

CH402 Chemical Engineering Process Design – Assessment Rubric for IPR1

Level	Chemistry	Process Engineering	Process Safety	Process Economics	Simulation
1	Cadets demonstrate understanding of <i>one</i> alkylation mechanism.	Cadets have developed an I/O diagram for the FBR process but are missing information.	Cadets understand the functionality of the inside and outside operator views in the SSI simulator.	Cadets have conducted a literature survey to identify commercial sources and uses of each chemical component in the process, but are missing species.	<u>All</u> cadets in group have installed SSI simulator on personal laptop computers.
2	Cadets understand <i>one</i> mechanism and have produced <i>one</i> authoritative literature source [1].	Cadets have developed an I/O diagram for the FBR process and the diagram is complete [4].	Cadets understand the functionality of the inside and outside views, and can efficiently move to 2 specified locations in each view.	Cadets have completed literature survey of commercial sources and uses of each species in the process.	<u>All</u> cadets have installed SSI simulator on personal laptop computer and have begun testing experiments.
3	Cadets understand <i>two</i> mechanisms and have produced <i>more than one</i> literature source.	Cadets have developed I/O and functions diagrams for the FBR process, but the functions diagram is missing information.	Cadets understand the functionality of the views, can move around efficiently, and can read and understand internal and external indicators.	Cadets have completed literature survey, and have begun to collect market economics data for each species in the process, but market data are incomplete.	Cadets have installed SSI simulator on personal laptop computer, begun testing, and group has identified one or more operational issues.
4	Cadets understand <i>two</i> different mechanisms and have demonstrated this with correctly drawn chemical structures and <i>more than two</i> literature sources.	Cadets have developed I/O and functions diagrams for the FBR process, and both diagrams are complete [4].	Cadets understand the functionality of the views, can move around efficiently, can read indicators, and can locate and operate controls.	Cadets have completed literature survey and market analysis for each species in the process.	Cadets have installed SSI simulator on computers, begun testing, identified issues, and formulated a problem solving approach to address those issues.
5	Same as level four, but with correct, neatly drawn chemical structures in MS Word [3].	Same as level four, but with working Level 1 process flow diagram in ChemCAD [2].	In addition to the requirements above, cadets have begun to develop routing and inspection checklists for available instrumentation.	Cadets have incorporated market economics data into working I/O analysis in MS Excel [3].	Cadets have installed SSI simulator on computers, begun testing, identified issues, formulated problem solving approach, and made corrections to the P&ID.

Cadets:
Score:
Date:
Comments:

Notes: [1] An “authoritative” literature source is been published in a reputable peer-reviewed journal, book, handbook, encyclopedia, etc. [2] A “level 1” analysis in ChemCAD uses stoichiometric reactors and component separators. [3] Introduction section is due at next IPR. [4] Future iterations are allowed as new information becomes available.