

**KANDULA SRINIVASA REDDY MEMORIAL COLLEGE OF ENGINEERING  
(AUTONOMOUS)**

**KADAPA-516003. AP**

**(Approved by AICTE, Affiliated to JNTU A, Ananthapuramu, Accredited by NAAC)**

**(An ISO 9001-2008 Certified Institution)**

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**



**Certification Course**

**On**

**“MAT Lab Programming”**

**Resource Person:** Sri. A.Vallibasha , Assistant Professor Dept. of ECE, KSRMCE

**Course Coordinator:** Miss P.Swetha, Assistant Professor Dept. of ECE, KSRMCE

**Duration:** 23/02/2020 to 14/03/2020





# K.S.R.M. COLLEGE OF ENGINEERING (UGC-AUTONOMOUS)

Kadapa, Andhra Pradesh, India- 516 003

Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu.

An ISO 14001:2004 & 9001: 2015 Certified Institution

Lr./KSRMCE/ECE/2019-20/

Date:12/02/2020


To  
The Principal,  
KSRMCE,  
Kadapa.

Respected Sir,

**Sub:** Permission to Conduct Certification Course on "MATLab Programming"  
23/02/2020 to 14/03/2020-Req- Reg.

The Department of Electronics and communication engineering is planning to offer a Value Added Course on "MATLab Programming" to B. Tech. students. The course will be conducted from 23/02/2020 to 14/03/2020. In this regard, I kindly request you to grant permission to conduct Certification Course.

Thanking you sir,

  
Yours faithfully

(Miss.P.Swetha, Asst.Professor in ECED)

*forwarded to the  
Principal Sir  
S. H*

*V.S.S. mm14*  
PRINCIPAL  
K.S.R.M. COLLEGE OF ENGINEERING  
KADAPA-516005, (A.P.)





# K.S.R.M. COLLEGE OF ENGINEERING (UGC-AUTONOMOUS)

Kadapa, Andhra Pradesh, India- 516 003

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Cr./KSRMCE/ECE/2019-20/

Date: 12/02/2020

## Circular

The Department of Electronics and communication engineering is offering a Certification Course on "MATlab programming" from **23/02/2020 to 14/03/2020** to B.Tech students. In this regard, interested students are requested to register their names for the Certification Course with Course Coordinator.

For further information contact the Course Coordinator.

Course Coordinator: Miss P. Swetha, Asst. professor, Dept. of ECE.-KSRMCE.

HoD

Dept. of ECE

Professor & H.O.D.  
Department of E.C.E.  
K.S.R.M. College of Engineering  
KADAPA - 516 003

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## DEPARTMENT OF ECE

## REGISTRATION FORM

Certification Course on

“MAT Lab Programming”

From 30/12/2019 to 23/01/2020

S.No	Full Name	Roll Number	Branch	Semester	Signature
1.	ALLADI ANITHA (W)	189Y1A0401	ECE	IV SEM	Anitha
2.	ALLURI YADITHYA	189Y1A0402	ECE	IV SEM	Yaditya
3.	ANDLURU PREM REDDY	189Y1A0403	ECE	IVSEM	Prem
4.	ARAVA SHYAMDEEP	189Y1A0404	ECE	IV SEM	Arav
5.	AVULA ADARSH KUMAR REDDY	189Y1A0406	ECE	IV SEM	Adarsh
6.	AVULA NAGENDRABABU	189Y1A0407	ECE	IV SEM	Nagendra
7.	AVULA SRIKANTH	189Y1A0408	ECE	IVSEM	Sri Karth
8.	BAIMUTHAKA MAHESH	189Y1A0409	ECE	IV SEM	Mahesh
9.	BANDARI SAI HARSHA VARDHAN	189Y1A0410	ECE	IV SEM	Harsh
10.	BAREDDY JAGADEESH REDDY	189Y1A0411	ECE	IV SEM	Jagadeesh
11.	BATHALA KOWSALYA (W)	189Y1A0412	ECE	IVSEM	Vijay
12.	BATIKERI VIJAYASREE (W)	189Y1A0413	ECE	IV SEM	Vijay
13.	BAYANABOINA REDDI SUBBARAYUDU	189Y1A0414	ECE	IV SEM	Rayudu
14.	BEECHU CHETAN REDDY	189Y1A0415	ECE	IV SEM	Chetan
15.	BOGATHI HEMANTH KUMAR REDDY	189Y1A0416	ECE	IVSEM	Hemant
16.	BOGALA CHANDRA SEKHAR	189Y1A0417	ECE	IV SEM	Chy


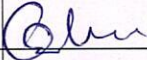
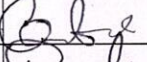
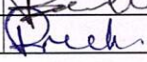



