SSE

SANSKRITHI SCHOOL OF ENGINEERING

COURSE FILE - THEORY

FACULTY NAME	: Mr. SADIQ VALI.S
DESIGNATION	: ASSISTANT PROFESSOR
DEPARTMENT	: ECE
SUBJECT CODE	: 20A04404T
SUBJECT TITLE	: ANALOG ELECTRONIC CIRCUITS
DEPARTMENT	: EEE
YEAR / SEMESTER	: II / II SEM
ACADEMIC YEAR	: 2021-2022

Sanskrithi School of Engineering ★ Puttaparthi

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Beedupalli Road, Prasanthingram,
PUTTAPARTHI - 515 134.
Anantapuramu (Dt) A.P.

COURSE FILE – INDEX- THEORY

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R 20 Regulations

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
(Established by Govt. of A.P., ACT No.30 of 2008)
ANANTHAPURAMU – 515 002 (A.P) INDIA

ELECTRICAL AND ELECTRONICS ENGINEERING

Course Code	ANALOG ELECTRONIC CIRCUITS		L	T	P	C
20A04404T			3	0	0	3
Pre-requisite	Network Analysis, Electronic Devices and Circuits	Semester	IV			

Course Objectives:

- List various types of feedback amplifiers, oscillators and large signal Amplifiers.
- Explain the operation of various electronic circuits and linear ICs.
- Apply various types of electronic circuits to solve engineering problems
- Analyse various electronic circuits and regulated power supplies for proper understanding
- Justify choice of transistor configuration in a cascade amplifier.
- Design electronic circuits for a given specification.

Course Outcomes (CO):

CO1. List various types of feedback amplifiers, oscillators and large signal amplifiers
CO2. Explain the operation of various electronic circuits and linear ICs
CO3. Apply various types of electronic circuits to solve engineering problems
CO4. Analyze various electronic circuits and regulated power supplies for proper understanding
CO5. Justify choice of transistor configuration in a cascade amplifier
CO6. Design electronic circuits for a given specification

UNIT - I	Multistage Amplifiers

Classification of amplifiers, different coupling schemes used in amplifiers, general analysis of cascade amplifiers, Choice of transistor configuration in a cascade amplifier, frequency response and analysis of two stage RC coupled and direct coupled amplifiers, principles of Darlington amplifier, Cascode amplifier.

UNIT - II	Feedback Amplifiers and Oscillators

Concepts of Feedback, Classification of Feedback Amplifiers, Transfer Gain with Feedback, General Characteristics of Negative-Feedback Amplifiers, Effect of Feedback on Amplifier characteristics, Analysis of a feedback Amplifiers - Voltage – Series, Current-Series, Current-shunt and Voltage–shunt.
Oscillators: Sinusoidal Oscillators, Conditions for oscillations, Phase-shift Oscillator, Wien Bridge Oscillator, L-C Oscillators (Hartley and Colpitts).

UNIT - III	Large Signal Amplifiers (Power Amplifiers)

Introduction, Classification, Class A large signal amplifiers, Second - Harmonic Distortion, Higher - Order Harmonic Generations, Transformer Coupled Class A Audio Power Amplifier, Efficiency of Class A, Class B, Class AB Amplifiers, Distortion in Power Amplifiers, Class C Power Amplifier.

UNIT - IV	Operational Amplifier

Introduction, Block diagram, Characteristics and Equivalent circuits of an ideal op-amp, Various types of Operational Amplifiers and their applications, Power supply configurations for OP-AMP applications, Inverting and non-inverting amplifier configurations. The Practical op-amp Introduction, Input offset voltage, Offset current, Thermal drift, Effect of variation in power supply voltage, common-mode rejection ratio, Slew rate and its Effect, PSRR and Gain bandwidth product, frequency limitations and compensations, transient response.

UNIT - V	Applications of OP-AMPs and Special ICs

Adder, Integrator, Differentiator, Difference amplifier and Instrumentation amplifier, Converters: Current to voltage and voltage to current converters, Active Filters: First order filters, second order low pass, high pass, band pass and band reject filters, Oscillators: RC phase shift oscillator, Wien bridge oscillator, Square wave generator.
Special Purpose Integrated Circuits: Functional block diagram, working, design and applications of

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R20 R19 R17

INDIVIDUAL STAFF TIMETABLE / WORKLOAD

R 20 Regulations

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ELECTRICAL AND ELECTRONICS ENGINEERING

Timer 555 (Monostable & Astable), Functional block diagram, working and applications of VCO566, PLL565, Fixed and variable Voltage regulators.
Textbooks:
• Millman, Halkias and Jit , "Electronic Devices and Circuits" , 4th Edition , McGraw Hill Education (India) Private Ltd.,2015. • Salivahanan and N. Suresh Kumar, " Electronic Devices and Circuits",4thEdition,McGrawHill Education(India)Private Ltd.,2017. • Ramakanth A. Gayakwad, "Op-Amps& LinearICs",4thEdition, Pearson, 2017.
Reference Books:
• Millman and Taub, Pulse, Digital and Switching Waveforms, 3rdEdition, TataMcGraw-Hill Education, 2011. • J. Milliman, C.C. Halkias and Chetan Parikh, "Integrated Electronics", 2ndEdition, McGraw Hill, 2010. • David A. Bell, " Electronic Devices and Circuits", 5thedition,OxfordPress,2008. • D. Roy Choudhury, "LinearIntegratedCircuits",2ndEdition, New Age International (p)Ltd,2003.

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INDIVIDUAL STAFF TIMETABLE / WORKLOAD

Department : ECE
Faculty : Mr.S.SADIQ VALI
Academic Year : 2021-2022
Designation : AP/ECE
Year / Semester : II / II & III/II

D/T	9:15-10:05	10:05-10:55	11:05 - 11:55	11:55-12:45	12:45 - 01:30	01:30 - 02:20	02:20-03:05	03:15-04:00	04:00 04:45
MON			DSD	AEC	LUNCH BREAK		EDU		
TUE	AEC			DSD				EDU	
WED		DLD LAB				AEC	DSD		
THU	DSD					DLD LAB			
FRI	AEC	DLD LAB					DSD		
SAT						DSD			

TOTAL CONDUCT HOURS:

S.No	Sub Code	Theory Subjects Details	Year	Branch	Semester	No of Hours Allotted
1	19A04603	DSD THROUGH VHDL	IV	ECE	II	6
2	20A04303P	DLD LAB	IV	ECE	II	9
3	20A04404T	ANALOG ELECTRONIC CIRCUITS	II	EEE	II	5

S.No	Additional Responsibilities Assigned	Year & Branch	
1	CLASS ADVISOR	III	ECE
2	INTERNSHIP		
3	EDUSKILL COURSE	III	ECE

❖ Responsibilities like Class in charge, Student Counselor.0, ISO related works & others

Faculty in Charge

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LESSON PLAN

Subject Name : ANALOG ELECTRONIC CIRCUITS Year & Branch: II / EEE

Subject Code : 20A04404T Semester : II

Name of the Faculty : MR.SADIQ VALI.S Designation : AP/ECE

Course Objectives:

- List various types of feedback amplifiers, oscillators and large signal Amplifiers.
- Explain the operation of various electronic circuits and linear ICs.
- Apply various types of electronic circuits to solve engineering problems
- Analyse various electronic circuits and regulated power supplies for proper understanding
- Justify choice of transistor configuration in a cascade amplifier.
- Design electronic circuits for a given specification.

Course Outcomes (CO):

CO1. List various types of feedback amplifiers, oscillators and large signal amplifiers

CO2. Explain the operation of various electronic circuits and linear ICs

CO3. Apply various types of electronic circuits to solve engineering problems

CO4. Analyze various electronic circuits and regulated power supplies for proper understanding

CO5. Justify choice of transistor configuration in a cascade amplifier

CO6. Design electronic circuits for a given specification

Textbooks:

- Millman, Halkias and Jit , "Electronic Devices and Circuits" , 4th Edition , McGraw Hill Education (India) Private Ltd.,2015.
- Salivahanan and N. Suresh Kumar, " Electronic Devices and Circuits",4thEdition,McGrawHill Education(India)Private Ltd.,2017.
- Ramakanth A. Gayakwad, "Op-Amps& LinearICs",4thEdition, Pearson, 2017.

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Reference Books:

- Millman and Taub, Pulse, Digital and Switching Waveforms, 3rdEdition, TataMcGraw-Hill Education, 2011.
- J. Milliman, C.C. Halkias and Chetan Parikh, "Integrated Electronics", 2ndEdition, McGraw Hill, 2010.
- David A. Bell, " Electronic Devices and Circuits", 5thedition,OxfordPress,2008.
- D. Roy Choudhury, "LinearIntegratedCircuits",2ndEdition, New Age International (p)Ltd,2003.

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UNIT-I			Multistage Amplifiers			
S.No	Proposed Date	Period	Topic Name	T/R Book	Actual Date & Period of Completion	Teaching aids
1.	25/04/2022	4th	Classification of amplifiers	TB-2	11/5 & 5th	M&B, PPT
2.	26/04/2022	1st	different coupling schemes used in amplifiers	TB-2	12/5 & 6th	M&B, PPT
3.	27/04/2022	5th	RC coupled amplifier	TB-2	16/5 & 4th	M&B, PPT
4.	28/04/2022	6th	Transformer coupled amplifier	TB-2	17/5 & 1st	M&B, PPT
5.	29/04/2022	1st	Direct coupled amplifier	TB-2	18/5 & 5th	M&B, PPT
6.	02/05/2022	4th	general analysis of cascade amplifiers-Voltage gain ,Current gain	TB-2	19/5 & 6th	M&B. PPT
7.	04/05/2022	5th	Power gain,Input Impedance,Output Impedance	TB-2	20/5 & 7th	M&B. PPT
8.	05/05/2022	6th	Choice of transistor configuration in a cascade amplifier	TB-2	23/5 & 4th	M&B, PPT
9.	07/05/2022	1st	frequency response and analysis of two stage RC coupled amplifier	TB-2	24/5 & 1st	M&B. PPT
10.	09/05/2022	4th	Analysis of DC COUPLED amplifier	TB-2	25/5 & 1st	M&B. PPT
11.	10/05/2022	1st	principles of Darlington amplifier	TB-2	30/5 & 4th	M&B. PPT
12.	11/05/2022	5th	Cascode amplifier.	TB-2	31/5 & 1st	M&B. PPT
13.	12/05/2022	2	Problems		1/6 & 2nd	M&B. PPT
14.	14/05/2022	2	Problems			M&B. PPT
15.	16/05/2022	2	Revision			M&B. PPT
16	18/05/2022	2	Previous question papers			M&B. PPT

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UNIT-II			Feedback Amplifiers and Oscillators			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date & Period of Completion	Teaching aids
1.	19/05/2022	5th	Concepts of Feedback	TB-2	7/6 & 1st	M&B. PPT
2.	20/05/2022	1st	Classification of Feedback Amplifiers	TB-2	9/6 & 2nd	M&B. PPT
3.	21/05/2022	–	Transfer Gain with Feedback	TB-2	10/6 & 1st	M&B. PPT
4.	23/05/2022	4th	General Characteristics of Negative-Feedback Amplifiers	TB-2	24/6 & 1st	M&B, PPT
5.	25/05/2022	1st	Effect of Feedback on Amplifier characteristics	TB-2	27/6 & 1st 28/6 & 4th	M&B. PPT
6.	26/05/2022	5th	Analysis of a feedback Amplifiers - Voltage – Series	TB-2	4/7 & 4th	M&B. PPT
7.	27/05/2022	6th	Current-Series	TB-2	5/7 & 1st	M&B. PPT
8.	28/05/2022	–	Current-shunt	TB-2	6/7 & 5th	M&B. PPT
9.	30/05/2022	4th	Voltage– shunt.	TB-2		M&B, PPT
10.	01/06/2022	5th	Sinusoidal Oscillators,	TB-2	7/7 & 1st	PPT
11.	02/06/2022	6th	Conditions for oscillations,	TB-2		M&B. PPT
12.	03/06/2022	1st	Phase-shift Oscillator	TB-2	8/7 & 1st	M&B. PPT
13.	04/06/2022	–	Wien Bridge Oscillator	TB-2	8/7 & 7th	M&B. PPT
14.	06/06/2022	4th	L-C Oscillators(Hartley)	TB-2	9/7 & 1st	M&B. PPT
15.	08/06/2022	5th	L-C Oscillators(Colpitts)	TB-2	12/7 & 1st	M&B. PPT
16.	09/06/2022	1st	Problems			

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UNIT-III			LARGE SIGNAL AMPLIFIERS			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date & Period of Completion	Teaching aids
1.	10/06/2022	1st	Introduction	TB-2	13/7 & 5th	PPT
2.	11/06/2022	–	Classification	TB-2		PPT
3.	13/06/2022	4th	Class A large signal amplifiers	TB-2	14th & 1st	PPT
4.	15/06/2022	5th	Second - Harmonic Distortion	TB-2	15/7 & 1st	PPT
5.	16/06/2022	6th	Higher - Order Harmonic Generations	TB-2		M&B, PPT
6.	17/06/2022	1st	Transformer Coupled Class A Audio Power Amplifier	TB-2	18/7 & 4th	M&B, PPT
7.	18/06/2022	–	Efficiency of Class A Amplifier	TB-2	18/7 & 6th	M&B. PPT
8.	23/06/2022	6th	Efficiency of Class B Amplifier	TB-2	19/7 & 7th	M&B. PPT
9.	24/06/2022	1st	Efficiency of Class AB Amplifier	TB-2		M&B, PPT
10.	25/06/2022	–	Class C Power Amplifier. & Distortion in Power amp.	TB-2	20/7 & 7th	M&B, PPT
11	27/06/2022	4th	Problems			
12	29/06/2022	5th	Problems			
13	30/06/2022	6th	Previous question papers			

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UNIT-IV			Operational Amplifier			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date & Period of Completion	Teaching aids
1.	04/07/2022	4th	Introduction, Block diagram	TB-2	21/7 1st	PPT
2.	06/07/2022	–	Characteristics and Equivalent circuits of an Ideal op-amp	TB-2	22/7 1st	PPT
3.	07/07/2022	4th	Various types of Operational Amplifiers and their applications	TB-2	22/7 1st	PPT
4.	08/07/2022	4th	Power supply configurations for OP-AMP applications	TB-2	23/7 7th	PPT
5.	09/07/2022	1st	Inverting and non-inverting amplifier configurations	TB-2	23/7 7th	M&B, PPT
6.	11/07/2022	6th	The Practical op-amp: Introduction	TB-2	25/7 4th	M&B, PPT
7.	13/07/2022	–	Input offset voltage, Offset current	TB-2	25/7 4th	M&B, PPT
8	14/07/06	–	Thermal drift, Effect of variation in power supply voltage	TB-2	26/7 3rd	M&B, PPT
9	15/07/2022	4th	common-mode rejection ratio, Slew rate and its Effect,	TB-2	26/7 3rd	M&B, PPT
10	16/07/2022	1st	PSRR and Gain-bandwidth product	TB-2	27/7 5th	M&B, PPT
11	18/07/2022	6th	frequency limitations and compensations	TB-2	27/7 5th	M&B, PPT
12	20/07/2022	–	transient response.	TB-2	27/7 5th	

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UNIT-V			Application of OP-Amp's and Special IC's.			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date & Period of Completion	Teaching aids
1.	25/07/2022	6th	Adder, Integrator, Differentiator	T3	28/7 & 6th	M&B, PPT
2.	27/07/2022	—	Difference amplifier and Instrumentation amplifier	T3	}	M&B, PPT
3.	28/07/2022	—	Converters: Current to voltage and voltage to current converters	T3	} 29/7 1st	M&B, PPT
4.	29/07/2022	4th	Active Filters: First order filters, second order low pass filters	T3	}	M&B, PPT
5.	30/07/2022	1st	high pass, band pass and band reject filters	T3	30/7 & 1st	PPT
6.	01/08/2022	4th	Oscillators: RC phase shift oscillator	T3	1/8 & 4th	PPT
7.	03/08/2022	6th	Wien bridge oscillator, Square wave generator.	T3	2/8 & 1st	PPT
8.	04/08/2022	1st	Special Purpose Integrated Circuits: Functional block diagram, working	T3	} 3/8 & 5th	PPT
9	05/08/2022	6th	design and applications of Timer 555	T3	}	M&B, PPT
10	06/082022	—	Functional block diagram	T3	4/8 & 1st	M&B, PPT
11	08/08/2022	—	working and applications of VCO566	T3	5/8 & 1st	M&B, PPT
12	10/08/2022	6th	PLL565	T3	}	M&B, PPT
13	11/08/2022	1st	Fixed and variable Voltage regulators.	T3	} 8/8 & 4th	M&B, PPT
14	14/08/2022	—	Previous question papers			

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The following programs should also be included along with the theory classes:

Program Name:

- Tutorials , Assignments
- Unit Tests – Internal Tests I, II & Model Exam

At the end of the lesson plan the following attached academic programs should also be addressed as per the format given below: Fill this table if the programme is applicable otherwise write 'Not applicable'.

Program Name	No of Programs Planned	Tentative Dates
• Industrial Visits	Not applicable	Not applicable
• Seminars	-	-

S. Sadiqali

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STUDENTS NOMINAL ROLL

Year& Branch with section: II - EEE **Semester: II**

Academic Year: 2021-2022 **Batch: 2020-2024**

REG NO	NAME OF THE STUDENT	REG NO	NAME OF THE STUDENT
20KF1A0201	A.Jayanthi	20KF1A0232	N.R.Bhavana
20KF1A0202	A.Soma Sekhar Rao	20KF1A0233	N.chandra Shekar reddy
20KF1A0203	A.BHARATH	20KF1A0234	Nandyala Harika
20KF1A0204	B.Anitha	20KF1A0235	N lakshmi narasimha Reddy
20KF1A0205	B.Harinath	20KF1A0236	Sreemanjula
20KF1A0206	B.Thanuja	20KF1A0237	O Dinesh
20KF1A0207	C.Rohith kumar reddy	20KF1A0238	Aasritha.p
20KF1A0208	C .vyshnavi	20KF1A0239	Jashwanth p.c
20KF1A0209	D. Lavanya	20KF1A0240	P .kalpana
20KF1A0210	D Sai Dinesh Naik	20KF1A0241	P Gouthami
20KF1A0211	E.Ajay kumar	20KF1A0242	P navaneetha
20KF1A0212	G.Sreenivasulu	20KF1A0243	P. Chandrasekhar
20KF1A0213	G Dheeraj	20KF1A0245	R.Adarsh
20KF1A0214	Giraka.Sravani	20KF1A0247	S. Sravani
20KF1A0215	G.THANUJA	20KF1A0248	S.CHAKRAPANI
20KF1A0216	G.sravani	20KF1A0249	S.ayesha
20KF1A0217	J.VASANTHI	20KF1A0250	SHAIK.Azeez
20KF1A0218	Divyabhargavi Jinkala	20KF1A0252	S.NAVEENA
20KF1A0219	Kammarasaikumar	20KF1A0253	V. Sadiya Kubra
20KF1A0220	K.NANDU SREE	20KF1A0254	V.VISHNU PRAKASH
20KF1A0221	Konde Sai Kumar	20KF1A0255	VURATHI JAYALAKSHMI
20KF1A0222	K Akshay kumar	21KF5A0201	P VISHNUVARDHAN
20KF1A0223	KUPPAM ANIL KUMAR	21KF5A0202	SUVARNA LAKSHMI
20KF1A0224	M.NAGARAJ	21KF5A0203	ESRAVANI
20KF1A0225	M.Eswar	21KF5A0204	EVANI
20KF1A0226	M.NAVEEN	21KF5A0205	RRAJESWARI
20KF1A0227	M.PRAGATHI	21KF5A0206	SHABBER
20KF1A0228	M.Jahnavi	21KF5A0207	Y HEMALATHA
20KF1A0229	M. Revathi		
20KF1A0230	M. Fiza Eram		
20KF1A0231	M.ZAIBA SULTANA		

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ASSIGNMENT PLAN

Department : EEE

Year & Sem : II / II

Subject Title : Analog Electronic circuits

Subject Code : 20A04404T

Faculty Name : S.Sadiq Vali

Designation : AP/ECE

Unit No	Assignment Topics	Roll Nos/Batch	Books / Journal to be Referred	Date of Announcement	Date of Submission
1	General circuit analysis of CasCode Amplifier	FOR ALL STUDENTS	TB-2	3/6/22	6/6/22
2	Voltage Shunt & Current Series		TB-2	5/7/22	8/7/22
3	Class A & Class B Power Amplifier		TB-2	13/7/22	18/7/22
4	Inverting & Non-Inverting		TB-2	25/7/22	28/7/22
5	555-Timer, PLL		TB-2	3/8/22	6/8/22

S. Sadiq Vali

Faculty in Charge

HOD

VIDEO PRESENTATION/SEMINAR FOR (II-II) SEM FOR THE WEEK

NAME OF THE FACULTY: S.SADIQ VALI

NAME OF THE SUBJECT: ANALOG ELECTRONIC CIRCUITS

S.No	Class	Name of the Video	Date & time	Venue	Signature of the faculty
1	II YEAR	~~TDM/FDM~~			
2					
3					
4					
5					
6					
7					

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II B. Tech II Semester I Mid–Term Examination (2022): Descriptive

Branch:EEE Sub: ANALOG ELECTRONIC CIRCUITS Sub Code: 20A04404T

Time: 90 Minutes Date: Max marks: 30

Answer any three questions. All questions carry equal marks (3x5=15 marks)

1.Explain about RC coupled CE amplifier and draw the h-parameter circuit and write the expressions for voltage gain,currentgain,input resistance?

Or

2.With a neat diagram,explain in detail about the operation of direct and transformer coupled amplifiers?

3. Explain about concept of Feedback?

Or

4.Explain with circuit diagram a negative feedback amplifier and obtain expression for its closed loop gain?

5. With a neat diagram,explain in detail about the Cascode amplifier and derive expressions for voltage gain,currentgain,inputimpedance,output impedance?

Or

6. Draw and explain the two stage amplifier with Darlington connection.Give the advantages of this circuit?

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Sanskrithi School of Engineering
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SSE

SANSKRITHI SCHOOL OF ENGINEERING, PUTTAPARTHI

II B. Tech II Semester I Mid-Term Examinations (2022): Objective

Branch: EEE

Sub: ANALOG ELECTRONIC CIRCUITS –20A04404T

Time: 20 Minutes

Max marks: 10

STUDENT NAME:

HTNO:

Invigilator Signature:

1. The frequency response of transformer coupling is _____ [d]
a) Good b) Very good c) Excellent d) Poor

2. Which of the following is an advantage of RC coupling scheme? [b]
a) Good impedance matching b) Economy c) High efficiency d) Frequency response

3. The best frequency response is of _____coupling? [C]
a) RC b) Transformer c) Direct d) None of the above

4. The purpose of RC or transformer coupling is to_____ ? [b]
a)Block d.c. b) Separate bias of one stage from another c) Both a and b d) None of the above

5. Open loop gain of an amplifier is given by [a]
a) A b) Aβ c)β d) None of the above

6. Loop gain is given by [b]
a)A b) Aβ c) β d) None of the above

7. If both input and output is voltage then the amplifier is called _____ [a]
a) Voltage amplifier b) Current amplifier c) Transconductance d) None of the above

8. The output current divided by input voltage is known as _____ [C]
a) Voltage amplifier b) Current amplifier c) Transconductance d) None of the above

9. How many types of feedbacks are there? [b]
a) One b) Two c) Three d) Four

10. The gain of the amplifier is defined as a ratio of _____ [a]
a) Output voltage/input voltage b) Input voltage/output voltage
c) Output voltage/input current d) None of the above

11. Which feedback reduces the amplifier gain? [b]
a) Positive b Negative c) Both a and b d) None of the above

12 _____ connection increases both input and output impedance [a]
a) Series-series b)Series-shunt c) Shunt-shunt d) Both b and c

13. _____ feedback used in amplifiers [b]
a) Positive b)Negative c) Both a and b d) None of the above

14 In the initial stages of a multistage amplifier,we use_____ [a]
a) RC b) Transformer c) Direct d) None of the above

15. ..... coupling provides the maximum voltage gain [b]
a) RC b) Transformer c) Direct d) None of the above

16. When a multistage amplifier is used to amplify d.c. signal ,then one must use____coupling? [C]
a) RC b) Transformer c) Direct d) None of the above

17. _____ feedback increases the amplifier stability [b]
a) Positive b Negative c) Both a and b d) None of the above

18 The trans-impedance amplifier uses _____ feedback [C]
a) Series-series b)Series-shunt c) Shunt-shunt d) Shunt-Series

19. The negative feedback circuits are of _____ types [d]
a)) One b) Two c) Three d) Four

20. The current amplifier uses _____ feedback [d]
a) Series-series b)Series-shunt c) Shunt-shunt d) Shunt-Series

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SANSKRITHI SCHOOL OF ENGINEERING

Marks Awards List

Exam: II B.Tech II Sem II Mid Faculty Name: S. Sadiq vali

SUBJECT WITH CODE: Analog Electronic Circuits (20A04403) MAX MARKS: 30

BRANCH: EEE

S.No	Roll No	Marks			
		DES (15)	AST (05)	OBJ (10)	TOTAL (30)
1	20KF1A0201	15	5	9	29
2	20KF1A0202	15	5	7	27
3	20KF1A0203	10	5	5	20
4	20KF1A0204	15	5	9	29
5	20KF1A0205	5	5	9	19
6	20KF1A0208	15	5	8	28
7	20KF1A0209	15	5	9	29
8	20KF1A0210	10	5	8	23
9	20KF1A0211	8	5	9	22
10	20KF1A0212	10	5	9	24
11	20KF1A0213	9	5	7	21
12	20KF1A0214	15	5	7	27
13	20KF1A0215	8	5	8	21
14	20KF1A0216	14	5	7	26
15	20KF1A0217	10	5	8	23
16	20KF1A0218	← ABSENT →			
17	20KF1A0219	8	5	7	20
18	20KF1A0220	12	5	9	26
19	20KF1A0221	11	5	7	23
20	20KF1A0222	7	5	8	20
21	20KF1A0223	← ABSENT →			
22	20KF1A0224	← ABSENT →			
23	20KF1A0225	13	5	8	26
24	20KF1A0226	← ABSENT →			
25	20KF1A0227	15	5	8	28
26	20KF1A0228	15	5	7	27
27	20KF1A0229	12	5	8	25
28	20KF1A0230	9	5	7	21
29	20KF1A0231	10	5	8	23
30	20KF1A0232	15	5	8	28

S.No	Roll No	Marks			
		DES (15)	AST (05)	OBJ (10)	TOTAL (30)
31	20KF1A0233	11	5	8	24
32	20KF1A0234	6	5	7	18
33	20KF1A0235	8	5	7	20
34	20KF1A0236	12	5	7	24
35	20KF1A0237	8	5	8	21
36	20KF1A0238	14	5	7	26
37	20KF1A0239	11	5	9	25
38	20KF1A0240	13	5	8	26
39	20KF1A0242	13	5	8	26
40	20KF1A0243	9	5	8	22
41	20KF1A0245	9	5	8	22
42	20KF1A0247	14	5	8	27
43	20KF1A0248	10	5	6	21
44	20KF1A0249	15	5	7	27
45	20KF1A0250	11	5	8	24
46	20KF1A0252	13	5	7	25
47	20KF1A0254	15	5	6	26
48	20KF1A0255	14	5	7	26
49	21KF5A0201	5	5	8	18
50	21KF5A0202	15	5	7	27
51	21KF5A0203	15	5	8	28
52	21KF5A0204	10	5	7	22
53	21KF5A0205	15	5	8	28
54	21KF5A0206	15	5	7	27
55	21KF5A0207	13	5	7	25
56					
57					
58					
59					

S. Sadiq Vali
Faculty Signature

HOD

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Anantapuramu (Dt) A.P.

SANSKRITHI SCHOOL OF ENGINEERING

Marks Awards List

Exam: II B.Tech II Sem CIN Mid Faculty Name: S Sadiq Vali

SUBJECT WITH CODE: Analog Electronic Circuits (20HS0407) MAX MARKS: 30

BRANCH: EEE

S.No	Roll No	Marks		
		MID-I	MID-II	CS MARKS
1	20KF1A0201	24	29	28
2	20KF1A0202	22	27	26
3	20KF1A0203	16	20	20
4	20KF1A0204	18	29	26
5	20KF1A0205	17	19	19
6	20KF1A0208	19	28	27
7	20KF1A0209	18	29	26
8	20KF1A0210	18	23	22
9	20KF1A0211	17	22	21
10	20KF1A0212	18	24	23
11	20KF1A0213	15	21	20
12	20KF1A0214	20	27	26
13	20KF1A0215	18	21	21
14	20KF1A0216	17	26	25
15	20KF1A0217	20	23	23
16	20KF1A0218	18	<AB>	15
17	20KF1A0219	15	20	19
18	20KF1A0220	19	26	25
19	20KF1A0221	19	23	23
20	20KF1A0222	15	20	19
21	20KF1A0223	18	<AB>	15
22	20KF1A0224	18	<AB>	15
23	20KF1A0225	18	26	25
24	20KF1A0226	18	<AB>	15
25	20KF1A0227	19	28	27
26	20KF1A0228	19	27	26
27	20KF1A0229	17	25	24
28	20KF1A0230	15	21	20
29	20KF1A0231	18	23	22
30	20KF1A0232	26	28	28

S.No	Roll No	Marks		
		MID-I	MID-II	CS MARKS
31	20KF1A0233	21	24	24
32	20KF1A0234	18	18	18
33	20KF1A0235	17	20	20
34	20KF1A0236	18	24	23
35	20KF1A0237	17	21	21
36	20KF1A0238	21	26	25
37	20KF1A0239	17	25	24
38	20KF1A0240	19	26	25
39	20KF1A0242	17	26	25
40	20KF1A0243	16	22	21
41	20KF1A0245	17	22	21
42	20KF1A0247	18	27	26
43	20KF1A0248	17	21	21
44	20KF1A0249	22	27	26
45	20KF1A0250	18	24	23
46	20KF1A0252	16	25	24
47	20KF1A0254	18	26	25
48	20KF1A0255	26	26	25
49	21KF5A0201	21	18	21
50	21KF5A0202	25	27	27
51	21KF5A0203	24	28	28
52	21KF5A0204	19	22	22
53	21KF5A0205	23	28	22
54	21KF5A0206	25	27	27
55	21KF5A0207	20	25	24
56				
57				
58				
59				

S. Sadiq vali
Faculty Signature

HoD

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Sanskrithi School of Engineering
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PUTTAPARTHI - 515 134.
Anantapuramu (Dt) A.P.

