Innovation can be defined as the application of new ideas to the products, processes, or other aspects of a firm that lead to increased “value” \[1\]. The necessity for educating engineers at the graduate level on managing the innovation process has been identified by engineering schools like MIT, Carnegie Mellon and Duke \[2\]. Similarly, a curricular framework has been conceptualized for undergraduate engineering students who contribute significantly to the workforce driving innovation. The subject of innovation traditionally has been a concern of business and technology leaders in an organization and is extensively discussed and dealt with in business school curricula. The central goal of the proposed course framework is to inform the interested undergraduate student about the important interconnections behind an innovative process or product, formed by an amalgamation of scientific and technological breakthroughs, novel marketing strategies and societal and public policy issues.

The conceptual framework developed in this project would be offered to the Department of Chemical Engineering for consideration as a probable elective course. It is expected that the concept would find merit in implementation as a course provided by the College of Engineering considering the efforts presently underway in identifying suitable avenues of integrating engineering and business courses at the University of Utah.

The study of innovation is a broad field which encompasses many disciplines other than engineering and sciences - (e.g. Sociology, Public Policy, Business History, Organization Behavior and Marketing). In this project, a course framework has been designed by identifying appropriate readings suitable for undergraduate students. The framework includes suggestions on the teaching methodology, syllabus plan, and assignment structure. The process enables interested departments at the University of Utah to accordingly customize a portion of the course material according to their role in innovation. An opportunity to identify strategies to focus on extending the competitive spirit in the undergraduate classroom towards a broader global context has also been identified.

Academic insights unfolding to the industrial benefits:
1. **MASERS** - Atomic Clocks
2. **Radio Astronomy**
3. **High-Speed Photography**
4. **Inertial Navigation**
5. **High-precision measurements**
6. **Surgical Applications**

**REFERENCES**

3. Regev, G. et al. (2008), 16th IEEE International Requirements Engineering Conference (RE’08), Barcelona, Spain.

The conceptual framework developed in this project would be offered to the Department of Chemical Engineering for consideration as a probable elective course. It is expected that the concept would find merit in implementation as a course provided by the College of Engineering considering the efforts presently underway in identifying suitable avenues of integrating engineering and business courses at the University of Utah.

**TEACHING METHODOLOGIES**

<table>
<thead>
<tr>
<th>Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Methods: Mathematically-based</td>
</tr>
<tr>
<td>Learning Methods: Problem-based</td>
</tr>
<tr>
<td>Learning Methods: Concept-based</td>
</tr>
<tr>
<td>Learning Methods: Case-based</td>
</tr>
</tbody>
</table>

**ACCOMPANIES**

<table>
<thead>
<tr>
<th>Course</th>
<th>Industry</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Engineering</td>
<td>Chemical Industry</td>
<td>Academic</td>
</tr>
</tbody>
</table>

**ACCOMMODATION**

<table>
<thead>
<tr>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Study</td>
</tr>
<tr>
<td>Online Tutorial</td>
</tr>
</tbody>
</table>

**ACKNOWLEDGMENTS**

The student would like to acknowledge his mentors Dr. JoAnn S. Lighty and Dr. Terry A. Ring for the support offered for this project. He is also grateful for the guidance offered by Dr. Beverly A. Brehl during the duration of the TA scholars program. Thanks are due to Dr. Donna H. Ziegenfuss, Dr. Darrell G. Coleman, Kevin Marrett, Kijoung Na, Tan Leng Goh and Trina Valdez for sharing their insightful experiences and ideas on various pedagogical aspects.