



"Shri Gajanan Maharaj Prasanna"

**P. R. Pote Patil Edu. & Welf. Trust's, Group of Institutions,
College of Engineering & Management, Amravati**

Institute Code : 1107

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

- Kathora Road, Amravati, Maharashtra, India
- Ph. No. : +91-721-2970110, Fax No. : +91-721-2530089, Email : prpotepatilcollege@gmail.com
- Web. : www.prcem.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	10 th July to 22 th July 2017
3	Venue of Workshop	Computer Center, EE Department
4	Resource Person	Dr. A.S. Telang, Prof. Y. D. Shahakar, Prof. P.R. Rane,
5	Target of Students	Electrical Engineering UG Students
6	Number of Students/Participants	50
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 statement Using scripts and functions Data import and export Using the graphical features



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		2. Programming with simple examples
		3. Discussion of Toolboxes with Applications- Optimization Toolbox
9	Mode Assessment	Questions and Answers
10	Outcome of workshop/FDP/Seminar /webinar	1. Understand the basics of MATLAB 2. Break a complex task up into smaller, simpler tasks 3. Case Study (Any two Modules)

Schedule of Program

Date	Day	Session	Time	Instructor	Contents
10/07/2017	Monday	I	2:30pm-5.00pm	Prof. Y.D. Shahakar	1. Basics of MATLAB and MATLAB Compiler
11/07/2017	Tuesday	I	2:30pm-5.00pm	Prof. Y.D. Shahakar	The MATLAB user interface
12/07/2017	Wednesday	I	2:30pm-5.00pm	Dr. A. S. Telang	Working with MATLAB data types



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13/07/2017	Thursday	I	2:30pm-5.00pm	Dr. A. S. Telang	Creating matrices and arrays
14/07/2017	Friday	I	2:30pm-5.00pm	Prof. Y.D. Shahakar	Operators and control statements
15/07/2017	Saturday	I	2:30pm-5.00pm	Dr. A. S. Telang	Using scripts and functions
17/07/2017	Monday	I	2:30pm-5.00pm	Prof. P.R. Ran	Data import and export
18/07/2017	Tuesday	I	2:30pm-5.00pm	Prof. P.R. Ran	Using the graphical features
19/07/2017	Wednesday	I	2:30pm-5.00pm	Prof. Y.D. Shahakar	2. Programming with simple examples
20/07/2017	Thursday	I	2:30pm-5.00pm	Prof. Y.D. Shahakar	3. Discussion of Toolboxes with Applications
21/07/2017	Friday	I	2:30pm-5.00pm	Prof. P.R. Ran	4. Simulink and Hardware Interfacing (Using Kits: Lego, Raspberry Pi, Mind storms etc.)
22/07/2017	Saturday	I	2:30pm-5.00pm	Dr. A. S. Telang	Concluding Remarks and Quiz and Feedback



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Department of Electrical Engineering



Academic Year 2017-18

Report on

Training Program on Exploring Optimization using MATLAB



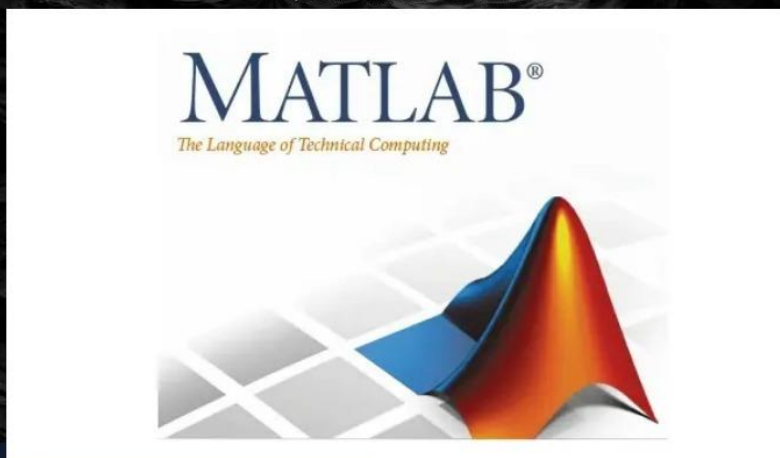

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Training Program **On** **Exploring Optimization using** **MATLAB**



Coordinator
Dr. A.S. Telang
Prof. Y.D. Shahakar

Date:
10th July to 22th July 2017

Department of Electrical Engineering



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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 : 10th July to 22th July 2017

Resource person : Dr. A.S. Telang, Asstt. Prof. EE, Dept. PRPCEM, Amravati
Prof. Y. D. Shahakar, Asstt. Prof. EE, Dept. PRPCEM, Amt.
Prof. P.R. Rane, Asstt. Prof. EE, Dept. PRPCEM, Amt



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Target participants : Electrical Engineering Students.

