Flipped Classroom Activity

Subject: Signals and Systems **Class:** II ECE-A

Academic Year: 2016 – 17 **Semester:** I

Topic: Mathematical analysis of Laplace Transform

Open source NPTEL video: https://www.youtube.com/watch?v=TSkHT5solVM&list=PLq-Gm0yRYwTjwxaqapPsSAHzs4_nkQLVr&index=18

Introduction to Video:

The Laplace transform is a particularly elegant way to solve linear differential equations with constant coefficients. It converts a function of a positive real variable‘t’ (usually time) to a complex function of a complex variable ‘s’ (frequency). The Laplace transform is particularly useful in solving linear ordinary differential equations such as those encountered in the analysis of electronic circuits. The purpose of the Laplace Transform is to transform ordinary differential equations (ODEs) into algebraic equations, which makes it easier to solve ODEs. In this video, definition of Laplace Transform, Region of Convergence (ROC) and Laplace Transform of Unit Impulse and Step Functions are discussed.

Question Posed: Find the Laplace transform for various basic functions and Compare its Region of Convergence (ROC).

Activity Outcomes:

At the end of this activity, student will be able to:

- Determine Laplace transforms and inverse Laplace transforms of various functions.
- Analyze the Region of Convergence for diverse functions
- Use Laplace transforms to determine general or complete solutions to linear ODEs.

Pre Class Activity: Assignment

1. Determine the ROC for a unit step and impulse signal using Laplace Transform.
2. Summarize the properties of ROC of Laplace Transform.

Pre-Activity Assessment:

Total strength	67
Number of students present	64
Number of students absent	03

S.No	Regd. No	Name of the Student	Marks		Total (10M)
			Q1 (5M)	Q2 (5M)	
1.	15NM1A0401	A GANESWARI RUPAVATHI	4	4	8
2.	15NM1A0402	ANDIBOYINA JANAKI	4	5	9
3.	15NM1A0403	ANUMPALLI JHANSI	3	3	6
4.	15NM1A0404	ARISANKALA YASODA SRIDEVI	4	3	7
5.	15NM1A0405	AVULLA BHARATHI LAKSHMI	3	4	7
6.	15NM1A0406	AYENAMPUDI ALEKHYA	5	3	8
7.	15NM1A0407	BADDI VIJAYA	4	4	8
8.	15NM1A0408	BANDARU SARANYA	4	4	8
9.	15NM1A0409	BARRI RAMA DEVI	3	4	7
10.	15NM1A0410	BASA KAVYA VIJAYA LAKSHMI	3	3	6
11.	15NM1A0411	BASANGI SHARUN ROJA	4	4	8
12.	15NM1A0412	BASWA RAJANI	4	5	9
13.	15NM1A0414	BODDAPU PRIYANKA	3	4	7
14.	15NM1A0415	BODDEPALLI SANDHYAREKHA	4	4	8
15.	15NM1A0416	BUGATHA LEELA	5	5	10
16.	15NM1A0417	CHANDAKA VASAVI	3	3	6
17.	15NM1A0418	CHAPPA PADMINI	4	4	8
18.	15NM1A0419	CHILAKA LALITA LAVANYA	4	4	8
19.	15NM1A0420	CHINTALA MOUNICA	3	3	6
20.	15NM1A0421	CHITIMISETTI HARITHA	4	4	8
21.	15NM1A0422	CHUKKA SHYAMALA	5	5	10
22.	15NM1A0423	DADI LOHITHA LAHARI	4	4	8
23.	15NM1A0424	DAMA MANASA	5	4	9
24.	15NM1A0425	DANDA JAHNAVI	4	4	8
25.	15NM1A0426	D SAI KRISHNA SRAVANTHI	4	4	8

