P.S.R ENGINEERING COLLEGE

(An Autonomous Institution & Affiliated to Anna University, Chennai)

DEPARTMENT OF ECE

CIRCULAR

03.07.2018

CLASS COMMITTEE MEETING

First meeting of class committee for Second year (B.E ECE) students are arranged on 09.07.2018 (Monday) at 12.30 p.m in **VLSI lab.** The students and faculties are requested to attend the meeting without fail.

Agenda of meeting:

1. Syllabus coverage
2. Discipline
3. General Queries
4. Preparation for Internal Assessment test I

Course code	Course title	Faculty In-Charges	
		Section I	Section II
161MA31	Transforms and Partial Differential Equations	Ms.B.Suganya	Dr.V.Ramamoorthy
161EC31	Analog Electronic Circuits	Dr.P.Marichamy/ Ms.T.Vaishubiah	Ms.M.Vimala
161EC32	Digital Electronics	Mr.G.Lingasamy	Mr.S.Athimoolam
161EC33	Electromagnetic Fields	Dr.P.Ranjith Kumar	Ms.P.Krishnaleela
161EC34	Electronic Measurements and Instrumentation	Ms.V.Rohini	Mr.N.S.Yoga Ananth
161EC35	Data Structures and C++	Ms.K.R.Indira	Ms.K.R.Indira
161EC37	Analog Electronic Circuits Laboratory	Ms.P.A.Mathina Ms.M.Vimala	Ms.P.A.Mathina Ms.M.Vimala
161EC38	Data Structures and C++ Laboratory	Ms.K.R.Indira Ms.V.Rohini	Ms.K.R.Indira Ms.V.Rohini
161HS39	Functional English I	Mr.G.Ganesh Kumar	Ms.J.Blessing Kiruba

Student Members:

S.No	Section -I	Section -II
1.	Archana P	Sivaranjani G
2.	Chitra J	Saranya S
3.	Kanagalakshmi M	Suguna R
4.	Mari Shanker Raja A	Surya Prakash L S
5.	Marimuthu M	Vijay Prakash R
6.	Gnana Prakashraj A	Vignesh K

Chair Person

HOD/ECE

PRINCIPAL

P.S.R. ENGINEERING COLLEGE
SIVAKASI-626140

DEPARTMENT OF ELECTRONICS AND COMMUNICATION

EVALUATION OF STAFF BY STUDENTS

(ACADEMIC YEAR 2017-2018)EVEN SEM

YEAR/SEM: II/IV

SEC: I

S.No	Aspects	COURSE CODE					
		161MA41	161EC41	161EC42	161EC43	161EC44	161EC45
1.	Punctuality	4.70	4.50	4.87	4.73	4.48	4.7
2.	Regularity In Taking Classes	4.55	4.30	4.61	4.36	4.39	4.55
3.	Completes Syllabus Of The Course In Time	4.45	4.55	4.04	4.27	4.48	4.45
4.	Makes Alternate Arrangement Of Class In His/Her Absence	4.30	4.20	4.39	4.50	4.52	4.3
5.	Focus On Syllabi	4.40	4.40	4.35	4.23	4.35	4.4
6.	Self Confidence	4.25	4.10	4.57	4.27	4.22	4.2
7.	Communication Skills	4.25	4.15	4.52	4.23	4.43	4.1
8.	Teaching The Subject Matter	4.60	4.35	4.48	4.41	4.52	4.35
9.	Skill Of Linking Subject To Life Experience & Creating Interest In The Subject	4.25	3.85	4.26	4.27	4.30	4.2
10.	Refers To Latest Development In The Field	4.40	3.75	4.09	4.45	4.35	4.3
11.	Usage Of Teaching Aids(Ohp,Blackboard,Ppts)	4.45	4.10	4.30	4.50	4.43	4.45
12.	Clarify In Usage Of Blackboard / White Board	4.30	4.10	4.26	4.14	4.61	4.3
13.	Uses Of Innovative Teaching Methods	4.15	3.65	4.30	4.68	4.48	4.15
14.	Helping Approach Towards Varied Academic Interests Of Student	4.30	3.70	4.43	4.64	4.52	4.3
15.	Approach Towards Developing Professional Skills Among Students	4.50	3.80	4.65	4.59	4.52	4.5
16.	Helps Students In Realizing Career Goals	4.55	3.90	4.48	4.50	4.30	4.55
17.	Regular Checking Of Lab Log Books /Note Books	4.50	4.10	4.43	4.36	4.48	4.5
18.	Availability Of Teacher In The Lab or Whole Duration Of Lab Hours	4.20	4.20	4.36	5.77	4.48	4.2

19.	Takes Interests In Conduct of lab/Seminars/GD/Develop Programme Coding/Circuit Design/Applying Lab Concept In Real Life Problems	4.10	4.30	4.39	4.27	4.39	4.1
20.	Motivation To Applying Patents/Proposals	4.05	4.30	4.43	4.41	4.39	4.05
21.	Control Mechanism In Effectively Conducting The Class	4.10	4.35	4.39	4.59	4.48	4.1
22.	Skills Of Addersing In Appropriate Behaviour Of Student	4.15	4.20	4.22	4.50	4.39	4.15
23.	Tendency Of Inviting Opinion & Question On Subject Matter From Student	3.90	4.15	4.52	4.64	4.39	3.9
24.	Inspires Students Of Ethical Conduct	4.00	4.20	4.43	4.64	4.17	4
25.	Act As A Role Model	4.35	4.50	4.35	4.27	4.17	4.3
TOTAL AVERAGE		**4.31**	**4.15**	**4.41**	**4.49**	**4.41**	**4.28**
PERCENTAGE(%)		**86.2%**	**83%**	**88.2%**	**89.8%**	**88.2%**	**85.6%**

161MA41	161EC41	161EC42	161EC43	161EC44	161EC45
Mr.R.Venkateshwara	Ms.K.Ramalakshmi	Mr.S.Balasubramanian	Dr.K.Valarmathi	Ms.P.Krishnaleela	Ms.B.Mangiyarkkarasi

PREPARED BY
Mrs.P.Krishnaleela,AP/ECE
Ms.M.Indhumathi,AP/ECE

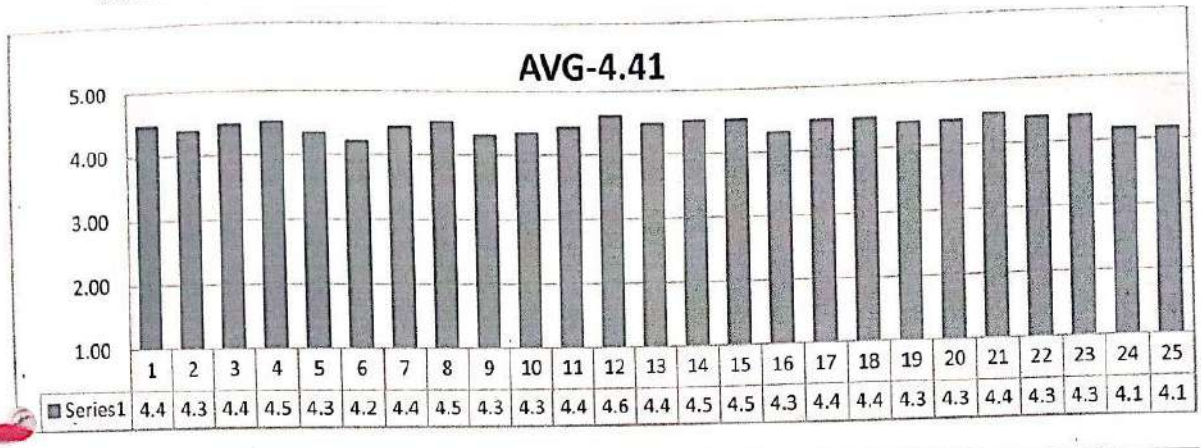
HOD/ECE

PRINCIPAL

P.S.R ENGINEERING COLLEGE, SIVAKASI-626 140
DEPARTMENT OF ECE
FEEDBACK – ANALYSIS (EVEN SEM 2017-18)

FACULTYNAME: Mrs.P.KRISHNALEELA,AP/ECE YEAR: II SECTION: I SEMESTER: IV

COURSE NAME: 161EC44/TRANSMISSION LINES AND WAVEGUIDES



1 – Punctuality	2 -Regularity In Taking Classes	3- Completes Syllabus Of The Course In Time	4 -Makes Alternate Arrangement Of Class In His/her Absence	5 - Focus On Syllabi
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11-Usage Of Teaching Aids(OHP,Blackboard,PPTs)	12-Clarify In Usage Of Blackboard /White Board	13-Uses Of Innovative Teaching Methods	14-Helping Approach Towards Varied Academic Interests Of Student	15-Approach Towards Developing Professional Skills Among Students
16-Help students In Realizing Career Goals	17-Regular Checking Of Lab Log Books /Note Books	18-Availability Of Teacher In The Lab For Whole Duration Of Lab Hours	19-Takes Interests In Conduct of lab/Seminars/GD/Develop Programme Coding/Circuit Design /Applying Lab Concept In Real Life Problems	20-Motivation To Applying Patents/Proposals
21-Control Mechanism In Effectively Conducting The Class	22-Skills Of Addressing In Appropriate Behavior Of Student	23-Tendency Of Inviting Opinion & Question On Subject Matter From Student	24-Inspires Students Of Ethical Conduct	25-Act As A Role Model

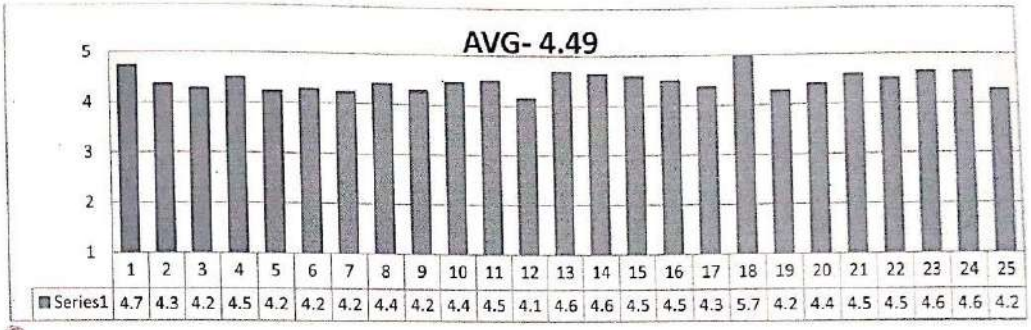
PREPARED BY
MRS.P.KRISHNA LEELA,AP/ECE
MS.M.INDHUMATHI,AP/ECE

APPROVED BY
HOD/ECE

P.S.R ENGINEERING COLLEGE, SIVAKASI-626 140
DEPARTMENT OF ECE
FEEDBACK – ANALYSIS (EVEN SEM 2017-18)

FACULTY NAME: Dr.K.VALARMATHI,HOD/ECE YEAR: II SECTION: I SEMESTER: IV

COURSE NAME: 161EC43/SIGNALS AND SYSTEMS



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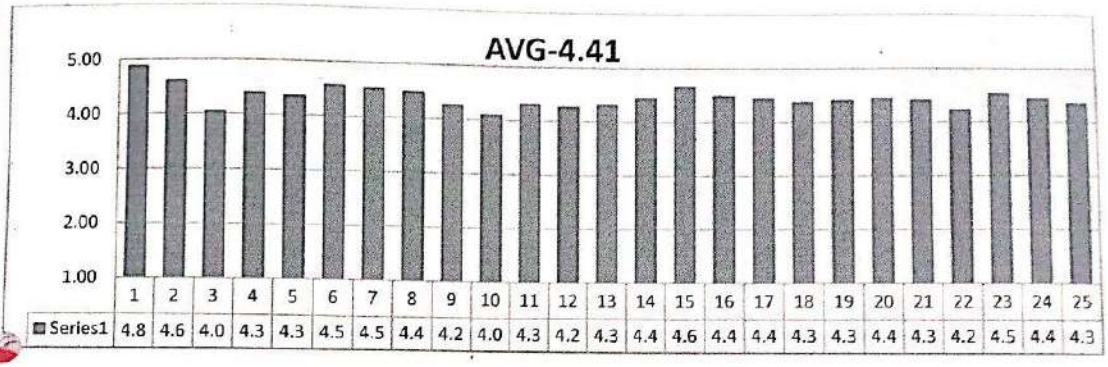
PREPARED BY
MRS.P.KRISHNA LEELA,AP/ECE
MS.M.INDHUMATHI,AP/ECE

APPROVED BY
HOD/ECE

P.S.R ENGINEERING COLLEGE, SIVAKASI-626 140
DEPARTMENT OF ECE
FEEDBACK – ANALYSIS (EVEN SEM 2017-18)

FACULTY NAME: MR.S.BALASUBRAMANIAN,AP/ECE YEAR: II SECTION: I SEMESTER: IV

COURSE NAME: 161EC42/LINEAR INTEGRATED CIRCUITS



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Series1	4.8	4.6	4.0	4.3	4.3	4.5	4.5	4.4	4.2	4.0	4.3	4.2	4.3	4.4	4.6	4.4	4.4	4.3	4.3	4.4	4.3	4.2	4.5	4.4	4.3

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PREPARED BY
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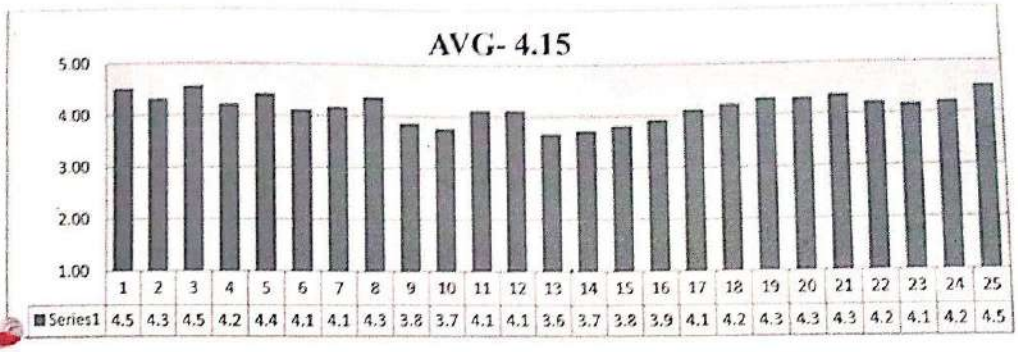
MS.M.INDHUMATHI,AP/ECE

APPROVED BY
HOD/ECE

P.S.R ENGINEERING COLLEGE, SIVAKASI-626 140
DEPARTMENT OF ECE
FEEDBACK – ANALYSIS (EVEN SEM 2017-18)

FACULTYNAME: Mrs.M.RAMALAKSHMI,AP/ECE YEAR: II SECTION: I SEMESTER: IV

COURSE NAME: 16IEC41/ANALOG COMMUNICATION



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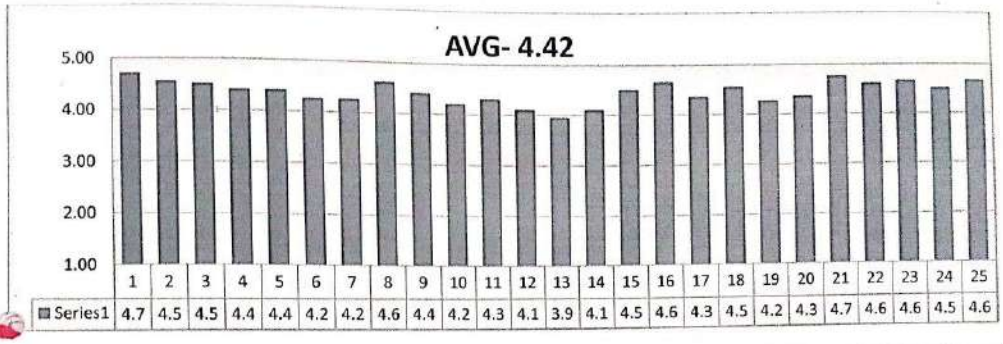
PREPARED BY
MRS.P.KRISHNA LEELA,AP/ECE
MS.M.INDHUMATHI,AP/ECE

APPROVED BY
HOD/ECE

P.S.R ENGINEERING COLLEGE, SIVAKASI-626 140
DEPARTMENT OF ECE
FEEDBACK – ANALYSIS (EVEN SEM 2017-18)

FACULTY NAME: Mr.VENKATESWARA,AP/MATHS YEAR: II SECTION: I SEMESTER: IV

COURSE NAME: 161MA41/TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATION



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PREPARED BY
MRS.P.KRISHNA LEELA,AP/ECE
MS.M.INDHUMATHI,AP/ECE

APPROVED BY
HOD/ECE

P.S.R. ENGINEERING COLLEGE

(An Autonomous Institution – Affliated to Anna University, Chennai)

SIVAKASI - 626 140

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

STAFF MEET-01

STAFF ATTENDED: **DATE: 22.08.14**

Mr.C.K.Ramar
Dr.K.Valarmathi
Mrs.R.Meenaprakash
Mr.C.Shanmugaraja
Mrs.J.Meena
Mrs.K.Rama lakshmi
Mr.S.Balasubramanian
Mr.S.Athimoolam
Mr.N.S.Yogaananth
Mr.G.Lingasamy
Mrs.P.A.Mathina
Mrs.P.Lingeswari

Mrs.D.Venkateshwari
Ms.M.Vijaya Gandhi
Ms.N.Krishna Praba
Mr.P.Ranjith Kumar
Ms.R.Sudha
Ms.R.Niveda
Mr.K.Raja
Ms.S.Abinaya
Ms.D.Vijayarohini
Mr.R .Balakumar
Mr.H.Vignesh
Mr.S.Karthick

STAFF ABSENT: Mr. R. Arunkumar

DISCUSSION DETAILS:

1. Discussions regarding syllabus coverage of all subjects and its effectiveness.
2. Had a review about the results of internal assessment test- 1.
3. Got feedback from final year students as, more soft skill trainings are needed rather than aptitude training.
4. ISO Surveillance auditing will be scheduled on August 26 & 27, 2014.
5. Students are instructed to wear proper dress code (i.e. Shirt inserted with pant, black shoes and belt). Girls should not wear leggings.
6. Students were suggested to increase more no of department association activities.
7. Motivation must be given to the students of III year for attending internship programs.
8. Department profile for placements must be prepared by Mrs.D.Venkateshwari.
9. Had an enquiry explanation from staff regarding results of internal assessment test, who scored less than 50%
10. Advised to improve the minimum results of internal assessment test II to be atleast 75%.