Course Structure and Syllabus

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

Module I - Session on introduction to Optimization tool of MATLAB followed by Get started with MATLAB

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)



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Course Mapping with POs:

Workshop								Academic Year: 2017-18				
Course/Subject: Training Program on Exploring Optimization using MATLAB												
CO	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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Date: 04/07/2017

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 10th July to 22th July 2017. You are therefore expected to take responsibility of coordinating the related activities & cooperate.

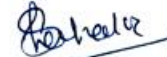
Sr No.	Faculty	Responsibility
01	Dr. A. S. Telang	Coordinator
02	Prof. Y. D. Shahakar	Co-coordinator
03	Prof. P.R.Rane	Co-coordinator


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Prof. D. A. Shahakar
HOD (EE Dept)




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Department of Electrical Engineering

Academic Year 2017-18

NOTICE

Date: 04/07/2017

All the III Yr 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 10th July to 22th July 2017. Interested students can register for the workshop.

Prof. D.A. Shahakar

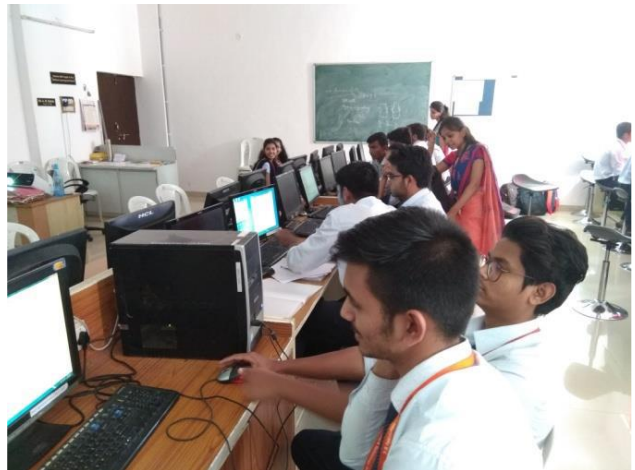
HOD(EE)