26.	15NM1A0427	DOKALA ANUSHA	4	4	8
27.	15NM1A0428	DUNGA VENKATA PAVANI	4	4	8
28.	15NM1A0429	GANAGALA DIVYASRI	4	4	8
29.	15NM1A0430	GANDRETI KANAKA DIVYA	4	4	8
30.	15NM1A0431	GANTLA POOJITHA	4	4	8
31.	15NM1A0432	GEDELA RENUKA	5	5	10
32.	15NM1A0433	GOGULAMUDI POOJA	4	5	9
33.	15NM1A0434	GOLLAKOTI MANI DEEPIKA	4	5	9
34.	15NM1A0435	GOLLAVILLI REVATHI	3	2	5
35.	15NM1A0436	GONTINA ROHITA KRISHNA	3	2	5
36.	15NM1A0437	GORLE AKHILA	2	2	4
37.	15NM1A0438	GUNDALA SANTHI	4	4	8
38.	15NM1A0439	GUNDALA SRAVANTHI	3	3	6
39.	15NM1A0440	GURUGUBELLI MADHURI	2	3	5
40.	15NM1A0441	ILLINDA VENKATA SAKUNTALA	2	3	5
41.	15NM1A0442	INDURI RAMANI	5	4	9
42.	15NM1A0443	JADDU AMMADU	5	4	9
43.	15NM1A0444	J GAYATHRI REIKI PRATHYUSHA	4	5	9
44.	15NM1A0445	KADHAMBRAM BINDUPRIYA	4	4	8
45.	15NM1A0446	KALAGA LAKSHMI PRASANNA	3	3	6
46.	15NM1A0447	KALLEPALLI SAI MOUNICA	4	4	8
47.	15NM1A0448	KAMUJU TEJASRI	4	4	8
48.	15NM1A0449	KANDIPALLI SARIKA	4	3	7
49.	15NM1A0450	KANDULA MANJU BHARGAVI	4	4	8
50.	15NM1A0451	KANITHI MAMATHA	5	5	10
51.	15NM1A0452	KANTE SUMA	4	4	8
52.	15NM1A0453	KANURI MAMATHA	5	5	10
53.	15NM1A0454	KARAKA POORNA	4	4	8
54.	15NM1A0455	KARANAM SRAVANI	5	5	10
55.	15NM1A0457	KARRI NAGA VARALAKSHMI	4	4	8
56.	15NM1A0458	KOIENANA ANITHA	4	4	8
57.	15NM1A0459	K CHARISHMA DEVI	4	4	8
58.	15NM1A0460	KORADA GEETHA MADHURI	4	4	8
59.	15NM1A0461	KORIBILLI SRAVANI	4	4	8
60.	15NM1A0462	KOVAGAPU RAMYA	4	4	8
61.	16NM5A0401	ADDURI HYNDHAVI	4	4	8
62.	16NM5A0402	B LEELA AMRUTHA VARSHINI	4	4	8
63.	16NM5A0403	BONGU SUNEETHA	4	4	8
64.	16NM5A0405	BUSKALA SRAVANI	4	4	8

In Class Activity: Think-Pair Share Activity

Questions Posed:

Teams A, B, C, D, L:

A continuous linear time - invariant filter has an impulse response h(t) described by

$$h(t) = \begin{cases} 3; 0 \leq t \leq 3 \\ 0; Otherwise \end{cases}$$

Determine the steady state output when a constant input of value 5 is applied to this filter.

Teams E, F, G, H, N:

Determine the bilateral Laplace transform of a function given below is

$$f(t) = \begin{cases} 1; a \leq t \leq b \\ 0; Otherwise \end{cases}$$

Teams I, J, K, M:

Determine the final value if the Laplace transform of a signal y(t) is $Y(s) = \frac{1}{s(s-1)}$

In Class Activity Assessment:

Total strength	67
Number of students participated	66

Regd. No	Name of the Student	TEAM	MARKS (10)
15NM1A0408	BANDARU SARANYA	A	9
15NM1A0402	ANDIBOYINA JANAKI		
15NM1A0407	BADDI VIJAYA		
15NM1A0419	CHILAKA LALITA LAVANYA		
15NM1A0422	CHUKKA SHYAMALA		
15NM1A0410	BASA KAVYA VIJAYA LAKSHMI	B	10
15NM1A0403	ANUMPALLI JHANSI		
15NM1A0409	BARRI RAMA DEVI		
15NM1A0423	DADI LOHITHA LAHARI		
15NM1A0435	GOLLAVILLI REVATHI		
15NM1A0411	BASANGI SHARUN ROJA	C	10
15NM1A0404	ARISANKALA YASODA SRIDEVI		
15NM1A0412	BASWA RAJANI		