11. Overall pass percentage of the department for internal assessment test-II should be atleast 50% to 55%
12. Student database for placement like pass percentage, history of arrears must be upgraded by class advisor and placement coordinator.
13. Tech Mahendra placement will be scheduled in the month of October 2014
14. Planned to issue provisional certificate for ME students on 25th Aug, 2014.
15. Internal Assessment test –II will starts from 27th Aug, 2014.
16. One week placement training for III year students will be scheduled from 8th September, 2014.
17. Third year students is planned to undergo an industrial visit to Vickram Sarabhai space centre, Trivandrum on 23rd Aug, 2014.

25/08/14

HOD/ECE

25/08/2014

Principal

Prepared by,

S. Abinaya

(S.ABINAYA, AP/ECE)

P.S.R ENGINEERING COLLEGE

(An Autonomous Institution & Affiliated to Anna University, Chennai)

GL ISO 9001 GL Systems Certification

DEPARTMENT OF ECE

Minutes of staff meeting held on 25.11.15 at 12:40pm in VLSI Laboratory

POINTS DISCUSSED:

1. Model question paper for each subject has to be submitted on or before 4th December, 2015.
2. Unit wise Question bank has to be submitted on or before 4th December, 2015.
3. All faculties are requested to speed up their syllabus.
4. Every faculty is requested to send their course plan to our Department Assistant (DA) through mail.
5. Prepare course file and tutorial sheet in each subject for current semester.
6. Project supervisors are asked to follow their batch students and ask them to submit their project work for every week.
7. Faculties must get signature on log book from HOD for every week.
8. Academic audit is going to be held on 30.11.15, so all staff members are asked to be ready with their course file and log book for previous semester.
9. Class advisors are requested to collect the student participation (workshop, seminar, association etc...) certificates and submit to Mr.R.Balakumar AP/ECE
10. Faculties are asked to give their participation (workshop, seminar, FDP etc..) certificates to Mr.R.Balakumar AP/ECE
11. Class advisors are requested to submit student absentee's statement for every month, if the student was in a long leave, must inform their parents through letter.
12. Concerned NBA incharges are requested to be updated on their criteria's.

Prepared by,

25/11/15

(A.Krishnaveni AP/ECE)

HOD/ECE 25/11/15

P.S.R ENGINEERING COLLEGE

(An Autonomous Institution & Affiliated to Anna University, Chennai)

DEPARTMENT OF ECE

Minutes of Department staff meeting held on 07.09.2016 at 12:40pm in VLSI Laboratory

DISCUSSION:

1. The faculties are asked to prepare Unit wise Question bank and it has to be submitted on or before 15th Sep 2016.
2. Commencement of Internal Assessment-II will be held from 26th Sep 2016.
3. Second Class Committee Meeting was instructed to conduct next week. The Students are motivated to get great score in next IAT.
4. Placement classes are conduct based on GD, stage presence, and verbal.
5. The faculty advisors are asked to collect the softcopy and hardcopy of the student's passport size photo, signature, resume and all other needed information.
6. It was announced to the faculty members, for Staff Performance Appraisal. The faculties are motivated to attend FDP/STTP/QIP in various NITs and IITs.It was motivated to submit/publish paper in conference per reviewed journals.
7. It was instructed to the faculty advisors, the industrial visit is restricted for one day only.
8. Mrs.K.Ramalakshmi had allot for academic council of 2016 to 2017(both UG & PG) as a new member.

Prepared by,

[R.N.NIVETHITHA,M.E.,Asst.Prof/ECE]

HOD/ECE

P.S.R.ENGINEERING COLLEGE

(An Autonomous Institution & ISO 9001:2008 certified Institution)
Sivakasi-626 140, Virudhunagar Dt., Tamil Nadu

DEPARTMENT OF ECE

Minutes of placement meeting held on 11.04.2018 at 12.30 pm in VLSI Laboratory.

POINTS DISCUSSED:

1. Staffs were instructed to prepare their respective course material and submit it to the HOD on or before 25.05.2018.
2. Staff members must motivate their students to attend inplant training and internship programs during semester holidays.
3. Students are asked to register the NPTEL courses for forthcoming semester.
4. Various placement incharges are allotted to II,III and IV year students.
5. Placement classes to be conducted in different sessions like GD,mock interview,online test and technical languages.
6. Faculties are instructed to conduct GATE clases for final year students.
7. Faculties are instructed to prepare the students in programming languages like C,C++ and JAVA.

Prepared by
(Mrs.S.MAHALAKSHMI,AP/ECE)

HOD/ECE

P.S.R.ENGINEERING COLLEGE

(An Autonomous Institution & ISO 9001:2008 certified Institution)
Sivakasi-626 140, Virudhunagar Dt., Tamil Nadu

DEPARTMENT OF ECE

MINUTES OF MEETING

DATE: 01.03.2019 **TIME: 12.30 PM** **VENUE: VLSI LAB**

POINTS DISCUSSED:

1. Faculty members are instructed to prepare the Progress Report for Model Exams.
2. All the staff members are asked to update their Log book, Course File, Course Material.
3. The Lab Incharges are asked to prepare their Lab Reqirements.
4. College day will be deliberated on Last Week of March.
5. Class Advisors should prepare academic prize winners list for their Classes.
6. HoD instructed the Faculty members to identify the Slow learners in their Subjects and advised to take a special care on them.
7. Staff members are asked to fill the count of printout sheets in that concerned note book.
8. The faculties are asked to prepare Question Bank and it has to be submitted on or before 01.04.2019.

Prepared by
(Ms.M.Indhu Mathi,AP/ECE)

HOD/ECE

P.S.R ENGINEERING COLLEGE

(An Autonomous Institution & Affiliated to Anna University, Chennai)

DEPARTMENT OF ECE

Minutes of placement meeting held on 06.12.2017 at 12:40pm in VLSI Laboratory

POINTS DISCUSSED:

1. Staffs were instructed to prepare their respective course material and submit it to the head of the department on or before 12,Dec 2017.

2. Course files must be updated frequently to make it effective.

3. BOS meeting, syllabus and curriculum revision for UG and PG program must be revised. Revision should include innovation in lab exercise, new open source hardware and software and downsize the syllabus to our environment by comparing with Anna university syllabus and other premier/autonomous institution.

4. Suggest the prescribed textbooks to students and recommend new textbooks to both central and department library.

5. Students are asked to get signature in their observation and record notebooks periodically.

Prepared by

HOD/ECE

[R.N.NIVETHITHA.M.E..Asst.Prof/ECE]

P.S.R. ENGINEERING COLLEGE SIVAKASI-626 140

(An Autonomous Institution, Affiliated to Anna University, Chennai)

DEPARTMENT OF ECE

PREFACE

COURSE NAME	: SIGNALS AND SYSTEMS
COURSE CODE	: 161EC43
YEAR/SEMESTER/SECTION	: II/IV/II
PROGRAMME	: B.E.,ECE
NAME OF THE FACULTY	: Mrs.P.LINGESWARI, AP/ECE
ACADEMIC YEAR	: 2017-2018
DURATION	: NOV'17 – APRIL'18
REGULATION	: 2016

PREPARED BY

Mrs. P.LINGESWARI, AP/ECE

APPROVED BY

HOD/ECE

161EC43	SIGNALS AND SYSTEMS			L-T-P	C
				3-2-0	4
Programme:	B.E. – Electronics and Communication Engineering	**Sem:**	**IV**	**Category:**	**PC**
AIM:	To study and analyze the characteristics of continuous, discrete signals and systems.				

Course Outcomes:

The Students will be able to

CO1: Analyze the properties of signals and systems.
CO2: Determine the appropriate signals for basic signal processing applications.
CO3: Signify CT systems in the Frequency domain using Fourier Analysis
CO4: Apply Fourier transform and Laplace transform to Continuous Time systems.
CO5: Apply Z transform to Characterize Discrete time systems.
CO6: Design the block diagrams for complex systems.

CLASSIFICATION OF SIGNALS AND SYSTEMS	**12**
Basic signals, Classification of signals - Continuous and Discrete signals, Periodic and Aperiodic signals, Deterministic and Random signals, Energy and Power signals - Classification of systems – Continuous and Discrete systems, Static and Dynamic, Linear and Nonlinear, Time-variant and Time-invariant, Causal and Non causal, Stable and Unstable.	
ANALYSIS OF CONTINUOUS TIME SIGNALS	**12**
Fourier series analysis-spectrum of Continuous Time signals- Fourier and Laplace Transforms in Continuous Time Signal Analysis – Properties of Fourier and Laplace Transforms.	
LINEAR TIME INVARIANT- CONTINUOUS TIME SYSTEMS	**12**
Differential Equation-Block diagram representation-impulse response, convolution integrals-Fourier and Laplace transforms in Analysis of CT systems.	
ANALYSIS OF DISCRETE TIME SIGNALS	**12**
Baseband Sampling - Aliasing, Reconstruction of CT signal from DT signal- DTFT – Properties of DTFT - Z Transform – Properties of Z Transform.	
LINEAR TIME INVARIANT-DISCRETE TIME SYSTEMS	**12**
Difference Equations-Block diagram representation-Impulse response - Convolution sum- Discrete Fourier and Z Transform Analysis of Recursive & Non-Recursive systems.	
TOTAL PERIODS	**60**

TEXT BOOKS

1. Simon Haykins and Barry Van Veen, "Signals and Systems", Second Edition, John Wiley and Sons, Reprint 2012.

REFERENCES

1. B. P. Lathi, "Principles of Linear Systems and Signals", Second Edition, Oxford, 2009.
2. R.E.Zeimer, W.H.Tranter and R.D.Fannin, "Signals & Systems - Continuous and Discrete", Pearson, 2007.
3. M.J.Roberts, "Signals & Systems Analysis using Transform Methods & MATLAB", Tata McGraw Hill, 2007.
4. Allan V.Oppenheim, S.Wilsky and S.H.Nawab, "Signals and Systems", Pearson, 2007.

Course Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO1	3	3											3	1	2	1
CO2	3	3	2	2		1	1	1				1	3		2	1
CO3	3	3	3	3									3		2	
CO4	3	3	3	3									3		2	1
CO5	3	3	3	3									3		2	1
CO6	3	3	3	2									2	1	2	1

Enter correlation levels 1, 2 or 3 as defined below: 1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

P.S.R ENGINEERING COLLEGE

(An Autonomous Institution & Affiliated to Anna University, Chennai)

DEPARTMENT OF ECE

COURSE PLAN

COURSE CODE & NAME: 161EC43 & SIGNALS AND SYSTEMS **YEAR: II**
SEMESTER: IV **SECTION: II** **PROGRAMME: ECE**
FACULTY NAME: Mrs.P.Lingeswari,AP/ECE

UNIT NO.	S.NO.	TOPICS	PERIODS	CUM. PERIODS	REF. BOOKS
		CLASSIFICATION OF SIGNALS AND SYSTEMS			
1	1	Basic signals, Classification of signals	1	1	T1 & R2
	2	Continuous and Discrete signals, Periodic and Aperiodic signals, Deterministic and Random signals	2	3	
	3	Energy and Power signals	2	5	
	4	Classification of systems – Continuous and Discrete systems, Static and Dynamic,	2	7	
	5	Linear and Nonlinear, Time-variant and Time-invariant, Causal and Non causal, Stable and Unstable	2	9	
	6	Tutorial	3	12	
		ANALYSIS OF CONTINUOUS TIME SIGNALS			
2	7	Fourier series analysis	2	14	T1 & R2
	8	Spectrum of Continuous Time signals	1	15	
	9	Fourier Transform in Continuous Time Signal Analysis	1	16	
	10	Properties of Fourier Transform	2	18	
	11	Laplace Transform in Continuous Time Signal Analysis	1	19	
	12	Properties of Laplace Transform	2	21	
	13	Tutorial	3	24	
		LINEAR TIME INVARIANT- CONTINUOUS TIME SYSTEMS			
3	14	Differential Equation	2	26	T1 & R2
	15	Block diagram representation-impulse response	2	28	
	16	convolution integrals	1	29	
	17	Fourier transform in analysis of CT systems	2	31	
	18	Laplace transform in analysis of CT systems	2	33	
	19	Tutorial	3	36	
		ANALYSIS OF DISCRETE TIME SIGNALS			
4	20	Baseband Sampling - Aliasing	1	37	T1 & R2
	21	Reconstruction of CT signal from DT signal	1	38	
	22	DTFT	1	39	
	23	Properties of DTFT	2	41	
	24	Z Transform	2	43	
	25	Properties of Z Transform	2	45	
	26	Tutorial	3	48	
		LINEAR TIME INVARIANT-DISCRETE TIME SYSTEMS			
5	27	Difference Equations	1	49	T1 & R2
	28	Block diagram representation-Impulse response	2	51	
	29	Convolution sum	2	53	
	30	Discrete Fourier Transform Analysis of Recursive & Non-Recursive systems	2	55	
	31	Discrete Fourier and Z Transform Analysis of Recursive & Non-Recursive systems.	2	57	
	32	Tutorial	3	60	

TEXT BOOKS:

1. Simon Haykins and Barry Van Veen, "Signals and Systems", Second Edition, John Wiley and Sons, Reprint 2012.

REFERENCES:

1. B. P. Lathi, "Principles of Linear Systems and Signals", Second Edition, Oxford, 2009.
2. R.E.Zeimer, W.H.Tranter and R.D.Fannin, "Signals & Systems - Continuous and Discrete", Pearson, 2007.
3. M.J.Roberts, "Signals & Systems Analysis using Transform Methods & MATLAB", Tata McGraw Hill, 2007.
4. Allan V.Oppenheim, S.Wilsky and S.H.Nawab, "Signals and Systems", Pearson, 2007.
5. P.Ramesh Babu and R.Anandanatarajan, "Signals and Systems", Scitech publication, Fourth edition, 2011.

PREPARED BY **APPROVED BY**

P.S.R. ENGINEERING COLLEGE SIVAKASI-626 140
(An Autonomous Institution, Affiliated to Anna University, Chennai)

INTERNAL ASSESSMENT TEST – I

Programme:	B.E.	Branch	Electronics and Communication Engineering		
Acad. Year:	2017-2018	Year/Semester	II Yr/IV Sem		
Course Code:	161EC43	Course Name	**Signals and Systems**		
Maximum Marks:	60 Marks	Date of Test	**19.01.2018 (AN)**	Duration	1.30 hrs
Course Tutor(s):	Section-1: Dr.K.Valarmathi/ECE		Section-2: Mrs.P.Lingeswari /ECE		

Answer All Questions

PART - A **6 x 2 Marks = 12 Marks**

1. Distinguish between symmetric and Asymmetric signal.
2. What is the fundamental period of $e^{j\pi t}$?
3. Find the power and RMS value of signal x(t)=20cos2πt.
4. Define LTI system.
5. Compare Fourier series and Fourier transform.
6. Define the Dirichlet's conditions for continuous time Fourier series.