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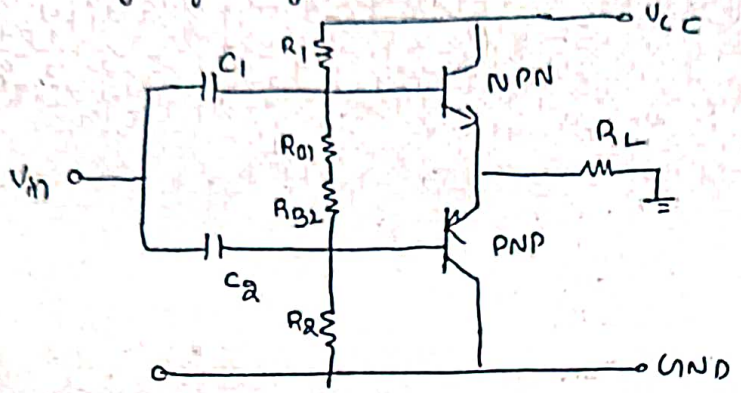
Scheme of Evaluation

Name of the Exam : B. Tech II Year II Semester II Midterm Date : 12-05-2022
Staff Name : S. Sadiq Vali Regulation: R20
Subject Name : Analog Electronic circuits Code : 20A04404T

① complementary symmetry class B amplifier

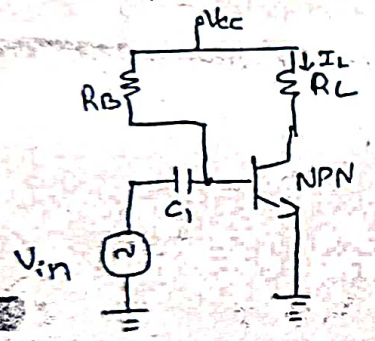


circuit → 2 marks
Theory Explanation → 1 marks

$$\eta = \frac{P_{ac}}{P_{dc}}$$

↳ calculation → 2 marks.
Efficiency

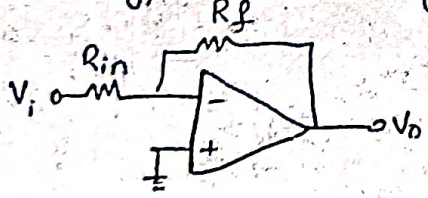
) series fed direct coupled class A amplifier.



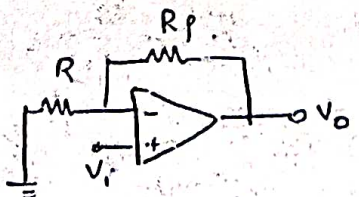
circuit → 1 mark
Explanation → 2 marks
η calculations → 2 marks.

$$\eta = \frac{P_{ac}}{P_{dc}}$$

) Inverting, Non-Inverting and difference amplifier



Inverting



Non-Inverting

circuits → 2 marks
Explanation → 1 mark.

Inverting Amp. gain

$$A_V = \frac{V_{out}}{V_{in}} = -\frac{R_f}{R_{in}}$$ → ① mark

Non-Inverting amp. gain

$$A_V = \frac{V_{out}}{V_{in}} = 1 + \frac{R_f}{R_{in}}$$

(4) Six characteristics of ideal op-amp

1. Zero i/p v/g obtained
2. Infinite v/g gain
3. Gain independent of frequency
4. Zero o/p impedance
5. Infinite CMRR
6. Infinite power supply rejection ratio

5 (a) Astable multivibrator using 555 timer

Circuit Diagram → 2 marks

operation → 1 marks.

waveforms & Duty cycle Eq. → 1 marks.

(b) Integrator & Differentiator

Circuit Diagrams → 2 marks

operations → 1 mark. 1 mark.

Equations → 2 marks

[Differentiator] $V_0 = -RC \frac{dV_i}{dt}$ $V_0 = -\int V_i dt$ (Integrator)

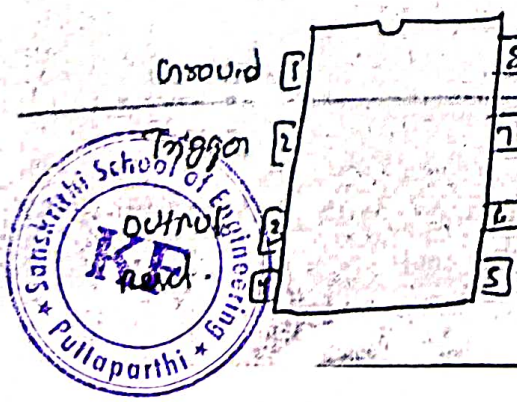
3 (a) Instrumentation amplifier.

Circuit Diagrams → 2 marks.

operation → 1 marks.

gain $A_V = \frac{V_{out}}{V_2 - V_1}$ → 2 marks.

(b) Pin diagram of IC 555 Timer



→ 2 marks.

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COURSE FILE – THEORY – TITLE PAGE

COURSE FILE - THEORY

DEPARTMENT	: MECHANICAL ENGINEERING
ACADEMIC YEAR	: 2021-2022
SEMESTER	: III Year / I SEM
SUBJECT CODE	: 19A03501T
SUBJECT TITLE	: APPLIED THERMODYNAMICS
NAME OF THE STAFF	: Mr. SHARADKUMAR
DESIGNATION	: ASSISTANT PROFESSOR

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Principal
Sanskrithi School of Engineering
Beedupalli Road, Prasanthingram,
PUTTAPARTHI - 515 134.
Anantapuramu (Dt) A.P.

COURSE FILE – INDEX – THEORY

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Course Files Creating and maintaining a repository of materials is an important part of developing a course. With Course Files, not only does faculty have access to all of their files, but they have the ability to manage, organize, and view those files as suits their needs. Course Files is a centrally located repository on the Blackboard server for organizing and storing content.

Objective of preparing a course file:

1. A course file is prepared in order to document all the work of the concerned faculty in regard to handling a subject.
2. A course file initiates proper planning before starting a subject for a particular semester.
3. A course file will help on evaluating the progress of completion of the syllabus of a particular subject.
4. A course file will show the performance of the students.
5. A course file will have entire study material of the subject with university questions and question banks which will help the students in examination perspective.
6. A course fill will help the other staff to approach the subject in need (example when a faculty go on emergency leave)
7. A course file is a reference for new staff.
8. A course file is an evident proof of the work of the staff in regard to the subject.

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PROCESS TITLE: PREPARATION OF COURSE FILE

PURPOSE: INITIATES SYSTEMATIC LEARNING AND TEACHING PROCEDURE

SL.NO	ACTIVITY	RESPONSIBILITY	DOCUMENT/RECORD
1	Receive the copy of the syllabus from university or download it from web site	Syllabus In-charge/concerned faculty	Syllabus File
2	Preparation of Lecture plan as per the syllabus	Concerned faculty	Lecture Plan filed in course file
3	Getting the student list from the HOD	Concerned faculty	List of students filed in course file
4	Delivering lectures and recording of topics covered and the Role No. of absentees for each lecture hour	Concerned faculty	Syllabus coverage status filed in course file
5	Announcing of assignment and records the details of submission and marks	Concerned faculty	Assignment planned statement and evaluation statement to be filed in the course file
6	Conducting periodic test, evaluate and publish the results with analysis. Also conducts retest if required.	Concerned faculty	Student Assessment Marks File
7	Submission of the course file to the HR/ Principal through the HOD, for his/her review and approval	Concerned faculty	Course file
8	Submission of course file to the HOD when the concerned faculty goes on long leave	Concerned faculty	Course file
9	Submit a copy of the course file hardbound at the end of the semester to the department library for the reference of other faculty in future.	Concerned faculty	Course file

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PUTTAPARTHI - 515 134.
Anantapuramu (Dt) A.P.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

B. Tech III – I SEM (M.E)

L	T	P	C
2	1	0	3

15A03501T

APPLIED THERMODYNAMICS

Course Objectives

- To familiarize the Working Principles of IC engines.
- To teach combustion process in SI and CI engines.
- To introduce different types of compressors.
- To familiarize concepts of thermodynamic cycles used in steam power plants and gas turbines
- To impart knowledge on the working of nozzles, turbines, refrigeration and air conditioning.

UNIT – I **10Hours**

IC Engines: Working and classification of IC engines, comparison of two stroke and four stroke engines, comparison of SI and CI Engines.

Testing and Performance of IC Engines: Methods of testing IC Engines, performance analysis of IC Engines.

Combustion in IC Engines: SI engine: stages of combustion, normal combustion, abnormal combustion, variables effecting delay period and knocking, pre-ignition. CI engine: stages of combustion, normal combustion, abnormal combustion, variables effecting delay period and knocking. Fuel requirements and fuel rating.

Learning Outcomes:

After completion of this unit, students will be able to

- Understand working of IC engines on the basis of thermodynamic cycles. (L2)
- Estimate engine performance. (L5)
- Identify the effects of abnormal combustion in IC engines. (L3)

UNIT – II **08Hours**

Air compressors Reciprocating Compressor: Single stage reciprocating compressors, work required, effect of clearance in compressors, volumetric efficiency, multi stage compressor, effect of inter cooling in multi stage compressors, compressor performance. Rotary Compressor: Working principle of a rolling piston type compressor (fixed vane type), multi vane type compressors, characteristics of rotary vane type compressor, working principle of centrifugal compression and axial flow compressors, velocity triangles.

Learning Outcomes:

After completion of this unit, students will be able to

- Classify different types of air compressors. (L2)

- Compare the performance of different types of air compressors (L2)

UNIT – III **08Hours**

Vapour Power Cycles: Vapour power cycle, simple Rankine cycle, mean temp of heat addition thermodynamic variables effecting efficiency and output of Rankine cycle

Gas power Cycle: Simple gas turbine plant, Brayton cycle, closed cycle and open cycle for gas turbines, condition for maximum pressure ratio and optimum pressure ratio, actual cycle. Methods to improve performance: regeneration, intercooling and reheating. Introduction to jet propulsion: working principle of ramjet, turbojet, turbofan, turboprop and pulse jet engines,

Learning Outcomes:

After completion of this unit, students will be able to

- Explain concepts of vapour power cycle used in steam power plant. (l2)
- Evaluate the cycles used in gas turbines. (l5)
- Outline the jet propulsion system (l2)

UNIT – IV **08Hours**

Nozzles: Type of nozzles - air and steam nozzles. Compressible flow through nozzle- condition for maximum discharge - nozzle efficiency.

Steam Turbines: Classification of steam turbines -impulse turbine and reaction turbine - compounding in turbines - velocity diagrams in impulse and reaction turbines, efficiency, degree of reaction - governing of turbines

Learning Outcomes:

After completion of this unit, students will be able to

- Compare the performance of nozzles, used in turbines. (l2)
- Classify steam turbines and applications. (l4)
- Analyse the performance of steam turbines under different operating conditions. (l5)

UNIT – V **08Hours**

Refrigeration: Bell-Coleman cycle - vapour compression cycle, effect of vapour condition on COP of VCR, -vapour absorption cycle, properties of common refrigerants.

Principles of Psychrometry and Air Conditioning: Psychometric terms, psychometric processes and air conditioning systems.

Learning Outcomes:

After completion of this unit, students will be able to

- Outline the operation of refrigerators. (l2)
- Identify different refrigerants and applications.(l3)
- Use properties of moist air in calculations for air-conditioning system. (l3)

INDIVIDUAL STAFF TIMETABLE / WORKLOAD

Department : MECHANICAL ENGINEERING

Faculty : Mr. SHARADKUMAR

Designation : Assistant Professor / Mechanical

Academic Year : 2021-2022

Year & Semester : III Year / I SEM

D / T	9:15-10:05	10:05-10:55	11:05-11:55	11:55-12:45	12:45-01:45	01:45-02:35	02:35-03:20	03:30-04:15	04-15 05-00
MON		ATO			LUNCH BREAK	RAC	← ADT lab →		
TUE	RAC			ATO		HT		Tm	
WED	ATO		RAC			HT	← FmHm lab →		
THUR		ATO		HT			RAC		Cad/Cam lab
FRI		RAC				ATO			
SAT	RAC		HT	HT					

TOTAL CONDUCT HOURS:

Sl. No	Sub Code	Theory Subjects Details	Year	Branch	Semester	No of Hours Allotted
1	15A03704	Refrigeration and Air Conditioning	IV	Mech	I	6
2	19A03503T	Heat Transfer	III	Mech	I	6
3	19A03501T	Applied Thermodynamics	III	Mech	I	6
4	19A03501P	Applied Thermodynamics lab	III	Mech	I	6
5	~~19A03504P~~ 19A03503P	FmHm lab	III	mech	I	6

Additional Work:-

i) NSS Coordinator

ii) Jogger Club Coordinator

iii) Lab incharge

iv) Placement coordinator

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Sanskrithi School of Engineering
Beedupalli Road, Prasanthinagram,
PUTTAPARTHI - 515 134.
Anantapuramu (Dt) A.P.

LESSON PLAN

Subject Name : Applied Thermodynamics
Subject Code : 19A03501T
Year & Branch: III Year & Mech
Semester : I SEM

Name of the Faculty : Mr. SHARADKUMAR
Designation : Asst Professor.

Course Objective:

- The objective of this subject is to impart the knowledge of engine components, working principles of IC engines, auxiliary systems, and the combustion aspects of SI and CI engines in addition to the methods of improving performance.
- The students shall become aware on the latest developments in the field of IC engines like MPFI , CRDI etc. and also shall become familiar about the working of Reciprocating and Rotary Compressors.
- The student also shall apply the thermodynamic concepts in IC engines and compressors.

UNIT-1:						10 HOURS
Sl .No	Proposed Date	Topic Name	T/R Book	Actual Date	Teaching Aids	Remarks
1.	08/10/21	IC Engines: Working and classification of IC engines	T1&R1,R2	10/11/21	M&B,PPT	
2.	09/10/21	comparison of two stroke and four stroke engines	T1&R1,R2	11/11/21	M&B,PPT	
3.	11/10/21	comparison of SI and CI Engines.	T1&R1,R2	12/11/21	M&B, PPT	
4.	13/10/21	Testing and Performance of IC Engines: Methods of testing IC Engines	T1&R1,R2	15/11/21	M&B, PPT	
5.	15/10/21	performance , analysis of IC Engines.	T1&R1,R2	16/11/21	M&B, PPT	
6.	18/10/21	Combustion in IC Engines: SI engine: stages of combustion, normal combustion, abnormal combustion	T1&R1,R2	17/11/21	M&B, PPT	
7.	21/10/21	variables effecting delay period and knocking, pre-ignition	T1&R1,R2	18/11/21	M&B, PPT	
8.	23/10/21	CI engine: stages of combustion, normal combustion, abnormal combustion,	T1&R1,R2	19/11/21	M&B, PPT	

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9.	26/10/21	variables effecting delay period and knocking	T1&R1,R2	29/11/21	M&B, PPT		
10.	28/10/21	Fuel requirements and fuel rating	T1&R1,R2	29/11/21	M&B, PPT		

UNIT-2:						08 HOURS
Sl .No	Proposed Date	Topic Name	T/R Book	Actual Date	Teaching Aids	Remarks
1.	01/11/21	Reciprocating Compressor: Single stage reciprocating compressors, work required	T1&R1,R2	4/11/21	M&B,PPT	
2.	03/11/21	effect of clearance in compressors, volumetric efficiency, multi stage compressor,	T1&R1,R2	27/11/21	M&B,PPT	
3.	05/11/21	effect of inter cooling in multi stage compressors	T1&R1,R2	29/11/21	M&B,PPT	
4.	10/11/21	compressor performance	T1&R1,R2	29/11/21	M&B,PPT	
5.	15/11/21	Rotary Compressor: Working principle of a rolling piston type compressor (fixed vane type)	T1&R1,R2	30/11/21	M&B,PPT	
6.	18/11/21	multi vane type compressors, characteristics of rotary vane type compressor	T1&R1,R2	03/12/21	M&B,PPT	
7.	20/11/21	working principle of centrifugal compression	T1&R1,R2	06/12/21	M&B,PPT	
8.	23/11/21	axial flow compressors, velocity triangles.	T1&R1,R2	01/12/21	M&B,PPT	

UNIT-3:						08 HOURS
Sl .No	Proposed Date	Topic Name	T/R Book	Actual Date	Teaching Aids	Remarks
1.	29/11/21	Vapour Power Cycles: Vapour power cycle, simple Rankine cycle	T1&R1,R2	18/12/21	M&B,PPT	
2.	06/12/21	mean temp of heat addition thermodynamic variables effecting	T1&R1,R2	20/12/21	M&B,PPT	

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		efficiency and output of Rankine cycle				
3.	09/12/21	Gas power Cycle: Simple gas turbine plant, Brayton cycle,	T1&R1,R2	23/12/21	M&B,PPT	
4.	14/12/21	closed cycle and open cycle for gas turbines,	T1&R1,R2	23/12/21	M&B,PPT	
5.	20/12/21	condition for maximum pressure ratio and optimum pressure ratio, actual cycle.	T1&R1,R2	29/12/21	M&B,PPT	
6.	27/12/21	Methods to improve performance: regeneration, intercooling and reheating	T1&R1,R2	29/12/21	M&B,PPT	
7.	30/12/21	Introduction to jet propulsion: working principle of ramjet,	T1&R1,R2	03/01/22	M&B PPT	
8	01/01/22	turbojet, turbofan, turboprop and pulse jet engines,	T1&R1,R2	05/01/22	M&B PPT	

UNIT-4: **08 HOURS**

Sl .No	Proposed Date	Topic Name	T/R Book	Actual Date	Teaching Aids	Remarks
1.	03/01/22	Nozzles: Type of nozzles - air and steam nozzles.	T1&R1,R2	07/01/22	M&B,PPT	
2.	05/01/22	Compressible flow through nozzle-condition for maximum discharge	T1&R1,R2	04/01/22	M&B,PPT	
3.	08/01/22	nozzle efficiency.	T1&R1,R2	08/01/22	M&B,PPT	
4.	10/01/22	Steam Turbines: Classification of steam turbines	T1&R1,R2	09/01/22	M&B,PPT	
5.	12/01/22	-impulse turbine and reaction turbine	T1&R1,R2	10/01/22	M&B,PPT	
6.	15/01/22	compounding in turbines	T1&R1,R2	11/01/22	M&B,PPT	
7.	17/01/22	velocity diagrams in impulse and reaction turbines, efficiency, degree of reaction	T1&R1,R2	13/01/22	M&B,PPT	
8	18/01/22	governing of turbines	T1&R1,R2	14/01/22	M&B,PPT	

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UNIT-5:						08 HOURS
Sl .No	Proposed Date	Topic Name	T/R Book	Actual Date	Teaching Aids	Remarks
1.	19/01/22	Refrigeration: Bell-Coleman cycle	T1&R1,R2	29/11/21	M&B,PPT	
2.	21/01/22	vapour compression cycle, effect of vapour condition on COP of VCR, -	T1&R1,R2	01/12/21	M&B,PPT	
3.	24/01/22	-vapour absorption cycle,	T1&R1,R2	04/12/21	M&B, PPT	
4.	26/01/22	properties of common refrigerants	T1&R1,R2	06/12/21	M&B, PPT	
5.	28/01/22	Principles of Psychrometry and Air Conditioning: Psychometric terms	T1&R1,R2	10/12/21	M&B, PPT	
6.	30/01/22	psychometric processes	T1&R1,R2	13/12/21	M&B, PPT	
7.	02/02/22	air conditioning systems.	T1&R1,R2	14/12/21	M&B, PPT	

Text Book(s)

1. Ganesan V, "Internal Combustion Engines", Tata McGraw Hill, 2017.
2. M.L.Mathur and F.S.Mehta, "Thermal Engineering", Jain brothers,2014

References:

1. Mahesh V Rathore, "Thermal Engineering", Tata McGraw Hill 2017
2. Yahya, S. M., Turbines, "Compressors and Fans", 4th edition, Tata McGraw Hill, 2010.
3. Nag P.K, "Engineering Thermodynamics",

4 th edition, Tata McGraw-Hill, 2008. 4. Onkar Singh, "Thermal Turbomachines", 3rd edition, Wiley India, 2014.

5. P.L.Ballaney, "Thermal Engineering", 2nd edition, Khanna, 2005.

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STUDENTS NOMINAL ROLL

Year & Branch: III Year / ME Semester: I Academic Year: 2021-2021

Sl. No	Register number	Name of the student
1	19KF1A0301	A SREENIVASULU
2	19KF1A0302	A MAHESH
3	19KF1A0303	B.R. SHIVA DHARSHAN
4	19KF1A0304	B VIJAY KUMAR
5	19KF1A0305	B PAVITHRA
6	19KF1A0306	B SAI GANESH
7	19KF1A0307	B MUBEEN TAJ
8	19KF1A0308	B SAI PRAKASH
9	19KF1A0309	B KALAYN KUMAR
10	19KF1A0310	C KARTHIK
11	19KF1A0311	C SRUTHI
12	19KF1A0312	C NARASHIMA RAJU
13	19KF1A0313	G VYSHNAVA REDDY
14	19KF1A0314	G VINAY GANGUALY
15	19KF1A0315	G YASWANTH SIMHA
16	19KF1A0316	G THARUN KUMAR REDDY
17	19KF1A0317	J JAYA KRISHNA
18	19KF1A0318	K LOKESH KUMAR
19	19KF1A0319	K RAHUL
20	19KF1A0320	K SAI PRASAD
21	19KF1A0321	K GOPI
22	19KF1A0322	K MANHOR REDDY
23	19KF1A0323	M SREEKANTH

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24	19KF1A0324	M REHAMAN
25	19KF1A0325	M SUSMITHA
26	19KF1A0326	M DIWAKAR REDDY
27	19KF1A0327	M NUTHAN PRASAD REDDY
28	19KF1A0328	M BHUVAN CHANDRA
29	19KF1A0329	N CHARAN KUMAR
30	19KF1A0330	P SAI THARUN
31	19KF1A0331	P ANUSHA
32	19KF1A0332	PRATHYUSHA
33	19KF1A0333	P SADIQ VALI
34	19KF1A0334	P SAI DIWAKAR
35	19KF1A0335	S VIJAY KUMAR
36	19KF1A0337	S BHANU PRAKASH
37	19KF1A0338	T NEELAKANTA REDDY
38	19KF1A0339	T LOKESH KUMAR
39	19KF1A0340	V REDDY SHEKAR
40	19KF1A0341	Y JEEVAN REDDY
41	19KF1A0342	S SHABAZ
42	20KF5A0301	B BASAVA RAJU
43	20KF5A0302	B GOVARDHAN
44	20KF5A0303	D G PAVAN KUMAR
45	20KF5A0304	K BHARATH SEKHAR REDDY
46	20KF5A0305	K SUDHARSHAN
47	20KF5A0306	M HUSSAIN BASHA
48	20KF5A0307	Y AJAY KUMAR

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SUBJECT HANDLERS OF LAST SEMISTER

Sl. No	Academic Year	Semester No.	Name of the Subject	% of Result
1	III	II	Heat Transfer	75 %
2	III	II	Heat Transfer Lab	100 %
3	II	II	Fluid Mechanics & Hydraulics Machines	92 %
4	I	II	Engineering Workshop	100 %
5	I	II	Engineering Graphics	100 %.

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ASSIGNMENT PLAN

Department : Mechanical Engineering **Year & SEM** : III / I

Subject Title : Applied Thermodyanamics **Subject Code** : 19A03501T

Faculty : Mr. SHARADKUMAR **Designation** : Asst Professor

Sl. No	Unit Num	Assignment Topics	Books / Journal to be Referred	Date of Announcement	Date of Submission
1.	Unit-1	Two Stroke IC Engine.	P K Nag and V Ganesan	12/11/2021	17/11/21
2.		Combustion stages	P K Nag and V Ganesan	22/11/2021	25/11/21
3.	Unit-2		P K Nag and V Ganesan		
4.			P K Nag and V Ganesan		
5.	Unit-3	problems on	P K Nag and V Ganesan	29/12/2021	03/01/22
6.		Gas Cycle.	P K Nag and V Ganesan		
7.	Unit-4	Turbo Jet Engine	P K Nag and V Ganesan	05/01/22	09/01/22
8.		Ramjet Engine	P K Nag and V Ganesan		
9.	Unit-5	VCRS system	P K Nag and V Ganesan	16/12/21	18/12/21
10.		NH_3-H_2O Refrigeration.	P K Nag and V Ganesan	19/12/21	23/12/21

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ACADAMIC SEMINAR PLAN

Department : Mechanical Engineering — **Year & SEM:** III / I

Subject Title : Applied Thermodyanamics — **Subject Code:** 19A03501T

Faculty : Mr. SHARADKUMAR — **Designation:** Asst Professor

Sl. No	Unit	Seminar Topics	Student HT Number	Date of Announcement	Date of Presentation
1	Unit-1	IC Engine.	Karthik	08/11/21	13/11/21
2					
3	Unit-2	Different types of Compressor	Sk. Tarun	06/12/2021	09/12/22
4					
5	Unit-3	Jet Engine	Pavitra	29/12/21	04/01/22
6		Turbo fan.	Charan.	29/12/21	04/01/22.
7	Unit-4				
8					
9	Unit-5	Different Refrigeration System.	Ganesh (19KF1A306)	09/11/21	25/11/21
10					

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ACADAMIC VIDEO PRESENTATION

Department : Mechanical Engineering **Year & SEM** : III / I

Subject Title : HEAT TRANSFER **Subject Code** : 19A03503T

Faculty : Mr. SHARADKUMAR **Designation** : Asst Professor

Sl. No	Unit Num	Video Topics	Date
1	Unit-1	Two stroke and four stroke engines	09/11/2021
2	Unit-2	Different types of compressor	
3	Unit-3	Gas turbine, turboprop and pulse jet engines	04/01/22
4	Unit-4	Impulse turbine and reaction turbine	
5	Unit-5	common refrigerants	10/12/2021

Guest lecture Plan for odd semester 2021-22

SL .No	Date	Title of the Event	Resource Person	Beneficiary
1	—	—	—	—
2	—	—	—	—

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Plan for Industrial Visit for ODD Semester 2021-22

SL .No	Date	Industry Name	Contact Details	Beneficiary
1	08/12/21	a. Technology	Archana (Asst prof)	Students

Plan for Event/Conference/Workshop Even for ODD Semester 2021-22

Sl .No	Date	Title of the Event	Resource Person	Beneficiary
1	30/01/22	project Expo		Students
2				

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BRANCH: [illegible] SUBJECT : [illegible]

S.No	Roll No	Marks			
		DES (15)	AST (05)	OBJ (10)	TOTAL (30)
1	19KF1A0301	6	5	4	15
2	19KF1A0302	5	5	5	15
3	19KF1A0303	10	5	4	19
4	19KF1A0304	8	5	5	18
5	19KF1A0305	8	5	4	17
6	19KF1A0306	12	5	5	22
7	19KF1A0307	10	5	5	20
8	19KF1A0308	2	5	3	10
9	19KF1A0309	7	5	5	17
10	19KF1A0310	11	5	5	21
11	19KF1A0311	10	5	4	19
12	19KF1A0312	4	5	2	11
13	19KF1A0313	4	5	4	13
14	19KF1A0314	ABSENT			
15	19KF1A0315	2	5	4	11
16	19KF1A0316	4	5	3	12
17	19KF1A0317	6	5	4	15
18	19KF1A0318	12	5	5	22
19	19KF1A0319	6	5	5	16
20	19KF1A0320	9	5	6	20
21	19KF1A0321	2	5	5	12
22	19KF1A0322	3	5	3	11
23	19KF1A0323	4	5	6	15
24	19KF1A0324	4	5	4	13
25	19KF1A0325	10	5	6	21

S.No	Roll No	Marks			
		DES (15)	AST (05)	OBJ (10)	TOTAL (30)
26	19KF1A0326	6	5	3	14
27	19KF1A0327	5	5	5	15
28	19KF1A0328	8	5	5	18
29	19KF1A0329	7	5	6	18
30	19KF1A0330	7	5	8	20
31	19KF1A0331	11	5	4	20
32	19KF1A0332	14	5	5	24
33	19KF1A0333	5	5	5	15
34	19KF1A0334	4	5	6	15
35	19KF1A0335	5	5	2	12
36	19KF1A0336	~~5~~ ABSENT			~~Ent~~
37	19KF1A0337	5	5	4	14
38	19KF1A0338	5	5	5	15
39	19KF1A0339	3	5	3	11
40	19KF1A0340	4	5	7	16
41	19KF1A0341	2	5	7	14
42	19KF1A0342	7	5	4	16
43	20KF5A0301	7	5	6	18
44	20KF5A0302	8	5	5	18
45	20KF5A0303	7	5	2	14
46	20KF5A0304	13	5	8	26
47	20KF5A0305	5	5	4	14
48	20KF5A0306	9	5	6	20
49	20KF5A0307	4	5	8	17

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Scheme of Evaluation

Name of the Exam : B. Tech 2nd Year 1 Semester 1 Midterm Date : 01.12.2021

Staff Name : Mr. Shanmukha Regulation: R-19

Subject Name : Applied Thermodynamics Code : 19A03502T

Q① → p-v & T-s diagram → 4m
Engine diagram → 2m
Explanation → 4m

Q② p-v & T-s diagram → 4M
Engine diagram → 2m
Explanation → 4m

Q③ Steps in Stages → 2m
Explanation → 6m
diagram → 2m

Q④ For each definition → 2M×5

Q⑤ Definition → 1m
diagram → 2m
p-h & T-s diagram → 2m
working principle → 5m

Q⑥ Application → 2m
Diagram → 2m
p-h & T-s → 2m
working principle → 4m

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III B. Tech I Semester I Mid Term Examination (2021-22): Descriptive

Date: 07/12/21 Max marks: 10

NAME: HT NO: 1 4

Invigilator Signature:

ANSWER THE FOLLOWING QUESTIONS. EACH QUESTION CARRIES ½ MARK.

