

**College of Applied Natural Science**

**Department of Applied Biology**

**Applied Biology Undergraduate Program Educational Objectives (PEOs) and Student Outcomes (SOs)**

1. **Program Educational Objectives (PEOs)**

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| --- | --- |
| **PEO** | **Statements** |
| **PEO-1:** | To produce biologists that able to apply biological concepts at cellular and molecular levels with skills, and professional ethics who can lead the industrial sectors, interpret biological data, and present scientific reports. |
| **PEO-2:** | To produce biologist who can design and apply the principles of applied biology to identify and solve societal problems related to industry, agriculture, health, environment issues, teaches educational institutions and search solutions in teams and in collaboration with the community, governmental bodies and NGOs. |
| **PEO-3:** | To produce Biologists who can conduct biological and biotechnological process within research sectors with emphasis on genetic engineering for production enhancement, pharmaceutical biotechnology for drug and / or natural production, Biofuel, biogas and biodiesel engineering for energy production, etc. |
| **PEO-4:** | To produce Biologists committed to bring sustainable development in terms of resource and energy conservation and sustainable utilization, and biological productions at small scale and commercial levels for the betterment of society and nation. |
| **PEO-5:** | To add new field of study or courses based on national interest and generate trained man power on designed specific packages to create job opportunity at national and international levels |
| **PEO-6:** | To produce biologists who demonstrate technical competency and leadership to create, start-up business of their own and become professional bio-engineers leading to a successful career. |

1. **Student Outcomes (SOs)**

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| --- | --- |
| **SO** | **After completion of the program, graduates will be able to** |
| **SO-1:** | Identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of biology and related science and/or technical topics to areas relevant to applied biology. |
| **SO-2:** | Formulate or design a system, process, procedure or program to meet desired needs in applied biology. |
| **SO-3:** | Develop and conduct biological experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions. |
| **SO-4:** | Study postgraduate at national and international levels. |
| **SO-5:** | Effectively communicate biological findings with a range of audiences. |
| **SO-6:** | Understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts. |
| **SO-7:** | Function effectively in teams of biologists and others that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty related to biological sciences. |
| **SO-8:** | Design projects based on social demand, training them and/or practical display on how to engage in working habit for their income generations |



**College of Applied Natural Science**

**Department of Applied Chemistry**

**Applied Chemistry Undergraduate Program Educational Objectives (PEOs) and Student Outcomes (SOs)**

1. **Program Educational Objectives (PEOs)**

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| **PEOs** | **Statements** |
| **PEO-1:** | To produce qualified chemists with operational and leading role in chemical industries/ institutes. |
| **PEO-2:** | To produce graduates capable of integrating and relating chemistry knowledge to address environmental and societal issues. |
| **PEO-3:** | To produce competent and qualified chemist who can carry out demand driven and collaborative research to address socio economic problems. |
| **PEO-4:** | Enabling graduates to pursue higher studies and to become entrepreneurs |

1. **Student Outcomes (SOs)**

|  |  |
| --- | --- |
| **SO** | **After completion of the program, graduates will be able to** |
| **SO1:** | Identify, formulate, and solve broadly defined technical or scientific problems of applied chemistry by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline |
| **SO2:** | Formulate or design a system, process, procedure or chemistry related program to meet desired needs |
| **SO3:** | Develop and conduct chemistry related experiments, analyze by applying appropriate techniques, modern instruments and interpret data and use scientific Justification to draw conclusions |
| **SO4:** | Communicate effectively with a range of audiences. |
| **SO-5:** | Understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts |
| **SO-6:** | Function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty |
| **SO-7:** | Demonstrate the capacity to undertake lifelong learning. |

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**College of Applied Natural Science**

**Department of Applied Chemsitry**

**Industrial Chemistry Undergraduate Program Educational Objectives (PEOs) and Student Outcomes (SOs)**

1. **Program Educational Objectives (PEOs)**

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| --- | --- |
| **PEOs** | **Statements** |
| **PEO-1:** | To produce qualified Industrial chemists with operational and leading role in chemical industries/institutes. |
| **PEO-2:** | To produce graduates capable of integrating and relating Industrial chemistry knowledge to address environmental and societal issues. |
| **PEO-3:** | To produce competent and qualified Industrial chemist who can carry out demand driven and collaborative research to address socio-economic problems. |
| **PEO-4**: | Enabling graduates to pursue higher studies and to become entrepreneurs |

1. **Student Outcomes**

|  |  |
| --- | --- |
| **SO** | **After completion of the program, graduates will be able to** |
| **SO-1:** | Identify, formulate, and solve broadly defined technical or scientific problems of industrial chemistry by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline |
| **SO-2:** | Formulate or design a system, process, procedure or Industrial chemistry related program to meet desired needs. |
| **SO-3:** | Develop and conduct any chemistry related experiments, analyze by applying appropriate techniques, modern instruments and interpret data and use scientific Justification to draw conclusions. |
| **SO-4:** | Communicate effectively with a range of audiences |
| **SO-5:** | Understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts |
| **SO-6:** | Function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty. |
| **SO-7:** | Demonstrate the capacity to undertake lifelong learning. |



**College of Applied Natural Science**

**Department of Applied Geology**

**Applied Geology Undergraduate Program Educational Objectives (PEOs) and Student Outcomes (SOs)**

1. **Program Educational Objectives (PEOs)**

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| --- | --- |
| **PEOs** | **Statements** |
| **PEO1:** | To produce technically qualified Geologist with the potential to become leaders in earth science with emphasis on natural resources (Geo thermal gas, oil, Natural gas, coal, mineral resources, water and industrial minerals and rocks). |
| **PEO:2** | To produce graduate who can play an important role in identifying problems and finding solutions to geological and natural hazard (earth  quakes, floods, landslides) |
| **PEO:3** | To produce Earth scientist who are committed and define ways of sustainable exploitation of geological resources for the betterment of society and nation. |

