



JECRCTM
UNIVERSITY
BUILD YOUR WORLD

School of Engineering

Syllabi and Course Structure

B. Tech. (Computer Science & Engineering)
(2024-2028)
(Kalvium)
Academic Programmes

June 2024

The curriculum and syllabus for B.Tech. Program conforms to outcome based teaching learning process. In general, several outcomes have been identified and the curriculum and syllabus have been planned in such a way that each of the courses meets one or more of these outcomes. Student outcomes illustrate the students are expected to know and be able to do by the time of graduation. These relate to the skills, understanding, and behaviour that students acquire as they progress through the program. Further each course in the program brings out clear instructional objectives which are mapped to the student outcomes.

B.Tech. (CSE) Program Educational Objective (PEO's):

A graduate of the Computer Science and Engineering Program should:

PEO- I

Students will develop themselves as effective professionals by solving real problems through the use of computer science knowledge and with attention to team work, effective communication, critical thinking and problem solving skills.

PEO- II

Students will develop professional skills that prepare them for immediate employment and for life-long learning in advanced areas of computer science and related fields.

PEO- III

Students will demonstrate their ability to adapt to a rapidly changing environment by having learned and applied new skills and new technologies.

PEO- IV

Students will be provided with an educational foundation that prepares them for excellence, leadership roles along diverse career paths with encouragement to professional ethics and active participation needed for a successful career.

Program Outcome(PO's)

A graduate of the Computer Science and Engineering Program will demonstrate:

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: Culture, Values and Ethics: Understand the importance of culture and Values along with the implications it has on learning, teaching, engineering practice, identity, and enculturation as an engineer. Apply ethical principles being committed to professional ethics, 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 Specific Outcome:

PSO1: The ability to understand, analyze and develop computer programs in the areas related to algorithms, system software, multimedia, web design, big data analytics, cyber security, machine learning and networking for efficient design and automation of computer-based systems of varying complexity. (Professional Skills)

PSO2: The ability to apply standard and modern practices like Python, R language, automation and strategies in software project development using open-ended programming environments to deliver a quality product for business success. (Problem-Solving Skills)

PSO3: The ability to employ modern computer languages, environments, and platforms in creating innovative career paths in the field of AI and Machine learning, Cloud Computing, Robotic automation, cyber security to be an entrepreneur, and a zest for higher studies.(Successful Career and Entrepreneurship)

Semester 1

S.No.	Course Code	Course Name	Credits	Core
1	BCO527A	Front-end web development	3	Skilling
2	BCO528A	Front-end web development Lab	1	Skilling
3	BCO529A	Critical thinking 101	4	Foundation
4	DMA021A	Discrete Mathematics	4	Academic
5	BCO530A	Professional skills for the workplace	3	Foundation
6	BCO531A	The breadth of computer science 1	4	Academic
7	BCO532A	Problem solving using programming	3	Skilling
8	BCO533A	Problem solving using programming Lab	1	Skilling
9	BCO534A	Design for developers	3	Academic
			26	

Semester 2

S.No.	Course Code	Course Name	Credits	Core
1	BCO538A	Learning how to learn	4	Foundation
2	BCO539A	The breadth of computer science 2	4	Academic
3	BCO540A	Full Stack Web Development	12	Skilling
			20	

Semester 3

S.No.	Course Code	Course Name	Credits	Core
1		Economics, Politics and Rural Society	3	Foundation
2		Development		
3		Mathematical thinking 101	4	Foundation
4		Database Management Systems	5	Academic
5		Object Oriented Programming	4	Academic
6		Integrated work with a partner company	8	Integrated Work
			24	

Semester 4

S.No.	Course Code	Course Name	Credits	Core
1		How human languages work?	4	Foundation
2		Tools and techniques for creative thinking	4	Foundation
3		Operating Systems	4	Academic
4		Data Structure and Algorithms	4	Academic
5		Integrated work with a partner company	8	Integrated Work
			24	

Semester 5

S.No.	Course Code	Course Name	Credits	Core
1		English LSRW	3	Foundation
2		Principles of Science	4	Foundation
3		Computer Organization & Architecture	4	Academic
4		Formal Language & Automata Theory	4	Academic
5		Design & Analysis of Algorithms	3	Academic
6		Integrated work with a partner company	8	Integrated Work
			26	

Semester 6

S.No.	Course Code	Course Name	Credits	Core
1		Discovering Self	3	Foundation
2		Fundamentals of Business Management	3	Foundation
3		Compiler Design	4	Academic
4		Computer Networks	4	Academic
5		Integrated work with a partner company	8	Integrated Work
			22	

Semester 7

S.No.	Course Code	Course Name	Credits	Core
1		Introduction to philosophy	3	Foundation
2		Foundation Elective	3	Foundation
3		Academic Elective #1	4	Academic
4		Academic Elective #2	4	Academic
5		Integrated work with a partner company	8	Integrated Work
			22	

Semester 8

S.No.	Course Code	Course Name	Credits	Core
1		Integrated work with a partner company	20	Integrated Work
			20	