
3. Microsoft Teams



Reply to all





Revised Joining Announcement - 2025 Batch - Chennai Location

1 message

Amritha Baskaran <amritha@multicorewareinc.com>
Cc: Shashikanth Jayaraman <shashi@multicorewareinc.com>, Mike Steve <mikesteve@multicorewareinc.com>
Bcc: khemaswetha@gmail.com

Thu, 2 Jan, 2025 at 2:33 pm

Hi,

Please ignore my previous mail.

A quick reminder about your internship joining:

Joining Date: January 08, 2025

Reporting Time: 8:30 AM

Onboarding Location: Block 9A, 6th Floor, DLF Cyber City, Porur, Chennai.

Google Maps Link: [DLF Cyber City Location](#)

Your Reporting Location from 9-Jan onwards: B6, Gateway Office Parks, Grand Southern Trunk Rd, Chennai, Tamil Nadu 600063

Google Maps Link: [Perungalathur Office](#)

Key Points:

- **Laptop:** Bring your personal laptop; a company laptop will be provided upon full-time conversion.
- **Documents:** Keep the soft copies of the below documents on your laptop for onboarding.
 - o Aadhar Card
 - o PAN Card
 - o Passport (if available)
 - o 10th marksheet
 - o 12th marksheet
 - o Semester wise marksheets (until 7th sem)

For questions, contact me at 8148226882.

Looking forward to welcoming you on January 8th!

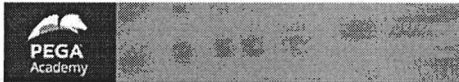


Amritha Baskaran
Sr. Exec - Human Resources
Mobile: 8148226882
Block 9A, 6th Floor,
DLF Cyber City,
Manapakkam,
Chennai - 600 089

[in](#) [t](#) [f](#) [v](#) [i](#)

The content of this email is confidential and intended for the recipient specified in the message only. It is strictly forbidden to share any part of this message with any third party, without the written consent of the sender. If you received this message by mistake, please reply to this message and follow with its deletion, so that we can ensure such a mistake does not occur in the future.

[Quoted text hidden]



Hello,

My name is **Tarun Rathi**, and I'll be your instructor for the upcoming virtual "Pega Immersive Interns' program" scheduled from **6th January 2025** to **10th January 2025**.

Course Schedule:

Start date: 6th January 2025

End Date: 10th January 2025

Timings: 10 - 6 PM IST

Meeting Link: [Click here to join](#)

Course Overview:

This program will cover the latest updates in Pega Infinity™ '24.1, specifically tailored for certified Pega System Architects and above. You'll explore new features like PegaGenAI Blueprint and Autopilot, learn how Pega GenAI™ enhances productivity, gain insights into the Constellation architecture for building and debugging applications, and discover best practices for enterprise reuse and modular business architecture.

We'll cover many topics at a relatively aggressive pace. Each learning module builds on the previous module; therefore, all students should be fully dedicated to the entire course with as little disruption as possible.

Course Link: [24.1 Ready! Pega Academy](#)

I'm looking forward to spending some time with you all over the next couple of days. Please let me know if you have any questions.

NOTE: Please check the Webex training invite below and accept.

Thank You,

Tarun Rathi

View my profile on the Pega Community: <https://accounts.pega.com/profile/rathi2/>

I2020



Global Solution Centre

27 Jan 2025

Manibala Veeramalai

No 2, Old Hospital Street,
Mudaliarpet, Puducherry -605004

Dear Manibala Veeramalai,

We are pleased to take you as an intern for a duration not exceeding 06 month(s) with effect from 27 Jan 2025 to 28-Jul-25 in furtherance to your interest to acquire necessary skills through the internship program in pursuit of your educational qualifications.

We are pleased to inform you that during your internship, you will receive a stipend of Rs. 25000/- per month. The company reserves the right to extend your internship at its sole discretion and the same will be notified at the time of its decision.

You will be required to comply with all such policies, procedures, rules and regulations, which are in force for the time being or may be framed and implemented from time to time.

The Company reserves the right to terminate your internship forthwith without notice or liability for compensation or damages upon the happening of any of the following events:

- (a) If any declaration given or information furnished by you to the Company proves to be false, or if you are found to have willfully suppressed any material information
- (b) If you are guilty of any grave misconduct or willful neglect in the discharge of your duties hereunder or;
- (c) If the Company is restricted from continuing to employ you by reason of any other legal incapability;
- (d) If you remain absent for 8 or more consecutive days without any intimation to the Company and failing to answer (i.e. give a satisfactory explanation for the unauthorized leave) any written communication issued by SG GSC in this regard.

This is not an offer of employment with the Company nor does it confer on you any employee-relationship with the Company. The Company reserves the right to withdraw this offer of internship or to modify any terms, without any prior notice, at its sole discretion.

Yours faithfully,
For Societe Generale Global Solution Centre Pvt Ltd,

Sumanth Nayak
Chief Human Resources Officer
(Digitally Signed Below)

Digitally signed by Sumanth Nayak
Date: 2025.01.27 10:56:02 +05:30
Location: Bangalore

I hereby accept the above terms and conditions

Signature: *Manibala*
Name: Manibala Veeramalai
Date: 27 Jan 2025

SOCIETE GENERALE GLOBAL SOLUTION CENTRE PRIVATE LIMITED
Registered Office address : Voyager Building, 10th Floor, Ascendas ITPB SEZ, International Tech Park,
Whitefield Road, Bangalore - 560066, Karnataka, India
(CIN): U72200KA2000PTC027232
Telephone number : +91 8067317000 / +91 8057316050
e-mail : GSC-SGSC-INDIA@socgen.com / website : <https://globalsolutioncenter.societegenerale.in/en/>



Global Solution Centre

I 2021

27 Jan 2025

Jeya Murugan R

No.82 B, 2Nd Floor, 2Nd Main Road,
D.R.Nagar, Kosapalayam,
Puducherry -605013

Dear Jeya Murugan R,

We are pleased to take you as an intern for a duration not exceeding 06 month(s) with effect from 27 Jan 2025 to 28-Jul-25 in furtherance to your interest to acquire necessary skills through the internship program in pursuit of your educational qualifications.

We are pleased to inform you that during your internship, you will receive a stipend of Rs. 25000/- per month. The company reserves the right to extend your internship at its sole discretion and the same will be notified at the time of its decision.

You will be required to comply with all such policies, procedures, rules and regulations, which are in force for the time being or may be framed and implemented from time to time.

The Company reserves the right to terminate your internship forthwith without notice or liability for compensation or damages upon the happening of any of the following events:

- (a) If any declaration given or information furnished by you to the Company proves to be false, or if you are found to have willfully suppressed any material information
- (b) If you are guilty of any grave misconduct or willful neglect in the discharge of your duties hereunder or;
- (c) If the Company is restricted from continuing to employ you by reason of any other legal incapability;
- (d) If you remain absent for 8 or more consecutive days without any intimation to the Company and failing to answer (i.e. give a satisfactory explanation for the unauthorized leave) any written communication issued by SG GSC in this regard.

This is not an offer of employment with the Company nor does it confer on you any employee-relationship with the Company. The Company reserves the right to withdraw this offer of internship or to modify any terms, without any prior notice, at its sole discretion.

Yours faithfully,
For Societe Generale Global Solution Centre Pvt Ltd,

Sumanth Nayak
Chief Human Resources Officer

(Digitally Signed Below)
Signature Valid
Digitally signed by Sumanth Nayak
Date: 2025.01.27 16:03 +05:30
Location: Bangalore

I hereby accept the above terms and conditions

Signature: R. Jeya Murugan
Name: Jeya Murugan R
Date: 27 Jan 2025

SOCIETE GENERALE GLOBAL SOLUTION CENTRE PRIVATE LIMITED
Registered Office address : Voyager Building, 10th Floor, Ascendas ITPB SEZ, International Tech Park,
Whitefield Road, Bangalore - 560066, Karnataka, India
(CIN), U72200KA2000PTC027232
Telephone number : +91 8067317000 / +91 8067316050
e-mail : GSC-SGGSC-INDIA@socgen.com / website : <https://globalsolutioncenter.societegenerale.in/en/>



PEGASYSTEMS WORLDWIDE INDIA PRIVATE LIMITED
Registered Office: Building No.12A, 13th Office Level,
MindSpace Cyberabad, Madhapur, Hyderabad -500081
CIN No. U72200TG2007FTC055018

Dhanushri T R
105/B, CTs Mohana Apartment, Marriamman Kovil Street, Sithankudi, Pondicherry-605013.

Dear Dhanushri,

Congratulations!

Pegasystems is pleased to offer you the role of Intern as part of our 2025 Internship Program. You will be paid a monthly stipend of INR 25,000, subject to tax and statutory deductions, for a maximum 40-hour work week. Pega policy does not require interns to work greater than 40 (forty) hours per week. The duration of the internship is for a period of 5 (five) months.

The purpose of an internship is to provide students with the opportunity to gain valuable business skills while earning a competitive compensation. Intern positions do not include any health coverage or other corporate benefits. As part of the internship, you will be asked to abide by all policies, including the company Code of Conduct and completing a weekly time sheet.

Please sign and return your signed Offer Letter and agreement no later than 28th January'2025.

We look forward to working with you and hope you enjoy your time at Pegasystems!

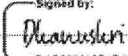
Sincerely,
For Pegasystems Worldwide India Private Limited

SMRITI
MATHUR
Digitally signed by
SMRITI MATHUR
Date: 2025.01.27
16:52:43 +05'30'

Authorized Signatory

I accept the terms of this offer letter and will begin an Internship at Pegasystems.
I confirm the start date is 18th February'2025.

I understand and acknowledge that this document has been authenticated in electronic mode and such signing or delivery of the document shall be deemed to be as good as an original document and not affect the validity of provisions it contains.

Signed by:

Dhanushri T R
BAC688412B184ED

27 January 2025 | 08:26 EST

Date



{{Date_es_signer1.date}}

Mithunraj

Bangalore

PRIVATE AND CONFIDENTIAL

Internship Offer Letter and Terms and Conditions of Internship

Dear Mithunraj,

We are pleased to offer you an internship with PricewaterhouseCoopers Acceleration Centre India Private Limited ("Company" or "IAC2"). Your work location will be Bangalore. Reporting lines and location are subject to change depending on business requirements.

If you accept this offer, your commencement date with us will be on **19 February, 2025** or such other date as may be communicated by us to you in writing ("Internship Commencement Date"). Your Internship end date will be on **19 August, 2025**. You are being offered a fixed stipend of **INR. 30,000/-** per month **Thirty Thousand Only**.

Other Terms:

Internship Agreement: Once you accept this offer, you will be required to sign an internship agreement ("Internship Agreement"), the format of which is attached to this offer letter ("Offer Letter"). Your internship with the Company will be on the terms of this Offer Letter and the Internship Agreement until the end of your internship with the Company in accordance with the Internship Agreement.

1. **Working Hours:** You will be required to work, for such hours as are reasonably necessary to meet the Company's requirements, in a variety of locations and for proper discharge of your duties. The working hours will be consistent with Company's policies and will include such reasonable working hours as might be required for performing your duties competently and to meet the Company's requirements. You hereby agree and volunteer to work during the night shift, as and when the Company feels that your services are required. You confirm that you have no objection whatsoever to work during the night shift, as per the Company's policies.
2. **Taxation:** Your stipend has been stated gross of tax. You will be responsible for all applicable Indian taxes on your stipend. In the event that you have sources of income or expense outside of your internship with the Company, you are responsible for ensuring adherence to the tax laws on those matters as well.
3. **Termination Notice:**
 - a) Your internship in the Company is subject to satisfactory verification of your certificates, testimonials and personal particulars/credentials. The Company reserves the right to conduct a background check (including criminal history record search, education and employment, and personal details verification) conducted on you directly or through nominated third party agencies. In the event that such verification or background check reveals any discrepancy in the statement(s) made in your application or in the biodata with the Company or in the declarations made by you in this Offer Letter and/or the Internship Agreement, your internship is liable to be terminated forthwith without any notice or any further compensation from the day such discrepancies are identified.
 - b) Company retains the right to terminate your internship, without giving any notice or pay in lieu of notice, in case of any wrongful declaration, not clearing background verification, any non-compliance, indulging in unethical practices, misconduct, fraud or misappropriation of funds or breach of any terms of service or any policy of the Company.

As such the Company may terminate your internship on an immediate basis for any of the following conduct on your behalf effective immediately.

- (i) acts of fraud, dishonesty or misconduct involving moral turpitude;
- (ii) commission or conviction of any criminal offence;
- (iii) engagement in any activity that you know or should know could harm the business or reputation of the Company;



Internship Offer Letter

Ref: TCSL/AAG 2024-25/Winter/DT20234428293

Date: 18-Feb-2025

Abhay Pramod
Sri Manakula Vinayagar Engineering College
abhakkayanadath@gmail.com

Dear Abhay Pramod ,

Sub: Internship Offer

We are pleased to offer you internship in Tata Consultancy Services (TCS) with the following terms and conditions:

1. The tentative start date is 24-Feb-2025 and end date is 30-Apr-2025. These dates can be changed in discussion with the Project Guide
2. You will be assigned a Project Guide under whose supervision you will work on the project assigned to you.
3. You shall complete your project in accordance with the requirements and guidance of the TCS Project Guide, and maintain qualitative standards as required. You will maintain the discipline, dignity, honor and goodwill of TCS.
4. The arrangement is not that of an employer and an employee and as such you shall not be eligible to any allowances or other benefits as may be available to the employees of TCS.
5. You will observe the rules & regulations and discipline of TCS, and also maintain complete confidentiality and secrecy of the matters pertaining to TCS and/or any data that has been provided to you in the course of your project work. The detailed terms of Confidentiality, Data and Intellectual Property Protection are enclosed as Annexure A. You will be permitted to attend any classes in the college / university at the discretion of the Project Guide if so called for during the period of your project assignment.
6. On completion of your internship you will be required to submit a copy of your project report, which will be the sole property of TCS.
7. You shall not undertake any internship in parallel with this internship
8. In the event of any misconduct or breach of terms of this internship on the part of the Intern during the internship period, TCS reserves the right to terminate internship without any notice.
9. This offer of Internship will be governed as per the Laws of India.

TATA CONSULTANCY SERVICES

Tata Consultancy Services Limited

Yantra Park, Opp. Votara HRD Trg. Center, Subhash Nagar, Pokhran Road No. 2, Thane (West) 400 601 India
Tel: +91 22 6778 2000/2222 Fax: +91 40 6778 2100 website: www.tcs.com
Registered Office: Nirmal Building, 3rd Floor, Nariman Point, Mumbai 400 021



21-Feb-2025

Candidate ID: 34349067

Monish LNU
B.Tech Computer Science
Sri Manakula Vinayagar Engineering College, Puducherry

Dear Monish LNU,

Further to our Letter of Intent for the position of Programmer Analyst Trainee / Programmer Analyst aligned to the hiring category, we are pleased to offer you an internship with us at Cognizant office for a period of 3 to 6 months. Your internship on-boarding will be scheduled based on your availability factoring your college exam schedule, availability of your Provisional Certificate and our business requirements.

During this period, you will be provided with a stipend of INR 12,000 per month equated to the planned duration of the Internship curriculum and will be paid only subject to successful completion of milestones as defined in the curriculum, prior to the monthly stipend processing window, for a given month based on your performance and attendance.

Though Cognizant Internship is a skilling program aimed at enhancing technical acumen, it does not guarantee employment and there is no employer – employee relationship during the course of this internship program. However, the successful completion of internship will form a critical part of your eligibility for employment with Cognizant if an opportunity arises in future.

You will be provided a learning curriculum as per the skill track assigned to you. The learning design would expect you to drive your learning through hands on exercise and project work. There will also be series of webinars, quizzes, Subject Matter Expertise (SME) interactions, mentor connects, code challenges, assessments etc. to accelerate your learning. The outcome during internship would be monitored through formal evaluations.

Prior to joining on the rolls of Cognizant, you must have successfully completed the prescribed Internship program. In the event of unsatisfactory performance during the internship or non-completion of the Internship, no Internship Completion Certificate shall be issued by Cognizant. Cognizant reserves rights at its sole discretion to revoke its Letter of Intent.

Section A: Terms and Conditions:

1. The Internship timings would be for 10 hours per day from Monday through Friday aligned to the working timings followed in Cognizant which based on the need could also be operated on a shift model. Attendance is mandatory on all the days to stay active in the Internship Program. The Internship Offer would be cancelled if the mandatory requirement of minimum 85% attendance at office is not met in a month.
2. Interns are covered under Cognizant's calendar holidays of the respective location of internship, and you would need to adhere with minimum attendance requirements. Prior approvals are must towards any unavoidable leave or break requests during the program and the internship would be cancelled if leaves are availed without prior approvals.
3. You would be required to ensure timely completion and submission of assignments, project work and preparation required prior to the sessions failing which your internship would be cancelled.
4. The Technical skills track mapped could change at the start or mid-way or even later during the program depending on business demand changes and you would be required to be flexible for this change failing which your internship would be cancelled.
5. Stipend payment will be done for the prescribed Internship Curriculum period only and no additional payment will be done for any delay in completion. Attendance and successful completion of Milestone(s) are the eligible factors for processing stipend payment and tenure spent will not guarantee your monthly stipend payment.

Cognizant Technology Solutions India Private Limited, Ground Floor, SDB-1, Plot No H-4, SIPCOT IT PARK, Padur Post, Siruseri, Chengalpattu District - 603103, Tamil Nadu, India.



21-Feb-2025

Candidate ID: 34349065

Viswa LNU
B.Tech Computer Science & Engineering
Sri Manakula Vinayagar Engineering College, Puducherry

Dear Viswa LNU,

Further to our Letter of Intent for the position of Programmer Analyst Trainee / Programmer Analyst aligned to the hiring category, we are pleased to offer you an internship with us at Cognizant office for a period of 3 to 6 months. Your internship on-boarding will be scheduled based on your availability factoring your college exam schedule, availability of your Provisional Certificate and our business requirements.

During this period, you will be provided with a stipend of INR 12,000 per month equated to the planned duration of the Internship curriculum and will be paid only subject to successful completion of milestones as defined in the curriculum, prior to the monthly stipend processing window, for a given month based on your performance and attendance.

Though Cognizant Internship is a skilling program aimed at enhancing technical acumen, it does not guarantee employment and there is no employer - employee relationship during the course of this internship program. However, the successful completion of internship will form a critical part of your eligibility for employment with Cognizant if an opportunity arises in future.

You will be provided a learning curriculum as per the skill track assigned to you. The learning design would expect you to drive your learning through hands on exercise and project work. There will also be series of webinars, quizzes, Subject Matter Expertise (SME) interactions, mentor connects, code challenges, assessments etc. to accelerate your learning. The outcome during Internship would be monitored through formal evaluations.

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Section A: Terms and Conditions:

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21-Feb-2025

Candidate ID: 34349055

Kathirvelan S
B.Tech Computer Science & Engineering
Sri Manakula Vinayagar Engineering College, Puducherry

Dear Kathirvelan S,

Further to our Letter of Intent for the position of Programmer Analyst Trainee / Programmer Analyst aligned to the hiring category, we are pleased to offer you an internship with us at Cognizant office for a period of 3 to 6 months. Your internship on-boarding will be scheduled based on your availability factoring your college exam schedule, availability of your Provisional Certificate and our business requirements.

During this period, you will be provided with a stipend of INR 12,000 per month equated to the planned duration of the Internship curriculum and will be paid only subject to successful completion of milestones as defined in the curriculum, prior to the monthly stipend processing window, for a given month based on your performance and attendance.

Though Cognizant Internship is a skilling program aimed at enhancing technical acumen, it does not guarantee employment and there is no employer – employee relationship during the course of this internship program. However, the successful completion of internship will form a critical part of your eligibility for employment with Cognizant if an opportunity arises in future.

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Prior to joining on the rolls of Cognizant, you must have successfully completed the prescribed internship program. In the event of unsatisfactory performance during the Internship or non-completion of the Internship, no Internship Completion Certificate shall be issued by Cognizant. Cognizant reserves rights at its sole discretion to revoke its Letter of Intent.

Section A: Terms and Conditions:

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Cognizant Technology Solutions India Private Limited, Ground Floor, SDB-1, Plot No H-4, SIPCOT IT PARK, Padur Post, Siruseri, Chengalpattu District - 603103, Tamil Nadu, India.



Subject : Invitation to Join Talrop's Interstate Cultural Transfer & Skill Development Program

Dear Harish R,

Greetings from Talrop!

We are thrilled to invite you to participate in Talrop's Interstate Cultural Transfer & Skill Development Program, scheduled from 7th March to 20th March 2025. This initiative is designed to empower students to explore opportunities beyond their state boundaries and foster innovation on a global scale.

Program Overview

This immersive program offers a unique opportunity to:

- **Industry Exposure** – Gain hands-on experience by working within Talrop's infrastructures, including Village Parks, Techies Parks, Inventor Parks, and Regional Offices.
- **Networking & Mentorship** – Connect with industry leaders, mentors, and like-minded professionals, expanding your professional network.
- **Leadership & Practical Learning** – Engage with Talrop's Tech Team, Startup Team, and R&D Team while gaining insights from Talrop's Directors, Department Directors, and emerging entrepreneurs.
- **Multi-Sector Experience** – Explore diverse industries, including:
- Education, Information Technology, Construction, Tourism, Healthcare, Entertainment, Real Estate, and Agriculture.

Program Highlights

- **Skill Development Workshops** – Expert-led sessions designed to enhance technical and professional competencies.
- **Collaborative Community Engagement** – Participate in knowledge-sharing sessions and collaborative initiatives.
- **Cultural Immersion** – Experience Kerala's rich heritage, traditions, and scenic landscapes.
- **Duration** – 14 days.
- **Travel & Logistics** – Participants are responsible for their travel expenses to Kerala. Talrop will provide food, accommodation, and intra-Kerala transportation.

This program promises to be a transformative experience, offering you valuable skills and hands-on exposure. Talrop will take care of all logistics, including travel, accommodation, and food, ensuring a hassle-free and enriching experience for you.

If you have any questions or need further details, feel free to reach out to me directly.

Looking forward to having you as part of this exciting journey!

Warm regards,

Aravind C S
Business Development Manager
Talrop
Ph: +91 85900 35729

+91 7306 500 766
+91 9778 871 274

www.talrop.com

risa@talrop.com



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tannishtha <tannishtha777@gmail.com>
To: Humanresources <Humanresources@kaarotech.com>

Mon, 24 Feb, 2025 at 10:31 pm

Dear Humanresources,

I hope you are doing well.

I would like to confirm my participation in the virtual induction scheduled for February 26, 2025 at 10:00 AM. I have also completed and submitted the MS form as mentioned.

I am excited to be part of the KAAR family and look forward to a new journey. Thank you for this opportunity.

Best Regards
Tannishtha
(Quoted text hidden)



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Pavithra Bhavan <pavithrabhavan@gmail.com>

Mon, Feb 24, 2025 at 10:19 PM

To: Humanresources <Humanresources@kaartech.com>

Cc: Akshaya Subramani <suakshaya@kaartech.com>, Nandhini B E <benandhini@kaartech.com>, Sandhya S <ssandhya@kaartech.com>, Pooja S <spooja@kaartech.com>, Soundarya A R <arsoundarya@kaartech.com>, Humanresources <Humanresources@kaartech.com>, Employee Life Cycle Management <hrelm@kaartech.com>, Asha Jayaraman <jasha@kaartech.com>, Muralidharan V <vmuralidharan@kaartech.com>, Arunachalam T <tarunachalam@kaartech.com>, Veeraadevi N <nveeraadevi@kaartech.com>

Subject: Confirmation of Induction Program Participation

Dear Human Resources,

I hope you are doing well. I acknowledge the receipt of the induction program details and confirm my participation in the virtual induction scheduled for 26th February 2025 at 10:00 AM IST. Additionally, I have completed and submitted the MS form as requested.

