

P. R. Pote Patil Edu. & Welf. Trust's, Group of Institutions,





■ Kathora Road, Amravati, Maharashtra, India

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■ Web.: www.prpcem.org, www.prpatilcollege.org

Report of Title: Training Program on Exploring Optimization using MATLAB

1	Title of Workshop	"Exploring Optimization Using MATLAB"
2	Date of Workshop	08 th July to 20 th July 2019
3	Venue of Workshop	Electrical Department (Computer Lab)
4	Resource Person	Dr. A.S.Telang, Prof. Y.D. Shahakar and Prof. S.A. Kohale
5	Target of Students	Electrical Engineering Students.
6	Number of Students/Participants	60
7	Schedule of Program	PFA
8	Topics Covered	1. Basics of MATLAB and MATLAB Compiler
		The MATLAB user interface
		Working with MATLAB data types
		Creating matrices and arrays
		Operators and control statements
		Using scripts and functions
		Data import and export
		Using the graphical features
		2. Programming with simple examples





		3. Discussion of Toolboxes with Application 4. Simulink and Hardware Interfacing (Using Kits: Lego, Raspberry Pi, Mind storms etc.)
9	Mode Assessment	Question and answering
10	Outcome of workshop/FDP/Seminar /webinar	 Understand the basics of MATLAB Break a complex task up into smaller, simpler tasks Case Study (Any two Modules) Tabulate results and Analyze

Schedule of Program

Date	Day	Session	Time	Instructor	Contents
08/07/2019	Monday	I	2:30pm-5.00pm	Prof. Y.D. Shahakar	Basics of MATLAB and MATLAB Compiler
09/07/2019	Tuesday	I	2:30pm-5.00pm	Prof. Y.D. Shahakar	The MATLAB user interface
10/07/2019	Wednesday	I	2:30pm-5.00pm	Dr. A. S. Telang	Working with MATLAB data types
11/07/2019	Thursday	I	2:30pm-5.00pm	Dr. A. S. Telang	Creating matrices and arrays
12/07/2019	Friday	I	2:30pm-5.00pm	Prof. Y.D. Shahakar	Operators and control statements
13/07/2019	Saturday	I	2:30pm-5.00pm	Dr. A. S. Telang	Using scripts and functions







15/07/2019	Monday	I	2:30pm-5.00pm	Prof. S.A.Kohale	Data import and export
16/07/2019	Tuesday	I	2:30pm-5.00pm	Prof. S.A.Kohale	Using the graphical features
17/07/2019	Wednesday	I	2:30pm-5.00pm	Prof. Y.D. Shahakar	2. Programming with simple examples
18/07/2019	Thursday	I	2:30pm-5.00pm	Prof. Y.D. Shahakar	3. Discussion of Toolboxes with Applications
19/07/2019	Friday	I	2:30pm-5.00pm	Prof. S.A.Kohale	4. Simulink and Hardware Interfacing (Using Kits: Lego, Raspberry Pi, Mind storms etc.)
20/07/2019	Saturday	I	2:30pm-5.00pm	Dr. A. S. Telang	Concluding Remarks and Quiz and Feedback





P.R. Pote Patil College of Engineering and Management, Amravati



Department of Electrical Engineering

Academic Year 2019-20

Report on

Training Program on Exploring Optimization using MATLAB







Name of course: Training Program on Exploring Optimization using MATLAB

Nature of course: Certificate Program

Course Duration: 30 Hours

Career opportunity:

1. Design Engineer

2. In R & D Sector

Objectives of the Course:

The main objective of this workshop was to make the engineering students aware about the basic structure and process of solving optimization problems effectively and about the use of MATLAB based interactive optimization tools to define and solve optimization problems. These days, Optimization has become an important tool and has many applications such as engineering design, business planning, computer science, data mining, machine learning, artificial intelligence and industries. Interestingly, to take full advantage of the power of optimization in practice, there is no choice but to use a computer. Optimization techniques can be implemented in various common programming languages as R, Python and MATLAB.

Course Outcomes:

CO1: Able to implement loops, branching, control instruction and functions in MATLAB programming environment.

CO2: Able to program curve fitting, numerical differentiation and integration, solution of linear equations in MATLAB and solve electrical engineering problems.

CO3: Able to understand implementation of ODE using ode 45 and execute Solutions of nonlinear equations and DFT in MATLAB.

