INTRODUCTION
Managerial Economics is one of the courses offered by the School of Management, Asia e University (AeU). Similar to other courses offered by the School of Management, this 3 credit hour course will be conducted over 15 weeks and is usually offered twice yearly in February and September semesters.

COURSE AUDIENCE
This is a core course for all learner(s) undergoing the BBA programme.

STUDY SCHEDULE
The AeU standard requires learner(s) to accumulate 40 study hours for every credit hour. This course carries 3 credit hours, therefore, it requires an accumulation of 120 study hours. Table 1 below gives you an approximation of how the 120 hours could be used.

Table 1: Approximate Study Time Allocation

<table>
<thead>
<tr>
<th>ACTIVITIES</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding the course content and initial discussions</td>
<td>4</td>
</tr>
<tr>
<td>Reading 9 topics</td>
<td>60</td>
</tr>
<tr>
<td>Attending tutorial sessions</td>
<td>10</td>
</tr>
<tr>
<td>Online Discussions</td>
<td>15</td>
</tr>
<tr>
<td>Completion of Assignment</td>
<td>15</td>
</tr>
<tr>
<td>Revision</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>120</strong></td>
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</tbody>
</table>

COURSE OBJECTIVES
By the end of this course, learners should be able to:

1. Review the foundations of economics which are fundamental to economic applications.
2. Provide an understanding of the basic principles and concepts of microeconomics and macroeconomics in relation to markets, consumers, businesses, industrial organizations, role of government in resource allocation and income distribution, money, public finance, national income, inflation, unemployment, and stabilization policies.
3. Explain and discuss global economic issues e.g. international trade, balance of payments, exchange rate, and the problems of less-developed countries.
COURSE SYNOPSIS

The primary objective of this course is to apply the basic economic theories (microeconomics and macroeconomic theories) to modern-day world economic problems and their solutions. The course includes a presentation of economic principles and concepts as related to the real world, and the case applications that enhance real world applicability.

CHAPTERS

This course will go through 8 chapters which are as listed below:

<table>
<thead>
<tr>
<th>CHAPTER 1</th>
<th>Economic Concept and Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Chapter 1 the following topics will be covered:</td>
<td></td>
</tr>
<tr>
<td>• Relationship of managerial economics to other disciplines;</td>
<td></td>
</tr>
<tr>
<td>• The basic process of decision making; and</td>
<td></td>
</tr>
<tr>
<td>• Basic of economic analysis.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>CHAPTER 2</th>
<th>The Market Environment of the Firm</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Chapter 2 the following topics will be covered:</td>
<td></td>
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<tr>
<td>• Demand Analysis;</td>
<td></td>
</tr>
<tr>
<td>• Supply analysis;</td>
<td></td>
</tr>
<tr>
<td>• Market Equilibrium;</td>
<td></td>
</tr>
<tr>
<td>• Elasticity; and</td>
<td></td>
</tr>
<tr>
<td>• Market structure.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHAPTER 3</th>
<th>Production and Cost Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Chapter 3 the following topics will be covered:</td>
<td></td>
</tr>
<tr>
<td>• Production and Cost Function;</td>
<td></td>
</tr>
<tr>
<td>• Optimal level of input utilization;</td>
<td></td>
</tr>
<tr>
<td>• Optimal combination of inputs;</td>
<td></td>
</tr>
<tr>
<td>• Return to scale;</td>
<td></td>
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<tr>
<td>• Short and long run cost function;</td>
<td></td>
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<tr>
<td>• Break-even analysis; and</td>
<td></td>
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<tr>
<td>• Economies of scope.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>CHAPTER 4</th>
<th>Fundamentals of the Economy</th>
</tr>
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<tbody>
<tr>
<td>In Chapter 4 the following topics will be covered:</td>
<td></td>
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<tr>
<td>• Overview of macroeconomics;</td>
<td></td>
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<tr>
<td>• Gross domestic product;</td>
<td></td>
</tr>
<tr>
<td>• Unemployment.</td>
<td></td>
</tr>
</tbody>
</table>
### COURSE OVERVIEW

#### CHAPTER 5  Price Index, Inflation and Business Cycle
In Chapter 5 the following topics will be covered:
- Definition, nature and characteristics;
- Measurement of price index and rate of inflation;
- Costs of Inflation; and
- Effect on the economy and business decision.