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Snapshots of Workshop



Practical Session of MATLAB



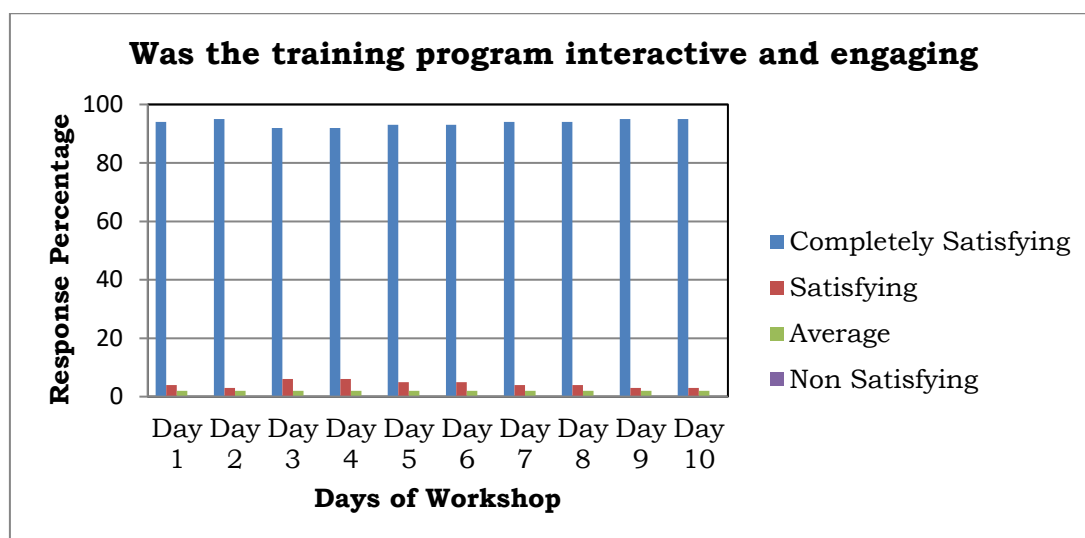
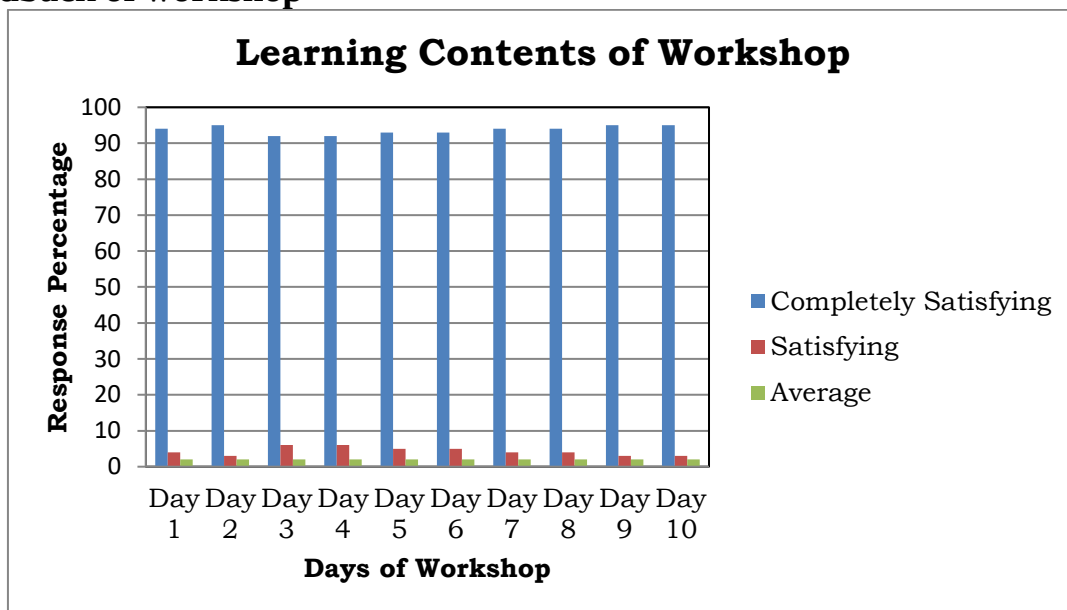
Students with certificate of completion of program



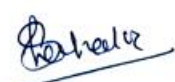
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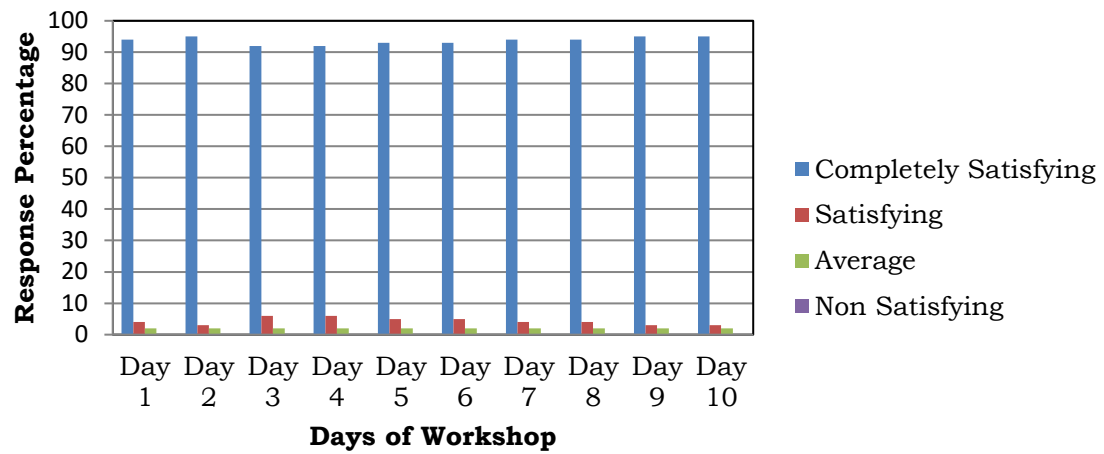
Feedback of workshop




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How would you rate the quality of this training session