I look forward to joining the Kaar family and embarking on this exciting journey.

Thank you for this opportunity.

Best regards,
Pavithra S V

[Quoted text hidden]



Kaar Technologies
Level 8 Shyamala Towers,
No 136, Arcot Road,
Chennai - 600 093, TN, INDIA
CIN : U72200TN2005PTC007045
t | +91 (44) 4065 1500
f | +91 (44) 4065 1512
e | info@kaartech.com
w | www.kaartech.com

Date: 20-Jan-2025

Name of the Student: Rubavarshini A

Name of the College: Sri Manakula Vinayagar Engineering College

Letter of Intent to Hire

This letter is evidence that you have successfully completed our selection process for the “Analyst – SAP Sergeant” role.

With reference to your participation in the on-campus hire process, and subsequent interview you had with us, we are happy to extend an **Intent to hire letter**.

The offer Letter will be issued after your successful completion of your academic coursework in compliance with our recruitment criteria of **80% in 10th Std, 80% in 12th Std and 75% in UG / PG score without history of arrears**. Employment is subject to you being medically fit, and subject to satisfactory references, background verifications.

You are required to take up a mandatory internship training program for **9 months** which may be extended (subject to the market conditions and on the completion of your final examinations). During your internship period, you are eligible for a stipend amount of **Rs. 10000/-** per month for the **first 6 months** and from **the 7th month** onwards the stipend will be **Rs. 15000/-** per month.

Upon successful completion of the internship program, you will be on probation for **6 months**. During this period, you will undergo various classrooms and On-Job-Training. Your salary will be **Rs. 650000** (Rupees Six Lakhs and Fifty Thousand only) Annual CTC. All the salary components will be subject to statutory compliance. The details are enclosed in the annexure. The Probation confirmation will be on the **7th Month**, and it will be based on your performance in the continuous assessments during the training period.

We will be issuing the offer letter at the time of joining.

The DOJ is subject to business requirements and market conditions. Your Joining batch and the date will be communicated by Human Resources Department separately

You will be required to sign a Proprietary Information and Inventions agreement on joining. Your employment with us will be governed by the terms and conditions of the organization.

We welcome you to Kaar Technologies and look forward to a long and mutually rewarding association with you.

Yours Sincerely,

For Kaar Technologies India Pvt. Ltd.,

I accept the above terms and conditions.

Vignesh Ramesh Kumar Head of

Candidate Signature

Date : 22-01-2025

Date of joining : 26.02.2025

2/28/25, 6:48 AM

Gmail - Kaar Induction Program - Batch 4

HUMAN RESOURCES

Kaar Technologies India Pvt Ltd

Level 8, Shyamala Towers, No.136 Arcot Road, Chennai - 600093.

[http://www.kaartech.com]www.kaartech.com | humanresources@kaartech.com



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Lavanya <lavnag2004@gmail.com>

25 February 2025 at 10:44

To: Humanresources <Humanresources@kaartech.com>

Dear Human Resources,

I hope this message finds you well. I hereby acknowledge the receipt of the induction program details and confirm my participation in the virtual induction on 26th February 2025 at 10:00 AM IST. I have also filled out the MS form as requested.

Looking forward to joining the Kaar family and beginning this exciting journey.

Thank you for the opportunity.

Best regards,

Lavanya

[Quoted text hidden]



Dear Candidate,

Greetings from Cognizant!

We thank you for accepting the internship offer and are looking forward to welcome you at Cognizant office. You would have received the credentials to log into **OneCognizant (alias 1C)** portal. Kindly follow the steps given in the portal and complete **Background Verification (BGV)** and **pre-joining formalities** **before 3rd March 2025** for smooth onboarding into internship program.

Find below an overview followed by detailed mandatory steps in sequence which need to be completed to help you get onboarded as an intern on your Date of Joining (DOJ):

- Completion of BGV in 1C portal
- Completion of pre-joining forms in 1C portal
- Onboarding pass generation (this gets generated 3 days before your DOJ as intern)
- Reporting at the location with the printed copy of onboarding pass generated is mandatory onboarded upon successful completion of BGV/ pre-joining formalities.

1. Login to **OneCognizant (alias 1C)** portal and upload your **PAN card** and the **Letter of Authorization (LOA)** under BGV section.

- a. Ensure to fill complete address with door number / plot number / ward number
- b. Tenure of the address should be lesser than your age
- c. Correct date of birth to be filled as per your PAN Card
- d. Original copy of your PAN to be uploaded
- e. For the Letter of Authorization (LOA), digital signatures are required.

2. Complete all the **forms under pre-joining formalities** section with the required details.

3. Upon **successful completion of BGV and pre-joining formalities**, you will receive a notification email with the link to download your onboarding pass 3 days before your DOJ as intern.

4. Refer below table for more details and ensure to **report in-person** at the Cognizant office address provided on the joining date along with a **printed copy of the onboarding pass**. Please stay tuned for regular updates via 1C portal.



04-Mar-2025

Candidate ID: 34536361

Subasri E
B.Tech Computer Science & Engineering
Sri Manakula Vinayagar Engineering College, Puducherry

Dear Subasri E,

Further to our Letter of Intent for the position of Programmer Analyst Trainee / Programmer Analyst aligned to the hiring category, we are pleased to offer you an internship with us at Cognizant office for a period of 3 to 6 months. Your internship on-boarding will be scheduled based on your availability factoring your college exam schedule availability of your Provisional Certificate and our business requirements.

During this period, you will be provided with a stipend of **INR 12,000/-** per month equated to the planned duration of the Internship curriculum and will be paid monthly based on your attendance, subject to eligibility for the monthly payroll processing for a given month, except for the last month's stipend, which will be paid upon successful completion of the learning curriculum.

Though Cognizant Internship is a skilling program aimed at enhancing technical acumen, it does not guarantee employment and there is no employer – employee relationship during the course of this internship program. However, the successful completion of internship may form a critical part of your eligibility for employment with Cognizant if an opportunity arises in future.

You will be provided a learning curriculum as per the skill track assigned to you. The learning design would expect you to drive your learning through hands on exercise and project work. There will also be series of webinars, quizzes, Subject Matter Expertise (SME) interactions, mentor connects, code challenges, assessments etc. to accelerate your learning. The outcome during internship would be monitored through formal evaluations.

Prior to joining on the rolls of Cognizant, you must have successfully completed the prescribed Internship program. In the event of unsatisfactory performance during the Internship or non-completion of the Internship, no Internship Completion Certificate shall be issued by Cognizant. Cognizant reserves rights at its sole discretion to revoke its Letter of Intent.

Section A: Terms and Conditions:

1. The Internship timings would be for 10 hours per day from Monday through Friday aligned to the working timings followed in Cognizant which based on the need could also be operated on a shift model. Attendance is mandatory on all the days to stay active in the Internship Program. The Internship Offer would be cancelled if the mandatory requirement of minimum 85% attendance at office is not met in a month.
2. Interns are covered under Cognizant's calendar holidays of the respective location of internship, and you would need to adhere with minimum attendance requirements. Prior approvals are must towards any unavoidable leave or break requests during the program and the internship would be cancelled if leaves are availed without prior approvals.
3. You would be required to ensure timely completion and submission of assignments, project work and preparation required prior to the sessions failing which your internship would be cancelled.

Cognizant Technology Solutions India Private Limited, Ground Floor, SDB-1, Plot No H-4, SIPCOT IT PARK, Padur Post, Siruseri, Chengalpattu District - 603103, Tamil Nadu, India.

Letter of Intent (LOI)

October 10, 2024

Ezhil Kumaran B
Sri Manakula Vinayagar Engineering College, Puducherry

Dear Ezhil Kumaran B,

We are pleased to inform you that you have successfully cleared the Campus preselection process and have been provisionally shortlisted for employment as "Graduate Engineer Trainee" subject to the conditions below.

As the next step, you will undergo 'Segue' our industry readiness program covering a foundation course on Soft skills and technical skills and one of the Centers of Excellence training programs on Digital, Fullstack, Automation, AI, ML, Analytics, PEGA and Cloud.

You agree to join Hexaware after successful completion of the program as per specified company guidelines and not participate in any other selection process of another company.

Upon joining Hexaware, in the training period you will be entitled to the remunerations indicated below as per the role:

1. **Graduate Engineer Trainee** - You will receive a Stipend of Rs.15000/-pm for a period of 6 months and on successful completion you will be paid a salary of Rs.4.00 Lac per annum.

You are required to sign a service agreement for a period of 2 years upon joining Hexaware. You will receive a formal letter of appointment (on probation basis) with all the terms and conditions post joining the organization.

You will, at all times, will observe secrecy and confidentiality in respect of any technical, trade or business data or any other information that might come to your knowledge or possession and which, according to the company, are necessarily confidential and form valuable property of the company and not made available to the trade. Further, you will not disclose such data or information without written consent from the company to anyone other than the company's officials who are authorized to receive the same. Even after you have ceased to be in the training, the confidentiality obligations shall be perpetual and binding on you and you shall not disclose them to anyone.

As a token of your acceptance that you have read and understood this Letter of Intent, please send in your confirmation to campusconnect@hexaware.com confirming your acceptance to joining Hexaware. You shall sign the Non-Disclosure Agreement (NDA) upon direction and shall abide by the terms and conditions mentioned therein.

The validity of this Letter of Intent is effective immediately and shall remain valid until **July 31st, 2025**. Both parties acknowledge and agree that this LOI is subject to extension at the discretion of Hexaware, based on prevailing business conditions and mutual interest.

Yours faithfully,

For HEXAWARE TECHNOLOGIES LIMITED

DS
RB

Rajesh B
Executive Vice President/Head Recruitment

Letter of Intent (LOI)

October 10, 2024

Devapriyan A
Sri Manakula Vinayagar Engineering College, Puducherry

Dear Devapriyan A,

We are pleased to inform you that you have successfully cleared the Campus preselection process and have been provisionally shortlisted for employment as "Graduate Engineer Trainee" subject to the conditions below.

As the next step, you will undergo "Segue" our industry readiness program covering a foundation course on Soft skills and technical skills and one of the Centers of Excellence training programs on Digital, Fullstack, Automation, AI, ML, Analytics, PEGA and Cloud.

You agree to join Hexaware after successful completion of the program as per specified company guidelines and not participate in any other selection process of another company.

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You will, at all times, will observe secrecy and confidentiality in respect of any technical, trade or business data or any other information that might come to your knowledge or possession and which, according to the company, are necessarily confidential and form valuable property of the company and not made available to the trade. Further, you will not disclose such data or information without written consent from the company to anyone other than the company's officials who are authorized to receive the same. Even after you have ceased to be in the training, the confidentiality obligations shall be perpetual and binding on you and you shall not disclose them to anyone.

As a token of your acceptance that you have read and understood this Letter of Intent, please send in your confirmation to campusconnect@hexaware.com confirming your acceptance to joining Hexaware. You shall sign the Non-Disclosure Agreement (NDA) upon direction and shall abide by the terms and conditions mentioned therein.

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Yours faithfully,

For HEXAWARE TECHNOLOGIES LIMITED

DS
RB

Rajesh B
Executive Vice President/Head Recruitment



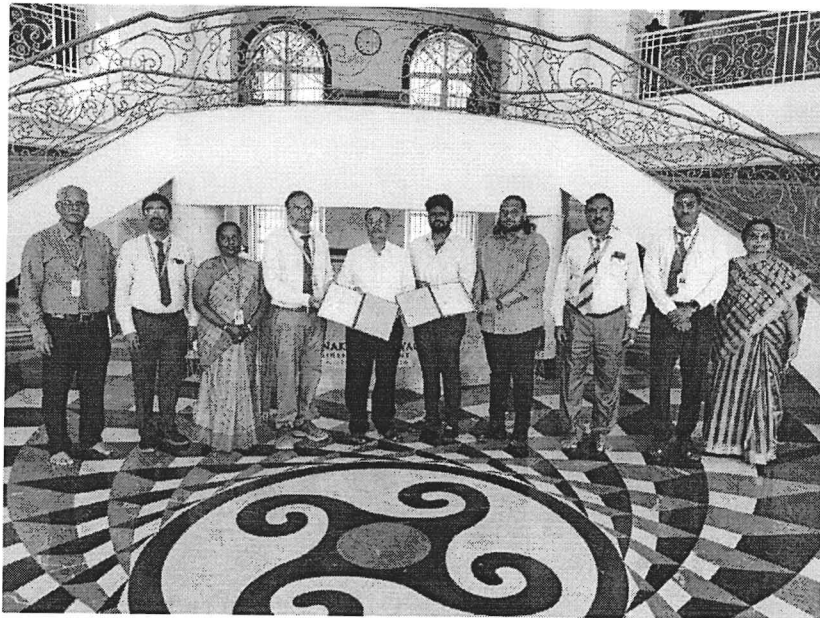


SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE
(An Autonomous Institution)
Puducherry - 605 107

Department of Computer science and engineering

Memorandum of Understanding (MOU)

Academic Year: 2025 – 2026



MoU with Fundamental lab on 17.02.2026

1.PURPOSE OF THE MoU

The purpose of this MoU is to establish a structured industry–academia collaboration aimed at enhancing the professional readiness of B.Tech Computer Science Engineering students by:

- Providing direction and clarity to students regarding skill development and career pathways
- Supporting students in identifying their strengths and areas of interest
- Enabling practical exposure alongside academic learning
- Facilitating the transition from academic knowledge to real-world application
- Internship opportunities for students to gain practical industry exposure.
- Faculty development workshops, including seminars and hands-on training programs.



सत्यमेव जयते

INDIA NON JUDICIAL

Government of Puducherry

₹100

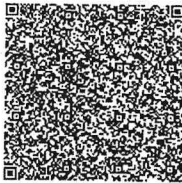
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Certificate No.	: IN-PY97167940418338Y
Certificate Issued Date	: 16-Feb-2026 10:14 AM
Account Reference	: SELFPRINT (PU)/ py-self/ PUDUCHERRY/ PY-PU
Unique Doc. Reference	: SUBIN-PYPY-SELF48427540848938Y
Purchased by	: S M V E C
Description of Document	: Article 4 Affidavit
Property Description	: MOU
Consideration Price (Rs.)	: 0 (Zero)
First Party	: SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE
Second Party	: FUNDAMENTALS LABS
Stamp Duty Paid By	: SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE
Stamp Duty Amount(Rs.)	: 100 (One Hundred only)

सत्यमेव जयते

₹100



SELF PRINTED CERTIFICATE TO BE VERIFIED BY THE RECIPIENT AT WWW.SHCILESTAMP.COM

IN-PY97167940418338Y

Please write or type below this line

Statutory Alert:

1. The authenticity of this Stamp certificate should be verified at 'www.shcilestamp.com' or using e-Stamp Mobile App of Stock Holding. Any discrepancy in the details on this Certificate and as available on the website / Mobile App renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

PREAMBLE:

This Memorandum of Understanding (hereinafter referred to as "MoU") is entered into on this **17th** day of **February 2026**, by and between:

Fundamentals Labs, a technology and digital solutions organization specializing in custom software development, digital transformation, and professional technical training, having its principal place of business at **No.81A, Mariamman Nagar Main Road, Karamanikuppam, Mudaliarpet, Puducherry – 605004** (hereinafter referred to as "Fundamentals"),

AND

Sri Manakula Vinayagar Engineering College (SMVEC), an autonomous engineering institution offering undergraduate programs in engineering and technology, having its campus at **Madagadipet, Mannadipet Commune, Puducherry – 605107** (hereinafter referred to as "the Institution").

The Fundamentals and institution are hereinafter individually referred to as a "Party" and collectively as "the Parties".

1. PURPOSE OF THE MoU

The purpose of this MoU is to establish a structured industry–academia collaboration aimed at enhancing the professional readiness of B.Tech Computer Science Engineering students by:

- Providing direction and clarity to students regarding skill development and career pathways
- Supporting students in identifying their strengths and areas of interest
- Enabling practical exposure alongside academic learning
- Facilitating the transition from academic knowledge to real-world application
- Internship opportunities for students to gain practical industry exposure.
- Faculty development workshops, including seminars and hands-on training programs.

2. OBJECTIVES

The objectives of this MoU include:

- Bridging the gap between academic curriculum and industry expectations
- Guiding students toward focused and consistent skill development
- Encouraging hands-on learning through projects, mentorship, and practice
- Improving employability, confidence, and career awareness among students
- Creating an environment that supports long-term professional growth.

3. SCOPE OF COLLABORATION

The collaboration under this MoU may include the following activities, subject to mutual consent:

3.1 Technical Training & Skill Development

Industry-oriented training in areas such as:

- Python, Java, and Full Stack Development, including databases such as Firebase and MongoDB
- Web Technologies and UI/UX Design
- Software engineering tools, workflows, and best practices

3.2 Mentorship & Guided Learning

Regular mentorship interactions focused on:

- Understanding student interests and current skill levels
- Setting achievable short-term and long-term learning goals
- Providing continuous guidance and progress feedback
- Sessions designed to complement academic learning without academic pressure

3.3 Workshops, Seminars & Expert Sessions

- Guest lectures and workshops by industry professionals
- Exposure to emerging technologies, industry practices, and career opportunities

3.4 Practical Exposure & Real-World Application

Encouragement and guidance for:

- Domain-wise project guidance during workshops
- Mini practical assignments aligned with industry use cases
- Internships or experiential learning opportunities, subject to availability

4. EXPECTED OUTCOMES

Through this collaboration:

- Students will gain better clarity on their skills and potential career directions
- Students will develop practical, industry-relevant competencies
- Students will experience early exposure to real-world problem solving
- Students will build confidence, communication ability, and self-direction
- A culture of continuous learning and professional growth will be fostered

5. ROLES AND RESPONSIBILITIES

5.1 Responsibilities of Fundamentals Labs

- Design and deliver training, mentorship, and guidance sessions
- Provide qualified industry professionals as mentors or trainers
- Share practical insights, industry expectations, and best practices
- Monitor progress and provide constructive feedback

5.2 Responsibilities of the Institution

- Identify and nominate interested and eligible students
- Provide necessary infrastructure and coordination support
- Appoint a faculty coordinator for effective implementation
- Ensure academic alignment, student participation, and discipline

6. IMPLEMENTATION & COORDINATION

- Both Parties shall appoint an MoU Coordinator
- Program schedules, duration, and modes of delivery shall be mutually agreed upon
- Activities may be conducted in offline, online, or hybrid formats

7. INTELLECTUAL PROPERTY RIGHTS

Any intellectual property created jointly shall be governed by mutually agreed written terms. Pre-existing intellectual property of each Party shall remain the sole property of that Party

8. CONFIDENTIALITY

Both Parties agree to maintain confidentiality of proprietary or sensitive information shared during the course of this collaboration.

9. FINANCIAL COMMITMENTS

This MoU does not impose any financial obligation on either Party unless explicitly agreed upon in writing through a separate agreement.

10. DURATION AND TERMINATION

- This MoU shall come into effect from the date of signing.
- The MoU shall be renewed every **one (1) year**
- Either Party may terminate this MoU with **30 days'** written notice

11. AMENDMENTS

Any amendment or modification shall be made in writing and signed by authorized representatives of both Parties.

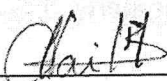
12. NON-EXCLUSIVITY

This MoU is non-exclusive in nature

SIGNATURES

IN WITNESS WHEREOF, the Parties hereto have signed this Memorandum of Understanding on the day, month, and year first written above.

For Fundamentals Labs

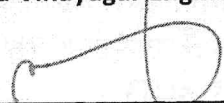
Signature:  _____

Name: Harish Baskaran

Designation: Founder & CEO

Date: 17.02.2026

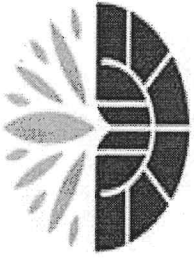
For Sri Manakula Vinayagar Engineering College

Signature:  _____

Name: Dr. V. S. K. Venkatachalapathy .