#### CHAPTER 6  Monetary and Fiscal Policies
In Chapter 6 the following topics will be covered:
- Nature of monetary and fiscal policy; and
- Problem Associated with the various policies.

#### CHAPTER 7  Exchange Rates and Currencies
In Chapter 7 the following topics will be covered:
- Exchange rate;
- Balance of payments;
- Current account;
- Capital account;
- Exchange rate management; and
- International monetary management.

### REFERENCES
Learners are advised to do additional readings on accounting theories. The following are some recommended references:

**Main Textbook:**

**Reference Book:**

### EVALUATION
Assignments : 30%
Mid-semester exam : 30% (July 29, 2006)
Final exam : 40% (September 9, 2007)
LEARNING OUTCOMES

By the end of this chapter, you should be able to:

1. Define what is managerial economics;

2. Explain the relationship between microeconomics, macroeconomics, statistics finance and marketing; and

3. Explain six (6) basic concepts in economics analysis
INTRODUCTION

Successful managers make good decisions. One of the tools that is being used in their decision making is the methodology of managerial economics.

In this chapter you will be introduced to managerial economics, the fundamentals of managerial economic and the principles of economic analysis. This chapter sets the stage for the more deeply analytical chapters that you will go through later.

1.1 MANAGERIAL ECONOMICS RELATIONSHIP

The relationship between managerial economics and other disciplines are described as follows:

- Managerial economics provides a link between economic theory and decision
Managerial economics is largely prescriptive, that is, it attempts to establish rules and techniques to fulfill specified goals.

Managerial economics draws heavily on the decision sciences as well as traditional economics. The decision sciences provide ways to analyze the impact of alternative courses of action. Managerial economics uses optimization techniques to determine optimal courses of action for decision makers.

In studying business administration, managerial economics provide fundamental analytical tools that can be used in the study of finance, marketing and production.

Visit the following site to hear an online audio lecture and power point from one of the authors of Managerial Economics: A Problem Solving Approach, Luke M. Froeb who is also a Lecturer at Vanderbilt University.

**Name**: Managerial Economic : A problem solving approach (Chapter 1)

**URL**: http://www.youtube.com/watch?v=eFJ4kuK5gL0
1.2 THE BASIC PROCESS OF DECISION MAKING

The process of decision making can be divided into five basic steps:

Figure 1.2: Basic steps in the decision making process

- **Step 1: Establish or Identify Objectives**
  Establishing what an organization is trying to achieve is crucial in decision making. Unless we know of what we are trying to achieve, there is no sensible way to make the decision.

- **Step 2: Define Problem**
  The most difficult part of decision making is to determine exactly what the problem is.

- **Step 3: Identify Possible Solutions**
  Once the problem is defined, try to construct and identify possible solutions.

- **Step 4: Select the Best Possible Solution**
  Evaluate each of the possible solution and determine which is the best solution in order to achieve the objective of the organization.

- **Step 5: Implement the Decision**
  Once a particular solution has been chosen, it must be implemented in order to be effective.
Figure 1.3 summarises the decision making process.

Figure 1.3: Summaries of 5 basic steps in the decision making process

1. Establish objectives
2. Define the problem
3. Identify possible solutions
4. Select the best possible solution
5. Implement the decision

Consider input constraints
Consider legal and other constraints

1.3 BASICS OF ECONOMIC ANALYSIS

There are six (6) main fundamentals in Economic Analysis:

1. The theory of the firm
2. The role of the constraint
3. Demand and supply
4. Functional relationships
5. Marginal Analysis
6. Concept of derivative
1.3.1 The Theory of the Firm

A theory of the firm describes how firms behave and what their goals are. It is important to understand this theory before managerial economics can be applied to business management. The basic model of the business enterprise stems from the theory of the firm. This theory assumes that the firm tries to maximise its profits. In managerial economics the theory assumes that the firm tries to maximise its wealth or value.

