1. BS Computer Science (BSCS)

1.1 Programme Mission

The mission of the BS Computer Science programme is to provide quality education that develops strong theoretical foundations, practical computing skills, and analytical problem-solving abilities. The programme prepares graduates to design effective computing solutions, work collaboratively, uphold professional and ethical standards, and adapt to emerging technologies through lifelong learning.

1.2 Programme Educational Objectives (PEOs)

The programme aims to prepare graduates who, within approximately three to five years of graduation, will be able to:

1. PEO 1 – Technical competence: Apply computer science principles, programming techniques, algorithms, and data structures to develop solutions to computing problems in professional or academic settings.
2. PEO 2 – Software development: Analyze requirements and design, implement, test, and maintain software systems that satisfy specified functional and quality requirements.
3. PEO 3 – Professional practice: Contribute effectively to individual and team-based computing projects while demonstrating communication skills, ethical conduct, and professional responsibility.
4. PEO 4 – Adaptability and development: Adopt emerging computing technologies and pursue further education, professional certifications, or research-related activities to maintain and extend their technical competence.

1.3 Programme Learning Outcomes (PLOs)

Upon successful completion of the BSCS programme, graduates will be able to:

1. PLO 1 – Computing knowledge: Apply fundamental knowledge of computing, mathematics, algorithms, programming, and relevant scientific principles to solve computing problems.
2. PLO 2 – Problem analysis: Analyze complex computing problems, identify their requirements, and formulate appropriate solutions using established computing principles.
3. PLO 3 – Solution design: Design, implement, and evaluate computing solutions that meet specified requirements, considering relevant constraints and quality attributes.
4. PLO 4 – Investigation: Investigate computing problems through literature review, experimentation, data analysis, and interpretation of results.
5. PLO 5 – Modern tools: Select and use appropriate programming languages, software development environments, and computing tools to develop and evaluate solutions.
6. PLO 6 – Individual and teamwork: Work effectively as an individual and as a member or leader of a team to complete computing projects.
7. PLO 7 – Communication: Communicate technical information, project results, and computing concepts effectively in written reports and oral presentations.
8. PLO 8 – Ethics and society: Evaluate ethical, legal, social, privacy, and security considerations associated with computing solutions.
9. PLO 9 – Project management: Apply basic project planning, resource management, and time-management techniques to complete computing tasks and projects.

2. BS Information Technology (BSIT)

2.1 Programme Mission

The mission of the BS Information Technology programme is to provide quality education that develops students' technical knowledge, practical skills, and problem-solving abilities in information technology. The programme prepares graduates to implement, integrate, and manage technology-based solutions, communicate effectively, uphold professional and ethical standards, and adapt to evolving technological and organizational needs.

2.2 Programme Educational Objectives (PEOs)

The programme aims to prepare graduates who, within approximately three to five years of graduation, will be able to:

1. PEO 1 – IT implementation: Apply information technology concepts and tools to implement solutions addressing organizational and user requirements.
2. PEO 2 – Systems and infrastructure: Configure, integrate, and maintain information systems, databases, computer networks, and IT infrastructure in accordance with specified requirements.
3. PEO 3 – IT service and project management: Contribute to the planning, delivery, and management of IT services and projects using appropriate technical and organizational practices.
4. PEO 4 – Professional responsibility: Demonstrate effective communication, teamwork, ethical conduct, and responsible handling of information in professional environments.
5. PEO 5 – Continuing development: Acquire and apply new IT knowledge and tools through professional development, further education, or industry-based learning.

2.3 Programme Learning Outcomes (PLOs)

Upon successful completion of the BSIT programme, graduates will be able to:

1. PLO 1 – IT knowledge: Apply fundamental computing, networking, database, information systems, and information technology concepts to practical IT tasks.
2. PLO 2 – Requirements analysis: Identify and analyze user and organizational requirements to determine appropriate IT solutions.
3. PLO 3 – IT solution implementation: Configure, integrate, test, and maintain information systems and IT solutions in accordance with defined requirements.
4. PLO 4 – Data and information management: Design and use database and data-management solutions to store, retrieve, process, and maintain information accurately.
5. PLO 5 – Networks and infrastructure: Configure and evaluate computer networks, operating environments, and IT infrastructure using appropriate tools and established practices.
6. PLO 6 – Technical tools: Select and use appropriate software, programming environments, platforms, and diagnostic tools to implement and troubleshoot IT solutions.
7. PLO 7 – Investigation and evaluation: Investigate IT-related problems, compare available solutions, and evaluate their suitability using defined technical and operational criteria.
8. PLO 8 – Teamwork and communication: Communicate technical information effectively and collaborate with users, colleagues, and multidisciplinary teams.
9. PLO 9 – Ethics and security: Apply ethical, legal, privacy, and information-security principles when implementing and managing IT solutions.

3. MS Computer Science (MSCS)

3.1 Programme Mission

The mission of the MS Computer Science programme is to develop advanced knowledge, analytical abilities, and research skills in computer science. The programme prepares graduates to investigate specialized computing problems, apply advanced concepts and research methods, and contribute to research and development in academia and industry, as well as pursue doctoral studies.

