

## Projects Guided during 2003-2004

### 1. Study Oriented Projects (BITS C323/BITS C324): 5 Students

S.No.	Title of the Project	Date of Commencement	Date of Submission
1.	Modeling and Simulation of Bioreactor for VOC's Removal from Waste Gases.	02-08-2003	28-11-2003
2.	Nuclear Energy Applications in Chemical Process Industry.	02-08-2003	28-11-2003
3.	Steady State Multiplicity in Bio-Reactors.	02-08-2003	28-11-2003
4.	Modeling of Fixed Bed Reactors for Fischer Tropsch Synthesis.	02-08-2003	28-11-2003
5.	Design of Bioreactors.	07-01-2004	28-04-2004

### 2. Computer Projects (BITS C331 & BITSC335): 11 Students

S.No.	Title of the Project	Date of Commencement	Date of Submission
1.	Modeling and Simulation of Reactive Distillation.	02-08-2003	28-11-2003
2.	Artificial Neural Networks for Process Modeling.	02-08-2003	28-11-2003
3.	Conceptual Design for Acetic Anhydride Production.	02-08-2003	28-11-2003
4.	Artificial Neural Networks for Process Control.	07-01-2004	28-04-2004
5.	Automated Design of Heat Exchanger Networks.	07-01-2004	28-04-2004
6.	Differential Evolution for Optimal Distillation Train Design.	07-01-2004	28-04-2004
7.	Modeling, Simulation, and Design of Trickle Bed Reactors.	07-01-2004	28-04-2004
8.	Optimal Design of a Catalytic Reactor.	07-01-2004	28-04-2004
9.	Neural Networks for Modeling of Pollutant Removal using Adsorption.	07-01-2004	28-04-2004
10.	Modeling and Simulation of Bioreactors.	07-01-2004	28-04-2004
11.	Evolutionary Computation for Optimal Design of Manufacturing Processes.	07-01-2004	28-04-2004

### 3. Special Projects (CHE C491/ET C491): 4 Students

S.No.	Title of the Project	Date of Commencement	Date of Submission
1.	Comparative Study of Energy Integration Analysis Approaches.	02-08-2003	28-11-2003
2.	Model Based Analysis of Fuel Cell Dynamics.	02-08-2003	28-11-2003
3.	Expert Systems for Heat Exchanger Network Synthesis.	02-08-2003	28-11-2003
4.	Evolutionary Competition for Optimal Design of a Non-linear Chemical Process	07-01-2004	28-04-2004

### 4. Projects for Process Plant Simulation Course (CHE G541): 13 Students

S.No.	Title of the Project	Date of Commencement	Date of Submission
1.	Modeling and Simulation of Fluid Catalytic Cracking Units.	02-08-2003	28-11-2003
2.	Differential Evolution Approach for the Optimal Design of Fed-Batch Bioreactors.	02-08-2003	28-11-2003
3.	Modeling, Simulation, and Optimization of Catalytic Naphtha Reformer.	02-08-2003	28-11-2003
4.	Modeling and Simulation of Shell-and-Tube Heat Exchangers incorporating Fouling Effects.	02-08-2003	28-11-2003
5.	Prediction of Vapor-Liquid-Equilibrium Using Artificial Neural Networks.	02-08-2003	28-11-2003
6.	Modeling and Simulation of Reactive Distillation.	02-08-2003	28-11-2003
7.	Modeling and Optimization of Distillation Columns.	02-08-2003	28-11-2003
8.	Modeling and Simulation of Continuous Reactors for Exothermic Multiple Reactions.	02-08-2003	28-11-2003
9.	Modeling and Simulation of Fuel Cells.	02-08-2003	28-11-2003
10.	Modeling to Predict the Overall Age Distribution of Dispersed Phase in Liquid - Liquid Extraction Column	02-08-2003	28-11-2003

### 5. Projects for Professional Practice-I: 2 Students

S.No.	Title of the Project	Date of Commencement	Date of Submission
1.	(a) Teaching Skills: <ul style="list-style-type: none"> <li>• Heat Transfer (Evaporation)</li> </ul> (b) Research Methodology: <ul style="list-style-type: none"> <li>• Design of Bioreactors for Solid State Fermentation</li> </ul> (c) Laboratory Skills & Professional Development: <ul style="list-style-type: none"> <li>• Comparative study of Shell-and-Tube Heat Exchanger in Counter-current and Co-current modes.</li> <li>• Studies on Diagnosis &amp; Improvement of Process Control Equipment Performance</li> </ul>	07-01-2004	28-04-2004
2.	(a) Teaching Skills: <ul style="list-style-type: none"> <li>• Heat Transfer (Binary Distillation)</li> </ul> (b) Research Methodology: <ul style="list-style-type: none"> <li>• Reactive Distillation</li> </ul> (c) Laboratory Skills & Professional Development: <ul style="list-style-type: none"> <li>• Experimental determination of Diffusion Coefficient.</li> <li>• Improving &amp; developing new experimental set-up</li> </ul>	07-01-2004	28-04-2004

### 6. Projects for Professional Practice-II: 4 Students

S.No.	Title of the Project	Date of Commencement	Date of Submission
1.	(a) Research related activities: <ul style="list-style-type: none"> <li>• Multi-objective optimization of wet film PET reactor.</li> </ul> (b) Development related activities: <ul style="list-style-type: none"> <li>• Code development for tearing algorithms</li> </ul> (c) Research proposal: <ul style="list-style-type: none"> <li>• Multi-objective optimization of wet film PET reactor using population based search techniques.</li> </ul>	07-01-2004	28-04-2004

2.	<p>(a) Research related activities:</p> <ul style="list-style-type: none"> <li>• Modeling and optimization of benzene isopropylation over Hbeta catalyst.</li> </ul> <p>(b) Development related activities:</p> <ul style="list-style-type: none"> <li>• Code development in MATLAB for tearing algorithms (Murthy &amp; Husain)</li> </ul> <p>(c) Research proposal:</p> <ul style="list-style-type: none"> <li>• Hybridized evolutionary and neuro-fuzzy approach to process engineering problem.</li> </ul>	07-01-2004	28-04-2004
3.	<p>(a) Research related activities:</p> <ul style="list-style-type: none"> <li>• Multi-objective optimization of fluidized catalytic cracking unit using evolutionary strategies.</li> </ul> <p>(b) Development related activities:</p> <ul style="list-style-type: none"> <li>• Code development in C for tearing algorithms</li> </ul> <p>(c) Research proposal:</p> <ul style="list-style-type: none"> <li>• Multi-objective optimization of fluidized catalytic cracking unit using evolutionary strategies.</li> </ul>	07-01-2004	28-04-2004
4.	<p>(a) Research related activities:</p> <ul style="list-style-type: none"> <li>• Multi-objective optimization of styrene reactor using evolutionary approaches.</li> </ul> <p>(b) Development related activities:</p> <ul style="list-style-type: none"> <li>• Code development for decomposition of networks</li> </ul> <p>(c) Research proposal:</p> <ul style="list-style-type: none"> <li>• Multi-objective optimization of styrene reactor using evolutionary approaches.</li> </ul>	07-01-2004	28-04-2004