CO4: Able to simulate MATLAB Simulink examples

Outcome of workshop: By the end of this course, the student will be able to

1. Understand the basics of Matlab

2. Break a complex task up into smaller, simpler tasks

3. Case Study (Any two Modules)

4. Tabulate results and Analyse

Duration of course: 08thJulyto 20thJuly 2019

Resource person: Dr. A.S. Telang, Astt. Prof. EE, Dept. PRPCEM, Amravati

Prof. Y. D. Shahakar, Astt. Prof. EE, Dept. PRPCEM, Amt.

Prof. S.A. Kohale, Astt. Prof. EE, Dept. PRPCEM, Amt

Target participants: Electrical Engineering Students.





Course Structure and Syllabus

The workshop is organized in two modules with morning and evening sessions-

 $\begin{tabular}{l} \textbf{Module I -} Session on introduction to Optimization tool of MATLAB followed by Get started with MATLAB \end{tabular}$

Module II- Training on variety of engineering problems related to optimization

Course Contents:

Sr.No	Duration	Content
1	2 Hrs	Basics of MATLAB and MATLAB Compiler
2	2 Hrs	Working with Matlab data types
3	5 Hrs	Data import and export
		Using the graphical features
4	5 Hrs	Programming with simple examples
5	5 Hrs	Discussion of Toolboxes with Applications
6	2 Hrs	Signal Processing
		Image Acquisition Toolbox
7	2 Hrs	Image Processing
		The Matlab user interface
8	2 Hrs	Neural Network
		Fuzzy Logic Toolbox
9	5 Hrs	Simulink and Hardware Interfacing (Using Kits: Lego, Raspberry Pi, Mind storms





.Course Mapping with POs:

Workshop								Academic Year: 2019-20				
Course	Course/Subject: Training Program on Exploring Optimization using MATLAB											
СО	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	3	-	2	-	-	-	-	-	-	-
CO2	-	3	2	-	-	-	-	-	-	-	-	-
CO3	-	-	-	2	3	-	-	-	-	-	-	-
CO4	-	-	3	-	2	-	-	-	-	-	-	-







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(Recognized by AICTE, New Delhi, Approved by Govt. of Maharastra & Affiliated to SGBAU, Amravati)

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Date:04/07/2019

Office Order

The undersigned is pleased to appoint the following staff members of Electrical Engineering Department as **Coordinator and Co-coordinator** for Add-on course on "**Training Program on Interactive Optimization Education Using MATLAB**" from 8thJuly to 20th July 2019. You are therefore expected to take responsibility of coordinating the related activities & cooperate.

Sr No.	Faculty	Responsibility
01	Dr. A.S. Telang	Co-coordinator
02	Prof.Y. D. Shahakar	Co-coordinator
03	Prof. S.A. Kohale	Co-coordinator

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Amravati.

Prof. D. A. Shahakar

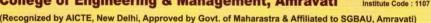
HOD (EE Dept)







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Department of Electrical Engineering

Academic Year 2019-20

NOTICE

Date:04/07/2019

All the students of Department of Electrical Engineering are hereby informed that, our department is going to organize Training Program on "Training Program on Interactive Optimization Education Using MATLAB" from 8thJulyto 20th July 2019. Interested students can register for the workshop.

Prof.D.A.Shahakar

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HOD(EE)







Department of Electrical Engineering "Add On Program: Exploring Optimization using MATLAB" Session 2019-20

Date of Workshop 08/07/2019 to 20/07/2019 List of Registered Students

Sr. No	Name of Students	Signature
1	Komal Suresh Chavhan	
2	Chaitali Panditrao Raut	
3	Vishakha Sanjay Atkare	
4	Mrunal Sanjay Sadawarte	
5	Sujay Anil Bobade	
6	Sagar Devidas Jadhao	
7	Monali Mundane	
8	Nayan Garade	
9	Vaishnavi Pawar	
10	Vaishnavi Shete	
11	Ujwal Shende	
12	Harshada Sharad Kadu	
13	Sakshi Sunil Mohod	
14	Akash Dipak Ingle	
15	Saurav Kishorrao Saykhede	
16	Shreyas Sanjay Ghawale	
17	Suvarna Janardhan Bhople	
18	Rupali Onkar Warade/16	
19	Vaishnavi Rameshwar Pandit	
20	Prjwal Tulshidasrao Kale	
21	Prathmesh Pramodrao Thakare	