1) . The boiling point of ammonia is [c]

a) -10.5°C b) -10.73°C c) -33.3°C d) -35.3°C

3. For obtaining high COP, the pressure range of compressor should be [b]

a) High b) Low c) Optimum d) Any Value

3) The VCRS is like [d]

a) Carnot cycle b) Rankine cycle c) Reverse Carnot cycle d) Reverse Rankine cycle

4) The refrigerant widely used in domestic refrigerators is [c]

a) Ammonia b) Carbon dioxide c) R-12 d) Sulphur dioxide

5) In SI engine, ignition lag is reduced if the initial temperature and pressure are [b]

a) decreased b) increased c) constant d) none of the mentioned

6) The time for which delay period occurs decreases with _____ in engine speed. [a]

a) increases b) decreases c) unpredictable d) none of the mentioned

7) The delay period depends upon temperature and pressure in the cylinder at the time of injection. [a]

a) True b) False

8) The delay period _____ with load. [a]

a) increases b) decreases c) unpredictable d) none of the mentioned

9) Higher cetane number means a _____ delay period and smoother engine operation. [d]

a) Higher b) lower c) normal d) none of the mentioned

10) Increase in compression ratio _____ delay period. [b]

a) Increases b) reduces c) unpredictable d) none of the mentioned

11) _____ in supercharging pressure increases the tendency to detonate and preignite. [b]

a) Decrease b) increase c) Unpredictable d) none of the mentioned

12) The basic measurement and testing parameters are [d]

a) a)friction power b) indicated power c) brake power d) all of the mentioned

13) _____ is the difference between indicated and brake power of an engine. [c]

a) Air flow b) Emissions c) Friction power d) None of the mentioned

14) The indicated power for multi-cylinder engine will be same as that of a single cylinder engine. [a]

a) True b) False

15) If the speed of the engine is increased, the indicated power will [a]

a) increase b) decrease c) remain same d) none of the mentioned

16) In _____ combustion, the flame initiated by the spark travels across the combustion chamber in a fairly uniform manner. [a]

a) Abnormal b) normal c) knocking d) none of the mentioned

17) Indicated power of a 4-stroke engine is equal to [c]

a) pLAN b) 2pLAN c) pLAN/2 d) 4pLAN

18) Ignition quality of petrol is expressed by [a]

a) octane number b) calorific value c) Self ignition temperature d) cetane number

19) In CI engine, combustion occurs by the high temperature produced by the compression of the air. [a]

a) True b) False

20) The phases of CI engine combustion are [d]

a) ignition delay period b) period of rapid combustion

c) period of controlled combustion d) all of the mentioned

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III B. Tech I Semester I Mid-Term Examination (2021-22): Descriptive

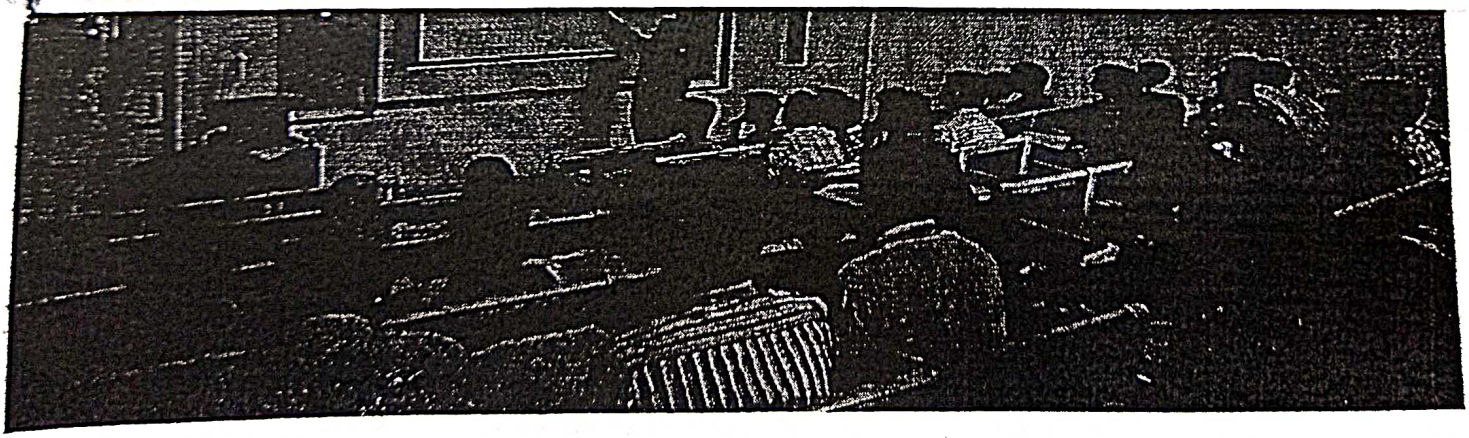
Branch: MECH | Sub: ATD | Sub Code: 19A03502T

Time: 90 Minutes | Date: | Max marks: 30

Answer any three questions. All questions carry equal marks

OP-B

1. Explain the Stages in Combustion for SI Engine? OR
2. Define i) Mechanical Efficiency ii) Indicated Power iii) Indicated thermal efficiency iv) Break power v) Mechanical Efficiency.
3. Explain the four strokes SI Engine with P-V and T-S Diagram? OR
4. Explain the CI Engine with P-V and T-S Diagram?
5. What are the applications of Refrigeration? Explain the working principle of Joule Cycle with P-V and T-S diagram? OR
6. What is mean by Refrigeration? Explain the working Principle of VCRS with p-h and T-S Diagram?



Topic:-Turbofans Engine

Presented by:- Mr. Charan kumar

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Anantapuramu (Dt) A.P.

SSE

[redacted]

COURSE FILE - THEORY

FACULTY NAME	**: K. RAMU**
DESIGNATION	**: ASSISTANT PROFESSOR**
DEPARTMENT	**: EEE**
SUBJECT CODE	**: 15A02805**
SUBJECT TITLE	**: ENERGY RESOURCES AND TECHNOLOGY**
DEPARTMENT	**: EEE**
YEAR / SEMESTER	**: IV/11**
BATCH	**: 2017-2021**
ACADEMIC YEAR	**: 2020-2021 (EVEN SEM)**

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Anantapuramu (Dt) A.P.

COURSE FILE – INDEX- THEORY

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6	Practical Classes-Experiments Details	-
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8	Subject Handlers of Yester Years	09
9	Assignment Plan	10
10	Poster presentations	-
11	Mini project	-
12	Events	-
13	Internal Question Paper – I	✓
14	Answer for Part –A questions in Printed form – Internal Test I	✓
15	Internal Marks Statement	✓
16	Internal Question Paper – II	✓
17	Answer for Part –A questions in Printed form – Internal Test II	✓
18	Internal Marks Statement	✓
19	Model Exam Question Paper for Theory & Practical	✓
20	Answer for Part –A questions in Printed form – Model Examination	✓
21	Model Exam Mark Analysis & Corrective Action	✓
22	University Question Papers	.
23	Notes of Lesson for Unit 1 to 5	.
24	Sample of 3 Answer Booklets & Assignment Papers- i) Best ii) Medium iii) Poor Assignment	
25	Assessment Record	

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Anantapuramu (Dt) A.P.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

SANSKRITHI SCHOOL OF ENGINEERING, PUTTAPARTHI

IV B.Tech II Sem (E.E.E)

15A02805

L	T	P	3
1	0	3	

Unit – I: Fundamentals principles of energy

Fundamentals of energy- Quality of energy- Complete Cycle Analysis of Fossil Fuels - Other Fossil Fuels - Energy Economics : Input-Output Analysis.

Unit – II: Thermal, Hydro and Nuclear power sources

Thermal Power Plants - Hydroelectric Power plants - Nuclear Power Generation- Nuclear Fusion Reactors - Environmental Effects of Conventional Power

Unit – III: Solar, wind and photo voltaic power sources

Solar Thermal Energy Conversion - Solar Concentrating Collectors - Photovoltaic Power Generation- Wind Energy - Wind Electrical Conversion

Unit – IV: Other sources of energy

Tidal Energy - Ocean Thermal Energy Conversion - Solar Pond and Wave Power - Geothermal Energy - Solar Distillation and Biomass Energy

Unit – V: Energy storage and Economy

Energy Storage - Energy in Transportation - Magneto hydrodynamic Power Generation - Hydrogen Economy.

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INDIVIDUAL STAFF TIMETABLE / WORKLOAD

Department : EEE

Faculty : K. RAMU Academic Year : 2020-2021

Designation : Assistant Professor /EEE Year / Semester : IV/11

Day	09:35-10:25	10:25-11:05	11:05-11:55	11:55-12:45	12:45-01:35	01:35-02:25	02:25-03:20	03:20-04:10	04:10-05:00
MON			BREAK			LUNCH BREAK	ERT		PROJ-K.R
TUE	ERT								
WED							ERT		
THU	ERT			PROJ-K.R					
FRI							ERT		
SAT	ERT			PROJ-K.R					

TOTAL CONDUCT HOURS:

S.No	Sub Code	Theory Subjects Details	Year	Branch	Semester	No of Hours Allotted
1	15A02805	ENERGY RESOURCES AND TECHNOLOGY	IV	EEE	II	6

S.No	Sub Code	Lab Name Details	Year	Branch	Semester	No of Hours Allotted

S.No	Additional Responsibilities Assigned	Year & Branch
1	class Advisor	II EEE
2	Training & placement Incharge in Department	Dept. of EEE
3		

❖ Responsibilities like Class in charge, Student Counselor.0, ISO related works & others

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LESSON PLAN

Subject Name	:Energy Resources and technology	Year & Branch: IV EEE	
Subject Code	: 15A02805	Semester	: II
Name of the Faculty	: K. RAMU	Designation	: AP

Objectives:

The objectives of the course are to make the students learn about:
- Production of quality of energy
- Types of generation plants and their principle of operation
- Methods of energy storage
- Economics of generation

Text Books:

1. Non- conventional energy sources by G. D. Rai, Khanna Publishers, 2000

References:

1. Renewable energy Resources – Jhon Twidell and tony Weir, Second edition, Taylor and Francis Group, 2006
2. Electrical power generation, Transmission and distribution by S. N. Singh, PHI, 2003
3. Wind electrical systems by S. N. Bhadra, D. Kastha & S. Banerjee – Oxford University Press, 2013

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UNIT-I			Fundamental principals of energy			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	15/3/2021	5	Fundamentals of energy	T/R	16/3/2021	M&B, PPT
2.	16/3/2021	1	Quality of energy	T/R	18/3/2021	M&B, PPT
3.	17/3/2021	5	Complete cycle analysis of fossil fuels	T/R	20/3/2021	M&B, PPT
4.	18/3/2021	1	Other fossil fuels	T/R	30/3/2021	M&B, PPT
5.	20/3/2021	5	Energy economics:input and output analysis	T/R	1/4/2021.	M&B, PPT

UNIT- II			THERMAL,HYDRO AND NUCLEAR POWER SOURCES			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	22/3/2021	1	THERMAL POWER PLANTS	T/R	5/4/2021	M&B, PPT
2.	24/3/2021	5	Hydro electric power plants	T/R	6/4/2021	M&B, PPT
3.	26/3/2021	1	Nuclear power generation	T/R	10/4/2021.	M&B, PPT
4.	28/3/2021	5	Nuclear fusion reactors	T/R	15/4/2021	M&B, PPT
5.	30/3/2021	1	Environmental effects of conventional power	T/R	20/4/2021.	M&B, PPT

UNIT-III			SOLAR,WIND AND PHOTOVOLATIC POWER SOURCES			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	31/3/2021	5	Solar themal energy conversion	T/R	22/4/2021	M&B, PPT
2.	01/04/2021	1	Solar concentrating collectors	T/R	29/4/2021	M&B, PPT
3.	2/4/2021	5	Photovoltaic power generation	T/R	3/5/2021	M&B, PPT
4.	3/4/2021	1	Wind energy	T/R	8/5/2021	M&B, PPT
5.	5/4/2021	5	Wind electrical conversion	T/R	10/5/2021	M&B, PPT

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UNIT – IV			OTHER SOURCES OF ENERGY			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	8/4/2021	5,3	TIDAL ENERGY	T/R	18/5/2021 26/5/2021	M&B, PPT
2.	9/4/2021	1,3	Ocean thermal energy conversion	T/R	26/5/2021 29/5/2021	M&B, PPT
3.	10/4/2021	5,3	Solar pond and wave power	T/R	1/6/2021. 2/6/2021	M&B, PPT
4.	12/4/2021	1,3	Geothermal energy	T/R	3/6/2021. 5/6/2021	M&B, PPT
5.	14/4/2021	5,3	Solar distillation and biomass energy	T/R	8/6/2021 9/6/2021.	M&B, PPT
UNIT – V			ENERGY STORAGE AND ECONOMY			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	15/4/2021	3,	ENERGY STORAGE	T/R	10/6/2021 11/6/2021	M&B, PPT
2.	16/4/2021	3	Energy in transportation	T/R	17/6/2021 18/6/2021	M&B, PPT
3.	17/4/2021	3	Magneto hydrodynamic	T/R	21/6/2021.	M&B, PPT
4.	19/4/2021	3	Power generation	T/R	22/6/2021 25/6/2021	M&B, PPT
5.	21/4/2021	3	Hydrogen economy	T/R	29/6/2021 30/6/2021	M&B, PPT

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UNIT – IV			OTHER SOURCES OF ENERGY			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	8/4/2021	5,3	TIDAL ENERGY	T/R	19/5/2021 26/5/2021	M&B, PPT
2.	9/4/2021	1,3	Ocean thermal energy conversion	T/R	26/5/2021 29/5/2021	M&B, PPT
3.	10/4/2021	5,3	Solar pond and wave power	T/R	1/6/2021 2/6/2021	M&B, PPT
4.	12/4/2021	1,3	Geothermal energy	T/R	3/6/2021 5/6/2021	M&B, PPT
5.	14/4/2021	5,3	Solar distillation and biomass energy	T/R	8/6/2021 9/6/2021	M&B, PPT
UNIT – V			ENERGY STORAGE AND ECONOMY			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	15/4/2021	3,	ENERGY STORAGE	T/R	10/6/2021 11/6/2021	M&B, PPT
2.	16/4/2021	3	Energy in transportation	T/R	17/6/2021 18/6/2021	M&B, PPT
3.	17/4/2021	3	Magneto hydrodynamic	T/R	21/6/2021	M&B, PPT
4.	19/4/2021	3	Power generation	T/R	22/6/2021 25/6/2021	M&B, PPT
5.	21/4/2021	3	Hydrogen economy	T/R	29/6/2021 30/6/2021	M&B, PPT

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STUDENTS NOMINAL ROLL

Year& Branch with section: IV - EEE **Semester: II**

Academic Year: 2020-2021 **Batch: 2017 – 2021**

ROLL NO	NAME OF THE STUDENT	ROLL NO	NAME OF THE STUDENT
17KF1A0201	A.AAKANKSHA	17KF1A0216	P. VAISHNAVI
17KF1A0202	A.NIRMALA BAI	17KF1A0217	P. SREEVALLIKA
17KF1A0203	B.GANGA BHAVANI	17KF1A0218	S.SHAMEEM AKHTHAR
17KF1A0204	C.ANAND	17KF1A0219	S. NIKITHA
17KF1A0205	C.SREEJA REDDY	18KF5A0201	B.ROHINI
17KF1A0206	D.JYOSTHNA PRIYA	18KF5A0202	K. SAI KRISHNA
17KF1A0207	D.SRUTHI	18KF5A0204	N.TEJESHWAR REDDY
17KF1A0208	G.PAVITHRA	18KF5A0206	D.NAVITHA
17KF1A0209	K.KUSUMA	18KF5A0207	R.MAHESH
17KF1A0210	VAJIHA THASNEEM	18KF5A0208	S. GOPI
17KF1A0211	M.MANASA CHOWDARY	18KF5A0209	S. MOHAMMED IRFAN
17KF1A0212	M.VIJAY NARASIMHA		
17KF1A0213	M.MARUTHI VARAPRASAD		
17KF1A0214	M.RAJESWARI		
17KF1A0215	M. GANGADHAR REDDY		

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SUBJECT HANDLERS OF YESTER YEARS

DEPARTMENT : EEE,

YEAR & SEMESTER : IV/II

SUBJECT CODE / TITLE : ERT

FACULTY NAME : Ms.M.SWETHA

DESIGNATION : AP / EEE

S. No.	Academic Year	Semester No.	Name of the faculty	% of Result produced
1	2018-2019	IV / II	Mr. K.RAJESH	100%
2	2019-2020	IV/II	Ms. M. SWETHA	100%

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ASSIGNMENT PLAN

Department : EEE Year & Sem : IV/II

Subject Title : Energy resources and technology Subject Code : 15A02805

Faculty Name : K. RAMU Designation : AP

Unit No	Assignment Topics	Roll Nos/Batch	Books / Journal to be Referred	Date of Announcement	Date of Submission
1.	Nuclear power plant	17KF1A0202.	B.Rao.	15/4/2021	22/4/2021.
2	Hydro Plant	17KF1A0207	NCES, by G.D.Rai.	10/4/2021	20/4/2021.
3.	OTEC	17KF1A0216	IJESTR Journals	27/5/2021.	1/6/2021.
4.	Solar Pond	17KF1A0210	NCES, by G.D. Rai	28/5/2021	2/6/2021
4.	Biomass power plant	17KF1A0214.	S.Rao & NES by Sukhatme	9/6/2021.	15/6/2021.
5.	M.H.D Power Cycles-Tata Ltd.	17KF1A0218	Sukhatme SN. Singh Author	02/6/2021.	7/6/2021.
–	M.H.D power plant.	18KF5A0201	Renewable Energy by Tony Wet x II Edition	02/6/2021.	09/6/2021.

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Seminar Hour or Video Lecture Hour

Each subject, we have defined 6 hours per week. In this one hour is specifically filled by seminar hour or video lecture hour.

Faculty name: K. RAMU., Asst.Prof / EEE

Subject name: ERT

S.No	Name of the Student	Year & Department	Tile of the seminar	Signature of the faculty
1	Rajeswari	IV / EEE	Nuclear Power Plants	
2	Shruthi & Ganga bhavani	IV / EEE	Solar pond & Wave energy	
3	Vajiha	IV / EEE	Wave energy	
4	Nirmala Bhai	IV / EEE	Thermal power plants	
5	Anand	IV / EEE	Hydrogen Economy	
6	Vyshnavi	IV / EEE	Energy Systems	

Video lecture presentation schedule

VIDEO PRESENTATION FOR Department (4-2) SEM FOR THE WEEK

Sl.No	Name of the faculty	Class	Name of the Video	Venue	Signature of the faculty
1	K. RAMU	IV	Solar Pond & Wave Energy	Shared online	
2		IV	Tidal Energy System	Shared Video	
3		IV			
4		IV			
5		IV			
6		IV			

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SSE **SANSKRITHI SCHOOL OF ENGINEERING, PUTTAPARTHI**

IV B. Tech II Semester I Mid–Term Examination (2020-2021)

Branch: EEE | Sub: ENERGY RESOURCE TECHNOLOGY | Sub Code: 15A02805

Time: 90 Minutes | Date: 08/07/2021 [FN] | Max marks: 30

Answer any three questions.

4) Describe the various power generating methods used in India and compare them with their operationalcost and efficiency.
5) Draw the general layout of high head hydroelectric power plant and explain the function of each components.
6) Explain the system safety and environmental aspects of Thermal Energy power plant.
4) What problems are faced by the environment if electrostatic precipitator in steam power plant is notworking properly.
5) Draw labeled schematic block diagram of thermal power plant showing all thesystems.

→ Solar → Hydral → Tidal → Geothermal.
→ Thermal → Wind. → Biomass → Solar Pstn.

Comparition with their Operational Cost & Efficiency (2m)

3) Layout of hydro electric power plant — (5m)
Explanation the function of Components — (5m)

4) Environmental Aspects of Thermal Energy Power plant. (10m)
- Soil
- Water.
- Air.
- Coal.

1) Electro Static precipitator problems Explanation
Block diagram — (5m)
Aspects Explanation — (5m)

5) Block diagram of thermal power plant (5m)
Explanation of all Each Components (5m)
in Thermal power plant

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ANSWER THE FOLLOWING QUESTIONS. EACH QUESTIONS CARRY ½ MARK.

1.The energy that can renewed by nature is called as (C)
A)Non renewable energy B)Conventional energy
C)Renewable energy D)none of the above
2.The amount of energy converted to mechanical work is called as (B)
A)electrical energy B)mechnical energy C)kinetic energy D)Quality of energy
3.Oil and natural gas are transported by (D)
A)Pipelines B)Tankers C)Insulated containers D)All of the above
4.Coal is extracted by (C)
A)Mining B)Drilling C)Both A and b D)none of the above
5.Quality of energy is measured in terms of (D)
A)Energy B)Exergy C)Work D)None of the above
6.Absorber plate in flat plate collector is made of (D)
A)Copper B)Aluminum C)Steel D)All of the above
7.Which of the following is a Dis advantage of renewable energy (C)
A)High pollution B)Available only in few places C)High running cost D)Unreliable supply
8.A solar cell is an electric device that converts the energy of light directly convert into electricity by the (A)
A)Photovoltaic B)Chemical effect C)Atmospheric effect D)Physical effect
9.The main composition of biogas is (A)
A)Methane B)Carbon dioxide C)Nitrogen Hydrogen
10.In hydroelectric power, what is necessary for the production of power throughtout the year
A)Dams filled with Water B)High amount of water (A)
C)High intense sunlight D)Nuclear power

11.Which of the following nonrenewable energy is not classified under a fossil fuel(D)
A)Nuclear B)Petroleum C)Oil D)Natural gas

12.Where does India Stand on solar energy production (D)
A)First B)Third C)Fifth D)Seventh
13..... is a solid state fossil fuel (A)
A)coal B)gas C)water D)none of the above
14Example for Non polluting energy (A)
A)Solar energy B)Petrol C)Nuclear energy D)Coal
15.Excess waste left after combustion of coal is (C)
A)Residue B)Pollutant C)Coal ash D)Deposit
16.In .....Circuit, the coal after handling passes on to the furnace through fuel feeding device
A)Air and gas B)Feed water and steam flow (B)
C)Coal and ash D)Cooling water
17.Absorber plate in flat plate collectoris made of (D)
A)copper B)Aluminium C)Steel D)EitherA or B or C
18.The copper production in India to that of worlds production is about .....% (B)
A)10% B)2% C)0.5% D)0.2%
19.Steel is a mineral (A)
A)True B)False C)A and B D)None of the above
20.The energy produced directly from natural source is known as (B)
A)Secondary energy B)Primary energy C)Expendable energy D)None

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Marks Awards List

Exam: IV B.Tech II Sem II Mid Faculty Name: K. Ramu.

BRANCH: EEE SUBJECT: ERT MAX MARKS: 30

S.No	Roll No	Marks		
		DES (20)	OBJ (10)	TOTAL (30)
1	17KF1A0201	17	09	26
2	17KF1A0202	18	05	23
3	17KF1A0203	17	05	22
4	17KF1A0204	17	06	23
5	17KF1A0205	18	07	25
6	17KF1A0206	17	08	25
7	17KF1A0207	16	05	21
8	17KF1A0208	16	03	19
9	17KF1A0209	18	05	23
10	17KF1A0210	17	06	23
11	17KF1A0211	12	04	16
12	17KF1A0212	17	07	24
13	17KF1A0213	15	06	21
14	17KF1A0214	19	07	26
15	17KF1A0215	15	07	22
16	17KF1A0216	19	09	28
17	17KF1A0217	13	05	18
18	17KF1A0218	18	06	24
19	17KF1A0219	16	05	21

S.No	Roll No	Marks		
		DES (20)	OBJ (10)	TOTAL (30)
20	18KF5A0201	17	07	24
21	18KF5A0202	13	07	20
22	18KF5A0204	17	06	23
23	18KF5A0206	16	05	21
24	18KF5A0207	16	06	22
25	18KF5A0208	15	07	22
26	18KF5A0209	17	06	23

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Scheme of Evaluation

Name of the Exam : B. Tech IV Year II Semester II Midterm Date : 10/3/2021

Staff Name : K. RAMU

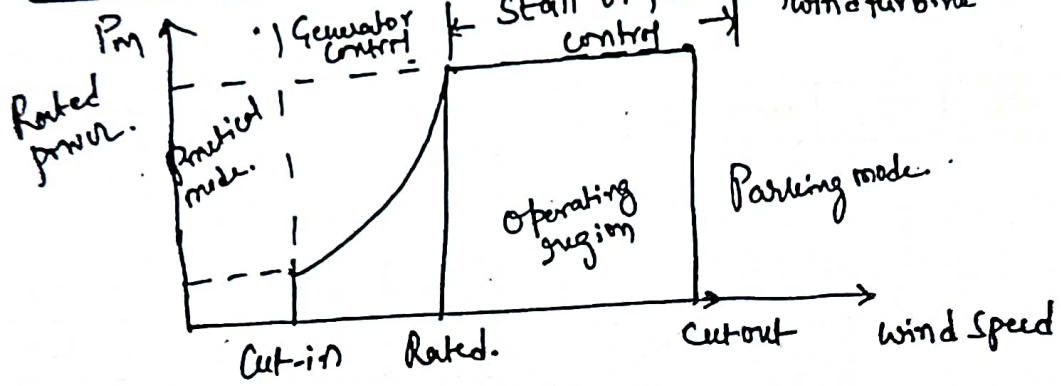
Subject Name : Energy Resource Technology [ERT] Code : 15A02605

1. a) Solar Thermal Power plant Block diagram – 3m.

Principle & Operation Explanation – 2m

b) Types of Solar Collectors

2) Power-wind Characteristics (5m) $P_{air} = 0.5 \rho A (V^3)$



$P_{wind\,turbine} = 0.5\,\rho\,A\,(V)C_p$

Principle of wind energy Conversion → K.E to Mechanical Energy →(2m)

$K.E = \frac{1}{2}mv^2$

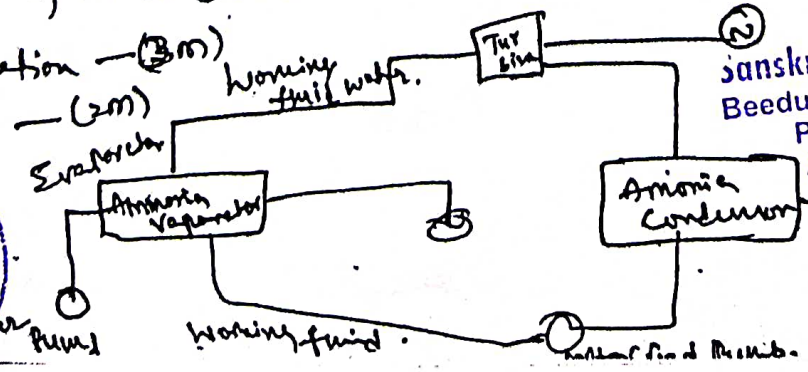
$P = \frac{1}{2}m \cdot M_w^2$

Explanation – (3m)

3) Hybrid open & closed loop Block diagram – (5m)

Explanation – (3m)

Merits – (2m)



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SANSKRITHI SCHOOL OF ENGINEERING

Marks Awards List

Exam: IV B.Tech II Sem II Mid Faculty Name: K. Ramu.

BRANCH: EEE SUBJECT: ERT MAX MARKS: 30

S.No	Roll No	Marks		
		DES (20)	OBJ (10)	TOTAL (30)
1	17KF1A0201	15	06	21
2	17KF1A0202	17	08	25
3	17KF1A0203	16	09	25
4	17KF1A0204	18	08	26
5	17KF1A0205	15	06	21
6	17KF1A0206	16	07	23
7	17KF1A0207	18	09	27
8	17KF1A0208	13	07	20
9	17KF1A0209	16	09	25
10	17KF1A0210	17	10	27
11	17KF1A0211	10	07	17
12	17KF1A0212	17	05	22
13	17KF1A0213	15	06	21
14	17KF1A0214	18	10	28
15	17KF1A0215	12	10	22
16	17KF1A0216	←	ABSENT	→
17	17KF1A0217	15	10	25
18	17KF1A0218	18	10	28
19	17KF1A0219	14	09	23

S.No	Roll No	Marks		
		DES (20)	OBJ (10)	TOTAL (30)
20	18KF5A0201	18	09	27
21	18KF5A0202	15	09	24
22	18KF5A0204	17	09	26
23	18KF5A0206	16	10	26
24	18KF5A0207	15	10	25
25	18KF5A0208	14	07	21
26	18KF5A0209	15	07	22

Faculty Signature HoD PRINCIPAL

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SSE

SANSKRITHI SCHOOL OF ENGINEERING, PUTTAPARTHI

IV B. Tech II Semester II Mid–Term Examination (2020-2021)

Branch: EEE Sub: ENERGY RESOURCE TECHNOLOGY Sub Code: 15A02805

Time: 90 Minutes Date: 08/06/2021 [AN] Max marks: 30

Answer any three questions.

1 (a) Discuss in detail about solar thermal power plants.
(b) With relevant diagrams, demonstrate various types of solar collectors.
2. Explain the Power-Windspeed characteristics and Principle of wind energy conversion.
3. With neat diagrammatic representation, explain the operation of a hybrid cycle ocean thermal energy conversion. Also delineate the importance of various components used inthe system and list some merits over other OTEC systems.
4. (a) Brief about the operational and environmental problems of geothermal process.
(b) List some of the geothermal occurrence in India.
5. Explain the operation of MHD Generator with its open cycle and closed cycle systems.