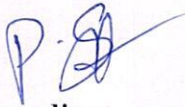
17.	BOMMIREDDY LAKSHMI PRASANNA (W)	189Y1A0418	ECE	IV SEM	B. Lakshmi Prasanna
18.	BONAMSETTY JAHNAVI (W)	189Y1A0420	ECE	IV SEM	B. Jaha
19.	BONGA KAMALAKARA REDDY	189Y1A0421	ECE	IVSEM	B. Kamal
20.	BOREDDY MANJUNATH REDDY	189Y1A0422	ECE	IV SEM	B. Manjunath
21.	BUDDA SREEKANTH REDDY	189Y1A0423	ECE	IV SEM	B. Sreedh
22.	BUGULU VINAY KUMAR REDDY	189Y1A0424	ECE	IV SEM	B. Vinay
23.	CHALLA LOKESHNAIDU	189Y1A0425	ECE	IVSEM	C. Lokesh
24.	CHALLA SAI KISHORE	189Y1A0426	ECE	IV SEM	C. Sai
25.	CHALLA SURENDRA REDDY	189Y1A0427	ECE	IV SEM	C. Surend
26.	CHAPPIDI CHARITHA (W)	189Y1A0428	ECE	IV SEM	C. Charitha
27.	CHINTHALACHERUVU SAI NATH	189Y1A0430	ECE	IVSEM	C. Sainath
28.	DASARI SIVANI (W)	189Y1A0431	ECE	IV SEM	D. Sivani
29.	DEGALA PRAHARIKA (W)	189Y1A0432	ECE	IV SEM	D. Praharika
30.	DERANGULA SURESH	189Y1A0433	ECE	IV SEM	D. Suresh
31.	DIDDIKUNTA NAGACHAITANY REDDY	189Y1A0434	ECE	IVSEM	D. Nagachaitany
32.	EPPARLA MAHENDRA	189Y1A0435	ECE	IV SEM	E. Mahendra
33.	G CHAITANYA	189Y1A0436	ECE	IV SEM	G. Chaitanya
34.	GALIVEETI MANOJ KUMAR REDDY	189Y1A0437	ECE	IV SEM	G. Manoj
35.	GANGALA MOUNIKA (W)	189Y1A0438	ECE	IVSEM	G. Mounika
36.	GANGANA PALLI SAI THANUJ	189Y1A0439	ECE	IV SEM	G. Saihanu
37.	GANGIREDDY VAMSI KRISHNA REDDY	189Y1A0440	ECE	IV SEM	G. Vamsi
38.	GANGIREDDYDEEPIKA (W)	189Y1A0441	ECE	IV SEM	G. Deepika
39.	GOLLA MUKTANANDA	189Y1A0442	ECE	IVSEM	G. Muktananda
40.	GOLUKONDA RAHUL	189Y1A0443	ECE	IV SEM	G. Rahul
41.	GONTUMUKKALA JYOTHIRMAYEE SAI PRASANNA (W)	189Y1A0444	ECE	IV SEM	G. Jyothirmayee
42.	GOPISETTY NAVEEN KUMAR	189Y1A0445	ECE	IV SEM	G. Naveen
43.	GOTTIKE VENKATA HEMANTH KUMAR REDDY	189Y1A0446	ECE	IVSEM	G. Hemant
44.	GUDA GUNA SEKCHAR REDDY	189Y1A0447	ECE	IV SEM	G. Gunasekhar
45.	GUNDA DIVYA SREE (W)	189Y1A0448	ECE	IV SEM	G. Divya

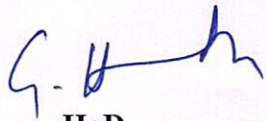


46.	GUNDAMRAJU RAJESH	189Y1A0449	ECE	IV SEM	Rajesh
47.	JHADE POOJITHA (W)	189Y1A0450	ECE	IV SEM	Poojitha
48.	JONNALAGADLA HEMA LATHA (W)	189Y1A0451	ECE	IVSEM	Hema
49.	K SHILPA (W)	189Y1A0452	ECE	IV SEM	Shilpa
50.	KADAPANA VINAY KUMAR REDDY	189Y1A0453	ECE	IV SEM	Vinay
51.	KADIRI LAKSHMI SNEHA (W)	189Y1A0454	ECE	IV SEM	Sneha
52.	KAKARLA MADHU MOHAN	189Y1A0455	ECE	IVSEM	Mohan
53.	KAMALAPURAM ARSHAD	189Y1A0456	ECE	IV SEM	Arshad
54.	KAMIREDDY BHARATHI (W)	189Y1A0457	ECE	IV SEM	Bharathi
55.	KANAPARTHI DIVYA (W)	189Y1A0458	ECE	IV SEM	Divya
56.	KARRU SREEKANTH REDDY	189Y1A0459	ECE	IVSEM	Sreekanth
57.	KASI REDDY SIRI VENNELA (W)	189Y1A0460	ECE	IV SEM	Siri
58.	KATTAMEEDI MEGHANATH REDDY	189Y1A0461	ECE	IV SEM	Meghanath
59.	KETHIREDDY ABHILASH KUMAR REDDY	189Y1A0462	ECE	IV SEM	Abhilash
60.	KONDURU THARUN	189Y1A0463	ECE	IVSEM	Tharun
61.	KONGANI KIRAN	189Y1A0464	ECE	IV SEM	Kiran
62.	KOTHAKOTA CHINNARAYUDU	189Y1A0465	ECE	IV SEM	Chinnarayudu
63.	KOTTAGORLA REDDYVINOD	189Y1A0466	ECE	IV SEM	Vinod
64.	KOTTE MADHUBABU YADAV	189Y1A0467	ECE	IVSEM	Madhubabu
65.	KRISHNAM GANGA MAHESWAR REDDY	189Y1A0468	ECE	IV SEM	Ganga
66.	KUMBAGIRI MADHU PRIYA (W)	189Y1A0469	ECE	IV SEM	Madhu
67.	KUMMARA THIANMAI (W)	189Y1A0470	ECE	IV SEM	Thianmai
68.	KURAKU NAGESWARA RAO	189Y1A0471	ECE	IVSEM	Nageswara
69.	KURRA MANJULA (W)	189Y1A0472	ECE	IV SEM	Manjula
70.	LAKKIREDDY SAIPRANAVARSHITHA (W)	189Y1A0473	ECE	IV SEM	Varshitha
71.	MADARASU SAI KRISHNA	189Y1A0474	ECE	IV SEM	Sai
72.	MALEPATI DEEPALI (W)	189Y1A0475	ECE	IVSEM	Deepali
73.	MALLELA HARIHARA NANDAN	189Y1A0476	ECE	IV SEM	Nandan
74.	MALLI SETTY DIVYA MALIKA (W)	189Y1A0477	ECE	IV SEM	Divya
75.	MANGALA NAVEEN KUMAR	189Y1A0478	ECE	IV SEM	Naveen



