The Aggregate Production Planning Spreadsheet Assignment (Spring 2015a)

MGMT 330: Production and Operations Management

Production quantities and workforce levels need to be determined for the production of three product families. The demands for each of the product families for the next ten months appear below, along with other important information.

Your job is to construct a feasible, low cost production plan. As a guide, feasible production plans based on each of the three Pure Strategies appear on the following pages.

Your aggregate production plan is due at 11 PM, Friday, April 24th. It is to be submitted as an Excel file attached to an email.

You may work alone or with up to two classmates. (Submit only one copy of the solution with everyone's name on it.)

Demand	1	2	3	4	5	6	7	8	9	10
Family A	10,000	10,000	12,000	13,000	15,000	16,000	10,000	8,000	0	10,000
Family B	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Family C	0	80,000	0	30,000	50,000	30,000	0	80,000	0	30,000

	Production Rate*	Holding Cost	Backorder Cost
Family A	5	$2	$20
Family B	8	$1	$10
Family C	4	$3	$30

* units/hour

Regulartime Labor Cost = $5,000 per worker per month
Regulartime Hours Available = 160 hours per worker per month

Overtime Labor Cost = $45 per hour
Overtime Hours Available = 40 hours per worker per month

IMPORTANT: Your company pays for whole labor hours only.

Hiring Cost = $2,000 per worker
Layoff Cost = $4,000 per worker

All demand must be met by the end of the Month 10.
The workforce size is 75 workers at the beginning of Month 1.

SCORING:

Production Plan Total Cost	Grade (%)
No Solution Submitted	0%
Over $6,100,000	70%
$5,500,001 - $6,100,000	80%
$5,000,001 - $5,500,000	90%
$4,750,001 - $5,000,000	100%
$4,750,000 or lower	120%

To earn the designated number of points, your production plan must be feasible (capacity is never exceeded and all demand is met by the end of Month 10) AND the computed cost of your plan must be correct.

Five percent will be deducted from your score if your plan is feasible but not costed correctly.

HINT: There are no feasible solutions under $4,300,000.