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Quiz

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



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D. 2nd_Var, my_currency

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

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

D. =



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Quiz Result

Sr. No	Name of student	Marks (15)	Sr. No	Name of student	Marks (15)
1	Kunal A. Shambharkar	12	64	Rani Tadokar	9
2	Chaitali S. Lipne	13	65	Shruti D. Khandare	10
3	Pratiksha D. Deshmukh	10	66	Shubham Tandiye	14
4	Pratiksha P. Deshmukh	11	67	Dikshant Kawade	13
5	Laxmi M. Dhote	12	68	Pratik Ambadkar	12
6	Bhushan G. Khupse	10	69	Akshay Rajput	05
7	Harshal P. Wagh	14	70	Nandakishor Madke	10
8	Tanvi P. Ajmire	10	71	Yogesh Tantarapale	12
9	Priyanka N. Satramwar	12	72	Prasad Kharat	14
10	Deepika P. Kowe	10	73	Ujwal Talkit	13
11	Sanket J Khalokar	11	74	Amruta Nyakhori	11
12	Yogesh V. Pophale	14	75	Alvina Shaha	11
13	Chaitanya V. Tade	13	76	Mandar Pathak	10
14	Pranay R. Bansod	10	77	Sonam Chikhalkar	10
15	Shivam Shirbahadurkar	14	78	Rasika Jagtap	9
16	Neha V. Pandit	13	79	Vrusha Ahirao	9
17	Rajni R. Kale	14	80	Rushikesh Sabal	06
18	Meena G. Dhote	04	81	Tejas Khairkar	10
19	Pooja S. sultane	9	82	Bhagyashree lande	11
20	Sujata G. Pawar	10	83	Shabdali Mule	12
21	Parmeshwar Wankhede	9	84	Abhijeet Nimkar	11
22	Sayali D. Dok	12	85	Gitesh Sable	10
23	Priya J. Ingole	13	86	Anurag Bhoyar	11
24	Ketki P. Bhuyar	11	87	Makarand Bhamburkar	13
25	Chanchal A. Patil	10	88	Shubham Khodke	12



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26	Tejaswini R. Mahajan	10	89	Akshay Wankhade	04
27	Payal O. Jamthe	9	90	Amit Pande	11
28	Mohini V. Bhannare	13	91	Anant Kuryawanshi	12
29	Yogeshwari D. Saratkar	8	92	Prasad Kathalkar	11
30	Samiksha Mahulkar	12	93	Abhishek Khedkar	13
31	Ajinkya A. Bharde	11	94	Ankit Deshmukh	13
32	Bhaves R. Belsare	10	95	Neha Bendarkar	12
33	Aditya S. Sarode	12	96	Rajesh Giri	11
34	Tushar S. Kapgate	10	97	Rushikesh Bhakte	10
35	Sagar A. Keswani	11	98	Yash Dharmale	11
36	Aniket A. Wankhede	11	99	Pratik Ingle	13
37	Pritesh Athhawle	12	100	Monali Tayade	13
38	Harshal W. Nandurkar	09	101	Mayuri waghmare	11
39	Kaustubh M. Wankhade	10	102	Pooja Garode	10
40	Shubham Ingale	11	103	Harshal Ingalkar	13
41	Shyam R. Surpatne	12	104	Kartik Yawale	12
42	Praful R. Paturde	05	105	Abhishek Pandey	11
43	Prajwal C. Meshram	10	106	Revati Ganorkar	9
44	Mangesh S. Hage	10	107	Shrutika Dharamthok	12
45	Rushikesh D. Pohokar	9	108	Pratiksha Dahake	12
46	Shubham Murai	12	109	Rinkal chandanshive	11
47	Abhijeet Bhange	12	110	Mayur Borkhade	11
48	Sumit Wasnik	11	111	Gaurav Hivase	9
49	Sakshi Khaire	11	112	Aditya Meshram	10
50	Priya Wankhade	9	113	Rohit Kanhe	11
51	Damini Chakve	10	114	Pranjal Dubey	11
52	Ankhush G. Kulat	11	115	Prathamesh Kakad	09
53	Amol R. Irapachi	11	116	Akash Bhuyar	10