Designation: Director cum Principal

Date: 17.02.2026

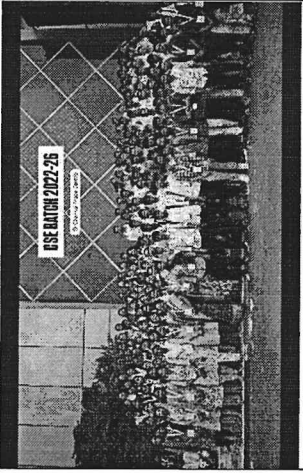



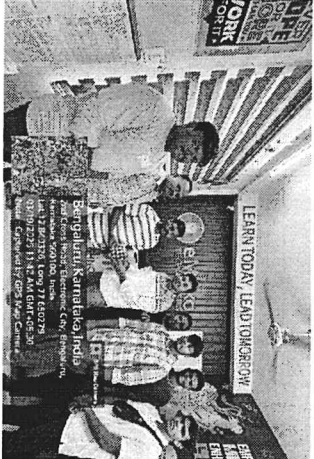
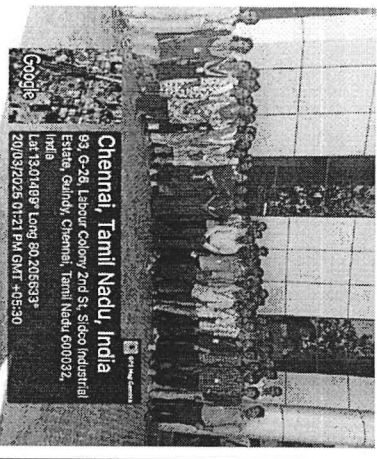
SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
AN AUTONOMOUS INSTITUTION

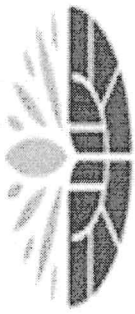


DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

INDUSTRIAL VISIT

S. No	BATCH	YEAR	SEMESTER	TOTAL STUDENTS	INDUSTRY NAME	LOCATION	DATE OF VISIT	PHOTOS
1.	2022-2026	III	VI	195	UMGINE ICT ACADEMY	Trade Centre, Chennai	09.02.2025	
2.	2023-2027	II	IV	163	Excerpt Technologies Private Limited	2nd Floor, B133/1, KSSIDC ITI Estate, Whitefield Road, Mahadevpura Post Bangalore, Karnataka-560048	18/03/2025	

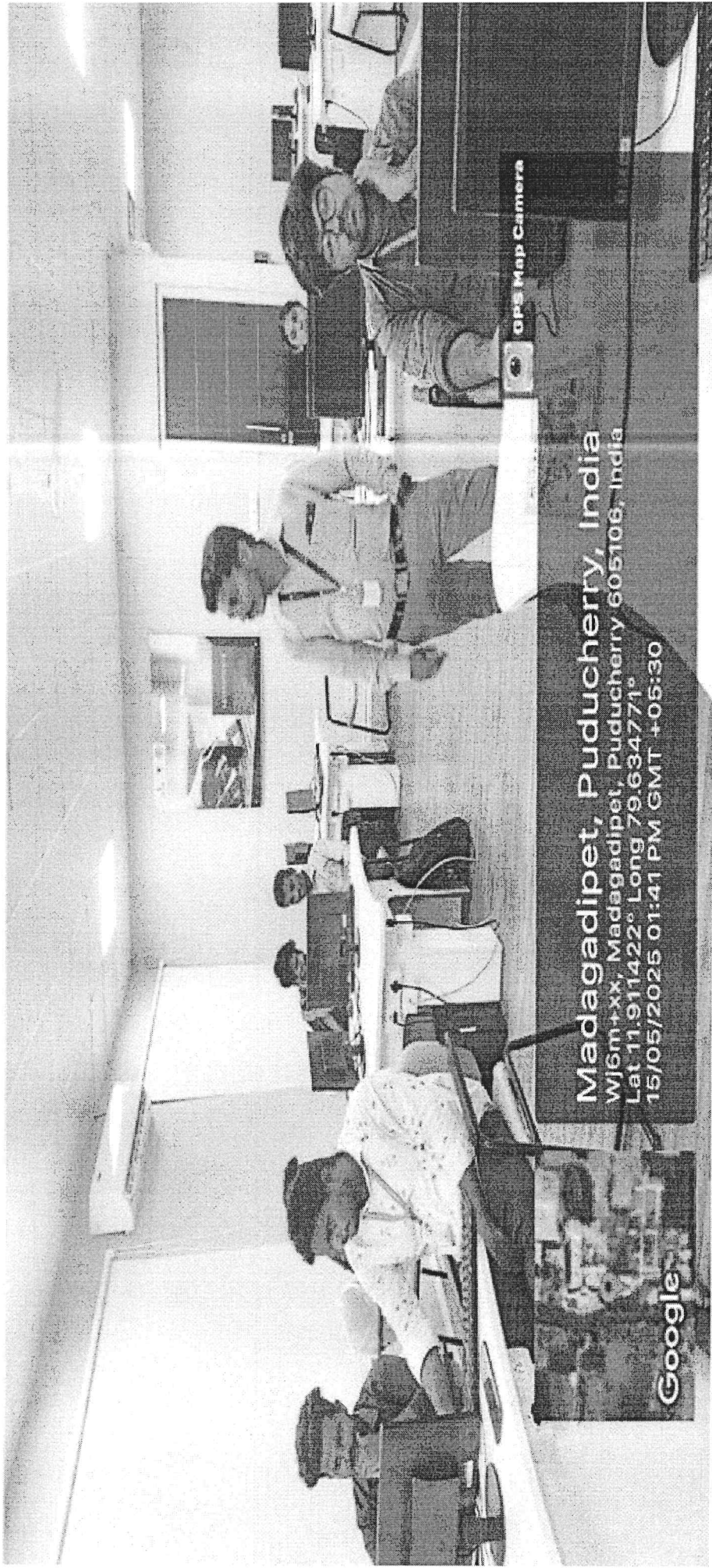
3.	2023-2027	II	IV	163	<p>eMexo Technologies</p> <p>219, First Floor, Nagalaya, 3rd Cross Road, Neeladri Nagar, Electronics City Phase 1, Electronic City, Bengaluru, Karnataka 560100</p>	<p>19/03/2025</p> 
4.	2024-2028	I	II	280	<p>Central Institute of Petro Chemicals Engineering and Technology</p> <p>T. V.K Industrial Estate Guindy, Chennai 600 032</p>	<p>20.03.2025</p> 



SRI MANAKULA VINAYAGAR 26
ENGINEERING COLLEGE
SRI LAKSHMI NARAYANA PURAM, MADAGADIPET, PUDUCHERRY

DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

Value Added Courses



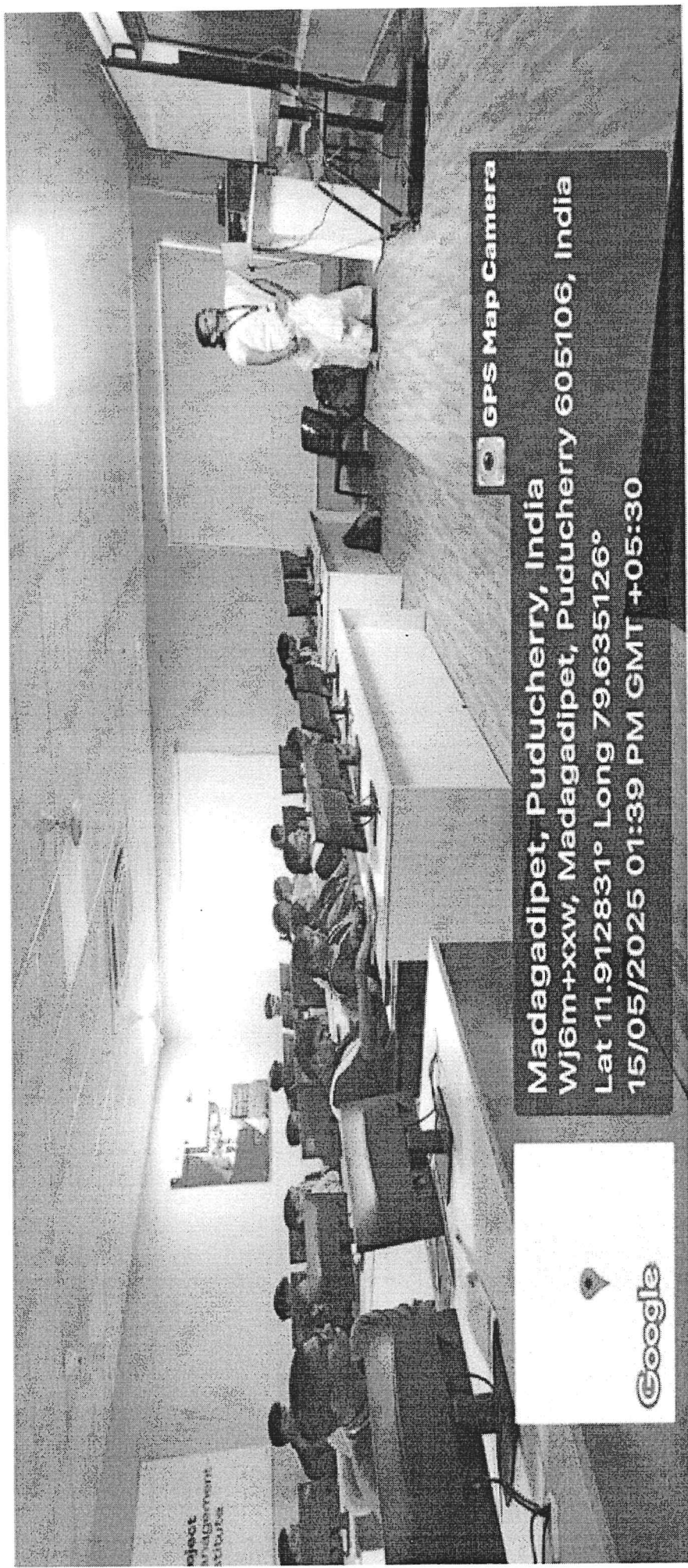
WEB APPLICATION DEVELOPMENT (HTML, CSS and JavaScript)
for First year students (2024 – 2028 batch) by Train Lab Academy



SRI MANAKULA VINAYAGAR 20
ENGINEERING COLLEGE
PUDUCHERRY

DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

Value Added Courses



ADVANCE C PROGRAMMING

for First year students (2024 – 2028 batch) II semester by Train Lab Academy



SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(AN AUTONOMOUS INSTITUTION)
(APPROVED BY AICTE, NEW DELHI AND AFFILIATED TO PONDICHERRY UNIVERSITY)
(ACCREDITED BY NBA-AICTE, NEW DELHI, ACCREDITED BY NAAC WITH "A" GRADE)
MADAGADIPET, PUDUCHERRY - 605 107



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

2024-2025 STUDENTS ACHIEVEMENTS

S.NO	STUDENT NAME	EVENT NAME	EVENT DATE	ORGANIZED BY	PRIZE WON
1.	SURENDHAR.S	INTRA-INSTITUTIONAL INNOVATION CHALLENGE ON CREATIVITY WITH PYTHON	15.04.2025 & 16.04.2025	SMVEC	FIRST PRIZE
2.	PRABU.D	INTRA-INSTITUTIONAL INNOVATION CHALLENGE ON CREATIVITY WITH PYTHON	15.04.2025 & 16.04.2025	SMVEC	FIRST PRIZE
3.	SWATHIKA JENANI.J	26 TH STATE ROLLER SKATING CHAMPIONSHIP 2024	18.10.2024, 19.10.2024 & 20.10.2024	GOVERNMENT SKATING RINK	FIRST PRIZE WITH 4 GOLD MEDALS
4.	DEEPAK .T& JAYAPRASATH	Technovation 2K24	28.09.2024	MEC	FIRST PRIZE
5.	CHANDRAMOULI.S	NETWORKING EVENT	30.07.2025	SMVEC	FIRST PLACE WITH 500 CASH PRIZE
6.	KARTHIK.N	PONDICHERRY HERITAGE FESTIVAL	19.02.2025	PPH	SECOND PLACE
7.	ARJUN SIDHARTH.S	RAPID CHESS TOURNAMENT	29.12.2024	MVIT	FIFTH PLACE WITH Rs.6500 CASH PRIZE
8.	ARJUN SIDHARTH.S	INTERNATIONAL CHESS TOURNAMENT	30.03.2025	MVIT	SEVENTH PLACE WITH Rs.5000 CASH PRIZE
9.	ARJUN SIDHARTH.S	SRM RATED CHESS TOURNAMENT	15.05.2025 TO 18.05.2025	SRM	SIXTEENTH PLACE WITH 6000 CASH PRIZE
10.	KRISHNA KUMAR .D	PRESENTATION ABOUT MATHEMATICIAN	14.03.25	SMVEC	THIRD PRIZE
11.	VIDHYA SRI.S , BHAVADHARAN.I.M & KRITHIKA PRABHA V.N	MITILENCE	14.03.2025	MVIT	THIRD PRIZE
12.	VARSHASATHIYASE ELAN & DHESHNA.B	Technovation 2K24	28.09.24	MEC	Third Prize and was awarded a cash prize of ₹500
13.	MIDHULANI .J	National-Level Intercollegiate Technical Event.	07.02.2025 & 08.02.2025	VEC	SPECIAL MENTION
14.	DEEPAK .T & BARANIDHARAN	ACETCM 2024	12.09.2024	AEC	FIRST PRIZE
15.	DEEPAK .T	Gyanith 2025	28.02.2025	NITP	FIRST PRIZE

16.	HEMAPRIYA	CYBERCREST 2K25	18.02.2025	ARCIST	THIRD PRIZE
17.	MUGILAN, KEISHORE, KAVIYA VARDHINI, DHANYASRI & SANSKRITHA	CYBERCREST 2K25	18.02.2025	ARCIST	FIRST PRIZE
18.	AMISH S.R	Tech Tonic Software Hackathon'25	28.02.2025	NIT	FIRST PRIZE
19.	AMISH S.R	The Math works Cody Challenge	2025	SMVEC	FIRST PRIZE
20.	ARUTSELVY	Sciensea'24	05.10.2024	KEC	SECOND PRIZE
21.	RAMYA R SENGUTTUVAN	ICT Academy Youth Talk 2024	14.10.2024	SMVEC	FIRST PRIZE
22.	SANDHIYA.M	ANALYTICAL SKILL TEST	07.12.2024	SMVEC	THIRD PRIZE
23.	SRI HARINI.K	ANALYTICAL SKILL TEST	07.12.2024	SMVEC	THIRD PRIZE
24.	SIVASANKAR.S	ANALYTICAL SKILL TEST	07.12.2024	SMVEC	SECOND PRIZE
25.	SUSHANT .S	MARCH PAST COMPETITION	26.01.2025	SMVEC	FIRST PRIZE
26.	SHARATH JAYAN .G.M	15 TH PROJECT EXPO	28.02.2025	MIT	SECOND PRIZE
27.	LEENA ROSE MARY	TAMIL ORATORY	08.03.2025	SMVEC	
28.	ARJUN SIDHARTH	NATIONAL TEAM CHESS CHAMPIONSHIP	05.03.2025 TO 11.03.2025	AICF	TENTH PLACE WITH Rs.10000 CASH PRIZE
29.	SOWNDARYA	PI DAY CELEBRATION	14.03.2025	SMVEC	FIRST PRIZE
30.	BARANIDHARAN.K	MITILENCE	14.03.2025	MVIT	FIRST PRIZE
31.	PRIYADHARSHINI.S	CODER MANIA	28.03.2025	SKILS 24	FIRST PRIZE
32.	MANOJ D	CODER MANIA	28.03.2025	SKILS 24	FIRST PRIZE
33.	NIVEDHIKA.K	CODER MANIA	28.03.2025	SKILS 24	FIRST PRIZE
34.	MUKILAN.M	INFONIX DEBUGGING	16.11.24	VEC	SECOND PLACE WITH Rs.600 CASH PRIZE
35.	MOHAMED BASHID .J	CONCEPT EDITING	30.04.2025	SMVEC	SECOND PRIZE
36.	YUVANESH.P	CONCEPT EDITING	30.04.2025	SMVEC	FIRST PRIZE
37.	AMISH S.R	Gyanith 2025	27.02.2025 & 28.02.2025	NIT	FIRST PRIZE
38.	DHARANYA.S	MITILENCE 2025 Code Clash	14.03.2025	MVIT	FIRST PRIZE
39.	VAISHNAVI.G	MITILENCE 2025 Circuit Debugging event	14.03.2025	MVIT	SECOND PRIZE
40.	RAKSHYA DEVI	ACETCM 2024	2025	ACET	THIRD PRIZE
41.	THULASIKA.K	CODE DEBUGGING	12.09.2024	ACET	FIRST PRIZE
42.	JANANI.P	CODE DEBUGGING	12.09.2024	ACET	SECOND PRIZE
43.	VAISHNAVI.G	MITILENCE 2025 Code Clash	14.03.2025	MVIT	FIRST PRIZE

ANNEXURE -V



RESULT ANALYSIS
January 2026

Department	Computer Science & Engineering		
Year/ Semester/ Section	IV	VII	A

S. No	Subject	Staff Handled	No. of students appeared	No. of students cleared	No. of absents	Percentage of result
1	IoT and Edge Computing	Dr.M.Ganesan	65	65	-	100%
2	Data Science and Digital Marketing Analytics	Mrs.P.Bhavani	65	65	-	100%
3	Professional Elective – IV- Virtual Reality	Dr.M.Shanmugam	65	65	-	100%
4	Automation Techniques & Tools- DevOps	Mrs.Valarmathy . E	65	65	-	100%
5	Business Basics for Entrepreneur	Mrs.Deepa S	65	65	-	100%
6	IoT and Edge Computing Laboratory	Dr.M.Ganesan	65	65	-	100%
7	Data Science and Digital Marketing Analytics Laboratory	Mrs.P.Bhavani	65	65	-	100%
8	Comprehensive Viva-Voce	Mr.B.Thiyagarajan	65	65	-	100%
9	Project phase – I	Dr.M.Ganesan	65	65	-	100%
10	Internship / Inplant Training	Dr.M.Ganesan	65	65	-	100%
11	Professional Ethics	Mrs.Mohanapriya	65	65	-	100%

Total no. of students appeared	65
No. of students passed in all the subjects	65
Pass percentage in VII semester	100%

No. of arrears	1	2	3	4	5	6	7	8	9	10	11
No. of students	-	-	-	-	-	-	-	-	-	-	-

18/1/26
Head of the Department
[Dr.N.Danapaquiame]

Dean Placement
[Dr.N.S.N.Cailassame]

Director cum Principal
[Dr. V.S.K. Venkatachalapathy]




RESULT ANALYSIS
January 2026


Department	Computer Science & Engineering		
Year/ Semester/ Section	IV	VII	B

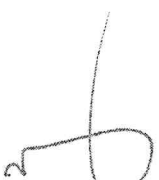
S. No	Subject	Staff Handled	No. of students appeared	No. of students cleared	No. of absents	Percentage of result
1	IoT and Edge Computing	Mr.Logaiyan . P	65	64	-	98
2	Data Science and Digital Marketing Analytics	Mr. Arokiaraj St. Hubert	65	65	-	100
3	Professional Elective - IV- Virtual Reality	Ms. A. Mohanapriya	65	64	-	98
4	Automation Techniques & Tools-DevOps	Mrs.Pusphitha Das	65	63	-	96
5	Business Basics for Entrepreneur	Ms.Ramya.G	65	65	-	100
6	IoT and Edge Computing Laboratory	Mr.Logalyan	65	65	-	100
7	Data Science and Digital Marketing Analytics Laboratory	Mr. Aroklaraj St. Hubert	65	65	-	100
8	Comprehensive Viva-Voce	Mr. P. Karthikeyan	65	65	-	100
9	Project phase-1	Dr. M. Shanmugam	65	65	-	100
10	Internship / Inplant Training	Mr. Arokiaraj St. Hubert	65	65	-	100

Total no. of students appeared	65
No. of students passed in all the subjects	61
Pass percentage in VII semester	94

No. of arrears	1	2	3	4	5	6	7	8	9	10	>10
No. of students	4	-	-	-	-	-	-	-	-	-	-


Head of the Department
[Dr.N.Danapaquame]


Dean Placement
[Dr.N.S.N.Cailassame]


Director cum Principal
[Dr. V.S.K. Venkatachalapathy]




RESULT ANALYSIS
January 2026


Department	Computer Science & Engineering		
Year/ Semester/ Section	IV	VII	C

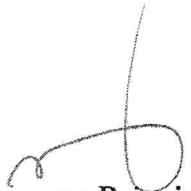
S. No	Subject	Staff Handled	No. of students appeared	No. of students cleared	No. of absents	Percentage of result
1	IoT and Edge Computing	Mr.P.Karthikeyan	65	65	-	100
2	Data Science and Digital Markeing Analytics	Mrs.R.Deepa	65	65	-	100
3	Professional Elective - IV- Virtual Reality	Mr.P.Karthikeyan	65	65	-	100
4	Automation Techniques & Tools-DevOps	Ms.Keerthana	65	64	-	98
5	Business Basics for Entropreneur	Mrs. Visalakshi	65	65	-	100
6	IoT and Edge Computing Laboratory	Mr.P.Karthikeyan	65	65	-	100
7	Data Science and Digital Marketing Analyties Laboratory	Mrs.R.Deepa	65	65	-	100
8	Comprehensive Viva-Voce	Dr.M.Ganesan	65	65	-	100
9	Project phase-1	Dr.N.Danapaquame	65	65	-	100
10	Internship / Inplant Training	Mr.P.Karthikeyan	65	65	-	100

Total no. of students appeared	65
No. of students passed in all the subjects	64
Pass percentage in VII semester	98

No. of arrears	1	2	3	4	5	6	7	8	9	10	>10
No. of students	1	-	-	-	-	-	-	-	-	-	-


Head of the Department
[Dr.N.Danapaquame]


Dean Placement
[Dr.N.S.N.Cailassame]


Director cum Principal
[Dr. V.S.K. Venkatachalapathy]



RESULT ANALYSIS
January 2026

Department	Computer Science & Engineering		
Year/ Semester/ Section	IV	VII	A,B&C

S. No	Subject	Staff Handled	No. of students appeared	No. of students cleared	No. of absents	Percentage of result
1	IoT and Edge Computing	Dr.M.Ganesan Mr.P.Karthikeyan Mr.Logaiyan . P	195	194	-	99
2	Data Science and Digital Markeing Analytics	Mrs.P.Bhavani Mrs.R.Deepa Mr. Arokiaraj St. Hubert	195	195	-	100
3	Professional Elective - IV-Virtual Reality	Dr.M.Shanmugam Mr.P.Karthikeyan Ms. A. Mohanapriya	195	194	-	99
4	Automation Techniques & Tools- DevOps	Mrs.Pusphitha Das Mrs.Valarmathy.E Ms.Keerthana	195	192	-	98
5	Business Basics for Entropreneur	Ms.Ramya.G Mrs.Deepa S Mrs.Visalakshi	195	195	-	100
6	IoT and Edge Computing Laboratory	Dr.M.Ganesan Mr.P.Karthikeyan Mr.Logaiyan . P	195	195	-	100
7	Data Science and Digital Marketing Analyties Laboratory	Mrs.P.Bhavani Mrs.R.Deepa Mr. Arokiaraj St. Hubert	195	195	-	100
8	Comprehensive Viva-Voce	Mr. P. Karthikeyan Mr.B.Thiyagarajan Dr.M.Ganesan	195	195	-	100
9	Project phase-1	Dr.N.Danapaquiame Dr.M.Ganesan Dr. M. Shanmugam	195	195	-	100
10	Internship / Inplant Training	Dr.M.Ganesan Mr. Arokiaraj St. Hubert Mr.P.Karthikeyan	195	195	-	100

Total no. of students appeared	195
No. of students passed in all the subjects	190
Pass percentage in VII semester	97

No. of arrears	1	2	3	4	5	6	7	8	9	10	>10
No. of students	5	-	-	-	-	-	-	-	-	-	-

[Signature]
Head of the Department
[Dr.N.Danapaquiame]

[Signature]
Dean Placement
[Dr.N.S.N.Cailassame]

[Signature]
Director cum Principal
[Dr. V.S.K. Venkatachalapathy]



RESULT ANALYSIS
January 2026

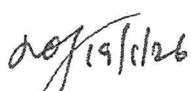
Department	Computer Science & Engineering		
Year/ Semester/ Section	III	V	A

S. No	Subject	Staff Handled	No. of students appeared	No. of student cleared	No. of absents/ withheld	Percentage of result
1	Research Methodology	Mr. Vinoth	58	57	1	98%
2	Cloud Computing	Ms.A.Amala Margret	58	57	1	98%
3	Artificial Intelligence	Mrs. N. Suganya	58	57	1	98%
4	Web Designing	Mr. D. Rajesh	58	57	1	98%
5	Professional Elective II: Network Security	Mr. Arokiyaraj St Hubert	23	23	0	100%
6	Professional Elective II: Software Project Management	Dr. Saravanan	35	34	1	98%
7	Open Elective I: Biometric Systems	Mr. Vadivelan	51	50	1	98%
8	Open Elective I: Sensors of Engineering Application	Dr. Naveen Kumar	07	06	1	90%
9	Cloud Computing Laboratory	Ms.A. Amala Margret	58	57	1	98%
10	Artificial Intelligence Laboratory	Mrs. N. Suganya	58	57	1	98%
11	Web Designing Laboratory	Mr. D. Rajesh	58	57	1	98%
12	Micro Project	Mr. Arokiyaraj St Hubert	58	57	1	98%

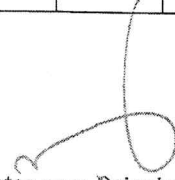
Total no. of students appeared	65
No. of students passed in all the subjects	63
Pass percentage in V semester	97%

*Withheld-1

No. of arrears	1	2	3	4	5	6	7	8	9	10	>10
No. of students	1	1	-	-	-	-	-	-	-	-	-


Head of the Department
[Dr.N.Danapaquiamel]


Dean Placement
[Dr.N.S.N.Cailassame]


Director cum Principal
[Dr.V.S.K.Venkatachalapathy]