3.2 Programme Educational Objectives (PEOs)

The programme aims to prepare graduates who will be able to:

1. PEO 1 – Advanced knowledge: Apply advanced computer science knowledge and specialized techniques to address complex computing problems in their areas of interest.
2. PEO 2 – Research competence: Formulate research questions, critically review relevant literature, and select appropriate research methods to investigate computing problems.
3. PEO 3 – Research and development: Design, conduct, and evaluate computational experiments or analytical investigations and interpret their results using appropriate evidence.
4. PEO 4 – Scholarly communication: Communicate research findings and technical contributions through scholarly writing, presentations, or professional reports.
5. PEO 5 – Professional and academic development: Apply ethical research practices and use their advanced knowledge to contribute to research, development, teaching, or further doctoral study.

3.3 Programme Learning Outcomes (PLOs)

Upon successful completion of the MSCS programme, graduates will be able to:

1. PLO 1 – Advanced computing knowledge: Critically explain and apply advanced concepts, theories, and methods in computer science and a selected specialization.
2. PLO 2 – Critical analysis: Analyze complex or insufficiently understood computing problems and identify limitations in existing approaches.
3. PLO 3 – Literature evaluation: Conduct a structured review of relevant scholarly literature and synthesize findings to establish the context and justification for a computing investigation.
4. PLO 4 – Research design: Formulate research questions or hypotheses and select appropriate research designs, computational methods, and evaluation criteria.
5. PLO 5 – Investigation and experimentation: Design and conduct computational experiments or other systematic investigations, collect and analyze relevant data, and interpret results using appropriate methods.
6. PLO 6 – Solution development: Develop, adapt, or evaluate computational models, algorithms, software, or other technical approaches to address a defined research problem.
7. PLO 7 – Research evaluation: Assess the validity, limitations, reproducibility, and significance of research findings using appropriate evidence and evaluation methods.
8. PLO 8 – Research ethics: Apply ethical principles in research planning, data handling, authorship, citation, and the reporting of results.
9. PLO 9 – Scholarly communication: Prepare a coherent technical or scholarly report and communicate research findings effectively to relevant academic or professional audiences.

4. PhD Computer Science

4.1 Programme Mission

The mission of the PhD Computer Science programme is to develop independent researchers and scholars with advanced expertise and the ability to make original contributions to knowledge. The programme prepares graduates to investigate significant computing problems, advance computer science through innovative research, disseminate scholarly findings, uphold research ethics, and contribute to academic and professional communities.

4.2 Programme Educational Objectives (PEOs)

The programme aims to prepare graduates who, within approximately three to five years of completing their doctorate, will be able to:

PEO 1 – Original research: Conduct independent research that makes an original and defensible contribution to knowledge in computer science.

1. PEO 2 – Advanced research methods: Develop and apply rigorous theoretical, computational, experimental, or empirical methods to investigate complex computing problems.
2. PEO 3 – Scholarly dissemination: Disseminate research findings through peer-reviewed publications, scholarly presentations, and other appropriate academic outputs.
3. PEO 4 – Research leadership: Lead or contribute to research programmes, supervise research activities where institutionally authorized, and collaborate with researchers across relevant disciplines.
4. PEO 5 – Academic and societal contribution: Apply research expertise to advance computer science education, technological development, and the responsible application of computing knowledge.
5. PEO 6 – Research integrity: Uphold research integrity, responsible scholarly conduct, and ethical standards throughout research planning, execution, and dissemination.

4.3 Programme Learning Outcomes (PLOs)

Upon successful completion of the PhD Computer Science programme, graduates will be able to:

1. PLO 1 – Specialized knowledge: Demonstrate comprehensive and critical knowledge of computer science theories, methods, and developments in a specialized research area.
2. PLO 2 – Research problem identification: Identify significant and insufficiently addressed research problems through critical analysis of existing knowledge and scholarly literature.
3. PLO 3 – Original contribution: Formulate research questions and develop original hypotheses, theories, methods, models, algorithms, or other defensible contributions to computer science.
4. PLO 4 – Research methodology: Design and justify rigorous research methodologies appropriate to the research questions, objectives, and nature of the investigation.
5. PLO 5 – Independent investigation: Conduct independent and systematic research using appropriate theoretical, computational, experimental, or empirical techniques.
6. PLO 6 – Critical evaluation: Critically evaluate research results, competing explanations, methodological limitations, and the validity and generalizability of findings.
7. PLO 7 – Originality and significance: Demonstrate the originality, significance, and contribution of the completed doctoral research in relation to existing knowledge.
8. PLO 8 – Scholarly publication: Prepare research manuscripts and communicate original findings through scholarly publications, presentations, and other appropriate academic channels.
9. PLO 9 – Research ethics and integrity: Apply established principles of research ethics, integrity, responsible data management, appropriate attribution, and transparent reporting.