76.	MANGALI ARUN KUMAR	189Y1A0479	ECE	IVSEM	
77.	MANGALI GIRINDRA KUMAR	189Y1A0480	ECE	IV SEM	
78.	MANGAMMA GARI SANDHYA	189Y1A0481	ECE	IVSEM	
79.	PAGIDI RAMESH	189Y1A04A1	ECE	IV SEM	
80.	P. BHARGAVA REDDY	189Y1A04A2	ECE	IV SEM	

  
Coordinators

  
HoD  
Professor & H.O.D.  
Department of E.C.E.  
K.S.R.M. College of Engineering,  
KADAPA - 516 003.



**Certification Course**  
**Course name: MATLAB Programming**

**Course Objective:**

1. To acquire basic knowledge in MATLAB Programming
2. Understand the declaration of variables
3. Use of various operators
4. Understand the polynomial equations using MATLAB

**Course Outcomes:**

After successful completion of the course the students will be able to

1. Understand the basic features of MATLAB Programming, Array construction methods, operations, Relational & Logical Operators.
2. Illustrate the Polynomial operations
3. Analyze the Control flow structures IF-ELSE, FOR and WHILE
4. Analyze differentiation and Integration formulae using MATLAB

**UNIT-1**

**Basic features:** Introduction – Simple math – MATLAB Workspace – About variables – comments, punctuation and aborting execution – Script M-files.

**UNIT-2**

**Arrays and Array Operations:** Simple arrays – Array addressing – Array construction – Scalar Array Mathematics – Array, Array Mathematics – Array size.

**Plots-2D, Subplots, Editing of plots, 3D Plots**

**UNIT-3**

**Control Flow** - Relational & Logical operators – For, While Loops, If-Else-End Construction. Functions

**UNIT-4**

**Polynomials:** Polynomials, Curve Fitting, And Interpolation, Roots, multiplication, addition, division, derivatives and Integrals

**UNIT-5**

Differentiation in single variable, Higher order differentiation formulae, Numerical Integration, Basics of linear algebra, Solving An Ordinary Differential Equation.

**Text books:**

1. Hanselman Littlefield, “Mastering MATLAB”, Pearson Publications, 1<sup>st</sup> Edition, 2012.
2. David C. Kuncicky, “MATLAB Programming”, Prentice Hall, 2004

**References:**

1. Gerald & Wheatley, “Applied Numerical Analysis”, Pearson- 7th Edition, 2003.
2. R.S. Gupta, “Elements of Numerical Analysis”, second edition, Cambridge University Press, 2015.
3. Mathew & Fink, “Numerical Methods Using MATLAB”, Pearson, 1998.
4. RudraPratap, “Getting started with Matlab: A quick introduction for scientist & engineers”, Oxford, 2010.





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## SCHEDULE

Department of ECE

Certification Course

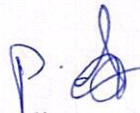
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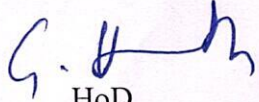
“MATLab Programming” From 23/02/20 to 14/03/2020

Date	Timing	Resource person	Topic to be covered
23/02/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	Inauguration, Introduction
23/02/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	Simple math
24/02/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	MATLAB Workspace
24/02/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	About variables
25/02/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	comments, punctuation
25/02/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	aborting execution.
26/02/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	Script M-files, Simple arrays
26/02/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	Array addressing
27/02/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	Practice with examples
27/02/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	Array construction
28/02/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	Scalar Array Mathematics
28/02/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	Practice with Array examples
29/02/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	Array Mathematics
29/02/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	Array size practice with examples
02/03/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	2D, Subplots
02/03/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	Editing of plots
03/03/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	3D Plots



