SYNERGY INSTITUTE OF ENGINEERING AND TECHNOLOGY
Approved by AICTE New Delhi, Affiliated to BPUT
By the side of N.H.-55, Banamaliprasad, Dhenkanal-759001

VISION OF SYNERGY INSTITUTE OF ENGINEERING & TECHNOLOGY, DHENKANAL

To become an internationally acceptable Institute of Technical Education, with excellence in academics, research and inculcation of human values.

MISSION OF SYNERGY INSTITUTE OF ENGINEERING & TECHNOLOGY, DHENKANAL

M1. To impart quality engineering education and technological skill with highly qualified and experienced faculty.

M2. To empower students with professional competencies through skill development training on cutting edge technologies for meeting global challenges.

M3. To inculcate the habit of continual learning.

M4. To nourish the qualities of leadership, entrepreneurship, innovation and ethics.

M5. To create an outstanding ambience of academics, intellectual pursuits, innovative research and physical activities.

VISION OF DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

To build healthy academic ambiences align with frontline research and quality teaching to cater for the cutting age technologies of the 21st century.

MISSION OF DEPARTMENT OFCOMPUTER SCIENCE & ENGINEERING

M1. To provide quality education in both theory and practice and train students to effectively apply this knowledge to amplify their potential for lifelong high-quality careers.

M2. To conduct research and subsequent innovations to solve real- world problems.

M3. To promote leadership, teamwork and ethical values among the students to help in their character building.

PROGRAM EDUCATIONAL OBJECTIVE OF COMPUTER SCIENCE & ENGINEERING

I.   Students will excel in technical profession that meets the needs of national and multinational companies.

II. Students will develop the ability to synthesize data and technical concepts for application to Software Product design.

III. Students will demonstrate the leadership quality as part of teams on multidisciplinary projects.

IV. Students will succeed in life-long learning by exhibiting professional ethics.

PROGRAM OUTCOMES OF COMPUTER SCIENCE & ENGINEERING

PO1 Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems.

PO2 Problem Analysis: Identify, formulate, research literature, and analyse 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 public health and safety, and 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.

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PO5 Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling to complex engineering activities, with an understanding of the limitations.

PO6 The Engineer & 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 & 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 Teamwork: 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 the 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 & 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 OUTCOMES OF COMPUTER SCIENCE & ENGINEERING

PSO1 Demonstrate basic knowledge of computer applications and apply standard practices in software project development.

PSO2 Understand, analyse and develop computer programs for efficient design of computer-based systems of varying complexity.

PSO3 Develop system solutions involving both hardware and software modules.

COURSE OUTCOME OF COMPUTER ORGANIZATION AND ARCHITECTURE LAB

Co1. Draw the functional block diagram of a single bus architecture of a computer and describe the function of **the instruction execution cycle, RTL interpretation of instructions, addressing modes, instruction set.**

Co2. Write assembly language program for specified microprocessor for computing 16-bit multiplication, division and I/O device interface (ADC, Control circuit, serial port communication).

Co3. Write a flowchart for Concurrent access to memory and cache coherency in Parallel Processors and describe the process.

Co4. Given a CPU organization and instruction, design a memory module and analyze its operation by interfacing with the CPU.

Co5. Given a CPU organization, assess its performance, and apply design techniques to enhance performance using pipelining, parallelism and RISC methodology