RESULT ANALYSIS
January 2026

Department	Computer Science & Engineering		
Year/ Semester/ Section	III	V	B

S. No	Subject	Staff Handled	No. of students appeared	No. of students cleared	No. of absent	Percentage of result
1	Research Methodology	Ms.H.Diviya	60	60	-	100%
2	Cloud Computing	Mr.Rajadurai	60	59	-	98%
3	Artificial Intelligence	Dr.N.Pazhaniraja	60	60	-	100%
4	Web Designing	Mr.P.Karthikeyen	60	60	-	100%
5	Professional Elective II: Network Security	Mr.Arokiaraj Christian St.Hubert	10	09	-	90%
6	Professional Elective II: Software Project Management	Ms.A. Amala Margret	50	50	-	100%
7	Open Elective I: Biometric Systems	Mr.Babu	29	29	-	100%
8	Open Elective I: Sensors of Engineering Application	Dr.Naveenkumar	31	31	-	100%
9	Cloud Computing Laboratory	Mr.Rajadurai	60	60	-	100%
10	Artificial Intelligence Laboratory	Dr.N.Pazhaniraja	60	60	-	100%
11	Web Designing Laboratory	Mr.P.Karthikeyen	60	60	-	100%
12	Micro Project	Dr.N.Pazhaniraja	60	60	-	100%

Total no. of students appeared	60
No. of students passed in all the subjects	59
Pass percentage in V semester	98%

No. of arrears	1	2	3	4	5	6	7	8	9	10	>10
No. of students	-	1	-	-	-	-	-	-	-	-	-

18/1/26
Head of the Department
[Dr.N.Danapaquame]

Dr.N.S.N.Cailassame
[Dr.N.S.N.Cailassame]

Director cum Principal
[Dr.V.S.K.Venkatachalapathy]



RESULT ANALYSIS
January 2026

Department	Computer Science & Engineering		
Year/ Semester/ Section	III	V	C

S. No	Subject	Staff Handled	No. of students appeared	No. of students cleared	No. of absent	Percentage of result
1	Research Methodology	Mrs. Deepa. S	57	57	-	100%
2	Cloud Computing	Mrs. Nirmala Devi	57	57	-	100%
3	Artificial Intelligence	Mr. Kumarakrishnan. S	57	57	-	100%
4	Web Designing	Mr. K.Anbuthiruvarangan	56	56	1	100%
5	Professional Elective II: Network Security	Mr.Arokiaraj Christian St.Hubert	27	27	-	100%
6	Professional Elective II: Software Project Management	Dr. Saravanan	30	30	-	100%
7	Open Elective I: Biometric Systems	Mr. M. Vadivelan Mr. Babu	38	38	-	100%
8	Open Elective I: Sensors of Engineering Application	Dr. Naveenkumar	19	19	-	100%
9	Cloud Computing Laboratory	Mrs. Nirmala Devi	57	57	-	100%
10	Artificial Intelligence Laboratory	Mr. Kumarakrishnan. S	57	57	-	100%
11	Web Designing Laboratory	Mr. K.Anbuthiruvarangan	57	57	-	100%
12	Micro Project	Dr.N.Pazhaniraja	57	57	-	100%

Total no. of students appeared	57
No. of students passed in all the subjects	56
Pass percentage in V semester	98%

No. of arrears	1	2	3	4	5	6	7	8	9	10	>10
No. of students	-	-	-	-	-	-	-	-	-	-	-

Head of the Department
[Dr.N.Danapaquiame]

Dean Placement
[Dr.N.S.N.Cailassame]


Director cum Principal
[Dr.V.S.K.Venkatachalapathy]




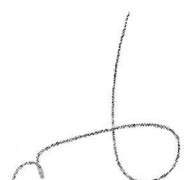
RESULT ANALYSIS
January 2026

Department	Computer Science & Engineering		
Year/ Semester/ Section	III	V	A,B&C

S. No	Subject	Staff Handled	No. of students appeared	No. of students cleared	No. of absent/withheld	Percentage of result
1	Research Methodology	Mr. Vinoth Ms.H.Diviya Mrs. Deepa. S	175	174	1	99%
2	Cloud Computing	Ms.A.Amala Margret Mr.Rajadurai Mrs. Nirmala Devi	175	173	1	99%
3	Artificial Intelligence	Mrs. N. Suganya Dr.N.Pazhaniraja Mr. Kumarakrishnan. S	175	174	1	99%
4	Web Designing	Mr. D. Rajesh Mr.P.Karthikeyen Mr. K.Anbuthiruvarangan	175	173	2	99%
5	Professional Elective II: Network Security	Mr.Arokiaraj Christian St.Hubert	60	58	1	96%
6	Professional Elective II: Software Project Management	Dr. Saravanan Ms.A. Amala Margret	115	114	1	99%
7	Open Elective I: Biometric Systems	Mr. M. Vadivelan Mr. Babu	118	117	1	99%
8	Open Elective I: Sensors of Engineering Application	Dr. Naveen Kumar	57	56	1	99%
9	Cloud Computing Laboratory	Ms.A.Amala Margret Mr.Rajadurai Mrs. Nirmala Devi	175	174	1	99%
10	Artificial Intelligence Laboratory	Mrs. N. Suganya Dr.N.Pazhaniraja Mr. Kumarakrishnan. S	175	174	1	99%
11	Web Designing Laboratory	Mr. D. Rajesh Mr.P.Karthikeyen Mr. K.Anbuthiruvarangan	175	174	1	99%
12	Micro Project	Mr.Arokiaraj Christian St.Hubert Dr.N.Pazhaniraja	175	174	1	99%


Head of the Department
[Dr.N.Danapaquiame]


Dean Placement
[Dr.N.S.N.Cailassame]


Director cum Principal
[Dr.V.S.K.Venkatachalapathy]




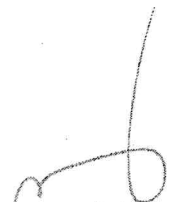
Total no. of students appeared	175
No. of students passed in all the subjects	171
Pass percentage in V semester	98%

***Withheld-1**

No. of arrears	1	2	3	4	5	6	7	8	9	10	>10
No. of students	1	2	-	-	-	-	-	-	-	-	-

19/11/26
Head of the Department
[Dr.N.Danapaquiame]


Dean Placement
[Dr.N.S.N.Caillassame]


Director cum Principal
[Dr.V.S.K.Venkatachalapathy]




RESULT ANALYSIS
January 2026


Department	Computer Science & Engineering		
Year/ Semester/ Section	II	III	A

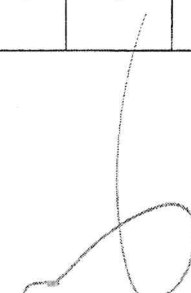
S. No	Subject	Staff Handled	No. of students appeared	No. of students cleared	No. of absents	Percentage of result
1	Probability and Statistics	Mr.T.Sankar	59	57	-	97%
2	Embedded System Architecture and Interfacing	Mrs.C.Karthika	59	59	-	100%
3	Software Engineering and Testing	Mr.K.Anbuthiruvarangan	59	56	-	95%
4	Automata and Compiler Design	Mrs.S.Deeba	59	59	-	100%
5	Computer Networks	Ms.V.Nivetha	59	59	-	100%
6	Design and Analysis of Algorithms	Mrs.R.Deepa	59	57	-	97%
7	General Proficiency - I	Mrs.G.Namitha	59	59	-	100%
8	Engineering Mathematics Laboratory	Mr.T.Sankar	59	59	-	100%
9	Embedded System Architecture and Interfacing Laboratory	Mrs.C.Karthika	59	59	-	100%
10	Software Engineering and Testing Laboratory	Mr.K.Anbuthiruvarangan	59	59	-	100%

Total no. of students appeared	59
No. of students passed in all the subjects	52
Pass percentage in III semester	88%

No. of arrears	1	2	3	4	5	6	7	8	9	10	>10
No. of students	7	-	-	-	-	-	-	-	-	-	-


Head of the Department
[Dr.N.Danapaquame]


Dean Placement
[Dr.N.S.N.Caillassame]


Director cum Principal
[Dr.V.S.K.Venkatachalapathy]



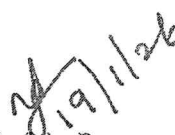
RESULT ANALYSIS
January 2026

Department	Computer Science & Engineering		
Year/ Semester/ Section	II	III	B

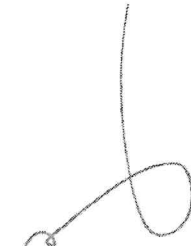
S. No	Subject	Staff Handled	No. of students appeared	No. of students cleared	No. of absents	Percentage of result
1	Probability and Statistics	Mrs. D. Dheebia	60	56	-	93%
2	Embedded System Architecture and Interfacing	Ms. V. Nivetha	60	59	-	98%
3	Software Engineering and Testing	Mr.D.Rajesh	60	55	-	92%
4	Automata and Compiler Design	Mrs. S.Deeba	60	57	-	95%
5	Computer Networks	Ms. A. Mohanapriya	60	60	-	100%
6	Design and Analysis of Algorithms	Mrs.N.Suganya	60	55	-	92%
7	General Proficiency - I	Mrs. G. Namita	60	59	-	98%
8	Engineering Mathematics Laboratory	Mrs. D. Dheebia	60	60	-	100%
9	Embedded System Architecture and Interfacing Laboratory	Ms. V. Nivetha	58	58	2	100%
10	Software Engineering and Testing Laboratory	Mr.D.Rajesh	58	58	2	100%

Total no. of students appeared	60
No. of students passed in all the subjects	53
Pass percentage in III semester	88

No. of arrears	1	2	3	4	5	6	7	8	9	10	>10
No. of students	2	1	2	1	1	-	-	-	-	-	-


Head of the Department
[Dr.N.Danapaquiame]


Dean Placement
[Dr.N.S.N.Cailassame]


Director cum Principal
[Dr.V.S.K.Venkatachalapathy]



RESULT ANALYSIS
January 2026

Department	Computer Science & Engineering		
Year/ Semester/ Section	II	III	C

S. No	Subject	Staff Handled	No. of students appeared	No. of students cleared	No. of absents	Percentage of result
1	Probability and Statistics	Mrs.S.Revathi	60	57	-	95%
2	Embedded System Architecture and Interfacing	Dr. M.SHANMUGAM	60	59	-	98%
3	Software Engineering and Testing	Mrs.S. DEEBA,	60	57	-	95%
4	Automata and Compiler Design	Mr.B.THIYAGARAJAN	60	57	-	95%
5	Computer Networks	Ms.A.Mohanapriya,	60	60	-	100%
6	Design and Analysis of Algorithms	Mrs.R. DEEPA	60	58	-	97%
7	General Proficiency - I	Ms. V. Subhavathi	60	60	-	100%
8	Engineering Mathematics Laboratory	Mrs.S.Revathi	60	60	-	100%
9	Embedded System Architecture and Interfacing Laboratory	Dr. M. SHANMUGAM	60	60	-	100%
10	Software Engineering and Testing Laboratory	Mrs.S. DEEBA,	60	60	-	100%

Total no. of students in the class	60
No. of students passed in all the subjects	54
Pass percentage in III semester	90

No. of arrears	1	2	3	4	5	6	7	8	9	10	>10
No. of students	3	1	1	1	-	-	-	-	-	-	-

18/1/26
Head of the Department
[Dr.N.Danapaquiame]

Dean Placement
[Dr.N.S.N.Cailassame]

Director cum Principal
[Dr.V.S.K.Venkatachalapathy]



RESULT ANALYSIS
January 2026

Department	Computer Science & Engineering		
Year/ Semester/ Section	II	III	D

S. No	Subject	Staff Handled	No. of students appeared	No. of students cleared	No. of absents	Percent age of result
1	Probability and Statistics	Dr. K. Raja	60	58	-	96%
2	Embedded System Architecture and Interfacing	Ms. V. Swathi Lakshmi	60	60	-	100%
3	Software Engineering and Testing	Ms.V.Swathilakshmi	60	60	-	100%
4	Automata and Compiler Design	Mr. B. Thiyagarajan	60	60	--	100%
5	Computer Networks	Ms.T.Pradeeshma	60	60	-	100%
6	Design and Analysis of Algorithms	Mrs. C. Karthika	60	60	-	100%
7	General Proficiency-1	Ms. V. Subhavathi	60	60	-	100%
8	Engineering Mathematics Laboratory	Dr. K. Raja	60	60	-	100%
9	Embedded System Architecture and Interfacing Laboratory	Ms.V.Swathilakshmi	60	60	-	100%
10	Software Engineering and Testing Laboratory	Mr. K.Anbuthiruvaraman	60	60	-	100%

Total no. of students appeared	60
No. of students passed in all the subjects	58
Pass percentage in III semester	96

No. of arrears	1	2	3	4	5	6	7	8	9	10	>10
No. of students	2										

19/1/26
Head of the Department
[Dr.N.Danapaquame]

Dean Placement
[Dr.N.S.N.Cailassame]

Director cum Principal
[Dr.V.S.K.Venkatachalapathy]




RESULT ANALYSIS
January 2026

Department	Computer Science & Engineering		
Year/ Semester/ Section	II	III	E

S. No	Subject	Staff Handled	No. of students appeared	No. of students cleared	No. of absents	Percentage of result
1	Probability and statistics	Mr. T.Sankar	59	57	-	97%
2	Embedded System Architecture and Interfacing	Mrs.P.Nirmala Devi	59	59	-	100%
3	Software Engineering and Testing	Ms. V.Swathilakshmi	59	59	-	100%
4	Automata and Compiler Design	Dr.M.Shanmugam	59	57	-	97%
5	Computer Networks	Mrs.P.Bhavani,	59	59	-	100%
6	Design and Analysis of Algorithms	Mr.S.Kumarakrishnan	59	57	-	97%
7	General Proficiency - I	Ms. V. Subhavathi	59	59	-	100%
8	Engineering Mathematics Laboratory	Mr. T.Sankar	59	59	-	100%
9	Embedded System Architecture and Interfacing Laboratory	Mrs.P.Nirmala Devi	59	59	-	100%
10	Software Engineering and Testing Laboratory	Ms. V.Swathilakshmi	59	59	-	100%

Total no. of students appeared	59
No. of students passed in all the subjects	55
Pass percentage in III semester	93%

No. of arrears	1	2	3	4	5	6	7	8	9	10	>10
No. of students	2	2	-	-	-	-	-	-	-	-	-


Head of the Department
[Dr.N.Danapaquiame]


Dean Placement
[Dr.N.S.N.Cailassame]

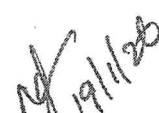

Director cum Principal
[Dr.V.S.K.Venkatachalapathy]




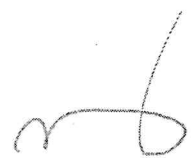
RESULT ANALYSIS
January 2026

Department	Computer Science & Engineering		
Year/ Semester/ Section	II	III	A,B,C,D & E

S. No	Subject	Staff Handled	No. of students appeared	No. of students cleared	No. of absents	Percentage of result
1	Probability and Statistics	Mr.T.Sankar Mrs.D.Dheebia Mrs.S.Revathi Dr. K. Raja	298	285	-	96%
2	Embedded System Architecture and Interfacing	Mrs.C.Karthika Ms. V. Nivetha Dr. M.Shanmugam Ms.V. Swathi Lakshmi Mrs.P.Nirmala Devi	298	296	-	99%
3	Software Engineering and Testing	Mrs.S.Deeba Mr.K.Anbuthiruvaraman Mr.D.Rajesh Ms. V. Swathilakshmi	298	287	-	96%
4	Automata and Compiler Design	Dr.M.Shanmugam Mr.B.Thiyagarajan Mrs. S. Deeba	298	290	-	97%
5	Computer Networks	Mrs.P.Bhavani Ms.A.Mohanapriya, Ms.T.Pradeeshma Ms.V.Nivetha	298	298	-	100%
6	Design and Analysis of Algorithms	Mrs.R.Deepa Mrs.N.Suganya Mr.S.Kumarakrishnan Mrs.C.Karthika	298	287	-	96%
7	General Proficiency - I	Mrs.G.Namitha Ms. V. Subhavathi	298	297	-	99%
8	Engineering Mathematics Laboratory	Mr.T.Sankar Mrs.D.Dheebia Mrs.S.Revathi Dr. K. Raja	298	298	-	100%
9	Embedded System Architecture and Interfacing Laboratory	Mrs.C.Karthika Ms. V. Nivetha Dr. M.SHANMUGAM Ms.V. Swathi Lakshmi Mrs.P.Nirmala Devi	296	296	2	100%
10	Software Engineering and Testing Laboratory	Mrs.S.Deeba Mr.K.Anbuthiruvaraman Mr.D.Rajesh Ms.V. Swathilakshmi	296	296	2	100%



Head of the Department
[Dr.N.Danapaquame]



Dean Placement
[Dr.N.S.N.Cailassame]

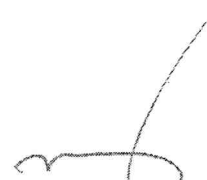

Director cum Principal
[Dr.V.S.K.Venkatachalapathy]

Total no. of students appeared	298
No. of students passed in all the subjects	272
Pass percentage in III semester	91%

No. of arrears	1	2	3	4	5	6	7	8	9	10	>10
No. of students	16	4	3	2	1	-	-	-	-	-	-


Head of the Department
[Dr.N.Danapaquame]


Dean Placement
[Dr.N.S.N.Cailassame]


Director cum Principal
[Dr.V.S.K.Venkatachalapathy]

ANNEXURE -VI



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
HONOURS / MINOR IN CYBERSECURITY
NAMELIST

YEAR/SEM/SEC: III / VI / A

Batch: 2023-2027

S.NO	ENROLL NO	REG.NO	NAME
EEE			
1	231274	23UEE013	ATCHAYAKUMAR S
2	230381	23UEE023	DEVANADAN K
3	231577	23UEE038	GUNANIDHI
4	230901	23UEE074	PUSHPARAJ V
5	231230	23UEE104	VAHEENDRANE R
6	231026	23UEE105	VASANTHAKUMAR S
CSE			
7	231300	23UCS055	GOWRI A
8	230925	23UCS134	RUJULA B
9	230848	23UCS158	SUSHMITHAA S
10	230818	23UCS068	JAGADISWARI S
11	230198	23UCS046	FAUSTINA J
12	231103	23UCS041	DHIVYA R
13	230253	23UCS127	RAMYA R SENGUTTUVAN
14	231359	23UCS137	SADHIKA S M
15	231085	23UCS160	THIRUMURUGAN T
16	230847	23UCS080	KARTHIK M
17	230107	23UCS004	ABISHEK M
18	230907	23UCS010	AKSHAYA KRITHIKA A
19	230833	23UCS049	GAYATHRI J
20	230526	23UCS054	GOPIKA R
21	231338	23UCS058	HARINI A
22	231196	23UCS075	KAAVIYA SALLUSTRE R
23	230831	23UCS078	KALAIVANI A
24	230294	23UCS084	KAVYA B
25	230286	23UCS098	MANI MUGILAN S
26	230140	23UCS142	SHAAME US
27	231533	23UCS144	SHALINI S
28	231017	23UCS145	SHARAN T
29	231367	23UCS150	SIVADARANI L
30	230835	23UCS172	WILSON BERNARD W
31	230754	23UCS067	ISHWARYALAKSHMI D
MCTR (Minor)			
32	230884	23UMT008	BHUWANESH A

33	230045	23UMT037	VIGNESH H
34	230440	23UMT038	VISHNU PRIYAN S T
CCE			
35	231415	23UCC005	AKSHAYA T
36	231231	23UCC010	DEEPAK S
37	231203	23UCC045	SOUNDARIYA S
38	231476	23UCC047	SUBASHINI M
39	231339	23UCC050	SWETHA K
40	231585	23UCC053	VISHAALI R
41	230868	23UCC054	YAMINEE LAKSHAYA S
42	230899	23UCC055	YAMINI S
43	230911	23UCC056	YUVARAJ S
CSBS			
44	231449	23UCB001	ABARNA A
45	231082	23UCB003	ARTHI SANTHANALAKSHMI
46	230954	23UCB005	BALAJI SAKTHIVEL T
47	231296	23UCB006	CAMILLUS PREMKUMAR Y
48	231503	23UCB012	EDISON JAMES F
49	230695	23UCB015	GUHAN R
50	230212	23UCB019	HARISH S
51	231212	23UCB021	HARRI KRISHNAA K
52	230321	23UCB024	JEEVEASH K
53	230837	23UCB030	KEERTHANA K
54	230430	23UCB034	MADHUMITHA R
55	231215	23UCB035	MADHUMITHA V
56	231285	23UCB039	MONISHA K
57	231286	23UCB042	POOJA R
58	231313	23UCB044	RAGUL D
59	231187	23UCB045	ROSHAN P
60	231573	23UCB049	SHAKIL S
61	231008	23UCB051	SRI VARTHINY P
62	230474	23UCB050	P.B. SHRINIVAS
63	230476	23UCB054	SWATHI J
64	230891	23UCB055	SWETHA S

Pazhanisaja
Subject In-charge

ngf
HOD

ngf
Dean Academics

ngf
Director cum-Principal



SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
(AN AUTONOMOUS INSTITUTION)
(APPROVED BY AICTE, NEW DELHI AND AFFILIATED TO PONDICHERRY UNIVERSITY)
(ACCREDITED BY NBA-AICTE, NEW DELHI, ACCREDITED BY NAAC WITH "A" GRADE)
MADAGADIPET, PUDUCHERRY - 605 107



Department of Computer Science and Engineering

The Honours / Minor degree programme is introduced along with the major degree programme in B. Tech curriculum from the 2023-2027 batch onwards under R2023 B. Tech. Regulations. The Registration fee for the programme is Rs. 2500/- (one time only) and the course fee per course is Rs. 5000/- which has to be paid from 4th semester onwards till 8th semester. There is no course fee if a student selects the NPTEL course. The list of students who have enrolled for Honours / Minor degree programme and the fees to be paid for the current semester for the Honours / Minor degree programme is given below.

NAME LIST OF ENROLLED STUDENTS FOR THE HONOURS / MINOR DEGREE PROGRAMME

Name of the Honours degree programme: **CYBER SECURITY**

Offering department: **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

Year / Sem: **II/IV**

Batch: **2024-2028**

Sl. No.	Enroll No.	Register No.	Name of the Student	CGPA (GPA for Lateral Entry)	Name of the Minor degree Programme
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING					
1.	240636	24UCS236	SOUNDARYA DEVI R B	8.19	CYBER SECURITY
2.	240361	24UCS180	R HARSHNI	8.72	CYBER SECURITY
3.	241544	24UCS144	MUKILAN M	8.12	CYBER SECURITY
4.	241564	24UCS225	SHANJJAAY P	8.72	CYBER SECURITY
5.	240645	24UCS082	HEMANATH A K	8.13	CYBER SECURITY
6.	241820	24UCS140	MONISHA R	8.52	CYBER SECURITY
7.	240808	24UCS102	KALAIYARASAN. T	8.72	CYBER SECURITY

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING					
8.	240750	24UEE047	LEENA SHREE T	8.50	CYBER SECURITY
9.	240110	24UEE090	SIVA PRIYA S	8.35	CYBER SECURITY
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING					
10.	241829	24UEC130	PRADIP KUMAR A	8.33	CYBER SECURITY
DEPARTMENT OF INFORMATION TECHNOLOGY					
11.	241046	24UIT009	AKSHANA A	8.47	CYBER SECURITY
12.	241304	24UIT024	BRABAJANIYA M	8.14	CYBER SECURITY
13.	240942	24UIT048	HARINI N	8.70	CYBER SECURITY
14.	241481	24UIT089	MANJUSHRI V S	8.48	CYBER SECURITY
15.	241739	24UIT126	PRIYADHARSHINI R	8.55	CYBER SECURITY
16.	240766	24UIT127	PRIYANKA S	9.35	CYBER SECURITY
17.	240568	24UIT159	SHERIN M	8.12	CYBER SECURITY
18.	241980	24UIT166	SNOLYN CYNTHIA	8.11	CYBER SECURITY
DEPARTMENT OF COMPUTER AND COMMUNICATION ENGINEERING					
19.	241493	24UCC009	DEVA SENATIPATHI R	8.19	CYBER SECURITY
20.	241488	24UCC010	DHANU SRI M	8.30	CYBER SECURITY
21.	240844	24UCC015	FAZEELA M	8.74	CYBER SECURITY
22.	240264	24UCC018	HARIHARAN B	8.10	CYBER SECURITY
23.	241550	24UCC030	MOHITHAPRIYA S	8.56	CYBER SECURITY
24.	241659	24UCC032	NAVEEN K	8.23	CYBER SECURITY
25.	241763	24UCC040	PRASANA VENGATES M	8.35	CYBER SECURITY
26.	241249	24UCC051	SIVARANJANI K	8.63	CYBER SECURITY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING AND BUSINESS SYSTEMS					
27.	240538	24UCB042	RISHI KUMAR S	8.79	CYBER SECURITY
DEPARTMENT OF MECHANICAL ENGINEERING					
28.	241560	24UME053	PRASANNA N	8.85	CYBER SECURITY

ANNEXURE -VII



SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
(An Autonomous Institution)

Puducherry

(As per UGC - 2018 Regulations and Affiliated to Pondicherry University)

PUDUCHERRY – 605107

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

M.TECH.