SSE

SANSKRITHI SCHOOL OF ENGINEERING, PUTTAPARTHI

IV B. Tech II Semester II Mid–Term Examination (2020-2021)

Branch: EEE Sub: ENERGY RESOURCE TECHNOLOGY Sub Code: 15A02805

Time: 90 Minutes Date: 08/06/2021 [AN] Max marks: 30

Answer any three questions.

1 Discuss in detail about solar thermal power plants.
(b) With relevant diagrams, demonstrate various types of solar collectors.
2. Explain the Power-Windspeed characteristics and Principle of wind energy conversion.
3. With neat diagrammatic representation, explain the operation of a hybrid cycle ocean thermal energy conversion. Also delineate the importance of various components used inthe system and list some merits over other OTEC systems.
4. (a) Brief about the operational and environmental problems of geothermal process.
(b) List some of the geothermal occurrence in India.
5. Explain the operation of MHD Generator with its open cycle and closed cycle systems.

resource is [C]
a) Bangladesh b) China c) India d) USA

12. Which Uranium Isotrope is used In nuclear power plants [d]
a) U-218 b) U-234 c)U-215 d) U-235
13. IREDA was developed by the governmentof India [b]
a) More efficient methods for using conventional energy sources
b) To promote the development of nonconventional energy sources
c) To develop nuclear energyin India
d) To control pollution
14. All of the conventional energy sources are non renewable [b]
a) True b) False
15. World energy needs a raising due to [C]
a) Deforestration c) Increase population and industrialization d) Inflation
b) Naturalcalamities
16. SI Unit of Energy is [d]
a) Watt b) Kilogram c) Newton d) Joule
17. In Hydroelectricity power [b]
a) K.E to P.E b) P.E to K.E c) Solar to wind d) Wind energy to solar energy
18. In the production of wave energy which form of energy is used [a]
a) Kinetic energy b) potential energy c) Solar energy d) Wind energy
19. The most Nuclear fuel used in the world is [C]
a) Thorium-232 b)Thorium-239 c) Uranium-235 d) Photonium-239
20. Energy is released from fossilfuels when they are [C]
a) Pumped b) Cooled c) Burned d) Pressurized

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Marks Awards List

Exam: IV B.Tech II Sem CIM Faculty Name: K. RAMU

BRANCH: EEE SUBJECT: ERT MAX MARKS: 30

S.No	Roll No	Marks		
		Mid - I (30)	Mid - II (30)	CS (30)
1	17KF1A0201	26	21	25
2	17KF1A0202	23	25	25
3	17KF1A0203	22	25	24
4	17KF1A0204	23	26	25
5	17KF1A0205	25	21	24
6	17KF1A0206	25	23	25
7	17KF1A0207	21	27	26
8	17KF1A0208	19	20	20
9	17KF1A0209	23	25	25
10	17KF1A0210	23	27	26
11	17KF1A0211	16	17	17
12	17KF1A0212	24	22	24
13	17KF1A0213	21	21	21
14	17KF1A0214	26	28	28
15	17KF1A0215	22	22	22
16	17KF1A0216	28	AB	22
17	17KF1A0217	18	25	24
18	17KF1A0218	24	28	27
19	17KF1A0219	21	23	23

S.No	Roll No	Marks		
		Mid - I (30)	Mid - II (30)	CS (30)
20	18KF5A0201	24	27	26
21	18KF5A0202	20	24	23
22	18KF5A0204	23	26	25
23	18KF5A0206	21	26	25
24	18KF5A0207	22	25	24
25	18KF5A0208	22	21	22
26	18KF5A0209	23	22	23

Faculty Signature HoD PRINCIPAL

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SSE

COURSE FILE - THEORY

FACULTY NAME	**: HARI KRISHNAN.S**
DESIGNATION	**: Associate Professor & HOD**
DEPARTMENT	**: ECE**
SUBJECT CODE	**: 19A04304**
SUBJECT TITLE	**: DIGITAL ELECTRONICS & LOGIC DESIGN**
DEPARTMENT	**: ECE**
YEAR / SEMESTER	**: II / I SEM**
ACADEMIC YEAR	**: 2020-2021**

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STUDENTS NOMINAL ROLL

Year& Branch: II & ECE

Semester: I

Academic Year: 2020-2021

Batch: 2019 – 2023

REGISTER NUMBER	NAME OF THE CANDIDATE
19KF1A0401	A.AMBIKA
19KF1A0402	A.SAI KALYAN
19KF1A0403	B.MANI KUMAR
19KF1A0404	B.BHARGAVA SAI
19KF1A0405	B.SANTHI PRASANNA
19KF1A0406	B.PARVATHI
19KF1A0407	B.CHAHNITHA
19KF1A0408	B.VASAVI
19KF1A0409	B.RAVITEJA
19KF1A0410	C.AKHILA
19KF1A0411	C.CHANDANA PRIYA
19KF1A0412	C.MANOJ
19KF1A0413	D.SAI PRANATHI
19KF1A0414	D.GANESH
19KF1A0415	G SAI PRABANJAN
19KF1A0416	G.PAVAN KUMAR
19KF1A0417	G.AKHIL
19KF1A0418	G.SIVA KUMAR
19KF1A0419	G.NAGA SAI
19KF1A0420	G.LAKSHMI VARUN
19KF1A0421	H.MANASA
19KF1A0422	H.JANARDHAN REDDY
19KF1A0423	J.GANGARAJU
19KF1A0424	K.KALPANA
19KF1A0425	K.KEERTHANA
19KF1A0426	K.DHANESH
19KF1A0427	K.JAGADEESH
19KF1A0428	K.GOWTHAMI
19KF1A0429	K.SREEKANTH REDDY
19KF1A0430	K.MADHU SREE
19KF1A0431	K.SOWMYA SREE
19KF1A0432	K.MADHU MOHAN
19KF1A0433	M.SAMUEL
19KF1A0434	M.BHAVANA
19KF1A0435	M.MADHA MOHAN REDDY

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19KF1A0436	M.SAI GOPESH RAYUDU
19KF1A0437	M.JASWANTH
19KF1A0438	N.SANDHYA
19KF1A0439	N.VENKATA SIVA REDDY
19KF1A0440	N.MEHTAJ
19KF1A0441	P.TULASI REDDY
19KF1A0442	P.UMESH KUMAR
19KF1A0443	P.NAVEEN KUMAR
19KF1A0444	P.MOKSHITH
19KF1A0445	P.VAMSI
19KF1A0446	R.NAVEEN KUMAR REDDY
19KF1A0447	S.SAI THARUN
19KF1A0448	S.ASLAM BASHA
19KF1A0449	S.ILIYAZ
19KF1A0450	S.MOHAMMAD MAAZ
19KF1A0451	S.PALLAVI
19KF1A0452	S.MEGHANA
19KF1A0453	S.PRAMOD KUMAR
19KF1A0454	S.SRINIVASULU
19KF1A0455	S.ZAHOOR
19KF1A0456	T.MUNEER
19KF1A0457	T.MANJUNATH REDDY
19KF1A0458	U.DEEKSHITHA
19KF1A0459	V.SREENISHA
19KF1A0460	V.SREEVANI
19KF1A0461	V.BHAVYA SREE
19KF1A0462	Y.HARSHA VARDHAN
19KF1A0463	Y.NIRMALA
19KF1A0464	Y.YASWANTH

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INDIVIDUAL STAFF TIMETABLE / WORKLOAD

Department : ECE
Faculty : S.HARI KRISHNAN
Designation : AP/ECE
Academic Year : 2020-2021 Year / Semester : II / I

D / T	10:00-11:00	11:00-12:00	12:30-01:30	1:30-2:30	2:30-03:30
MON				ENGINEERING TECHNOLOGY	
TUE			DELD		
WED					
THU			DELD		
FRI					
SAT			DELD		

TOTAL CONDUCT HOURS:

S.No	Sub Code	Theory Subjects Details	Year	Branch	Semester	No of Hours Allotted
1	19A04304	DELD	II	ECE	I	3

S.No	Additional Responsibilities Assigned	Year & Branch	
1	APSSDC & SKYFI Coordinator	SSE	
2	APITA Coordinator.	"	
3	Placement Team Member.	"	
4	Varsity Coordinator & I-V Coordinator	ECE	—

❖ Responsibilities like Class in charge, Student Counselor.0, ISO related works & others

Faculty in Charge

HOD

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

B.Tech – II-I Sem

L	T	P	C
3	0	0	3

19A04304 DIGITAL ELECTRONICS AND LOGIC DESIGN

Course Objectives:

- To teach significance of number systems, conversions, binary codes and functionality of logic gates.
- To discuss different simplification methods for minimizing Boolean functions.
- To impart knowledge on operation, characteristics and various configurations of TTL and CMOS logic families.
- To outline procedures for the analysis and design of combinational and sequential logic circuits.
- To introduce programmable logic devices.

Unit I

Number Systems and Codes: Decimal, Binary, Octal, and Hexa-decimal number systems and their conversions, ASCII code, Excess -3 codes, Gray code.
Binary codes Classification, Error detection and correction – Parity generators and checkers – Fixed point and floating-point arithmetic.
Boolean Algebra& Logic Gates: Boolean operations, Boolean functions, Algebraic manipulations, Min-terms and Maxterms, Sum-of-products and Product-of-sum representations, Two-input logic gates, NAND /NOR implementations.
Minimization of Boolean Functions: Karnaughmap, Don't-care conditions, Prime implicants, Minimization of functions using Quine-McClusky method.

Unit Outcomes:

- Summarize advantages of using different number systems. (L2)
- Explain usefulness of different coding schemes and functionality of logic gates. (L2)
- Apply basic laws and De Morgan's theorems to simplify Boolean expressions. (L3)
- Compare K- Map and Q-M methods of minimizing logic functions. (L5)

Unit II

Combinational Circuits: Introduction, Analysis of combinational circuits, Design Procedure– Binary Adder-Subtractor, Decimal Adder, Multiplier, Comparator, Code Converters, Encoders, Decoders, Multiplexers, Demultiplexers, Illustrative examples.

Sequential Circuits-1: Introduction, Latches –RS latch and JK latch, Flip-flops-RS, JK, T and D flip flops, Master-slave flip flops, Edge-triggered flip-flops, Flip-flop conversions.

Unit Outcomes:

- Apply Boolean algebra for describing combinational digital circuits. (L2)
- Analyze standard combinational circuits such as adders, subtractors, multipliers, comparators etc. (L4)
- Design various Combinational logic circuits. (L4)
- Implement logic functions with decoders and multiplexers. (L5)

Unit III

Sequential Circuits-2: Analysis and Design of Synchronous Sequential Circuits: Moore and Mealy machine models, State Equations, State Table, State diagram, State reduction & assignment, Synthesis using flip flops, Elements of Design style, Top–down design, Algorithmic state Machines (ASM), ASM chart notations.
Registers and Counters: Registers, shift registers, Ripple counters, Synchronous counters, Modulus-n Counter, Ring counter, Johnson counter, Up-Down counter.

Unit Outcomes:

- Describe behaviour of Flip-Flops and Latches.(L2)
- Compare Moore and Mealy machine models.(L5)
- Design synchronous sequential circuits using flip flops and construct digital systems using components such as registers and counters (L4)
- Utilize concepts of state and state transition for analysis and design of sequential circuits (L3)

Unit IV

Memory and Programmable Logic: RAM, Types of Memories, Memory decoding, ROM, Types of ROM, Programmable Logic Devices (PLDs): Basic concepts, PROM as PLD, Programmable Array Logic (PAL) and Programmable Logic Array (PLA), Design of combinational and sequential circuits using PLDs.

Unit Outcomes:

- Define RAM, ROM, PROM, EPROM and PLDs. (L1)
- Describe functional differences between different types of RAM & ROM. (L2)

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- Compare different types of Programmable Logic Devices. (L5)
- Design simple digital systems using PLDs. (L4)

Unit V

Digital Logic Families: Unipolar and Bipolar Logic Families, Transistor-Transistor Logic (TTL): Operation of TTL, Current sink logic, TTL with active pull up, TTL with open collector output, Shockley TTL, TTL characteristics, I^2L, ECL logic Families.
CMOS: CMOS Inverter, CMOS characteristics, CMOS configurations - Wired Logic, Open drain outputs, Interfacing: TTL to CMOS and CMOS to TTL, Tristate Logic, Characteristics of Digital ICs: Speed, power dissipation, figure of merit, fan-out, Current and voltage parameters, Noise immunity, operating temperature range, power supply requirements.

Unit Outcomes:

- Summarize significance of various TTL , I^2L, ECL and CMOS subfamilies. (L2)
- Examine Interface aspects of TTL & CMOS logic families. (L5)
- Explain characteristics of digital ICs such as speed, power dissipation, figure of merit, fan-out, noise immunity etc. (L2)
- Compare bipolar and MOS logic families. (L5)

Course Outcomes:

After completion of the course, student will be able to
CO1: Understand various number systems, error detecting, correcting binary codes, logic families, combinational and sequential circuits. (L1)
CO2: Apply Boolean laws, k-map and Q-M methods to minimize switching functions. Also describe the various performance metrics for logic families. (L2)
CO3: Design combinational and sequential logic circuits. (L4)
CO4: Compare different types of Programmable logic devices and logic families. (L5)

TEXTBOOKS:

1. M. Morris Mano and Michael D. Ciletti, "Digital Design", 4th Edition, Pearson Education, 2013.
2. Z. Kohavi and N. K. Jha, "Switching and Finite Automata Theory", 3rd Edition, Tata McGraw Hill, 2010.
3. R. P. Jain, "Modern Digital Electronics", 4th edition, McGraw Hill Education (India Private Limited), 2012.

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LESSON PLAN

Subject Name	: Digital Electronics & Logic Design.	Year & Branch:	II / ECE
Subject Code	:19A04304	Semester :	I
Name of the Faculty	: S.HARI KRISHNAN	Designation :	AP

Objectives:

- To provide fundamental concepts used in the design of digital systems
- To learn the methods for the design of digital circuits.

Outcomes:

- To introduce basic postulates of Boolean algebra and the methods for simplifying Boolean expressions
- To illustrate the concepts and study the procedures for the analysis and design of combinational circuits and sequential circuits
- To introduce the concepts of programmable logic devices.

TEXT BOOKS:

1. M. Morris Mano and Michael D. Ciletti, "Digital Design", 4 th Edition, Pearson Education, 2013.
2. 2. Z. Kohavi and N. K. Jha, "Switching and Finite Automata Theory", 3 rd Edition, Tata McGraw Hill, 2010.
3. 3. R. P. Jain, "Modern Digital Electronics", 4 th edition, McGraw Hill Education (India Private Limited), 2012.

REFERENCES:

1. Wakerly J.F., "Digital Design: Principles and Practices", 4 th Edition, Pearson India, 2008.
2. Charles H Roth (Jr), Larry L. Kinney, "Fundamentals of Logic Design", 5th Edition, Cengage Learning India Edition, 2010.
3. John.M Yarbrough, "Digital Logic Applications and Design", Thomson Learning, 2006

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UNIT-I			Number Systems and Code, Boolean Algebra& Logic Gates & Minimization of Boolean Functions			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	25/8/2020	I	Digital Systems	T3&R1	26/8/20 (3)	ZOOM
2.	25/8/2020	III	Binary Numbers	T3&R1	25/8/20 (3)	ZOOM
3.	27/8/2020	III	Number base conversions	T3&R1	27/8/2020 (3)	ZOOM
4.	27/8/2020	III	Binary codes	T3&R1	27/8/2020 (3)	ZOOM
5.	29/8/2020	III	Boolean Algebra-Basic definition	T3&R1	29/8/2020 (3)	ZOOM
6.	1/9/2020	III	Basic theorems and properties	T3&R1	1/9/2020 (3)	ZOOM
7.	3/9/2020	II	Boolean Functions,	T3&R1	3/9/20 (3)	ZOOM
8.	5/9/2020	III	Canonical & Standard forms,	T3&R1	5/09/2020 (3)	ZOOM
9.	5/9/2020	III	Logic operations	T3&R1	5/9/2020 (3)	ZOOM
10	08/9/2020	III	Logic gates	T3&R1	8/9/20 (3)	ZOOM
11	10/9/2020	III	The map method,	T3&R1	12/9/2020 (3)	ZOOM
12	12/9/2020	III	Four variable K-map	T3&R1	16/9/2020 (3)	ZOOM
13	15/9/2020	III	Five variable K-map	T3&R1	20/9/20 (3)	ZOOM
14	17/9/2020	III	POS & SOP Simplification	T3&R1	24/9/2020 - 26/9/2020	ZOOM
15	17/9/2020	III	Don't care conditions	T3	02/10/2020 (4)	ZOOM
16	19/9/2020	III	NAND & NOR Implementation	T3&R1		ZOOM
17	19/9/2020	III	Other two level Implementation	T3&R1	05/10/20 (2)	ZOOM
18	22/9/2020	III	Ex-or Function	T3&R1		ZOOM
19	22/9/2020	III	Tabular Method	T3&R1	07/10/2020 (2)	ZOOM
20	24/9/2020	III	Simplification of Boolean function using tabulation Method	T3&R1		ZOOM
21	26/9/2020	III	~~Related problems~~ prime Implicants Parity generator & checker.	T3&R1	08/10/2020 (2)	ZOOM

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UNIT-II			Combinational Circuits & Sequential Circuits-1:			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	29/9/2020	07	Combinational circuits	T3&R1	23/12/20-	ZOOM
2.	1/10/2020		Analysis & Design procedure	T3&R1		ZOOM
3.	1/10/2020	01/01	Binary Adder	T3&R1	28/12/20 30/12/20	ZOOM
4.	3/10/2020	01	Binary Subtractor	T3&R1	31/12/20-	ZOOM
5.	3/10/2020	03	Decimal Adder	T3&R1	2/2/2021	ZOOM
6.	6/10/2020	02 K1	Binary Multiplier	T3&R1	3/2/2024 4/2/2024	ZOOM
7.	6/10/2020	01	Magnitude comparator,	T3&R1	11/1/2024.	ZOOM
8.	8/10/2020	05	Decoder	T3&R1	06/2/24	ZOOM
9.	8/10/2020	05	Encoders	T3&R1	06/2/24.	ZOOM
10	10/10/2020	02	Multiplexers.	T3&R1	06/2/2024.	ZOOM
11	10/10/2020	02	Demultiplexers	T3&R1	06/2/24	ZOOM
13	11/10/2020	03	Introduction, Latches –RS latch and JK latch, Edge-triggered flip-flops, Flip-flop conversions.	T3&R1	06/2/24.	ZOOM
14	11/10/2020	02	Flip-flops-RS, JK, T and D flip flops,	T3&R1	06/2/24.	ZOOM
15	10/11/2020	03	Master-slave flip flops	T3&R1	6/2/24.	ZOOM
16	12/11/2020		Related problems	T3&R1		ZOOM
17	13/1/2020	02	Ripple carry adder.	11	04/1/24	11
18		01	4 bit sub		07/1/24	
19.		02	4 bit Adder Cum sub		08/1/24	
20.		01	Carry look a head adder.		25/1/24.	
21		08			01/2/24	

UNIT - III			Sequential Circuits-2 , Registers & Counters			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids

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5.	14/11/2020	01	Analysis of Clocked sequential circuits	T3&R1	4/12/2021	ZOOM
6.	17/11/2020	01	Moore and Mealy machine models	T3&R1	7/12/2021	ZOOM
7.	17/11/2020	02	tate Equations, State Table, State diagram	T3&R1	10/12/2021	ZOOM
8.	19/11/2020	02	State Reduction & Assignment, Design procedure	T3&R1	10/12/2021	ZOOM
	19/11/2020	04	Synthesis using flip flops, Elements of Design style, Top–down design,		11/12/2021	ZOOM
	21/11/2020	05	Algorithmic state Machines (ASM), ASM chart notations		11/12/2021	ZOOM
9.	21/11/2020	05	Registers & Counters	T3&R1	16/12/2021	ZOOM
10.	24/11/2020	04	Shift Registers	T3&R1	16/12/2021	ZOOM
11	24/11/2020	05	Ripple Counters, Synchronous counters, asynchronous counters.	T3&R1	16/12/2021	ZOOM
12	26/11/2020	08	Modulus-n Counter, Ring counter,	T3&R1	18/12/2021	ZOOM
13	28/11/2020	05	Johnson counter,	T3&R1	16/12/2021	ZOOM
14	28/11/2020	05	Up-Down counter	T3&R1	16/12/2021	ZOOM

UNIT - IV			Memory and Programmable Logic			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	1/12/2020		Memory organization	T3&R1		ZOOM BB
2.	3/12/2020	01	Classification of semiconductor memories,	T3&R1	11/12/2020	ZOOM BB
3.	5/12/2020		ROM, PROM	T3&R1	14/12/2020	ZOOM BB
4.	5/12/2020	01	DROM, EPROM	T3&R1		ZOOM BD
5.	8/12/2020		EEPROM, RAM	T3&R1	15/12/2020	ZOOM
6.	10/12/2020	04	Expansion of memory	T3&R1		ZOOM

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7.	10/12/2020	01	CED, Flash memories Memory decoding	T3&R1	14/12/2020	ZOOM BB
8.	12/11/2020	05	content addressable memory, Diff- Bw PLD's & RAM.	T3&R1	18/12/2020	ZOOM BB
9	12/11/2020	05	programmable logic devices & problems.	T3&R1	15/12/2020	ZOOM BB
10	15/11/2020	02	PROM at PLD & PAL problems.	T3&R1	16/12/2020	ZOOM BB
11	15/11/2020	01	programmable logic array (PLA) programmable array logic (PAL),	T3&R1	21/12/2020	ZOOM BB
12	17/12/2020	05	Design of combinational circuits using PLDs.	T3&R1	16/12/2020	ZOOM BB
13	19/12/2020		Design of Sequential circuits using PLDs.			

UNIT - V			DIGITAL LOGIC FAMILIES & CMOS			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	22/12/2020	06	Unipolar and Bipolar Logic Families	T3&R1	18/2/2021	ZOOM
2.	24/12/2020	06	Transistor-Transistor Logic (TTL): Operation of TTL, Current sink logic, T	T3&R1	19/2/2021	ZOOM
3.	26/12/2020	05	TTL with active pull up, TTL with open collector output,	T3&R1	19/2/2021	ZOOM
4.	29/12/2020	05	Shockley TTL, TTL characteristics,	T3&R1	19/2/2021	ZOOM
5.	29/12/2020	01	I2L, ECL logic Families.		20/2/2021	ZOOM
6.	31/12/2020	05	CMOS Inverter, CMOS characteristics,		23/2/2021	ZOOM
7.	31/12/2020	05	CMOS configurations - Wired Logic, Open drain outputs	T3&R1	23/2/2021	ZOOM

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8.	1/1/2021	06	Interfacing: TTL to CMOS and CMOS to TTL	T3&R1	24/2/24	ZOOM
9	1/1/2021	06	Tristate Logi	T3&R1	24/2/24	ZOOM
10	2/1/2021	04	Characteristics of Digital ICs: Speed, power dissipation, figure of merit, fan-out, Current and voltage parameters,	T3&R1	26/2/24	ZOOM
11	2/1/2021	07	Noise Immunity, operating temperature range, power supply requirements.	T3&R1	26/2/24	ZOOM

The following programs should also be included along with the theory classes:

Program Name:

- Tutorials , Assignments
- Unit Tests – Internal Tests I, II and III & Model Exam

At the end of the lesson plan the following attached academic programs should also be addressed as per the format given below: Fill this table if the programme is applicable otherwise write 'Not applicable'.

Program Name	No of Programs Planned	Tentative Dates
• Industrial Visits	01	—
• Seminars	01	02

Faculty in charge

HOD

PRINCIPAL

Sanskrithi School of Engineering Puttaparthi

Principal
Sanskrithi School of Engineering
Beedupalli Road, Prasanthingram,
PUTTAPARTHI - 515 134.
Anantapuramu (Dt) A.P.

SUBJECT HANDLERS OF YESTER YEARS

DEPARTMENT : ECE
YEAR & SEMESTER : I / II
SUBJECT CODE : 15A04302
SUBJECT TITLE : STLD
FACULTY NAME : S.HARI KRISHNAN
DESIGNATION : AP / ECE

S. No.	Academic Year	Semester No.	Name of the Faculty	% of Result produced
1	2019-2020	2-1	S.Hari Krishnan	85%

Faculty in Charge

HOD

Sanskrithi School of Engineering ★ Puttaparthi ★ KE

Principal
Sanskrithi School of Engineering
Beedupalli Road, Prasanthinigram,
PUTTAPARTHI - 515 134,
Anantapuramu (Dt)

ASSIGNMENT PLAN

Department : ECE Year & Sem : II / I

Subject Title : DELD Subject Code : 19A04304

Faculty Name : S.HARI KRISHNAN Designation : AP

Unit No	Assignment Topics	Roll Nos/Batch	Books / Journal to be Referred	Date of Announcement	Date of Submission
1	Hamming code	All	-	19.09.2020	21.09.2020
2	K map exercise problems	All	-	04/10/2020	14/10/2020.
3	Case study of PCB industry	All	-	03/2/2021	07/2/2021
4	Carry look ahead adder	All	-	03/2/2021	1/2/2021
5	Analysis of synchronous sequential circuits	All	-	22/2/2021	26/2/2021
6	PAL & PLA problems	All	-		

Faculty in Charge

HOD

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PUTTAPARTHI - 515 134.
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Sl No	Class	Name of the Video/Seminar	Date & time	Venue	Signature of the faculty	Signature of the HOD
1	II ECE	1. Minimization methods of digital circuits using K-map 2. Design of combinational circuits 3. Design of Sequential circuits 4. PAL & PLA examples 5. Memories classification 6. TTL classification & operation 7. flip flop types & conversions 8. PCB manufacturing process 9. CMOS	07/10/2020	Zoom platform		

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Principal
Sanskrithi School of Engineering
Beedupalli Road, Prasanthinigram,
PUTTAPARTHI - 515 134.
Anantapuramu (Dt) A.P.

SANSKRITHI SCHOOL OF ENGINEERING

Marks Awards List

Exam: ☑ B.Tech ☐ I Sem ☑ Mid — Faculty Name:

BRANCH: — SUBJECT: CD-D — MAX MARKS: 30

S.No	Roll No	Marks			
		DES (15)	AST (05)	OBJ (10)	TOTAL (30)
1	19KF1A0401	4	5	9	18
2	19KF1A0402	4	5	10	19
3	19KF1A0403	6	5	10	21
4	19KF1A0404	5	5	7.5	18
5	19KF1A0405	15	5	6	26
6	19KF1A0406	12	5	3	20
7	19KF1A0407	11	5	9	25
8	19KF1A0408	11	5	8	24
9	19KF1A0409	6	5	4	15
10	19KF1A0410	6	5	3	15
11	19KF1A0411	9	5	10	24
12	19KF1A0412	15	5	9	29
13	19KF1A0413	11	5	3	19
14	19KF1A0414	4	5	7	16
15	19KF1A0415	6	5	8	19
16	19KF1A0416	7	5	8	20
17	19KF1A0417	6	5	0	11
18	19KF1A0418	6	5	10	21
19	19KF1A0419	10	5	8	23
20	19KF1A0420	6	5	4	15
21	19KF1A0421	12	5	2	19
22	19KF1A0422	13	5	8	26
23	19KF1A0423	11	5	7	23
24	19KF1A0424	12	5	9	26
25	19KF1A0425	04	05	08	17
26	19KF1A0426	9	5	8	22
27	19KF1A0427	8	5	5	18
28	19KF1A0428	5	5	6	16
29	19KF1A0429	7	5	9	21
30	19KF1A0430	9	5	10	24
31	19KF1A0431	12	5	6	23
32	19KF1A0432	5	5	6	16
33	19KF1A0433	6	5	6	17
34	19KF1A0434	11	5	6	22
35	19KF1A0435	5	5	7	17

S.No	Roll No	Marks			
		DES (15)	AST (05)	OBJ (10)	TOTAL (30)
36	19KF1A0436	12	5	9	26
37	19KF1A0437	2	5	6	13
38	19KF1A0438	AB	AB	—	—
39	19KF1A0439	06	5	10	21
40	19KF1A0440	9	5	10	24
41	19KF1A0441	07	5	6	18
42	19KF1A0442	5	5	6	16
43	19KF1A0443	7	5	4	16
44	19KF1A0444	8	5	9	22
45	19KF1A0445	11	5	8	24
46	19KF1A0446	10	5	10	25
47	19KF1A0447	10	5	10	25
48	19KF1A0448	6	5	10	21
49	19KF1A0449	8	5	10	23
50	19KF1A0450	10	5	10	25
51	19KF1A0451	10	5	9	24
52	19KF1A0452	9	5	9	23
53	19KF1A0453	5	5	10	20
54	19KF1A0454	6	5	9	20
55	19KF1A0455	8	5	9	22
56	19KF1A0456	8	5	9	22
57	19KF1A0457	9	5	10	24
58	19KF1A0458	13	5	8	26
59	19KF1A0459	4	5	9	18
60	19KF1A0460	10	5	10	25
61	19KF1A0461	14	5	10	29
62	19KF1A0462	7	5	10	22
63	19KF1A0463	14	5	10	29
64	19KF1A0464	15	5	10	30
65	20KF5A0401	7	5	10	22
66	20KF5A0402	12	5	9	26
67	20KF5A0403	9	5	10	24
68	20KF5A0404	11	5	10	26
69	20KF5A0405	10	5	10	25

Faculty Signature — HoD — PRINCIPAL

SSE

SANSKRITHI SCHOOL OF ENGINEERING, PUTTAPARTHI

2nd B. Tech I Semester II Mid-Term Examinations: Descriptive

Branch: ECE **Sub: Digital Electronics & Logic Design**

Sub Code: 19A04304

Time: 90 Minutes

Answer All questions (3X5=15marks)

1. (a)(i)Define decoder. Construct 3x8 decoder using logic gates and truth table.