03/03/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	Relational operators
04/03/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	Logical operators
04/03/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	Practice with examples
05/03/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	For loop
05/03/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	practice with examples
06/03/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	While Loop
06/03/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	practice with examples
07/03/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	If-Else-End Construction
07/03/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	Functions
09/03/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	Polynomials
09/03/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	Curve Fitting
10/03/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	Interpolation,
10/03/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	Roots
11/03/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	Multiplication
11/03/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	addition
12/03/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	division
12/03/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	derivatives
13/03/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	Integrals
13/03/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	Differentiation in single variable
13/03/2020	5 PM to 6 PM	Sri. A. Valli Bhasha	Higher order differentiation formulae
14/03/2020	3 PM to 4 PM	Sri. A. Valli Bhasha	Numerical Integration
14/03/2020	4 PM to 5 PM	Sri. A. Valli Bhasha	Basics of linear algebra,
14/03/2020	5 PM to 6 PM	Sri. A. Valli Bhasha	Solving An Ordinary Differential Equation, Valedictory function

  
Coordinator

  
HoD  
Professor & H.O.D.  
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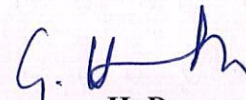






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71.	189Y1A0474	MADARASU SAI KRISHNA	A	P	A	P	A	P	A	P	A	P	A	P	P	P	P	A	A	P	P
72.	189Y1A0475	MALEPATI DEEPALI (W)	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	P
73.	189Y1A0476	MALLELA HARIHARA NANDAN	A	P	A	A	A	A	A	A	A	P	P	P	P	P	P	A	P	A	P
74.	189Y1A0477	MALLI SETTY DIVYA MALIKA (W)	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P
75.	189Y1A0478	MANGALA NAVEEN KUMAR	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	A
76.	189Y1A0479	MANGALI ARUN KUMAR	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A
77.	189Y1A0480	MANGALI GIRINDRA KUMAR	P	A	P	A	P	A	A	A	P	P	P	P	P	P	P	P	P	P	A
78.	189Y1A0481	MANGAMMA GARI SANDHYA	P	A	A	P	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P
79.	189Y1A04A1	PAGIDI RAMESH	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	P
80.	189Y1A04A2	P. BHARGAVA REDDY	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A

  
Coordinator

  
HoD  
Professor & H.O.D.  
Department of E.C.E.  
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## ACTIVITY REPORT

Certificate Course on “*Matlab Programming*”, from 23-02-2020 to 14-03-2020

*Organized*

by

Department of Electronics & Communication Engineering

**Target Group** : B.Tech Students

**Details of Participants** : 80 Students

**Resource person** : Sri A. Valli Bhasha  
*Assistant Professor*  
*ECE Department, KSRMCE*

**Coordinators** : Miss P. Swetha, Assistant Professor, Dept. of ECE.

**Organizing Department** : Electronics and Communication Engineering

**Venue** : DSP Lab

### **Description:**

A certificate course on Mat lab Programming was conducted in the Department Of Electronics and Communication Engineering (ECE) during 30-12-2019 to 23-01-2020. Sri A. Valli Bhasha, *Assistant Professor, Department of ECE* has acted as a resource person. In this course total 80 students participated and successfully completed.

Valedictory function held on 23-01-20, Students had given their feedback on the workshop.

The function was finally ended by expressing sincere thanks to Resource person, management, director, Principal, HOD, Faculty, faculty coordinators and student coordinators for their co-operation and active participation.



Photos :