COMPUTER SCIENCE AND ENGINEERING

(REGULATIONS - 2026)

CURRICULUM AND SYLLABI

CURRICULUM

SEMESTER – I										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	P26MAT103	Mathematical Foundation of Computer Science	BS	2	1	0	3	40	60	100
2	P26CSTD01	Advanced Data Structures and Algorithms	PC	3	0	0	3	40	60	100
3	P26CST102	Advanced Databases	PC	3	0	0	3	40	60	100
4	P26CSTD02	Cloud and Big Data Analytics	PC	3	0	0	3	40	60	100
5	P26HSTC01	Research Methodology and IPR	HS	2	0	0	2	40	60	100
6	P26CSE1XX	Professional Elective – I *	PE	3	0	0	3	40	60	100
Practical										
7	P26CSP101	Advanced Data Structures and Algorithms Laboratory	PC	0	0	4	2	50	50	100
8	P26HSPC01	Technical Report Writing and Seminar	HS	0	0	4	2	100	-	100
Ability Enhancement Course										
9	P26CSC1XX	Certification Course-I #	AEC	0	0	4	-	100	-	100
10	P26ACT10X	Audit Course-I**	AEC	0	0	2	-	100	-	100
							21	590	410	1000

SEMESTER – II										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	P26CST203	Advanced Software Engineering and Testing	PC	3	0	0	3	40	60	100
2	P26CST204	Advanced Operating Systems	PC	3	0	0	3	40	60	100
3	P26CST205	Advanced Python Programming	PC	3	0	0	3	40	60	100
4	P26CST206	Speech and Language Processing	PC	3	0	0	3	40	60	100
5	P26CSE2XX	Professional Elective - II	PE	3	0	0	3	40	60	100
6	P26CSE2XX	Professional Elective - III	PE	3	0	0	3	40	60	100
Practical										
7	P26CSP202	Advanced Python Programming Laboratory	PC	0	0	4	2	50	50	100
8	P26HSPC02	Seminar on ICT: A Hands - On Approach	HS	0	0	4	2	100	-	100
Ability Enhancement Course										
9	P26CSC2XX	Certification Course-II #	AEC	0	0	4	-	100	-	100
10	P26ACT20X	Audit Course-II**	AEC	0	0	2	-	100	-	100
							22	590	410	1000

SEMESTER – III										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	P26CSE1XX	Professional Elective – IV *	PE	3	0	0	3	40	60	100
2	P26CSE1XX	Professional Elective – V *	PE	3	0	0	3	40	60	100
3	P26CSE1XX	Professional Elective – VI *	PE	3	0	0	3	40	60	100
Project Work										
4	P26CSW301	Project Phase - I	PA	0	0	12	6	50	50	100
5	P26CSW302	Internship	PA	0	0	0	2	100	-	100
Ability Enhancement Course										
6	P26CSC301	NPTEL/SWAYAM/MOOC	AEC	0	0	0	-	100	-	100
							17	370	230	600

SEMESTER – IV										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Project Work										
1	P26CSW403	Project Phase - II	PA	0	0	24	12	50	50	100
							12	50	50	100

- * Professional Elective Courses are to be selected from the list given in Annexure I
 # Ability Enhancement Courses are to be selected from the list given in Annexure II
 ** Audit Courses are to be selected from the list given in Annexure III

BS- Basic Sciences

PC – Professional Core

PE – Professional Elective

HS - Humanities and Social Sciences

PA - Professional Activity

CC- Common Course

AC- Audit Course

AEC - Ability Enhancement Course

CREDIT DISTRIBUTION

Semester	I	II	III	IV	Total
Credits	21	22	17	12	72

Total number of credits required to complete
 M.Tech in Computer Science and Engineering : 72 credits

ANNEXURE- I

PROFESSIONAL ELECTIVE COURSES

Sl. No.	Course Code	Course Title
Professional Elective-I		
1	P26CSE101	Cloud Computing Technologies
2	P26CSE102	Cyber Attacks Detection and Prevention Systems
3	P26CSE103	Bio-Inspired Computing
4	P26CSE104	Block Chain and Crypto Currency
5	P26CSE105	Edge Computing
Professional Elective-II		
1	P26CSE106	Information Visualization
2	P26CSE107	Quantum Computing
3	P26CSE108	Soft Computing
4	P26CSE109	Neural Networks
5	P26CSE110	Robotic Process Automation
Professional Elective-III		
1	P26CSE211	Deep Learning
2	P26CSE212	Data Storage Technologies
3	P26CSE213	Reinforcement Learning
4	P26CSE214	Mobile Application and Development
5	P26CSE215	Wireless Sensor Networks and IoT
Professional Elective-IV		
1	P26CSE316	Explainable AI
2	P26CSE317	Cloud Security and Analytics
3	P26CSE318	Pattern Recognition
4	P26CSE319	Game Design and Augmented Reality
5	P26CSE320	AI Ethics & Policy
Professional Elective-V		
1	P26CSE421	Image and Video Analytics
2	P26CSE422	Web Application Security
3	P26CSE423	Generative Artificial Intelligence
4	P26CSE424	Human-Computer Interaction
5	P26CSE425	Intelligent Internet of Things
Professional Elective-VI		
1	P26CSE526	Green Computing
2	P26CSE527	Digital Forensics
3	P26CSE528	NoSQL Databases
4	P26CSE529	Knowledge Engineering and Expert Systems
5	P26CSE530	Industrial IoT



ANNEXURE- II
ABILITY ENHANCEMENT COURSES

Sl. No.	Course Code	Course Title
1	P26XXCX01	Adobe Photoshop
2	P26XXCX02	Adobe Animate
3	P26XXCX03	Adobe Dreamweaver
4	P26XXCX04	Adobe After Effects
5	P26XXCX05	Adobe Illustrator
6	P26XXCX06	Adobe InDesign
7	P26XXCX07	Autodesk AutoCAD -ACU
8	P26XXCX08	Autodesk Inventor - ACU
9	P26XXCX09	Autodesk Revit - ACU
10	P26XXCX10	Autodesk Fusion 360 - ACU
11	P26XXCX11	Autodesk 3ds Max - ACU
12	P26XXCX12	Autodesk Maya - ACU
13	P26XXCX13	Cloud Security Foundations
14	P26XXCX14	Cloud Computing Architecture
15	P26XXCX15	Cloud Foundation
16	P26XXCX16	Cloud Practitioner
17	P26XXCX17	Cloud Solution Architect
18	P26XXCX18	Data Engineering
19	P26XXCX19	Machine Learning Foundation
20	P26XXCX20	Robotic Process Automation / Medical Robotics
21	P26XXCX21	Advance Programming Using C
22	P26XXCX22	Advance Programming Using C ++
23	P26XXCX23	C Programming
24	P26XXCX24	C++ Programming
25	P26XXCX25	CCNP Enterprise: Advanced Routing
26	P26XXCX26	CCNP Enterprise: Core Networking
27	P26XXCX27	Cisco Certified Network Associate - Level 2
28	P26XXCX28	Cisco Certified Network Associate- Level 1
29	P26XXCX29	Cisco Certified Network Associate- Level 3
30	P26XXCX30	Fundamentals Of Internet of Things
31	P26XXCX31	Internet Of Things / Solar and Smart Energy System with IoT
32	P26XXCX32	Java Script Programming
33	P26XXCX33	NGD Linux Essentials
34	P26XXCX34	NGD Linux I
35	P26XXCX35	NGD Linux II



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36	P26XXCX36	Advance Java Programming
37	P26XXCX37	Android Programming / Android Medical App Development
38	P26XXCX38	Angular JS
39	P26XXCX39	Catia
40	P26XXCX40	Communication Skills for Business
41	P26XXCX41	Coral Draw
42	P26XXCX42	Data Science Using R
43	P26XXCX43	Digital Marketing
44	P26XXCX44	Embedded System Using C
45	P26XXCX45	Embedded System with IOT / Arduino
46	P26XXCX46	English For IT
47	P26XXCX47	Plaxis
48	P26XXCX48	Sketch Up
49	P26XXCX49	Financial Planning, Banking and Investment Management
50	P26XXCX50	Foundation Of Stock Market Investing
51	P26XXCX51	Machine Learning / Machine Learning for Medical Diagnosis
52	P26XXCX52	IOT Using Python
53	P26XXCX53	Creo (Modelling & Simulation)
54	P26XXCX54	Soft Skills, Verbal, Aptitude
55	P26XXCX55	Software Testing
56	P26XXCX56	MX-Road
57	P26XXCX57	CLO 3D
58	P26XXCX58	Solid works
59	P26XXCX59	Staad Pro
60	P26XXCX60	Total Station
61	P26XXCX61	Hydraulic Automation
62	P26XXCX62	Industrial Automation
63	P26XXCX63	Pneumatics Automation
64	P26XXCX64	Agile Methodologies
65	P26XXCX65	Block Chain
66	P26XXCX66	Devops
67	P26XXCX67	Artificial Intelligence
68	P26XXCX68	Cloud Computing
69	P26XXCX69	Computational Thinking
70	P26XXCX70	Cyber Security
71	P26XXCX71	Data Analytics
72	P26XXCX72	Databases
73	P26XXCX73	Java Programming



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74	P26XXCX74	Networking
75	P26XXCX75	Python Programming
76	P26XXCX76	Web Application Development (HTML, CSS, JS)
77	P26XXCX77	Network Security
78	P26XXCX78	MATLAB
79	P26XXCX79	Azure Fundamentals
80	P26XXCX80	Azure AI (AI-900)
81	P26XXCX81	Azure Data (DP -900)
82	P26XXCX82	Microsoft 365 Fundamentals (SS-900)
83	P26XXCX83	Microsoft Security, Compliance and Identity (SC-900)
84	P26XXCX84	Microsoft Power Platform (PI-900)
85	P26XXCX85	Microsoft Dynamics Fundamentals 365 – CRM
86	P26XXCX86	Microsoft Excel
87	P26XXCX87	Microsoft Excel Expert
88	P26XXCX88	Securities Market Foundation
89	P26XXCX89	Derivatives Equity
90	P26XXCX90	Research Analyst
91	P26XXCX91	Portfolio Management Services
92	P26XXCX92	Cyber Security
93	P26XXCX93	Cloud Security
94	P26XXCX94	PMI – Ready
95	P26XXCX95	Tally – GST & TDS
96	P26XXCX96	Advance Tally
97	P26XXCX97	Associate Artist
98	P26XXCX98	Certified Unity Programming
99	P26XXCX99	VR Development

ANNEXURE-III

AUDIT COURSES

(Common to all M.Tech Programme)

Sl. No.	Course Code	Course Title
1	P26ACTX01	English for Research Paper Writing
2	P26ACTX02	Disaster Management
3	P26ACTX03	Sanskrit for Technical Knowledge
4	P26ACTX04	Value Education
5	P26ACTX05	Constitution of India
6	P26ACTX06	Pedagogy Studies
7	P26ACTX07	Stress Management by Yoga
8	P26ACTX08	Personality Development Through Life Enlightenment Skills
9	P26ACTX09	Unnat Bharat Abhiyan



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Department	Computer Science and Engineering		Programme: M.Tech.						
Semester	I		Course Category : BS			*End Semester Exam Type: TE			
Course Code	P26MAT103		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	Mathematical Foundation of Computer Science		2	1	-	3	40	60	100
Prerequisite	Basic Mathematics								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Basic knowledge of matrix, Set theory, functions and relations concepts needed for designing and solving problems.							K2
	CO2	Logical operations and predicate calculus needed for computing skill.							K3
	CO3	Design and solve Boolean functions for defined problems.							K3
	CO4	Apply the acquired knowledge of formal languages to engineering areas like Compiler Design.							K3
	CO5	Apply the acquired knowledge of finite automata theory and to design discrete problems to solve by Computers.							K3
UNIT- I	Matrix Algebra					Periods: 9			
Matrices - Rank of a matrix - Solving system of equations – Eigen values and Eigenvectors - Cayley - Hamilton theorem - Inverse of a matrix.									CO1
UNIT- II	Basic Set Theory					Periods: 9			
Basic definitions - Venn diagrams and set operations - Laws of set theory - Principle of inclusion and exclusion – Partitions - Permutation and combination – Relations - Properties of relations - Matrices of relations - Closure operations on relations - Functions - Injective, subjective and objective functions.									CO2
UNIT- III	Mathematical Logic					Periods: 9			
Propositions and logical operators - Truth table - Propositions generated by a set - Equivalence and implication - Basic laws - Some more connectives - Functionally complete set of connectives - Normal forms - Proofs in propositional calculus - Predicate calculus.									CO3
UNIT- IV	Formal Languages					Periods: 9			
Languages and grammars - Phrase structure grammar - Classification of grammars -Pumping lemma for regular languages - Context free languages.									CO4
UNIT- V	Finite State Automata					Periods: 9			
Finite state automata - Deterministic finite state automata (DFA) - Non deterministic finite state automata (NFA) - Equivalence of DFA and NFA - Equivalence of NFA and Regular Languages.									CO5
Lecture Periods: 30			Tutorial Periods: 15			Practical Periods: -		Total Periods: 45	
Text Books									
1. David Makinson, "Sets, Logic and Maths for Computing", Springer Indian Reprint, 2011.									
2. Grimaldi, R.P and Ramana, B.V. "Discrete and Combinatorial Mathematics", Pearson Education, Fifth Edition, 2006.									
3. Hopcroft J.E and Ullman, J.D, "Introduction to Automata Theory, Languages and Computation", Narosa Publishing House, Delhi, 2002.									
C W. Evans, "Engineering Mathematics", A Programmed Approach, 3rd Edition, 2019.									
Reference Books									
1. Kenneth H. Rosen, "Discrete Mathematics and Its Applications", Tata McGraw Hill, 4th Edition, 2002.									
2. Sengadir, T. "Discrete Mathematics and Combinatorics" Pearson Education, New Delhi, 2009.									
3. Trembley, J.P. and Manohar, R, "Discrete Mathematical Structures with Applications to Computer Science", Tata McGraw Hill, New Delhi, 2007.									
4. Venkataraman, M.K., "Engineering Mathematics", Volume-II, National Publishing Company, Second Edition, 1989.									
5. Dr. A. Singaravelu, "Engineering Mathematics - I", Meenakshi publications, Tamil Nadu, 2019.									
Web References									
1. https://sites.math.northwestern.edu/~mlema/courses/cs310-05s/									
2. https://csd.cs.cmu.edu/course-profiles/15-151-Mathematical-Foundations-for-Computer-Science									
3. https://www.coursera.org/learn/mathematics-for-computer-science									
4. https://www.cse.iitb.ac.in/~supratik/courses/cs719/index.html									
5. https://www.irif.fr/~jep/PDF/MPRI/MPRI.pdf									

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	2	1	-	-	-	1	1	2	1
2	3	2	1	1	-	1	2	2	1
3	3	2	1	1	-	1	2	2	1
4	3	2	1	1	-	-	2	2	1
5	3	2	1	1	-	-	2	2	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10		15	10	5	60	100

* Application Oriented /Problem solving/Design/Analytical in content beyond the syllabus to be given from Unit-5

Academic Curriculum and Syllabi R-2026

Department	Computer Science and Engineering			Programme: M.Tech.				
Semester	I			Course Category : PC	*End Semester Exam Type: TE			
Course Code	P26CSTD01			Periods / Week		Credit	Maximum Marks	
				L	T	P	C	CAM
Course Name	Advanced Data Structures and Algorithms			3	-	-	3	40
					60	100		
(Common to M.Tech CSE and CSE(BDA))								
Prerequisite	Basics of Data Structures and Algorithms							
Course Outcomes	On completion of the course, the students will be able to							BT Mapping (Highest Level)
	CO1	Demonstrate various algorithm notations and algorithm correctness.						K2
	CO2	Construct various applications based on sorting and tree data structure.						K2
	CO3	Experiment with the performance of various Text Processing operations.						K3
	CO4	Apply graph data structures to the real time applications						K3
	CO5	Illustrate the performance of the polynomial time algorithm.						K2
UNIT- I	Algorithm Notations And Representations				Periods: 9			
Mathematical Induction - Asymptotic Notations – Algorithm Analysis - NP-Hard and NP-Completeness – Recurrence Equations – Solving Recurrence Equations – Memory Representation of Multi-dimensional Arrays – Time-Space Tradeoffs.								CO1
UNIT- II	Sorting and Trees				Periods: 9			
Heapsort – Quicksort – Topological sort - Sorting in Linear Time – Elementary Data Structures – Hash Tables – Hash Functions- Binary Search Trees – AVL Trees – Red Black trees – Multi-way Search Trees –B-Trees- Fibonacci Heaps – van Emde Boas Trees – Data Structures for Disjoint Sets.								CO2
UNIT- III	Text Processing Operations				Periods: 9			
Text Processing: String Operations - Brute-Force Pattern Matching - The Boyer-Moore Algorithm - The Knuth-Morris-Pratt Algorithm - Standard Tries - Compressed Tries - Suffix Tries - The Huffman Coding Algorithm - The Longest Common Subsequence Problem (LCS) - Applying Dynamic Programming to the LCS Problem.								CO3
UNIT- IV	Graph Algorithms				Periods: 9			
Elementary graph Algorithms – Minimum Spanning Trees – Single Source Shortest Paths- All Pairs Shortest Paths – Maximum Flow - Multithreaded Algorithms – Matrix Operations.								CO4
UNIT- V	Dynamic Programming				Periods: 9			
Linear programming – Polynomials and Fast Fourier Transform – Number Theoretic Algorithms – Computational Geometry –NP-Completeness – Approximation Algorithms.								CO5
Lecture Periods: 45		Tutorial Periods: -		Practical Periods: -		Total Periods: 45		
Text Books								
1. Thomas H. Coreman, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein, "Introduction to Algorithms", PHI, Third Edition, 2016								
2. Mark Allen Weiss, Data Structures and Algorithm Analysis in C++, Pearson Education, Second Edition, 2004.								
3. Mark de Berg, Otfried Cheong, Marc van Kreveld, Mark Overmars, Computational Geometry: Algorithms and Applications, Springer, Third edition, 2008.								
Reference Books								
1. Alfred V. Aho, Jeffrey D. Ullman, John E. Hopcroft, "Data Structures and Algorithms", Addison Wesley, Fifth Edition, 2017.								
2. Algorithms, Data Structures, and Problem Solving with C++", Illustrated Edition by Mark Allen Weiss, Addison-Wesley Publishing Company, Sixth Edition, 2016.								
3. Narasimha karumanchi, Data Structures and algorithms made easy, Fifth Edition, 2017.								
4. E. Horowitz, S.Sahni and Dinesh Mehta, "Fundamentals of Data structures in C++", University Press, Fourth Edition, 2007.								
5. M T Goodrich, Roberto Tamassia, Algorithm Design, John Wiley, Second Edition, 2002.								
Web References								
1. https://www.javatpoint.com/data-structure-tutorial/								
2. https://www.studytonight.com/data-structures/								
3. https://www.tutorialspoint.com/data_structures_algorithms/								
4. https://www.w3schools.in/data-structures-tutorial/intro/								
5. https://www.geeksforgeeks.org/data-structures								

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	2	2	2	1	2	2	3	2	2
2	1	2	2	2	2	2	3	2	2
3	2	3	3	1	3	3	3	3	3
4	2	3	3	1	3	3	3	3	3
5	2	3	3	1	3	3	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	10	15	10	5	60	100

* Application Oriented /Problem solving/Design/Analytical in content beyond the syllabus to be given from Unit-5



Academic Curriculum and Syllabi R-2026

Department	Computer Science and Engineering			Programme : M.Tech.							
Semester	I			Course Category : PC		*End Semester Exam Type: TE					
Course Code	P26CSTD02			Periods/Week		Credit	Maximum Marks				
				L	T	P	C	CAM	ESE	TM	
Course Name	Advanced Databases			3	0	0	3	40	60	100	
Prerequisite	No prerequisite needed										
Course Outcomes	On completion of the course, the students will be able to									BT Mapping (Highest Level)	
	CO1	Analyze advanced database models including distributed, object-oriented, and NoSQL systems								K4	
	CO2	Evaluate query optimization and transaction management in distributed environments								K5	
	CO3	Apply object-relational and NoSQL database features to real problems								K3	
	CO4	Design components of data warehousing and OLAP for enterprise decision support								K6	
	CO5	Integrate modern database technologies for scalable, high-performance applications								K6	
UNIT – I	Advanced Database Fundamentals						Periods:9				
Review of Database Models: Relational, Object-Relational - ER and Enhanced ER Models - Advanced SQL (Views, Triggers, Stored Procedures) - Normalization beyond BCNF (4NF, 5NF) - Query Processing & Optimization basics										CO1	
UNIT – II	Distributed Database Systems						Periods:9				
Distributed DB Architecture and Design - Distributed Query Processing and Optimization - Distributed Transactions and Concurrency Control - Distributed Recovery Techniques - Fragmentation and Replication Strategies										CO2	
UNIT – III	Object and Object-Relational Databases						Periods:9				
Object Oriented Data Models - ODMG Standard, ODL and OQL – Object Relational Features of SQL/Oracle - Complex Objects and Type Systems - Inheritance, Encapsulation, Polymorphism in Databases										CO3	
UNIT – IV	NoSQL and Modern Data Stores						Periods:9				
NoSQL Paradigms: Key-Value, Document, Column-Family, Graph - CAP Theorem, BASE Property - NoSQL Query Languages - Use Cases: MongoDB, Cassandra, Neo4j - Polyglot Persistence concepts										CO4	
UNIT – V	Database Security, Cloud Databases and Emerging Trends						Periods:9				
Database Security: Authentication and Authorization - Role-Based Access Control (RBAC) - Encryption Techniques (TDE, SSL) - SQL Injection and Database Vulnerabilities - Database Auditing and Compliance - Cloud Databases and DBaaS: Architecture and Deployment Models - Multi-Tenancy - Elastic Scalability - Blockchain and Databases - Edge Databases and Real-Time Data Processing										CO5	
Lecture Periods:45			Tutorial Periods:0			Practical Periods:-0			Total Periods:45		
Text Books											
<ol style="list-style-type: none"> Carlo Zaniolo, Stefano Ceri, Christos Faloutsos, Richard T. Snodgrass, V.S. Subrahmanian, Roberto Zicari, "Advanced Database Systems", 1st c, Elsevier, 1997 M Tamer Ozsu, P Valduriez; "Principles of Distributed Database Systems"; Pearson Education Pvt. Ltd., 2005 Pramod J. Sadalage & Martin Fowler, "NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence", Addison-Wesley Professional, 2012. Garcia-Molina, Ullman, Widom, "Database Systems: The Complete Book", 2nd Edition, Pearson College Div, 2008. Alex Berson, Stephen J Smith; "Data Warehousing, Data Mining, and OLAP"; Tata McGraw-Hill Publishing Company Limited, 1997. 											
Reference Books											
<ol style="list-style-type: none"> Raghu Ramakrishnan & Johannes Gehrke, "Database Management Systems", 3rd Edition McGraw Hill Education, 2004. Elmasri & Navathe, "Fundamentals of Database Systems", Addison Wesley Longman, Inc, 1994. S Ceri, G Pelagatti; "Distributed Databases: Principles and Systems"; Tata McGraw-Hill Publishing Company Limited, 1985. Hoffer, Ramesh & Topi, "Modern Database Management", 12th Edition, Pearson College Div, 2015. C. S. R. Prabhu, "Object-oriented Database Systems: Approaches and Architectures", 2nd Edition, Prentice-Hall of India Pvt.Ltd 2005. 											
Web References											
<ol style="list-style-type: none"> https://onlinecourses.nptel.ac.in/noc21_cs04/preview https://docs.oracle.com/en/database/other-databases/nosql-database/index.html https://www.mongodb.com/docs/?utm_source https://www.geeksforgeeks.org/dbms/data-warehousing-tutorial/ https://www.geeksforgeeks.org/dbms/introduction-to-nosql/ 											