1. **Student Outcomes (SOs)**

|  |  |
| --- | --- |
| **SO** | **After completion of the program, graduates will be able to** |
| **SO-1:** | Identify, formulate, and solve broadly defined technical or scientific problems of applied geology by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline |
| **SO-2:** | Formulate or design a system, process, procedure or program to meet desired needs related to applied geology. |
| **SO-3:** | Develop and conduct geological experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions. |
| **SO-4:** | Communicate geological knowledge effectively with a range of audiences. |
| **SO-5:** | Understand ethical and professional responsibilities and the impact of technical and/or geo-scientific solutions in global, economic development, geo-hazard, environmental, and societal contexts. |
| **SO-6:** | Function effectively on teams that establish goals, plan tasks, meet deadlines, have professional ethics, analyze risk and uncertainty. |
| **SO-7:** | Integrate to be part of organizations, work in consultancy firms and the capacity to undertake lifelong learning. |



**College of Applied Natural Science**

**Department of Applied Mathematics**

**Applied Mathematics Undergraduate Program Educational Objectives (PEOs) and Student Outcomes (SOs)**

1. **Program Educational Objectives (PEOs)**

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| --- | --- |
| **PEOs** | **Statements** |
| **PEO-1:** | Transfer mathematical knowledge and technology to industries and the community. |
| **PEO-2:** | Use knowledge and skills necessary for immediate employment or acceptance into a graduate program |
| **PEO-3:** | Assist and participate in conducting research where the knowledge of Mathematics and Statistics can be applied, for instance in financial, insurance, business, agriculture, health and engineering sectors |
| **PEO-4:** | Advance a core of mathematical and technical knowledge that is adaptable to changing technology and provide a solid foundation for future learning |
| **PEO-5**: | Reason logically, thinks critically and act in an ethical manner in his/her or in groups of professional career in particular and the community in general. |

1. **Student Outcomes**

|  |  |
| --- | --- |
| **SO** | **After completion of the program, graduates will be able to** |
| **SO1:** | Identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline. |
| **SO2:** | Formulate or design a system, process, procedure or program to meet desired needs. |
| **SO3:** | Develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions. |
| **SO4:** | Communicate effectively with a range of audiences. |
| **SO5:** | Understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts. |
| **SO6:** | Function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty |

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**College of Applied Natural Science**

**Department of Applied Physics**

**Applied Physics Undergraduate Program Educational Objectives (PEOs) and Student Outcomes (SOs)**

1. **Program Educational Objectives (PEOs)**

|  |  |
| --- | --- |
| **PEOs** | **Statements** |
| **PEO1:** | To produce qualified researcher that can conduct scientific research in the area of physics that solve the problem of the society |
| **PEO2:** | To produce qualified Physicist who continuously upgrade his/her professional career and can apply his knowledge in Physics related careers in industry, higher institutions and social affairs |
| **PEO3:** | To produce professionals who can give demand driven community service by applying the knowledge of physics |
| **PEO4:** | To produce an expert who can work in group, make reliable decisions, have personal confidence, have sense of responsibility and have the commitment to serve the community. |

1. **Student Outcomes**

|  |  |
| --- | --- |
| **SO** | **After completion of the program, graduates will be able to** |
| **SO-1:** | Identify, formulate, and solve broadly defined technical or scientific problems of physics by applying knowledge of mathematics and science and/or technical topics to areas relevant to discipline. |
| **SO-2:** | Formulate or design physical system, process, procedure or program to meet desired needs |
| **SO-3:** | Develop and conduct physics related experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions. |
| **SO-4:** | Ethically communicate effectively with scientific community and others. |
| **SO-5:** | Understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts. |
| **SO-6:** | Function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty. |
| **SO-7:** | Acquire the computational and information technology skills, to collect, order, analyze and present data using computers and other electronic systems. |



**College of Applied Natural Science**

**Department of Pharmacy**

**Pharmacy Undergraduate Program Educational Objectives (PEOs) and Student Outcomes (SOs)**

1. **Program Educational Objectives (PEOs)**

|  |  |
| --- | --- |
| **PEO** | **Statement** |
| **PEO-1** | To produce qualified pharmacists with operational and leading role in health sector and pharmaceutical industries. |
| **PEO-2** | To create skilled and qualified pharmacist who can conduct demand-driven, collaborative, and team-based research to solve socioeconomic issues |
| **PEO-3** | To deliver pharmacy services that is community-focused and upholds the highest standards of morality, intellect, and social principles. |
| **PEO-4** | To produce pharmacy graduates with the necessary knowledge and skills to adapt, develop, and transfer technologies to industries, as well as to become entrepreneurs in the pharmaceutical and medical fields. |

1. **Student Outcomes**

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| --- | --- |
| **SO** | **After the completion of the program the graduate should be able to:** |
| **SO-1** | Discuss the fundamental concept and knowledge in discipline of pharmacy including biomedical and pharmaceutical sciences. |
| **SO-2** | Exhibit knowledge from his/her major domain in problem identification, critical thinking, analysis and providing solutions to pharmaceutical and allied technology disciplines. |
| **SO-3** | Analyze and formulate solutions to pharmaceutical related problems |
| **SO-4** | Apply practical, digital and numeracy skills in clinical, industrial and community pharmacy settings. |
| **SO-5** | Display integrity, ethics and professionalism in general conduct |
| **SO-6** | Display abilities to manage tasks in drug manufacturing and clinical settings as a member and leader in a diverse team. |
| **SO-7** | Demonstrate entrepreneurship skills and transfer technologies to industries pertaining to pharmaceutical related areas. |