22	Sumit Lipne	
23	Pratik Gedam	
24	Shahaji Ghuikhedkar	
25	Chandrakishor Bohane	
26	Aditya lande	
27	Anurag Gajanan Holkar	
28	Rahul Rajesh Yawatkar	
29	Tanmay Diwakar Bodade	
30	Gauri Govindrao Deshmukh	
31	Ankit Rajesh Punse Roll No	
32	Manisha Pundlik Dadmal	
33	Radhika motiram Mahalle	
34	Bhagawati Sunil Goswami	
35	Shreyash Ashok Dhawale	
36	Sarvesh Omprakash Jawarkar	
37	Adhirath Kohale	
38	Pratik Ryakar	
39	Yugant P.Chikte	
40	Shrikant S. Ogale	
41	Sumit Wankhade	
42	Ankit Tayade	
43	Rushikesh Pimpalkar	
44	Vinay Uike	
45	Rushikesh Chore	
46	Karan Ahir	
47	Ashutosh gulaxe	
48	Himanshu Paliwal	
49	Pawan Pokale	
50	Anurag bisne	
51	Mansi.G.Kulkarni	
52	Sanjana.V.Bhawane	
53	Neha.F.Rathod	





54	Ankita.Kasdekar	
55	Aishawarya.D.Maidankar	
56	Pratiksha.Shegokar	
57	Abhishek Charthal	
58	Sanjana Kushawaha	
59	Sayali Kale	
60	Rajeshree Thakare	
61	Rutik Shisthe	
62	Mrunali Darvinrao Charde	
63	Diksha Uttamrao Waykud	
64	Shamali Vinodrao Mavande	
65	Sweety Kiran Kasdekar.	
66	Samiksha Tevendrarao Deshmukh	
67	Pranay Prabhakar Hinge.	
68	Kalpak Wardhe	
69	Shraddha Tekade	
70	Snehal Kadu	
71	Ajinkya Gawande	
72	Nikhil Kadu	
73	Ashwini R Damodar	
74	Monali K Kohale	
75	Abhishek E Gadekar	
76	Avinash P Adhawal	
77	Sumit P Gote	
78	Akash Rathod	
79	Rakhi D Goswami	
80	Avanti Deepak Deshpande	









Department of Electrical Engineering Add On Program: Exploring Optimization using MATLAB Session 2019-20 Date of Workshop 08/07/2019 to 20/07/2019

Attendance of Participants

	Attendance of Participants								
Sr.	Name of Students	08/07/2019	09/07/2019	10/07/2019	11/07/2019	12/07/2019	13/07/2019	15/07/2019	16/07/2019
1	Komal Suresh Chavhan								
2	Chaitali Panditrao Raut								
3	Vishakha Sanjay Atkare								
4	Mrunal Sanjay Sadawarte								
5	Sujay Anil Bobade								
6	Sagar Devidas Jadhao								
7	Monali Mundane								
8	Nayan Garade								
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16	Shreyas Sanjay Ghawale								
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33	Radhika motiram Mahalle								
34	Bhagawati Sunil Goswami								





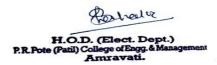
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Amravati.

Posteda

35	Shreyash Ashok Dhawale				
36	Sarvesh Omprakash Jawarkar				
37	Adhirath Kohale				
38	Pratik Ryakar				
39	Yugant P.Chikte				
40	Shrikant S. Ogale				
41	Sumit Wankhade				
42	Ankit Tayade				
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44	Vinay Uike				
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46	Karan Ahir				
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49	Pawan Pokale				
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51	Mansi.G.Kulkarni				
52	Sanjana.V.Bhawane				
53	Neha.F.Rathod				
54	Ankita.Kasdekar				
55	Aishawarya.D.Maidankar				
56	Pratiksha.Shegokar				
57	Abhishek Charthal				
58	Sanjana Kushawaha				
59	Sayali Kale				
60	Rajeshree Thakare				
61	Rutik Shisthe				
62	Mrunali Darvinrao Charde				
63	Diksha Uttamrao Waykud				
64	Shamali Vinodrao Mavande				
65	Sweety Kiran Kasdekar.				
66	Samiksha Deshmukh				
67	Pranay Prabhakar Hinge.				
68	Kalpak Wardhe				
69	Shraddha Tekade				
70	Snehal Kadu				
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74	Monali K Kohale				
75	Abhishek E Gadekar				







