Kurdistan Region– Iraq
Ministry of Higher Education and Scientific Research
Soran University
Faculty of Science

Petroleum Geoscience Department Program Educational Objectives (PEOs)

PEO 1 – Professional Practice and Industry Contribution

Within a few years of graduation, alumni will successfully apply geological, geophysical, and geospatial knowledge in petroleum exploration, reservoir characterization, environmental assessment, and related energy-sector industries, contributing effectively to technical teams and professional practice.

PEO 2 – Career Development and Lifelong Learning

Graduates will pursue continuous professional development through advanced studies, industry training, certifications, research activities, or interdisciplinary engagement in petroleum, geosciences, environmental, and energy-related fields.

PEO 3 – Ethical, Sustainable, and Responsible Practice

Graduates will demonstrate ethical responsibility, leadership, and commitment to health, safety, environmental protection, and sustainable resource management in professional and community contexts.

Biology Department Program Educational Objectives (PEOs)

PEO 1: Professional Competence

Graduates will demonstrate strong foundational and applied knowledge in biological sciences (molecular biology, microbiology, physiology, ecology, and biotechnology) and apply scientific principles effectively in academic, clinical, industrial, and environmental sectors.

PEO 2: Research and Analytical Skills

Graduates will design, conduct, and analyze biological research using modern laboratory techniques, biostatistics, and experimental methodologies, contributing to scientific advancement and problem-solving.

PEO 3: Ethical and Social Responsibility

Graduates will practice biology with high ethical standards, environmental awareness, and social responsibility, contributing positively to public health, sustainability, and community development.

PEO 4: Lifelong Learning and Professional Development

Graduates will pursue continuous learning, postgraduate studies, and professional certifications to remain current with scientific advancements and emerging biotechnologies.

PEO 5: Communication and Leadership

Graduates will communicate scientific knowledge effectively in oral and written forms and demonstrate teamwork, leadership, and interdisciplinary collaboration in professional and academic settings.

Mathematic Department Program Educational Objectives (PEOs)

Graduates of the B.Sc. in Mathematics program at the Department of Mathematics, Faculty of Science, Soran University are expected to achieve the following within three to five years after graduation:

PEO 1 – Advanced Mathematical Competence

Graduates will apply strong foundations in pure and applied mathematics, including analysis, algebra, topology, differential equations, and dynamical systems, to solve theoretical and real-world problems.

PEO 2 – Mathematical Modeling and Scientific Applications

Graduates will develop, analyze, and interpret mathematical models in biology, infectious disease dynamics, environmental systems, and chemical reaction networks, contributing to scientific research and societal challenges.

PEO 3 – Computational and Model Reduction Expertise

Graduates will utilize numerical methods, programming, scientific computing, and model reduction techniques to analyze complex dynamical systems, including infectious disease models and chemical reaction systems, and improve computational efficiency in large-scale simulations.

PEO 4 – Research and Innovation

Graduates will engage in research activities in areas such as dynamical systems, mathematical biology, infectious disease modeling, computational mathematics, and model reduction theory, contributing to interdisciplinary collaboration and scientific advancement.

PEO 5 – Professional Growth and Lifelong Learning

Graduates will pursue successful careers in academia, education, industry, public health research, and scientific institutions while demonstrating ethical responsibility, leadership, effective communication, and commitment to continuous professional development.

Department of Physics Program Educational Objectives (PEOs)

PEO1 – To equip the graduates an intellectually stimulating and satisfying life-long learning experience in the field of physics.

PEO2 – To provide graduates with deeper basic understanding of major concepts of physical processes in their environment.

PEO3 – To enhance the ability of the graduates to apply their knowledge of physics and skills to solve theoretical and practical problem and deal with physical models and formulas mathematically.

PEO4 – To equip the graduates with the necessary analytical skills to solve practical problems and develop appropriate design solutions based on a thorough understanding of technology, instrumentation and techniques.

PEO5 – To equip the graduates with the knowledge and skills to implement new technological approaches in physics teaching.

