

# Lecture Module - Introduction and MATLAB Review

ME3001 - Mechanical Engineering Analysis

Mechanical Engineering

Tennessee Technological University

## Topic 5 - MATLAB Loops

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- What is Looping?
- Types of Loops
- MATLAB Examples

# What is Looping?

## Repeated Code

You may have noticed in your programs that there was a lot of **Repeated Code** ? Is this OK?

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What can we do about it?

Introduce a new **Control Structure** ...

## A New Control Structure

A loop is a fundamental **control structure** in sequential programming in which one or more commands is executed in repetition controlled by a logical statement or counter. - TH

... In computer programming, a loop is a sequence of instructions that is repeated until a certain condition is reached. - Web



## Why use Loops?

Why are loops useful in computer programming?

- Reduce problems associated with it repeated code
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## Many Different Types

There are many different types of loops in computer programming. This is not an inclusive list.

- WHILE loops
- FOR loops
- *nested* loops
- DO... WHILE loops

Loops can be characterized as *entry-controlled* or *exit-controlled* loops.

# The WHILE Loop

The WHILE Loop is the simplest loop in computer programming.

- **block of code** is repeated as long as **condition** is **true**
- *entry-controlled* loop structure
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## Structure of a WHILE Loop

```
i=1; %Initialize the Counter  
  
while(i<10)  
  
    % Do Stuff Here  
  
    i=i+1; % Increment the Counter  
  
end
```



## References

- Your MATLAB textbook - Chapter 5 - Looping Statements