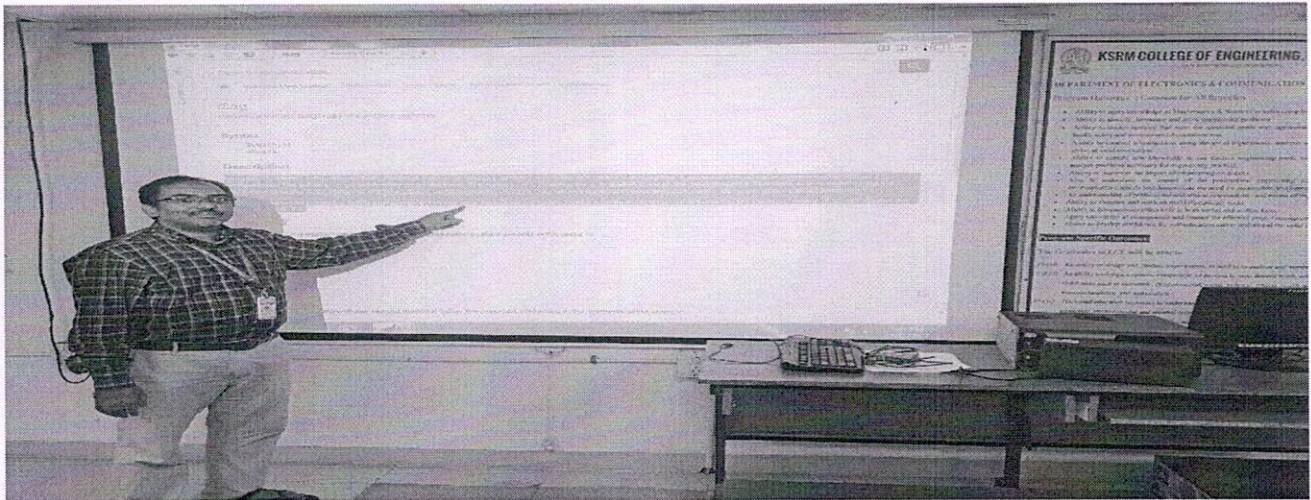


Fig :Resource person delivering the lecture

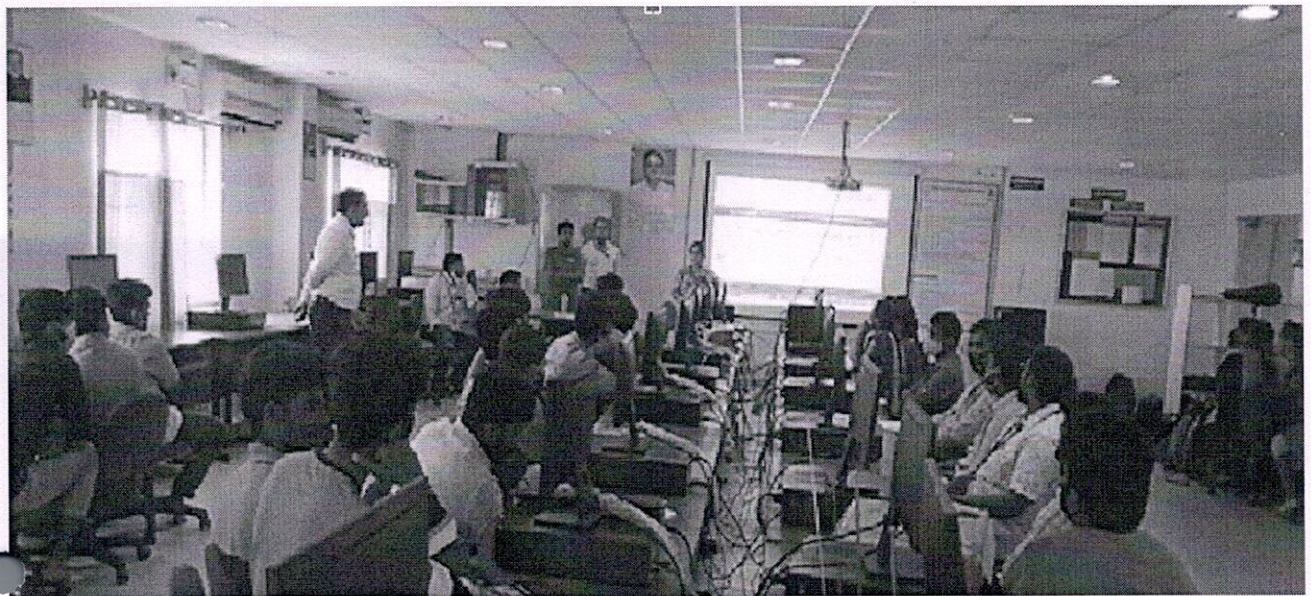


Fig: Students listening the lecture

*P. S. J.*  
Coordinator

*G. H. M.*  
HoD  
Professor & H.O.D.  
Department of E.C.E.  
K.S.R.M. College of Engineering  
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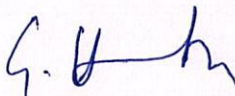
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Kadapa, Andhra Pradesh, India- 516003.

## CERTIFICATE OF COMPLETION

This is to certify that Mr./Ms. D. SIVANI  
bearing roll no 18941A0431 has Completed a  
Certification Course on "**MATLab Programming** " organized by the department  
of **Electronics & Communication Engineering** , KSRM College of Engineering  
from 30-12-2019 to 23-01-2020

  
Coordinator

  
HoD, ECE

  
Principal





# KSRM COLLEGE OF ENGINEERING

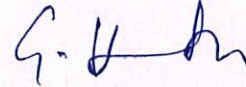
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Kadapa, Andhra Pradesh, India- 516003.

## CERTIFICATE OF COMPLETION

This is to certify that Mr./Ms. A VENKATESH  
bearing roll no 18941A0401 has Completed a  
Certification Course on "**MATLab Programming** " organized by the department  
of **Electronics & Communication Engineering** , KSRM College of Engineering  
from 30-12-2019 to 23-01-2020

  
Coordinator

  
HoD, ECE

  
Principal





# K.S.R.M. COLLEGE OF ENGINEERING

UGC - AUTONOMOUS

Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu.  
Kadapa, Andhra Pradesh, India- 516 003

## FEEDBACK FORM

**Certification Course on “Mat lab Programming”, from 23-02-2020 to 14-03-2020**

*Organized*

by

**Department of Electronics & Communication Engineering**

**NAME:**

**Roll No:**

S.No	Feedback Item	Excellent	Very Good	Good	Average	Below Average
1	Organization of certificate course and session planning by instructor.					
2	Clarity in content delivery.					
3	Content is relevant and useful					
4	Adequate opportunity to interact with trainer					
5	Judicious mix of concepts. Principles and practices.					
6	Assignments and tasks are interesting and challenging.					
7	Overall rating					

Any suggestions for improvement.