15NM1A0429	GANAGALA DIVYASRI		
15NM1A0437	GORLE AKHILA		
15NM1A0426	DATLA SAI KRISHNA SRAVANTHI	D	9
15NM1A0406	AYENAMPUDI ALEKHYA		
15NM1A0413	BODDAPATI SHANMUKALAKSHMI		
15NM1A0443	JADDU AMMADU		
15NM1A0444	JGAYATHRI REIKI PRATHYUSHA		
15NM1A0427	DOKALA ANUSHA	E	8
15NM1A0420	CHINTALA MOUNICA		
15NM1A0414	BODDAPU PRIYANKA		
15NM1A0450	KANDULA MANJU BHARGAVI		
15NM1A0452	KANTE SUMA		
15NM1A0438	GUNDALA SANTHI	F	8
15NM1A0428	DUNGA VENKATA PAVANI		
15NM1A0415	BODDEPALLI SANDHYAREKHA		
15NM1A0451	KANITHI MAMATHA		
15NM1A0457	KARRI NAGA VARALAKSHMI		
15NM1A0439	GUNDALA SRAVANTHI	G	9
15NM1A0430	GANDRETI KANAKA DIVYA		
15NM1A0417	CHANDAKA VASAVI		
15NM1A0459	K CHARISHMA DEVI MARIYAMMA		
15NM1A0460	KORADA GEETHA MADHURI		
15NM1A0434	GOLLAKOTI MANI DEEPIKA	H	9
15NM1A0431	GANTLA POOJITHA		
15NM1A0418	CHAPPA PADMINI		
16NM5A0402	BOGGU LEELA AMRUTHA VARSHINI		
15NM1A0462	KOVAGAPU RAMYA		
15NM1A0425	DANDA JAHNAVI	I	8
15NM1A0436	GONTINA ROHITA KRISHNA		
15NM1A0424	DAMA MANASA		
16NM5A0403	BONGU SUNEETHA		
15NM1A0401	ADDURI HYNDHAVI		
15NM1A0416	BUGATHA LEELA	J	7
15NM1A0455	KARANAM SRAVANI		
15NM1A0432	GEDELA RENUKA		
15NM1A0445	KADHAMBRAM BINDUPRIYA		
16NM5A0404	BOTTA PAVITHRA		
15NM1A0405	AVULLA BHARATHI LAKSHMI	K	9
15NM1A0454	KARAKA POORNA		
15NM1A0433	GOGULAMUDI POOJA		
15NM1A0446	KALAGA LAKSHMI PRASANNA		

15NM1A0401	ALLAVARAPU GANESWARI RUPAVATHI		
15NM1A0421	CHITIMISETTI HARITHA	L	10
15NM1A0456	KARRI KUMARI ADILAKSHMI		
15NM1A0440	GURUGUBELLI MADHURI		
15NM1A0447	KALLEPALLI SAI MOUNICA		
15NM1A0461	KORIBILLI SRAVANI	M	10
15NM1A0458	KOIENANA ANITHA		
15NM1A0441	ILLINDA VENKATA SAKUNTALA		
15NM1A0448	KAMUJU TEJASRI		
16NM5A0405	BUSKALA SRAVANI	N	10
15NM1A0453	KANURI MAMATHA		
15NM1A0442	INDURI RAMANI		
15NM1A0449	KANDIPALLI SARIKA		