PART – B **3 x 16 Marks = 48 Marks**

7.a) Distinguish between the following: 16
(i) Continuous time signal and discrete time signal
(ii) Unit step and unit ramp function
(iii) Periodic and aperiodic signal
(iv) Deterministic and random signal

or

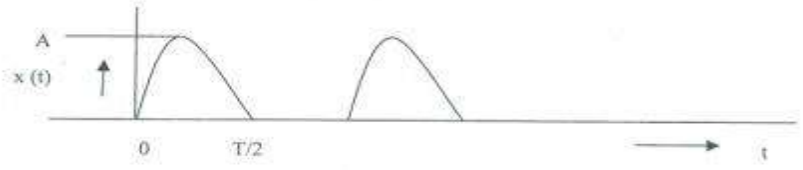
b) i) Prove the signal $x(t) = e^{-3t}u(t)$ is an energy signal not the power signal. 4
ii) Solve the fundamental period of the signal $e^{j(\frac{2\pi}{3})n} + e^{j(\frac{3\pi}{4})n}$. 4
iii) Outline the signal $r(t) - u(2-t)$. 4
iv) Find the even and odd components of the signal $x(t) = \cos t + \sin t + \cos t \sin t$. 4

8.a) Classify the following systems under their linearity, time invariance, casual, stability. 16
(1) $y(n) = x(n)\cos \omega n$ (2) $y(n) = 0.25x(n-1)$

or

b) Elaborate the classification of system with examples. 16

9.a) Construct the Trigonometric Fourier series representation of the half wave rectifier output as shown in figure. 16



or

b) i) Determine the Fourier transform and sketch the magnitude and phase spectrum for the signal $x(t) = e^{-0.5t}u(t)$. 8
ii) Summarize the properties of Fourier transform. 8

---------- End of Questions ----------

Faculty In charge

HOD/ECE

P.S.R. ENGINEERING COLLEGE SIVAKASI-626 140
(An Autonomous Institution, Affiliated to Anna University, Chennai)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

MODERATION OF QUESTION PAPER

Internal Assessment I					
Programme:	B.E	Branch	Electronics and Communication Engineering		
Acad.Year:	2016-2017	Year/Semester	IIYr/IVSem		
Course Code:	161EC43	Course Name	**Signals and Systems**		
Maximum Marks:	60	Date of Test	**19-01-2018**	Duration	
Course Tutor(s):	LingeswariPonnusamy/Electronics and Communication Engineering				

Qn. No.	Competence Category						Qn Level			COs
	Remembering(RM)	Understanding(US)	Applying(AP)	Analysis(AY)	Evaluating(EV)	Creating(CR)	Easy	Medium	Challenge	
1				2				✓		CO1
2	2						✓			CO1
3	2						✓			CO2
4	2						✓			CO1
5		2					✓			CO3
6	2						✓			CO3
7.a.i				16			✓			CO1
7.b.i			8						✓	CO2
7.b.ii		8					✓			CO1
8.a.i				16				✓		CO1
8.b.i		16					✓			CO1
9.a.i						16			✓	CO3
9.b.i					8			✓		CO3
9.b.ii		8					✓			CO3
Total	8	34	8	34	8	16	58	26	24	
%	7.41	31.48	7.41	31.48	7.41	14.81	53.7	24.07	22.22	

Desirable: a+b=30% to 40%,c+d+e+f = 60% to 70%
E-Easy(50.00%),M-Medium(25.00%),C-Challenge(25.00%)

Signature of the Course Tutor

Remarks

Programme Coordinator

Signature of course Coordinator/Moderator

Head of the Department

P.S.R.ENGINEERING COLLEGE, SIVAKASI-626140
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Evaluation Analysis

Programme : B.E Electronics and Communication Engineering (ECE) Internal Assessment Test : I
Year : II Section : B
Course Code : 161EC43 Course Name : Signals and Systems
Course Tutor : Lingeswari Ponnusamy, Assistant Professor/Electronics Date of Test : 19-01-2018

Sl.No	Roll No.	Name	PART - A						PART - B								Total Mark	Result
			1	2	3	4	5	6	7.a.i	7.b.i	7.b.ii	8.a.i	8.b.i	9.a.i	9.b.i	9.b.ii		
1	16EC048	MANIMEGALAI	1	1	2	1		2	6			14		13			40	PASS
2	16EC049	MARIAMMAL	1		2		1	2	8				11	12			37	PASS
3	16EC050	MARIRAJ			1			1	9				10				21	FAIL
4	16EC051	MARUNMANI						1	8				10	13			32	PASS
5	16EC052	MONIKA	1		2				12				8	10			33	PASS
6	16EC053	MURUGAN							3				10	6			19	FAIL
7	16EC054	MUTHUKUMAR	1		1			1		7	7	14		12			43	PASS
8	16EC056	MUTHUMANI			2				13								15	FAIL
9	16EC059	NAGARAJ	2	1	2			2		7	5		9	7			35	PASS
10	16EC060	NAVANEETHA VENKATESAN		2	2					6	5	10		5			30	PASS
11	16EC061	PANDEESWARAN	1	1				2	11				4	2			21	FAIL
12	16EC062	PARTHASARATHI	1	2	2		1	2		8	6	14		16			52	PASS
13	16EC063	PATHMA PRIYA	1	2	2		1		7				8	12			33	PASS
14	16EC064	PAVITHRA DARWIN	1	1	2		1	2		8	6	14		8			43	PASS
15	16EC065	PRABAKAR	1	1	2			1		8	5	12		7			37	PASS
16	16EC066	PREMAKARTHIKA	1	1	2			2	15			12		13			46	PASS
17	16EC067	PRIYADHARSHINI	2		2			2	8			8		8			30	PASS
18	16EC069	RAMESH	1	1		1		2	12				14				31	PASS

Total Marks Questionwise	34	32	68	5	10	53	263	124	108	222	214	346	3	
No of Students Attended	30	24	36	5	10	30	30	19	19	21	26	43	1	
Total Marks / No.of Students	1.1	1.3	1.89	1	1	1.8	8.8	6.53	5.7	11	8.2	8.05	3	
Competence Category	AY	RM	RM	RM	US	RM	AY	AP	US	AY	US	CR	EV	US
Course Outcome	CO1	CO1	CO2	CO1	CO3	CO3	CO1	CO2	CO1	CO1	CO1	CO3	CO3	CO3
Programme Outcome	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1
	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2
			PO3		PO3	PO3		PO3				PO3	PO3	PO3
			PO4		PO4	PO4		PO4				PO4	PO4	PO4
			PO6					PO6						
			PO7					PO7						
			PO8					PO8						
			PO12					PO12						

Signature of the Course Tutor

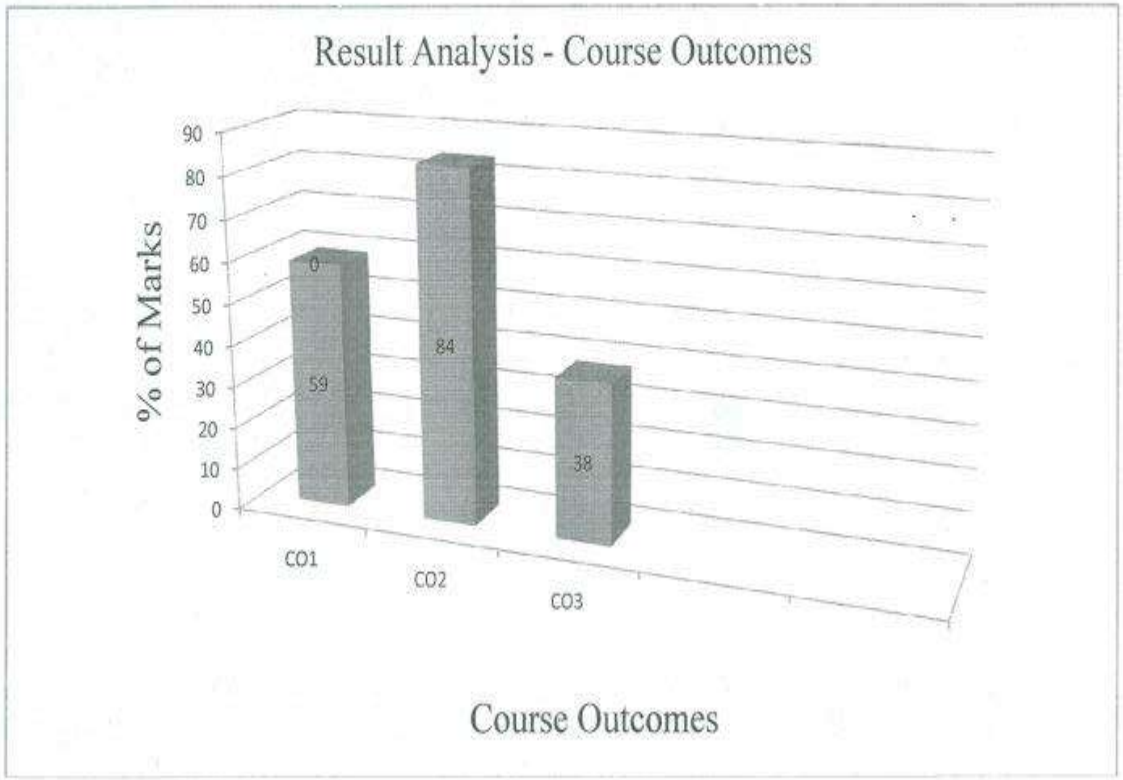
Signature of the Course Co-ordinator/Moderator

Programme Co-ordinator

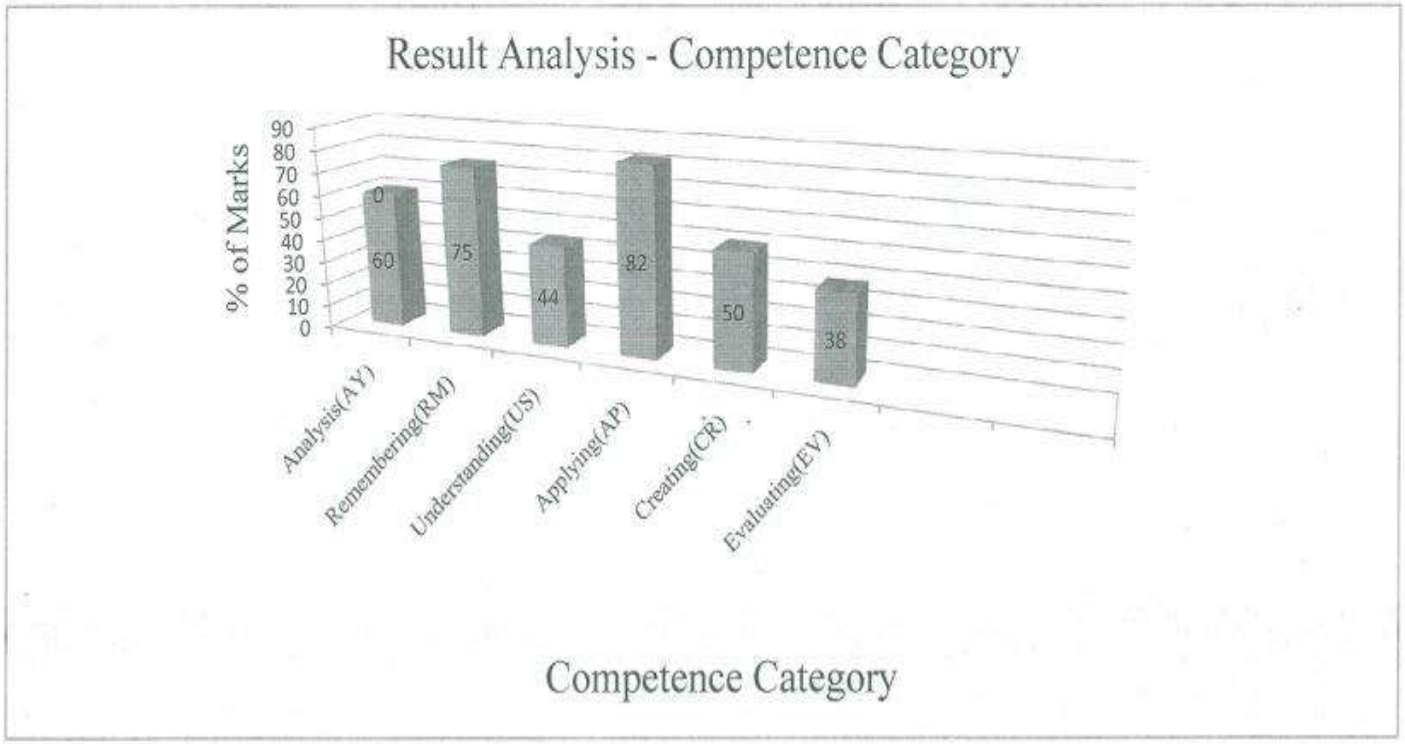
Head of the Department

19	16EC070	SAKTHI PANDI			2				5					4			11	FAIL
20	16EC072	SANTHINE	1	1	2			2	14			10		10			40	PASS
21	16EC073	SANTHIYA	1	2	1		1	2		6	6	10		7			36	PASS
22	16EC074	SARAVANA KUMAR			2				4				6	7			19	FAIL
23	16EC075	SATHYA	1	1	2			2		8	5	16		8			43	PASS
24	16EC078	SELVA KUMAR			2								1	2			5	FAIL
25	16EC076	SELVA KUMAR									6			4			10	FAIL
26	16EC077	SELVA KUMAR		1	2					7	6		13	10			39	PASS
27	16EC080	SOUNDHARA KUMAR	1	1						6	6	6		2			22	FAIL
28	16EC081	SRIDHARAN							4				10	2			16	FAIL
29	16EC082	SUBITSHA	1	1	2	1		2	12				13	4			36	PASS
30	16EC083	SUNDARA LAKSHMI	2	2	2		1	2		8	6	16		14			53	PASS
31	16EC084	SURESH KANNAN							10				8				18	FAIL
32	16EC085	SURIYA PRIYA	2	1	2		1	2	14				10	5			37	PASS
33	16EC087	SURYA	1	1	1		1	2		7	6	14		12			45	PASS
34	16EC086	SURYA PRAKASH							2								2	FAIL
35	16EC088	SWETHA	1	1	2			1	10				12	8			35	PASS
36	16EC089	THIRUMALAIMURUGAN	1	1				2	8				12	7			31	PASS
37	16EC090	THIRUMALAIMURUGAN			2		1			5	3		3	7			21	FAIL
38	16EC091	UMAMAHESWARI			2			2		3	6		10	10			33	PASS
39	16EC092	VAIRALAKSHMI		2	2	1		2		6	4	12			3		32	PASS
40	16EC094	VIDHYA	1		2			1	8			10		10			32	PASS
41	16EC095	YATHEENDIRARAJAN		2	2					5	6		8	7			30	PASS
42	17LEC01	BHUVANESHWARI K	1		2	1		1	8			2		6			21	FAIL
43	17LEC03	ESAKKIAMMAL@RACHANADEVI R						2	8			4		7			21	FAIL
44	17LEC06	MUTHUKANI S							6			8					14	FAIL
45	17LEC07	MUTHUMANIPANDI M	1						10				1	2			14	FAIL
46	17LEC08	PADMA PRIYA B	1		2			2	8				9	9			31	PASS
47	17LEC11	PREETHI K	1		2				12				8				23	FAIL
48	17LEC13	RATHIKA R			2					4			2	8			16	FAIL
49	17LEC14	RUPADEVI P							8				4	4			16	FAIL
50	17TEC01	PUSHPAPRIYA N	1	2	2		1	2		8	8	12		10			46	PASS
51	17ECR01	MATHIMITHRA	1					2		7	6	4		16			36	PASS

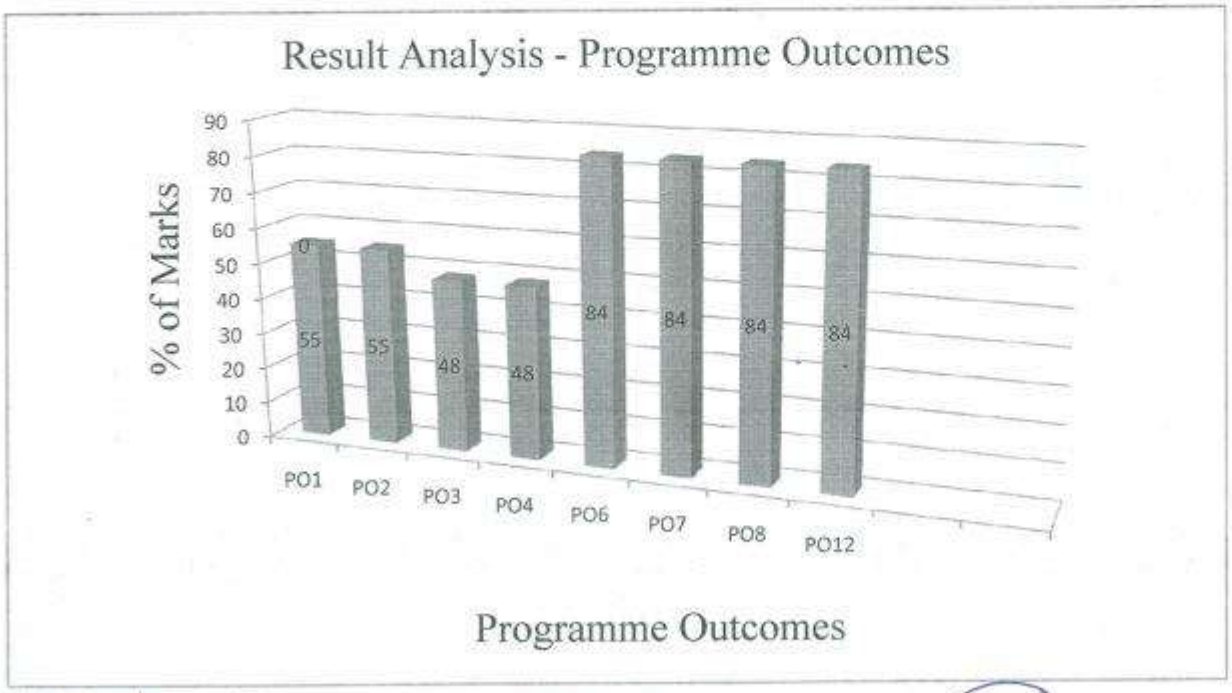
Course Outcomes	Max Marks	Average Marks Scored	% of Marks
CO1	62	36.71	59
CO2	10	8.42	84
CO3	36	13.82	38