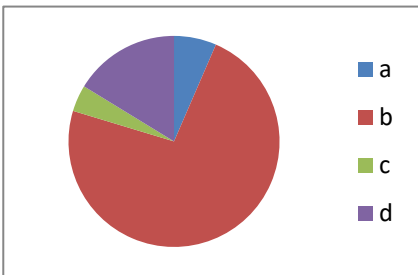
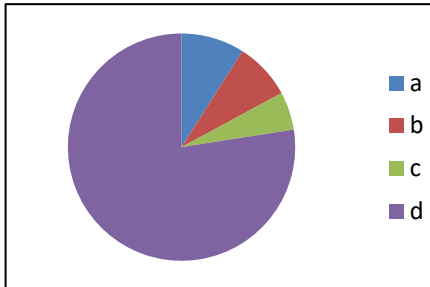
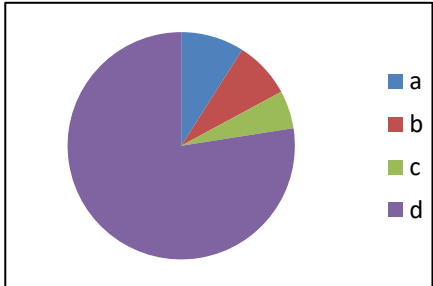
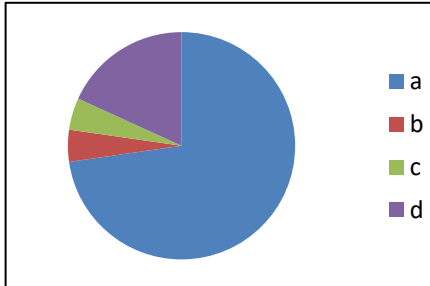


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54	Harshal P. Kursange	11	117	Dushant Girde	10
55	Akshay B. Dhoke	13	118	Aditya Kolamakar	9
56	Vishal D. Umale	10	119	Harshal Bodkhe	12
57	Sugram P. Kadam	10	120	Snehal Deshmukh	12
58	Kirti R. Kalaskar	9	121	Pragati Solanke	11
59	Payal O. Umap	12	122	Tejaswani Hambarde	11
60	Pragati N Ingale	12	123	Manish Pawade	9
61	Chetan R. Lande	11	124	Krishna R. Shane	10
62	Vishal R. Wani	11	125	Prachi Waghawe	11
63	Akshaya Arun Dhawale	9			

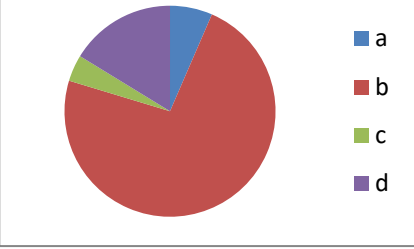
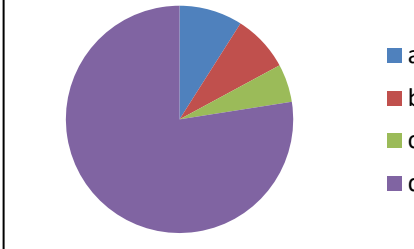
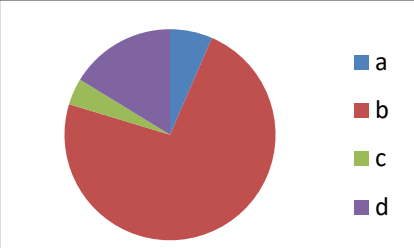
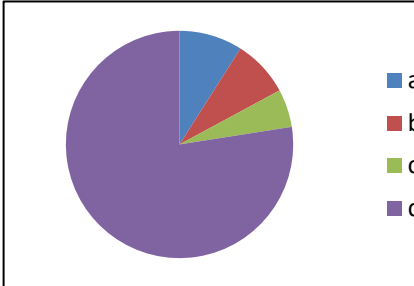
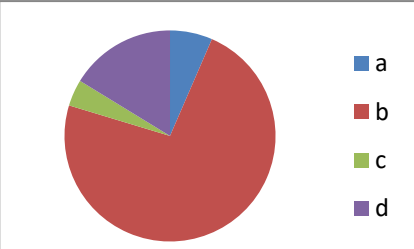
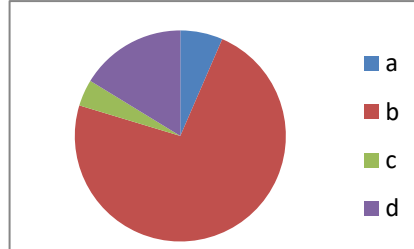
Quiz Responses

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?



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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? 

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Sample Certificate



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Certificate of Award

This is to certify that Mr. Rohan P. Kankane of Electrical Engineering Department, has completed "Training Program on Exploring Optimization using MATLAB" organized by Electrical Engineering Department of P. R. Pote (Patil) College of Engineering & Management, Amravati, during 10 July - 22 July 2017.

Dr. S.B. Warkad
IQAC I/C



Principal

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