Signature





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Certification Course on

“MAT Lab Programming”

From 30/12/2019 to 23/01/2020

Feedback responses

S.No.	Roll No	Year & Semester	Branch	Is the course content met your expectation	Is the lecture sequence well planned	The contents of the course is explained with examples	Is the level of course high	Is the course exposed you to the new knowledge and practices	Is the lecturer clear and easy to understand	Rate the value of course in increasing your skills	Any issues
1	189Y1A0401	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	3	5	Nothing
2	189Y1A0402	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	3	4	very good
3	189Y1A0403	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	5	Good
4	189Y1A0404	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	4	very good
5	189Y1A0406	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	4	5	Nothing
6	189Y1A0407	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	3	Good
7	189Y1A0408	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	4	Good



8	189Y1A0409	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	4	Nothing
9	189Y1A0410	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	5	Nothing
10	189Y1A0411	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	3	Very Good
11	189Y1A0412	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	5	Good
12	189Y1A0413	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	4	Good
13	189Y1A0414	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	3	5	Nothing
14	189Y1A0415	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	5	very good
15	189Y1A0416	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	4	Nothing
16	189Y1A0417	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	5	very good
17	189Y1A0418	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	3	No
18	189Y1A0420	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	3	4	Nothing
19	189Y1A0421	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	5	Good
20	189Y1A0422	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	3	3	Good
21	189Y1A0423	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	5	Good
22	189Y1A0424	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	5	Nothing
23	189Y1A0425	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	4	Good
24	189Y1A0426	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	4	4	Good
25	189Y1A0427	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	4	Good
26	189Y1A0428	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	5	Nothing




27	189Y1A0430	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	3	No
28	189Y1A0431	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	4	No
29	189Y1A0432	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	4	3	No
30	189Y1A0433	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	4	No
31	189Y1A0434	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	4	Nothing
32	189Y1A0435	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	3	Nothing
33	189Y1A0436	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	4	No
34	189Y1A0437	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	5	Nothing
35	189Y1A0438	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	5	Good
36	189Y1A0439	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	3	5	Nothing
37	189Y1A0440	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	3	4	very good
38	189Y1A0441	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	5	Good
39	189Y1A0442	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	4	very good
40	189Y1A0443	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	4	5	Nothing
41	189Y1A0444	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	3	Good
42	189Y1A0445	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	4	Good
43	189Y1A0446	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	4	Nothing
44	189Y1A0447	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	5	Nothing
45	189Y1A0448	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	3	Very Good

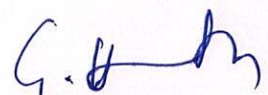


46	189Y1A0449	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	5	Good
47	189Y1A0450	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	4	Good
48	189Y1A0451	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	5	Nothing
49	189Y1A0452	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	5	very good
50	189Y1A0453	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	4	4	Nothing
51	189Y1A0454	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	5	very good
52	189Y1A0455	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	3	No
53	189Y1A0456	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	3	4	Nothing
54	189Y1A0457	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	5	Good
55	189Y1A0458	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	3	3	Good
56	189Y1A0459	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	3	Nothing
57	189Y1A0460	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	4	No
58	189Y1A0461	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	5	Nothing
59	189Y1A0462	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	5	Good
60	189Y1A0463	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	3	5	Nothing
61	189Y1A0464	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	3	4	very good
62	189Y1A0465	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	5	Good
63	189Y1A0466	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	4	very good
64	189Y1A0467	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	4	5	Nothing



65	189Y1A0468	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	3	Good
66	189Y1A0469	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	4	Good
69	189Y1A0472	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	3	Very Good
70	189Y1A0473	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	5	Good
71	189Y1A0474	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	4	Good
72	189Y1A0475	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	3	5	Nothing
73	189Y1A0476	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	5	very good
74	189Y1A0477	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	4	Nothing
75	189Y1A0478	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	5	very good
76	189Y1A0479	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	5	3	No
77	189Y1A0480	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	3	4	Nothing
78	189Y1A0481	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	5	5	Good
79	189Y1A04A1	B.Tech IV sem	ECE	Yes	Yes	Strongly agree	Agree	Strongly agree	3	3	Good
80	189Y1A04A2	B.Tech IV sem	ECE	Yes	Yes	agree	Agree	Strongly agree	4	5	very good

  
Coordinator

  
HoD  
Professor & H.O.D.  
Department of E.C.E.  
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KADAPA - 516 093



## MATLAB PRIMER

by Michael Medvinsky(2014)

## MATLAB

- ◆ MATLAB is a program for doing numerical computation. It was originally designed for solving linear algebra type problems using matrices. It's name is derived from **MATrix LABORatory**.
- ◆ MATLAB has since been expanded and now has built-in functions for solving problems requiring data analysis, signal processing, optimization, and several other types of scientific computations. It also contains functions for 2-D and 3-D graphics and animation.