(ii)Difference between combinational & sequential circuits.

(or)

(b)Explain the operation of TTL with active pull up resister.

2.(a)(i) Convert a T flip flop to D Flip Flop

(ii) Explain Ring counter.

(or)

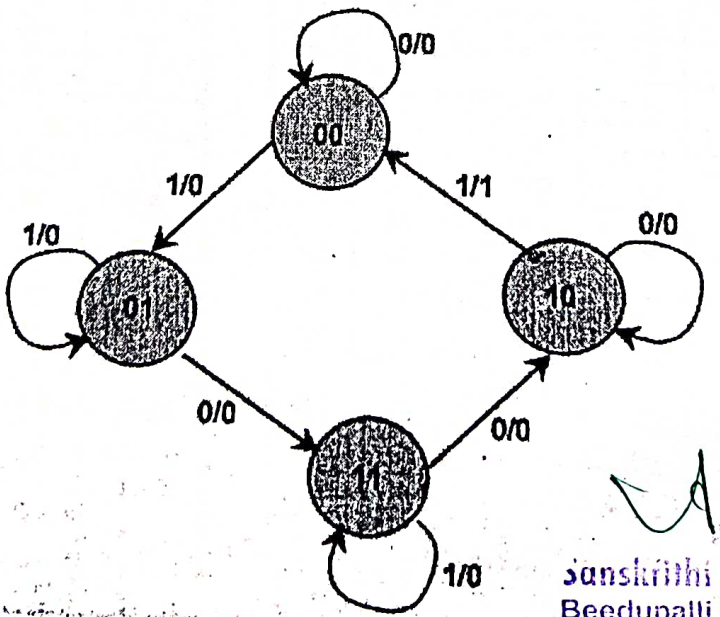
(b) (i) List & explain the characteristics of digital IC's

(ii) Define CMOS & explain the operation of CMOS inverter.

3. (a) Design a MOD 3 counter with neat sketch.

(or)

(b) Design a clocked sequential circuit using JK flip flop for the below state diagram. (5M)



Sanskrithi School of Engineering
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PUTTAPARTHI - 515 134,
Anantapuramu (Dt) A.P.

Exam: B.Tech I Sem Mid

Faculty Name: J. Tirumala

BRANCH: ECE

SUBJECT : OELD

MAX MARKS: 30

S.No	Roll No	Marks			
		DES (15)	AST (05)	OBJ (10)	TOTAL (30)
1	19KF1A0401	14	5	9	28
2	19KF1A0402	9	5	10	24
3	19KF1A0403	7	5	10	22
4	19KF1A0404	5	8	6	16
5	19KF1A0405	11	5	4	20
6	19KF1A0406	14	5	7	26
7	19KF1A0407	12	5	10	27
8	19KF1A0408	14	5	6	25
9	19KF1A0409	6	5	7	18
10	19KF1A0410	9	5	2	18
11	19KF1A0411	9	5	10	24
12	19KF1A0412	15	5	7	27
13	19KF1A0413	13	5	4	22
14	19KF1A0414	13	5	5	23
15	19KF1A0415	12	5	10	27
16	19KF1A0416	12	5	6	23
17	19KF1A0417	10	5	2	17
18	19KF1A0418	8	5	8	21
19	19KF1A0419	10	5	7	22
20	19KF1A0420	11	5	3	19
21	19KF1A0421	13	5	6	24
22	19KF1A0422	15	5	5	25
23	19KF1A0423	15	5	5	25
24	19KF1A0424	15	5	10	30
25	19KF1A0425	5	5	6	16
26	19KF1A0426	5	5	8	18
27	19KF1A0427	13	5	7	25
28	19KF1A0428	11	5	4	20
29	19KF1A0429	5	5	10	20
30	19KF1A0430	9	5	0	14
31	19KF1A0431	9	5	10	24
32	19KF1A0432	8	5	9	22
33	19KF1A0433	7	5	6	18
34	19KF1A0434	11	5	10	26
35	19KF1A0435	7	5	10	22
36	19KF1A0436	13	5	10	28
37	19KF1A0437	7	5	10	22
38	19KF1A0438	12	5	4	21
39	19KF1A0439	10	5	9	24
40	19KF1A0440	9	5	10	24
41	19KF1A0441	6	5	9	20
42	19KF1A0442	6	5	8	19
43	19KF1A0443	6	5	6	17
44	19KF1A0444	4	5	10	19
45	19KF1A0445	6	5	5	16
46	19KF1A0446	14	5	3	22
47	19KF1A0447	8	5	3	16
48	19KF1A0448	4	5	4	13
49	19KF1A0449	10	5	2	17
50	19KF1A0450	13	5	6	24
51	19KF1A0451	12	5	7	24
52	19KF1A0452	7	5	10	22
53	19KF1A0453	6	5	4	15
54	19KF1A0454	9	5	7	21
55	19KF1A0455	8	5	4	17
56	19KF1A0456	6	5	4	15
57	19KF1A0457	8	5	3	16
58	19KF1A0458	10	5	6	21
59	19KF1A0459	10	5	2	17
60	19KF1A0460	7	5	5	17
61	19KF1A0461	15	5	3	23
62	19KF1A0462	4	5	6	15
63	19KF1A0463	11	5	5	21
64	19KF1A0464	12	5	7	24
65	20KF5A0401	12	5	5	22
66	20KF5A0402	12	5	5	22
67	20KF5A0403	9	5	3	17
68	20KF5A0404	14	5	6	25
69	20KF5A0405				

Faculty Sign

Sanskrithi School of Engineering ★ Puttaparthi

Principal
Sanskrithi School of Engineering
Beedupalli Road, Prasanthingram,
PUTTAPARTHI - 515 134.
Anantapuramu (Dt) A.P.

SANSKRITHI SCHOOL OF ENGINEERING

Marks Awards List

Exam: II B.Tech I Sem II Mid Faculty Name: S. Harikrishnan

BRANCH: ECE SUBJECT: DELD MAX MARKS: 30

S.No	Roll No	Marks		
		Mid - I (30)	Mid - II (30)	CS (30)
1	19KF1A0401	18	28	26
2	19KF1A0402	22	24	24
3	19KF1A0403	21	22	22
4	19KF1A0404	18	16	18
5	19KF1A0405	26	20	25
6	19KF1A0406	20	26	25
7	19KF1A0407	25	27	27
8	19KF1A0408	24	25	25
9	19KF1A0409	15	18	18
10	19KF1A0410	15	16	16
11	19KF1A0411	24	24	24
12	19KF1A0412	29	27	29
13	19KF1A0413	19	22	22
14	19KF1A0414	16	23	22
15	19KF1A0415	19	27	26
16	19KF1A0416	20	23	23
17	19KF1A0417	11	17	16
18	19KF1A0418	21	21	21
19	19KF1A0419	23	22	23
20	19KF1A0420	15	19	19
21	19KF1A0421	19	24	23
22	19KF1A0422	26	25	26
23	19KF1A0423	23	25	25
24	19KF1A0424	26	30	30
25	19KF1A0425	17	16	17
26	19KF1A0426	22	18	22
27	19KF1A0427	18	25	24
28	19KF1A0428	16	20	20
29	19KF1A0429	21	20	21
30	19KF1A0430	24	14	22
31	19KF1A0431	23	24	24
32	19KF1A0432	16	22	21
33	19KF1A0433	17	18	18
34	19KF1A0434	22	26	26
35	19KF1A0435	17	22	21

S.No	Roll No	Marks		
		Mid - I (30)	Mid - II (30)	CS (30)
36	19KF1A0436	26	28	28
37	19KF1A0437	13	22	21
38	19KF1A0438	AB	21	17
39	19KF1A0439	21	24	24
40	19KF1A0440	24	24	24
41	19KF1A0441	18	20	20
42	19KF1A0442	16	19	19
43	19KF1A0443	16	17	17
44	19KF1A0444	22	19	22
45	19KF1A0445	24	18	24
46	19KF1A0446	25	22	25
47	19KF1A0447	25	16	25
48	19KF1A0448	21	13	21
49	19KF1A0449	23	17	23
50	19KF1A0450	25	24	25
51	19KF1A0451	24	24	24
52	19KF1A0452	23	22	23
53	19KF1A0453	20	15	19
54	19KF1A0454	20	21	21
55	19KF1A0455	22	17	22
56	19KF1A0456	22	15	21
57	19KF1A0457	24	16	23
58	19KF1A0458	26	21	25
59	19KF1A0459	18	17	18
60	19KF1A0460	25	17	24
61	19KF1A0461	29	23	28
62	19KF1A0462	22	15	21
63	19KF1A0463	29	21	29
64	19KF1A0464	30	24	29
65	20KF5A0401	22	22	22
66	20KF5A0402	26	22	25
67	20KF5A0403	24	17	23
68	20KF5A0404	26	25	26
69	20KF5A0405	25	19	23

Faculty Signature HoD PRINCIPAL

Principal
Sanskrithi School of Engineering
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PUTTAPARTHI - 515 134.
Anantapuramu (Dt) A.P.

COURSE FILE - INDEX- THEORY

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2	Syllabus	
3	Timetable	
4	Lesson Plan	
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6	Practical Classes-Experiments Details	
7	Students Nominal Roll	
8	Subject Handlers of Yester Years	
9	Assignment Plan	
10	Subject Coverage Statement	
11	Self Study Topics	
12	Internal Question Paper - I	
13.	Answer for Part -A questions in Printed form – Internal Test I	
14	Internal Marks Statement	
15	Internal Result Analysis - I & Corrective Action	
16	Internal Question Paper – II	
17	Answer for Part -A questions in Printed form – Internal Test II	
18	Internal Result Analysis - II & Corrective Action	
19	Model Exam Question Paper for Theory & Practical	
20	Answer for Part -A questions in Printed form – Model Examination	
21	Model Exam Mark Analysis & Corrective Action	
22.	University Question Papers	
23	Notes of Lesson for Unit 1 to 5	
24	Sample of 3 Answer Booklets & Assignment Papers- i)Best ii)Medium iii)Poor Assignment	
25	Assessment Record	

Sanskrithi School of Engineering KF Puttaparthi

Principal
Sanskrithi School of Engineering
Beedupalli Road, Prasanthingram,
PUTTAPARTHI - 515 134.
Anantapuramu (Dt) A.P.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

SANSKRITHI SCHOOL OF ENGINEERING, PUTTAPARTHI

II B.Tech II-Sem (E.E.E)

(15A02403) ELECTROMAGNETIC FIELDS T Tu C

UNIT-I ELECTROSTATICS 3 1 3

Electrostatic Fields - Coulomb's Law - Electric Field Intensity(EFI) due to Line, Surface and Volume charges- Work Done in Moving a Point Charge in Electrostatic Field-Electric Potential due to point charges, line charges and Volume Charges - Potential Gradient - Gauss's Law-Application of Gauss's Law-Maxwell's First Law Numerical Problems.

Laplace's Equation and Poisson's Equations - Solution of Laplace's Equation in one Variable. Electric Dipole - Dipole Moment - Potential and EFI due to Electric Dipole - Torque on an Electric Dipole in an Electric Field – Numerical Problems.

UNIT- II CONDUCTORS AND DIELECTRICS

Behavior of Conductors in an Electric Field-Conductors and Insulators – Electric Field Inside a Dielectric Material Polarization Dielectric Conductors and Dielectric Boundary Conditions – Capacitance-Capacitance of Parallel Plate, Spherical & Co-axial capacitors – Energy Stored and Energy Density in a Static Electric Field Current Density - Conduction and Convection Current Densities – Ohm's Law in Point Form Equation of Continuity Numerical Problems.

UNIT-III MAGNETO STATICS

Static Magnetic Fields – Biot-Savart Law – Oerstead's experiment – Magnetic Field Intensity(MFI) due to a Straight, Circular &Solenoid Current Carrying Wire – Maxwell's Second Equation. Ampere's Circuital Law and its Applications Viz., MFI Due to an Infinite Sheet of Current and a Long Current Carrying Filament - Point Form of Ampere's Circuital Law - Maxwell's Third Equation – Numerical Problems.

Magnetic Force – Lorentz Force Equation – Force on Current Element in a Magnetic Field - Force on a Straight and Long Current Carrying Conductor in a Magnetic Field - Force Between two Straight and Parallel Current Carrying Conductors – Magnetic Dipole and Dipole moment – A Differential Current Loop as a Magnetic Dipole – Torque on a Current Loop Placed in a Magnetic Field – Numerical Problems.

UNIT – IV MAGNETIC POTENTIAL

Scalar Magnetic Potential and Vector Magnetic Potential and its Properties - Vector Magnetic Potential due to Simple Configuration - Vector Poisson's Equations.

Self and Mutual Inductances - Neumann's Formulae - Determination of Self Inductance of a Solenoid and Toroid and Mutual Inductance Between a Straight, Long Wire and a Square Loop Wire in the Same Plane – Energy Stored and Intensity in a Magnetic Field – Numerical Problems.

UNIT-V TIME VARYING FIELDS

Faraday's Law of Electromagnetic Induction – It's Integral and Point Forms – Maxwell's Fourth Equation. Statically and Dynamically Induced E.M.F's Simple Problems – Modified Maxwell's Equations for Time Varying Fields Displacement Current.

Wave Equations – Uniform Plane Wave Motion in Free Space, Conductors and Dielectrics – Velocity, Wave Length. Intrinsic Impedence and Skin Depth – Poynting Theorem – Poynting Vector and its Significance.

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Beedupalli Road, Prasanthinagram,
PUTTAPARTHI - 515 134.
Anantapuramu (Dt) A.P.

INDIVIDUAL STAFF TIMETABLE / WORKLOAD

Department : EEE & ECE

Faculty : N. PAVAN KUMAR Academic Year : 2016-2017

Designation : AP/EEE Year / Semester : II / II

D / T	09:15-10:05	10:05-10:55	10:55-11:05	11:05-11:55	11:55-12:45	12:45-01:45	01:45-02:35	02:35-03:20	03:20-03:30	03:30-04:15	04:15-05:00
MON			BREAK		EMF	LUNCH BREAK		EMF	BREAK		
TUE		EMF									
WED	EMF									EM-I LAB	
THU										EM-I LAB	
FRI								EMF		TT	
SAT										EMF	

TOTAL CONDUCT HOURS:

S.No	Sub Code	Theory Subjects Details	Year	Branch	Semester	No of Hours Allotted
1	15A02403	ELECTROMAGNETIC FIELDS	II	EEE	II	7

S.No	Sub Code	Lab Name Details	Year	Branch	Semester	No of Hours Allotted
1.	15A02404	ELECTRICAL MACHINES LABORATORY – I	II	EEE	II	6
2.		THINK TANK	II	EEE	II	2

S.No	Additional Responsibilities Assigned	Year & Branch
1	HOD	Dept of EEE
2	TIME TABLE INCHARGE	ALL
3	ELECTRICAL MACHINES LABORATORY - I	Dept of EEE

❖ Responsibilities like Class in charge, Student Counselor.0, ISO related works & others

FACULTY HOD PRINCIPAL

Sanskrithi School of Engineering, Puttaparthi

Principal
Sanskrithi School of Engineering
Beedupalli Road, Prasanthingram,
PUTTAPARTHI - 515 134.
Anantapuramu (Dt) A.P.

LESSON PLAN

Subject Name	: Electromagnetic Field	Year & Branch :	II / EEE
Subject Code	: 15A02403	Semester :	II
Name of the Faculty	: N. Pavan Kumar	Designation :	Asst.Prof

Definition / Description:

To expose the students to the fundamentals of electromagnetic fields and their applications in Electrical Engineering.

Objectives:

To make the student learn about:

- The laws concerning static electric fields: Coulomb's law, Gauss law; the laws concerning static magnetic fields: Biot-savart law, Ampere circuital law
- The equations concerned with static electric fields
- The equations concerned with static magnetic fields
- The difference between the behaviors of conductors and dielectrics in electric fields
- The energy stored and energy density in (i) static electric field (ii) magnetic field
- Electric dipole and dipole moment, magnetic dipole and dipole moment

Text Books:

1. Engineering Electromagnetics, William.H.Hayt, Mc.Graw Hill, 2010.
2. Principles of Electromagnetics, 6th Edition, Sadiku, Kulkarni, OXFORD University Press, 2015.

References:

1. Field Theory, K.A.Gangadhar, Khanna Publications, 2003.
2. Electromagnetics 5th edition, J.D.Kraus,Mc.Graw – Hill Inc, 1999.
3. Electromagnetics, Joseph Edminister, Tata Mc Graw Hill, 2006.

Sanskrithi School of Engineering KF Puttaparthi

Principal
Sanskrithi School of Engineering
Beedupalli Road, Prasanthinagram,
PUTTAPARTHI - 515 134,
Anantapuramu (Dt) A.P.

UNIT-I			ELECTROSTATICS			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	30-12-2019	3	Sources Of Electromagnetic Fields, Effects Of Electromagnetic Fields, Vector Fields, Gradient, Divergence and Curl	T/R		M&B, PPT
2.	02-01-2020	4	Electrostatic Fields - Coulomb's Law	T/R		M&B, PPT
3.	03-01-2020	4	Electric Field Intensity(EFI) due to Line, Surface and Volume charges	T/R		M&B, PPT
4.	06-01-2020	1	Work Done in Moving a Point Charge in Electrostatic Field-Electric Potential due to point charges, line charges and Volume Charges	T/R		M&B, PPT
5.	07-01-2020	3	Potential Gradient - Gauss's Law-Application of Gauss's Law-	T/R		M&B, PPT
6.	08-01-2020	4	Maxwell's First Law - Numerical Problems.	T/R		M&B, PPT
7.	09-01-2020	2	Laplace's Equation and Poisson's Equations	T/R		M&B, PPT
8.	10-01-2020	4	- Solution of Laplace's Equation in one Variable	T/R		M&B, PPT
9.	11-01-2020	3	Electric Dipole - Dipole Moment	T/R		M&B, PPT
10.	13-01-2020	3	Potential and EFI due to Electric Dipole	T/R		M&B, PPT
11.	17-01-2020	4	Torque on an Electric Dipole in an Electric Field	T/R		M&B, PPT
12.	18-01-2020	4	Numerical Problems.	T/R		M&B, PPT

UNIT- II			CONDUCTORS AND DIELECTRICS			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	21-01-2020	2	Behavior of Conductors in an Electric Field-Conductors and Insulators	T/R		M&B, PPT

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2.	22-01-2020	4	Electric Field Inside a Dielectric Material	T/R	D.P	M&B, PPT
3.	23-01-2020	1	Polarization	T/R		M&B, PPT
4.	24-01-2020	3	Dielectric Conductors Boundary Conditions	T/R	D.P	M&B, PPT
5.	25-01-2020	3	Dielectric Boundary Conditions	T/R	D.P	M&B, PPT
6.	27-01-2020	4	Capacitance-Capacitance of Parallel Plate, Spherical	T/R	D.P	M&B, PPT
7.	27-01-2020	2	Co-axial capacitors	T/R	D.P	M&B, PPT
8.	28-01-2020	1	Numerical Problems	T/R	D.P	M&B, PPT
9	29-01-2020	3	Energy Stored and Energy Density in a Static Electric Field	T/R	D.P	M&B, PPT
10.	30-01-2020	3	Current Density – Conduction and Convection Current Densities	T/R	D.P	M&B, PPT
11.	31-01-2020	4	Ohm's Law in Point Form – Equation of Continuity	T/R		M&B, PPT
12.	31-01-2020	2	Numerical Problems	T/R	D.P	M&B, PPT

UNIT-III — MAGNETO STATICS

S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	01-02-2020	4	Static Magnetic Fields and Biot-Savart Law. Over stead's experiment	T/R	D.P 13/2/20	M&B, PPT
2.	03-02-2020	1	Magnetic Field Intensity(MFI) due to a Straight Current Carrying Wire	T/R	D.P 15/2/20	M&B, PPT
3.	04-02-2020	4	Magnetic Field Intensity(MFI) due to a Circular Current Carrying Wire	T/R	D.P 15/2/20	M&B, PPT
4.	05-02-2020	4	Magnetic Field Intensity(MFI) due to a Solenoid Current Carrying Wire	T/R	D.P 17/2/20	M&B, PPT
5.	06-02-2020		Maxwell's Second Equation. Ampere's Circuital Law and its Applications	T/R	D.P 20/2/20	M&B, PPT

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2.	21-02-2020	3	Vector Magnetic Potential due to Simple Configuration	T/R	D.P. 27/2/20	M&B, PPT
3.	22-02-2020	4	Vector Poisson's Equations	T/R	D.P. 27/2/20	M&B, PPT
4.	24-02-2020	2	Self and Mutual Inductances Neumann's Formulae	T/R	D.P. 10/3/20	M&B, PPT
5.	25-02-2020	4	Determination of Self Inductance of a Solenoid and Toroid	T/R	D.P. 10/3/20	M&B, PPT
6.	26-02-2020	1	Mutual Inductance Between a Straight, Long Wire	T/R	D.P. 11/3/20	M&B, PPT
7.	27-02-2020	3	Square Loop Wire in the Same Plane	T/R	D.Pal 11/3/20	M&B, PPT
8.	28-02-2020	3	Energy Stored and Intensity in a Magnetic Field	T/R	D.Pal 14/3/20	M&B, PPT
9.	29-02-2020	4	Numerical Problems	T/R	D.P. 14/3/20	M&B, PPT

UNIT – V **TIME VARYING FIELDS**

S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	02-03-2020	2	Faraday's Law of Electromagnetic Induction	T/R	D.Pal 14/3/20	M&B, PPT
2.	03-03-2020	4	It's Integral and Point Forms – Maxwell's Fourth Equation	T/R	D.Pal 14/3/20	M&B, PPT
3.	04-03-2020	1	Statically and Dynamically Induced E.M.F's	T/R	D.Pal 14/3/20	M&B, PPT
4.	05-03-2020	3	Simple Problems	T/R	D.P. 16/3/20	M&B, PPT
5.	06-03-2020	3	Modified Maxwell's Equations for Time Varying Fields Displacement Current	T/R	D.Pal 16/3/20	M&B, PPT
6.	07-03-2020	4	Wave Equations Uniform Plane Wave Motion in Free Space	T/R	D.P. 17/3/20	M&B, PPT

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2.	21-02-2020	3	Vector Magnetic Potential due to Simple Configuration	T/R	D.P. 27/2/20	M&B, PPT
3.	22-02-2020	4	Vector Poisson's Equations	T/R	D.P. 27/2/20	M&B, PPT
4.	24-02-2020	2	Self and Mutual Inductances Neumann's Formulae	T/R	D.P. 10/3/20	M&B, PPT
5.	25-02-2020	4	Determination of Self Inductance of a Solenoid and Toroid	T/R	D.P. 11/3/20	M&B, PPT
6.	26-02-2020	1	Mutual Inductance Between a Straight, Long Wire	T/R	D.P. 11/3/20	M&B, PPT
7.	27-02-2020	3	Square Loop Wire in the Same Plane	T/R	D.Pal 11/3/20	M&B, PPT
8.	28-02-2020	3	Energy Stored and Intensity in a Magnetic Field	T/R	D.Pal 14/3/20	M&B, PPT
9.	29-02-2020	4	Numerical Problems	T/R	D.P. 14/3/20	M&B, PPT

UNIT – V			TIME VARYING FIELDS			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	02-03-2020	2	Faraday's Law of Electromagnetic Induction	T/R	D.Pal 14/3/20	M&B, PPT
2.	03-03-2020	4	It's Integral and Point Forms – Maxwell's Fourth Equation	T/R	D.Pal 14/3/20	M&B, PPT
3.	04-03-2020	1	Statically and Dynamically Induced E.M.F's	T/R	D.Pal 14/3/20	M&B, PPT
4.	05-03-2020	3	Simple Problems	T/R	D.P. 16/3/20	M&B, PPT
5.	06-03-2020	3	Modified Maxwell's Equations for Time Varying Fields Displacement Current	T/R	D.Pal 16/3/20	M&B, PPT
6.	07-03-2020	4	Wave Equations - Uniform Plane Wave Motion in Free Space	T/R	D.P. 17/3/20	M&B, PPT

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7.	09-03-2020	2	Uniform Plane Wave Motion in Conductors	T/R	D.M	M&B, PPT
8.	10-03-2020	4	Uniform Plane Wave Motion in Dielectrics Velocity	T/R	D.M	M&B, PPT
9.	11-03-2020	1	Wave Length, Intrinsic Impedence and Skin Depth	T/R	D.M	M&B, PPT
10.	12-03-2020	3	Poynting Theorem – Poynting Vector and its Significance.	T/R	D.M	M&B, PPT

The following programs should also be included along with the theory classes:

Program Name:

- Tutorials
- Assignments
- Unit Tests – Internal Tests I, II and III
- Model Exam

At the end of the lesson plan the following attached academic programs should also be addressed as per the format given below: Fill this table if the programme is applicable otherwise write 'Not applicable'.

Program Name	No of Programs Planned	Tentative Dates
• Industrial Visits		
• Seminars		

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FACULTY

D.Rao
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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

B. Tech II - II sem (E.E.E)

L	C
4	2

(15A02404) ELECTRICAL MACHINES LABORATORY - I

OBJECTIVES: The student has to learn about:

- No load and load characteristics of DC generators
- Various tests on DC motors
- The speed control techniques of DC motors

The following experiments are required to be conducted as compulsory experiments:

1. Magnetization characteristics of DC shunt generator. Determination of critical field resistance and critical speed.
2. Load test on DC shunt generator. Determination of characteristics.
3. Brake test on DC shunt motor. Determination of performance curves.
4. Load test on DC compound generator. Determination of characteristics.
5. Hopkinson's tests on DC shunt machines. Predetermination of efficiency.
6. Fields test on DC series machines. Determination of efficiency.
7. Swinburne's test and speed control of DC shunt motor. Predetermination of efficiencies.
8. Brake test on DC compound motor. Determination of performance curves.

In addition to the above eight experiments, atleast any two of the experiments from the following list are required to be conducted.

9. Load test on DC series generator. Determination of characteristics.
10. Retardation test on DC shunt motor. Determination of losses at rated speed.
11. Separation of losses in DC shunt motor.

OUTCOMES: The student should be able to do the following:

- Conduct experiments to obtain the no-load and load characteristics of D.C. Generators
- Conduct tests on D.C. motors for predetermination of efficiency
- Conduct tests on D.C. motors for determination of efficiency
- Control the speed of D.C. motor in a given range using appropriate method
- Identify the reason as to why D.C. Generator is not building up voltage

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PUTTAPARTHI - 515 134.
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LESSON PLAN

Subject Name : Electrical Machines - I Lab Year & Branch : II / EEE

Subject Code : 18A02404 Semester : II

Name of the Faculty : N. Pavan Kumar Designation : AP

S.no	Proposed Date	Period	Topic Name	Actual Date and Period of Completion
1.	02/1/2020 02/1/2020	6,7,8	Brake test on DC shunt motor. Determination of performance curves.	D. P 22/1/2020
2.	08/1/2020 06/1/2020	6,7,8	Brake test on DC compound motor. Determination of performance curves.	D. P 29/1/2020
3.	15/1/2020 16/1/2020	6,7,8	Swinburne's test and speed control of DC shunt motor. Predetermination of efficiencies.	D. Pal 27/2/2020
4.	22/1/2020 23/1/2020	6,7,8	Load test on DC compound generator. Determination of characteristics.	
5.	29/1/2020 30/1/2020	6,7,8	Hopkinson's tests on DC shunt machines. Predetermination of efficiency.	D. Pal
6.	5/2/2020 6/2/2020	6,7,8	Fields test on DC series machines. Determination of efficiency.	
7	12/2/2020 13/2/2020	6,7,8	Load test on DC shunt generator. Determination of characteristics.	D. P 13/2/2020
8.	19/2/2020 20/2/2020	6,7,8	Separations of losses in DC shunt motor.	
9.	26/2/2020 27/2/2020	6,7,8	Load test on DC series ~~generator~~ motor. Determination of characteristics.	D. Pal 12/2/2020
10.	4/3/2020 5/3/2020	6,7,8	Retardation test on DC shunt motor. Determination of losses at rated speed.	
11.	11/3/2020 12/3/2020	6,7,8	Magnetization characteristics of DC shunt generator. Determination of critical field resistance and critical speed.	D. P 5/2/2020

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STUDENTS NOMINAL ROLL

Year& Branch with section: II - EEE **Semester: II**

Academic Year: 2019-2020 **Batch: 2018 – 2022**

S.No	ROLL NO	NAME OF THE STUDENT
1.	18KF1A0201	CHILAKALA NARASIMHA
2.	18KF1A0202	EDIGA JYOSHNA
3.	18KF1A0203	ENJRAVATH BHARGAVI
4.	18KF1A0204	GOLLA SANTHOSH
5.	18KF1A0205	KANAGANAPALLI HARSHITHA
6.	18KF1A0206	KAPPAGANTHULA SAI KRISHNA SREE
7.	18KF1A0207	MALYALA SIREESHA
8.	18KF1A0208	MUKTHAPURAM POOJITHA REDDY
9.	18KF1A0209	P ANUSHA
10.	18KF1A0210	POOJARI CHINNAKOTLA YUVARAJ
11.	18KF1A0211	PULA MOUNIKA
12.	18KF1A0212	PURUSHAM SANDEEP REDDY
13.	18KF1A0213	SANTANU PATRA
14.	18KF1A0214	SHAIK HAZIRA
15.	18KF1A0215	SIGILIPALLI LOKESH
16.	18KF5A0201	MANJUNADH NAIK
17.	18KF5A0202	SREEDHAR
18.	18KF5A0203	RAJESH
19.	18KF5A0204	SHANTHI PRIYA
20.	18KF5A0205	NANDA SREE
21.	18KF5A0206	JOSHNA
22.	18KF5A0207	CHANDHRA
23.	18KF5A0208	HEMANTH KUMAR
24.	18KF5A0209	NAGARJUNA
25.	18KF5A0210	PAVAN KALYAN

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ASSIGNMENT PLAN

Department : EEE
Year & Sem : II / II
Subject Title : EMF
Subject Code : 15A02403
Faculty Name : N. Pavan Kumar
Designation : Asst.Prof

Unit No	Assignment Topics	Roll Nos/Batch	Books / Journal to be Referred	Date of Announcement	Date of Submission
	Ed due to line & circular charge	All II/EEE	Book	18/1/2020	25/1/2020
	Capacitor & Parallel plate capacitor	II/EEE	Book	10/2/2020	14/2/2020
	formulas	II/EEE	Notes	28/2/2020	29/2/2020

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Anantapuramu (Dt) A.P.