Nursing Department Program Educational Objectives (PEOs)

PEO1 - Evidence-Based Practice

Graduates will apply knowledge from basic and behavioral sciences to provide evidence-based, comprehensive nursing care to individuals, families, and communities. This includes integrating clinical judgment and research into practice to improve patient outcomes.

PEO2 - Collaborative Healthcare

The objectives emphasize the importance of functioning as effective members of the healthcare team. Graduates are prepared to engage in interprofessional collaboration, ensuring that they can work alongside other healthcare professionals to deliver high-quality care.

PEO3 - Cultural Competence

Nursing programs aim to instill cultural awareness and sensitivity in their graduates, enabling them to provide care that respects diverse backgrounds and promotes health equity. This is crucial for addressing health disparities in various populations.

PEO4 - Lifelong Learning and Professional Development

Graduates are encouraged to pursue lifelong learning and professional growth. This includes engaging in continuous education, leadership opportunities, and reflective practices to enhance their nursing skills and adapt to evolving healthcare needs.

PEO5 - Patient-Centered Care

A strong focus is placed on delivering patient-centered care, which involves understanding and responding to the unique needs of patients. This objective promotes the use of therapeutic communication and the establishment of trusting relationships with patients and their families.

PEO6 - Technological Proficiency

With the increasing role of technology in healthcare, nursing programs emphasize the integration of informatics and emerging technologies in nursing practice. Graduates are expected to utilize these tools to improve patient care and enhance communication within healthcare teams.

Computer Science Department Program Educational Objectives (PEO)

PEO1 - Graduates contribute to innovative projects across government and private sectors, playing key roles in shaping the country's development with specialized expertise.

PEO2 - Graduates possess a comprehensive understanding of core concepts such as advanced programming, data structures, algorithms, operating systems, and software engineering principles.

PEO3 - Graduates excel in multiple programming languages and are skilled in designing, implementing, and optimizing solutions to complex, real-world problems.

PEO4 - With a strong foundation in advanced mathematics, including discrete math, calculus, probability, and formal logic, graduates are equipped to tackle the theoretical challenges of computer science.

PEO5 - Graduates demonstrate effective communication, teamwork, and leadership abilities, while adhering to ethical and professional standards, including privacy, security, and the societal impact of technology, staying updated on the field's continuous evolution.

Chemistry Department Program Educational Objectives (PEOs)

PEO1 - Strong Foundational Knowledge

1. Demonstrate strong foundational knowledge and practical skills in core areas of chemistry (analytical, organic, inorganic, physical, and biochemistry) and apply them effectively in industry, research, healthcare, environmental, or related fields.
2. Graduates will demonstrate a strong foundation in chemistry principles, including structure, bonding, stereochemistry, reaction mechanisms, synthesis, spectroscopy, and structure–property relationships.

PEO2 - Analytical and Problem-Solving Skills

Graduates will apply critical thinking and analytical skills to solve complex chemical problems, design synthetic pathways, interpret experimental data, and troubleshoot laboratory challenges.

PEO3 - Research and Innovation

Graduates will engage in research, innovation, and development activities in organic synthesis, medicinal chemistry, materials chemistry, green chemistry, or related interdisciplinary fields.

PEO4 - Professional Competence

Graduates will work effectively in academia, pharmaceutical industries, chemical industries, biotechnology sectors, or pursue higher education and research with professional and ethical responsibility.

PEO5 - Laboratory and Technical Expertise

Graduates will demonstrate proficiency in modern laboratory techniques, instrumentation (e.g., NMR, IR, GC-MS, HPLC), and safe laboratory practices.

PEO6 - Communication and Teamwork

Graduates will communicate scientific concepts clearly through written reports, presentations, and publications, and collaborate effectively in multidisciplinary teams.

PEO7 - Ethical and Environmental Responsibility

Graduates will practice chemistry responsibly by adhering to ethical standards, sustainability principles, and environmental safety regulations.

PEO8 - Lifelong Learning

Graduates will pursue continuous professional development, adapt to emerging technologies, and stay updated with advancements in organic chemistry and related fields.