76	Avinash P Adhawal				
77	Sumit P Gote				
78	Akash Rathod				
79	Rakhi D Goswami				
80	Avanti Deepak Deshpande				





Snapshots of Workshop



Inauguration of the program

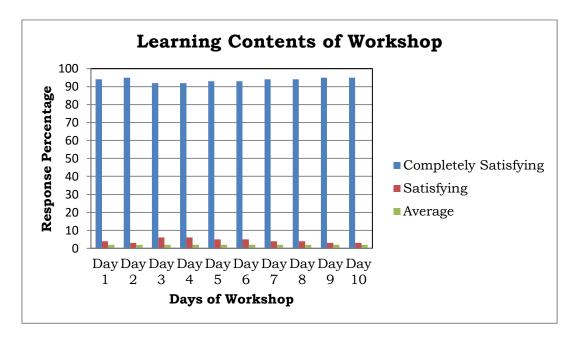


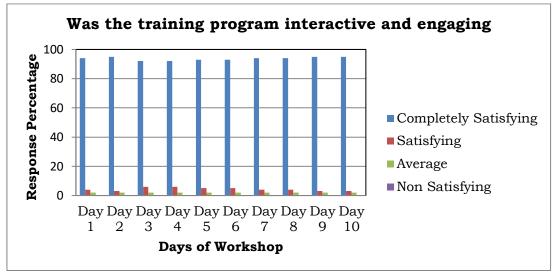
Practical session of MATLAB





Feedback of workshop











Feedback of Workshop





- 1. If the coefficient matrix of a linear system has rank 4, and the augmented matrix has rank 5, then:
- A. The system has infinitely many solutions

B. The system is inconsistent

- C. There are fewer variables than equations
- D. The system is homogeneous
- 2. Which of the following is not a pre-defined variable in Matlab?
- A. pi
- B. inf
- C. i

D. gravity

- 3. To print a newline in a fprintf statement, you must use the following escape character:
- A. t
- B. nl
- C. nxt
- D. n
- 4. Let x and y be solutions to a system of n homogeneous linear equations. If z = ax + by
- A. z is a solution to the system for all a and b
- B. z is a solution only if a = 0 and b = 0
- C. The solution has n 2 parameters
- D. There are at most 2 leading variables
- 5. What are the characters in Matlab are represented in their value in memory?
- A. decimal

B. ASCII

- C. hex
- D. string
- 6. Which one of the following lists contains only legal MATLAB variable names?
- A. year-2012, time
- B. myTime, 1stVar
- C. MyScore1, student1_ID
- D. 2nd_Var, my_currency



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A. clc B. clear C. delete D. deallocate 8. What does MatLab consist of? A. MatLab Language B. MatLab working environment C. Handle Graphics D. All of the above 9. What are the things for which MATLAB can be used A. Performing very simple calculations B. Plotting mathematical relationships in two dimensional and three dimensional C. For operations of matrix D. All of these 10. Which of the following is used to see if two elements are equal in MATLAB? A. != **B.** == C. isequal