1.3.2 The Role of Constraints

There are many constraints that limit the extent to which a firm’s value can be increased. The constraint can be due to the limitation of inputs, specialised equipment, skilled labour or essential materials. Some other constraints can be legal or contractual in nature.

1.3.3 Demand and Supply

A market can be defined as a group of firms and individuals that are in touch with each other in order to buy or sell some goods. Markets vary in the extent to which they are dominated by a few large buyers or sellers.

Supply and demand can be used to discuss the determination of market price and the adjustment that would occur if price were temporarily above or below the price that would equate quantity demanded with quantity supplied.

When quantity demanded is equal to quantity supplied then market is at equilibrium. This analysis can be represented by market demand and supply curve or by functional relationship.

*Figure 1.4: Supply and demand graph*
If you wish you read more about demand and supply, you can take a look at the following online power point slide by Michael R. Bay, the Author of Managerial Economics and Business Strategy and also an educational wiki website on Demand and Supply.

**Title** : Managerial Economics & Business Strategy: Chapter 2
**URL** : http://www.rasmusen.org/pacioli/g300/ppt.bayebook
**Description** : Market Forces: demand and supply

Check and enhance your understanding on Supply and Demand by exploring this interactive site on Demand and Supply. You can also attempt the simple exercises provided on the site to test your understanding.

**Title** : Demand and supply - overall idea
**URL** : http://www.bized.co.uk/learn/economics/markets/mechanism/interactive/part1.htm
**Description** : This series of step-by-step approaches looks at the concepts of supply and demand and the working of the market. The activity will take you through the market process to develop understanding of how markets work in the real world and how so called ‘market forces’ cause changes in resource allocation.
1.3.4 Functional Relationships

The relationship between two or more economic variables can be expressed through the use of equations. The relationship between the number of units sold and the price can be expressed in functional form as below:

\[ Q = f(P) \]

Where:
- \( Q \) is the number of units sold
- \( P \) is price

The number of units sold is the dependent variable and price is the independent variable.

You can visit the following website to read more on the relationship between Quantity and Price.

<table>
<thead>
<tr>
<th>Title</th>
<th>The Demand Curve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The relationship between price and the amount of a product people want to buy is what economists call the demand curve. This relationship is inverse or indirect because as price gets higher, people want less of a particular product.</td>
</tr>
</tbody>
</table>

1.3.5 Marginal Analysis

The marginal value of a dependent variable is defined as the change in the dependent variable associated with a 1-unit change in an independent variable. For example, if total profit is the dependent variable and output is the independent variable, then, a marginal value of profit is called marginal profit, that is the change in total profit associated with 1-unit change in output.

The central point about a marginal relationship is that the dependent variable is maximis when the marginal value shifts from positive to negative.

To check your understanding on Marginal Analysis, you can try this simple online test.
1.3.6 The Concept of Derivative

The optimal solution to the decision maker’s problem can be obtained by using the techniques of differential. If $Y$ is a dependent variable and $X$ is an independent variable, then we can express it as follows:

$$Y = f(X)$$

Thus, the marginal value of $Y$ can be estimated by

$$\text{Marginal Value of } Y = \frac{\text{Change in } Y}{\text{Change in } X} = \frac{\Delta Y}{\Delta X}$$

If a 2-unit increase in $X$ results in a 1-unit increase in $Y$, then $\Delta X = 2$ and $\Delta Y = 1$.

Therefore the marginal value of $Y$ is

$$\frac{\Delta Y}{\Delta X} = \frac{1}{2}$$

That is the dependent variable $Y$ increases by about $\frac{1}{2}$ if the independent variable $X$ increases by 1.
1.4 HOW TO FIND A DERIVATIVE

There are five (5) ways to find a derivative. We will use an example below to demonstrate on how to find derivative using each method.

