

| Department of Chemical Engineering | | | |
|--|---|--|--------------|
| Soap and Detergent Manufacturing (10626475) | | | |
| Total Credits | | 2 | |
| major compulsory | | | |
| Prerequisites | | P1: Chemical Reaction Engineering (10626320) | |
| Course Contents | | | |
| This is an industry related course where students can learn more on how to manufacture soap and detergents. The course will also equip students with the chemistry behind soap, detergent and cosmetic emulsion manufacturing. Students will learn more about surfactants used in manufacturing soap and detergents. Household cleaning and disinfection products will be discussed in this course. The last topic to be discussed in this course is the mixing roles in soap and detergent manufacturing. All safety issues related to soap and detergent manufacturing steps will be covered. Students will be carrying out some experiments to apply part of the knowledge they learned. Further experiments will be covered in the course Chemical Technology II to produce different types of detergents. | | | |
| Intended Learning Outcomes (ILO's) | | Student Outcomes (SO's) | Contribution |
| i. | Identify the proper surfactants by applying the principle of science and technical engineering aspects of mixing to produce detergents. | 1 | 50% |
| ii. | Develop and conduct appropriate experimentation and compare the characteristics of the produced detergents with the commercial ones to meet the desired needs. | 6 | 15 % |
| iii. | Acquire and apply up to date knowledge as needed for producing new detergent products. | 7 | 20 % |
| iv. | Recognize ethical and professional responsibilities in engineering situations and make informed judgments which must consider the impacts of engineering solutions in global, economic, environment and societal contexts related to detergent production. | 4 | 15 % |
| Textbook and/ or References | | | |
| Lai, Kuo-Yann. (2006). <i>Liquid Detergents</i> . 2 ^{ed} Edition. Boca Raton: Taylor & Francis. | | | |
| Assessment Criteria | | Percent (%) | |
| Midterm Exam | | 25 | |
| Projects | | 35 | |
| Final Exam | | 40 | |
| Course Plan | | | |
| Week | Topic | | |
| 1 | Introduction | | |
| 2-4 | Liquid Detergent: an overview <ul style="list-style-type: none">Preliminary information including some definitions and elementary chemistry. Soap and detergent safety issues.What detergents have to do and how they do it. The roles of various ingredients and some principles of formula | | |
| 5-6 | Light duty liquid detergent | | |
| | MIDTERM EXAM | | |
| 7-9 | Heavy duty liquid detergent | | |
| 10-12 | Specialty Liquid Household Surface Cleaners | | |
| 13-15 | Techniques and skills needed for the Manufacture of Liquid Detergents | | |
| 16 | FINAL EXAM | | |