Student's Participation in In-class activity

Post Class Activity: Quiz

1. The Laplace Transform of the signal u (t+2) is

[a] $\frac{1}{s}$

[b] $-\frac{1}{s}$

[c] $\frac{e^{-2s}}{s}$

[d] $-\frac{e^{-2s}}{s}$

2. The Laplace Transform of the signal u (t-2) is

[a] $-\frac{e^{-2s}}{s}$

[b] $\frac{e^{-2s}}{s}$

[c] $\frac{e^{-2s}}{s+1}$

[d] Zero

3. The Laplace Transform of the signal u(t) - u (t-2) is

[a] $\frac{-e^{-2s}-1}{s}$

[b] $\frac{-e^{-2s}+1}{s}$

[c] $\frac{2}{s}$

[d] $-\frac{2}{s}$

4. The Laplace Transform of the signal u(t-1) e^{-2t} u(t-1) is

[a] $\frac{e^{-2(s+1)}}{2s+1}$

[b] $\frac{e^{-2(s+1)}}{s+1}$

[c] $\frac{e^{-(s+2)}}{s+2}$

[d] $\frac{e^{-2(s+1)}}{s+2}$

5. If a system has N different poles, then the system can have

[a] N RoC's

[b] (N-1) RoC's

[c] (N+1) RoC's

[d] 2 N RoC's

6. For the system y(t)=u{x(t)} which of the following holds true

[a] system is linear, time-invariant, causal and stable

[b] system is time-invariant, causal and stable

[c] system is causal and stable

[d] system is stable

7. The necessary condition for convergence of the Laplace Transform is the absolute integrability of f(t) $e^{-\sigma t}$

[a] True

[b] False

8. The Laplace Transform of impulse funsction is

[a] 0

[b] 1

[c] 2

[d]∞

9. Find the Laplace transform of u (t) and its ROC

[a] $\frac{1}{s}, \sigma < 0$

[b] $\frac{1}{s}, \sigma > 0$

[c] $\frac{1}{s-1}, \sigma = 0$

[d] $\frac{1}{1-s}, \sigma \leq 0$

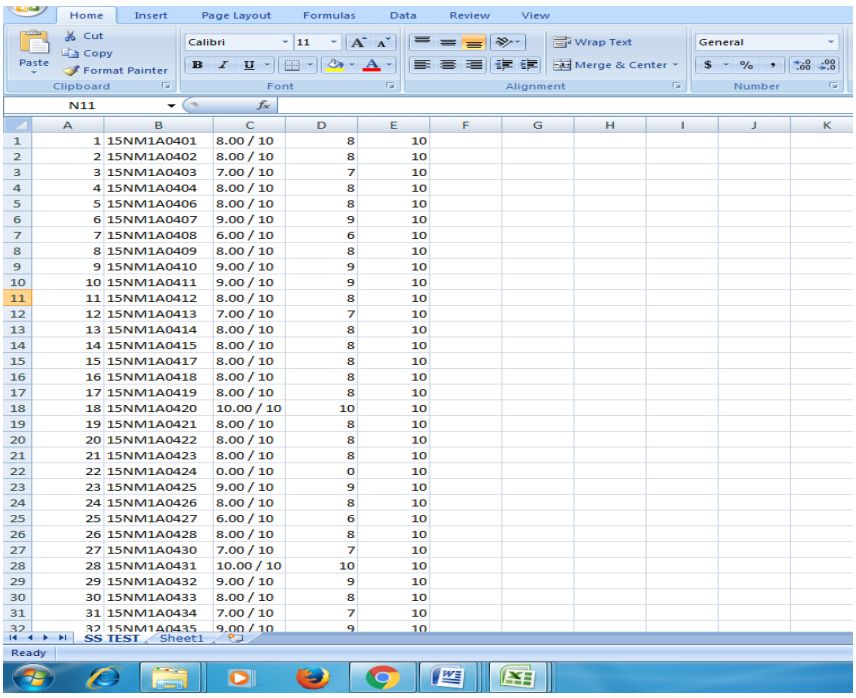
10. Find the ROC of x (t) = e^{-2t} u(t) + e^{-3t} u(t)