Code: 15A02403 **R15**

B.Tech II Year II Semester (R15) Regular Examinations May/June 2017

ELECTROMAGNETIC FIELDS

(Electrical & Electronics Engineering)

Time: 3 hours Max. Marks: 70

PART - A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Define electrified intensity and develop relationship with force and charge.

(b) Write Maxwell's equation in electrostatic field in point forces and explain the terms.

(c) What is meant by equipotential surface? Explain.

(d) Explain what is meant by point form of Ohm's law.

(e) Distinguish between Poisson's and Laplace equations in electrostatic fields.

(f) "Magnetostatic field is not conservative". Explain.

(g) Is it possible to have isolated magnetic charges? Explain.

(h) Discuss about Maxwell's equation in differential form which is obtained from Faraday's law.

(i) Explain what is meant by scalar magnetic potential.

(j) "Time varying electrostatic field is not conservative". Explain.

PART - B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT - I

2 (a) Derive the expression for resultant force on 'n' charges using the principle of superposition.

(b) Point charges 2nc and -1nc are located at (1, 2, 1) and (-1, 1, 3) respectively. Calculate the electric force on a 5nc charge, located at (2, 3, 1) and electric field intensity at that point.

OR

3 (a) Derive the expressions for electric field intensity of a finite line charge.

(b) A finite sheet of $1 \leq x \leq 2m$, $1 \leq y \leq 2m$ on the z = 0 plane has a charge density of xy. Find the charge on the sheet.

UNIT - II

4 (a) Define energy density and derive the expression for it.

(b) Three point charges 1nc, 2nc, 3nc are located at (1, 1, 1), (2, 2, 2) and (3, 3, 3) respectively. Find the energy in the system.

OR

5 (a) Describe the expression for capacitance of a spherical capacitor.

(b) Conducting spherical shells with radii of 5 cm, and 15 cm are maintained at a potential difference of 45 V. Determine V, Q, E, C.

UNIT - III

6 Derive the expression for magnetic field intensity of an infinitely long coaxial transmission line.

OR

7 (a) State and explain Biot-Savart's Law.

(b) Given magnetic vector potential $-\frac{\rho}{2}az\ wb/m$, calculate the total magnetic flux density crossing the surface $\phi = \frac{\pi}{2}$, $2 \leq \rho \leq 3m$, $1 \leq z \leq 2m$.

Contd. in page 2

Branch: EEE
Time: 20 Minutes
NAME:
Invigilator Signature:

II B. Tech II Semester I Mid-Term Examinations [2019-20]: Objective
Sub: ELECTROMAGNETIC FIELDS
Sub Code: 15A02403
Max marks: 10

HT NO:

ANSWER THE FOLLOWING QUESTIONS. EACH QUESTION CARRIES ½ MARK.

1. The electric field intensity at a point situated 4 meters from a point charge is 200 N/C. If the distance is reduced to 2 meters, the field intensity will be [C]
   (a)400 N/C (b) 600 N/C (c) 800 N/C (d) 1200 N/C
2. The electric field at a point situated at a distance d from straight charged conductor is [B]
   (a) Proportional to d (b) inversely proportional to d (c) inversely proportional to d (d) none of the above
3. The direction of electric field due +Q positive charge is [A]
   (a) Away from the charge (b) towards the charge (c) both (a) and (b) (d) none of the above
4. A field line and an equi potential surface are [B]
   (a) Always parallel (b) always at 90° (c) inclined at any angle 0 (d) none of the above
5. A capacitor stores 0.24 coulombs at 10 volts. Its capacitance is [A]
   (a) 0.024 F (b) 0.12 F (c) 0.6 F (d) 0.8 F
6. For making a capacitor, it is better to select a dielectric having [B]
   (a) Low permittivity (b) high permittivity (c) permittivity same as that of air
   (d) permittivity slightly more than that of air
7. The units of capacitance are [B]
   (a) volts/coulomb (b) coulombs/volt (c) ohms (d) Henry/ Wb
8. If three 15 uF capacitors are connected in series, the net capacitance is [A]
   (a) 5 uF (b) 30 uF (c) 45 uF (d) 50 uF
9. If three 10 uF capacitors are connected in parallel, the net capacitance is [B]
   (a) 20 uF (b) 30 uE (c) 40 uF (d) 50 uF
10. A dielectric material must be [B]
    (a) Resistor (b) Insulator (c) Good conductor (d) Semi conductor
11. The capacitance of a capacitor is not affected by [C]
    (a) Distance between plates (b) area of plates (c) thickness of plates (d) all of the above
12. Which of the following is not a Vector? [B]
    (a) Linear momentum (b) Angular momentum (c) Electric field (d) Electric potential
13. If A.C. voltage is applied to capacitive circuit, the alternating current can flow in the circuit because [A]
    (a) Varying voltage produces the charging and discharging currents (b) of high peak value
    (c) charging current can flow (d) discharge current can flow
14. "The total electric flux through any closed surface surrounding charges is equal to the amount of charge enclosed". The above statement is associated with [B]
    (a) Coulomb's square law (b) Gauss's law (c) Maxwell's first law (d) Maxwell's second law
15. For which of the following parameter variation, the capacitance of the capacitor remains unaffected? [D]
    (a) Distance between plates (b) Area of the plates (c) Nature of dielectric (d) Thickness of the plates
16. Which of the following expression is correct for electric field strength? [A]
    (a) $E = D/\epsilon$ (b) $E = D^2/t$ (c) $E = jtD$ (d) $E = nD^2$
17. Which of the following materials has the highest value of dielectric constant? [C]
    (a) Glass (b) Vacuum (c) Ceramics (d) Oil
18. Energy stored in the electric field of a capacitor C when charged from a D.C source of voltage V is equal to joules [C]
    (a) CV^2 (b) C^2V (c) $0.5CV^2$ (d) CV
19. Electric field intensity is a quantity [B]
    (a) scalar (b) vector (c) both (a) and (b) (d) none of the above
20. "The surface integral of the normal component of the electric displacement D over any closed surface equals the charge enclosed by the surface". The above statement is associated with [A]
    (a) Gauss's law (b) Kirchhoff s law (c) Faraday's law (d) Lenz's law

Principal
Sanskrithi School of Engineering
Beedupalli Road, Puttaparthi
PUTTAPARTHI-515134
Anantapuramu (Dt) A.P.

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Marks Awards List

Exam: III B.Tech II Sem I Mid Faculty Name: D. Pavankumar

BRANCH: EEE SUBJECT: EMF MAX MARKS: 30

S.No	Roll No	Marks		
		DES (20)	OBJ (10)	TOTAL (30)
1	18KF1A0201	14	9½	24
2	18KF1A0202	16	9	25
3	18KF1A0203	20	9	29
4	18KF1A0204	05	9½	15
5	18KF1A0205	14	9½	24
6	18KF1A0206	12	9½	22
7	18KF1A0207	20	9½	30
8	18KF1A0208	14	8½	23
9	18KF1A0209	16	9½	26
10	18KF1A0210	12	7	19
11	18KF1A0211	05	9½	15
12	18KF1A0212	20	10	30
13	18KF1A0213	14	9½	24
14	18KF1A0214	17	9	26
15	18KF1A0215	6	9½	16
16	19KF5A0201	AB	AB	AB
17	19KF5A0202	17	3	20
18	19KF5A0203	17	9½	27

S.No	Roll No	Marks		
		DES (20)	OBJ (10)	TOTAL (30)
19	19KF5A0204	18	8	26
20	19KF5A0205	17	7½	25
21	19KF5A0206	16	8	24
22	19KF5A0207	12	8½	21
23	19KF5A0208	18	9½	28
24	19KF5A0209	18	6½	25
25	19KF5A0210	16	8	24

D. Pavan
Faculty Signature

D. Pavan
HoD

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PUTTAPARTHI - 515 134.
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SSE

SANSKRITHI SCHOOL OF ENGINEERING

COURSE FILE - THEORY

FACULTY NAME : **HARI KRISHNAN.S**

DESIGNATION : **Assistant professor & HOD**

DEPARTMENT : **ECE**

SUBJECT CODE : **15A04603**

SUBJECT TITLE : **DIGITAL SIGNAL PROCESSING**

DEPARTMENT : **EEE**

YEAR / SEMESTER : **IV / I SEM**

ACADEMIC YEAR : **2018-2019**

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R15

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

B. Tech IV-I Sem. (EEE)

L	T	P	C
3	1	0	3

15A04603 DIGITAL SIGNAL PROCESSING

Course Outcomes:

At the end of the course, the student should be able to:

- Formulate engineering problems in terms of DSP tasks.
- Apply engineering problems solving strategies to DSP problems.
- Design and test DSP algorithms.
- Analyze digital and analog signals and systems.
- Encode information into signals.
- Design digital signal processing algorithms.
- Design and simulate digital filters.
- Analyze and compare different signal processing strategies.

UNIT-I

Review of discrete-time signals and systems – Time domain analysis of discrete-time signals & systems, Frequency domain analysis of discrete-time signals and systems. **Discrete Fourier Transform:** Frequency-domain sampling and reconstruction of discrete-time signals, Discrete Fourier Transform (DFT), The DFT as a linear transformation, Relationship of the DFT to other transforms, Properties of DFT, Linear filtering methods based on DFT, Frequency analysis of signals using the DFT.

UNIT-II

Efficient computation of the DFT – Direct computation of DFT, Divide and conquer approach to computation of DFT, Radix-2, Radix-4, and Split radix FFT algorithms, Implementation of FFT algorithms, Applications of FFT algorithms – Efficient computation of the DFT of two real sequences, 2N point real sequences, Use of the FFT algorithm in linear filtering and correlation, A linear filtering approach to computation of the DFT- the Goertzel, and the Chirp-z transform algorithms, Quantization errors in the computation of DFT.

UNIT-III

Structures for the realization of discrete-time systems, Structures for FIR systems - Direct form, Cascade form, Frequency sampling, and Lattice structures, Structures for IIR systems – Direct form, Signal flow graphs & Transposed, Cascade form, Parallel form and Lattice structures, Conversion from Lattice structure to direct form, lattice – Ladder structure.

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UNIT-IV

General considerations – Causality and its implications, Characteristics of practical Frequency Selective Filters, Design of Finite Impulse Response (FIR) filters – Symmetric and asymmetric FIR filters, Design of linear phase FIR filters using windows, Design of linear phase FIR filters by the frequency sampling method, Design of optimum equi-ripple linear phase FIR filters, Comparison of design methods for linear phase FIR filters, Design of Impulse Invariance Response (IIR) filters from analog filters – IIR filter design by approximation of derivatives, by Impulse Invariance, and by bilinear transformation methods, Characteristics of commonly used analog filters, Design examples of both FIR and IIR filters, Frequency transformation in the analog and digital domains, Illustrative problems.

UNIT-V

Introduction, Decimation, and interpolation, Sampling rate conversion by a rational factor, Implementation of sampling rate conversion, Multistage implementation of sampling rate conversion, Sampling rate conversion of bandpass signals, Sampling rate conversion by arbitrary factor, Applications of multirate signal processing.

TEXT BOOKS:

1. John G. Proakis, Dimitris G. Manolakis, "Digital signal processing, principles, Algorithms and applications," Pearson Education/PHI, 4th ed., 2007.
2. Sanjit K Mitra, "Digital signal processing, A computer base approach," Tata McGraw Hill, 3rd edition, 2009.

REFERENCES:

1. A.V.Oppenheim and R.W. Schaffer, & J R Buck, "Discrete Time Signal Processing," 2nd ed., Pearson Education, 2012.
2. B. P. Lathi, "Principles of Signal Processing and Linear Systems," Oxford Univ. Press, 2011.
3. Li Tan, Jean Jiang, "Digital Signal Processing, Fundamentals and Applications," Academic Press, Second Edition, 2013.

INDIVIDUAL STAFF TIMETABLE / WORKLOAD

Department : ECE
Faculty : S.HARI KRISHNAN
Designation : AP/ECE
Academic Year : 2018-2019

Year / Semester : II / I

D/T	9:15-10:05	10:05-10:55	11:05-11:55	11:55-12:45	12:45-01:45	01:45-02:35	02:35-03:25	03:25-04:15	04:15-05:00
MON	ST&D				LUNCH BREAK	DSP			
TUE				DSP		ST&D			
WED	ST&D		DSP			←		VLSI lab	→
THU		←	VLSI lab	→				ST&D	DSP
FRI			ST&D						
SAT	ST&D								DSP

TOTAL CONDUCT HOURS:

S.No	Sub Code	Theory Subjects Details	Year	Branch	Semester	No of Hours Allotted
1	15A04603	DSP	IV	EEE	I	6
2	15A04302	ST&LD	II	ECE	I	6

S.No	Sub Code	Lab Name Details	Year	Branch	Semester	No of Hours Allotted
1	15A04712	VLSI & EMBEDDED SYSTEMS LAB	IV	ECE	I	6

S.No	Additional Responsibilities Assigned	Year & Branch	
1	Proctor	IV	ECE
2	APSSDC & SKYFI Skill development Coordinator	-	-
3			
4			

❖ Responsibilities like Class in charge, Student Counselor.0, ISO related works & others

Faculty in Charge

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LESSON PLAN

Subject Name	: DSP	Year & Branch :	II / ECE
Subject Code	: 15A04603	Semester :	I
Name of the Faculty	: S.HARI KRISHNAN	Designation :	AP

Objectives:

- To provide engineering problems in terms of DSP tasks.
- To Design and test DSP algorithms
- To Encode information into signals
- To Design digital signal processing algorithms.
- To Design and simulate digital filters.

Outcomes:

- Formulate engineering problems in terms of DSP tasks.
- Apply engineering problems solving strategies to DSP problems.
- Design and test DSP algorithms.
- Analyze digital and analog signals and systems.
- Encode information into signals.
- Design digital signal processing algorithms.
- Design and simulate digital filters.
- Analyze and compare different signal processing strategies

TEXT BOOKS:

1. John G. Proakis, Dimitris G. Manolakis, "Digital signal processing, principles, Algorithms and applications," Pearson Education/PHI, 4th ed., 2007.
2. Sanjit K Mitra, "Digital signal processing, A computer base approach," Tata McGraw Hill, 3rd edition, 2009.

REFERENCES:

1. A.V.Oppenheim and R.W. Schaffer, & J R Buck, "Discrete Time Signal Processing," 2nd ed., Pearson Education, 2012.
2. B. P. Lathi, "Principles of Signal Processing and Linear Systems," Oxford Univ. Press, 2011.
3. Li Tan, Jean Jiang, "Digital Signal Processing, Fundamentals and Applications," Academic Press, Second Edition, 2013.

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UNIT-I			Review of discrete-time signals and systems & Discrete Fourier Transform			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	02.07.2018	04	Introduction to Signals	T3&R1	10/7/18	M&B / PPT
2.	03.07.2018	03	Time domain analysis of discrete-time signals & systems	T3&R1	11/7/18	M&B, PPT
3.	05.07.2018	01	Frequency domain analysis of discrete-time signals and systems	T3&R1	12/7/18	M&B, PPT
4.	06.07.2018	03	Discrete Fourier Transform introduction	T3&R1	14/7/18	M&B, PPT
5.	09.07.2018	05	Frequency-domain sampling and reconstruction of discrete-time signals	T3&R1	23/7/18 5	M&B, PPT
6.	10.07.2018	06	The DFT as a linear transformation	T3&R1	16/7/18	M&B, PPT
7.	11.07.2018	04	Problems	T3&R1	17/7/18	M&B, PPT
8.	12.07.2018	02 & 07	Relationship of the DFT to other transforms	T3&R1	18/7/18 19/7/18	M&B, PPT
9.	13.07.2018	08/8	Properties of DFT	T3&R1	19/7/18 20/7/18	M&B, PPT
10.	14.07.2018	01 08	Linear filtering methods based on DFT	T3&R1	26/7/18 26/7/18	M&B, PPT
11	17.07.2018	06/8	problems in Add & Save method	T3&R1	27/7/18 28/7/18	M&B
12	18.07.2018	01 04	Frequency analysis of signals using the DFT	T3&R1	30/7/18 31/7/18	M&B
13	24/7/18	04	Convolution & its types	T3 & R1	24/7/18	M&B
14	25/7/18	03	Linear & Circular Convolution problems	T3 & R1	25/7/18	M&B

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UNIT- II			Efficient computation of the DFT			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	19.07.2018	03	Efficient computation of the DFT	T3&R1	01/8/18	M&B, PPT
2.	20.07.2018	02	Direct computation of DFT	T3&R1	6/8/18.	M&B, PPT
3.	21.07.2018	03	Divide and conquer approach to computation of DFT,	T3&R1	6/8/18.	M&B, PPT
4.	24.07.2018	04	Radix-2, Radix-4, and Split radix FFT algorithms	T3&R1	7/8/18.	M&B, PPT
5	25.07.2018	03	Radix-2 problems	T3 R1	8/8/18	M&B.
6.	26.07.2018	08	Radix-4 Introduction	T3&R1	16/8/18	~~M&B, PPT~~
7.	27.07.2018	05	Split radix FFT algorithms	T3&R1	20/8/18.	M&B, PPT
8.	28.07.2018	04	Implementation of FFT algorithms, Applications of FFT algorithms	T3&R1	21/8/18	M&B, PPT
9.	31.07.2018		Efficient computation of the DFT of two real sequences	T3&R1	(4)	~~M&B, PPT~~
10	01.08.2018		2N point real sequences	T3&R1		M&B, PPT
11.	02.08.2018	(03)	Use of the FFT algorithm in linear filtering and correlation	T3&R1	23/8/18	M&B
12	03.08.2018		A linear filtering approach to computation of the DFT.		(8)	
13	04.08.2018	04	The Goertzel Algorithm		26/8/18	
14	07.08.2018		The Chirp-z transform algorithms,		(8)	
15	08.08.2018	04	Quantization errors in the computation of DFT		28/8/18 (4)	

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UNIT-III			REALIZATION OF FIR & IIR			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	09.08.2018	03	Structures for the realization of discrete-time systems	T3&R1	29/8/18 (3)	M&B, PPT
2.	10.08.2018	08	Structures for FIR systems	T3&R1	3/9/18 (3)	M&B, PPT
3.	11.08.2018	0508	Direct form I & II - FIR	T3&R1	10/9/18(2)	M&B, PPT
4.	14.08.2018	04	Cascade form	T3&R1	11/9/18 (04)	M&B, PPT
5.	17.08.2018		Frequency sampling	T3&R1		M&B, PPT
6.	17.08.2018	(01)	Lattice structures, Transposed form	T3&R1	12/9/18 (3)	M&B, PPT
7.	18.08.2018	08	Structures for IIR systems	T3&R1	20/9/18 (3)	M&B, PPT
8.	21.08.2018	08	Direct form	T3&R1	01/9/18 (3) 03/9/18	M&B, PPT
9.	22.08.2018	04 05	Signal flow graphs & Transposed	T3&R1	04/9/18 (04)	M&B, PPT
10	23.08.2018	03	Cascade form	T3&R1	05/9/18 (03)	M&B
11	24.08.2018	08	Parallel form and Lattice structures	T3&R1	06/9/18 (03)	M&B
13	25.08.2018	08	Related problems (FAQs).	T3&R1	16/9/18 (08)	M&B

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UNIT - IV			Design of FIR & IIR Digital Filters			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	28.08.2018	04	General considerations – Causality and its implications	T3&R1	25/9/18 04	M&B, PPT
2.	29.08.2018	08	Characteristics of practical Frequency Selective Filters	T3&R1	27/9/18	M&B, PPT
3.	30.08.2018		Design of Finite Impulse Response (FIR) filters	T3&R1	08	M&B, PPT
4.	31.08.2018	01	Symmetric and asymmetric FIR filters,	T3&R1	28/9/18 (01)	M&B, PPT
5.	01.09.2018	08	Design of linear phase FIR filters using windows	T3&R1	29/9/18 (08)	M&B, PPT
6.	12.09.2018	06	Design of linear phase FIR filters by the frequency sampling method	T3&R1	01/10/18 (06)	M&B, PPT
7.	13.09.2018	03	Design of optimum -equi-ripple linear phase FIR filters	T3&R1	3/10/18 (03)	M&B, PPT
8.	14.09.2018	01	Comparison of design methods for linear phase FIR filters,	T3&R1	5/10/18 (1)	M&B, PPT
9.	15.09.2018	02	Design of Impulse Invariance Response (IIR) filters from analog filters	T3&R1	5/10/18 (2)	M&B, PPT
10.	18.09.2018	05	IIR filter design by approximation of derivatives, by Impulse invariance, and by bilinear transformation methods (8	T3&R1	08/10/18 (5)	M&B, PPT
11	19.09.2018	03	Bilinear transformation method	T3&R1	10/10/18 (3)	M&B
12	20.09.2018	04	Impulse invariant method	T3&R1	10/10/18 (4)	M&B
13	21.09.2018	(03)	Characteristics of commonly used analog filters (IIR) Butterworth.	T3&R1	06/10/18 (03)	M&B
14	22.09.2018	03	Examples of both FIR and IIR filters	T3&R1	15/10/18 (3)	M&B
15	2309.2018	05	Frequency transformation in the analog and digital domains, Illustrative problems	T3&R1	15/10/18 (5)	M&B
	26/10/18	02	problems on analog chebyshev filter	T3&R1	22/10/18 02	M&B
	27/10/18	02	Dig chebyshev using Bilinear		22/10/18	M&B

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UNIT - V			Programmable Digital Signal Processors Multirate DSP			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	25.09.2018	05	Introduction to Decimation, and interpolation,	T3&R1	22/10/18 (5)	M&B, PPT
2.	26.09.2018	04	Decimation	T3&R1	23/10/18	M&B, PPT
3.	27.09.2018		Interpolation,	T3&R1	04	M&B, PPT
4.	28.09.2018	03	Sampling rate conversion by a rational factor,	T3&R1	24/10/18 (3)	M&B, PPT
5.	29.09.2018		Implementation of sampling rate conversion	T3&R1		M&B, PPT
6.	02.10.2018	08	Multistage implementation of sampling rate conversion	T3&R1	25/10/18	M&B, PPT
7.	03.10.2018		Sampling rate conversion of bandpass signals	T3&R1	(8)	M&B, PPT
8.	04.10.2018	08	Sampling rate conversion by arbitrary factor	T3&R1	27/10/18 (8)	M&B
9	05.10.2018	08	Applications of multirate signal processing	T3&R1	28/10/18 (8)	M&B
10	06.10.2018	02	Sampling rate conversion by a rational factor,	T3&R1	29/10/18 (02)	M&B
11	08.10.2018	05	Implementation of sampling rate conversion	T3&R1	29/10/18 (05)	M&B
12	09.10.2018	(04)	, Multistage implementation of sampling rate conversion	T3&R1	30/10/18 (4)	M&B
	31/10/18 1/11/18 3/11/18		Revision unit 1&2 Revision unit 3&4 Revision unit 5	T3&R1	31/10/18 1/11/18 3/11/18	M&B

Program Name	No of Programs Planned	Tentative Dates
• Industrial Visits	01	—
• Seminars	01	

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HOD

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STUDENTS NOMINAL ROLL

Year& Branch with section: IV & EEE **Semester: I**

Academic Year: 2018-2019 **Batch: 2015 – 2019**

S.No	Register number	Name of the student
1	15KF1A0201	BANDI CHAND RASEKHAR
2	15KF1A0202	C MADHANMO HAN REDDY
3	15KF1A0203	DHARMAVAR M YUGANDHAR
4	15KF1A0204	G CHANDRA S EKHAR
5	15KF1A0205	G HIMABINDU
6	15KF1A0206	GONUGUNTL CHARAN TEJ
7	15KF1A0208	JENNE RAJES ARI
8	15KF1A0209	K SANDHYAR NI
9	15KF1A0210	KOVVURU VA NDANA
10	15KF1A0211	KUMAVATH S LPA BAI
11	15KF1A0212	KUNTALA BH GYA LAKSHMI
12	15KF1A0213	MAHENDRAK RSARANYA
13	15KF1A0214	MALLADI NIH ARIKA
14	15KF1A0215	MUTHYALA D VYA
15	15KF1A0216	P. BHARATH K UMAR
16	15KF1A0217	RANGANA SR EKANTH
17	15KF1A0218	SANKU SREEL EKHA
18	15KF1A0219	SEELA CHOW AIAH
19	15KF1A0220	SHAIK TASLE MA
20	15KF1A0221	T.C HAJEE RO SHAN
21	15KF1A0222	TALARI UDAY KUMAR
22	15KF1A0223	TANISALA SA SOWMYA
23	15KF1A0224	V. GANESH KU MAR REDDY
24	16KF1A0201	JP MADHAN
25	16KF1A0202	VENUGOPAL

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PUTTAPARTHI - 515 134
Anantapuramu (Dt) A.P.

SUBJECT HANDLERS OF YESTER YEARS

DEPARTMENT : ECE

YEAR & SEMESTER : I / II

SUBJECT CODE :

SUBJECT TITLE : VLSI Design & Analog communication systems

FACULTY NAME : S.HARI KRISHNAN

DESIGNATION : AP / ECE

S. No.	Academic Year	Semester No.	Name of the subject	% of Result produced
1	2017-2018	3-2	VLSI Design	92 %
2	2017-2018	2-2	Analog communication systems	82 %

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ASSIGNMENT PLAN

Department : EEE
Year & Sem : II / I
Subject Title : DSP
Subject Code : 15A04603
Faculty Name : S.HARI KRISHNAN
Designation : AP

Unit No	Assignment Topics	Roll Nos/Batch	Books / Journal to be Referred	Date of Announcement	Date of Submission
1	Sampling & Reconstruction & discretisation	All	—	29/7/18	28/7/18
2	Problem in DIT-DIF	All	—	14/8/18	06/9/18
3	Goertzel Algorithm	All	—	21/8/18	07/9/18
4	chap Z Transform	All	—	24/8/18	08/9/18

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VIDEO PRESENTATION/SEMINAR FOR (2-1) & (4-1) SEM FOR THE WEEK

NAME OF THE FACULTY :HARI KRISHNAN S
NAME OF THE SUBJECT: STLD

Sl.No	Class	Name of the Video	Date & time	Venue	Signature of the faculty
1	II ECE	1. Digital Systems 2. Binary codes 3. Canonical & Standard forms 4. Four variable K-map 5. Don't care conditions 6. Tabular Method 7. Combinational circuits 8. Binary Adder 9. Mux & Demux 10. Magnitude comparator 11. Sequential Circuit 12. Shift Registers 13. Memory organization 14. FPGA		Shanthi Hall	

NAME OF THE FACULTY : HARI KRISHNAN S
NAME OF THE SUBJECT: DSP

Sl.No	Class	Name of the Video	Date & time	Venue	Signature of the faculty
1	IV EEE	1.Signals & its types 2.systems & its types 3.DFT 4.Radix 2 & 4 5.structure of FIR 6. structure of FIR 7.windowing techniques 8.Billinear transformation method 9.Impulse invariant method 10.Decimation & interpolation 11.sampling rate conversion 12.DSP Applications 13. multirate signal processing		Shanthi hall	

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Guest lecture Plan for odd semester 2018-19

S.No	Date	Title of the Event	Resource Person	Beneficiary
1	21-07-2018	Guest Lecturer on Basic Electronic Circuits	Dr.S.Varadarajan, Professor, SV University, Tirupati	II ECE
2	28-07-2018	Guest Lecturer on Antennas and Wave Propagation	"Dr.P.VAMSIKRISHNA Founder,MatTester,Finland"	III ECE
3	04-08-2018	Emerging Trends in Image processing	Dr. D. Vishnu Vardhan Professor -JNTUA	IV ECE

Plan for Industrial visit for Odd semester 2018-19

S. No	Date	Industry Name	Contact Details	Beneficiary
1	22-09-2018	Kaynes Technologies	Kaynes Technologies 23-25 Belagola Food Industrial Estate, Metagalli PO, Mysore 570016 Karnataka, India. PH:+918214280270 Email : hr@kaynestechn	II ECE
2	22-09-2018	BSNL	BSNL- Puttaparthi	III ECE
3	22-09-2018	HAL	HAL Corporate Office 15/1 Cubbon Road Bangalore Tel : 91 - 80 - 22320701, 22320903, 22320376	IV ECE

Plan for seminar/conference/workshop even for Odd semester 2018-19

S.No	Date	Title of the Event	Resource Person	Beneficiary
1	27-10-2018	Department Fest	Dr. M.N. GIRIPRASAD JNTUA	II,III&IV ECE & outside participants
1	08-08-2018 TO 10-08-2018	Embedded System (IoT) Advanced	APSSDC	II & III ECE
1	12-10-2018 TO 14-10-2018	RC Aircraft Design Workshop	SKYFI LABS	II & III ECE

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SSE

IV B. Tech I Semester I Mid-Term Examinations: Descriptive

Branch: EEE | **Sub: DIGITAL SIGNAL PROCESSING** | **Sub Code: 15A04603**

Time: 90 Minutes | **Date: 18-09-2018 [AN]** | **Max marks: 30**

Answer any three questions. All questions carry equal marks

1.(a) Check for following systems are linear, causal, time in variant, stable, static (5M)

i) y(n) =x(2n) ii) y(n) = cos (x(n)) iii) y(n) = x(n) cos (x(n)

iv) y(n) =x(-n+2) v) y(n) =x(n) +n x (n+1)

(b) Find the Linear convolution of the following sequence x(n) =(1,2,-1,1) , h(n) =(1, 0 ,1,1) (5M)

2.(a) (i) How many multiplications and additions are required to compute N –point DFT using radix – 2 FFT? (1M)

(ii). What is meant by bit reversal? (1M) (iv) What is twiddle factor? (1M)

(v) Find the 4 – point DFT sequence x(n) = {1, 1, -1, -1}. (2M)

(b) Summarize the properties of DFT.(5M)

3. Compute the eight point DFT of the sequence Using radix – 2 DIT algorithm.(10M)

$$x(n) = \left\{\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{1}{2}, 0, 0, 0, 0\right\}$$

4. Compute the linear convolution of finite duration sequences h(n) = {1,2} and x(n) = {1, 2, -1, 2, 3, -2, -3, -1, 1, 1, 2, -1} by Overlap add method? (10M)

5. Compute the eight point DFT of the sequence.(10M)

$$x(n) = \begin{cases} 1 & 0 \le n \le 7 \\ 0 & Otherwise \end{cases}$$

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SANSKRITHI SCHOOL OF ENGINEERING, PUTTAPARTHI

IV B. Tech I Semester I Mid-Term Examinations: Objective

Branch: EEE | Sub: Digital signal processing | Sub Code: 15A04603

Time: 20 Minutes | Max Marks: 10

STUDENT NAME: | HT NO:

Invigilator Signature:

ANSWER THE FOLLOWING QUESTIONS. EACH QUESTION CARRIES ½ MARK. ($20 x \frac{1}{2} = 10$ Marks)

1.FFT may be used to calculate [B]

1) DFT 2) IDFT 3) Direct Z transform 4) In direct Z transform

a. 1, 2 and 3 are correct
b. 1 and 2 are correct
c. 1 and 3 are correct
d. All the four are correct

2. DIT algorithm divides the sequence into [B]

a. Positive and negative values
b. Even and odd samples
c. Upper higher and lower spectrum
d. Small and large samples

3.The computational procedure for Decimation in frequency algorithm takes [A]

a. Log2 N stages b. 2Log2 N stages c. Log2 N^2 stages d. Log2 N/2 stages

4. The transformations are required for [C]

1) Analysis in time or frequency domain
2) Quantization
3) Easier operations
4) Modulation

5. Under which conditions does an initially relaxed system become unstable? [A]

a. only if bounded input generates unbounded output
b. only if bounded input generates bounded output
c. only if unbounded input generates unbounded output
d. only if unbounded input generates bounded output

6. Which among the following are the stable discrete time systems? [D]

1. y(n) = x(4n) 2. y(n) = x(-n) 3. y(n) = ax(n) + 8 4. y(n) = cos x(n)

7. . A system is said to be defined as non causal, when [D]

a) the output at the present depends on the input at an earlier time
b) the output at the present does not depend on the factor of time at all
c) the output at the present depends on the input at the current time
d) the output at the present depends on the input at a time instant in the future

8. All real time systems concerned with the concept of causality are [B]

a) non causal b) causal c) neither causal nor non causal d) memoryless

9. The basic properties of DFT includes [A,B,C,D]

1) Linearity 2) Periodicity 3) Circular symmetry 4) Summation

10. 1. Which of the following is true regarding the number of computations required to compute an N-point DFT? [A]

a) N^2 complex multiplications and N(N-1) complex additions
b) N^2 complex additions and N(N-1) complex multiplications
c) N^2 complex multiplications and N(N+1) complex additions
d) N^2 complex additions and N(N+1) complex multiplications

11. For a decimation-in-time FFT algorithm, which of the following is true? [C]

a) Both input and output are in order
b) Both input and output are shuffled
c) Input is shuffled and output is in order
d) Input is in order and output is shuffled

12.Time shifting of discrete time signal means [A]

a. y[n] = x[n-k] b. y[n] = x[-n-k] c. y[n] = -x[n-k] d. y[n] = x[n+k]

13. The circular convolution of the two 4-point sequences x[n] = {1,1,0,0} and y[n] = {1,2,0 ,0} [D]

a) {1,2,1,2} b) {0,1,2,1} c) {1,2,2,0} d) none above

14. The Cooley–Tukey algorithm of FFT is a [A]

a. Divide and conquer algorithm
b. Divide and rule algorithm
c. Split and rule algorithm
d. Split and combine algorithm

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Anantapuramu (Dt) A.P.

