

Financial Modeling Using Ms Excel

Loan Amortization

What is Loan Amortization

- A concept commonly used in banks and financial institutions to determine/breakdown loan repayments and the Interest payment at the end of the loan period.
- In banking and finance, an amortizing loan is a loan where the principal of the loan is paid down over the life of the loan according to an amortization schedule, typically through equal payments.

What is Loan Amortization Con't

- An **amortized loan** is a type of **loan** that requires the borrower to make scheduled, periodic payments that are applied to both the principal and interest.
- An **amortized loan** payment first pays off the interest expense for the period; any remaining amount is put towards reducing the principle amount.

What is Loan Amortization Schedule?

- An **amortization schedule** is a table detailing each periodic payment on an amortizing loan (typically a mortgage), as generated by an amortization calculator.
- Amortization refers to the process of paying off a debt (often from a loan or mortgage) over time through regular payments

Components of Loan Amortization Schedule?

- A Loan Amortization Schedule depending on the institution where it is applied is composed of 7 items presented in columnar Fashion.
- **The Period (Duration).** This is simply a number that detonates each month/year of your repayment period.
- **Syntax: 0+1**

Components of Loan Amortization Schedule?

- **Scheduled payment/Periodic Payment:** This is your monthly loan payment. This number/amount will be the same every month. Calculated using PMT Function.
- **$PMT = (Rate, Nper, PV)$,**
- **Where Rate=Interest Rate, Nper-Duration of Loan and PV=Loan Amount. The loan amount should be presented in Negative**
- **Interest:** This is the amount paid toward your Principle with each payment. Every month, this number will decrease. This is the cost of the loan
- **Syntax: Interest rate*loan amount(Interest rate is fixed)**

Components of Loan Amortization Schedule?

- **Accumulated Interest.** The sum of interest when added to generate the total cost of the loan after a period syntax : **(Sum of interest. Interest is fixed)**
- **Principle.** This is the actual amount paid every time needed to recover the actual loan amount. Each month, this number will increase.
- **Syntax: Installment –Interest**
- **Accumulated Principle.** The sum of Principle added to recover the total loan amount
- **(Sum of Principle. Principle is fixed)**

Components of Loan Amortization Schedule?

- **Running Balance/Ending balance:** This is the balance of your loan after you make your annual/monthly payment.
- The balance is expected to be Zero (0) in the final year/duration once the last installment is made.
- **Formulae= [Running Balance-Principle]**

Ways of Loan Amortization

- In Years
- In Months

Class Example One

- You have been appointed as a loan officer at ABC Microfinance Ltd. As part of your interview, you are asked to carry out a complete amortization schedule based on the following information.
- The loan is for a customer who is interested in securing a loan of 50,000,000/= = , payable in 5 years at an Annual interest rate of 20%.
- Amortize the Loan using a complete loan amortization schedule to determine;
- i) The Annual Loan Installment
- ii) Total interest amount
- iii) The total amount of money the client will pay after the five years

Class Example Two

Use the Following Information to amortize the loan. As part of your work, you are asked to carry out a complete amortization schedule based on the following information.

- Loan Amount 20,000,000/=
- Loan Duration 3 years
- Annual interest rate 30%

Required;

Amortize the loan to determine;

- The Monthly repayments/Installments
- Total interest amount after the 3 years in months
- Total Loan Amount paid back after the three years

Class Example Three

- ABC LTD has been awarded a tender to supply IT Equipment to MUBS for the next four years. But the company is not in position to raise the necessary funds. The only source of funds available to the company is a bank loan. Loan amount 25 Millions in a period of four years at an annual interest of 15%.
- Carry out a complete loan amortization to find the total interest that will be paid at the end of the period.
- Assuming on top of your monthly payments, you pay 150,000 through out the period, in which month will you complete the loan repayment?
- What will be the total interest at the end of the period?