



# **SNS COLLEGE OF ENGINEERING**

**Kurumbapalayam (Po), Coimbatore - 641 107**

**An Autonomous Institution**

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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai**

**DEPARTMENT OF MANAGEMENT STUDIES**

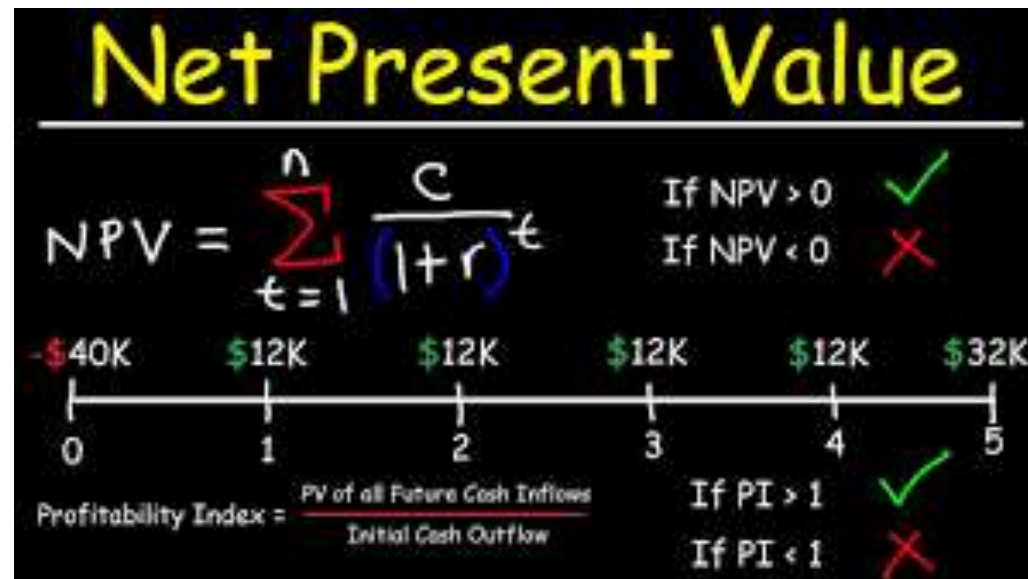
**COURSE NAME : 19BA201 FINANCIAL MANAGEMENT**

**I YEAR / II SEMESTER**

**UNIT 2 - INVESTMENT DECISIONS**

## Net present value (NPV)

Net present value (NPV) is the difference between the present value of cash inflows and the present value of cash outflows over a period of time. NPV is used in capital budgeting and investment planning to analyze the profitability of a projected investment or project.





## Net present value (NPV)

### Net Present Value Formula



$$NPV = \sum \frac{CF_n}{(1+i)^n} - \text{Initial Investment}$$





## Net present value (NPV)

Normal Calculation in-hand

Excel Sheet





## Profitability Index (PI)

The Profitability Index (PI) measures the ratio between the present value of future cash flows and the initial investment. The index is a useful tool for ranking investment projects and showing the value created per unit of investment.





## Profitability Index (PI)



**Profitability  
Index  
Formula**

=

**PV of Future Cash Flows**  

---

**Initial Investment**





## Profitability Index (PI)

Normal Calculation in-hand

Excel Sheet





## Benefit-Cost Ratio (BCR) same as Profitability Index (PI)

A benefit-cost ratio (BCR) is an indicator showing the relationship between the relative costs and benefits of a proposed project, expressed in monetary or qualitative terms. If a project has a BCR greater than 1.0, the project is expected to deliver a positive net present value to a firm and its investors.

$$\text{Benefit-Cost Ratio} = \frac{\text{PV of Benefit Expected from the Project}}{\text{PV of the Cost of the Project}}$$




## Payback Period (PP)

The payback period refers to the amount of time it takes to recover the cost of an investment.

Whether to invest in particular business or not (retrive period )





