**Experiment** **No**: 01

**Experiment** **name**: Basic Matlab

**Objective**

1. To initialize with MATLAB
2. To verify different command relevant to mathematical operation
3. To simplify design parameter through MATLAB

**Discussion:** In this lab I learn and perform various command of matlab. Some codes did not run correctly and were wrong. One of the most common error is case sensitivity of variable or commend in matlab. Now I understood those troubleshooting and successfully performed all command.

>> X= [ 0 0.1\*pi 0.2\*pi 0.4\*pi 0.5\*pi 0.6\*pi 0.7\*pi 0.4\*pi 0.8\*pi 0.9\*pi]

X =

0 0.3142 0.6283 1.2566 1.5708 1.8850 2.1991 1.2566 2.5133 2.8274

>> X= [ 0 0.1\*pi 0.2\*pi; 0.4\*pi 0.5\*pi 0.6\*pi; 0.7\*pi 0.4\*pi 0.8\*pi]

X =

0 0.3142 0.6283

1.2566 1.5708 1.8850

2.1991 1.2566 2.5133

>> x(3)

Undefined function 'x' for input arguments of type 'double'.

Did you mean:

>> X(3)

ans =

2.1991

>> X= [ 0 0.1\*pi 0.2\*pi; 0.4\*pi 0.5\*pi 0.6\*pi; 0.7\*pi 0.4\*pi 0.8\*pi]

X =

0 0.3142 0.6283

1.2566 1.5708 1.8850

2.1991 1.2566 2.5133

>> X= [ 0 0.1\*pi 0.2\*pi 0.4\*pi 0.5\*pi 0.6\*pi 0.7\*pi 0.4\*pi 0.8\*pi]

X =

0 0.3142 0.6283 1.2566 1.5708 1.8850 2.1991 1.2566 2.5133

>> X(3)

ans =

0.6283

>> Y= sin(X)

Y =

0 0.3090 0.5878 0.9511 1.0000 0.9511 0.8090 0.9511 0.5878

>> Y(5)

ans =

1

>> X(1:5)

ans =

0 0.3142 0.6283 1.2566 1.5708

>> X(7:end)

ans =

2.1991 1.2566 2.5133

>> Y(3:-1:1)

ans =

0.5878 0.3090 0

>> X([8 2 9 1])

ans =

1.2566 0.3142 2.5133 0

>> Y([1 1 3 4 2 2 1])

ans =

0 0 0.5878 0.9511 0.3090 0.3090 0

>> X= (0:0.1:1)

X =

0 0.1000 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000

>> X= (0:0.1:1)\*pi

X =

0 0.3142 0.6283 0.9425 1.2566 1.5708 1.8850 2.1991 2.5133 2.8274 3.1416

>> X=linespace(0,pi,1 1)

X=linespace(0,pi,1 1)

|

Error: Unexpected MATLAB expression.

>> X=linspace(0,pi,1 1)

X=linspace(0,pi,1 1)

|

Error: Unexpected MATLAB expression.

>> X=linspace(0,pi,1)

X =

3.1416

>> logspace(0,2,1 1)

logspace(0,2,1 1)

|

Error: Unexpected MATLAB expression.

>> logspace(0,2,1)

ans =

100

>>

Problem 2

>> A[1:7]

A[1:7]

|

Error: Unbalanced or unexpected parenthesis or bracket.

>> A=[1:7]

A =

1 2 3 4 5 6 7

>> B= [linspace(1,7,9)]

B =

1.0000 1.7500 2.5000 3.2500 4.0000 4.7500 5.5000 6.2500 7.0000

>> A=(1:7)

A =

1 2 3 4 5 6 7

>> A= 1:5, B= 1:2:9

A =

1 2 3 4 5

B =

1 3 5 7 9

>> C=[B A]

C =

1 3 5 7 9 1 2 3 4 5

>> D= [A(1:2:5) 1 0 1]

D =

1 3 5 1 0 1

>> C= [1;2;3;4;5]

C =

1

2

3

4

5

>> A= 1:5

A =

1 2 3 4 5

>> B= A'

B =

1

2

3

4

5

>> W= B'

W =

1 2 3 4 5

>> C= A'

C =

1

2

3

4

5

>> D= complex(A, A)

D =

1.0000 + 1.0000i 2.0000 + 2.0000i 3.0000 + 3.0000i 4.0000 + 4.0000i 5.0000 + 5.0000i

>> E= D'

E =

1.0000 - 1.0000i

2.0000 - 2.0000i

3.0000 - 3.0000i

4.0000 - 4.0000i

5.0000 - 5.0000i

>> F= D'

F =

1.0000 - 1.0000i

2.0000 - 2.0000i

3.0000 - 3.0000i

4.0000 - 4.0000i

5.0000 - 5.0000i

>> G= [1 2 3 4;

G= [1 2 3 4; 5 6 7 8; 9 10 11 12]

G= [1 2 3 4; 5 6 7 8; 9 10 11 12]

|

Error: The expression to the left of the equals sign is not a valid target for an assignment.