Example:

If Y is some measure of organisational performance and X is a variable under manager’s control, we would like to know the value of X that will maximise Y.

To find the value of X that will maximise Y, we can use the derivative techniques, that which is the derivative of Y with respect to X. The derivative can be written as

Following are the methods that can be used to find the value of X that will maximise Y.

Method 1: Derivative of Constants

If the dependent variable Y is a constant, its derivative with respect to X is zero.

\[ \frac{dY}{dX} = 0 \]

Y = 6, means Y does not change as X varies, thus

\[ \frac{dY}{dX} = 0 \]
This can be expressed as: \( Y = aX^b \) where \( a \) and \( b \) are constant.

The derivative of \( Y \) with respect to \( X \) is:

\[
\frac{dY}{dX} = b aX^{b-1}
\]

Example:

If \( Y = 3X \), then
\[
\frac{dY}{dX} = 1 \cdot 3 \cdot X^{1-1} = 3X^0 = 3
\]

If \( Y = 2X^2 \), then
\[
\frac{dY}{dX} = 2 \cdot 2 \cdot X^{2-1} = 3X
\]
Suppose that $U$ and $W$ are two variables, each of which depends on $X$.

Thus,

\[ U = g(X) \text{ and } W = h(X) \]

If $Y = U + W$, then the derivative of $Y$ with respect to $X$ can be written as

\[ \frac{dY}{dX} = \frac{dU}{dX} + \frac{dW}{dX} \]

If $Y = U - W$, then the derivative of $Y$ with respect to $X$ can be written as

\[ \frac{dY}{dX} = \frac{dU}{dX} - \frac{dW}{dX} \]

**Example:**

If $U = g(X) = 3X^3$, \( w = h(X) = 4X^2 \), and

\[ Y = U + W = 3X^3 + 4X^2 \]

then

\[ \frac{dY}{dX} = \frac{dU}{dX} + \frac{dW}{dX} = 9X^2 + 8X \]

where \( \frac{dU}{dX} = 9X^2 \) and \( \frac{dW}{dX} = 8X \)

**Example:**

If $U = g(X) = 8X^2$, \( w = h(X) = 9X \), and

\[ Y = U - W = 8X^2 - 9X \]

then

\[ \frac{dY}{dX} = \frac{dU}{dX} - \frac{dW}{dX} = 16X - 9 \]

where \( \frac{dU}{dX} = 16X \) and \( \frac{dW}{dX} = 9 \)
**Method 4: Derivatives of Products**

If \( Y = UW \), then
\[
\frac{dY}{dx} = \frac{dU}{dx} + \frac{dW}{dx} + WU \frac{dU}{dx}
\]

Example:

If \( Y = 6X(3 - X^2) \) where
- \( U = 6X \) and
- \( W = 3 - X^2 \), then
\[
\frac{dY}{dx} = 6X \frac{dW}{dx} + (3 - X^2) \frac{dU}{dx}
\]
\[
\Rightarrow \frac{dY}{dx} = 6X(-2X) + (3 - X^2) \frac{6}{dx}
\]
\[
= -12X^2 + 18 - 6X^2
\]
\[
= 18 - 18X^2
\]

**Method 5: Derivatives of Quotients**

If \( Y = \frac{U}{W} \), then the derivative of \( Y \) with respect to \( X \) is
\[
\frac{dY}{dx} = \frac{W \frac{dU}{dx} - U \frac{dW}{dx}}{W^2}
\]

Example:

If \( Y = \frac{5X^3}{3 - 4X} \) where
- \( U = 5X^3 \) and
- \( W = 3 - 4X \), then
\[
\frac{dY}{dx} = \frac{(3 - 4X) \frac{d(5X^3)}{dx} - 5X^3 \frac{d(3 - 4X)}{dx}}{(3 - 4X)^2}
\]
\[
= \frac{45X^2 - 60X^3 + 20X^3}{(3 - 4X)^2}
\]
\[
= \frac{45X^2 - 40X^3}{(3 - 4X)^2}
\]
1.4.1 Using Derivatives

