ECE PARIS
ÉCOLE D'INGÉNIEURS

Prénom : .....
NOM : .....
Promotion :
Groupe : .....

Int.

ING 4
Gestion budgétaire
Devoir surveillé

05 décembre 2017
10:00 - 12:00
Durée : 02:00

Sujet proposé par :	TURZI Francesco
Calculatrice autorisée :	OUI, tout modèle
Documents autorisés :	NON
Ordinateur autorisé :	NON

RAPPEL :

- NOM et Prénom de l'élève doivent être portés sur toutes les copies rendues.
- Les copies doivent être numérotées.
- Tous les appareils électroniques (téléphones portables, PDA, ordinateurs, montre connectée, etc.) doivent être éteints et rangés.
- **Toute erreur constatée sur le sujet doit être signalée sur la copie. Le correcteur en tiendra compte lors de la correction du devoir.**
- Il est interdit de communiquer.
- Toute fraude, ou tentative de fraude, qu'elle soit passive ou active, fera l'objet d'un rapport de la part du surveillant et sera sanctionnée par la note zéro, assortie d'une convocation devant le Conseil de discipline. Aucune contestation ne sera possible. Tous les documents et supports utilisés frauduleusement, devront être remis au surveillant.
- Les élèves ne sont pas autorisés à quitter la salle où se déroule l'épreuve moins de 45 minutes après le début de l'épreuve. Au-delà de ces 45 premières minutes, toute sortie est définitive (sauf dans le cas d'une épreuve durant plus de deux heures).

As MP2017 FT

The Company PRICE manufactures a basic product used for the composition of many plastics. This industry is very cyclic, the selling prices fluctuating according to the economic activity (buildings, cars, etc …), but also according to the output of the sector.

A cycle lasts approximately 3 years, including 18 month of rise and 18 months of fall, as well in quantities as in prices.

The costs, are dependant on the prices trend of oil, this product being the principal raw material entering the composition of the final product.

The direction estimates that the market, during this year N, is still located in ascending phase of the cycle, which should reach its top from the very start of N+1. The direction must therefore decide if it must invest in additional outputs.

This can be carried out by the construction of a new factory, or by the "debottlenecking" (the elimination of the bottlenecks) of certain existing factories.

You are the new Director of the site. **It is asked to you to prepare the Budget for the year N+1, including the forecasted income statement, the balance sheet at the end of the N+1 exercise, and the quarterly plan of cash, and to make a recommendation with regard to the decision of investment.**

You collect information and work hypotheses near the various persons in charge for the company.

- The theoretical annual output is 100.000 tons, with an optimal use of 91%, and a maximum use at a peak of 95%. The production of year N will be 75.000 tons, and the sales of 72.000 tons.

- In top of cycle, the request is estimated at 100.000 tons. In bottom of cycle, it falls to 60 000 tons.

- The selling prices oscillate between 1,15 €/kg in top of cycle and 0,90€/kg in bottom of cycle. They are currently established at 1,05 €/kg.

- The opinions of the (operational) persons in charge join the forecasts of the Management for N+1, estimating the request at 100.000 tons and the selling price at 1.15€ /ton. This trend should last during the 1st quarter of N+2.

- The standard unit cost is currently made up as follows:

  * raw material cost (oil) : 0,40€ /kg, on the basis of a barrel price of 25 $
  * raw material cost (chlorine) : 0,25€ /kg
  * cost of D.L. (Direct Labor) : 0,05€ /kg (it acts of an activity with weak labor content)
  * It is advisable to add to the production cost the depreciation, currently of 15 million € envisaged for N and N+1, before any additional investment.

* The price of chlorine should remain stable during N+1. In the same way, the evolution of the wages and loads are weak enough to consider that it will not impact on the D. L. costs for N+1.

* On the other hand, a great uncertainty surrounds the evolution of the oil price and the rate of exchange $/€.

