***Introduction***

Task 1 is designed to test your knowledge and understanding of overhead cost analysis and also to improve your spreadsheet design skills. The task requires you to produce a spreadsheet that shows an overhead analysis and total costs of two products showing the results both graphically and as tables of figures.

***Task 1***

Energetic Ltd is a company that builds bespoke bicycles for racing. It produces two models the Econo-bike and the Luxi-bike. Annual production is expected to be 2000 units of the Econo-bike and 1000 units of the Luxi-bike. Both models are based on carbon fibre frames and Energetic Ltd buys these from the manufacturer for €800 each. The other direct costs and requirements of the building for each bike are shown in the table below.

|  |  |  |
| --- | --- | --- |
| **Cost** | **Econo-bike (€)** | **Luxi-bike(€)** |
| Forks | 120 | 180 |
| Wheels | 80 | 110 |
| Components | 75 | 190 |
| Saddle and handlebars | 75 | 110 |
|  |  |  |
| Workshop labour hours | 7 per bike | 12 per bike |
| Finishing department labour hours | 12 per bike | 20 per bike |
| Workshop machine hours | 12 per bike | 14 per bike |
| Finishing department machine hours | 4 per bike | 6 per bike |
|  |  |
| Average wage rate (Workshop) | €13.00 per hour |
| Average wage rate (Finishing department) | €18.00 per hour |

In addition to the workshop and finishing department Energetic Ltd operate a quality control department and a parts warehouse. Total wages in the quality control department are €200,000 per year and in the warehouse €160,000 per year.

Total manufacturing overhead costs for the company are as shown in the table below:

|  |  |
| --- | --- |
| **Overhead**  | **Total annual cost** |
| Premises costs | €350,000 |
| Light and power | €160,000 |
| Training | €40,000 |
| Plant depreciation | €100,000 |

In addition, the company has provided the following information:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Workshop | Finishing Dept | Quality Dept | Warehouse |
| Floor area (square meters) | 800 | 1000 | 120 | 500 |
| Number of staff | 10 | 20 | 6 | 4 |
| Value of Plant | €250,000 | €120,000 | 0 | €60,000 |
| Quality control visits per year | 250 | 380 |  |  |
| Deliveries from warehouse per year | 690 | 890 |  |  |

The company uses absorption costing to allocate overheads to product costs. Currently, the company is using a simple blanket absorption rate across the company based on the number of units produced. However, Energetic Ltd has experienced a drastic increase in overheads over the last few years combined with increased competition in the industry. Therefore, senior management has decided to monitor their production overheads more closely. They also intend to include the reduction of overheads as part of the departmental performance targets to encourage departments to work more efficiently. However, they have been informed by their accountant that the existing overhead allocation system is too crude to allow a detailed overhead analysis.

You have been asked by one of the senior managers to prepare a report to management proposing a new overhead allocation system. They do not want to give up absorption costing at this stage but hope that you might come up with a more accurate way of allocating the overheads to products. As part of this task they would like you to create a spreadsheet that will work out the full product costs while showing how the overheads are allocated to the departments. They intend to use this spreadsheet for monitoring the overheads over the next few years. Therefore it is essential that the spreadsheet is designed in such a way that it can be easily updated every year. They also want to be able to carry out “what-if” analysis on the figures (this means they need a spreadsheet in which they can alter any variable and see the effect this has on overall costs. They also want the spreadsheet to include pie charts showing the overall cost make up of each of the two products.