Competence Category	Max Marks	Average Marks Scored	% of Marks
Analysis(AY)	34	20.47	60
Remembering(RM)	8	5.99	75
Understanding(US)	34	14.91	44
Applying(AP)	8	6.53	82
Creating(CR)	16	8.05	50
Evaluating(EV)	8	3	38



Programme Outcomes	Max Marks	Average Marks	% of Marks
PO1	108	58.95	55
PO2	108	58.95	55
PO3	46	22.24	48
PO4	46	22.24	48
PO6	10	8.42	84
PO7	10	8.42	84
PO8	10	8.42	84
PO12	10	8.42	84



Signature of the Course Tutor

Signature of the Course Co-ordinator/Moderator

Programme Co-ordinator

Head of the Department

NPTEL QUESTIONS

Assignment 1

1. The image captured by a cellphone is an example of a

○ Discrete Time Signal ○ 2D Signal ○ Energy Signal ○ All of the Above

2. Consider the Signal $\sin(4t)$ .Which of the following is true

○ The given Signal is aperiodic

○ The given Signal is finite Energy Signal

○ The given Signal is Even

○ The given Signal is periodic

3. Consider the Signal $\sin(4\pi t)+\sin(6\pi t)$. The Signal is

○ Aperiodic ○ Periodic with period 2π ○ Periodic with period 1 ○ Periodic with period 2

4. The Signal $\exp(-\frac{1}{2}|t|)$

○ Power Signal with power=2 ○ Power Signal with power=1

○ Energy Signal with power=2 ○ Energy Signal with power=1

5. The unit step signal is an

○ Energy Signal ○ Power Signal ○ Neither Energy Nor Power ○ Periodic Signal

6. Current $i(t) = e^{-\alpha t}u(t), \alpha > 0$ is given as input to capacitor with capacitance C. The resulting voltage across the capacitor is

○ $\frac{1}{c\alpha}(1-e^{-\alpha t})u(t)$ ○ $\frac{1}{c}(\alpha e^{-\alpha t})u(t)$ ○ $-c(\alpha e^{-\alpha t})u(t)$ ○ $\frac{1}{c}(e^{-\alpha t})u(t)$

7. The Signal $\delta(-2t)$ equals

○ $\delta(t/2)$ ○ $(1/2)\delta(t)$ ○ $-(1/2)\delta(t)$ ○ $-2\delta(t)$

8. The sifting property of the impulse function states that

○ $\int_{-\infty}^{\infty} x(t)\delta(t)dt = x(0)$ ○ $x(t)\delta(t) = x(0)\delta(0)$

○ $\int_{-\infty}^{\infty} x(\tau)\delta(t-\tau)d\tau = x(t)$ ○ $\int_{-\infty}^{\infty} x(t)\delta(t-t_0)dt = x(t_0)$

9. Given the general signal x(t), the even and odd components of signal $x_e(t)$, $x_0(t)$,such that $x(t)=x_e(t)+x_0(t)$, are

○ $(1/2)[x(t)-x(-t)],(1/2)[x(t)+x(-t)]$ ○ $(1/2)[x(t)+x(-t)],(1/2)[x(t)-x(-t)]$

○ $(1/2)[x(-t)-x(t)],(1/2)[x(t)-x(-t)]$ ○ $(1/2)[x(-t)+x(t)],(1/2)[x(-t)-x(t)]$

10. Consider the Signal $x(t)=sin(t)u(t)$ given as input to integrator $\int_{-\infty}^{t} x(\tau)d\tau$. What is the power of resulting output signal

○ 1 ○ 3/2 ○ 1/2 ○ 3/4

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Programme: B.E. Electronics and Communcation Engineering
Year & Sem: II & IV
Course Code & Name: 161EC43 & Signals and Systems
Course Tutor: Mrs.P.Lingeswari, AP/ECE

Internal Assessment Test :I
Section: II
Date of Test: 19.01.2018

SLOW LEARNERS LIST

S.No	Roll No	Name of the Student	Marks
1	16EC050	MARIRAJ	21
2	16EC053	MURUGAN	19
3	16EC056	MUTHUMANI	15
4	16EC061	PANDEESWARAN	21
5	16EC070	SAKTHI PANDI	11
6	16EC074	SARAVANA KUMAR	19
7	16EC078	SELVA KUMAR	5
8	16EC076	SELVA KUMAR	10
9	16EC080	SOUNDHARA KUMAR	22
10	16EC081	SRIDHARAN	16
11	16EC084	SURESH KANNAN	18
12	16EC086	SURYA PRAKASH	2
13	16EC090	THIRUMALAIMURUGAN	21
14	17LEC01	BHUVANESHWARI K	21
15	17LEC03	ESAKKIAMMAL@ RACHANADEVI R	21
16	17LEC06	MUTHUKANI S	14
17	17LEC07	MUTHUMANIPANDI M	14
18	17LEC11	PREETHI K	23
19	17LEC13	RATHIKA R	16
20	17LEC14	RUPADEVI P	16

Assignments given to the students.

ADVANCE LEARNERS LIST

S.No	Roll No	Name of the Student	Marks
1	16EC062	PARTHASARATHI	52
2	16EC066	PREMAKARTHIKA	46
3	16EC083	SUNDARA LAKSHMI	53
4	16EC087	SURYA	45
5	17TEC01	PUSHPAPRIYA N	46

Asked to solve NPTEL questions.

Signature of the Course Tutor

Signature of the Course Co-ordinator/Moderator

Programme Co-ordinator

Head of the Department

Assignment I

Solution

1. The image captured by a cellphone is a Discrete time signal, 2D signal as well as n energy Energy signal (since it is of finite size and each pixel has finite amplitude).
   Ans d
2. The given signal $\sin(4t)$ is periodic. In fact, its period is $\pi/2$.
   Ans d
3. Consider the signal $\sin(4\pi) + \sin(6\pi)$. Period of first component is ½. Period of second component is 1/3. The lowest common multiple of both is 1. Hence, period of sum signal is 1.
   Ans c
4. The given signal $e^{-\frac{1}{2}|t|}$ is an energy signal. Its energy is

   $$\int_{-\infty}^{\infty}\left(e^{-\frac{1}{2}|t|}\right)^2 dt = 2\int_0^{\infty} e^{-t}dt = 2$$

   Ans c
5. The unit step signal is a Power signal. This can be seen as follows

   $$\lim_{T\to\infty}\frac{1}{T}\int_{-T/2}^{T/2}|u(t)|^2 dt = \lim_{T\to\infty}\frac{1}{T}\int_0^{T/2} 1\times dt = \lim_{T\to\infty}\frac{T/2}{T} = \frac{1}{2}$$

   Ans b
6. Given current $i(t) = e^{-\alpha}u(t)$, $\alpha > 0$ is given as input to capacitor with capacitance C. The voltage across the capacitor is given as

   $$\frac{1}{C}\int_{-\infty}^{t} i(\tau)d\tau = \frac{1}{C}\int_{-\infty}^{t} e^{-\alpha\tau}u(\tau)d\tau = \left(\frac{1}{C}\int_0^t e^{-\alpha\tau}d\tau\right)u(t) = -\frac{1}{C\alpha}e^{-\alpha\tau}|_0^t u(t)$$

   $$= \frac{1}{C\alpha}(1-e^{-\alpha\tau})u(t)$$

   Ans a
7. From the property $\delta(at) = 1/|a| \times \delta(t)$. Hence, $\delta(-2t) = ½ \times \delta(t)$
   Ans b
8. The sifting property of the impulse function is $\int_{-\infty}^{\infty} x(\tau)\delta(t-\tau)d\tau = x(t)$.
   Ans c
9. The even and odd components of the signal $x_e(t)$, $x_o(t)$ are respectively ½ $(x(t) + x(-t))$, ½ $(x(t) - x(-t))$.
   Ans b

10. Given the signal $x(t) = \sin(t)u(t)$ given as input to the integrator $\int_{-\infty}^{t} x(\tau)d\tau$. The output of the integrator is $(1-\cos(t))u(t)$. Power of $1-\cos(t)$ is $1+ \frac{1}{2} = 3/2$. The power of $(1-\cos(t))u(t)$ is $\frac{1}{2} \times 3/2 = \frac{3}{4}$.

Ans d

P.S.R. ENGINEERING COLLEGE SIVAKASI-626 140
(An Autonomous Institution, Affiliated to Anna University, Chennai)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

MODERATION OF QUESTION PAPER

Internal Assessment II					
Programme:	B.E	Branch	Electronics and Communication Engineering		
Acad.Year:	2016-2017	Year/Semester	IIYr/IVSem		
Course Code:	161EC43	Course Name	**Signals and Systems**		
Maximum Marks:	60	Date of Test	**02-03-2018**	Duration	
Course Tutor(s):	Lingeswari/Ponnusamy/Electronics and Communication Engineering				

Qn. No.	Competence Category						Qn Level			COs
	Remembering(RM)	Understanding(US)	Applying(AP)	Analysis(AY)	Evaluating(EV)	Creating(CR)	Easy	Medium	Challenge	
1	2						✓			CO3
2	2						✓			CO3
3		2					✓			CO4
4	2						✓			CO3
5	2						✓			CO4
6	2						✓			CO3
7.a.i					16			✓		CO3
7.b.i					8				✓	CO3
7.b.ii			8					✓		CO3
8.a.i			8				✓			CO3
8.a.ii				8			✓			CO4
8.b.i					8		✓			CO4
8.b.ii	8						✓			CO4
9.a.i	16						✓			CO4
9.b.i						8			✓	CO4
9.b.ii						8			✓	CO4
Total	34	2	16	8	32	16	60	24	24	
%	31.48	1.85	14.81	7.41	29.63	14.81	55.56	22.22	22.22	

Desirable: a+b=30% to 40%,c+d+e+f = 60% to 70%
E-Easy(50.00%),M-Medium(25.00%),C-Challenge(25.00%)

Signature of the Course Tutor

Remarks

Signature of course Coordinator/Moderator

Programme Coordinator

Head of the Department

P.S.R. ENGINEERING COLLEGE SIVAKASI-626 140
(An Autonomous Institution, Affiliated to Anna University, Chennai)

INTERNAL ASSESSMENT TEST – II

Programme:	B.E.	Branch	Electronics and Communication Engineering		
Acad. Year:	2017-2018	Year/Semester	II Yr/IV Sem		
Course Code:	161EC43	Course Name	**Signals and Systems**		
Maximum Marks:	60 Marks	Date of Test	**02.03.2018 (AN)**	Duration	1.30 hrs
Course Tutor(s):	Section-1: Dr.K.Valarmathi/ECE		Section-2: Mrs.P.Lingeswari /ECE		

Answer All Questions

PART - A **6 x 2 Mark = 12 Marks**

1. Define initial and final value theorem of Laplace transform.
2. Find the Laplace transform of unit step function.
3. Compare natural response and forced response.
4. Define ROC.
5. List the properties of convolution integral.
6. Find the final value $x(\infty)$, given that $X(s)=\frac{s+5}{s+3}$.

PART – B **3 x 16 Mark = 48 Marks**

7.a) Evaluate the Laplace transform for the following signals: 16

(i) $x(t)=e^{-2t}\sin tu(t)$ (ii) $x(t)=\begin{cases}\sin \pi t; 0\le t\le 1\\ 0; otherwise\end{cases}$

(iii) $x(t)=t^2e^{-t}u(t)$ (iv) $x(t)=\delta(t)-\frac{1}{5}e^{-5t}u(t)$

or

b) i) Prove any two properties of Laplace Transform. 8

ii) Develop the inverse Laplace Transform of $X(s)=\frac{(s+2)}{s^3+7s^2+15s+9}$. 8

8.a) i) Solve the inverse Laplace Transform of $X(s)=\frac{2(s+2)}{s^2+7s+12}$; Re(s) > -3. 8

ii) Analyze the output of the system which having the impulse response and the input to the system is given as x(t) = u(t+1) and h(t)=u(t-2). 8

or

b) i) Determine the impulse response of the continuous time system described by the differential equation $\frac{d^2y(t)}{dt^2}+4\frac{dy(t)}{dt}+3y(t)=\frac{dx(t)}{dt}+2x(t)$. 8

ii) Find the impulse response of causal system described by $H(s)=\frac{(s+3)}{s^2+4s+3}$. 8

9.a) Consider the system characterized by the differential equation $x(t)=\frac{d^3y(t)}{dt^3}+6\frac{d^2y(t)}{dt^2}+11\frac{dy(t)}{dt}+6y(t)$. 16

(i) Find the zero state response of the system for the input $x(t)=e^{-4t}u(t)$.

(ii)Determine the zero input response of the system given that y(0)=1; $\left.\frac{dy(t)}{dt}\right|_{t=0}=-1; \left.\frac{d^2y(t)}{dt^2}\right|_{t=0}=1$.

or

b) i) Construct direct form I and II for the given LTI system $\frac{d^2y(t)}{dt^2}+5\frac{dy(t)}{dt}+4y(t)=\frac{dx(t)}{dt}$. 8

ii) Construct cascade and parallel form of $H(s)=\frac{1}{(s+1)(s+2)}$. 8

Faculty In charge

HOD/ECE

P.S.R.ENGINEERING COLLEGE, SIVAKASI-626140
[An Autonomous Institution, Affiliated to Anna University, Chennai]

Evaluation Analysis

Programme : B.E Electronics and Communication Engineering (ECE)
Year : II
Course Code : 161EC43
Course Tutor : Lingeswari Ponnusamy, Assistant Professor/Electronics and Communication Engineering

Internal Assessment Test : II
Section : B
Course Name : Signals and Systems
Date of Test : 02-03-2018

Sl.No	Roll No.	Name	PART - A						PART - B										Total Mark	Result
			1	2	3	4	5	6	7.a.i	7.b.i	7.b.ii	8.a.i	8.a.ii	8.b.i	8.b.ii	9.a.i	9.b.i	9.b.ii		
1	16EC048	MANIMEGALAI	2		1	1	1	2	7					8	8	10			40	PASS
2	16EC049	MARIAMMAL	2	2	2	2	1	2	11			8	7				7	3	47	PASS
3	16EC050	MARIRAJ	1	2		1	1			5							5	3	18	FAIL
4	16EC051	MARUNMANI		2			1			2	2	2	2				5		16	FAIL
5	16EC052	MONIKA	1	2	1		1	2		3		8	5				6	4	33	PASS
6	16EC053	MURUGAN							5			8					1	4	18	FAIL
7	16EC054	MUTHUKUMAR	2	2			2	1	13			8	8				7	6	49	PASS
8	16EC056	MUTHUMANI		2					8			8					7	7	32	PASS
9	16EC059	NAGARAJ	2	2		2	1	2		7					2		7	6	31	PASS
10	16EC060	NAVANEETHA VENKATESAN		2			1	1	8			6	4				4	4	30	PASS
11	16EC061	PANDEESWARAN	2	1				2		5	3			8	2		4	4	31	PASS
12	16EC062	PARTHASARATHI	2	2	1	2	2	2	13			8	8			15			55	PASS
13	16EC063	PATHMA PRIYA	2	2			1			8	8	8	2			10			41	PASS
14	16EC064	PAVITHRA DARWIN	2	2	1	2	1	2	12			4	8			6			40	PASS
15	16EC065	PRABAKAR	2	2	1	1		2	14					8	8			4	42	PASS
16	16EC066	PREMAKARTHIKA	1	2	1	1	2	2		8	8	6	6			10			47	PASS
17	16EC067	PRIYADHARSHINI	1	2			1	1		6	7	8	4				6	4	40	PASS
18	16EC069	RAMESH	2			1	2	2	12			8				10			37	PASS
19	16EC070	SAKTHI PANDI																		ABSENT
20	16EC071	SANGEETHA																		ABSENT

