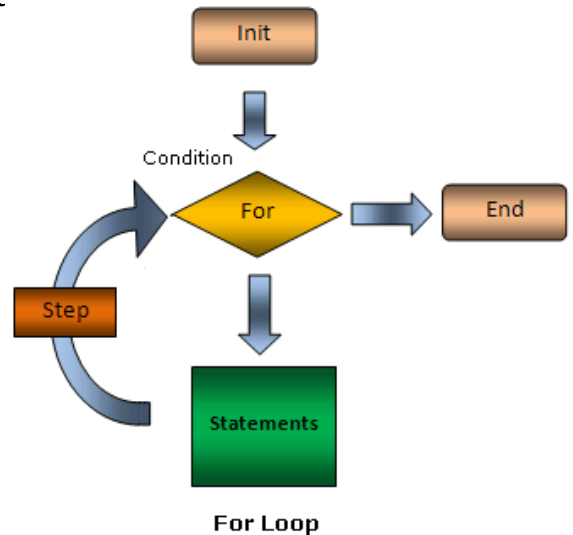# NIELIT GORAKHPUR

For loop :

This is an entry controlled looping statement. In this loop structure, more than one variable can be initialized. One of the most important feature of this loop is that the three actions can be taken at a time like variable initialization, condition checking and increment/decrement

Syntax:

> **for(initialization; test-condition; incre/decre)**
> **{**
>   **statements;**
> **}**

For Loop

Features :
- ✓ More concise
- ✓ Easy to use
- ✓ Highly flexible
- ✓ More than one variable can be initialized.
- ✓ More than one increments can be applied.
- ✓ More than two conditions can be used.

Example of for Loop:

Example 1.   Print 1 to 10.

```c
#include<stdio.h>
#include<conio.h>
main()
{
  int i;
  clrscr();
  for(i=1;i<=10;i++)
  printf("\n%d",i);
  getch();
}
```

Example 2.   Program to input any number and print it factorial value.

```c
#include<stdio.h>
#include<conio.h>
void main()
{
int x,y;
clrscr();
printf("Enter any number\n");
scanf("%d",&x);
for(y=1;x>+1;x--)
y=y*x;
printf("%d\n",y);
getch();
}
```

Example 3. Program to print the sum of one to nth numbers

```c
#include<stdio.h>
#include<conio.h>
```

```
void main()
{
int n,y;
clrscr();
printf("Enter nth number\n");
scanf("%d",&n);
for(y=0;n>=1;n--)
y=y+n;
printf("%d",y);
getch();
}
```

Do yourself:

1. Write a program to input any number and print it factorial value
2. Write a program to the sum of the following series
   - ➢ $x + 2x + 3x + 4x + 5x + \ldots\ldots\ldots\ldots\ldots\ldots nx$
   - ➢ $x^2 + 2x^2 + 3x^2 + 4x^2 + 5x^2 + \ldots\ldots\ldots\ldots nx^2$
   - ➢ $x + 2x^2 + 3x^3 + 4x^4 + 5x^5 + \ldots\ldots\ldots\ldots nx^n$