

Bachelor of Science in Software Engineering (BSSE)

Introduction of the BSSE Program:

Software Engineering is the discipline of developing and maintaining software systems that behave reliably and efficiently and are affordable to develop and maintain. However, more recently it has evolved in response to the increased importance of software in safety-critical applications and to the growing impact of large and expensive software systems in a wide range of situations.

Software plays a central and underpinning role in almost all aspects of daily life: communications, government, manufacturing, banking and finance, education, transportation, entertainment, medicine, agriculture, and law. The number, size, and application domains of computer programs have grown dramatically; as a result, huge sums are being spent on software development. Most people's lives and livelihoods depend on this development's effectiveness. Software products help us to be more efficient and productive. They provide information, make us more effective problem solvers, and provide us with safer, flexible, and less confining work, entertainment, and recreation environments.

Software Engineering is the application of a systematic, disciplined, and quantifiable approach to the design, development, operation, and maintenance of software systems. It is in fact the practice of designing and implementing large, reliable, efficient, and economical software by applying the principles and practices of engineering. The department aims to train students in all aspects of software life cycle from specification through analysis and design to testing, maintenance and evolution of software products.

Program Mission:

The mission of Bachelor of Software Engineering program is to prepare technically strong Software Engineers who can contribute effectively towards the nation, society, and the world at large through effective problem-solving skills, application of engineering knowledge, leadership, and healthy lifelong learning attitude.

Program Educational Objectives (PEOs):

PEO-1: Graduate should engage in successful professional practice in their chosen discipline and demonstrate professional advancement through significant technical achievements.

PEO-2: Graduates should demonstrate professional attitudes, ethics, and ability to work effectively as a team member and/or leader in an ever-changing professional environment.

PEO-3: Graduates should pursue advanced degrees in computing, sciences, engineering, business, or other professionally related fields, and will engage in life-long learning and professional development.

Program Learning Outcomes (PLOs):

BSSE Program Learning Outcomes (PLOs)

Sr#	PLOs	Description
1	Academic Education	To prepare graduates as computing professionals
2	Knowledge Solving for Computing Problems	Apply knowledge of computing fundamentals, knowledge of a computing specialization, and mathematics, science, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements

3	Problem Analysis	Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines
4	Design/ Development of Solutions	Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations
5	Modern Tool Usage	Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations
6	Individual and Teamwork	Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings
7	Communication	Communicate effectively with the computing community and with society at large about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and understand clear instructions
8	Computing Professionalism and Society	Understand and assess societal, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice
9	Ethics	Understand and commit to professional ethics, responsibilities, and norms of professional computing practice
10	Life-long Learning	Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional

Revised Scheme of study for BS Software Engineering

Areas	Credit Hours	Courses
Computing Core	46	14
Domain Core	18	6
Domain Elective	21	7
Mathematics & Supporting Courses	12	4
Elective Supporting Courses	3	1
General Education Requirement	34	15
Total	134	47