* TE – Theory Exam, LE – Lab Exam

M.Tech. Computer Science and Engineering

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	3	3	2	2	2	2	3	2	2
2	2	3	3	2	2	2	2	3	2
3	3	2	2	3	2	2	2	3	2
4	2	2	3	3	3	2	2	2	3
5	2	2	3	3	3	3	2	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	10	15	10	5	60	100

* Application Oriented /Problem solving/Design/Analytical in content beyond the syllabus to be given from Unit-5

Academic Curriculum and Syllabi R-2026

Department	Computer Science and Engineering			Programme: M.Tech.						
Semester	I			Course Category : PC		*End Semester Exam Type: TE				
Course Code	P26CST102			Periods / Week			Credit	Maximum Marks		
				L	T	P	C	CAM	ESE	TM
Course Name	Cloud and Big Data Analytics			3	-	-	3	40	60	100
Prerequisite	Basics of Cloud computing									
Course Outcomes	On completion of the course, the students will be able to									BT Mapping (Highest Level)
	CO1	Explain the core concepts of the cloud computing paradigm.								K3
	CO2	Apply fundamental concepts in cloud infrastructures.								K4
	CO3	Illustrate the fundamental concepts of network virtualization and geo-distributed cloud.								K4
	CO4	Identify Big Data and its Business Implications.								K3
	CO5	List the components of Hadoop and Hadoop Eco-System, Access and Process Data on Distributed File System.								K4
UNIT- I	Introduction						Periods: 9			
Introduction to Cloud Computing- The Evolution of Cloud Computing – Hardware Evolution – Internet Software Evolution – Server Virtualization - Cloud Services - Cloud Service Administration - Cloud Data Management.										CO1
UNIT- II	Cloud Infrastructure						Periods: 9			
Cloud Infrastructure: Introduction - Advancing towards a Utility Model – Evolving IT infrastructure – Evolving Software Applications – Continuum of Utilities- Standards and Working Groups - Standards Bodies and Working Groups – Service Oriented Architecture – Business Process Execution Language – Interoperability Standards for Data Center Management - Utility Computing Technology – Virtualization – Hyper Threading – Blade Servers - Automated Provisioning - Policy Based Automation – Application Management – Evaluating Utility Management Technology - Virtual Test and development Environment - Data Center Challenges and Solutions - Automating the Data Center.										CO2
UNIT- III	Network Virtualization and Geo-Distributed Cloud						Periods: 9			
Cloud computing and server virtualization-networking of virtual machines inside hypervisor – Docker – software defined network – Network virtualization in multi-tenant data centers - VL2 - NVP – Geo distributed cloud data centers										CO3
UNIT- IV	Introduction To Big Data and Hadoop						Periods: 9			
Types of Digital Data - Introduction to Big Data - Big Data Analytics - History of Hadoop - Apache Hadoop - Analysing Data with Unix tools - Analyzing Data with Hadoop - Hadoop Streaming - Hadoop Echo System - IBM Big Data Strategy - Introduction to Ionosphere Big Insights and Big Sheets.										CO4
UNIT- V	HDFS (Hadoop Distributed File System) and Map Reduce						Periods: 9			
The Design of HDFS - HDFS Concepts - Command Line Interface - Hadoop file system interfaces - Data flow - Data Ingest with Flume and Scoop and Hadoop archives - Hadoop I/O: Compression – Serialization Avro and File-Based Data structures. Anatomy of a Map Reduce Job Run – Failures - Job Scheduling - Shuffle and Sort - Task Execution - Map Reduce Types and Formats - Map Reduce Features.										CO5
Lecture Periods: 45			Tutorial Periods: -			Practical Periods: -			Total Periods: 45	
Text Books										
1. RajivMisra, Yashwant singh patel, "Cloud and Distributed Computing: Algorithm and systems", Wiley, First edition, 2020.										
2. Kai Hwang, Geoffrey C. Fox, Jack G. Dongarra, "Distributed and Cloud Computing, From Parallel Processing to the Internet of Things", Morgan Kaufmann Publishers, 2012.										
3. Ritting house, John W., and James F. Ransome, Cloud Computing: Implementation, Management and Security, CRC Press, 2017.										
Reference Books										
1. John W. Rittinghouse and James F. Ransome, "Cloud Computing Implementation, Management and Security", CRC Press, Taylor & Francis Group, Boca Raton London New York, 2010.										
2. Alfredo Mendoza, "Utility Computing Technologies, Standards, and Strategies", Artech House INC, 2007.										
3. Bunker and Darren Thomson, "Delivering Utility Computing", John Wiley & Sons Ltd, 2006.										
4. Tom White, "Hadoop : The Definitive Guide", O'reily Media, Third Edition, 2012.										
5. Pete Warden, "Big Data Glossary", O'Reily, 2011										
Web References										
1. www.coltdatacentres.net/Cloud Technology										
2. www.redhat.com/en/topics/cloud-computing/what-is-cloud-infrastructure										
3. www.digitalocean.com/community/tutorials/an-introduction-to-big-data-concepts-and-terminology										
4. https://www.zdnet.com/article/what-is-cloud-computing-everything-you-need-to-know-about-the-cloud/										
5. https://www.tutorialspoint.com/hadoop/hadoop_big_data_overview.htm										

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	2	1	2	2	1	-	1	3	-
2	1	1	2	2	1	2	1	-	3
3	2	1	1	2	1	2	1	3	-
4	3	1	2	1	-	1	-	3	1
5	3	1	1	2	-	-	-	-	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	10	15	10	5	60	100

* Application Oriented /Problem solving/Design/Analytical in content beyond the syllabus to be given from Unit-5



Academic Curriculum and Syllabi R-2026

Department	Computer Science and Engineering			Programme: M.Tech.						
Semester	I			Course Category : HS		*End Semester Exam Type: TE				
Course Code	P26HSTC01			Periods / Week			Credit	Maximum Marks		
				L	T	P	C	CAM	ESE	TM
Course Name	Research Methodology and IPR			2	-	-	2	40	60	100
(Common to all M.Tech Courses)										
Prerequisite	No prerequisite needed									
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)	
	CO1	Gain Knowledge to formulate the research problem.							K2	
	CO2	Understand the concepts to carry out the literature review, ethics and research analysis.							K2	
	CO3	Explain the way of writing technical paper and presentation methods.							K2	
	CO4	Ability to understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.							K2	
CO5	Ability to understand about IPR and filing patents in R & D.							K3		
UNIT- I	Research Problem Formulation					Periods: 6				
Meaning of research problem- Sources of research problem - criteria characteristics of a good research problem - errors in selecting a research problem - scope and objectives of research problem. Approaches of investigation of solutions for research problem - data collection – analysis – interpretation - necessary instrumentations.										CO1
UNIT- II	Literature Review					Periods: 6				
Effective literature studies approaches – analysis – plagiarism and research ethics										CO2
UNIT- III	Technical Writing /Presentation					Periods: 6				
Effective technical writing - how to write report – paper - developing a research proposal - format of research proposal Presentation and assessment by a review committee.										CO3
UNIT- IV	Introduction To Intellectual Property Rights (IPR)					Periods: 6				
Nature of Intellectual Property: Patents – Designs - Trade and Copyright. Process of Patenting and Development: Technological research – innovation – patenting - development. International Scenario: International cooperation on Intellectual Property - Procedure for grants of patents - Patenting under PCT.										CO4
UNIT- V	Intellectual Property Rights (IPR)					Periods: 6				
Patent Rights: Scope of Patent Rights - Licensing and transfer of technology - Patent information and databases - Geographical Indications - New Developments in IPR - Administration of Patent System - IPR of Biological Systems - Computer Software etc. Traditional knowledge Case Studies - IPR and IITs.										CO5
Lecture Periods: 30			Tutorial Periods: -			Practical Periods: -			Total Periods: 30	
Text Books										
1. Stuart Melville and Wayne Goddard, "Research methodology: An introduction for science & Engineering students', Kenwyn Publisher, 1996.										
2. Wayne Goddard and Stuart Melville, "Research Methodology: An Introduction", Lansdowne Publisher, Second Edition, 2001.										
3. C.R. Kothari, Gaurav Garg, "Research Methodology: Methods and Techniques", New Age International, Fourth Edition, 2018.										
Reference Books										
1. Halbert, "Resisting Intellectual Property", Taylor & Francis Limited, 2007.										
2. Ranjit Kumar, "Research Methodology: A Step by Step Guide for beginners", Second Edition, 2010.										
3. Trochim, "Research Methods: The concise knowledge base", Atomic Dog Publishing, 2005.										
4. Fink A, "Conducting Research Literature Reviews: From the Internet to Paper", Sage Publications, 2009.										
Web References										
1. https://www.scribd.com/document/427419672/Research-Methodology-and-Ipr										
2. https://www.isical.ac.in/~palash/research-methodology/RM-lec9.pdf										
3. https://www.wipo.int/edocs/pubdocs/en/intproperty/958/wipo_pub_958_3.pdf										
4. https://lecturenotes.in/m/21513-research-methodology										
5. https://iare.ac.in/sites/default/files/MTECH-CAD.CAM-R18-RM-IP-NOTES.pdf										

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	3	2	1	1	2	1	3	3	2
2	3	2	1	1	2	1	3	2	2
3	3	2	1	1	2	1	3	2	2
4	3	2	1	1	3	1	3	2	3
5	3	2	1	1	2	1	3	2	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10		15	10	5	60	100

* Application Oriented /Problem solving/Design/Analytical in content beyond the syllabus to be given from Unit-5

Academic Curriculum and Syllabi R-2026

Department	Computer Science and Engineering	Programme: M.Tech.						
Semester	I	Course Category : PC			*End Semester Exam Type: LE			
Course Code	P26CSP101	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	Advanced Data Structures and Algorithms Laboratory	-	-	4	2	50	50	100
Prerequisite	Knowledge about Data Structures and Algorithms							
Course Outcomes	On completion of the course, the students will be able to							BT Mapping (Highest Level)
	CO1	Evaluate the algorithm's / program's efficiency in terms of time and space complexity.						K4
	CO2	Solve the given problem by identifying the appropriate Data Structure.						K3
	CO3	Construct various applications based on sorting and tree data structure.						K2
	CO4	Apply graph data structures to solve real time applications such as network flow and linear programming.						K3
	CO5	Illustrate the performance of the polynomial time algorithm.						K2

List of Experiments:

- Implementation of the following Heap Structures.
 - Min Heap (Insertion, Delete Min, Delete Max)
 - Skew Heap(Priority Queue operations)
 - Fibonacci Heap (Priority Queue operations).
- Implementation of the following Search Structures
 - AVL Trees (Insertion, Deletion and Search)
 - Splay Trees (Insertion, Deletion and Search)
 - B-Trees (Insertion, Deletion and Search) d. Red- Black Trees.
- Implementation of Convex Hull.
- Implementation of Topological sort.
- Implementation of Graph search algorithms.
- Implementation of Randomized algorithms.
- Implementation and application of network flow and linear programming problems.
- Implementation of algorithms using the hill climbing and dynamic programming design techniques.
- Implementation of recursive backtracking algorithms.
- Implementation of Branch and Bound Algorithms.

Lecture Periods: -	Tutorial Periods: -	Practical Periods: 4 5	Total Periods: 45
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Reference Books

- E. Horowitz, S.Sahni and Dinesh Mehta, "Fundamentals of Data structures in C++", University Press, Fifth Edition, 2007.
- T.H.Cormen, C.E.Leiserson, R.L.Rivest, and C.Stein, Introduction to Algorithms, PHI/Pearson Education, Third Edition, 2009.
- Michael T. Goodrich and Roberto Tamassia, Algorithm Design: Foundations, Analysis and Internet Examples, Wiley India, Second Edition, 2006.
- Thomas H. Coreman, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein, "Introduction to Algorithms", PHI, Third Edition, 2016
- Michael T. Goodrich, Roberto Tamassia, David M. Mount, "Data Structures and Algorithms in C++",Wiley, Second Edition, 2011.

Web References

- <https://www.javatpoint.com/data-structure-tutorial/>
- <https://www.studytonight.com/data-structures/>
- https://www.tutorialspoint.com/data_structures_algorithms/
- <https://www.w3schools.in/data-structures-tutorial/intro/>
- <https://www.geeksforgeeks.org/data-structures/>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	2	2	2	3	2	2	3	2	2
2	1	2	2	2	2	2	3	2	2
3	1	3	3	3	3	3	3	3	3
4	2	3	3	3	3	3	3	3	3
5	1	3	3	3	3	3	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	Performance in practical classes			Model Practical Examination	Attendance		
	Conduction of practical	Record work	viva				
Marks	15	5	5	15	10	50	100



Academic Curriculum and Syllabi R-2026

Department	Computer Science and Engineering	Programme: M.Tech.						
Semester	I	Course Category : HS			*End Semester Exam Type: LE			
Course Code	P26HSPC01	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	Technical Report Writing and Seminar	-	-	4	2	100	-	100

(Common to all M.Tech Programme)

Prerequisite								
Course Outcomes	On completion of the course, the students will be able to							BT Mapping (Highest Level)
	CO1	Select a subject, narrowing the subject into a topic.						K2
	CO2	State an objective and collecting the relevant bibliography (at least 15 journal papers).						K2
	CO3	Study the papers and understanding the author's contributions and critically analyzing each paper.						K3
	CO4	Prepare a working outline and linking the papers and preparing a draft of the paper.						K2
	CO5	Prepare a working outline and linking the papers and preparing a draft of the paper.						K2

List of Experiments:

Activity	Instructions	Submission week	Evaluation
Selection of area of interest and Topic	Select an area of interest, topic and state an objective	2nd week	3 % Based on clarity of thought, current relevance and clarity in writing
Stating an Objective			
Collecting Information about area & topic	<ol style="list-style-type: none"> List 1 Special Interest Groups or professional society List 2 journals List 2 conferences, symposia or workshops List 1 thesis title List 3 web presences (mailing lists, forums, news sites) List 3 authors who publish regularly in your area Attach a call for papers (CFP) from your area. 	3rd week	3% (the selected information must be area specific and of international and national standard)
Collection of Journal papers in the topic in the context of the objective – collect 20 & then filte	<ul style="list-style-type: none"> provide a complete list of references you will be using- Based on your objective -Search various digital libraries and Google Scholar When picking papers to read - try to: <ul style="list-style-type: none"> Pick papers that are related to each other in some ways and/or that are in the same field so that you can write a meaningful survey out of them. Favour papers from well-known journals and conferences, in the field (as indicated in other Favour more recent papers, Pick a recent survey of the field so you can quickly gain an overview, Find relationships with respect to each other and to your topic area(classification scheme/categorization) Mark in the hard copy of papers whether complete work or section/sections of the paper are being considered 	4th week	6% (the list of standard papers and reason for selection)
Reading and notes for first 5 papers	Reading Paper Process For each paper form a Table answering the following questions: <ul style="list-style-type: none"> What is the main topic of the article? What was/were the main issue(s) the author said they want to discuss? Why did the author claim it was important? What simplifying assumptions does the author claim to be making? <ul style="list-style-type: none"> What did the author do? How did the author claim they were going to evaluate their work and compare it to others? What did the author say were the limitations of their research? What did the author say were the important directions for future research? 	6th week	8% (The table given should indicate your understanding of the paper and the evaluation is based on your conclusions about each paper)

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	<ul style="list-style-type: none"> Conclude with limitations/issues not addressed by the paper (from the perspective of survey) 		
Reading and notes for next 5 papers	Repeat Reading Paper Process	7 th week	8% (the table given should indicate your understanding of the paper and the evaluation is based on your conclusions about each paper
Draft outline 1 and Linking papers	Prepare a draft Outline, your survey goals, along with a classification / categorization diagram	8 th week	8% (this component will be evaluated based on the linking and classification among the papers)
Abstract	Prepare a draft abstract and give a presentation	9 th week	6%(Clarity, purpose and conclusion) 6% Presentation & Viva Voce
Introduction Background	Write an introduction and background sections	10th week	5% (clarity)
Sections of the paper	Write the sections of your paper based on the classification / categorization diagram in keeping with the goals of your survey	11th week	10% (this component will be evaluated based on the linking and classification among the papers)
Conclusions	Write your conclusions and future work	12th week	5% (conclusions)
Final Draft	Complete the final draft of your paper	13th week	10% (formatting, English, Clarity and linking) 4% Plagiarism Check Report
Seminar	A brief 15 slides on your paper	14th & 15th week	10% (based on presentation and Vivavoce)
Lecture Periods: -	Tutorial Periods: -	Practical Periods: 4 5	Total Periods: 45

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	2	3	3	1	3	3	2	1	2
2	2	3	2	1	3	2	2	1	2
3	2	3	2	1	3	2	2	1	2
4	2	3	2	1	3	2	2	1	2
5	2	3	2	1	3	2	2	1	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)				Attendance	End Semester Examination (ESE) Marks	Total Marks
	Weekly Progress	Seminar	Record work	Viva			
Marks	40	30	10	10	10	-	100

Academic Curriculum and Syllabi R-2026

Department	Computer Science and Engineering	Programme: M.Tech.						
Semester	I	Course Category : AEC				*End Semester Exam Type: -		
Course Code	P26CSC1XX	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	Ability Enhancement Courses	-	-	4	-	100	-	100

Students shall choose an International certification course offered by the reputed organizations like Google, Microsoft, IBM, Texas Instruments, Bentley, Autodesk, Eplan and CISCO, etc. The duration of the course is 40-50 hours specified in the curriculum, which will be offered through Centre of Excellence.

Pass /Fail will be determined on the basis of participation, attendance, performance and completion of the course. If a candidate fails, he/she has to repeat the course in the subsequent years. Pass in this course is mandatory for the award of degree.

Academic Curriculum and Syllabi R-2026

Department	Computer Science and Engineering		Programme: M.Tech.						
Semester	I		Course Category : PE			*End Semester Exam Type: TE			
Course Code	P26CSE101		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	Cloud Computing Technologies		3	-	-	3	40	60	100
Prerequisite	Basics of Data Science								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Explain foundational cloud computing concepts, models, and services							K2
	CO2	Analyze virtualization and resource management strategies							K4
	CO3	Apply cloud platform tools (AWS, Azure, GCP) for real use-cases							K3
	CO4	Evaluate cloud security, governance, and compliance mechanisms							K5
	CO5	Integrate advanced cloud technologies (DevOps, Containers, Edge) for scalable solutions							K6
UNIT- I	Cloud Computing Fundamentals					Periods: 9			
Introduction - Evolution of Cloud Computing - Characteristics, Benefits, Challenges - Cloud Service Models: IaaS, PaaS, SaaS - Cloud Deployment Models: Public, Private, Hybrid, Community - Cloud Reference Architecture									
UNIT- II	Virtualization & Resource Management					Periods: 9			
Virtualization Concepts and Types (Full, Para, OS-level) - Hypervisors (Type-1/Type-2) - Resource Provisioning, Scheduling, Load Balancing - Containers & Docker - Virtual Infrastructure Management									
UNIT- III	Cloud Platforms and Services					Periods: 9			
AWS, Azure, Google Cloud Platform - Compute Services (EC2, Google Compute, Azure VMs) - Storage Services (S3, Blob, Drive) - Networking in Cloud & CDN - Serverless Functions (Lambda, Cloud Functions)									
UNIT- IV	Cloud Security, Privacy and Management					Periods: 9			
Cloud Security Risks and Threat Models - Identity and Access Management - Data Protection and Encryption - SLA, QoS, Governance - Auditing and Compliance in Cloud									
UNIT- V	Advanced Cloud Topics and Case Studies					Periods: 9			
Big Data and Cloud (Integration with Hadoop/Spark) - Edge and Fog Computing - Cloud Monitoring and Auto-Scaling - DevOps and CI/CD in Cloud - Case Studies (AWS, Azure, GCP deployments)									
Lecture Periods: 45			Tutorial Periods: -			Practical Periods: -		Total Periods: 45	
Text Books									
<ol style="list-style-type: none"> Gopal Shyam & Manvi, "Cloud Computing: Concepts and Technologies", CRC Press, 2021. Dan C. Marinescu, "Cloud Computing: Theory and Practice", Morgan Kaufmann Publishers In, 2013. Kai Hwang, Geoffrey Fox & Jack Dongarra, "Distributed and Cloud Computing", Morgan Kaufmann Publishers In, 2013. Rajkumar Buyya, Broberg & Goscinski, "Cloud Computing: Principles and Paradigms", Wiley, 2013. John Arundel & Justin Domingus, "Cloud Native DevOps with Kubernetes", O'Reilly, 2019. 									
Reference Books									
<ol style="list-style-type: none"> Rajkumar Buyya, Christian Vecchiola & Thamarai Selvi, "Mastering Cloud Computing", Morgan Kaufmann, 2013. Tim Mather, Subra Kumaraswamy & Shahed Latif, "Cloud Security and Privacy", O'Reilly, 2009. Kevin L. Jackson & Scott Goessling, "Architecting Cloud Computing Solutions", Packt Publishing, 2018. Joe Baron et al., "AWS Certified Solutions Architect Official Study Guide", Sybex Inc, 2016. Barrie Sosinsky, "Cloud Computing Bible", John Wiley & Sons Inc, 2011.. 									
Web References									
<ol style="list-style-type: none"> https://swayam.gov.in/nd1_noc20_cs20/preview https://nptel.ac.in/courses/106/105/106105167/ https://freevideolectures.com/course/4639/nptel-cloud-computing https://cloud.google.com/ 									

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	3	3	2	2	1	1	3	2	2
2	2	3	3	2	2	2	2	3	2
3	2	2	3	3	3	2	2	3	3
4	2	2	2	3	3	3	2	2	3
5	2	2	3	3	3	3	2	2	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	10	15	10	5	60	100