Using Derivatives to Solve Maximisation and Minimisation Problems

To determine the value of \( X \) that maximises or minimises \( Y \), we must find the value of \( X \) where

\[
\frac{dY}{dX} = 0
\]

The central point is that a maximum or minimum can occur when

\[
\frac{dY}{dX} = 0
\]

Example:

If \( Y = -50 +100X - 5X^2 \), then

\[
\frac{dY}{dX} = 100 -10X
\]

\[
100 -10X = 0
\]

\[
X = 10
\]

1.4.2 The Marginal Cost = Marginal Revenue

The fundamental rule of profit maximisation is to set marginal cost equal marginal revenue.
Total profit equals total revenue minus total cost and this can be presented as following function:

\[ n = \text{TR} - \text{TC} \]

Where:
- \( \pi \) = Total profit
- \( \text{TR} \) = Total revenue
- \( \text{TC} \) = Total cost

Taking derivative of \( \pi \) with respect to \( Q \) (output):

Example:

\[
\frac{dn}{dQ} = \frac{d\text{TR}}{dQ} - \frac{d\text{TC}}{dQ}
\]

For \( n \) to be maximum, set this derivative equals to Zero (0), thus

\[
\frac{d\text{TR}}{dQ} - \frac{d\text{TC}}{dQ} = 0
\]

\[
\frac{d\text{TR}}{dQ} = \frac{d\text{TC}}{dQ}
\]

Where \( \frac{d\text{TR}}{dQ} \) equals marginal revenue and \( \frac{d\text{TC}}{dQ} \) equals marginal cost.

If you wish to explore further on how to derive derivative in mathematical perspective, you can visit the following website.

**Title**: How to find derivative - derivative calculator

**URL**: http://cs.jsu.edu/mcis/faculty/leathrum/Mathlets/derivcalc.html

**Description**: Calculates the derivative of an expression specified using a simple expression syntax.
Case Study: The Allocation of the TANG Brand Advertising Budget

Consider the work that Young and Rubicam, the prominent advertising agency, did for its General Food accounts, TANG beverages. TANG is a trademark for instant breakfast drink with an orange flavour. Young and Rubicam did a study to estimate the effects of advertising expenditures on the sales of TANG and found that the relationships between advertising expenditures and sales in two districts were:

\[ S_1 = 10 + 5A_1 - 1.5A_1^2 \]
\[ S_2 = 12 + 4A_2 - 0.5A_2^2 \]

where:

- \( S_1 \) is the sale of TANG (in millions of dollars per year) in the first district
- \( S_2 \) is its sales of TANG (in millions of dollars per year) in the second district
- \( A_1 \) is the advertising expenditure on TANG (in millions of dollars per year) in the first district
- \( A_2 \) is the advertising expenditure on TANG (in millions of dollars per year) in the second district

Suppose that $0.5 million was spent on advertising in the first district and that $1 million was spent on advertising in the second district. If you are part of the Young and Rubicam team, what would be your recommendation to General Food concerning the regional allocation of the TANG brand advertising budget:

a) If General Food wants to maximise TANG’s sales in the first district, how much should it spend on advertising? If General Foods wants to maximise TANG’s sales in the second district, how much should it spend on advertising?

b) Show that your answer is to maximise, rather than minimise sales.

c) Would you recommend that General Foods attempt to maximise TANG’s sales? Why or why not?
Solutions:

a) If General Food wants to maximise TANG’s sales in the first district, then it should spend $1.67 million on advertising. The advertising spending is calculated as follows:

1. Derive the derivative of \( S_1 \) function:

\[
S_1 = 10 + 5A_1 - 1.5A_1^2
\]

\[
\frac{dS_1}{dA_1} = 5 - 3A_1
\]

\[
5 - 3A_1 = 0
\]

\[
A_1 = \frac{5}{3} = $1.67 \text{ million}
\]

\[
\frac{dS_2}{dA_2} \text{ is set to 0 to maximise sales in the first district}
\]

