

Degree Level Expectations, Learning Outcomes, Indicators of Achievement and the Program Requirements that Support the Learning Outcomes

Expectations	Learning Outcomes	Indicators of Achievement	Relevant Courses and academic requirements
<p><b>Depth and breadth of knowledge</b></p>	<p>A thorough understanding of their area of specialization in chemical engineering and cognate disciplines, including:</p> <p>a. A systematic understanding of one or more of the following:</p> <ul style="list-style-type: none"> <li>- Biomaterials</li> <li>- Bioremediation</li> <li>- Green Chemistry</li> <li>- Electrochemical Power Sources</li> <li>- Macromolecular Science &amp; Technology</li> <li>- Microfluidics, Colloids, Biosensors</li> <li>- Process Analytics, Optimization &amp; Control</li> <li>- Transport Phenomena</li> </ul> <p>b. Development of specialized knowledge, intellectual autonomy, critical thinking and analytical skills beyond the B.A.Sc.- ENCH or B.A.Sc.-CHEE degree.</p> <p>c. Development of communication skills.</p>	<p>Successful completion of course work.</p>	<p>Eight (8) term-length lecture graduate courses selected by the student and Graduate coordinator. At least 4 term- length courses must be taken from the department.</p> <p>Successful performance in these courses requires the application of knowledge in the form of tests, presentations, and reports as the instructor sees fit.</p>

<p><b>Research and Scholarship</b></p>	<p>Development of a conceptual understanding in chemical engineering that enables the ability to critically process information from primary and secondary literature sources and to distinguish opinions from facts.</p>	<p>Completion of a course project(s) consisting of literature evaluation which demonstrates:</p> <ul style="list-style-type: none"> <li>a. Competency and judgment in engineering.</li> <li>b. An understanding of the theoretical basis for a sub-discipline of chemical engineering.</li> </ul>	<p>Course project.</p>
<p><b>Application of Knowledge</b></p>	<p>Apply knowledge and understanding acquired to analyze problems viewed from broader perspectives.</p>	<p>Completion of graduate courses.</p>	<p>Students complete eight (8) term-length lecture courses (or modular equivalents) to broaden their knowledge of the discipline.</p>
<p><b>Professional capacity/autonomy</b></p>	<p>Students have the qualities and transferable skills needed to:</p> <ul style="list-style-type: none"> <li>a. Undertake further study, employment, community involvement and other activities requiring personal responsibility, decision making, and the ability to interact with others.</li> <li>b. Enter employment in a variety of industries and to teach at the secondary and college levels.</li> <li>c. Exhibit academic integrity and social responsibility.</li> </ul>	<p>Critical thinking skills, rational argumentation and ethical behaviour consistent with academic integrity and appropriate for the engineering discipline.</p>	<p>Eight (8) term-length lecture graduate courses selected by the student and Graduate coordinator.</p>

<b>Communication Skills</b>	Students develop competency in oral and written technical communication.	Technical Communication is demonstrated by communication components to coursework.	All students attend weekly department seminars as part of CHEE 897.
<b>Awareness of limits of knowledge</b>	Students gain an awareness of the limits of their knowledge with respect to the broader field of chemical engineering and related disciplines.	<p>Exposure to various areas of chemical engineering provides an awareness of the complexity of knowledge and other interpretations, methods, and disciplines.</p> <p>Awareness of the limitations of the student's work and how it contributes to the broader field.</p>	<p>Students are required to complete eight (8) term-length lecture courses (or modular equivalents), which can span several sub-disciplines of chemical engineering.</p> <p>Students regularly attend seminars, which provide exposure to other interpretations and areas of research.</p>