[a] $\sigma > 2$

[b] $\sigma > 3$

[c] $\sigma > -3$

[d] $\sigma > -2$



	A	B	C	D	E
1	1	15NM1A0401	8.00 / 10	8	10
2	2	15NM1A0402	8.00 / 10	8	10
3	3	15NM1A0403	7.00 / 10	7	10
4	4	15NM1A0404	8.00 / 10	8	10
5	5	15NM1A0406	8.00 / 10	8	10
6	6	15NM1A0407	9.00 / 10	9	10
7	7	15NM1A0408	6.00 / 10	6	10
8	8	15NM1A0409	8.00 / 10	8	10
9	9	15NM1A0410	9.00 / 10	9	10
10	10	15NM1A0411	9.00 / 10	9	10
11	11	15NM1A0412	8.00 / 10	8	10
12	12	15NM1A0413	7.00 / 10	7	10
13	13	15NM1A0414	8.00 / 10	8	10
14	14	15NM1A0415	8.00 / 10	8	10
15	15	15NM1A0417	8.00 / 10	8	10
16	16	15NM1A0418	8.00 / 10	8	10
17	17	15NM1A0419	8.00 / 10	8	10
18	18	15NM1A0420	10.00 / 10	10	10
19	19	15NM1A0421	8.00 / 10	8	10
20	20	15NM1A0422	8.00 / 10	8	10
21	21	15NM1A0423	8.00 / 10	8	10
22	22	15NM1A0424	0.00 / 10	0	10
23	23	15NM1A0425	9.00 / 10	9	10
24	24	15NM1A0426	8.00 / 10	8	10
25	25	15NM1A0427	6.00 / 10	6	10
26	26	15NM1A0428	8.00 / 10	8	10
27	27	15NM1A0430	7.00 / 10	7	10
28	28	15NM1A0431	10.00 / 10	10	10
29	29	15NM1A0432	9.00 / 10	9	10
30	30	15NM1A0433	8.00 / 10	8	10
31	31	15NM1A0434	7.00 / 10	7	10
32	32	15NM1A0435	9.00 / 10	9	10

Quiz Assessment:

Total strength	67
Number of students participated	62

S.No	Regd. No	Name of the Student	Total (10M)
1.	15NM1A0401	ALLAVARAPU GANESWARI RUPAVATHI	8
2.	15NM1A0402	ANDIBOYINA JANAKI	8
3.	15NM1A0403	ANUMPALLI JHANSI	7
4.	15NM1A0404	ARISANKALA YASODA SRIDEVI	8
5.	15NM1A0406	AYENAMPUDI ALEKHYA	8
6.	15NM1A0407	BADDI VIJAYA	9
7.	15NM1A0408	BANDARU SARANYA	6
8.	15NM1A0409	BARRI RAMA DEVI	8
9.	15NM1A0410	BASA KAVYA VIJAYA LAKSHMI	9
10.	15NM1A0411	BASANGI SHARUN ROJA	9
11.	15NM1A0412	BASWA RAJANI	8
12.	15NM1A0413	B SHANMUKALAKSHMI KATYAYANI	7
13.	15NM1A0414	BODDAPU PRIYANKA	8
14.	15NM1A0415	BODDEPALLI SANDHYAREKHA	8
15.	15NM1A0417	CHANDAKA VASAVI	8
16.	15NM1A0418	CHAPPA PADMINI	8
17.	15NM1A0419	CHILAKA LALITA LAVANYA	8
18.	15NM1A0420	CHINTALA MOUNICA	10
19.	15NM1A0421	CHITIMISETTI HARITHA	8
20.	15NM1A0422	CHUKKA SHYAMALA	8
21.	15NM1A0423	DADI LOHITHA LAHARI	8
22.	15NM1A0424	DAMA MANASA	0
23.	15NM1A0425	DANDA JAHNAVI	9
24.	15NM1A0426	DATLA SAI KRISHNA SRAVANTHI	8
25.	15NM1A0427	DOKALA ANUSHA	6
26.	15NM1A0428	DUNGA VENKATA PAVANI	8

