ENGINEERING PROCESS STATEMENT

The engineering department provides calculations, drawings, BOM's, and Routings for equipment that is ordered from our customers. There are several different types of orders that come into the engineering department. This department wants to provide efficient care through the employment of efficient resources. We want to focus on the engineering staff. The staff consists of five engineers Eng1, Eng2, Eng3, Eng4, and Eng5.

The orders are broken down by product line. The product lines consist of SC, SM, PC, and MC. The orders are going to be assumed to fall into one of the product lines with multiple units possible on each order. For orders with multiple units, only discreet line items will be counted meaning that if there are three discrete units per order, the resources need to process will be counted individually. If there are multiples of the same line item, a small amount of time will be for each additional unit for processing.

Each product line can be broken down into identifiers for each order based upon the complexity of the orders.

Product Line	Identifier	Assumption/Definition
SC	SC1	Basic SC configuration where the BOM comes over from selection software
	SC2	Standard Plus
	SC3	Custom (Seismic, Wind, Motion Loads, COO)
	Parts	Parts orders that require ASME paperwork or a drawing created
SM	SM1	Basic Configuration that does not need drawing approval
	SM2	Custom configuration that requires customer approval and additional processing time
PC	PC1	Basic PC or repeat PC job
	PC2	New configurations that require new drawings
	PC3	Custom PC such as conical configuration, headsets or Banks
MC	MC	All configurations are considered to take the same amount of time.

The complexity for each identifier can be put into a table that shows the steps and processing time required for each step that is to be completed before an order can be released.

Identifier	Steps					
	Calcs (min)	Drawings (min)	BOM (min)	Routing (min)	Checking (min per unit)	Multiple Units (min per add. unit)**
SC1	10	30	15	15	15	5
SC2	30	60	45	30	30	15
SC3	60	480	180	60	45	30
Parts	0	30	30	30	15	5
SM1	60	60	30	30	30	15
SM2	90	180	60	60	45	15
PC1	10	15	15	15	15	0
PC2	30	45	20	20	15	5
PC3	60	1440	480	480	240	60
MC	30	300	60	60	30	30

** This is for non-discrete units

There are times when multiple types of resources, such as an engineering staff member and the checking group, are required before the ordered is completely processed. There are certain preferences for resources such as the fact the not all engineers work on all product lines and do not have the same capabilities even thru product lines. The table below is a skills matrix that summarizes their capabilities

Engineer	SC				SM		PC			MC
	SC1	SC2	SC3	Parts	SM1	SM2	PC1	PC2	PC3	MC
1	X	X	X	X	X	X				
2	X	X		X						
3	X	X					X	X	X	X
4					X		X	X	X	X
5							X			

X indicates proficiency

Each order that is processed will need to be assigned to an identifier group so that a time to process can be calculated. It will be processed based upon the skills matrix and the availability of the engineers. The orders will be considered on a first in, first out (FIFO) basis.

The model should generate a schedule for the orders for each engineer with some variability for time to take breaks (10 minutes every 2 hours) and answer questions from the floor (10 minutes every 2 hours).