21	16EC072	SANTHINE	2	2		2	2	2	13					8	8	10			49	PASS
22	16EC073	SANTHIYA	1	2			2	2	10					6	6	14			43	PASS
23	16EC074	SARAVANA KUMAR							4					4	4	6			18	FAIL
24	16EC075	SATHYA	2	2	1	1	1	2		2	4	8	5			10			38	PASS
25	16EC078	SELVA KUMAR																		ABSENT
26	16EC076	SELVA KUMAR							3					1					4	FAIL
27	16EC077	SELVA KUMAR	1	2		1		1		1	4			3	6	13			32	PASS
28	16EC079	SELVALAKSHMI																		ABSENT
29	16EC080	SOUNDHARA KUMAR	1			2	1		10					8	8		5	8	43	PASS
30	16EC081	SRIDHARAN	2					1							2			1	6	FAIL
31	16EC082	SUBITSHA	2	2		2		2	12					8	6		4	4	42	PASS
32	16EC083	SUNDARA LAKSHMI	2	2		2		2	10					8	8	12			46	PASS
33	16EC084	SURESH KANNAN	2	2		1		1		2	6				3				17	FAIL
34	16EC085	SURIYA PRIYA	2	2	1	2	2	2	14					8	8	15			56	PASS
35	16EC087	SURYA	2	2	2	2	2	2	12			7					7	4	42	PASS
36	16EC086	SURYA PRAKASH								2	2				4		2	2	12	FAIL
37	16EC088	SWETHA	2	2	2	2	1			3		7	5			6			30	PASS
38	16EC089	THIRUMALAIMURUGAN	2		1	1	1	2	14			8	5				4	4	42	PASS
39	16EC090	THIRUMALAIMURUGAN	2					1		3	3			5	2		1	1	18	FAIL
40	16EC091	UMAMAHESWARI	2				1			1	2	2				6			14	FAIL
41	16EC092	VAIRALAKSHMI	2	2	1		2	2		4	2			8	6		5	5	39	PASS
42	16EC094	VIDHYA	1			1		1		4	2			3	4		6	8	30	PASS
43	16EC095	YATHEENDIRARAJAN							7					2			2	2	13	FAIL
44	17LEC01	BHUVANESHWARI K	2							2		3					4	8	19	FAIL
45	17LEC03	ESAKKIAMMAL@ RACHANADEVI R								3	2			2			4	2	13	FAIL
46	17LEC06	MUTHUKANI S									2				2				4	FAIL
47	17LEC07	MUTHUMANIPANDI M	2	1	1	1				2		2	1				1	1	12	FAIL
48	17LEC08	PADMA PRIYA B																		ABSENT
49	17LEC11	PREETHI K								4				4			2		10	FAIL
50	17LEC13	RATHIKA R	2					2		2				2	3		1		12	FAIL
51	17LEC14	RUPADEVI P					1			4	1					2			8	FAIL
52	17TEC01	PUSHPAPRIYA N	2	2	1	2	2	2	13			8	7			6			45	PASS

53	17ECR01	MATHIMITHRA	2	2				2	3			7	8				4	4	32	PASS
		Total Marks Questionwise	64	56	18	35	36	52	228	83	58	142	85	104	100	161	111	103		
		No of Students Attended	36	29	15	23	26	30	23	23	16	22	16	19	20	17	26	25		
		Total Marks / No.of Students	1.78	1.93	1.2	1.5	1.38	1.73	9.9	3.6	3.6	6.45	5.3	5.5	5	9.5	4.3	4.12		
		Competence Category	RM	RM	US	RM	RM	RM	EV	EV	AP	AP	AY	EV	RM	RM	CR	CR		
		Course Outcome	CO3	CO3	CO4	CO3	CO4	CO3	CO3	CO3	CO3	CO3	CO4	CO4	CO4	CO4	CO4	CO4		
		Programme Outcome	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1		
			PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2		
			PO3	PO3	PO3	PO3	PO3	PO3	PO3	PO3	PO3	PO3	PO3	PO3	PO3	PO3	PO3	PO3		
			PO4	PO4	PO4	PO4	PO4	PO4	PO4	PO4	PO4	PO4	PO4	PO4	PO4	PO4	PO4	PO4		

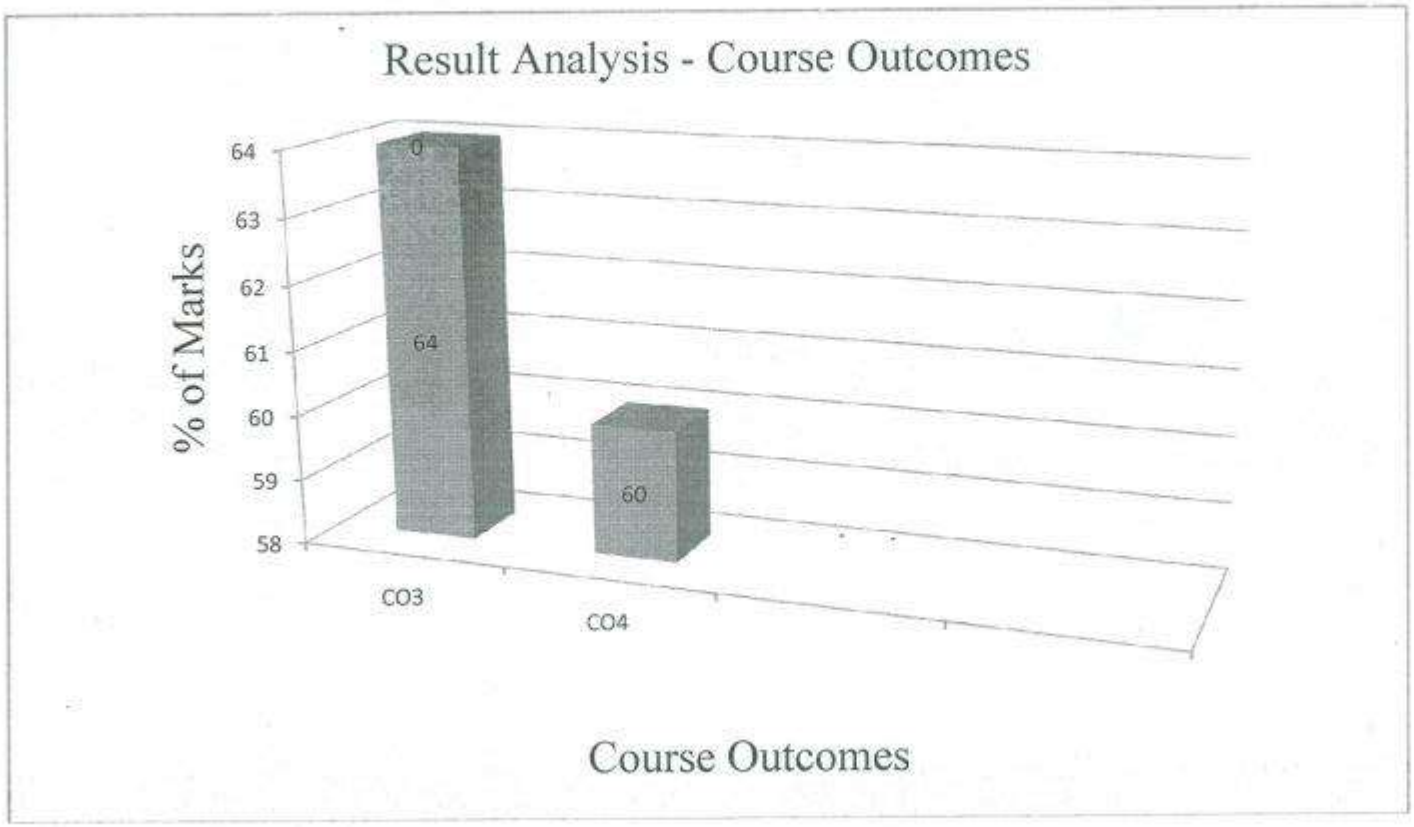
Signature of the Course Tutor

Signature of the Course Co-ordinator/Moderator

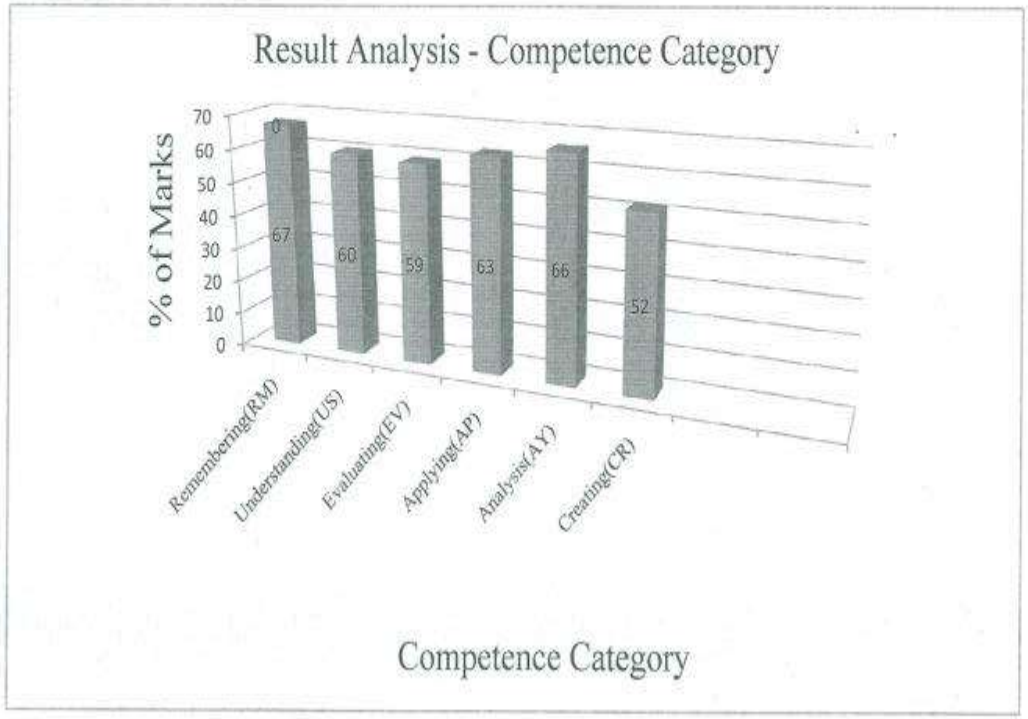
Programme Co-ordinator

Head of the Depart

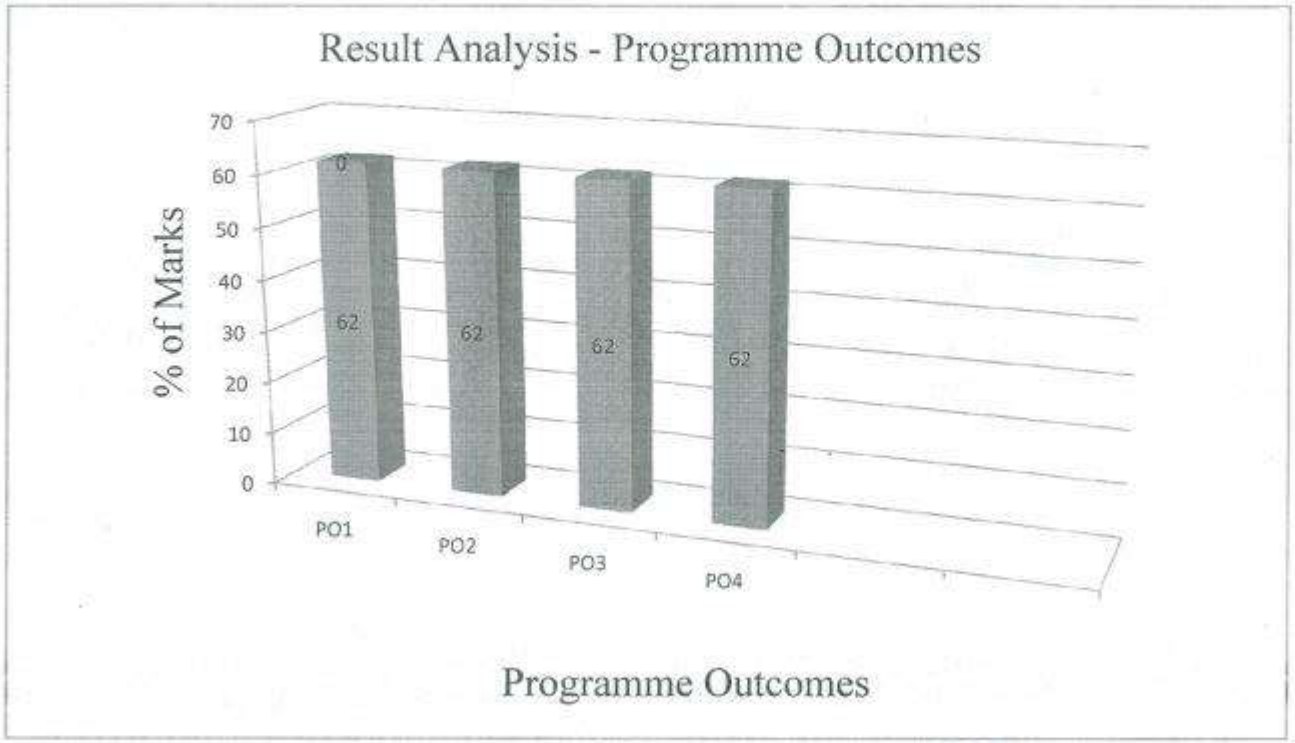
Course Outcomes	Max Marks	Average Marks Scored	% of Marks
CO3	48	30.56	64
CO4	60	36.22	60



Competence Category	Max Marks	Average Marks Scored	% of Marks
Remembering(RM)	34	22.81	67
Understanding(US)	2	1.2	60
Evaluating(EV)	32	18.99	59
Applying(AP)	16	10.08	63
Analysis(AY)	8	5.31	66
Creating(CR)	16	8.39	52



Programme Outcomes	Max Marks	Average Marks	% of Marks
PO1	108	66.78	62
PO2	108	66.78	62
PO3	108	66.78	62
PO4	108	66.78	62



Signature of the Course Tutor

Signature of the Course Co-ordinator/Moderator

Programme Co-ordinator

Head of the Department

Assignment II

Solution

1. The property $T(x_1(t) + x_2(t)) = y_1(t) + y_2(t)$ is termed Additivity
   Ans a
2. Given the system $y(t) = 2\frac{dx(t)}{dt} + 3\frac{d^2x(t)}{dt^2}$. The system is LTI since the differentiator is an LTI system.
   Ans c
3. Given $y(t) = 2\frac{dx(t)}{dt} + 3\frac{d^2x(t)}{dt^2}$. Consider the input $x(t) = u(t)$, the unit-step signal. The input is bounded since $|x(t)| \leq 1$. However, the output is unbounded at $t = 0$. Hence system is NOT BIBO stable
   Ans b
4. Given the signal $x(t) = -t$ for $-1 \leq t \leq 0$ and 0 otherwise. The signal $-x(2-t) = -(-(2-t))$ $= 2-t$ for $-1 \leq 2-t \leq 0 \Rightarrow 2 \leq t \leq 3$. Hence, it is non-zero in the interval (2,3]. In this interval it can be seen to take –ve values and have a –ve slope
   Ans d
5. Using the property $\int_{-\infty}^{\infty} \phi(t)\delta'(t)dt = -\phi'(0)$, it follows that
   $$\int_{-\infty}^{\infty} \frac{1}{\sqrt{2\pi\sigma^2}} e^{-\frac{t^2}{2\sigma^2}} \delta'(t)dt = \frac{d}{dt}\frac{1}{\sqrt{2\pi\sigma^2}} e^{-\frac{t^2}{2\sigma^2}}\Big|_{t=0} = -\frac{t}{\sigma^2} \times \frac{1}{\sqrt{2\pi\sigma^2}} e^{-\frac{t^2}{2\sigma^2}}\Big|_{t=0} = 0$$
   Ans a
6. Given $v_i(t)$ applied across a series RL circuit with the voltage $v_o(t)$ across the inductor. the input output relation can be derived as follows
   $$i(t) = \frac{(v_i(t) - v_o(t))}{R} \Rightarrow L\frac{d}{dt}\frac{(v_i(t) - v_o(t))}{R} = v_o(t)$$
   $$\Rightarrow \frac{L}{R}\frac{d}{dt}v_i(t) = v_o(t) + \frac{L}{R}\frac{d}{dt}v_o(t)$$
   Ans d
7. Given complex exponential signal $\exp(j6\pi/13)$ sampled with sampling interval $T_s = 1/3\pi$. The sampled signal is $x(n) = e(j6\pi/13 \times n/3\pi) = \exp(j2n/13)$. Let period be N. $\exp(j2(n+N)/13) = \exp(j2n/13)$ if $2N/13 = 2K\pi \Rightarrow N/K = 13\pi$. Since π is not rational, there do not exist N, K satisfying above relation. Hence the signal is aperiodic
   Ans b
8. The output can be calculated as follows. For $t \geq 0$, output $z(t)$ is
   $$z(t) = \int_{-\infty}^{\infty} e^{-a\tau}u(\tau)e^{b(t-\tau)}u(\tau - t)d\tau = e^{bt}\int_{t}^{\infty} e^{-(a+b)\tau}d\tau = e^{bt} \times \frac{e^{-(a+b)t}}{a+b} = \frac{e^{-at}}{a+b}$$
   For $t < 0$, output $z(t)$ is
   $$z(t) = \int_{-\infty}^{\infty} e^{-a\tau}u(\tau)e^{b(t-\tau)}u(\tau - t)d\tau = e^{bt}\int_{0}^{\infty} e^{-(a+b)\tau}d\tau = e^{bt} \times \frac{1}{a+b} = \frac{e^{bt}}{a+b}$$

NPTEL ASSIGNMENT

Assignment-2

1.Consider a system represented by T(.). For any input signals $x_1(t)$, $x_2(t)$ such that $T(x_1(t))=y_1(t)$ and $T(x_2(t))=y_2(t)$,the system satisfies the property $T(x_1(t)+x_2(t))=y_1(t)+y_2(t)$. This property is termed as

- Additivity
- Homogenity
- Time-variance
- None of these

2.Consider the output $y(t)$ of a system for a given input signal $x(t)$ described as $y(t) = 2\frac{dx}{dt} + 3\frac{d^2x}{dt^2}$. The system is