27.	15NM1A0430	GANDRETI KANAKA DIVYA	7
28.	15NM1A0431	GANTLA POOJITHA	10
29.	15NM1A0432	GEDELA RENUKA	9
30.	15NM1A0433	GOGULAMUDI POOJA	8
31.	15NM1A0434	GOLLAKOTI MANI DEEPIKA	7
32.	15NM1A0435	GOLLAVILLI REVATHI	9
33.	15NM1A0436	GONTINA ROHITA KRISHNA	8
34.	15NM1A0437	GORLE AKHILA	8
35.	15NM1A0438	GUNDALA SANTHI	9
36.	15NM1A0439	GUNDALA SRAVANTHI	8
37.	15NM1A0440	GURUGUBELLI MADHURI	9
38.	15NM1A0441	ILLINDA VENKATA SAKUNTALA	5
39.	15NM1A0442	INDURI RAMANI	7
40.	15NM1A0443	JADDU AMMADU	7
41.	15NM1A0444	JALLEPALLI GAYATHRI REIKI PRATHYUSHA	8
42.	15NM1A0445	KADHAMBRAM BINDUPRIYA	8
43.	15NM1A0446	KALAGA LAKSHMI PRASANNA	5
44.	15NM1A0447	KALLEPALLI SAI MOUNICA	9
45.	15NM1A0448	KAMUJU TEJASRI	8
46.	15NM1A0449	KANDIPALLI SARIKA	6
47.	15NM1A0450	KANDULA MANJU BHARGAVI	8
48.	15NM1A0451	KANITHI MAMATHA	9
49.	15NM1A0452	KANTE SUMA	9
50.	15NM1A0453	KANURI MAMATHA	9
51.	15NM1A0454	KARAKA POORNA	9
52.	15NM1A0455	KARANAM SRAVANI	8
53.	15NM1A0457	KARRI NAGA VARALAKSHMI	8

54.	15NM1A0458	KOIENANA ANITHA	6
55.	15NM1A0459	KOLAPARTHY CHARISHMA DEVI	8
56.	15NM1A0460	KORADA GEETHA MADHURI	8
57.	15NM1A0461	KORIBILLI SRAVANI	9
58.	15NM1A0462	KOVAGAPU RAMYA	8
59.	16NM5A0401	ADDURI HYNDHAVI	8
60.	16NM5A0402	BOGGU LEELA AMRUTHA VARSHINI	8
61.	16NM5A0403	BONGU SUNEETHA	7
62.	16NM5A0405	BUSKALA SRAVANI	6

Overall Assessment:

S.No	Roll No	Name of the Student	Team No	Pre Class Activity-Assignment (10M)	In Class Activity-Think Pair Share (10M)	Post Class Activity-Quiz (10M)	Total (30M)
1	15NM1A0408	BANDARU SARANYA	A	8	9	6	23
2	15NM1A0402	ANDIBOYINA JANAKI		9	9	8	26
3	15NM1A0407	BADDI VIJAYA		8	9	9	26
4	15NM1A0419	CHILAKA LALITA LAVANYA		8	9	8	25
5	15NM1A0422	CHUKKA SHYAMALA		10	9	8	27
6	15NM1A0410	BASA KAVYA VIJAYA LAKSHMI	B	6	10	9	25
7	15NM1A0403	ANUMPALLI JHANSI		6	10	7	23
8	15NM1A0409	BARRI RAMA DEVI		7	10	8	25
9	15NM1A0423	DADI LOHITHA LAHARI		8	10	8	26
10	15NM1A0435	GOLLAVILLI REVATHI		5	10	9	24
11	15NM1A0411	BASANGI SHARUN ROJA	C	8	10	9	27
12	15NM1A0404	ARISANKALA YASODA SRIDEVI		7	10	8	25
13	15NM1A0412	BASWA RAJANI		9	10	8	27
14	15NM1A0429	GANAGALA DIVYASRI		8	10	0	18
15	15NM1A0437	GORLE AKHILA		4	10	8	22
16	15NM1A0426	DATLA SAI KRISHNA SRAVANTHI	D	8	9	8	25

17	15NM1A0406	AYENAMPUDI ALEKHYA		8	9	8	25
18	15NM1A0413	BODDAPATI SHANMUKALAKSHMI		0	9	7	16
19	15NM1A0443	JADDU AMMADU		9	9	7	25
20	15NM1A0444	JGAYATHRI REIKI PRATHYUSHA		9	9	8	26
21	15NM1A0427	DOKALA ANUSHA	E	8	8	6	22
22	15NM1A0420	CHINTALA MOUNICA		6	8	10	24
23	15NM1A0414	BODDAPU PRIYANKA		7	8	8	23
24	15NM1A0450	KANDULA MANJU BHARGAVI		8	8	8	24
25	15NM1A0452	KANTE SUMA		8	8	9	25
26	15NM1A0438	GUNDALA SANTHI	F	8	8	9	25
27	15NM1A0428	DUNGA VENKATA PAVANI		8	8	8	24
28	15NM1A0415	BODDEPALLI SANDHYAREKHA		8	8	8	24
29	15NM1A0451	KANITHI MAMATHA		10	8	9	27
30	15NM1A0457	KARRI NAGA VARALAKSHMI		8	8	8	24
31	15NM1A0439	GUNDALA SRAVANTHI	G	6	9	8	23
32	15NM1A0430	GANDRETI KANAKA DIVYA		8	9	7	24
33	15NM1A0417	CHANDAKA VASAVI		6	9	8	23
34	15NM1A0459	K CHARISHMA DEVI MARIYAMMA		8	9	8	25
35	15NM1A0460	KORADA GEETHA MADHURI		8	9	8	25