* Application Oriented /Problem solving/Design/Analytical in content beyond the syllabus to be given from Unit-5

Academic Curriculum and Syllabi R-2026

Department	Computer Science and Engineering			Programme: M.Tech.							
Semester	I			Course Category : PE		*End Semester Exam Type: TE					
Course Code	P26CSE102			Periods / Week			Credit		Maximum Marks		
				L	T	P	C	CAM	ESE	TM	
Course Name	Cyber Attacks Detection and Prevention Systems			3	-	-	3	40	60	100	
Prerequisite	No Prerequisite needed										
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)		
	CO1	Understand Intrusion Detection and Prevention System								K2	
	CO2	Illustrate Network Intrusion Detection and Prevention System								K3	
	CO3	Make use of Network behavior analysis								K3	
	CO4	Exploit SNORT IDS								K4	
	CO5	Make use of IDPS Technologies								K3	
UNIT- I	Introduction to IDPS						Periods: 9				
IDPS Technologies, Components and Architecture Implementation Uses of IDPS Technologies, Key Functions, Common Detection Methodologies Signature, Anomaly and Stateful Protocol Analysis, Types of IDPS Technologies										CO1	
UNIT- II	Host and Network IDPS						Periods: 9				
Application, Transport, Network and Hardware Layer attacks, Sniffing Network Traffic, Replay Attacks, Command Injection, Internet Control Message Protocol Redirect, DDoS, Dangers and defenses with Man-in the Middle, Secure Socket Layer attacks, DNS Spoofing, Defense- in-Depth Approach, Port Security, Use Encrypted Protocols										CO2	
UNIT- III	Network Behaviour Analysis						Periods: 9				
Components and Architecture Typical, Network Architecture, Sensor Locations. Honeynets- Gen I, II and III, Honeymole, Detecting the Attack - Intrusion Detection, Network Traffic Capture, Monitoring on the box, Setting up the Realistic Environment.										CO3	
UNIT- IV	Working with Snort IDS						Periods: 9				
Introduction to Snort, Snort Alert Modes and Format, Working with Snort Rules, Rule Headers, Rule Options, The Snort Configuration File etc, Plugins, Preprocessors and Output Modules, Using Snort with MySQL.										CO4	
UNIT- V	Multiple IDPS Technologies						Periods: 9				
Need for multiple IDPS Technologies, Integrating Different IDPS Technologies -Direct and Indirect, Firewalls, Routers and Honeypots, IPS using IP Trace back - Probabilistic and Deterministic Packet Marking, Marking WLAN Standards, WLAN Components, Threats against WLANs, 802.11 Wireless Infrastructure Attacks, WEP Attacks, Wireless Client Attacks, Bluetooth Attacks, Cellphones, Personal Digital Assistance and Other Hybrid Devices Attack Detection, Jailbreaking.										CO5	
Lecture Periods: 45			Tutorial Periods: -			Practical Periods: -			Total Periods: 45		
Text Books											
1. Shui Yu, "Distributed Denial of Service Attack and Defense", Springer, 2014											
2. Bradd Lhotsky, "OOSEC Host based Intrusion detection", PACKT Publication, 2013											
3. John Hoopes, "Virtualization for Security: Including Sandboxing, Disaster Recovery, High Availability, Forensic Analysis, and Honeypotting", Syngress, 2009.											
Reference Books											
1. Karen Scarfone and Peter Mell, "Guide to Intrusion Detection and Prevention Systems (IDPS)", NIST Special Publication 800-94, 2007											
2. Padmavathi Ganapathi, "Cyber Security : Fundamentals, Attacks and Threats, Intrusion Detection and Prevention Systems", 2021											
3. Mano Paul P, Ravi R, Diana Jeba Jingle, "Prevention of Cyber Attacks Using Email Spam Detection and Mitigation", 2021.											
4. Yuri Diogenes, Erdal Ozkaya, Dr. Erdal Ozkaya, "Cybersecurity - Attack and Defense Strategies", 2022.											
5. Alessandro Parisi, "Hands-On Artificial Intelligence for Cybersecurity", 2019.											
Web References											
1. https://www.geeksforgeeks.org/cyber-security-tutorial/											
2. https://www.simplilearn.com/tutorials/cyber-security-tutorial/types-of-cyber-attacks											
3. https://www.mygreatlearning.com/blog/types-of-cyber-attacks/											
4. https://cybersecurityguide.org/resources/coding-for-cybersecurity/											
5. https://www.codingninjas.com/studio/library/cyber-attacks-and-their-types											

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	2	2	-	-	-	-	2	3	2
2	2	2	3	3	2	-	3	3	2
3	2	2	3	3	2	-	2	1	1
4	2	2	3	3	2	-	1	1	2
5	2	2	3	3	2	3	2	1	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	10	15	10	5	60	100

* Application Oriented /Problem solving/Design/Analytical in content beyond the syllabus to be given from Unit-5

Academic Curriculum and Syllabi R-2026

Department	Computer Science and Engineering			Programme: M.Tech.						
Semester	I			Course Category : PE		*End Semester Exam Type: TE				
Course Code	P26CSE103			Periods / Week			Credit		Maximum Marks	
				L	T	P	C	CAM	ESE	TM
Course Name	Bio-Inspired Computing			3	-	-	3	40	60	100
Prerequisite	No Prerequisite needed									
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)	
	CO1	Understand basic concepts of evolutionary algorithm							K2	
	CO2	Understand the basic features of neural and immune systems and able to build the neural model.							K2	
	CO3	Make use of complex and functional high-level phenomena can emerge from low-level interactions.							K3	
	CO4	Illustrate computational processes derived from neural models.							K2	
CO5	Implement simple bio-inspired algorithms like genetic and Particle Swarm Optimization							K3		
UNIT- I	Introduction to Evolutionary Algorithm						Periods: 9			
Evolutionary algorithm, components of evolutionary algorithm representation (definition of individuals), Evaluation function (Fitness function), Population, parent selection Mechanism, Variation Operators, Survivor Selection Mechanism (Replacement), Initialization, Termination Condition, evolutionary algorithm case study Cellular systems, cellular automata, modeling with cellular systems, other cellular systems, computation with cellular systems, artificial life: analysis and synthesis of cellular systems.										CO1
UNIT- II	Neural Systems						Periods: 9			
Biological nervous systems, artificial neural networks, neuron models, architecture, signal encoding ,synaptic plasticity, unsupervised learning, supervised learning, reinforcement learning, evolution of neural networks, hybrid neural systems, case study										CO2
UNIT- III	Developmental and Immune Systems						Periods: 9			
Rewriting system, synthesis of developmental system, evolutionary rewriting systems, evolutionary developmental programs, biological immune systems, lessons for artificial immune systems, algorithms and applications, shape space, negative selection algorithm, clonal selection algorithm										CO3
UNIT- IV	Behavioral Systems						Periods: 9			
Behavior in cognitive science, behavior in AI, behavior based robotics, biological inspiration for robots, robots as biological models, robot learning, evolution of behavioral systems, learning in behavioral systems, co-evolution of body and control, towards self-reproduction, simulation and reality										CO4
UNIT- V	Genetic Algorithms						Periods: 9			
Representation of Individuals, Mutation, Recombination, Population Models, Parent Selection, Survivor Selection, Example Application: Solving a Job Shop Scheduling Problem										CO5
Lecture Periods: 45			Tutorial Periods: -			Practical Periods: -			Total Periods: 45	
Text Books										
1. D. Floreano and C. Mattiussi, "Bio-Inspired Artificial Intelligence", MIT Press, 2008.										
2. Tao Song, Pan Zheng, Mou Ling Dennis Wong, Xun Wang, "Bio-Inspired Computing Models and Algorithms", world scientific, 2019										
3. F. Neumann and C. Witt, "Bioinspired Computation in combinatorial optimization: Algorithms and their computational complexity", Springer, 2010.										
Reference Books										
1. D. E. Goldberg, "Genetic algorithms in search, optimization, and machine learning", Addison- Wesley, 1989.										
2. Simon O. Haykin, "Neural Networks and Learning Machines", Third Edition, Prentice Hall, 2008.										
3. M. Dorigo and T. Stutzle, "Ant Colony Optimization", A Bradford Book, 2004.										
4. R. C. Ebelhart, "Swarm Intelligence", Morgan Kaufmann, 2001.										
5. Xin-She Yang, Zhihua Cui Renbin Xiao Amir Hossein Gandomi Mehmet Karamanoglu "Swarm Intelligence and Bio-Inspired Computation", 1st Edition, Elsevier, 2013.										
Web References										
1. https://tutorials.one/bio-inspired-computing-approach-in-artificial-intelligence/										
2. https://pythonhosted.org/inspyred/										
3. https://pdfs.semanticscholar.org ›										
4. https://www.frontiersin.org/research-topics/25088/bio-inspired-computation-and-its-applications										
5. https://www.sciencegate.app/source/1398722893										

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	2	2	-	-	-	-	2	3	2
2	2	2	3	3	2	-	3	3	2
3	2	2	3	3	2	-	2	1	1
4	2	2	3	3	2	-	1	1	2
5	2	2	3	3	2	3	2	1	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	10	15	10	5	60	100

* Application Oriented /Problem solving/Design/Analytical in content beyond the syllabus to be given from Unit-5

Academic Curriculum and Syllabi R-2026

Department	Computer Science and Engineering		Programme: M.Tech.						
Semester	I		Course Category: PE			*End Semester Exam Type: TE			
Course Code	P26CSE104		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	Block Chain and Crypto Currency		3	-	-	3	40	60	100
Prerequisite	Basics of Cryptography								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Understand the Design principles of Bitcoin and Ethereum.							K2
	CO2	Make use of the Simplified Payment Verification protocol.							K3
	CO3	Understand about Cryptocurrency							K3
	CO4	Illustrate the Cryptocurrency Regulation							K3
	CO5	Implement Blockchain Applications							K3
UNIT- I	Introduction					Periods: 9			
Distributed Database, Two General Problem, Byzantine General problem and Fault Tolerance, Hadoop Distributed File System, Distributed Hash Table, ASIC resistance, Turing Complete. Cryptography: Hash function, Digital Signature - ECDSA, Memory Hard Algorithm, Zero Knowledge Proof.									CO1
UNIT- II	Blockchain					Periods: 9			
Introduction, Advantage over conventional distributed database, Blockchain Network, Mining Mechanism, Distributed Consensus, Merkle Patricia Tree, Gas Limit, Transactions and Fee, Anonymity, Reward, Chain Policy, Life of Blockchain application, Soft & Hard Fork, Private and Public blockchain.									CO2
UNIT- III	Cryptocurrency					Periods: 9			
History, Distributed Ledger, Bitcoin protocols - Mining strategy and rewards, Ethereum - Construction, DAO, Smart Contract, GHOST, Vulnerability, Attacks, Sidechain, Namecoin.									CO3
UNIT- IV	Cryptocurrency Regulation					Periods: 9			
Stakeholders, Roots of Bit coin, Legal Aspects-Crypto currency Exchange, Black Market and Global Economy. Applications: Internet of Things, Medical Record Management System, Domain Name Service and future of Block chain.									CO4
UNIT- V	Blockchain Applications					Periods: 9			
Internet of Things, Medical Record Management System, Domain Name Service and future of Blockchain.									CO5
Lecture Periods: 45			Tutorial Periods: -			Practical Periods: -			Total Periods: 45
Text Books									
1. Douglas Robert Stinson and Maura Paterson, "Cryptography: Theory and Practice", CRC press, 2018.									
2. Imran Bashir, "Mastering Blockchain: Deeper insights into decentralization, cryptography", Packet Publishing Ltd, Kindle Edition, 2017.									
3. Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller and Steven Goldfeder, "Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction", Princeton University Press, Kindle Edition, 2016.									
Reference Books									
1.Imran Bashir, "Mastering Blockchain: A deep dive into distributed ledgers, consensus protocols, smart contracts,DApps, cryptocurrencies, Ethereum, and more", Packt Publishing Limited, 3rd Edition,2020.									
2.Andreas M. Antonopoulos,"Mastering Bitcoin: Unlocking Digital Cryptocurrencies", O'Reilly Media,2nd Edition 2017.									
3.Keith M.Martin, "Everyday Cryptography: Fundamental Principles & Applications",Oxford University Press, First edition 2016.									
4. Dr.Gavin Wood, "ETHEREUM: A Secure Decentralized Transaction Ledger," Yellow paper.2014.									
5. Dr. T R Padmanabhan C K Shyamala, N Harini, "Cryptography and Security", Wiley,1st Edition,2011.									
Web References									
1. http://chimera.labs.oreilly.com/books/1234000001802/ch08.html									
2. https://bitcoin.org/bitcoin.pdf									
3. https://www.geeksforgeeks.org/introduction-to-crypto-terminologies									
4. https://complyadvantage.com/knowledgebase/crypto-regulations/cryptocurrency-regulations-india									
5. https://www.proofpoint.com/us/threat-reference/encryption									

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	1	1	3	3	3	3	3	3	3
2	2	2	2	2	-	2	2	2	-
3	3	3	3	3	3	3	3	3	3
4	2	2	2	2	-	2	2	2	-
5	2	2	2	2	-	2	2	2	-

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	10	15	10	5	60	100

* Application Oriented /Problem solving/Design/Analytical in content beyond the syllabus to be given from Unit-5

Academic Curriculum and Syllabi R-2026

Department	Computer Science and Engineering		Programme: M.Tech.						
Semester	I		Course Category : PE			*End Semester Exam Type: TE			
Course Code	P26CSE105		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	Edge Computing		3	-	-	3	40	60	100
Prerequisite	Basics of IoT								
Course Outcomes	On completion of the course, the students will be able to							BT Mapping (Highest Level)	
	CO1	Understand core concepts, evolution & need for edge computing						K2	
	CO2	Analyze edge computing architectures and platform components						K4	
	CO3	Apply resource management, communication & virtualization mechanisms						K3	
	CO4	Evaluate security & privacy solutions in edge environments						K5	
CO5	Integrate advanced edge technologies (AI, 5G) into real use cases						K6		
UNIT- I	Fundamentals of Edge Computing					Periods: 9			
Introduction and motivation - Definitions, need & evolution of edge computing vs. cloud & fog computing - Edge ecosystem and enabling technologies - Key challenges: latency, bandwidth, scalability, privacy & security - Use cases: IoT, autonomous systems, smart cities								CO1	
UNIT- II	Edge Architectures and Platforms					Periods: 9			
Edge computing architectures (device edge, network edge, cloudlets) - Multi-access Edge Computing standards and frameworks - Edge hardware: edge servers, gateways, sensors, smart devices - Software platforms & middleware for edge deployments - APIs and interfaces for edge applications								CO2	
UNIT- III	Resource Management and Communication					Periods: 9			
Resource allocation & task scheduling in edge environments - Load balancing, virtualization & containerization at the edge - Networking protocols & communication stack - Edge data processing & caching - Performance metrics: latency, throughput, energy efficiency								CO3	
UNIT- IV	Edge Security, Privacy, and Operations					Periods: 9			
Security challenges in edge computing - Encryption, authentication, access control & secure communication - Privacy-preserving techniques - Fault tolerance & reliability - Monitoring, orchestration & management tools								CO4	
UNIT- V	Advanced Topics and Applications					Periods: 9			
Edge AI / Machine Learning at the edge - Integration of edge with 5G networks - Edge-enabled applications: healthcare, AR/VR, industrial IoT - Future trends & research directions (6G, edge blockchain, edge analytics) - Case studies & demos								CO5	
Lecture Periods: 45		Tutorial Periods: -		Practical Periods: -		Total Periods: 45			
Text Books									
1. Kumari et al., "Edge Computing Fundamentals, Advances and Applications", CRC Press, 2022.									
2. Gandomani et al., "Machine Learning for Edge Computing: Frameworks, Patterns & Best Practices", CRC Press, 2023.									
3. Lanyu Xu, Weisong Shi, "Edge Computing: Systems and Applications", Wiley-IEEE Press, 2025.									
4. Rajkumar Buyya, Satish Narayana Srirama, "Fog and Edge Computing: Principles and Paradigms", Wiley, 2019.									
5. Arun Kumar Sangaiah et al., "Edge AI in Future Computing", CRC Press book series,									
Reference Books									
1. SpringerBriefs in Computer Science, "Edge Computing: A Primer",									
2. Situnayake & Plunkett, "AI at the Edge", O'Reilly Media,									
3. Research edged compendium, "Edge and Fog Computing for IoT Applications",									
4. Coulouris et al, "Distributed Systems: Concepts and Design",									
5. Brendan Burns, " Designing Distributed Systems", O'Reilly,									
Web References									
1. https://en.wikipedia.org/wiki/Edge_computing									
2. https://en.wikipedia.org/wiki/Multi-access_edge_computing									

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	1	2	1	2	2	3	3	1	3
2	1	2	1	2	2	3	3	3	2
3	1	2	1	2	2	3	2	1	3
4	2	2	2	3	2	3	1	1	2
5	3	1	2	3	2	3	2	2	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	10	15	10	5	60	100

* Application Oriented /Problem solving/Design/Analytical in content beyond the syllabus to be given from Unit-5

Academic Curriculum and Syllabi R-2026



SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE

(An Autonomous Institution)

Puducherry

(As per UGC - 2018 Regulations and Affiliated to Pondicherry University)

PUDUCHERRY – 605107

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

M.TECH.

COMPUTER SCIENCE ENGINEERING (BIG DATA ANALYTICS)

(REGULATIONS - 2026)

CURRICULUM AND SYLLABI

M.Tech. Computer Science Engineering (Big Data Analytics)

CURRICULUM

SEMESTER – I										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	P23MAT104	Mathematical Foundations for Data Analytics	BS	3	0	0	3	40	60	100
2	P23BDT101	Exploratory Data Analysis	PC	3	0	0	3	40	60	100
3	P23BDT102	Big Data Frameworks	PC	3	0	0	3	40	60	100
4	P23BDT103	Data Visualization	PC	3	0	0	3	40	60	100
5	P23HSTC01	Research Methodology and IPR	HS	2	0	0	2	40	60	100
6	P23BDE1XX	Professional Elective - I *	PE	3	0	0	3	40	60	100
Practical										
7	P23BDP101	Big Data Computing Laboratory	PC	0	0	4	2	50	50	100
8	P23HSPC01	Technical Report Writing and Seminar	HS	0	0	4	2	100	-	100
Ability Enhancement Course										
9	P23CSC1XX	Certification Course-I #	AEC	0	0	4	-	100	-	100
10	P23ACT10X	Audit Course-I**	AEC	0	0	2	-	100	-	100
							21	590	410	1000

SEMESTER – II										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	P23BDT204	Mining Massive Data	PC	3	0	0	3	40	60	100
2	P23BDT205	Streaming Data Analytics	PC	3	0	0	3	40	60	100
3	P23BDT206	Cloud Computing for Big Data	PC	3	0	0	3	40	60	100
4	P23BDTD01	Distributed Systems	PC	3	0	0	3	40	60	100
5	P23BDE2XX	Professional Elective - II*	PE	3	0	0	3	40	60	100
6	P23BDE2XX	Professional Elective - III*	PE	3	0	0	3	40	60	100
Practical										
7	P23BDP202	Cloud and Streaming Data Analytics Lab	PC	0	0	4	2	50	50	100
8	P23HSPC02	Seminar on ICT a hands on approach	HS	0	0	4	2	100	-	100
Ability Enhancement Course										
9	P23BDC2XX	Certification Course-II #	AEC	0	0	4	-	100	-	100
10	P23ACT20X	Audit Course-II**	AEC	0	0	2	-	100	-	100
							22	590	410	1000

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SEMESTER – III										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	P23BDE3XX	Professional Elective – IV *	PE	3	0	0	3	40	60	100
2	P23BDE3XX	Professional Elective – V *	PE	3	0	0	3	40	60	100
3	P23BDE3XX	Professional Elective – VI *	PE	3	0	0	3	40	60	100
Project Work										
4	P23BDW301	Project Phase – I	PA	0	0	12	6	50	50	100
5	P23BDW302	Internship	PA	0	0	0	2	100	-	100
Ability Enhancement Course										
6	P23BDC301	NPTEL/SWAYAM/MOOC	AEC	0	0	0	-	100	-	100
							17	370	230	600

SEMESTER – IV										
Sl. No.	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Project Work										
1	P23BDW403	Project Phase – II	PA	0	0	24	12	50	50	100
							12	50	50	100

* Professional Elective Courses are to be selected from the list given in Annexure I

Ability Enhancement Courses are to be selected from the list given in Annexure II

** Audit Courses are to be selected from the list given in Annexure III

BS- Basic Sciences

PC – Professional Core

PE – Professional Elective

HS - Humanities and Social Sciences

PA - Professional Activity

CC- Common Course

AC- Audit Course

AEC - Ability Enhancement Course

CREDIT DISTRIBUTION

Semester	I	II	III	IV	Total
Credits	21	22	17	12	72

Total number of credits required to complete

M.Tech in Computer Science and Engineering : 72 credits

M.Tech. Computer Science Engineering (Big Data Analytics)

ANNEXURE- I
PROFESSIONAL ELECTIVE COURSES

Sl. No.	Course Code	Course Title
Professional Elective-I		
1	P26BDE101	Machine Learning
2	P26BDEC01	Deep Learning
3	P26BDE102	Neural Networks
4	P26CSTD01	Text,Web,Social Media Analytics
5	P26BDE103	Image and Video Analytics
Professional Elective-II		
1	P26CSEC01	Data Storage Technologies
2	P26CSEC03	Analytics of Things
3	P26CSTD02	Real-Time Systems
4	P26BDEC02	Information Retrieval
5	P26BDE204	Graph Algorithms & Mining
Professional Elective-III		
1	P26BDE205	Blockchain Technology
2	P26BDE206	Cryptography & Information Security
3	P26BDE207	Semantic Web and Knowledge Management
4	P26BDE208	Applied Machine Learning
5	P26BDE209	Web Analytics and Development
Professional Elective-IV		
1	P26BDE310	Optimization Techniques for Analytics
2	P26CSEC04	Soft Computing
3	P26BDE311	Expert System and Decision Making
4	P26CSEC02	Supply Chain Analytics
5	P26BDE312	Artificial Intelligence
Professional Elective-V		
1	P26BDE313	Advanced Data Structures and Algorithms
2	P26BDE314	Multicore Architectures
3	P26ADEC01	Models of Computation
4	P26CSEC05	User Interface / User Experience Design
5	P26CSEC06	Game Design and Augmented Reality
Professional Elective-VI		
1	P26BDE315	Speech Recognition
2	P26BDE316	Speech and Language Processing
3	P26BDE317	Data Driven Decision Making
4	P26BDE318	Agile and Software Project Management
5	P26BDE319	Reinforcement Learning