* It is feared that because of possible problems in the Middle East, the price of the barrel passes from 25 to 30 $ and that the $ is reinforced from the very start of N+1, passing from 1€ to 1,05€ if the war starts as it is probable.

To this purpose, the direction decided to constitute oil safety stocks equivalents in 3 months of production forecasts at the end of the year N. These stocks will be maintained on this level until the end of N+1. Chlorine stocks will be also increased and maintained to 3 months of use.

30 + 15 = 35 m → 50 000 tons.

- The investment in a new factory (with a theoretical capacity of 25.000 tons) costs 20 millions euros, with a linear depreciation over 10 years. Construction lasts 2 years. This factory will be able to see its capacity thereafter doubling with the help of an additional investment of 15 millions €.

- The investment in chemical reaction tanks will make it possible to increase by 10.000 tons (theoretical) the production of a factory by removing the bottlenecks. Such an investment would cost 10 million€ : such a measure could thus be taken for 2 of the PRICE factories, making it possible to increase the production as of 1st quarter of N+1 if the investment is carried out from the very start of the year.

- The stock of finished products will be increased to one month of (forecasts) sales during first quarter of N+1. This level should be maintained for all the year. The sales should be distributed in a "linear" way, at a rate of 1/4 of the annual forecast each quarter

- The customers pay at 90 days, the suppliers (including the suppliers of fixed assets) are paid at 90 days.
- The other loads of personnel (except production) will rise to 1.000 K€
- The external services will be of 2.800 K€
- The financial expenses will be of 2.625 K€ (on the basis of an average debt of 32.000 K€). The medium-term loan of 30.000 K€ will not start to be refunded before the end of N+2.
- The profit tax rate is 34 %, the N+1 tax will be, by preoccupation with a simplification, regarded as paid the 4th quarter.
- The other loads are paid without delay and are distributed for 1/4 per quarter.
- One will neglect the impact of the VAT.
- Company PRICE does not envisage distribution of dividends.

The balance sheet at December 31 of year N is as follows (in K€):

ASSETS	K€	LIABILITIES	K €
Fixed assets		**Owners equity**	
Gross fixed assets	150 000	Equity capital	50 000
Depreciation	-70 000	Reserves	17 500
Net value	80 000	Profit	2 888
Inventories		**Financial M. L. T. debts**	
Raw material:		Medium term debts	30 000
Oil (1)	10 450		
Chlorine (2)	6 531		
Finished goods (3)	6 487		
Cash assets			
Customer receivables	18 900	Suppliers	16 981
Bank cash	0	Overdraft (S.T. debt)	4 999
TOTAL	**122 368**	**TOTAL**	**122 368**

(1) 3 months forecasted production at 0.40 € /kg
(2) 3 months forecasted production at 0,25 €/kg
(3) 7.208 t at 0,90 € /kg

With the whole of information which you collected, you have already established :

- The annual sales budget for N+1 (in K€). 1.15€x 100 000t = 115 000 K€

- The annual production programme for N+1 (in quantities) (26 125t+ 25 000x3) = 101 125t

- The production budget (in K€) = 94 587 K€

- The budget of the finished products ending book inventories = 7 775K€/8 333t = 0.933/kg

- The estimated income statement N + 1 (chart below)

it is possible for you to satisfy the requests of the General Direction, namely to establish:

- The recommendation of investment (nature, amount, justification).

- The quarterly cash budget

- The table of financial forecasting N + 1

- The forecasted balance sheet at 31/12/N + 1

FORECASTED INCOME STATEMENT (N+1 PERIOD)

	Sub total	TOTALS
Sales Turnover		**115 000**
Change in inventories (7775K€-6487 K€)		1 288
PRODUCTION		**116 288**
Raw Material consumption. (48.250 + 25.281)	73 531	
Payroll expenses (5056 K€ + 1000 K€)	6 056	
External expenses	2 800	
financial expenses	2 625	
Depreciation	16 000	
Total expenses	101 012	101 012
Profit before tax		15 276
Tax on profit		5 194
Net Profit		**10 082**