## Payback Period (PP)



**Payback Period Formula** = 
$$\frac{\text{Initial Investment OR Original Cost of the Asset}}{\text{Cash Inflows}}$$

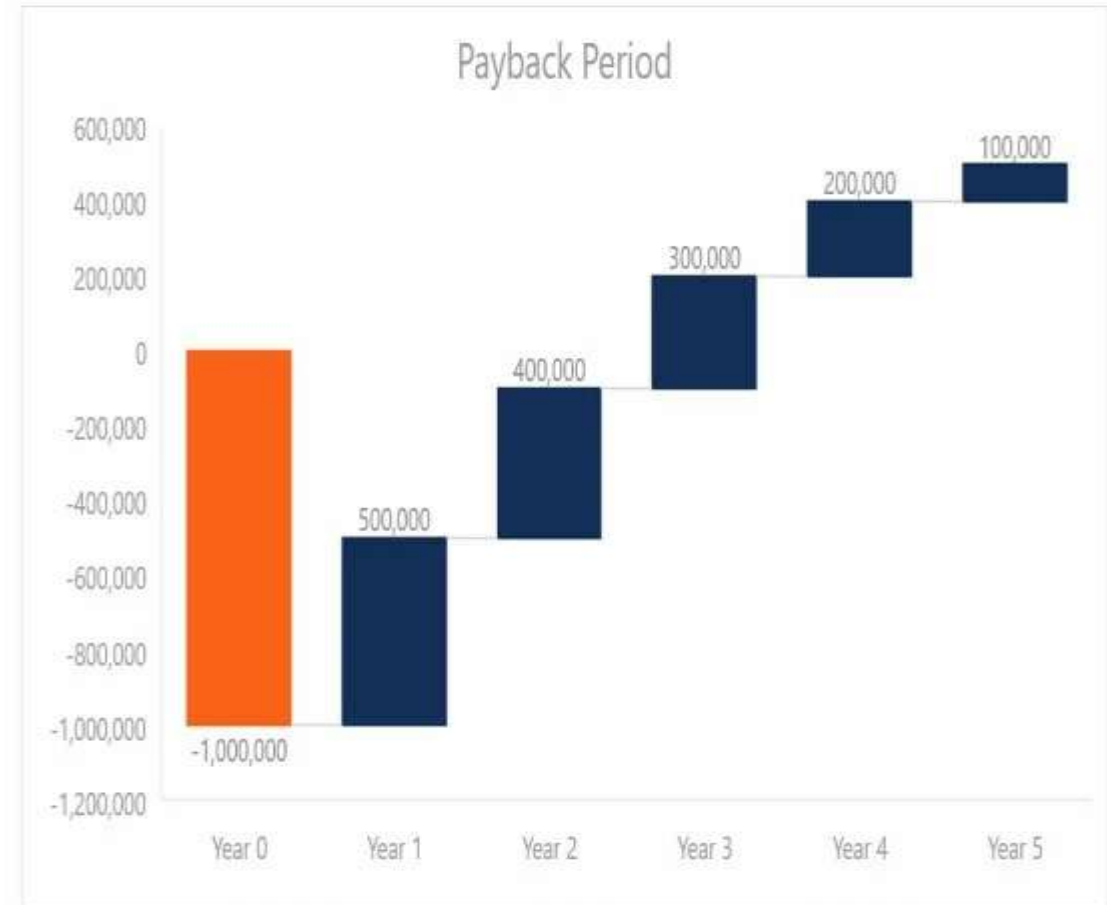




# Payback Period (PP)

Normal Calculation in-hand

Excel Sheet





## Accounting Rate of Return (ARR)

Accounting rate of return, also known as the Average rate of return, or ARR is a financial ratio used in capital budgeting. The ratio does not take into account the concept of time value of money. ARR calculates the return, generated from net income of the proposed capital investment. The ARR is a percentage return.





# Average Rate of Return

Accounting Rate of Return (ARR)

$$\text{ARR} = \frac{\text{Average net income}}{\text{Average investment}}$$

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## Average Rate of Return

Normal Calculation in-hand

Excel Sheet

**Accounting Rate  
of Return /  
Average Rate of  
Return**





## Internal Rate of Return (IRR)

The internal rate of return is a metric used in financial analysis to estimate the profitability of potential investments. The internal rate of return is a discount rate that makes the net present value (NPV) of all cash flows equal to zero in a discounted cash flow analysis.





# Internal Rate of Return

$$IRR = \frac{\text{Cash flows}}{(1+r)^i} - \text{Initial Investment}$$

Where:

Cash flows= Cash flows in the time period

r = Discount rate

i = Time period

$$0 = CF_0 + \frac{CF_1}{(1 + IRR)} + \frac{CF_2}{(1 + IRR)^2} + \frac{CF_3}{(1 + IRR)^3} + \dots + \frac{CF_n}{(1 + IRR)^n}$$

Or

$$0 = NPV = \sum_{n=0}^N \frac{CF_n}{(1 + IRR)^n}$$

**Where:**

$CF_0$  = Initial Investment / Outlay

$CF_1, CF_2, CF_3 \dots CF_n$  = Cash flows

$n$  = Each Period

$N$  = Holding Period

$NPV$  = Net Present Value

$IRR$  = Internal Rate of Return





# Internal Rate of Return

Normal Calculation in-hand

Excel Sheet





THANK YOU