Performance Indicators (PIs): (CSE/IT and allied programs)

PI #	PI Description
1.2.1	Apply the knowledge of discrete structures, linear algebra, statistics and numerical techniques to solve problems
1.2.2	Apply the concepts of probability, statistics and queuing theory in modeling of computer based system, data and network protocols.
1.5.1	Apply laws of natural science to an engineering problem
1.6.1	Apply engineering fundamentals
1.7.1	Apply theory and principles of computer science engineering to solve an engineering problem
2.5.1	Evaluate problem statements and identifies objectives
2.5.2	Identifies processes/modules/algorithms of a computer based system and parameters to solve a problem
2.5.3	Identifies mathematical algorithmic knowledge that applies to a given problem
2.6.1	Reframe the computer based system into interconnected subsystems
2.6.2	Identifies functionalities and computing resources
2.6.3	Identify existing solution/methods to solve the problem, including forming justified approximations and assumptions
2.6.4	Compare and contrast alternative solution/methods to select the best methods
2.6.5	Compare and contrast alternative solution processes to select the best process
2.7.1	Able to apply computer engineering principles to formulate modules of a system with required applicability and performance
2.7.2	Identify design constraints for required performance criteria.
2.8.1	Applies engineering mathematics to implement the solution.
2.8.2	Analyze and interpret the results using contemporary tools.
2.8.3	Identify the limitations of the solution and sources/causes
2.8.4	Arrive at conclusions with respect to the objectives
3.5.1	Able to define a precise problem statement with objectives and scope
3.5.2	Able to identify and document system requirements from stake holders
3.5.3	Ability to review state of the art literature to synthesize system requirements
3.5.4	Ability to choose appropriate quality attributes as defined by ISO/IEC/IEEE/relevant standard.
3.5.5	Explore and synthesize system requirements from larger social and professional concerns
3.5.6	Ability to develop software requirement specifications (SRS).
3.6.1	Ability to explore design alternatives
3.6.2	Ability to produce a variety of potential design solutions suited to meet functional requirements
3.6.3	Identify suitable non functional requirements for evaluation of alternate design solutions.
3.7.1	Ability to perform systematic evaluation of the degree to which several design concepts meet the criteria.
3.7.2	Consult with domain experts and stakeholders to select candidate engineering design solution for further development
3.8.1	Ability to refine architecture design into a detailed design within the existing constraints
3.8.2	Ability to implement and integrate the modules
3.8.3	Ability to verify the functionalities and validate the design.
4.4.1	Define a problem for purposes of investigation, its scope and importance

PI #	PI Description
4.4.2	Ability to choose appropriate procedure/algorithm, data set and test cases.
4.4.3	Ability to choose appropriate hardware/software tools to conduct the experiment
4.5.1	Design and develop appropriate procedures/methodologies based on the study objectives
4.6.1	Use appropriate procedures, tools and techniques to collect and analyze data
4.6.2	Critically analyze data for trends and correlations, stating possible errors and limitations
4.6.3	Represent data (in tabular and/or graphical forms) so as to facilitate analysis and explanation of the data, and drawing of conclusions
4.6.4	Synthesize information and knowledge about the problem from the raw data to reach appropriate conclusions
5.4.1	Identify modern engineering tools, techniques and resources for engineering activities
5.4.2	Create/adapt/modify/extend tools and techniques to solve engineering problems
5.5.1	Identify the strengths and limitations of tools for (i) acquiring information, (ii) modeling and simulating, (iii) monitoring system performance, and (iv) creating engineering designs.
5.5.2	Demonstrate proficiency in using discipline specific tools
5.6.1	Discuss limitations and validate tools, techniques and resources
5.6.2	Verify the credibility of results from tool use with reference to the accuracy and limitations, and the assumptions inherent in their use.
6.3.1	Identify and describe various engineering roles; particularly as pertains to protection of the public and public interest at global, regional and local level
6.4.1	Interpret legislation, regulations, codes, and standards relevant to your discipline and explain its contribution to the protection of the public
7.3.1	Identify risks/impacts in the life-cycle of an engineering product or activity
7.3.2	Understand the relationship between the technical, socio economic and environmental dimensions of sustainability
7.4.1	Describe management techniques for sustainable development
7.4.2	Apply principles of preventive engineering and sustainable development to an engineering activity or product relevant to the discipline
8.3.1	Identify situations of unethical professional conduct and propose ethical alternatives
8.4.1	Identify tenets of the ASME/appropriate professional code of ethics
8.4.2	Examine and apply moral & ethical principles to known case studies
9.4.1	Recognize a variety of working and learning preferences; appreciate the value of diversity on a team
9.4.2	Implement the norms of practice (e.g. rules, roles, charters, agendas, etc.) of effective team work, to accomplish a goal.
9.5.1	Demonstrate effective communication, problem solving, conflict resolution and leadership skills
9.5.2	Treat other team members respectfully
9.5.3	Listen to other members are in difficult situations
9.6.1	Present results as a team, with smooth integration of contributions from all individual efforts
10.4.1	Read, understand and interpret technical and nontechnical information
10.4.2	Produce clear, well-constructed, and well-supported written engineering documents
10.4.3	Create flow in a document or presentation - a logical progression of ideas so that the main point is clear

PI #	PI Description
10.5.1	Listen to and comprehend information, instructions, and viewpoints of others
10.5.2	Deliver effective oral presentations to technical and nontechnical audiences
10.6.1	Create engineering-standard figures, reports and drawings to complement writing and presentations
10.6.2	Use a variety of media effectively to convey a message in a document or a presentation
11.4.1	Describe various economic and financial costs/benefits of an engineering activity
11.4.2	Analyze different forms of financial statements to evaluate the financial status of an engineering project
11.5.1	Analyze and select the most appropriate proposal based on economic and financial considerations
11.6.1	Identify the tasks required to complete an engineering activity, and the resources required to complete the tasks.
11.6.2	Use project management tools to schedule an engineering project so it is completed on time and on budget.
12.4.1	Describe the rationale for requirement for continuing professional development
12.4.2	Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap
12.5.1	Identify historic points of technological advance in engineering that required practitioners to seek education in order to stay current
12.5.2	Recognize the need and be able to clearly explain why it is vitally important to keep current regarding new developments in your field
12.6.1	Source and comprehend technical literature and other credible sources of information
12.6.2	Analyze sourced technical and popular information for feasibility, viability, sustainability, etc