- Linear only
- Time-Invariant only
- LTI
- None of these

3.Consider the output $y(t)$ of a system for a given input signal $x(t)$ described as $y(t) = 2\frac{dx}{dt} + 3\frac{d^2x}{dt^2}$. The system is

- BIBO stable
- Not BIBO stable
- Depends on the input signal
- None of these

4. Consider the signal $x(t) = -t$ for and $-1 \le t \le 0$ and 0 otherwise. The signal $-x(2-t)$, in the interval it is non-zero, has

- value >0 and +ve slope
- value<0 and +ve slope
- value>0 and -ve slope
- value <0 and -ve slope

5.The integral $\int_{-\infty}^{+\infty} \frac{1}{\sqrt{2\pi\sigma}} e^{\frac{-t^2}{2\sigma^2}} \delta'(t)dt$ evaluates to

- 0
- $e^{\frac{-t^2}{2\sigma^2}}$
- $-\frac{1}{\sigma^2\sqrt{2\pi}}$
- $\frac{1}{\sqrt{2\pi\sigma^2}} e^{\frac{-t^2}{2\sigma^2}}$

6.Consider input voltage $v_i(t)$ applied across a series RL circuit with the voltage $v_o(t)$.across the inductor being the output voltage. The input-output relation of the system is

- $v_i(t) = \frac{L}{R}\frac{dv_o(t)}{dt} + v_o(t)$
- $\frac{L}{R}\frac{dv_i(t)}{dt} + v_i(t) = v_o(t)$
- $\frac{dv_i(t)}{dt} = \frac{R}{L}\frac{dv_o(t)}{dt} + v_o(t)$
- $\frac{L}{R}\frac{dv_i(t)}{dt} = \frac{L}{R}\frac{dv_o(t)}{dt} + v_o(t)$

7.Consider the complex exponential signal $e^{j\frac{6\pi}{13}t}$ sampled with sampling interval $Ts=1/(3\pi)$ .The resulting signal is

- Periodic with period $n = 13$
- Aperiodic
- Periodic with period $n = 6$
- Periodic with period $n = 2$

8. Let $x(t) = e^{-at}\,u(t)$ and $y(t) = e^{-bt}\,u(t)$, $a, b > 0$ and $a \neq b$. $x(t) * y(-t)$, where $*$ denotes convolution is

- $\frac{e^{-at}}{a+b} - \frac{e^{-bt}}{a+b}$
- $\frac{e^{-(a+b)t}}{a+b}u(t) + \frac{e^{(a+b)t}}{a+b}u(-t)$
- $\frac{e^{-at}}{a+b}u(t) + \frac{e^{bt}}{a+b}u(-t)$
- $\frac{e^{at}}{a+b}u(-t) + \frac{e^{-bt}}{a+b}u(t)$

9.The modulator, which modulates the baseband signal $x(t)$ with a carrier at frequency f_c, has which of the following properties

i. Linearity

ii. Causality

iii. BIBO Stability

- Only i and ii
- Only ii and iii
- Only i and iii
- i, ii and iii

10. The sifting property of the discrete time impulse is

- $\sum_{n=-\infty}^{\infty} x(k)\delta(n-k) = x(n)$
- $x(n)\delta(n) = x(0)\delta(n)$
- $x(n)\delta(n) = x(0)$
- $\sum_{k=-\infty}^{\infty} x(k)\delta(k) = x(0)$

P.S.R.ENGINEERING COLLEGE, SIVAKASI-626140
[An Autonomous Institution, Affiliated to Anna University, Chennai]

Programme: B.E. Electronics and Communcation Engineering
Year & Sem: II & IV
Course Code & Name: 161EC43 & Signals and Systems
Course Tutor: Mrs.P.Lingeswari, AP/ECE

Internal Assessment Test :II
Section: II
Date of Test: 02.03.2018

SLOW LEARNERS LIST

S.No	Roll No	Name of the Student	Marks
1	16EC050	MARIRAJ	18
2	16EC051	MARUNMANI	16
3	16EC053	MURUGAN	18
4	16EC074	SARAVANA KUMAR	18
5	16EC076	SELVA KUMAR	4
6	16EC081	SRIDHARAN	6
7	16EC084	SURESH KANNAN	17
8	16EC086	SURYA PRAKASH	12
9	16EC090	THIRUMALAIMURUGAN	18
10	16EC091	UMAMAHESWARI	14
11	16EC095	YATHEENDIRARAJAN	13
12	17LEC01	BHUVANESHWARI K	19
13	17LEC03	ESAKKIAMMAL@ RACHANADEVI R	13
14	17LEC06	MUTHUKANI S	4
15	17LEC07	MUTHUMANIPANDI M	12
16	17LEC11	PREETHI K	10
17	17LEC13	RATHIKA R	12
18	17LEC14	RUPADEVI P	8

Assignments given to the students.

ADVANCE LEARNERS LIST

S.No	Roll No	Name of the Student	Marks
1	16EC049	MARIAMMAL	47
2	16EC054	MUTHUKUMAR	49
3	16EC062	PARTHASARATHI	55
4	16EC066	PREMAKARTHIKA	47
5	16EC072	SANTHINE	49
6	16EC083	SUNDARA LAKSHMI	46
7	16EC085	SURIYA PRIYA	56

Asked to solve gate questions

Signature of the Course Tutor

Signature of the Course Co-ordinator/Modera

Programme Co-ordinator

Head of the Department

P.S.R. ENGINEERING COLLEGE SIVAKASI-626 140
(An Autonomous Institution, Affiliated to Anna University, Chennai)

TUTORIAL NO.2

Programme:	B.E.	Branch	Electronics and Communication Engineering		
Acad. Year:	2017-2018	Year/Semester	II Yr/ IV Sem		
Course Code:	161EC43	Course Name	SIGNALS AND SYSTEMS		
Section :	II	Date of Tutorial		Duration	50 min
Course Tutors:	Mrs.P.Lingeswari AP/ECE				

CLASSIFICATION OF SIGNALS

Answer the following Problems/Questions

1. For a periodic signal $v(t) = 30\sin 100t + 10\cos 300t + 6\sin(500t + \frac{\pi}{4})$, the fundamental frequency in rad/sec
   a) 100 b) 300 c) 500 d) 1500 [GATE 2013]

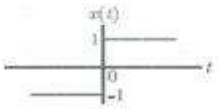
2. Find whether the signal $x(t) = 2\cos(10t + 1) - \sin(4t - 1)$ is periodic or not. [APRIL/MAY 2010]

3. Find the fundamental period T of the continuous time signal $x(t) = 20\cos(10\pi t + \frac{\pi}{6})$.
   [APRIL/MAY 2010]

4. The discrete-time signal $x(n) = (-1)^n$ is periodic with fundamental period
   a) 6 b) 4 c) 2 d) 0

5. Determine the power and RMS value of the following signals
   (i) $x_1(t) = 5\cos(50t + \frac{\pi}{3})$
   (ii) $x_2(t) = 10\cos 5t \cos 10t$. [NOV/DEC 2009]

6. The function $x(t)$ is shown in the figure. Even and odd parts of a unit step function $u(t)$ are respectively,



   a) $\frac{1}{2}, \frac{1}{2}x(t)$ b) $-\frac{1}{2}, \frac{1}{2}x(t)$ c) $\frac{1}{2}, -\frac{1}{2}x(t)$ d) $-\frac{1}{2}, -\frac{1}{2}x(t)$ [GATE 2013]

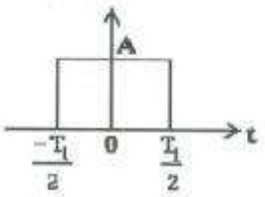
7. The power in the signal $s(t) = 8\cos(20\pi - \frac{\pi}{2}) + 4\sin(15\pi t)$ is
   a) 40 b) 41 c) 42 d) 82 [GATE 2005]

8. If a signal f(t) has energy E, the energy of the signal f(2t) is equal to
   a) 1 b) E/2 c) 2E d) 4E [GATE 2001]

9. The period of the signal $x(t) = 10\sin 12\pi + 4\cos 18\pi$ is

a) $\frac{\pi}{4}$ b) $\frac{1}{6}$ c) $\frac{1}{9}$ d) $\frac{1}{3}$

10. The average power of the following signal is



a) $\frac{A^2}{2}$ b) A^2 c) AT_1^2 d) A^2T_1

11. Check whether the given signals are energy or power signal.

(i) $x(n) = (\frac{1}{2})^n u(n)$

(ii) $rect(\frac{t}{T_0})$

(iii) $x(t) = \cos^2(\omega_0 t)$

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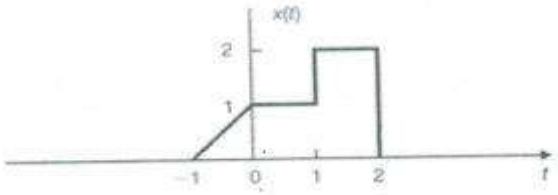
TUTORIAL NO.1

Programme:	B.E.	Branch	Electronics and Communication Engineering		
Acad. Year:	2017-2018	Year/Semester	II Yr/ IV Sem		
Course Code:	161EC43	Course Name	SIGNALS AND SYSTEMS		
Section :	II	Date of Tutorial		Duration	50 min
Course Tutors:	Mrs.P.Lingeswari AP/ECE				

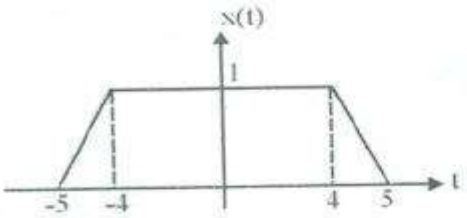
BASIC OPERATION ON SIGNALS

Answer the following Problems/Questions

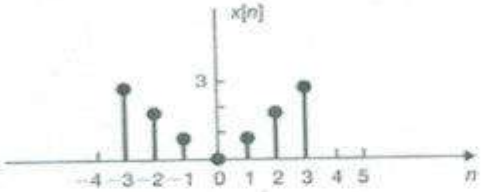
1. A continuous-time signal x(t) is shown in below. Sketch and label each of the following signals.
(a) x(t)u(1 - t); (b) x(t)[u(t) -u(t- 1)]; (c) $x(t)\delta(t-\frac{3}{2})$



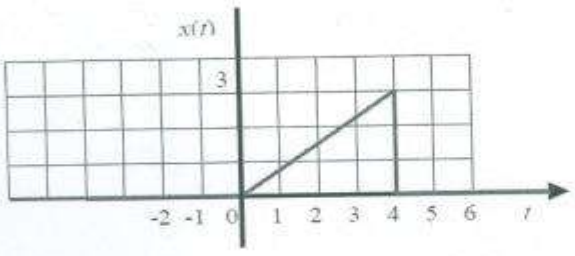
2. The signal x(t) is shown in figure. Sketch y(t)=x(10t-5).



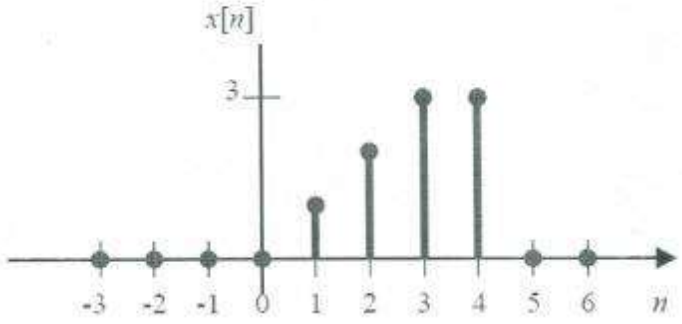
3. A discrete-time signal x[n] is shown in Fig. 1-29. Sketch and label each of the following signals.
(a) x[n]u[1 - n]; (b)x[n]{u[n + 2] - u[n]}; (c) $x(n)\delta(n-1)$



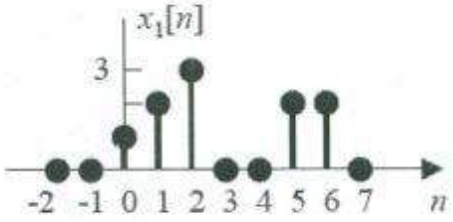
4. A continuous-time signal x(t) is shown below. Sketch and label each of the following signals.
(a). x(t−2); (b). x(2t); (c). x(t/2); (d). x(-t); (e). x(2t−2).

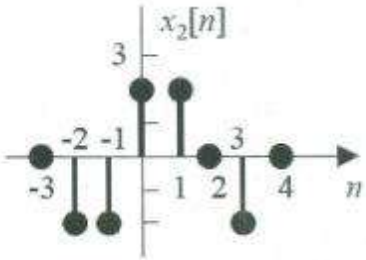


5. A discrete signal x[n] is shown below. Sketch and label each of the following signals.
(a). x[n-2]; (b). x[2n]; (c). x[-n] (d). x[-n+2].



6. Using the discrete-time signals $x_1[n]$ and $x_2[n]$ shown as follows, represent each of the signals by a graph and by a sequence of numbers.
(a). $y_1[n] = x_1[n] + x_2[n]$; (b). $y_2[n] = 2\,x_1[n]$; and (c). $y_3[n] = x_1[n]\,x_2[n]$.





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TUTORIAL NO.3

Programme:	B.E.	Branch	Electronics and Communication Engineering		
Acad. Year:	2017-2018	Year/Semester	II Yr/ IV Sem		
Course Code:	161EC43	Course Name	SIGNALS AND SYSTEMS		
Section :	II	Date of Tutorial		Duration	50 min
Course Tutors:	Mrs.P.Lingeswari AP/ECE				

CLASSIFICATION OF SYSTEMS

Answer the following Problems/Questions

1. check the following system is linear or not.
(i) $y(t) = e^{x(t)}$
(ii) $y(n) = x(n-1)$

2. Determine whether the system is a linear and time invariant.
(i) $y = te^{x}$
(ii) $y(t) = tx(t)$
(iii) $\frac{dy}{dt} + 3ty(t) = t^2 x(t)$
(iv) $y(n) = 2x(n) + \frac{1}{x(n-1)}$

3. Check whether the system is linear,time invariant,causal,static(memoryless) and stable.
(i) $y(n) = \log_{10}|x(n)|$
(ii) $y(n) = x(3n+1) + x(n-1)$
(iii) $y(n) = x(2n)$
(iv) $y(n) = x(n)\cos \omega n$
(v) $y(n) = x(n) + nx(n+1)$

4. Let $x(t)$ be the input and $y(t)$ be the output of a continuous time system. Match the system properties P1, P2 and P3 with system relations R1, R2, R3, R4

Properties	Relations
P1 : Linear but NOT time - invariant	R1 : $y(t) = t2x(t)$
P2 : Time - invariant but NOT linear	R2 : $y(t) = t\,x(t)$
P3 : Linear and time - invariant	R3 : $y(t) = x(t)$
	R4 : $y(t) = x(t-5)$

a) (P1, R1), (P2, R3), (P3, R4)
b) (P1, R2), (P2, R3), (P3, R4)
c) (P1, R3), (P2, R1), (P3, R2)
d) (P1, R1), (P2, R2), (P3, R3)

[GATE 2008]

5. The input and output of a continuous time system are respectively denoted by $x(t)$ and $y(t)$. Which of the following descriptions corresponds to a causal system?

a) $y(t) = x(t-2) + x(t+4)$
b) $y(t) = (t-4)x(t+1)$
c) $y(t) = (t+4)x(t-1)$
d) $y(t) = (t+5)x(t+5)$

[GATE 2008]

6. A system with input $x(n)$ and output $y(n)$ is given as $y(n) = \sin(\frac{5\pi n}{6})x(n)$. The system is

a)linear, stable b)non-linear, stable c)linear, unstable d) non-linear, unstable

[GATE 2006]

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

MODERATION OF QUESTION PAPER

Pre Semester					
Programme:	B.E	Branch	Electronics and Communication Engineering		
Acad.Year:	2017-2018	Year/Semester	IIYr/IVSem		
Course Code:	161EC43	Course Name	**Signals and Systems**		
Maximum Marks:	100	Date of Test	**23-03-2018**	Duration	
Course Tutor(s):	LingeswariPonnusamy/Electronics and Communication Engineering				

Qn. No.	Competence Category						Qn Level			COs
	Remembering(RM)	Understanding(US)	Applying(AP)	Analysis(AY)	Evaluating(EV)	Creating(CR)	Easy	Medium	Challenge	
1	2						✓			CO1
2		2					✓			CO1
3	2						✓			CO3
4	2						✓			CO3
5	2						✓			CO4
6	2						✓			CO5
7	2						✓			CO5
8	2						✓			CO5
9	2						✓			CO5
10				2			✓			CO6
11.a.i	8						✓			CO1
11.a.ii					8				✓	CO1
11.b.i				16				✓		CO2
12.a.i					16				✓	CO3
12.b.i					8				✓	CO4
12.b.ii					8				✓	CO4
13.a.i	16						✓			CO4
13.b.i			16					✓		CO4
14.a.i		16					✓			CO5
14.b.i					12			✓		CO5
14.b.ii					4			✓		CO5
15.a.i	16						✓			CO6
15.b.i			8				✓			CO6
15.b.ii						8			✓	CO6
Total	56	18	24	18	56	8	84	48	48	
%	31.11	10	13.33	10	31.11	4.44	46.67	26.67	26.67	

Desirable: a+b=30% to 40%,c+d+e+f = 60% to 70%
E-Easy(50.00%),M-Medium(25.00%),C-Challenge(25.00%)

Signature of the Course Tutor

Remarks

Signature of course Coordinator/Moderator

Programme Coordinator

Head of the Department

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PRESEMESTER EXAMINATION

Programme:	B.E.	Branch	Electronics and Communication Engineering		
Acad. Year:	2017-2018	Year/Semester	II Yr/IV Sem		
Course Code:	161EC43	Course Name	**Signals and Systems**		
Maximum marks:	100 Marks	Date of Test	**23.03.2018**	Duration	3.00 hrs
Course Tutor(s):	Section-1: Dr.K.Valarmathi/ECE		Section-2: Mrs.P.Lingeswari /ECE		

Answer All Questions

PART - A **10 x 2 Marks = 20 Marks**

1. List any two properties of unit impulse function.
2. Outline the signal $u(t)-u(t-10)$.
3. Define the Dirichlet's conditions for continuous time Fourier series.
4. What is the relationship between Fourier transform and Laplace transform?
5. Define convolution integral.
6. Find the DTFT of $x(n)-\delta(n)+\delta(n-1)$
7. What is aliasing and how it is overcome?
8. Find the Nyquist rate of the signal $x(t)=\sin 200\pi t-\cos 100\pi t$
9. Find the z-transform and its associated ROC for $x(n)=\{1,-1,2,\underset{\uparrow}{3},4\}$.
10. Distinguish between recursive and non recursive systems.

