Rubric for Design Process

Criteria	Level of Achievement		
	4 **Exemplary**	**2** **Satisfactory**	**0** **Unacceptable**
Formulating Design Problem			
Goals and objectives	Demonstrates understanding of the overall goals of sponsor but also recognizes that the team project goals may only be a subset of the sponsor's goals.	Recognizes the goals of sponsor and shows some understanding of these in relation to team project.	Shows little or no understanding of the "big picture" goals.
Identifying and framing project objectives	Identifies and formulates project objectives that are clearly relevant to the sponsor's goals.	Identifies and formulates project objectives that, for the most part, will address the sponsor's goals.	Project objectives are either absent, poorly formulated, or not relevant to the sponsor's goals.
Identifying key design issues	Identifies key design issues, prioritizes them and appropriately differentiates those that are important from those that are routine.	Identifies design issues and prioritizes them. Most judgments about priorities are appropriate.	Either cannot identify key design issues or treats all issues as equally important or unimportant. Shows lack of judgment.
Initial identification of necessary tasks and actions	Identifies major tasks needed to reach objectives. The list is detailed and complete and the tasks are well-defined.	Identifies major tasks needed to reach objectives.	No attempt is made to identify and categorize necessary tasks.
Identifying deliverables	Is able to specify a useful and appropriate end output of the team project that will be provided to the sponsor as a "deliverable."	Identifies a "deliverable" to be provided to the sponsor.	Does not identify a "deliverable."

Development of timeline	Provides a complete timeline with realistic estimates of times needed to complete tasks	Provides an expected timeline for most tasks	Does not provide a timeline.
Executing Design Process			
Identifying needed resources and constraints	Specifies resources needed to complete each task and establishes their availability.	Addresses the issue of resources and their availability.	Does not pay attention to the resources needed and/or their availability until it is too late
Identifying intermediate design objectives	Provides a strategy for achieving the more difficult objectives. Divides larger tasks into smaller tasks with intermediate objectives. Simpler ones are managed as a single task.	Makes some attempt to divide larger tasks into smaller activities and to identify necessary steps and intermediate objectives in order to reach main objectives.	All project objectives are treated as single tasks. No attempt appears to be made to break activities into manageable pieces
Working out design solution	Works out a systematic and detailed list of tasks or steps needed to reach a solution, with a logical progression from one to the next. Attention is paid to any time-critical tasks, and a schedule for tasks is provided.	Works out a list of tasks or steps needed to reach a solution. Demonstrates some understanding that particular tasks may be time-critical and considers how to schedule tasks.	Tasks are listed but in a somewhat random way with no clear evidence of progression from one taks to the next. No special attention paid to time-critical tasks or scheduling.
Implement process	Conducts systematic work on the identified tasks according to plan.	For the most part, follows the specified plan.	The plan is ignored or treated as an irrelevance.

Conducting ongoing evaluation	Consistently considers modification of project tasks and/or intermediate objectives in view of progress made during project	At times, modifies project tasks and/or intermediate objectives in view of progress made.	Rarely or never modifies project tasks and/or intermediate objectives.
Using Engineering Skills			
Conduct of research	Is able to make progress on project with minimal supervision.	Performs in a satisfactory way with some supervision.	Needs continual reminders to stay "on task"
Demonstration of skills development	Shows rapid progress in the development of project-related skills.	Shows consistent progress in skill development.	Progress is slow or non-existent
Monitoring progress	Keeps a check on progress and is consistently on time in completing tasks	Demonstrates awareness of progress and remains more or less on schedule	Seems confused about progress and is frequently late and off schedule
Organizing and managing	Is well organized with project tasks and objectives clearly specified and with work progressing regularly and methodically	Demonstrates an organized approach with regular work habits	Work appears to be performed at odd hours and during infrequent spurts of activity

D. Jiles, M. Huba, and Others. Materials Science and Engineering, Iowa State University   (9-1-00)