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Marks Awards List

Exam: IV B.Tech I Sem I Mid Faculty Name: S. Hari Krishnan

BRANCH: ECE SUBJECT : Digital Signal Processing MAX MARKS: 30

S.No	Roll No	Marks		
		DES (20)	OBJ (10)	TOTAL (30)
1	15KF1A0201	16	03	19
2	15KF1A0202	15	05	20
3	15KF1A0203	13	05	18
4	15KF1A0204	14	04	18
5	15KF1A0205	10	04	14
6	15KF1A0206	15	04	19
7	15KF1A0208	16	06	22
8	15KF1A0209	←	AB	→
9	15KF1A0210	16	06	22
10	15KF1A0211	10	05	15
11	15KF1A0212	14	05	19
12	15KF1A0213	13	05	18
13	15KF1A0214	20	06	26
14	15KF1A0215	19	06	25
15	15KF1A0216	15	06	21
16	15KF1A0217	16	06	22
17	15KF1A0218	11	07	18
18	15KF1A0219	08	07	15
19	15KF1A0220	18	08	26
20	15KF1A0221	12	08	20
21	15KF1A0222	09	07	16
22	15KF1A0223	11	08	19
23	15KF1A0224	12	06	18
24	16KF5A0201	09	06	15
25	16KF5A0202	11	08	19

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Beedupalli Road, Prasanthinigram
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IV B. Tech I Semester II Mid-Term Examination (2018-19): Descriptive

Branch: EEE | Sub: DIGITAL SIGNAL PROCESSING | Sub Code: 15A04603

Time: 90 Minutes | Date: 13-11-2018 (AN) | Max marks: 30

Answer any three questions. All questions carry equal marks

1. Design a digital Chebyshev low pass filter satisfying the following specifications
$0.707 \leq |H(e^{jw})| \leq 1,\ 0 \leq \omega \leq 0.2\pi$
$|H(e^{jw})| \leq 0.1\ 0.5 \leq \omega \leq \pi$
with T= 1 sec using for bilinear transformation.

2. Design a digital Butterworth High pass filter satisfying the following specifications
$\sqrt{0.5} \leq |H(e^{jw})| \leq 1,\ 0 \leq \omega \leq \pi/2$
$|H(e^{jw})| \leq 0.2,\ 3\pi/4 \leq \omega \leq \pi$ with T= 1 sec. using impulse invariant technique.

3. (a) Obtain direct form I, direct form II and cascade realizations of system described by the equation,
$y[n]=y[n-1]-(1/2)y[n-2]+x[n]-x[n-1]+x[n-2]$. [8M]
(b) What is prewarping ? [2M]

4. (a) With necessary derivations explain the operation of sampling rate conversion by a factor of I/D in both frequency and time domains. [5M]
b) What are the applications of multirate digital signal processing? [5M]

5. A low pass filter is to be designed with the following desired frequency response.
$Hd(ejw) = e^{-j2w},\ -\pi/4\ \ \omega \leq \leq \pi/4$
$0,\ \pi/4 \leq |\omega| \leq \pi$
Determine the filter coefficients hd(n)
If the window function is defined as $\omega(n) = 1,\ 0 \leq n \leq 4$
0, otherwise Also determine the frequency response H(ejw) of the designed filter.

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IV B. Tech I Semester II Mid-Term Examinations: objective

Branch: EEE — Sub: DIGITAL SIGNAL PROCESSING — Sub Code: 15A04603

Time: 20 Minutes — Max marks: 10

STUDENT NAME: — HTNO:

Invigilator Signature:

ANSWER THE FOLLOWING QUESTIONS. EACH QUESTION CARRIES ½ MARK.

1. Which of the following substitution is done in Bilinear transformations? [C]

a) $s=\frac{2}{T}\left[\frac{1+z^{-1}}{1-z^{-1}}\right]$ b) $s=\frac{2}{T}\left[\frac{1+z^{-1}}{1+}\right]$ c) $s=\frac{2}{T}\left[\frac{1-z^{-1}}{1+z^{-1}}\right]$ d) None of the mentioned

2. In bilinear transformation, the left-half s-plane is mapped to which of the following in the z-domain? [B]

a) Entirely outside the unit circle |z|=1 b) Partially outside the unit circle |z|=1

c) Partially inside the unit circle |z|=1 d) Entirely inside the unit circle |z|=1

3. What is the kind of relationship between Ω and ω?

2. In bilinear transformation, the left-half s-plane is mapped to which of the following in the z-domain? [C]

a) Many-to-one b) One-to-many c) One-to-one d) Many-to-many 4.

The frequency ω_p is called as: [C]

a) Pass band ripple b) Stop band ripple c) Pass band edge ripple d) Stop band edge ripple

5. Which of the following represents the bandwidth of the filter? [B]

a) $\omega_p+\omega_s$ b) $-\omega_p+\omega_s$ c) $\omega_p-\omega_s$ d) None of the mentioned

6. Which of the following condition should the unit sample response of a FIR filter satisfy to have a linear phase? [B]

a) h(M-1-n) n=0,1,2…M-1 b) ±h(M-1-n) n=0,1,2…M-1

c) -h(M-1-n) n=0,1,2…M-1 d) None of the mentioned

7. What is the value of h(M-1/2) if the unit sample response is anti-symmetric? [A]

a) 0 b) 1 c) -1 d) None of the mentioned

8. Which of the following is not suitable either as low pass or a high pass filter? [C]

a) h(n) symmetric and M odd b) h(n) symmetric and M even

c) h(n) anti-symmetric and M odd d) h(n) anti-symmetric and M even

9. Which of the following defines the rectangular window function of length M-1? [A]

a) w(n)= 1, n=0,1,2…M-1=0, else where b) w(n)= 1, n=0,1,2…M-1 =-1, else where

c) w(n)= 0, n=0,1,2…M-1=1, else where d) None of the mentioned

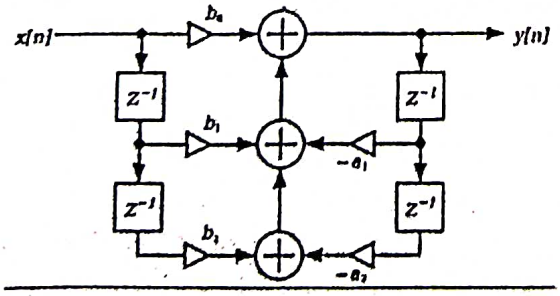
10. The multiplication of the window function w(n) with h(n) is equivalent to the multiplication of H(w) and W(w). [B]

a) True b) False

11. What is the width of the main lobe of the frequency response of a rectangular window of length M-1? [C]

a) π/M b) 2π/M c) 4π/M d) 8π/M

12. What does the structure given below represents? [C]



a) Direct form-I b) Regular Direct form-II c) Transposed direct form-II d) None [B]

13. In IIR Filter design by the Bilinear Transformation, the Bilinear Transformation is a mapping from [ ]

a) Z-plane to S-plane b) S-plane to Z-plane c) S-plane to J-plane d) J-plane to Z-plane

14. In Bilinear Transformation, aliasing of frequency components is been avoided. [A]

a) True b) False

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15. In the Bilinear Transformation mapping, which of the following are correct? [C]
a) All points in the LHP of s are mapped inside the unit circle in the z-plane
b) All points in the RHP of s are mapped outside the unit circle in the z-plane
c) Both a & b d) None of the mentioned

16. The chebyshev-I filter is equi-ripple in pass band and monotonic in the stop band. [A]
a) True b) False

17. Which of the following methods are used in sampling rate conversion of a digital signal? [D]
a) D/A convertor and A/D convertor b) Performing entirely in digital domain
c) None of the mentioned d) Both of the mentioned

18. Which of the following is the disadvantage of sampling rate conversion by converting the signal into analog signal? [D]
a) Signal distortion b) Quantization effects
c) New sampling rate can be arbitrarily selected d) Signal distortion & Quantization effects.

19. What is the process of reducing the sampling rate by a factor D? [C]
a) Sampling rate conversion b) Interpolation
c) Decimation d) None of the mentioned

20. What is the process of increasing the sampling rate by a factor I? [B]
a) Sampling rate conversion b) Interpolation
c) Decimation d) None of the mentioned

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PUTTAPARTHI - 515 134.
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SANSKRITHI SCHOOL OF ENGINEERING

Marks Awards List

Exam: IV B.Tech I Sem I Mid Faculty Name: G. Hari Krishnan

BRANCH: E.E.E SUBJECT: DSP MAX MARKS: 30

S.No	Roll No	Marks		
		DES (20)	OBJ (10)	TOTAL (30)
1	15KF1A0201	15	10	25
2	15KF1A0202	18	10	28
3	15KF1A0203	16	09	25
4	15KF1A0204	13	09	22
5	15KF1A0205	14	09	23
6	15KF1A0206	16	10	26
7	15KF1A0208	19	09	28
8	15KF1A0209	AB	AB	AB
9	15KF1A0210	16	10	26
10	15KF1A0211	18	08	26
11	15KF1A0212	14	10	24
12	15KF1A0213	19	08	27
13	15KF1A0214	20	10	30
14	15KF1A0215	18	10	28
15	15KF1A0216	18	10	28
16	15KF1A0217	16	10	26
17	15KF1A0218	18	09	27
18	15KF1A0219	12	08	20
19	15KF1A0220	14	10	24
20	15KF1A0221	16	-0-	16
21	15KF1A0222	18	-0-	18
22	15KF1A0223	16	10	26
23	15KF1A0224	17	10	27

S.No	Roll No	Marks		
		DES (20)	OBJ (10)	TOTAL (30)
24	16KF5A0201	16	09	25
25	16KF5A0202	18	08	26

Faculty Signature HoD PRINCIPAL

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Anantapuramu (Dt.)

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Marks Awards List

Exam: [x] B.Tech [ ] Sem [ ] Mid Faculty Name: G Hari Krishnan

BRANCH: ECE SUBJECT: DSP MAX MARKS: 30

S.No	Roll No	Marks		
		Mid - I (30)	Mid - II (30)	CS (30)
1	15KF1A0201	19	25	24
2	15KF1A0202	20	28	26
3	15KF1A0203	18	25	24
4	15KF1A0204	18	22	21
5	15KF1A0205	14	23	21
6	15KF1A0206	19	26	25
7	15KF1A0208	22	28	27
8	15KF1A0209	AB	AB	AB
9	15KF1A0210	22	26	25
10	15KF1A0211	15	26	24
11	15KF1A0212	19	24	23
12	15KF1A0213	18	27	25
13	15KF1A0214	26	30	29
14	15KF1A0215	25	28	27
15	15KF1A0216	21	28	27
16	15KF1A0217	22	26	25
17	15KF1A0218	18	27	25
18	15KF1A0219	15	20	19
19	15KF1A0220	26	24	26
20	15KF1A0221	20	16	19
21	15KF1A0222	16	18	18
22	15KF1A0223	19	26	25
23	15KF1A0224	18	27	25

S.No	Roll No	Marks		
		DES (20)	OBJ (10)	TOTAL (30)
24	16KF5A0201	15	23	23
25	16KF5A0202	19	26	25

Faculty Signature HoD PRINCIPAL

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Ananthapuramu (Dt.) A.P.

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COURSE FILE - THEORY

FACULTY NAME	: N. PAVAN KUMAR
DESIGNATION	: ASSISTANT PROFESSOR
DEPARTMENT	: EEE
SUBJECT CODE	: 15A02503
SUBJECT TITLE	: POWER ELECTRONICS
DEPARTMENT	: EEE
YEAR / SEMESTER	: II / I
ACADEMIC YEAR	: 2018-2019 (ODD SEM)

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Beedupalli Road, Prasanthinagram,
PUTTAPARTHI - 515 134.
Anantapuramu (Dt) A.P.

COURSE FILE – INDEX- THEORY

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17	Answer for Part –A questions in Printed form – Internal Test I	—
18	Internal Marks Statement	Attached
19	Internal Question Paper – II	Attached
20	Answer for Part –A questions in Printed form – Internal Test II	—
21	Internal Result Analysis – II & Corrective Action	Attached
22	University Question Papers	Moodle
23	Notes of Lesson for Unit I to 5	Moodle
24	Sample of 3 Answer Booklets & Assignment Papers- i)Best ii)Medium iii)Poor Assignment	Enclosed
25	Assessment Record	Attached

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Puttaparthi

PRINCIPAL
Sanskrithi School of Engineering.
Beedupalli Road, Prasanthinigram,
PUTTAPARTHI - 515 134.
Anantapuramu (Dt), A.P.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

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II B.Tech I-Sem (E.E.E)

L	T	P	C
3	1	0	3

(15A02503) POWER ELECTRONICS

UNIT I POWER SEMI CONDUCTOR DEVICES

Semiconductor Power Diodes, Thyristors – Silicon Controlled Rectifiers (SCR"s) – TRIACs, GTOs - Characteristics and Principles of Operation and other Thyristors – Classification of Switching Devices Based on Frequency and Power Handling Capacity- BJT – Power Transistor - Power MOSFET – Power IGBT — Basic Theory of Operation of SCR – Static Characteristics – Turn On and Turn Off Methods- Dynamic Characteristics of SCR - Two Transistor Analogy – Triggering Circuits—— Series and Parallel Connections of SCR"s – Snubber Circuits – Specifications and Ratings of SCR"s, BJT, IGBT.

UNIT II PHASE CONTROLLED CONVERTERS

Phase Control Technique – Single Phase Line Commutated Converters – Mid Point and Bridge Connections – Half Controlled Converters, Fully Controlled Converters with Resistive, RL Loads and RLE Load– Derivation of Average Load Voltage and Current – Line Commutated Inverters -Active and Reactive Power Inputs to the Converters without and with Free Wheeling Diode, Effect of Source Inductance – Numerical Problems. Three Phase Line Commutated Converters – Three Pulse and Six Pulse Converters – Mid Point and Bridge Connections - Average Load Voltage with R and RL Loads – Effect of Source Inductance–Dual Converters (Both Single Phase and Three Phase) - Waveforms –Numerical Problems.

UNIT III CHOPPERS AND REGULATORS

Commutation Circuits – Time Ratio Control and Current Limit Control Strategies – Step Down and Step up Choppers Derivation of Load Voltage and Currents with R, RL and RLE Loads- Step Up Chopper – Load Voltage Expression– Problems. Study of Buck, Boost and Buck-Boost regulators, buck regulator e.g. TPS54160, hysteretic buck regulator e.g.LM3475, Switching Regulator and characteristics of standard regulator ICs – TPS40200, TPS40210, TPS 7A4901, TPS7A8300.

UNIT IV INVERTERS

Inverters – Single Phase Inverter – Basic Series Inverter – Basic Parallel Capacitor Inverter Bridge Inverter – Waveforms – Simple Forced Commutation Circuits for Bridge Inverters – Single Phase Half and Full Bridge Inverters-Pulse Width Modulation Control-Harmonic Reduction Techniques-Voltage Control Techniques for Inverters – Numerical Problems, Three Phase VSI in 1200 And 1800 Modes of Conduction.

UNIT V AC VOLTAGE CONTROLLERS & CYCLO CONVERTERS

AC Voltage Controllers – Single Phase Two SCR"s in Anti Parallel – With R and RL Loads – Modes of Operation of TRIAC – TRIAC with R and RL Loads – Derivation of RMS Load Voltage, Current and Power Factor Wave Forms – Firing Circuits –Numerical Problems - Thyristor Controlled Reactors; Switched Capacitor Networks.

Cyclo Converters – Single Phase Mid Point Cyclo converters with Resistive and Inductive Load (Principle of Operation only) – Bridge Configuration of Single Phase Cycloconverter (Principle of Operation only) – Waveforms

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Sanskrithi School of Engineering
Beedupalli Road, Prasanthingram,
PUTTAPARTHI - 515 134.
Anantapuramu (Dt) A.P.

INDIVIDUAL STAFF TIMETABLE / WORKLOAD

Department : EEE

Faculty : N. PAVAN KUMAR

Designation : Asst.Prof / EEE

Academic Year : 2018-2019 Year / Semester : III/ I & II / I

D / T	09:15-10:05	10:05-10:55	10:55-11:05	11:05-11:55	11:55-12:45	12:45-01:45	01:45-02:35	02:35-03:20	03:20-03:30	03:30-04:15	04:15-05:00
MON		EM-I	BREAK		PE	LUNCH BREAK			BREAK	PE*	
TUE	EM-I						PE				
WED					EM-I					EM LAB	
THU		EM-I		PE			EM-I			EM LAB	
FRI							PE			EM-I*	
SAT				PE							

TOTAL CONDUCT HOURS:

S.No	Sub Code	Theory Subjects Details	Year	Branch	Semester	No of Hours Allotted
1	15A02302	Electrical Machines – I	II	EEE	I	6
2	15A02503	Power Electronics	III	EEE	I	6

S.No	Sub Code	Lab Name Details	Year	Branch	Semester	No of Hours Allotted
1	15A02507	Electrical Measurements Lab	III	EEE	I	6

S.No	Additional Responsibilities Assigned	Year & Branch
1	Time Table Incharge , GATE Terrain	ALL
2	Notice Board Incharge	ALL EEE
3	Counselor	IV EEE

❖ Responsibilities like Class in charge, Student Counselor.0, ISO related works & others

FACULTY HOD PRINCIPAL

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Sanskrithi School of Engineering
Beedupalli Road, Prasanthingram,
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Anantapuramu (Dt) A.P.

LESSON PLAN

Subject Name	: Power Electronics	Year & Branch:	III / EEE
Subject Code	: 15A02503	Semester :	I
Name of the Faculty	: N. Pavan Kumar	Designation :	Asst.Prof

Definition / Description:

To expose the students to the fundamentals of electromagnetic fields and their applications in Electrical Engineering.

Objectives:

The objectives of the course are to make the student learn about

- The basic power semiconductor switching devices and their principles of operation.
- The various power conversion methods, controlling and designing of power converters.
- The applications of Power electronic conversion to domestic, industrial, aerospace, commercial and utility systems etc.
- The equipment used for DC to AC, AC to DC, DC to Variable DC, and AC to Variable frequency AC conversions.

TEXT BOOKS:

1. Power Electronics, M. D. Singh and K. B. Khanchandani, Mc Graw Hill Education (India) Pvt. Ltd., 2nd Edition, 2007, 23rd Reprint 2015.
2. Power Electronics: Circuits, Devices and Applications, Muhammad H. Rashid, Pearson, 3rd Edition, 2014, 2nd Impression 2015.

REFERENCES:

1. Power Electronics, K. R. Varmah, Chikku Abraham, CENGAGE Learning, 1st Edition, 2016.
2. Power Electronics, P. S. Bimbhra, Khanna Publishers, 2012.
3. Power Electronics: Devices, Circuits, and Industrial Applications, V. R.Moorthi, OXFORD University Press, 1st Edition, 2005, 12th Impression 2012.

OUTCOMES:

- After going through this course, the student acquires knowledge about:
- Basic operating principles of power semiconductor switching devices.
- the operation of power electronic converters, choppers, inverters, AC voltage controllers, and cyclo converters, and their control.
- How to apply the learnt principles and methods to practical applications.

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Sanskrithi School of Engineering
Beedupalli Road, Prasanthinigram,
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Anantapuramu (Dt) A.P.

UNIT-I			POWER SEMI CONDUCTOR DEVICES			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	9-7-18	4	Introduction	T1 & T2	D.P 11/7/18	M&B, PPT
2.	10-7-18	5	Semiconductor Power Diodes	T1 & T2	D.P 16/7/18	M&B, PPT
3.	12-7-18	3	Thyristors – Silicon Controlled Rectifiers (SCR"s)	T1 & T2	D.P 19/7/18	M&B, PPT
4.	13-7-18	5	TRIACs, GTOs	T1 & T2	D.P 23/7/18	M&B, PPT
5.	14-7-18	5	Characteristics and Principles of Operation and other Thyristors	T1 & T2	D.P 17/7/18	M&B, PPT
6.	16-7-18	4	Classification of Switching Devices Based on Frequency and Power Handling Capacity	T1 & T2	D.P	M&B, PPT
7.	17-7-18	5	BJT – Power Transistor	T1 & T2	D.P 25/7/18	M&B, PPT
8.	19-7-18	3	Power MOSFET – Power IGBT	T1 & T2	D.P 31/7/18	M&B, PPT
9.	20-7-18	5	Basic Theory of Operation of SCR – Static Characteristics – Turn On and Turn Off Methods	T1 & T2	D.P 19/7/18	M&B, PPT
10.	21-7-18	5	Dynamic Characteristics of SCR - Two Transistor Analogy , Triggering Circuits	T1 & T2	D.P 23/7/18	M&B, PPT
11.	23-7-18	4	Series and Parallel Connections of SCR"s – Snubber Circuits	T1 & T2	D.P	M&B, PPT
12.	26-7-18	3	Specifications and Ratings of SCR"s, BJT, IGBT	T1 & T2	D.P 25/7/18	M&B, PPT

UNIT- II			PHASE CONTROLLED CONVERTERS			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	27-7-18	5	Phase Control Technique	T1 & T2	D.P 2/8/18	M&B, PPT
2.	28-7-18	3	Single Phase Line Commutated Converters	T1 & T2	D.P 6/8/18	M&B, PPT
3.	30-7-18	4	Mid Point and Bridge Connections	T1 & T2	D.P 10/8/18	M&B, PPT

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4.	02-8-18	3	Half Controlled Converters, with Resistive, RL Loads and RLE Load	T1 & T2	D.P 6/8/18	M&B, PPT
5.	03-8-18	5	Fully Controlled Converters with Resistive, RL Loads and RLE Load	T1 & T2	D.P 6/8/18	M&B, PPT
6.	04-8-18	3	Derivation of Average Load Voltage and Current	T1 & T2	D.P 6/8/18	M&B, PPT
7.	06-8-18	4	Line Commutated Inverters -Active and Reactive Power Inputs to the Converters without and with Free Wheeling Diode,	T1 & T2	D.P 7/8/18	M&B, PPT
8.	07-8-18	5	Effect of Source Inductance – Numerical Problems.	T1 & T2	D.P 10/8/18	M&B, PPT
9.	09-8-18	3	Three Phase Line Commutated Converters	T1 & T2	D.P 13/8/18	M&B, PPT
10.	10-8-18	5	Three Pulse and Six Pulse Converters	T1 & T2	D.P 20/8/18	M&B, PPT
11.	11-8-18	3	Mid Point and Bridge Connections	T1 & T2	D.P 16/7/18	M&B, PPT
12.	13-8-18	4	Average Load Voltage with R and RL Loads	T1 & T2	D.P 17/7/18	M&B PPT
13.	14-8-18	5	Effect of Source Inductance	T1 & T2	D.P 25/8/18	M&B
14.	16-8-18	3	Dual Converters (Both Single Phase and Three Phase) - Waveforms – Numerical Problems.	T1 & T2	D.P 29/8/18	M&B

UNIT-III			CHOPPERS AND REGULATORS			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	20-8-18	4	Commutation Circuits	T1 & T2	D.P 3/9/18	M&B, PPT
2.	21-8-18	5	Time Ratio Control and Current Limit Control Strategies	T1 & T2	D.P 6/9/18	M&B, PPT
3.	28-8-18	3	Step Down Choppers Derivation of Load Voltage and Currents with R, RL and RLE Loads	T1 & T2	D.P 10/9/18	M&B, PPT
4.	25-8-18	3	Step up Choppers Derivation of Load Voltage and Currents with R, RL and RLE Loads	T1 & T2	D.P 7/9/18	M&B, PPT
5.	28-8-18	5	Step Up Chopper – Load Voltage Expression- Problems	T1 & T2	D.P 7/9/18	M&B, PPT
6.	29-8-18	1	Study of Buck regulators	T1 & T2	D.P	M&B, PPT

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7.	30-8-18.	3	Study of Boost regulators	T1 & T2	D. 29/9/18	M&B. PPT
8.	31-8-18	5	Study of Buck-Boost regulators	T1 & T2	D. 1/10/18	M&B. PPT
9.	01-9-18	3	hysteretic buck regulator	T1 & T2	D. 2/10/18 D. 3/10/18	M&B, PPT

Problems

UNIT - IV			INVERTERS			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	17-9-18	4	Inverters – Single Phase Inverter	T1 & T2	D. 8/10/18	M&B, PPT
2.	18-9-18	5	Basic Series Inverter	T1 & T2	D. 22/10/18	M&B, PPT
3.	20-9-18	3	Basic Parallel Capacitor Inverter Bridge Inverter – Waveforms	T1 & T2	D. 23/10/18	M&B, PPT
4.	21-9-18	5	Simple Forced Commutation Circuits for Bridge Inverters	T1 & T2	D. 6/10/18	M&B, PPT
5.	22-9-18	3	Single Phase Half and Full Bridge Inverters	T1 & T2	D. 10/10/18	M&B, PPT
6.	24-9-18	4	Pulse Width Modulation Control	T1 & T2	D. 25/10/18	M&B, PPT
7.	25-9-18	5	Harmonic Reduction Techniques	T1 & T2	D. 23/10/18	M&B, PPT
8.	27-9-18	3	Voltage Control Techniques for Inverters	T1 & T2	D. 12/10/18	M&B, PPT
9.	28-9-18	5	Numerical Problems	T1 & T2	D. 12/10/18	M&B, PPT
10.	29-9-18	3	Three Phase VSI in 1200 Modes of Conduction.	T1 & T2	D. 15/10/18	M&B, PPT
11.	30-9-18	4	Three Phase VSI in 1800 Modes of Conduction.	T1 & T2	D. 22/10/18	M&B, PPT

UNIT - V			AC VOLTAGE CONTROLLERS & CYCLO CONVERTERS			
S.no	Proposed Date	Period	Topic Name	T/R Book	Actual Date and Period of Completion	Teaching aids
1.	8-10-18	1	AC Voltage Controllers Single Phase Two SCR"s in Anti Parallel With R and RL Loads	T1 & T2	D. 25/10/18	M&B, PPT

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2.	05-10-18	5	Modes of Operation of TRIAC with R and RL Loads	T1 & T2	D.P 25/10/18	M&B, PPT
3.	08-10-18	4	Derivation of RMS Load Voltage, Current and Power Factor Wave Forms	T1 & T2	D.P 25/10/18	M&B, PPT
4.	11-10-18	3	Firing Circuits	T1 & T2	D.P 25/10/18	M&B, PPT
5.	12-10-18	5	Numerical Problems	T1 & T2	D.P 25/10/18	M&B, PPT
6.	15-10-18	4	Thyristor Controlled Reactors;	T1 & T2	D.P 24/10/18	M&B, PPT
7.	22-10-18	4	Switched Capacitor Networks.	T1 & T2	D.P 26/10/18	M&B, PPT
8.	23-10-18	5	**Cyclo Converters** Single Phase Mid Point Cyclo converters with Resistive and Inductive Load (Principle of Operation only)	T1 & T2	D.P 26/10/18	M&B PPT
9.	26-10-18	5	Bridge Configuration of Single Phase Cycloconverter (Principle of Operation only), Waveforms	T1 & T2	D.P 27/10/18	M&B PPT

The following programs should also be included along with the theory classes:

Program Name:

- Tutorials
- Assignments
- Unit Tests – Internal Tests I, II and III
- Model Exam

At the end of the lesson plan the following attached academic programs should also be addressed as per the format given below: Fill this table if the programme is applicable otherwise write 'Not applicable'.