## MATLAB

- ◆ When you first open MATLAB, notice:
  1. The **command window** is where you'll give MATLAB its input and view its output.
  2. The **workspace** shows you all of your current working variables and other objects.
  3. The **history** shows you all commands you used in CW.
  4. The **Editor** for MATLAB scripts (M-files). To save & run the m-file type 'F5'. To open the editor with a new or old m-file use the command **open file\_name**

## MATLAB help

- ◆ For help, command description etc use F1 or following commands:
  - **help command\_name**
  - **helpwin command\_name**
  - **doc command\_name**
  - **helpdesk command\_name**
  - **demo command\_name**
  - **lookfor keyword** (search unknown command)
- ◆ <http://www.mathworks.com/support/>
- ◆ For example when running "**help sin**" one get  
SIN Sine of argument in radians.  
SIN(X) is the sine of the elements of X.  
See also ASIN, SIND.  
Overloaded functions  
Reference page in Help browser doc sin

## Some Useful commands

- ◆ **what** List all m-files in current directory
- ◆ **dir/ls** List all files in current directory
- ◆ **type test** Display test.m in command window
- ◆ **delete test** Delete test.m
- ◆ **cd/chdir** Change directory
- ◆ **pwd** Show current directory
- ◆ **which test** Display directory path to 'closest' test.m
- ◆ **who** List known variables
- ◆ **whos** List known variables plus their size
- ◆ **clear** Clear variables from workspace
- ◆ **clc** Clear the command window

## MATLAB & Matrices

- ◆ MATLAB treats all variables as matrices. For our purposes a matrix can be thought of as an array, in fact, that is how it is stored.
- ◆ Vectors are special forms of matrices and contain only one row OR one column.
- ◆ Scalars are matrices with only one row AND one column



## Variable Names

- Variable names ARE case sensitive
- Variable names can contain up to 63 characters (as of MATLAB 6.5 and newer). One can use `namelengthmax` command to verify it.
- Variable names must start with a letter followed by letters, digits, and underscores.
- MATLAB variables are defined by assignment. There is no need to declare in advance the variables that we want to use or their type.
- Example**

```
x=1;           % Define the scalar variable x
y=[1 2 3]      % row vector
z=[1;2;3]      % column vector
A=[1 2 3;4 5 6;7 8 9] % 3x3 matrix
whos          % List of the variables defined
```
- Note: terminate statement with semicolon (;) to suppress output.

## Special Variables

<b>ans</b>	Default variable name for results
<b>pi</b>	Value of $\pi$
<b>eps</b>	Smallest incremental number
<b>inf</b>	Infinity
<b>NaN</b>	Not a number e.g. 0/0
<b>i,j,1i,1j</b>	imaginary unit $i$ , i.e. square root of -1
<b>realmin</b>	The smallest usable positive realnumber
<b>realmax</b>	The largest usable positive real number

[SpecialVars.m](#)

## Other symbols

<b>&gt;&gt;</b>	prompt
<b>...</b>	continue statement on next line
<b>,</b>	separate statements and data
<b>%</b>	start comment which ends at end of line
<b>;</b>	(1) suppress output (2) used as a row separator in a matrix
<b>:</b>	specify range

## Relational Operators

- MATLAB supports six relational operators.

Less Than	<
Less Than or Equal	<=
Greater Than	>
Greater Than or Equal	>=
Equal To	==
Not Equal To	~=

## Math & Assignment Operators

Power	<b>^</b> or <b>.^</b>	$a^b$ or $a.^b$
Multiplication	<b>*</b> or <b>.*</b>	$a*b$ or $a.*b$
Division	<b>/</b> or <b>./</b>	$a/b$ or $a./b$
	<b>\</b> or <b>.\</b>	$b/a$ or $b./a$

NOTE:  $56/8 = 8 \setminus 56$

- (unary)	+ (unary)	
Addition	<b>+</b>	$a + b$
Subtraction	<b>-</b>	$a - b$
Assignment	<b>=</b>	$a = b$ (assign $b$ to $a$ )

[Operators.m](#)

## MATLAB Logical Operators

- MATLAB supports five logical operators.

<b>not/~</b>	element wise/scalar logical NOT
<b>and/&amp;</b>	element wise logical AND
<b>or / </b>	element wise logical OR
<b>&amp;&amp;</b>	logical (short-circuit) AND
<b>  </b>	logical (short-circuit) AND



## Logical Functions

- ◆ MATLAB also supports some logical functions.
  - `xor(a, b)` exclusive or
  - `any(x)` returns 1 if any element of `x` is nonzero
  - `all(x)` returns 1 if all elements of `x` are nonzero
  - `isnan(x)` returns 1 at each NaN in `x`
  - `isinf(x)` returns 1 at each infinity in `x`
  - `finite(x)` returns 1 at each finite value in `x`
  - `find(x)` find indices and values of non zero elements

## Some Matrix functions

- ◆ `zeros(rows, cols)` – create zero matrix
- ◆ `rand(rows, cols)` – generate random matrix
- ◆ `ones(rows, cols)` – matrix with 1 in all entries
- ◆ `eye(rows, cols)` – identity matrix
- ◆ `sub2ind, ind2sub` indices manipulation

## Extracting a Sub-Matrix

- ◆ A portion of a matrix can be extracted and stored in a smaller matrix by specifying the names of both matrices and the rows and columns to extract. The syntax is:

```
sub_matrix = matrix ( r1 : m , c1 : cn ) ;
sub_matrix = matrix ( r1 : m , : ) ;
sub_matrix = matrix ( : , c1 : cn ) ;
sub_matrix = matrix ( r1 : dr : m , c1 : dc : cn ) ;
```

where `r1` and `m` specify the beginning and ending rows and `c1` and `cn` specify the beginning and ending columns to be extracted to make the new matrix. The terms `dr` and `dc` define spacing different than one.