PART – B **5 x 16 Marks = 8 Marks**

11.a) i) Find out whether the following signals are periodic or not. If periodic find the fundamental period. 8

a) $x(t)=4\cos(3\pi t+\frac{\pi}{4})+2\cos(4\pi t)$ b) $x(n)=\cos(0.1\pi n)$

ii) Prove the signal $x(t)=e^{-3t}u(t)$ is an energy signal not the power signal. 8

or

b) Classify the following systems under their linearity, time invariance, casual, stability 16

i) $y(n)=\frac{d}{dt}x(t)$ ii) $y(n)=x(n)-x(n-1)$

12.a) Determine the Fourier series expansion for a periodic ramp signal with unit amplitude and a period T. 16

or

b) i) Evaluate the inverse Laplace transform of $X(s)=\frac{8s+10}{(s+1)(s+2)^3}$. 8

ii) Determine the inverse Laplace transform of $X(s)=\frac{1-2s^2-14s}{s(s+3)(s+4)}$. 8

13.a) Using Laplace transform find the response of the system described by the equation $\frac{d^2y(t)}{dt^2}+5\frac{dy(t)}{dt}+4y(t)=\frac{dx(t)}{dt}$ with initial conditions $y(0)=0;\left.\frac{dy(t)}{dt}\right|_{t=0}=1$ for the input $x(t)=e^{-2t}u(t)$. 16

or

b) Construct direct form I, II, cascade and parallel form realization structure for the given LTI system $H(s)=\frac{4s+28}{s^2+6s+5}$. 16

14.a) Explain in detail about sampling theorem and how it is reconstructed for a band limited signal. 16

or

b) i) Evaluate the inverse Z transform of $X(z)=\frac{z^{-1}}{1-0.25z^{-1}-0.375z^{-2}}$. 12

For (i) ROC $|z| > 0.75$ (ii) ROC $|z| > 0.5$

ii) Determine the Z transform of $x(n) = n^2 u(n)$ 4

15.a) Perform convolution to find the response of the systems $h_1(n)$ and $h_2(n)$ for the input sequences $x_1(n)$ and $x_2(n)$ respectively. 16

i) $x_1(n) = \{1,-1,2,3\}$ $h_1(n) = \{1,-2,3,-1\}$

ii) $x_2(n) = \{1,2,3,2\}$ $h_2(n) = \{1,2,2\}$

or

b) i) Solve the impulse response and step response of $y(n) + y(n-1) - 2y(n-2) = x(n-1) + 2x(n-2)$ 8

ii) Design the cascade and parallel form block diagram realization structure for the following system function, $H(z) = \dfrac{1}{(1+\frac{1}{2}z^{-1})(1-\frac{1}{4}z^{-1})}$ 8

---------- End of Questions ----------

Faculty In charge

HOD/ECE

P.S.R. ENGINEERING COLLEGE SIVAKASI-626 140
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TUTORIAL NO.4

Programme:	B.E.	Branch	Electronics and Communication Engineering		
Acad. Year:	2017-2018	Year/Semester	II Yr/ IV Sem		
Course Code:	161EC43	Course Name	**SIGNALS AND SYSTEMS**		
Section :	II	Date of Tutorial		Duration	50 min
Course Tutors:	Mrs.P.Lingeswari AP/ECE				

LAPLACE TRANSFORM AND INVERSE LAPLACE TRANSFORM

Answer the following Problems/Questions

1. Find the Laplace transform of $[4e^{-2t}\cos 5t - 3e^{-2t}\sin 5t]u(t)$.

2. Find the initial and final values of $X(S) = \dfrac{s+5}{s^2+3s+2}$.

3. Find the Laplace transform of $x(t) = t^2 e^{-4t}u(t)$.

4. Find the Laplace transform of $x(t) = e^{-at}\cos \omega t u(t)$.

5. Find the inverse Laplace transform of $X(S) = \dfrac{1+e^{-2s}}{3s^2+2s}$.

6. Find the inverse Laplace transform of $X(S) = \dfrac{1}{(s+5)(s-3)}$ for the ROCs.
   (i) $-5 < \mathrm{Re(s)} < 3$
   (ii) $\mathrm{Re(s)} > 3$

7. Determine the inverse Laplace transform of $X(S) = \dfrac{2(s+2)}{s^2+7s+12}$ for the ROCs.
   (i) $\mathrm{Re(s)} > -3$

8. Obtain the inverse Laplace transform of the function $X(S) = \dfrac{1}{s^2+3s+2}$ for the ROCs.
   (i) $-2 < \mathrm{Re(s)} < -1$

9. Find the Laplace transform of (i) $x(t) = e^{-at}u(t-1)$ (ii) $x(t) = \delta(t) + t^2 + u(t)$.

Hence, the net result is, $\frac{e^{-at}}{a+b}u(t) + \frac{e^{bt}}{a+b}u(-t)$

Ans c

9. The modulator output can be described as $y(t) = x(t)\cos(2\pi f_c t)$. As shown in lectures the system is linear. Further, $y(t)$ depends only on $x(t)$ and not past values of $x(t)$. Hence it is also causal. Further, if $|x(t)| < C$, $|y(t)| = |x(t)\cos(2\pi f_c t)| \leq |x(t)| < C$. Hence, system is also BIBO stable

   Ans d

10. The sifting property of the discrete time impulse is $\sum_{k=-\infty}^{\infty} x(k)\delta(n-k) = x(n)$

    Ans a

P.S.R.ENGINEERING COLLEGE, SIVAKASI-626140
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Evaluation Analysis

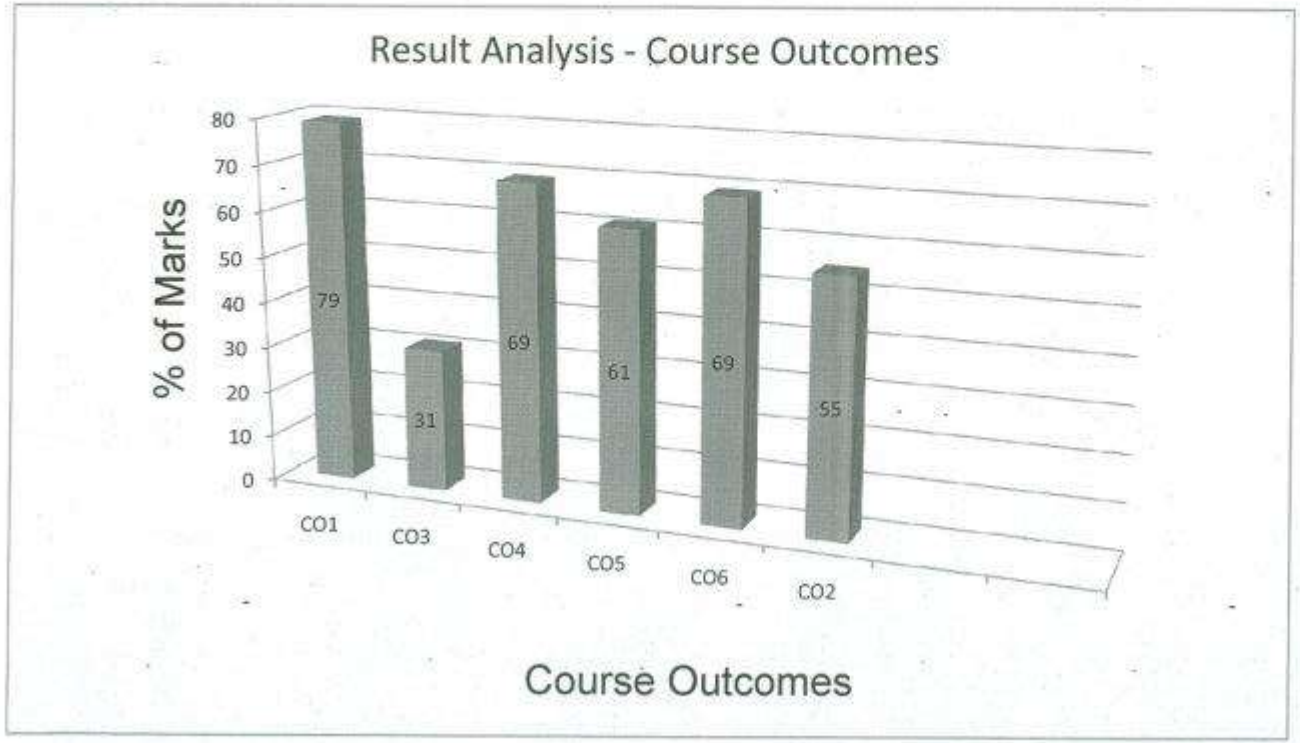
Programme : B.E Electronics and Communication Engineering (EC
Year : II
Course Code : 161EC43
Course Tutor : Lingeswari Ponnusamy, Assistant Professor/Electronics and

Presemester Examination
Section : B
Course Name : Signals and Systems

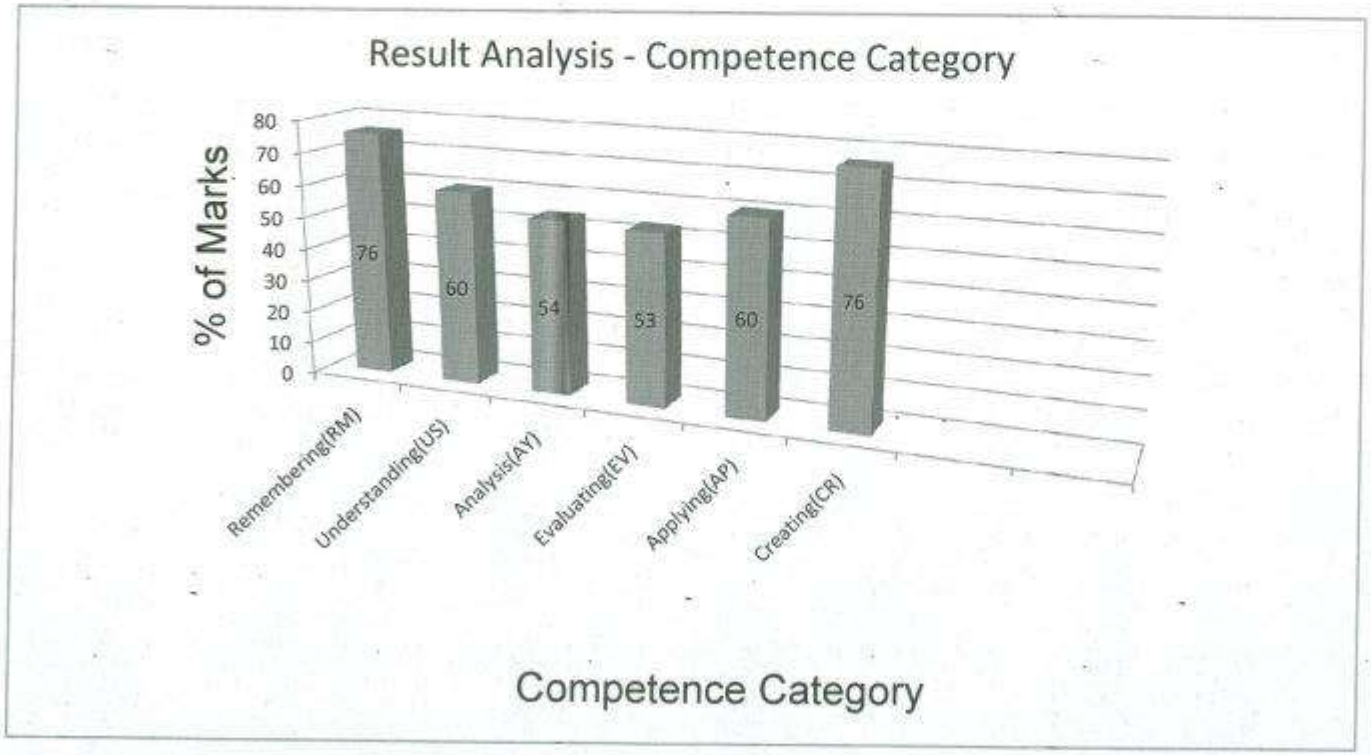
Date of Test : 23-03-2018

Sl.No	Roll No.	Name	PART - A										PART - B														Total Mark	Result
			1	2	3	4	5	6	7	8	9	10	11.a.i	11.a.ii	11.b.i	12.a.i	12.b.i	12.b.ii	13.a.i	13.b.i	14.a.i	14.b.i	14.b.ii	15.a.i	15.b.i	15.b.ii		
1	16EC048	MANIMEGALAI		2	2	1	1			1					16		8		15			5	1		2	7	61	PASS
2	16EC049	MARIAMMAL			2	1	2			2				3			7	6		9		8	1	12			53	PASS
3	16EC050	MARIRAJ		2						2			8	6					15		12					5	50	PASS
4	16EC051	MARUNMANI																			7			4			11	FAIL
5	16EC052	MONIKA			2	1							3							14		10	1	10			41	FAIL
6	16EC053	MURUGAN															3	2		2							7	FAIL
7	16EC054	MUTHUKUMAR		2			1			1	2		8	8			6	8		16		10	1		6	8	77	PASS
8	16EC056	MUTHUMANI		2									4	2			3	2									13	FAIL
9	16EC059	NAGARAJ	1	2	2		1			2			8	6			6	6		15	14					6	69	PASS
10	16EC060	NAVANEETHA VENKATESAN		2		1	2			2			8	5			5	7	14			9		4			59	PASS
11	16EC061	PANDEESWARAN															2	1	1								4	FAIL
12	16EC062	PARTHASARATHI		2	2	1		2	1	1			8	8			7	8	15			10	2		8	8	83	PASS
13	16EC063	PATHMA PRIYA		2					1	1			8	7			8	8	15			9	2		3	2	66	PASS
14	16EC064	PAVITHRA DARWIN		2	1		1		2	2	2		8	8			7	8	15			9			6	7	78	PASS
15	16EC065	PRABAKAR			2	1	1		1	2			8	5			3	8		15		8	2	16			72	PASS
16	16EC066	PREMAKARTHIKA					1		1	1	1		8	7			7	6	15			7			8	8	70	PASS
17	16EC067	PRIYADHARSHINI		2			2			2			6	6			6	7	15			8		16			70	PASS
18	16EC069	RAMESH		2	2	1			1	2	2	1	8	6			6	7	15		13				6	7	79	PASS
19	16EC070	SAKTHI PANDI															1	2									3	FAIL
20	16EC071	SANGEETHA																										ABSENT
21	16EC072	SANTHINE		2		1	2	1		2			6	6			4	7	14			11	1		7	6	70	PASS
22	16EC073	SANTHIYA		2	2					1			8	8				8	15			9	2		8	8	71	PASS
23	16EC074	SARAVANA KUMAR		1									6	2			2	2		2							15	FAIL
24	16EC075	SATHYA		2	1		2			1			8	8			6	8	14			8			5	5	68	PASS
25	16EC078	SELVA KUMAR		2											6	6											14	FAIL
26	16EC076	SELVA KUMAR		2						2			5	8			7	8	15		6					5	58	PASS
27	16EC077	SELVA KUMAR														1	2				3						6	FAIL
28	16EC079	SELVALAKSHMI																										ABSENT

Course Outcomes	Max Marks	Average Marks Scored	% of Marks
CO1	20	15.71	79
CO3	20	6.29	31
CO4	50	34.64	69
CO5	40	24.47	61
CO6	34	23.3	69
CO2	16	8.75	55



Competence Category	Max Marks	Average Marks Scored	% of Marks
Remembering(RM)	56	42.56	76
Understanding(US)	18	10.77	60
Analysis(AY)	18	9.75	54
Evaluating(EV)	56	29.51	53
Applying(AP)	24	14.48	60
Creating(CR)	8	. 6.09	76