36	15NM1A0434	GOLLAKOTI MANI DEEPIKA	H	9	9	7	25
37	15NM1A0431	GANTLA POOJITHA		8	9	10	27
38	15NM1A0418	CHAPPA PADMINI		8	9	8	25
39	16NM5A0402	BOGGU LEELA AMRUTHA VARSHINI		9	9	8	26
40	15NM1A0462	KOVAGAPU RAMYA		8	9	8	25
41	15NM1A0425	DANDA JAHNAVI	I	8	8	9	25
42	15NM1A0436	GONTINA ROHITA KRISHNA		5	8	8	21
43	15NM1A0424	DAMA MANASA		9	8	0	17
44	16NM5A0403	BONGU SUNEETHA		8	8	7	23
45	16NM5A0401	ADDURI HYNDHAVI		8	8	8	24
46	15NM1A0416	BUGATHA LEELA	J	10	7	0	17
47	15NM1A0455	KARANAM SRAVANI		10	7	8	25
48	15NM1A0432	GEDELA RENUKA		10	7	9	26
49	15NM1A0445	KADHAMBRAM BINDUPRIYA		8	7	8	23
50	16NM5A0404	BOTTA PAVITHRA		7	7	0	14
51	15NM1A0405	AVULLA BHARATHI LAKSHMI	K	7	9	0	16
52	15NM1A0454	KARAKA POORNA		8	9	9	26
53	15NM1A0433	GOGULAMUDI POOJA		9	9	8	26
54	15NM1A0446	KALAGA LAKSHMI PRASANNA		6	9	5	20

55	15NM1A0401	ALLAVARAPU GANESWARI RUPAVATHI		8	9	8	25
56	15NM1A0421	CHITIMISETTI HARITHA	L	8	0	8	16
57	15NM1A0456	KARRI KUMARI ADILAKSHMI		0	10	0	10
58	15NM1A0440	GURUGUBELLI MADHURI		5	10	9	24
59	15NM1A0447	KALLEPALLI SAI MOUNICA		8	10	9	27
60	15NM1A0461	KORIBILLI SRAVANI	M	8	10	9	27
61	15NM1A0458	KOIENANA ANITHA		8	10	6	24
62	15NM1A0441	ILLINDA VENKATA SAKUNTALA		5	10	5	20
63	15NM1A0448	KAMUJU TEJASRI		8	10	8	26
64	16NM5A0405	BUSKALA SRAVANI	N	8	10	6	24
65	15NM1A0453	KANURI MAMATHA		10	10	9	29
66	15NM1A0442	INDURI RAMANI		9	10	7	26
67	15NM1A0449	KANDIPALLI SARIKA		7	10	6	23

Activity Outcome- PO Mapping:

Activity Outcome	Mapping to PO's
Determine Laplace transforms and inverse Laplace transforms of various functions.	**PO1, PO2**
Analyze the Region of Convergence for diverse functions	**PO4, PO9, PO10**
Use Laplace transforms to determine general or complete solutions to linear ODEs.	**PO1, PO2, PO3, PO5, PO12**

Post Implications:

- All the students paid more attention while explaining this activity, accessing the web source and all are actively participated in In-class activity
- The slow learners are also actively participated on par with bright students
- Traditional class room was perfectly converted into student centric classroom.
- With the predefined evaluation process, all students actively participated in each and every stage of the activity.