



**PROGRAMS AND BIBLIOGRAPHY**

<b>Subject</b>	
<b>Code</b>	<b>Name</b>
QF835	Industrial Processes

<b>Vector</b>
OF:S-5 T:004 P:000 L:000 O:000 D:000 HS:004 SL:004 C:004 AV:N EX:S FM:75%

<b>Pre requisite</b>	*EQ582
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<b>Summary</b>
Kinetics of reactors. Description and analysis of processes of great importance in the chemical industry. Fermentation, oil refinery, paper manufacturing, etc.

<b>Program</b>
<ol style="list-style-type: none"><li>1. Introduction to Industrial Reactors. Kinetics of homogeneous reactions. Interpretation of kinetic data from discontinuous reactors. Determination of reaction kinetics by the integral method. Determination of reaction kinetics by the differential method. Batch reactors. Continuous reactors. Mixing continuous reactors and tubular reactors. Association reactors. Auto-catalytic reactions. Selection of operational conditions for reactions in series and in parallel. Deviations from ideality. Heterogeneous reactions. Fixed bed reactors. Fluidized bed reactors. Triphasic mud reactors and leaky bed reactors.</li><li>2. Industrial processes. Industrial processes for production of sulfuric acid, ammonia, actives for the pharmaceutical industry, biodiesel, industrial coal, ceramics, beer, cement and lime, glues, adhesives and sealant, ethanol. Phenol, crude iron, industrial gases, vegetable oils and fat, paper and cellulose, perfumes and flavoring, PET, polyolefins, polyurethane, oil refinery, soap, shampoo and conditioner, silicones, pigments and glass. Sewer and wastewater treatment</li></ol>

<b>Bibliography</b>
<ol style="list-style-type: none"><li>1. O. Levenspiel, Engenharia de reações químicas, Edgard Blucher, 2000.</li><li>2. S. Fogler, Elementos de engenharia das reações químicas, LTC, 2002.</li></ol>

<b>Evaluation criteria</b>
For grading policy, see: Regimento Geral de Graduação, Seção I – Normas Gerais, Capítulo V – Da Avaliação do Aluno na Disciplina. Students are required to attend 75 % of the lectures. For further details, see: Regimento Geral de Graduação, capítulo VI, seção X, artigo 72.