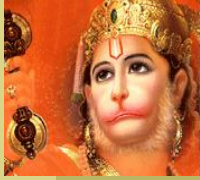




LEARNING CURVE

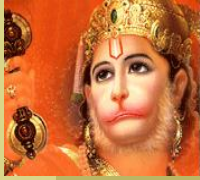


**How many of you are learning
how to cook/drive?**

**As we learn something, gradually the time taken for
the same work will be reduced**



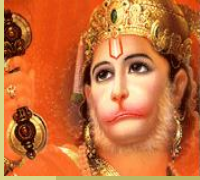
LEARNING CURVE



Applicable to	Not applicable to
Human being (not machine)	Experienced person
Repeatative jobs	New Labour - LC will restart
Skilled/semi-skilled/ unskilled labour	



LEARNING CURVE



Distinctive features of Learning Curve:

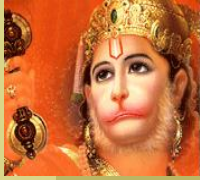
As the production quantity of a given item **doubled**, the (Labour) cost (or hour) of that item decrease at a **fixed rate**

It occurs due to following :

- Better **tooling methods** are developed and used
- More productive **equipment** are designed and used to make the product
- Designed **bugs** are detected and **corrected**
- **Improving design** for reducing material and labour cost
- Earlier **teething problems** are overcome. As management is prompted to try for better planning and better management
- Less **rejections and rework** tend to diminish over time.



LEARNING CURVE



Distinctive features of Learning Curve: EBT – ITR

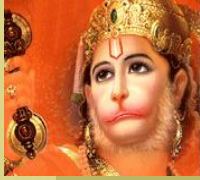
Learning Curve Ratio of 80% means that every time **output doubles**, the **average labour hour declines** to 80% of the previous amount

Output	Avg. Lab. Hrs.	Total Lab. Hrs.	Incremental Lab. Hrs.	Remarks
1	100	100		
2	80	160	60	For 2nd unit
4	64	256	96	For 3rd & 4th unit
8	51.2	409.6	153.6	For 5th-8th unit

Learning Curve Ratio = $\frac{\text{Average labour cost of first } 2N \text{ units}}{\text{Average labour cost of first } N \text{ units}}$



LEARNING CURVE



LEARNING CURVE EQUATION

$$Y_x = KX^s$$
$$\log Y_x = \log K + s \log X$$

$$s = \log (\text{learning ratio}) / \log 2$$

X = Cumulative number of units or lots produced

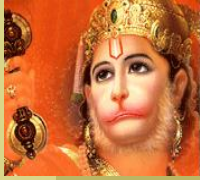
Y = Cumulative average unit cost of those units X or lots

K = Average cost of the first unit or lot

s = Improvement exponent or Learning coefficient or Index of learning



LEARNING CURVE



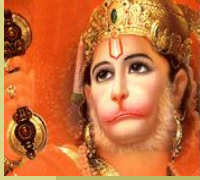
PRACTICAL PROBLEMS



Q



LEARNING CURVE



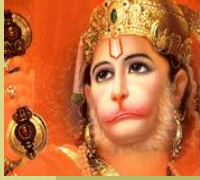
Application of Learning Curve :

The main uses of Learning Curve are summarised below :

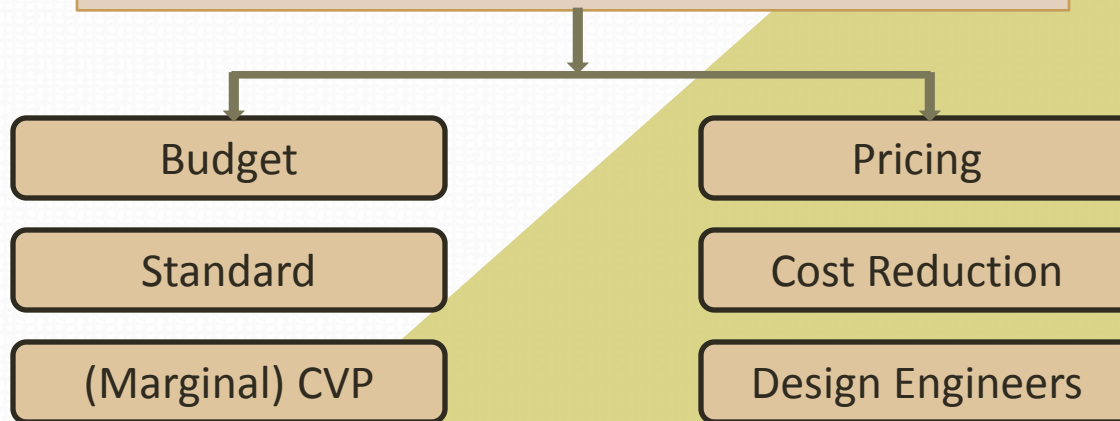
- Helps to analyse **CVP relationship**, **cost estimates**, **forecasting**
- Incorporation of the learning curve helps in **budgeting** and **profit planning**
- It helps in development of advantageous **pricing policy**
- Helps **design engineers** in making decisions based upon expected (predictable from past experience) rates of improvement
- It helps in **price negotiations**
- Helps in **setting standards** in learning phase
- It helps in **cost reduction** by improving learning



LEARNING CURVE

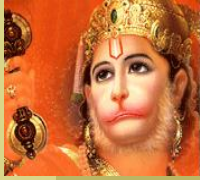


Application of LC





LEARNING CURVE



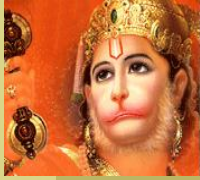
Limitation of Learning Curve Theory:

Following limitations of learning curve must be kept in view :

- **Experienced workmen**, who are thoroughly familiar with the activities will not be subject to learning effect
- In **practice** it is highly unlikely that there will be a regular consistent rate of decrease, therefore LC should be viewed with caution
- Difficulty in **obtaining valid data**, that will form basis for computation of learning effect
- Even slight **change in circumstances** quickly renders the learning curve obsolete



LEARNING CURVE



THANK YOU