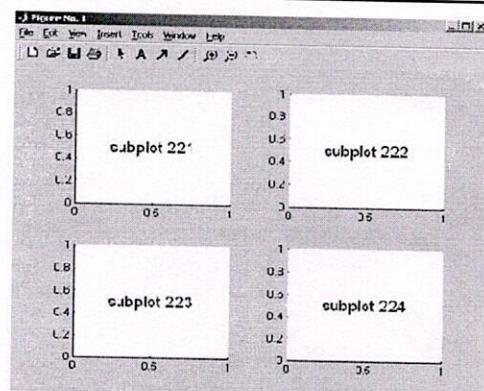
- ◆ [matrix.m](#)

## “Continuous” functions

- ◆ Numerically, we cannot represent a general continuous function  $f(x)$  because it requires handling infinite data (for each point in the range, we need to keep  $f(x)$ ). Instead, we represent a function by its values at a finite number of data points  $(x_i, f(x_i))$ , where the series of points  $\{x_i\}$  is typically referred to as the sampling points or the grid points. Accordingly, the “continuous” functions in Matlab accepts a vector of point  $\{x_i\}$  and return a vector of values  $\{f(x_i)\}$ .
- ◆ Some functions
  - `sqrt`
  - `log`
  - `cos/acos/sin/asin` etc
  - `exp` - exponential
  - `abs`
  - `sign`
  - `norm`
  - `sum`
  - `prod` - product

## Plotting

- ◆ MATLAB will plot one vector vs. another. The first one will be treated as the abscissa (or `x`) vector and the second as the ordinate (or `y`) vector. The vectors have to be the same length.
- ◆ MATLAB will also plot a vector vs. its own index. The index will be treated as the abscissa vector. Given a vector “time” and a vector “dist” we could say:
  - >> `plot(time, dist)`      % plotting versus time
  - >> `plot(time + i*dist)`    % plotting versus time
  - >> `plot(dist)`            % plotting versus index
- ◆ Sometime we want to see it with different color/line style
- >> `plot(time, dist, line_characteristics)`
- ◆ And sometime we want to plot few functions in graphs
- >> `plot(...), hold, plot(...)`
- >> `plot(t,d1,l_c1, t,d2, l_c2)`
- ◆ To split page to several axes check use
- >> `subplot(rows, cols, place)`





## Plotting

- There are commands in MATLAB to "annotate" a plot to put on axis labels, titles, and legends. For example:
  - To put a label on the axes we would use:

```
>> xlabel('X-axis label')
>> ylabel('Y-axis label')
```
  - To put a title on the plot, we would use:

```
>> title('Title of my plot')
```
  - To distinct between function in the graph use:

```
>> legend(legend_1, legend_2)
```
- `plotting.m`

## Flow control (condition)

- An if - elseif - else structure. (Note that **elseif** is one word)

```
if expression1
    statements1
elseif expression2
    statements2
else
    statements3
end
```
- An switch-case structure

```
switch switch_expr
case case_expr
    statement1, ..., statement
case (case_expr1, case_expr2, case_expr3, ...)
    statement1, ..., statement
otherwise
    statement1, ..., statement
end
```

## Flow control (loops)

- A for loop in MATLAB

```
for ind = 1:100
    b(ind)=sin(ind/10)
end
```
- Alternative (Most of the loops can be avoided!!!):

```
x=0.1:0.1:10;
b=sin(x);
```
- A while loop in

```
while x <= 10
    % execute these commands
end
```

## M-Files

- An **M-file** might be used as a **script**, i.e. file consist set of statements
- In additional, one use M-files to write **function**, in this case the file starts with function definition like:

```
function y = f(x)
function [u,v] = f(x,y,z)
```
- File name** and the **name of function** in the file are usually **identical**, however while they are different, MATLAB use file name to call function.
- If you add additional function in same M-file, it considered sub-function and might be called from inside the M-file only. Only the first function might be called from outside.

## Saving Results

- We can save all our results for future reference .
- The command

```
diary 'FileName'
```

saves all output to command window into the FileName.txt file until this option is turned off by the command

```
diary off
```
- The following commands save & load the entire workspace into the file 'MyMatFile.mat'
  - `save 'MyMatFile'`
  - `load 'MyMatFile'`
  - `save x.mat' x` % save a specific variable
- saving in ASCII format:
  - `x = (-1:0.4:1)'; y = sin(x*pi)`
  - `var = [x y]` % double-column
  - `save 'my_sin.dat' -ASCII -double var` %Save in 16-digit ASCII format

## MATLAB also have humor

- why % try this command☺



**The End**