7. This Matlab command clears all data and variables stored in memory:



D. =





Quiz Result

Sr. No.	Name	Marks[10]	Sr. No.	Name	Marks[10]
1	Rohini K. Deshmukh	8	44	Akansha A. Shrisath	7
2	Priyanka M. Parale	7	45	Sonali D. Kalaskar	7
3	Vaibhav H. Wakle	9	46	Rahul V. Manekar	8
4	Akash V. Kaldate	8	47	Rushikesh M. Gujarkar	9
5	Akshay M. Chaudhari	7	48	Akshay R. Pachpohe	8
6	Amruta S. Chaudhary	8	49	Aman A. Deole	7
7	Amruta G. Bhalerao	9	50	Kalyani P. Kawane	7
8	Radhika N. Mendhe	7	51	Jigisha P. Hirpurkar	8
9	Pranjali P. Bhise	8	52	Arpit R. Wardhe	7
10	Sakshi U. Hande	8	53	Prathamesh V. Aherkar	9
11	Onam Y. Wghmare	8	54	Vaibhav Dhakare	3
12	Payal S. Walde	9	55	Shatakshi R. Guhe	8
13	Sandesh P. Chaudhari	7	56	Dhanashree Pohokar	7
14	Jagdish S. Shinde	4	57	Shrutika V. Dabhale	9
15	Swapnil B. Ramteke	8	58	Pooja S. Kamble	7
16	Ashwin Y. Gahane	7	59	Mayuri D. Kapse	8
17	Gaurav S. Zopate	9	60	Sapna L. Kale	7
18	Tushar K. Kuyate	7	61	Samiksha R. Gathe	9
19	Madhvi K. Ingle	7	62	Bhagyashri S. Kale	9
20	Neha L. Neware	8	63	Mandar Pathak	8
21	Monika V. Ghatol	8	64	Ankit Prakash Deshmukh	8
22	Asha P. Bodkhe	3	65	Prasad Shankar Kharat	7
23	Vasanti A. Opase	9	66	Prasad Raju Kathalkar	8
24	Snehal M. Wanare	8	67	Ujwal Vijayrao Talkit	4
25	Pallavi R. Rajgure	7	68	Anant Dinesh Kurywanshi	7
26	MD. Umer Mohammad Iqbal	6	69	Vrusha Nandu Ahirrao	7







27	Harsh N. Dhawale	8	70	Harshal Ramesh Ingalkar	8
28	Yash S. Malthane	7	71	Manish Santosh Pawade	7
29	Sanghadip R. Wasnik	7	72	Abhishek Khedkar	9
30	Charudatta K. Wakudkar		73	Revati Niranjanrao Ganorkar	8
31	Kamesh M. Thakre	6	74	Dikshant Anil kawade	7
32	Nikhil S. Dharme	8	75	Rhushikesh Madhukar Sabal	8
33	Nishikant J. Kale	9	76	Sonam R Chikhalkar	7
34	Ameya N. Adsule	8	77	Dushant girde	8
35	Vicky P. Gaikwad	7	78	Anurag K. Bhoyar	7
36	Prashant S. Umarkar	8	79	Shabdali Mule	7
37	Shubham S. Wankhade	7	80	Neha Suresh Bendarkat	9
38	Abhay S. Gedam	8	81	Makarand Vinod Bhamburkar	8
39	Anand S. Jadhav	7	82	Shubham P. Tandiye	9
40	Omkareshwari B. Khupse	7	83	Rushikesh Ramkrushna Bhakte	8
41	Pooja K. Kamble	7	84	Rasika Sunil Jagtap	8
42	Rupesh V. Aagde	9	85	Pranjal Dilip Dubey	7
43	Himanshu S. Umale	8			

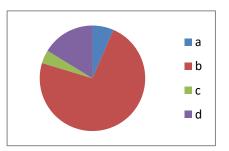




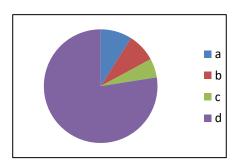


Quiz Reponses

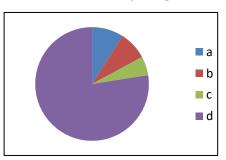
1. If the coefficient matrix of a linear system has rank 4, and the augmented matrix has rank 5, then:



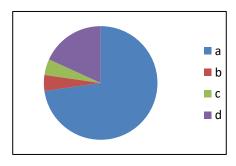
2. Which of the following is not a pre-defined variable in Matlab?



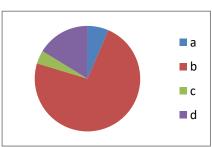
3. To print a newline in a fprintf statement, you must use the following escape character:



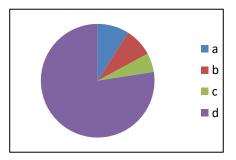
4. Let x and y be solutions to a system of n homogeneous linear equations. If z = ax + by



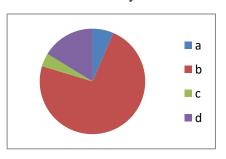
5. What are the characters in Matlab are represented in their value in memory?



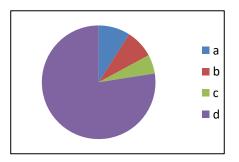
6. Which one of the following lists contains only legal MATLAB variable names?



7. This Matlab command clears all data and variables stored in memory:



8. What does MatLab consist of?



9. What are the things for which MATLAB can be used

10. Which of the following is used to see if two elements are equal in MATLAB?





