NATIONAL TECHNICAL UNIVERSITY OF ATHENS
School of Electrical and Computer Engineering
Division of Industrial Electric Devices and Decision Systems

PRODUCTION AND OPERATIONS MANAGEMENT

1st Exercise

A furniture manufacturing company produces bed X (final product).

Each bed requires 2 side rails (part B) that require in turn four (4) C parts and 4 (four) D parts each one for their composition.

Furthermore, each bed requires one (1) base layer (part A), which is a composition of four (4) C parts.

The total table of materials is shown below:

Part	Lead Time	Initial Stock	Lot Size
X	1	120	25
A	2	100	50
B	2	200	200
C	1	1200	500
D	2	900	100

The gross requirements of X are as follows:

Week	1	2	3	4	5	6	7	8	9	10	11
Gross Requirements	100	80	30	50	60	75	80	70	70	50	30

The scheduled receipts per component and week are as follows:

Week	4	5	6	7	8
X			25		
A		100			100
B			100		
C	250			250	
D					250

The safety stock for product D is 100 pcs.

Questions to be answered:

i) Design the Bill of Materials (BOM) of product X.

ii) Find the production schedule of each piece, according to the Materials Requirement Planning (MRP) method.

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The assignment should be delivered by the day of the exam in a .zip or .rar file with a name of the format "Surname_Name_Assignment2" and uploaded to the topic related to the specific assignment at helios.ntua.gr or sent to the following email: dpsy@epu.ntua.gr.

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