ANNEXURE- II
ABILITY ENHANCEMENT COURSES

Sl. No.	Course Code	Course Title
1	P26XXCX01	Adobe Photoshop
2	P26XXCX02	Adobe Animate
3	P26XXCX03	Adobe Dreamweaver
4	P26XXCX04	Adobe After Effects
5	P26XXCX05	Adobe Illustrator
6	P26XXCX06	Adobe InDesign
7	P26XXCX07	Autodesk AutoCAD -ACU
8	P26XXCX08	Autodesk Inventor – ACU
9	P26XXCX09	Autodesk Revit – ACU
10	P26XXCX10	Autodesk Fusion 360 – ACU
11	P26XXCX11	Autodesk 3ds Max – ACU
12	P26XXCX12	Autodesk Maya – ACU
13	P26XXCX13	Cloud Security Foundations
14	P26XXCX14	Cloud Computing Architecture
15	P26XXCX15	Cloud Foundation
16	P26XXCX16	Cloud Practitioner
17	P26XXCX17	Cloud Solution Architect
18	P26XXCX18	Data Engineering
19	P26XXCX19	Machine Learning Foundation
20	P26XXCX20	Robotic Process Automation / Medical Robotics
21	P26XXCX21	Advance Programming Using C
22	P26XXCX22	Advance Programming Using C ++
23	P26XXCX23	C Programming
24	P26XXCX24	C++ Programming
25	P26XXCX25	CCNP Enterprise: Advanced Routing
26	P26XXCX26	CCNP Enterprise: Core Networking
27	P26XXCX27	Cisco Certified Network Associate - Level 2
28	P26XXCX28	Cisco Certified Network Associate- Level 1
29	P26XXCX29	Cisco Certified Network Associate- Level 3
30	P26XXCX30	Fundamentals Of Internet of Things
31	P26XXCX31	Internet Of Things / Solar and Smart Energy System with IoT
32	P26XXCX32	Java Script Programming
33	P26XXCX33	NGD Linux Essentials



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34	P26XXCX34	NGD Linux I
35	P26XXCX35	NGD Linux II
36	P26XXCX36	Advance Java Programming
37	P26XXCX37	Android Programming / Android Medical App Development
38	P26XXCX38	Angular JS
39	P26XXCX39	Catia
40	P26XXCX40	Communication Skills for Business
41	P26XXCX41	Coral Draw
42	P26XXCX42	Data Science Using R
43	P26XXCX43	Digital Marketing
44	P26XXCX44	Embedded System Using C
45	P26XXCX45	Embedded System with IOT / Arduino
46	P26XXCX46	English For IT
47	P26XXCX47	Plaxis
48	P26XXCX48	Sketch Up
49	P26XXCX49	Financial Planning, Banking and Investment Management
50	P26XXCX50	Foundation Of Stock Market Investing
51	P26XXCX51	Machine Learning / Machine Learning for Medical Diagnosis
52	P26XXCX52	IOT Using Python
53	P26XXCX53	Creo (Modelling & Simulation)
54	P26XXCX54	Soft Skills, Verbal, Aptitude
55	P26XXCX55	Software Testing
56	P26XXCX56	MX-Road
57	P26XXCX57	CLO 3D
58	P26XXCX58	Solid works
59	P26XXCX59	Staad Pro
60	P26XXCX60	Total Station
61	P26XXCX61	Hydraulic Automation
62	P26XXCX62	Industrial Automation
63	P26XXCX63	Pneumatics Automation
64	P26XXCX64	Agile Methodologies
65	P26XXCX65	Block Chain
66	P26XXCX66	Devops
67	P26XXCX67	Artificial Intelligence
68	P26XXCX68	Cloud Computing
69	P26XXCX69	Computational Thinking



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70	P26XXCX70	Cyber Security
71	P26XXCX71	Data Analytics
72	P26XXCX72	Databases
73	P26XXCX73	Java Programming
74	P26XXCX74	Networking
75	P26XXCX75	Python Programming
76	P26XXCX76	Web Application Development (HTML, CSS, JS)
77	P26XXCX77	Network Security
78	P26XXCX78	MATLAB
79	P26XXCX79	Azure Fundamentals
80	P26XXCX80	Azure AI (AI-900)
81	P26XXCX81	Azure Data (DP -900)
82	P26XXCX82	Microsoft 365 Fundamentals (SS-900)
83	P26XXCX83	Microsoft Security, Compliance and Identity (SC-900)
84	P26XXCX84	Microsoft Power Platform (PI-900)
85	P26XXCX85	Microsoft Dynamics Fundamentals 365 – CRM
86	P26XXCX86	Microsoft Excel
87	P26XXCX87	Microsoft Excel Expert
88	P26XXCX88	Securities Market Foundation
89	P26XXCX89	Derivatives Equity
90	P26XXCX90	Research Analyst
91	P26XXCX91	Portfolio Management Services
92	P26XXCX92	Cyber Security
93	P26XXCX93	Cloud Security
94	P26XXCX94	PMI – Ready
95	P26XXCX95	Tally – GST & TDS
96	P26XXCX96	Advance Tally
97	P26XXCX97	Associate Artist
98	P26XXCX98	Certified Unity Programming
99	P26XXCX99	VR Development

ANNEXURE-III

AUDIT COURSES

(Common to all M.Tech Programme)

Sl. No.	Course Code	Course Title
1	P26ACTX01	English for Research Paper Writing
2	P26ACTX02	Disaster Management
3	P26ACTX03	Sanskrit for Technical Knowledge
4	P26ACTX04	Value Education
5	P26ACTX05	Constitution of India
6	P26ACTX06	Pedagogy Studies
7	P26ACTX07	Stress Management by Yoga
8	P26ACTX08	Personality Development Through Life Enlightenment Skills
9	P26ACTX09	Unnat Bharat Abhiyan



Academic Curriculum and Syllabi R-2026

Department	Computer Science Engineering (BigData Analytics)		Programme: M.Tech.						
Semester	I		Course Category : BS			*End Semester Exam Type: TE			
Course Code	P23MAT104		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	Mathematical Foundations for Data Analytics		3	1	-	3	40	60	100
Prerequisite	Basic Mathematics								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Basic knowledge of matrix, set theory, functions and relations concepts needed for designing and solving problems.							K1
	CO2	Design and solve Boolean functions for defined problems.							K4
	CO3	Apply the concept of testing of hypothesis for small and large samples in real life problems.							K1
	CO4	Concept of linear regression, correlation, and its applications							K3
	CO5	List the guidelines for designing experiments and recognize the key historical figures in Design of Experiments.							K3
UNIT- I	Matrix Algebra					Periods: 9			
Matrices - Rank of a matrix - Solving system of equations – Eigen values and Eigenvectors - Cayley - Hamilton theorem -Inverse of a matrix.									CO1
UNIT- II	Mathematical logic					Periods:9			
Propositions and logical operators - Truth table - Propositions generated by a set - Equivalence and implication -Basic laws - Some more connectives - Functionally complete set of connectives - Normal forms.									CO2
UNIT- III	Testing of hypothesis					Periods:9			
Sampling distributions – Small and large samples –Tests based on Normal, t test, Chi square test, and F test distributions for testing of means, variance and proportions — Contingency table (test for independent) Goodness of fit.									CO3
UNIT- IV	Correlation and regression					Periods:9			
Correlation –Rank correlation– Regression –Multiple and partial correlation – Method of least squares –Plane of regression – Coefficient of multiple correlation – Coefficient of partial correlation.									CO4
UNIT- V	Design of experiments					Periods:9			
Analysis of variance – One way and two-way classifications – Completely randomized design – Randomized block design –Latin square design - 2 ² Factorial design.									CO5
Lecture Periods: 30		Tutorial Periods: 15		Practical Periods: -		Total Periods: 45			
Text Books									
1. David Makinson, "Sets, Logic and Maths for Computing", Springer Indian Reprint, 2011. 2. Grimaldi, R.P and Ramana, B.V. "Discrete and Combinatorial Mathematics", Pearson Education, Fifth Edition, 2006. 3. C W. Evans, "Engineering Mathematics", A Programmed Approach, 3rd Edition, 2019.									
Reference Books									
1. Kenneth H. Rosen, "Discrete Mathematics and Its Applications", Tata McGraw Hill, 4th Edition, 2002. 2. Sengadir, T. "Discrete Mathematics and Combinatorics" Pearson Education, New Delhi, 2009. 3. Trembley, J.P. and Manohar, R, "Discrete Mathematical Structures with Applications to Computer Science", Tata McGraw Hill, New Delhi, 2007. 4. Venkataraman, M.K., "Engineering Mathematics", Volume-II, National Publishing Company, Second Edition, 1989. 5. Dr. A. Singaravelu, "Engineering Mathematics - I", Meenakshi publications, Tamil Nadu, 2019.									
Web References									
1. https://sites.math.northwestern.edu/~mlerma/courses/cs310-05s/ 2. https://csd.cs.cmu.edu/course-profiles/15-151-Mathematical-Foundations-for-Computer-Science 3. https://www.coursera.org/learn/mathematics-for-computer-science 4. https://www.cse.iitb.ac.in/~supratik/courses/cs719/index.html 5. https://www.irif.fr/~jep/PDF/MPRI/MPRI.pdf									

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	2	1	-	-	-	1	1	2	1
2	3	2	1	1	-	1	2	2	1
3	3	2	1	1	-	1	2	2	1
4	3	2	1	1	-	-	2	2	1
5	3	2	1	1	-	-	2	2	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	10	15	10	5	60	100

* Application Oriented /Problem solving/Design/Analytical in content beyond the syllabus to be given from Unit-5

Academic Curriculum and Syllabi R-2026

Department	Computer Science Engineering (Big Data Analytics)			Programme: M.Tech.						
Semester	I			Course Category : PC		*End Semester Exam Type: TE				
Course Code	P23BDT102			Periods / Week		Credit	Maximum Marks			
				L	T	P	C	CAM	ESE	TM
Course Name	Exploratory Data Analysis			3	-	-	3	40	60	100
Prerequisite	No Prerequisite needed									
Course Outcomes	On completion of the course, the students will be able to							BT Mapping (Highest Level)		
	CO1	Handle missing data in the real-world data sets by choosing appropriate methods.						K3		
	CO2	Summarize the data using basic statistics. Visualize the data using basic graphs and plots.						K3		
	CO3	Identify the outliers if any in the data set.						K2		
	CO4	Choose appropriate feature selection and dimensionality reduction.						K3		
CO5	Apply Techniques for handling multi-dimensional data.						K3			
UNIT – I	Introduction To Exploratory Data Analysis					Periods:9				
Introduction to Exploratory Data Analysis (EDA) - Data Analytics lifecycle- Definition, Motivation, Steps in data exploration- Data Types: Numerical Data – Discrete data, continuous data – Categorical data – Measurement Scales: Nominal, Ordinal, Interval, Ratio – Comparing EDA with classical and Bayesian Analysis – Software tools for EDA.									CO1	
UNIT – II	Data Transformation, Correlation Analysis and Time Series Analysis					Periods:9				
Transformation Techniques: Performing data deduplication - replacing values – Discretization and binning. Introduction to Missing data, handling missing data: Traditional methods - Maximum Likelihood Estimation. Types of analysis: Univariate analysis - bivariate analysis - multivariate analysis. Time Series Analysis (TSA): Fundamentals of TSA - characteristics of TSA – Time based indexing - visualizing time series – grouping time series data - resampling time series data.									CO2	
UNIT – III	Data Summarization and Visualization					Periods:9				
Statistical summary measures, data elaboration, 1-D Statistical data analysis, 2-D Statistical data Analysis, contingency tables, n-D Statistical data analysis. Visualization: Scatter plots – Dot charts - Bar plots.									CO3	
UNIT – IV	Clustering Algorithms and Dimensionality Reduction					Periods:9				
Introduction to Spectral clustering – Document clustering – Minimum Spanning Tree clustering. Overview of Model-based clustering – Expectation-Maximization algorithm – Hierarchical Agglomerative model-based clustering. Outlier detection using Clustering. Principal Component Analysis (PCA) – Singular Value Decomposition – Factor Analysis - Intrinsic Dimensionality. Non Linear methods: Multidimensional Scaling – Manifold Learning – Self-Organizing Maps.									CO4	
UNIT – V	Model Development and Evaluation					Periods:9				
Statistical summary measures, data elaboration, 1-D Statistical data analysis, 2-D Statistical data Analysis, contingency tables, n-D Statistical data analysis. Visualization: Scatter plots – Dot charts - Bar plots.									CO5	
Lecture Periods: 45		Tutorial Periods: -		Practical Periods: -		Total Periods: 45				
Text Books										
1. Suresh Kumar Mukhiya, Usman Ahmed, "Hands-On Exploratory Data Analysis with Python" 1st Edition, 2020, Packt Publishing.										
2. Martinez, W , Martinez A & J.L. Solka : Exploratory Data Analysis with MATLAB, CRC Press, A Chapman & Hall Book, 3rd Edition, 2017										
3. Foster Provost and Tom Fawcett, "Data Science for Business", 1st Edition, 2013										
Reference Books										
1. Michael Jambu, "Exploratory and multivariate data analysis", 1991, 1st Edition, Academic Press Inc.										
2. Charu C. Aggarwal, "Data Mining The Text book", 2015, Springer.										
3. Craig K. Enders, "Applied Missing Data Analysis", 2010, 1st Edition, The Guilford Press										
4. Kieran Healy , "Data Visualization: A Practical Introduction" 1st Edition, 2018										
5. Alex Reinhart , "Statistics Done Wrong", 1st Edition, 2015										
Web References										
1. https://www.dataschool.io/										
2. https://www.datascamp.com/										
3. https://www.kaggle.com/										
4. https://towardsdatascience.com/										

* TE – Theory Exam, LE – Lab Exam

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COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	2	1	2	2	1	-	1	3	-
2	1	1	2	2	1	2	1	-	3
3	2	1	1	2	1	2	1	3	-
4	3	1	2	1	-	1	-	3	1
5	3	1	1	2	-	-	-	-	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	10	15	10	5	60	100

* Application Oriented /Problem solving/Design/Analytical in content beyond the syllabus to be given from Unit-5

Academic Curriculum and Syllabi R-2026

Department	Computer Science Engineering(Big Data Analytics)		Programme: M.Tech.																																																			
Semester	I		Course Category : PC			*End Semester Exam Type: LE																																																
Course Code	P23BDP101		Periods / Week			Credit	Maximum Marks																																															
			L	T	P	C	CAM	ESE	TM																																													
Course Name	Big Data Computing Laboratory		-	-	4	1	50	50	100																																													
Prerequisite	Basics of Big Data																																																					
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)																																													
	CO1	Configure Hadoop and perform File Management Tasks.							K2																																													
	CO2	Apply MapReduce programs to real time issues like word count, weather dataset and sales of a company.							K3																																													
	CO3	Critically analyze huge data set using Hadoop distributed file systems and MapReduce.							K2																																													
	CO4	Apply different data processing tools like Pig, Hive and Spark.							K3																																													
	CO5	To validate and analysis the data computing.							K4																																													
List of Experiments:																																																						
<ol style="list-style-type: none"> Develop a MapReduce program to calculate the frequency of a given word in agiven file. Develop a MapReduce program to find the maximum temperature in each year. Develop a MapReduce program to find the grades of student's. Develop a MapReduce program to implement Matrix Multiplication. Develop a MapReduce to find the maximum electrical consumption in each year givenelectrical consumption for each month in each year. Develop a MapReduce to analyze weather data set and print whether the days shinny or coolday. Develop a MapReduce program to find the number of products sold ineach countryby considering sales data containing fields like Tranction _Date Product Price Payment_Type Name City\State CountryAccount_Created Last_Login Latitude Longitude Develop a MapReduce program to find the tags associated with each movie byanalyzingmovie lens data. XYZ.com is an online music website where users listen to various tracks, the data gets collected whichis given below. The data is coming in log files and looks like as shown below. <table border="1" style="margin-left: 40px;"> <tr><td>Userld</td><td> </td><td>Trackld</td><td> </td><td>Shared</td><td> </td><td>Radio</td><td> </td><td>Skip</td></tr> <tr><td>111115</td><td> </td><td>222</td><td> </td><td>0</td><td> </td><td>1</td><td> </td><td>0</td></tr> <tr><td>111113</td><td> </td><td>225</td><td> </td><td>1</td><td> </td><td>0</td><td> </td><td>0</td></tr> <tr><td>111117</td><td> </td><td>223</td><td> </td><td>0</td><td> </td><td>1</td><td> </td><td>1</td></tr> <tr><td>111115</td><td> </td><td>225</td><td> </td><td>1</td><td> </td><td>0</td><td> </td><td>0</td></tr> </table> Write a MapReduce Number of unique listeners. Number of times the track was shared with others Number of times the track was listened to on the radio Number of times the track was listened to in total Number of times the track was skipped on the radio Develop a MapReduce program to find the frequency of books published eachyear and find in which year maximum number of books were published using the following data. Title Author Published year Author country Language No of pages Develop a MapReduce program to analyze Uber data set to find the days on which each basement has more trips using the following dataset. The Uber dataset consists of four columns they are dispatching_base_number date active vehicles trips Develop a program to calculate the maximum recorded temperature by year wise for the weather dataset inPig Latin Write queries to sort and aggregate the data in a table using HiveQL. 										Userld		Trackld		Shared		Radio		Skip	111115		222		0		1		0	111113		225		1		0		0	111117		223		0		1		1	111115		225		1		0		0
Userld		Trackld		Shared		Radio		Skip																																														
111115		222		0		1		0																																														
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111117		223		0		1		1																																														
111115		225		1		0		0																																														
Lecture Periods: -			Tutorial Periods: -			Practical Periods: 45		Total Periods: 45																																														
Reference Books																																																						
<ol style="list-style-type: none"> Tom White, "Hadoop: The Definitive Guide", Fourth Edition, O'reilly Media, 2015 Glenn J. Myatt, "Making Sense of Data" , John Wiley & Sons, 2007 Pete Warden, "Big Data Glossary", O'Reilly, 2011. Michael Berthold, David J.Hand, "Intelligent Data Analysis", Spingers, 2007. Chris Eaton, Dirk DeRoos, Tom Deutsch, George Lapis, Paul Zikopoulos, "Uderstanding Big Data : Analytics for Enterprise Class Hadoop and Streaming Data", McGrawHill Publishing,2012. 																																																						

Academic Curriculum and Syllabi R-2026

Web References

1. <https://hadoop.apache.org/>
2. <https://spark.apache.org/>
3. <https://flink.apache.org/>
4. <https://storm.apache.org/>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	2	2	2	3	2	2	3	2	2
2	1	2	2	2	2	2	3	2	2
3	1	3	3	3	3	3	3	3	3
4	2	3	3	3	3	3	3	3	3
5	1	3	3	3	3	3	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	Performance in practical classes			Model Practical Examination	Attendance		
	Conduction of practical	Record work	viva				
Marks	15	5	5	15	10	50	100



Academic Curriculum and Syllabi R-2026

Department	Computer Science Engineering (Big Data Analytics)			Programme: M.Tech.					
Semester	I			Course Category : HS		*End Semester Exam Type: LE			
Course Code	P23HSPC01			Periods / Week			Credit	Maximum Marks	
				L	T	P	C	CAM	ESE
Course Name	Technical Report Writing and Seminar			-	-	4	2	100	100
(Common to all M.Tech Programme)									
Prerequisite	No Prerequisite needed								
Course Outcomes	On completion of the course, the students will be able to								BT Mapping (Highest Level)
	CO1	Select a subject, narrowing the subject into a topic.							K2
	CO2	State an objective and collecting the relevant bibliography (at least 15 journal papers).							K2
	CO3	Study the papers and understanding the author's contributions and critically analyzing each paper.							K3
	CO4	Prepare a working outline and linking the papers and preparing a draft of the paper.							K2
	CO5	Prepare a working outline and linking the papers and preparing a draft of the paper.							K2
List of Experiments:									
Activity	Instructions					Submission week	Evaluation		
Selection of area of interest and Topic	Select an area of interest, topic and state an objective					2nd week	3 % Based on clarity of thought, current relevance and clarity in writing		
Stating an Objective									
Collecting Information about area & topic	1. List 1 Special Interest Groups or professional society 2. List 2 journals 3. List 2 conferences, symposia or workshops 4. List 1 thesis title 5. List 3 web presences (mailing lists, forums, news sites) 6. List 3 authors who publish regularly in your area 7. Attach a call for papers (CFP) from your area.					3rd week	3% (the selected information must be area specific and of international and national standard)		
Collection of Journal papers in the topic in the context of the objective – collect 20 & then filte	<input type="checkbox"/> provide a complete list of references you will be using- Based on your objective -Search various digital libraries and Google Scholar <input type="checkbox"/> When picking papers to read - try to: - Pick papers that are related to each other in some ways and/or that are in the same field so that you can write a meaningful survey out of them. - Favour papers from well-known journals and conferences, in the field (as indicated in other Favour more recent papers, - Pick a recent survey of the field so you can quickly gain an overview, Find relationships with respect to each other and to your topic area(classification scheme/categorization) - Mark in the hard copy of papers whether complete work or section/sections of the paper are being considered					4th week	6% (the list of standard papers and reason for selection)		
Reading and notes for first 5 papers	Reading Paper Process For each paper form a Table answering the following questions: <input type="checkbox"/> What is the main topic of the article? <input type="checkbox"/> What was/were the main issue(s) the author said they want to discuss? <input type="checkbox"/> Why did the author claim it was important? <input type="checkbox"/> What simplifying assumptions does the author claim to be making? <input type="checkbox"/> What did the author do? <input type="checkbox"/> How did the author claim they were going to evaluate their work and compare it to others? <input type="checkbox"/> What did the author say were the limitations of their					6th week	8% (The table given should indicate your understanding of the paper and the evaluation is based on your conclusions about each paper)		

M.Tech. Computer Science Engineering (Big Data Analytics)

Academic Curriculum and Syllabi R-2026

	research? <input type="checkbox"/> What did the author say were the important directions for future research? <input type="checkbox"/> Conclude with limitations/issues not addressed by the paper (from the perspective of survey)		
Reading and notes for next 5 papers	Repeat Reading Paper Process	7 th week	8% (the table given should indicate your understanding of the paper and the evaluation is based on your conclusions about each paper
Draft outline 1 and Linking papers	Prepare a draft Outline, your survey goals, along with a classification / categorization diagram	8 th week	8% (this component will be evaluated based on the linking and classification among the papers)
Abstract	Prepare a draft abstract and give a presentation	9 th week	6%(Clarity, purpose and conclusion) 6% Presentation & Viva Voce
Introduction Background	Write an introduction and background sections	10th week	5% (clarity)
Sections of the paper	Write the sections of your paper based on the classification / categorization diagram in keeping with the goals of your survey	11th week	10% (this component will be evaluated based on the linking and classification among the papers)
Conclusions	Write your conclusions and future work	12th week	5% (conclusions)
Final Draft	Complete the final draft of your paper	13th week	10% (formatting, English, Clarity and linking) 4% Plagiarism Check Repor
Seminar	A brief 15 slides on your paper	14th & 15th week	10% (based on presentation and Vivavoce)
Lecture Periods: -	Tutorial Periods: -	Practical Periods: 45	Total Periods: 45

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)						Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
1	2	3	3	1	3	3	2	1	2
2	2	3	2	1	3	2	2	1	2
3	2	3	2	1	3	2	2	1	2
4	2	3	2	1	3	2	2	1	2
5	2	3	2	1	3	2	2	1	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)				Attendance	End Semester Examination (ESE) Marks	Total Marks
	Weekly Progress	Seminar	Record work	Viva			
Marks	40	30	10	10	10	-	100





DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
PROGRESS OF PH.D. SCHOLARS

S. No	Name of the Candidate	Supervisor	Mode	Number of DC Conducted	Number of Course Work Completed
1	Mrs. P. Bhavani	Dr. N. Danapaquiame	Part-Time (Internal)	2	4
2	Mr. Arokiaraj St. Hubert	Dr. J. Madhusudanan	Part-Time (Internal)	2	4
3	Mr. S. Diwahar	Dr. J. Madhusudanan	Part-Time (External)	2	4
4	Mr. G. Aurobind	Dr. R. Ramachandiran	Part-Time (External)	Thesis Submitted	4
5	Ms. T. Prateesshma	Dr. R. Raju	Regular	Viva-Voce Completed.	4