29	16EC080	SOUNDHARA KUMAR		2			2						8	7			7	8		16							50	PASS
30	16EC081	SRIDHARAN												1			2	1									4	FAIL
31	16EC082	SUBITSHA		2									8	6			8	7	15			7		8			61	PASS
32	16EC083	SUNDARA LAKSHMI		2			2			2			8	8			7	8	15			2					54	PASS
33	16EC084	SURESH KANNAN		2									8	6			4	4		2							26	FAIL
34	16EC085	SURIYA PRIYA	2	2	2	1	2	2	2	2	2	1	8	7			8	7	15			12	3		8	8	94	PASS
35	16EC087	SURYA		2	2	1	2		1	2	2		8	7			7	7	15			7	1			8	72	PASS
36	16EC086	SURYA PRAKASH											1	1			1	2		3	3						11	FAIL
37	16EC088	SWETHA		1			2		1	2			6	6			7	7		2	12					1	47	FAIL
38	16EC089	THIRUMALAIMURUGAN		2	2	1	2		1		2		7	2			6	8	15			6	1		8	8	71	PASS
39	16EC090	THIRUMALAIMURUGAN		2						2			6	4			4	6		6	5						35	FAIL
40	16EC091	UMAMAHESWARI		2											12		7	3	11			1		12			48	FAIL
41	16EC092	VAIRALAKSHMI					1			1			7	6			7	8	7		10				6	2	55	PASS
42	16EC094	VIDHYA					1								12		6	7		15		8		16			65	PASS
43	16EC095	YATHEENDIRARAJAN		1						1			8	6						15	13				2	8	54	PASS
44	17LEC01	BHUVANESHWARI K					1								5		4	7		12							29	FAIL
45	17LEC03	ESAKKIAMMAL@RACHANADEVI R													12		4	4		8				6			34	FAIL
46	17LEC06	MUTHUKANI S											2							2							4	FAIL
47	17LEC07	MUTHUMANIPANDI M													5		6	6									17	FAIL
48	17LEC08	PADMA PRIYA B		2									6	6			5	5		2	7				2	1	36	FAIL
49	17LEC11	PREETHI K											3							2	7						12	FAIL
50	17LEC13	RATHIKA R		2						2			3	2			2	2		8		3					24	FAIL
51	17LEC14	RUPADEVI P					1								2												3	FAIL
52	17TEC01	PUSHPAPRIYA N		2	1		1		2	2	2		8	8			6	8	8			10	2		8	8	76	PASS
53	17ECR01	MATHIMITHRA		2					1	2	1		8	6			5	8		16	12					8	69	PASS
		Total Marks Questionwise	3	61	25	11	33	5	15	45	16	2	239	198	70	7	219	242	294	182	124	177	20	104	93	134		
		No of Students Attended	2	32	14	11	22	3	12	27	9	2	36	35	8	2	42	41	22	21	14	23	13	10	16	22		
		Total Marks / No.of Students	1.5	1.91	1.79	1	1.5	1.67	1.25	1.67	1.8	1	6.64	5.66	8.75	3.5	5.21	5.9	13.36	8.67	8.86	7.7	1.54	10.4	5.81	6.09		
		Competence Category	RM	US	RM	RM	RM	RM	RM	RM	RM	AY	RM	EV	AY	EV	EV	EV	RM	AP	US	EV	EV	RM	AP	CR		
		Course Outcome	CO1	CO1	CO3	CO3	CO4	CO5	CO5	CO5	CO5	CO6	CO1	CO1	CO2	CO3	CO4	CO4	CO4	CO4	CO5	CO5	CO5	CO6	CO6	CO6		
		Programme Outcome	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1	PO1		
			PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2	PO2		
					PO3	PO3	PO3	PO3	PO3	PO3	PO3	PO3			PO3	PO3	PO3	PO3	PO3	PO3	PO3	PO3	PO3	PO3	PO3	PO3		
					PO4	PO4	PO4	PO4	PO4	PO4	PO4	PO4			PO4	PO4	PO4	PO4	PO4	PO4	PO4	PO4	PO4	PO4	PO4	PO4		

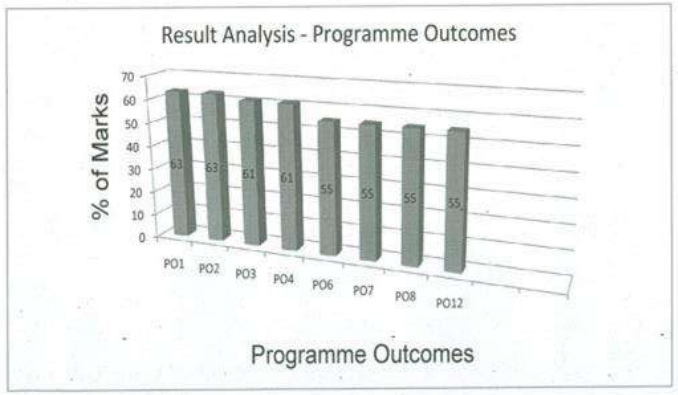
Signature of the Course Tutor

Signature of the Course Co-ordinator/Moderator

Programme Co-ordinator

Head of the Department

Programme Outcomes	Max Marks	Average Marks	% of Marks
PO1	180	113.16	63
PO2	180	113.16	63
PO3	160	97.45	61
PO4	160	97.45	61
PO6	16	8.75	55
PO7	16	8.75	55
PO8	16	8.75	55
PO12	16	8.75	55



Signature of the Course Tutor | Signature of the Course Co-ordinator/Moderator | Programme Co-ordinator | Head of the Department

P.S.R. ENGINEERING COLLEGE - SEVALPATTI, SIVAKASI - 626140

(An Autonomous institution - Affiliated to Anna University, Chennai)

ONLINE OBJECTIVE TEST RESULT

ACADEMIC YEAR 2019-2020

Programme:B.E/ECE **YEAR: II**

Course Name: Analog Electronics **Course Code: 161EC31**

Surname	First name	Started on	Completed	Time taken	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11
D	Vishnupriya	5 August 2(	-	open	--	--	--	--	--	--	--	--	--	--	--
GOPAL	MANOJKUMAR 1	5 August 2(	5 August 2(	30 mins 3 s	0	0	0	1	0	0	0	1	1	1	0
venugopal	kesavan /18ec02(	5 August 2(	5 August 2(	30 mins 2 s	0	0	0	0	0	0	1	0	0	0	0
a.m	jeyasuriya 18EC0	5 August 2(	5 August 2(	30 mins 1 s	1	1	1	0	0	1	1	0	0	0	1
MARIAPPAN	MUNEESHWAR	5 August 2(	5 August 2(	30 mins 1 s	1	1	1	1	0	0	0	0	1	0	0
Maruthu pandian .M	karthik pandian.M	5 August 2(	5 August 2(	27 mins 8 s	1	0	0	0	0	0	0	1	1	1	0
P	Gandhi raj pandia	5 August 2(	-	open	--	--	--	--	--	--	--	--	--	--	--
mahendranp	mahendran 18EC	5 August 2(	5 August 2(	19 mins 48	0	0	0	0	1	1	0	0	0	0	0
Murugaiya.k	Balamanikandan.	5 August 2(	5 August 2(	21 mins 3 s	1	0	0	0	1	1	0	1	1	0	0
muthuraj	karthikeyan18EC	5 August 2(	5 August 2(	19 mins 1 s	1	0	0	0	0	0	0	0	0	0	0
Seenivasan	Guruchitra	5 August 2(	5 August 2(	19 mins 57	1	1	0	0	0	1	0	0	1	0	0
venkadasamy.s	archana.v	5 August 2(	5 August 2(	10 mins 21	0	0	0	0	0	0	0	0	0	1	0
durairaj	andal.d	5 August 2(	5 August 2(	9 mins 2 se	1	0	1	0	0	0	0	1	0	1	0
Pandiyarajan	Lakshmi Prabha	5 August 2(	5 August 2(	9 mins	1	0	1	0	0	0	0	0	0	0	0
selvam	kathiravan 18EC(	5 August 2(	5 August 2(	8 mins 31 s	0	0	1	0	0	0	0	0	0	0	0
perumalsamy	Nandha kumar/18	5 August 2(	5 August 2(	7 mins 46 s	0	0	1	1	0	0	0	0	0	1	0
rajapandian	jeyachandrapand	5 August 2(	5 August 2(	9 mins 52 s	0	0	1	1	1	0	0	1	0	0	0
manasha v	manasha v	5 August 2(	5 August 2(	13 mins	1	0	0	0	0	0	0	0	1	0	0
subbaraj	keerthika 180201	5 August 2(	5 August 2(	7 mins 7 se	1	1	0	0	0	0	0	0	1	0	0
kaleeswaran	K.Durgadevi 18E(	5 August 2(	5 August 2(	4 mins 39 s	0	0	1	0	0	1	0	0	0	0	0
kumar	jothiga k	5 August 2(	5 August 2(	5 mins 33 s	0	0	1	1	0	0	0	0	0	0	1
sureshbabu.K	dinesh babu.S 18	5 August 2(	5 August 2(	7 mins 33 s	1	0	1	0	1	0	0	1	0	1	1
M	Manojkumar 18E(	5 August 2(	5 August 2(	17 mins 17	0	1	0	0	0	1	1	1	1	0	0
k	Ganeshkumar 18	5 August 2(	5 August 2(	14 mins 59	0	0	0	1	1	1	0	0	0	0	0
Gopal samy	G.Sathya Sree (1	5 August 2(	5 August 2(	16 mins 37	1	1	1	0	0	1	1	1	0	0	1
lakshmanan	L.rekha 18EC041	5 August 2(	5 August 2(	9 mins 30 s	0	0	1	0	0	0	1	0	1	0	1
r. rajasekar	r. priya jai roshini	5 August 2(	5 August 2(	11 mins 10	1	0	0	0	0	0	0	0	0	1	0
p.selvaraj	s.viji Arthi 18EC0	5 August 2(	5 August 2(	21 mins 45	1	1	0	0	0	0	1	0	0	0	1
lingasamy	prasanthini	5 August 2(	-	open	--	--	--	--	--	--	--	--	--	--	--
P	18EC058 VINOTI	5 August 2(	-	open	--	--	--	--	--	--	--	--	--	--	--
G	PRIYANGA 18EC	5 August 2(	-	open	--	--	--	--	--	--	--	--	--	--	--
GURUSAMY	ROHINA 18EC04	5 August 2(	5 August 2(	11 mins 7 s	1	1	1	0	0	1	0	1	1	0	1
VS	Venkatesh 18EC(	5 August 2(	5 August 2(	19 mins 8 s	1	0	1	0	0	0	0	0	0	0	0
A	prabu 18EC033	5 August 2(	5 August 2(	7 mins 35 s	0	0	0	1	0	0	0	1	1	0	0
m	suriyamuthupand	5 August 2(	5 August 2(	16 mins 14	1	1	0	1	0	1	0	0	1	0	1
V	Ponmuthuramalir	5 August 2(	5 August 2(	17 mins 48	1	0	0	0	0	0	1	0	0	0	1
P	Vasantha kumar	5 August 2(	5 August 2(	8 mins 33 s	0	0	0	0	0	0	0	0	0	0	0
padamanabha	sathyaram18EC0	5 August 2(	5 August 2(	17 mins 57	1	0	1	0	0	1	0	0	1	0	1
rajesh	RAJESH KUMAR	5 August 2(	-	open	--	--	--	--	--	--	--	--	--	--	--
Ravi.Y	Ravi.Y(18EC040)	5 August 2(	5 August 2(	15 mins 58	1	0	0	0	0	1	0	0	1	0	0
sivakumar.T	sivakumar(18EC(	5 August 2(	5 August 2(	14 mins 20	0	1	1	0	0	0	0	0	1	0	0
K	Rubensakaravart	5 August 2(	5 August 2(	12 mins 13	0	0	0	0	1	0	0	0	0	0	0
RAJESH KANNAN.A	RAJESH KANNA	5 August 2(	5 August 2(	10 mins 58	1	1	1	0	0	1	0	1	1	0	1

SIVAMURUGALING/	SRIVATHSALA 1	5 August 2	5 August 2	28 mins 8 s	1	1	1	0	0	0	0	0	1	0	0
RAMASAMY	PETCHIAMMAL(	5 August 2	5 August 2	23 mins 56	0	1	0	0	0	0	0	0	0	0	0
E	GODIESWARAP	5 August 2	5 August 2	24 mins 42	1	0	1	0	1	0	1	0	1	0	0
viswamitheran	viswa priya 18ec(	5 August 2	5 August 2	8 mins 2 se	1	0	0	0	0	0	0	0	0	0	0
Jeyaraj pandian	J.JAYOTHI LEEL	5 August 2	5 August 2	6 mins 41 s	0	0	1	0	0	0	1	1	1	0	1
CHANDRAN	VARSHA 18EC05	5 August 2	5 August 2	7 mins 44 s	0	1	1	0	0	0	0	0	0	0	0
Mariappan	varshini 18EC054	5 August 2	5 August 2	10 mins 35	0	0	0	0	0	0	0	0	0	0	0
Overall average					1	0	1	0	0	0	0	0	0	0	0

#12	#13	#14	#15	#16	#17	#18	#19	#20	#21	#22	#23	#24	#25	#26	#27	#28	#29	#30	Grade/30.0
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0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	1	8
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1	1	0	1	1	0	0	1	1	0	0	0	1	0	1	0	0	0	0	12
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0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	8
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0	0	0	1	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	6
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0	0	0	1	0	0	0	1	1	0	1	1	1	0.4	0	0	0	0	1	10.4

P.S.R. ENGINEERING COLLEGE - SEVALPATTI, SIVAKASI - 6261
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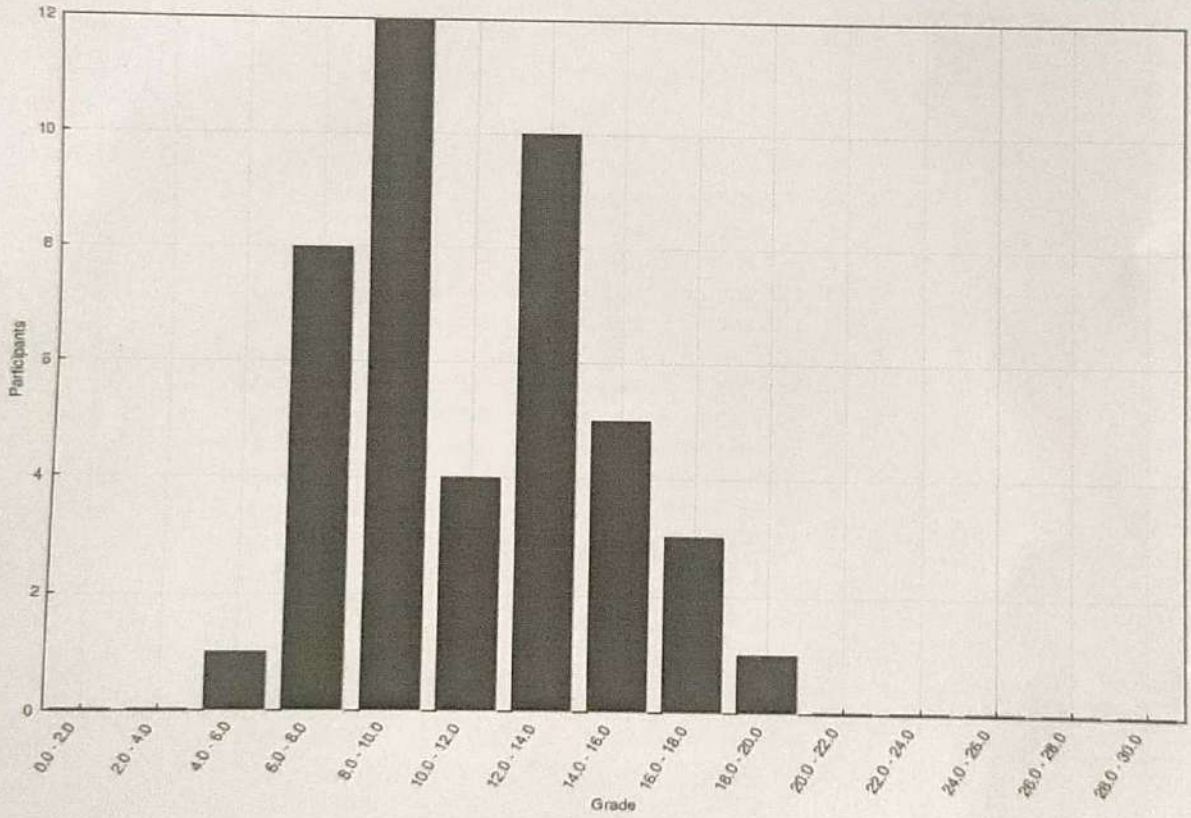
ACADEMIC YEAR 2019-2020

Online Objective Test Result

Programme: B.E/ECE **Year: II**

Course Name: ANALOG ELECTRONICS **Course Code: 161EC31**

Overall Number of Students Achieving Grade Ranges



HOD/ECE