>> G= [1 2 3 4; 5 6 7 8; 9 10 11 12]

G =

1 2 3 4

5 6 7 8

9 10 11 12

>> G-2

ans =

-1 0 1 2

3 4 5 6

7 8 9 10

>> 2\*G-1

ans =

1 3 5 7

9 11 13 15

17 19 21 23

>> 2\*G/5-1

ans =

-0.6000 -0.2000 0.2000 0.6000

1.0000 1.4000 1.8000 2.2000

2.6000 3.0000 3.4000 3.8000

>> G

G =

1 2 3 4

5 6 7 8

9 10 11 12

>> H= [1 1 1 1; 2 2 2 2; 3 3 3 3]

H =

1 1 1 1

2 2 2 2

3 3 3 3

>> G+H

ans =

2 3 4 5

7 8 9 10

12 13 14 15

>> 2\*G-

2\*G-

|

Error: Expression or statement is incomplete or incorrect.

>> 2\*G-

2\*G-

|

Error: Expression or statement is incomplete or incorrect.

>> 2\*G-H

ans =

1 3 5 7

8 10 12 14

15 17 19 21

>> G ./H

Error: "G" was previously used as a variable, conflicting with its use here as the name of a function or command.

See "How MATLAB Recognizes Command Syntax" in the MATLAB documentation for details.

>> G./H

ans =

1.0000 2.0000 3.0000 4.0000

2.5000 3.0000 3.5000 4.0000

3.0000 3.3333 3.6667 4.0000

>> 1./G

ans =

1.0000 0.5000 0.3333 0.2500

0.2000 0.1667 0.1429 0.1250

0.1111 0.1000 0.0909 0.0833

>> F= [1 1 1 1; 1 1 1 1; 1 1 1 1]

F =

1 1 1 1

1 1 1 1

1 1 1 1

>> F./G

ans =

1.0000 0.5000 0.3333 0.2500

0.2000 0.1667 0.1429 0.1250

0.1111 0.1000 0.0909 0.0833

>> G.^2

ans =

1 4 9 16

25 36 49 64

81 100 121 144

>> G.^-1

ans =

1.0000 0.5000 0.3333 0.2500

0.2000 0.1667 0.1429 0.1250

0.1111 0.1000 0.0909 0.0833

>>

Problem 3

ans =

1 1 1

1 1 1

1 1 1

>> zeros(2,5)

ans =

0 0 0 0 0

0 0 0 0 0

>> size(G)

ans =

3 4

>> ones(size(G))

ans =

1 1 1 1

1 1 1 1

1 1 1 1

>> eye(4)

ans =

1 0 0 0

0 1 0 0

0 0 1 0

0 0 0 1

>> eye(2,4)

ans =

1 0 0 0

0 1 0 0

>> eye(4,2)

ans =

1 0

0 1

0 0

0 0

>> rand(3)

ans =

0.8147 0.9134 0.2785

0.9058 0.6324 0.5469

0.1270 0.0975 0.9575

>> rand(1,5)

ans =

0.9649 0.1576 0.9706 0.9572 0.4854

>> B= eye(3)

B =

1 0 0

0 1 0

0 0 1

>> rand(size(B))

ans =

0.8003 0.9157 0.6557

0.1419 0.7922 0.0357

0.4218 0.9595 0.8491

>> randn(2)

ans =

1.6302 1.0347

0.4889 0.7269

>> A = 1:4

A =

1 2 3 4

>> diag(A)

ans =

1 0 0 0

0 2 0 0

0 0 3 0

0 0 0 4

>> diag(A, 1)

ans =

0 1 0 0 0

0 0 2 0 0

0 0 0 3 0

0 0 0 0 4

0 0 0 0 0

>> diag(a, -2)

Undefined function or variable 'a'.

Did you mean:

>> diag(A, -2)

ans =

0 0 0 0 0 0

0 0 0 0 0 0

1 0 0 0 0 0

0 2 0 0 0 0

0 0 3 0 0 0

0 0 0 4 0 0

>> D=pi

D =

3.1416

>> D\*ones(3,4)

ans =

3.1416 3.1416 3.1416 3.1416

3.1416 3.1416 3.1416 3.1416

3.1416 3.1416 3.1416 3.1416

>> D+zeros(3,4)

ans =

3.1416 3.1416 3.1416 3.1416

3.1416 3.1416 3.1416 3.1416

3.1416 3.1416 3.1416 3.1416

>>