If General Food wants to maximise TANG’s sales in the second district, then it should spend $4 million on advertising. The advertising spending is calculated as follows:

2. Derive the derivative of \( S_2 \) function:

\[
S_2 = 12 + 4A_2 - 0.5A_2^2
\]

\[
\frac{dS_2}{dA_2} = 4 - A_2
\]

\[
4 - A_2 = 0
\]

\[
A_2 = $4 \text{ million}
\]

\[
\frac{dS_2}{dA_2} \text{ is set to 0 to maximise sales in the second district}
\]
b) In order to show the answer above is to maximise, rather than minimise sales, we need to derive the second derivative:

\[
\begin{align*}
\frac{dS_1}{dA_1} &= 5 - 3A_1 \\
\frac{d^2 S_1}{dA_1^2} &= -3 \\
\frac{dS_2}{dA_2} &= 4 - A_2 \\
\frac{d^2 S_2}{dA_2^2} &= -1
\end{align*}
\]

Since both second derivatives show negative values, it indicates that both points for A1 and A2 as in (a) above are at the maximum points. If S1 and S2 were minimised, not maximised, the second derivatives would be positive not negative.

c) Based on the answers in (b), General Foods should not maximise TANG’s sales. Firms are generally assumed to be interested in maximising profit but not sales. In general, a firm is unlikely to increase sales if it means a decrease in its profits. But in some cases, a firm will increase sales although profit may fall in the short run but it may increase in the long run. For example, a firm may make some sales at loss in order to gain customers who eventually will enhance the firm’s profits.
# SUMMARY

1. Managerial economics is a decision making tool that is being used by managers to make good decision.

2. It applies economics theories and decision sciences to derive solutions for management problems.

3. In decision making process, there are five (5) steps involved:
   - Step 1: Establish or identify objectives.
   - Step 2: Define problem.
   - Step 3: Identify possible solutions.
   - Step 4: Select the best possible solution
   - Step 5: Implement the decision.

4. The basics concept of economic analysis that are being used in the decision making processes are:
   - **The Theory of the Firm**
     This theory assumes that firm tries to maximize its profits. In managerial economics the theory assumes that the firm tries to maximize its wealth or value.
   - **The Role of Constraints**
     The constraints limit the extent to which a firm’s value can be increased. The constraint can be due to the limitation of inputs, specialized equipment, skilled labor or essential materials.
   - **Demand and Supply**
     Supply and demand are used to discuss the determination of market price and the adjustment that would occur if price were temporarily above or below the equilibrium.
   - **Functional Relationships**
     The relationship between two or more economic variables can be expressed through the use of equations. Example, the number of units sold and the price can be expressed in functional form as \( Q = f(P) \), where \( Q \) is the number of units sold and \( P \) is price.
   - **Marginal Analysis**
     The marginal value of the dependent variable is defined as the change in this dependent variable associated with a 1-unit change in an independent variable. The central point about a marginal relationship is that the dependent variable is maximized when the marginal value shifts from positive to negative.
The optimal solutions to the decision maker’s problem can be obtained by using the techniques of differential. If \( Y \) is the dependent variable and \( X \) is the independent variable, then we can expressed it as \( Y = AE'(X) \). Thus, the marginal value of \( Y \) can be estimated by.

**GLOSSARY**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>Equilibrium</td>
<td>Equilibrium is when the quantity demanded is equal to quantity supplied by the market.</td>
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<td>Managerial economics</td>
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<td>Marginal value</td>
<td>Marginal value of a dependent variable is defined as the change in the dependent variable associated with a 1-unit change in an independent variable</td>
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<tr>
<td>Theory of the Firm</td>
<td>This theory assumes that the firm tries to maximise its profits. In managerial economics the theory assumes that the firm tries to maximise its wealth or value.</td>
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</tbody>
</table>

**TEST**

1. What are the central themes of managerial economics?
2. How do managerial economics relate to managerial decision making in both business and the public sector?
3. List the characteristic of marginal analysis with respect to the followings:
   - Production
   - Cost
   - Revenue
REFERENCES