Program Name	No of Programs Planned	Tentative Dates
• Industrial Visits	II. EEE – JVS Electronics ~~III & IV – ISRO - Srikakulam~~	18 - 8 - 2018 ~~23 - 8 - 2018~~
• Seminars		

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STUDENTS NOMINAL ROLL

Year& Branch with section: II / EEE

Semester: I

Academic Year: 2018-2019

Batch: 2016 – 2020

ROLL NO	NAME OF THE STUDENT	ROLL NO	NAME OF THE STUDENT
16KF1A0201	AVENENI BHANU PRAKASH	17KF5A0201	BOYA SAIKUMAR
16KF1A0202	BADAPPAGARI RAMYA SREE	17KF5A0202	CHANNA HARIPRASAD
16KF1A0203	BOMMAKA HARIKA	17KF5A0203	CHOWTIPALLI SESHASHAYINI
16KF1A0204	C L SAI SARAN	17KF5A0204	D SHAMSHEER
16KF1A0205	CHEVURU SAI KRISHNA	17KF5A0205	DUDEKULA HUSSAIN PEERA
16KF1A0206	GIDDALURI ASHOK KUMAR	17KF5A0207	JEKKA JAYA PRAKASH
16KF1A0207	JANANI R	17KF5A0208	KUMMARA ANIL KUMAR
16KF1A0208	KAPU MANJUNATHREDDY	17KF5A0209	KURUBA LAILA
16KF1A0209	KASIREDDY VISHALAKSHI	17KF5A0210	MULLAGURU CHANDANA
16KF1A0210	KOTHAREDDYGARI THRIVENI	17KF5A0211	SIRAGAM GOPIVARDHANREDDY
16KF1A0211	KOTTE SILPA	17KF5A0212	TALARI MOUNIKA
16KF1A0212	NAMBURI SUDHEER KUMAR	17KF5A0213	TARIKI CHANDRAKALA
16KF1A0213	SAMPANGI ASHOK KUMAR	17KF5A0214	URAVAKONDA INDU
16KF1A0214	TUNGA KARTHAVEERYA	17KF5A0215	MEGAVATH SAI KISHOR NAIK
16KF1A0215	VEMALA SHIRISHA	17KF5A0216	TALARI VEERASANKAR

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SUBJECT HANDLERS OF YESTER YEARS

DEPARTMENT : EEE

YEAR & SEMESTER : III / I

SUBJECT CODE / TITLE : POWER ELECTRONICS

FACULTY NAME : N.PAVAN KUMAR

DESIGNATION : Asst.Prof / EEE

S. No.	Academic Year	Semester No.	Name of the faculty	% of Result produced
1	2017-2018	III / I	Dr.A.Senthil Kumar	76%

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ASSIGNMENT PLAN

Department : EEE
Year & Sem : III / I
Subject Title : PE
Subject Code : 15A02503
Faculty Name : N. Pavan Kumar
Designation : Asst.Prof

Unit No	Assignment Topics	Roll No's /Batch	Books / Journal to be Referred	Date of Announcement	Date of Submission
1.	SCR	All III-EEE	from books	23-7-2018	30-7-2018
2.	All Power devices	"	"	06-8-2018	18-8-2018
3.	Converters CKT & waveforms	"	"	20-8-2018	04-9-2018
	choppers	"	"	01-10-2018	11-10-2018

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

B. Tech II - II sem (E.E.E)

L	C
4	2

15A02507 ELECTRICAL MEASUREMENTS LABORATORY

Course Objective: The objectives of the course are to make the students learn about:

- Calibration of various electrical measuring/recording instruments.
- Accurate determination of resistance, inductance and capacitance using D.C and A.C Bridges.
- Measurement of parameters of choke coil

The following experiments are required to be conducted as compulsory experiments:

1. Calibration of Single Phase Energy Meter using Phantom loading method with RSS meter as standard
2. Calibration of Dynamometer Power Factor Meter
3. Crompton D.C. Potentiometer – Calibration of PMMC Ammeter and PMMC Voltmeter
4. Kelvin"s Double Bridge – Measurement of very low Resistance values – Determination of Tolerance.
5. Measurement of % Ratio Error and Phase Angle of Given C.T. by Comparison.
6. Schering Bridge & Anderson Bridge for measurement of Capacitance and Inductance values.
7. Measurement of 3 Phase Reactive Power with Single-Phase Wattmeter.
8. Measurement of Parameters of a Choke Coil Using 3 Voltmeter and 3 Ammeter Methods.

In addition to the above eight experiments, at least any two of the experiments from the following list are required to be conducted:

9. Optical Bench – Determination of Polar Curve, Measurement of MHCP of Filament Lamps
10. Calibration of LPF Wattmeter – by Phantom Testing
11. Measurement of 3 Phase Power with Two Watt Meter Method (Balanced & Un balanced).
12. Dielectric Oil Testing Using H.T. Testing Kit
13. LVDT and Capacitance Pickup – Characteristics and Calibration
14. Resistance Strain Gauge – Strain Measurement and Calibration
15. Transformer Turns Ratio Measurement Using A.C. Bridge.

Course Outcomes: At the end of the course, the student will be able to

- Calibrate various electrical measuring/recording instruments.
- Accurately determine the values of inductance and capacitance using a.c bridges
- Accurately determine the values of very low resistances
- Measure reactive power in 3-phase circuit using single wattmeter
- Determine ratio error and phase angle error of CT

FACULTY HOD PRINCIPAL

PRACTICAL CLASSES SCHEDULE

15A02507			ELECTRICAL MEASUREMENTS LABORATORY			
S.No	Proposed Date	Period	Topic Name	Actual Date of Completion	Period	Signature
1.	20-7-2018	6,7,8	Calibration of Single Phase Energy Meter using Phantom loading method with RSS meter as standard	Extra		D.Pf
2.	20-7-2018	6,7,8.	Calibration of Dynamometer Power Factor Meter	20-7-2018	6,7,8	D.Pf
3.	04-10-2018	6,7,8	Crompton D.C. Potentiometer – Calibration of PMMC Ammeter and PMMC Voltmeter	4-10-2018	6,7,8.	D.Pf
4.	07-8-18 9-8-18	6,7,8	Kelvin"s Double Bridge – Measurement of very low Resistance values –Determination of Tolerance.	07-8-18 9-8-18	6,7,8	D.Pf.
5.	Extra		Measurement of % Ratio Error and Phase Angle of Given C.T. by Comparison.	Extra		
6.	28-7-2017 16-8-2018	6,7,8	Schering Bridge & Anderson Bridge for measurement of Capacitance and Inductance values.	20-7-2017. 16-8-2018	6,7,8	D.Pf
7.	27-9-2018	6,7,8	Measurement of 3 Phase Reactive Power with Single-Phase Wattmeter.	27-9-2018	6,7,8	D.Pf
8.	01/8/2018 16/8/18	6,7,8	Measurement of Parameters of a Choke Coil Using 3 Voltmeter and 3 Ammeter Methods	01/8/18 16/8/18.	6,7,8	D.Pf.
9.	04/10/18	6,7,8	Calibration of LPF Wattmeter – by Phantom Testing	04/10/18	6,7,8	D.Pf
10.	6/9/2018 29/8/2018	6,7,8	Measurement of 3 Phase Power with Two Watt Meter Method (Balanced & Un balanced).	6/9/2018. 29/8/2018	6,7,8	D.Pf
11.	24/10/18	6,7,8	~~Dielectric Oil Testing Using H.T. Testing Kit~~ LVD I	24/10/18	6,7,8	D.Pf

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Seminar Hour or Video Lecture Hour

Each subject, we have defined 6 hours per week. In this one hour is specifically filled by seminar hour or video lecture hour.

Faculty name: N Pavan Kumar, Asst.Prof / EEE

Subject name: EM-I

S.No	Hour / period with date	Name of the Student	Year & Department	Title of the seminar	Signature of the faculty
1	Every Monday 7th Hour	Chandralekala	III / EEE	MOSFET	
2		Bhanu Prakash	III / EEE	Full Bridge Converter	
3		—	III / EEE	120 Degree Bridge Converter	
4		—	III / EEE	Control Strategy	
5		—	III / EEE	Commutation CKT	
6		—	III / EEE	180 Degree Bridge Inverter	

Video Lecture Presentation Schedule

Video Presentation for Department (2-1) Sem for the Week

Sl.No	Name of the faculty	Class	Name of the Video	Date & time	Venue	Signature of the faculty
1	N. Pavan Kumar	III	Power Diodes	Every Monday 7th Hour	Shanthi Room	
2		III	Thyristors, IGBT & MOSFET		Shanthi Room	
3		III	Half and Full Control Converters		Shanthi Room	
4		III	3 Phase Converters		Shanthi Room	
5		III	Types of DC to DC Converters		Shanthi Room	
6		III	1 & 3 Phase Inverters		Shanthi Room	
7		III	Types of Commutation Circuits		Shanthi Room	

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Guest lecture Plan for odd semester 2018-19

S.No	Date	Title of the Event	Resource Person	Beneficiary
1	21-07-2018	Guest Lecturer on Electrical Machines	KL University	II , III & IV EEE
2	28-07-2018	Guest Lecturer on Distribution Systems, Distributed Generation	Dr. K. Jithendra Gowd Asst. Prof / EEE JNTUA College of Engineering	II , III & IV EEE

Plan for industrial visit for Odd semester 2018-19

S.No	Year / Sem	Industry	Tentative Date	Place	Contact Person
1	IVth IIIrd & IInd Year	Sri Damodaram Sanjeevaiah TPS	07th Aug 2018	Krishnapatnam, Nellore	040 2384 0270
2		Satish Dhawan Space Centre (SDSC)		Sriharikota	Hrd - 08623225047 Pro - 08623225033
3		Sri City (P) Limited		Thada	270 Peepul Boulevard Sri City – 517 646 Andhra Pradesh, +91-95001 32323 +91-96001 32323
4		HAL		HAL Corporate Office 15/1 Cubbon Road Bangalore	Tel : 91 - 80 - 22320701, 22320903, 22320376

Plan for seminar/conference/workshop even for Odd semester 2018-19

S.No	Date	Title of the Event	Resource Person	Beneficiary
1	11-09-2018	PLC & SCADA	Mr.P.Manoj Kumar Delhi	II,III&IV EEE & outside participants
2	25-08-2018	Industrial Engineering	Mr.Jayakumar Grounding expert NPTI - Bangalore	II,III&IV EEE & outside participants
3	Aug 2018	Embedded System (IoT)	APSSDC	II & III EEE
4	Aug 2018	Advanced Embedded System (IoT)	APSSDC	IV EEE

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Poster Presentation

Poster presentation per department with 10 major topics

S.No.	Name of the student (max 3 per batch)	Year / Semester	Dept	Date to be display	Topic	Faculty Incharge
1	A. Ankanksha B. Nirmala Bai B. Gangabhavani C. Anand	II / II	EEE	20-07-2018	20th July Historical Day	Mr.Sampad Barik, AP / EEE
2	A Bhanu Prakash B Ramya Sree B Harika C L Sai Saran C Sai Krishna	III / II	EEE	27-07-2018	Power Electronics and Devices	Mr.N.Pavan Kumar, AP / EEE
3	C.V. Sreeja D. Jyothsna Priya D. Shruthi G Pavithra	II / II	EEE	03-08-2018	Special Electrical Machines	Mrs.P.Prathyusha AP/EEE
4	G Ashok Kumar Janani R K Manjunathreddy K Vishalakshi J Rajeswari	III / II	EEE	10-08-2018	Embedded System	Mr.P.Vinodh Kumar, AP/EEE
5	K. Kusuma Kumari K. Vajiha Thasneem M. Manasa Chowdary M. Vijaya Narasimha S. Shameem Akhter	II / II	EEE	17-08-2018	Modern Trends In Power System	Mr.P.Sampad Barik AP/EEE
6	K Thriveni K Silpa N Sudheer Kumar S Ashok Kumar T Karthaveerya	III / II	EEE	24-08-2018	Smart grides	Mr.P.Sunil Kumar AP/EEE
7	S. Nikhitha M. Rajeswari P. Vaishnavi P. Sreevallika	II / II	EEE	31-08-2018	Types of power plants	Mrs.O.Sreevani AP/EEE
8	V Shirisha B Saikumar C Hariprasad C Seshashayini D Shamsheer D Hussain Peera	III / II	EEE	07-09-2018	Electrical based Govt. & Private company jobs	Mrs.P.Prathyusha AP/EEE
9	M. Maruthi Varaprasad N. Gangadhara Reddy P. Kiran Kumar K.Venkat	II / II	EEE	14-09-2018	New Technic for Power Generation	Mr.P.Vinodh Kumar, AP/EEE
10	J P Vasu J Jaya Prakash K Anil Kumar K Laila M Chandana S Gopivardhanreddy		EEE	21-09-2018	MAT Lab Applications	Mr.P.Sampad Barik AP/EEE
11	T Mounika T Chandrakala U Indu M Sai Kishor Naik T Veerasankar		EEE	28-09-2018	PLC Dsign	Mr.P.Sunil Kumar AP/EEE

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Marks Awards List

Exam: III B.Tech I Sem I Mid Faculty Name: D. Pavan kumar

BRANCH: EEE SUBJECT: Power Electronics MAX MARKS: 30

S.No	Roll No	Marks		
		DES (20)	OBJ (10)	TOTAL (30)
1	16KF1A0201	14	6	20
2	16KF1A0202	12	5	17
3	16KF1A0203	05	06	11
4	16KF1A0204	04	05	09
5	16KF1A0205	14	5	19
6	16KF1A0206	12	5	17
7	16KF1A0207	14	4	18
8	16KF1A0208	12	4½	17
9	16KF1A0209	14	5½	20
10	16KF1A0210	14	4	18
11	16KF1A0211	12	4½	17
12	16KF1A0212	06	4½	11
13	16KF1A0213	←	AB →	
14	16KF1A0214	12	6½	19
15	16KF1A0215	14	5	19

S.No	Roll No	Marks		
		DES (20)	OBJ (10)	TOTAL (30)
16	17KF5A0201	14	4	18
17	17KF5A0202	16	5	21
18	17KF5A0203	10	5½	16
19	17KF5A0204	11	4½	15
20	17KF5A0205	14	4	18
21	17KF5A0207	8	5	13
22	17KF5A0208	12	4½	17
23	17KF5A0209	16	4	20
24	17KF5A0210	15	5	20
25	17KF5A0211	14	4	18
26	17KF5A0212	16	3½	20
27	17KF5A0213	18	4½	23
28	17KF5A0214	16	5	21
29	17KF5A0215	10	5	15
30	17KF5A0216	14	4	18

D. Pavan
Faculty Signature

D. Pavan
HoD

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Marks Awards List

Exam: III B.Tech I Sem II Mid Faculty Name: D. Pavan Kumar

BRANCH: EEE SUBJECT: Power Electronics MAX MARKS: 30

S.No	Roll No	Marks		
		DES (20)	OBJ (10)	TOTAL (30)
1	16KF1A0201	16	4 1/2	21
2	16KF1A0202	16	5 1/2	22
3	16KF1A0203	14	5 1/2	20
4	16KF1A0204	11	4 1/2	16
5	16KF1A0205	15	5	20
6	16KF1A0206	18	5	23
7	16KF1A0207	18	5	23
8	16KF1A0208	18	5	23
9	16KF1A0209	19	5	24
10	16KF1A0210	15	5	20
11	16KF1A0211	17	6	23
12	16KF1A0212	0	0	00
13	16KF1A0213	10	5	15
14	16KF1A0214	20	5	25
15	16KF1A0215	18	5 1/2	24

S.No	Roll No	Marks		
		DES (20)	OBJ (10)	TOTAL (30)
16	17KF5A0201	18	6	24
17	17KF5A0202	19	5 1/2	25
18	17KF5A0203	18	4 1/2	23
19	17KF5A0204	14	6 1/2	21
20	17KF5A0205	16	5 1/2	22
21	17KF5A0207	14	7 1/2	22
22	17KF5A0208	19	5 1/2	25
23	17KF5A0209	18	4 1/2	23
24	17KF5A0210	19	6	25
25	17KF5A0211	17	5	22
26	17KF5A0212	17	6	23
27	17KF5A0213	17	5 1/2	23
28	17KF5A0214	17	5 1/2	23
29	17KF5A0215	14	6 1/2	21
30	17KF5A0216	18	5	23

D. Pavan
Faculty Signature

D. Pavan
HoD

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Marks Awards List

Exam: III B.Tech I Sem II Mid Faculty Name: D. Pavan kumar

BRANCH: EEE SUBJECT: Power Electronics MAX MARKS: 30

S.No	Roll No	Marks		
		Mid - I (30)	Mid - II (30)	CS (30)
1	16KF1A0201	20	21	21
2	16KF1A0202	17	22	21
3	16KF1A0203	11	20	18
4	16KF1A0204	9	16	15
5	16KF1A0205	19	20	20
6	16KF1A0206	17	23	22
7	16KF1A0207	18	23	22
8	16KF1A0208	17	23	22
9	16KF1A0209	20	24	23
10	16KF1A0210	18	20	20
11	16KF1A0211	17	23	22
12	16KF1A0212	11	00	09
13	16KF1A0213	0	15	12
14	16KF1A0214	19	25	24
15	16KF1A0215	19	24	23

S.No	Roll No	Marks		
		Mid - I (30)	Mid - II (30)	CS (30)
16	17KF5A0201	18	24	23
17	17KF5A0202	21	25	24
18	17KF5A0203	16	23	22
19	17KF5A0204	15	21	20
20	17KF5A0205	18	22	21
21	17KF5A0207	13	22	20
22	17KF5A0208	17	25	23
23	17KF5A0209	20	23	22
24	17KF5A0210	20	25	24
25	17KF5A0211	18	22	21
26	17KF5A0212	20	23	22
27	17KF5A0213	23	23	23
28	17KF5A0214	21	23	23
29	17KF5A0215	15	21	20
30	17KF5A0216	18	23	22

D. Pavan
Faculty Signature

D. Pavan
HoD

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SANSKRITHI SCHOOL OF ENGINEERING, PUTTAPARTHI

3rd B. Tech I Semester - I Mid-Term Examination (2018-19): Descriptive

Sub: POWER ELECTRONICS

Branch: EEE | Sub Code: 15A02503

Time: 90 Minutes | Max marks: 30

Answer any three questions. All questions carry equal marks (3X10 =30 marks)

1. (a) Mention important rating of Thyristors and along with their significance. 6

(b) Explain the turn on and turn off characteristics of the thyristor. 4

2. Explain the operation of Power MOSFET with neat switching characteristics 10

3. Explain the operation of full bridge converter feeding RLE load, with neat diagram and also derive average output voltage and RMS output voltage. 10

4.(a) A single phase bridge converter feeds an RL load having a resistance of 12 ohms and an inductance of a very large value causing perfect smoothing . The converter is fed from a 400V, 50Hz single phase supply. For a firing angle of α=30°. Determine (i) the average value of output current (ii) the RMS value of output current. (iii) The average and RMS value of thyristor currents. 6

(b) Compare circulating current and Non circulating current 4

5. Explain the operation of single phase bridge converter feeding RL load, with neat diagram and also derive average output voltage and RMS output voltage. 10

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6. Power Electronic equipment has very high efficiency. Because [ ]

a) The devices always operate in active region b) The device never operates in active region. c) The devices traverse active region at high speed and stay at the two states, on and off d) Cooling is very efficient

7. When compared with BJTs, MOSFETs have lesser turn-off time, enabling them to operate at high operating frequencies. What is the reason that can be attributed to that property? [C]

a) High input impedance of the MOSFETs b) Positive temperature co-efficient of the MOSFETs

c) The absence of minority storage charge in the MOSFETs d) Smaller leakage current of MOSFETs.

8. The power semiconductor may undergo damage due to [A]

a) high di/dt b) low di/dt c) High dv/dt d) Low dv/dt

9. Protection against di/dt stress in a device in necessary because [A]

a) It interferes with control electronics b) It introduces voltage surges on supply lines

c) It destroys the device d)None

10. The correct sequence of the given devices in the decreasing order of their speed of operation is [B]

a) Power BJT, PMOSFET, IGBT, SCR b) IGBT, PMOSFET, Power BJT, SCR

C) SCR, PBJT, IGBT, PMOSFET d) PMOSFET, IGBT, PBJT SCR

11. Out of half converter and full converter---------- [C]

a) PF of half converter is better b) PF of full converter is better

c) PF of both converter is same d) none of the above

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12. Inversion operation in converter is used to ---------- [A]

a) get negative output voltage b) Send load power to supply

c) reverse speed of the motor d) save motor power

13. Following is not 3-pulse converter---------- [A]

a) 3 phase full converter b) 3 phase half converter

c) 3 phase half wave converter d) None of the Mentioned

14. In single phase full converter, for continuous conduction, each pair of SCRs conduct for [D]

a) $\pi-\alpha$ b) π c) α d) $\pi+\alpha$

15. In a single phase full converter, if α and β are firing and extinction angles respectively, then the load current

a) discontinuous if $(\beta-\alpha)<\pi$ b) discontinuous if $(\beta-\alpha)>\pi$ [B]

c) discontinuous if $(\beta-\alpha)=\pi$ d) continuous if $(\beta-\alpha)<\pi$

16. A single phase full converter operates as an inverter, when [B]

a) $0° \leq \alpha \leq 90°$ b) $90° \leq \alpha \leq 180°$ c) it supplies to a back-emf load

d) $90° \leq \alpha \leq 180°$ and there is a suitable dc source in the load circuit

17. A converter which can operate in both 3 pulse and 6 pulse modes is a [D]

a) 1-phase full converter b) 3-phase half wave converter c)3-phase semi converter d) 3-phase full converter

18. In a 3-phase full converter, the six SCRs are fired at an interval of [B]

a) 30° b) 60° c)90° d) 120°

19. In a 3-phase full converter, the output voltage pulsates at a frequency equal to [A]

a) Supply frequency b) 2f c) 3f d) 6f

20. In a 3-phase full converter, three SCRs pertaining to one group are fired at an interval of [B]

a) 30° b) 60° c) 90° d) 120°

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ATTAINMENT OF PO'S AND CO'S ARE EVALUATED

Under the clear vision and mission established by the leadership and management team, the Program Educational Objectives (PEOs), Program Outcomes (POs), and Course Outcomes (COs) are carefully defined and set by the respective coordinators. These outcomes are closely monitored by the Program Assessment Committee to ensure their effective implementation.

Each course within the program has well-defined course outcomes, along with corresponding evaluation criteria. These course outcomes are then mapped to the program outcomes, which provides a quantitative measurement of how well the program outcomes are achieved. The students' performance in examinations during the semester in each course plays a vital role in computing the level of attainment of the POs and Program Specific Outcomes (PSOs) through the mapping of questions to course outcomes and further to program outcomes and PSOs.

The mapping of Course Outcomes (COs) to Program Outcomes (POs) and Program Specific Outcomes (PSOs) for all the courses in the program is prepared by the program coordinator in consultation with other faculty members, ensuring a comprehensive and aligned assessment of the students' learning outcomes across the programe

Course Outcome attainment: Course Outcome (CO) attainment is assessed using a combination of direct and indirect methods. Direct assessment involves mid examinations, semester end examinations, and quizzes, where each question is aligned with a specific CO. The overall attainment of a CO is determined based on the average mark set as the target for final attainment.

1. Mid examinations are conducted twice a semester and comprehensively cover the evaluation of relevant COs.
2. Semester End Examination is descriptive and serves as a metric for assessing the attainment of all COs.

Indirect assessment is carried out through the course end survey to gather student feedback on their learning experience.

For laboratory, mini project, major project, seminar, and internship courses, rubrics are formulated to assess the attainment of Course Outcomes. In practical courses, the attainment of a course outcome should satisfy at least one or more of the defined program outcomes. The percentage of students scoring more than 80% marks in each measured criterion is used to calculate CO attainment.

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To assess Program Outcomes (POs) and Program Specific Outcomes (PSOs), all courses contributing to the respective POs are identified. These courses are evaluated through direct (internal - 20% weightage, external exam - 80% weightage) and indirect (course end survey) assessments. The overall results from these assessments are compared with the expected attainment to determine if the POs have been satisfied.

For each course, the level of attainment of each CO is compared with predefined targets. If any target is not attained, the course coordinator takes necessary steps for improvement. In case the target criterion level is not reached, faculty members propose improvement measures to achieve the desired attainment.

More comprehensive information on this process is available in the OBE handbook.

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Sanskrithi School of Engineering	
EXAMINATION	
Question Paper OBE ANALYSIS	
Course Name : INFORMATION SECURITY	
Department : CSE	
Code : 15A05702	Max Mar

COs are given equal weightage in all the two Internal Tests (CIE) /Semester End Examinations (SEE)

	CIE	SEE
Benchmark for CO		
70.75*Average CO Mark)	19	30
No. of Students	54	49
CO Attainme	98	89
PO Attainment	3	3
Final CO Attainment	3	

Target	Attainment Level
>=70%	3
>=60%	2
>=50%	1

	CIE	SEE
Question	All Questions	All Questions
Blooms Level	L3	L3,L4,L5
Course Outcom	CO 1, 2, 3, 4,	CO 1, 2, 3, 4, 5
Max Marks	30	70
1	18KF1A0501	26	29
2	18KF1A0502	20	17
3	18KF1A0503	22	30
4	18KF1A0504	29	36
5	18KF1A0505	27	36
6	18KF1A0506	26	34
7	18KF1A0507	24	35
8	18KF1A0508	26	33
9	18KF1A0509	24	35
10	18KF1A0510	25	29
11	18KF1A0511	25	46
12	18KF1A0512	26	46
13	18KF1A0513	24	38
14	18KF1A0514	26	47
15	18KF1A0515	28	57
16	18KF1A0516	24	45
17	18KF1A0517	23	55
18	18KF1A0518	25	36
19	18KF1A0519	26	48
20	18KF1A0520	26	45
21	18KF1A0521	29	50
22	18KF1A0522	25	39
23	18KF1A0523	27	50
24	18KF1A0524	24	47
25	18KF1A0525	23	45
26	18KF1A0526	28	53
27	18KF1A0527	18	40
28	18KF1A0528	28	39

	CIE	SEE	FINAL	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	3													
CO2	3	3	3	3	1													
CO3	3	3	3	1	1													
CO4	3	3	3	3	1													
CO5	3	3	3	3	1													
CO-PO Mapping				2	1													
PO Attainment				3	3													

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29	18KF1A0531	25	52
30	18KF1A0532	24	39
31	18KF1A0533	25	42
32	18KF1A0534	27	51
33	18KF1A0535	27	38
34	18KF1A0536	24	28
35	18KF1A0537	27	46
36	18KF1A0538	28	37
37	18KF1A0539	24	38
38	18KF1A0540	29	60
39	18KF1A0541	23	30
40	18KF1A0542	21	30
41	18KF1A0543	23	29
42	18KF1A0544	23	31
43	18KF1A0545	22	25
44	18KF1A0546	27	34
45	18KF1A0548	25	35
46	18KF1A0549	27	33
47	18KF1A0550	27	30
48	18KF1A0551	29	45
49	18KF1A0552	25	32
50	18KF1A0553	27	35
51	18KF1A0554	25	30
52	18KF1A0555	25	32
53	18KF1A0557	27	32
54	18KF1A0558	21	30
55	18KF1A0559	23	29

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Anantapuramu (Dt) A.P.

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Sanskrithi School of Engineering	
EXAMINATION	
Question Paper OBE ANALYSIS	
Course Name : RADAR SYSTEM	Department : ECE
Course Code : 15A04705	Max Marks :100

COs are given equal weightage in all the two Internal Tests (CIE) /Semester End Examinations (SEE)

Benchmark for CO (0.75*Average CO Mark)	CIE	SEE
	18	26
No. of Students Above Bechmark	57	51
CO Attainment %	103	89
Attainment Level	3	3
Final CO Attainment Level	3	

Target	Attainment Level
>=70%	3
>=60%	2
>=50%	1

		CIE	SEE
	Question	All Questions	All Questions
	Blooms Level	L3	L3,L4,L5
	Course Outcome	CO 1, 2, 3, 4, 5	CO 1, 2, 3, 4, 5
	Max Marks	30	70
1	18KF1A0401	28	60
2	18KF1A0402	27	47
3	18KF1A0403	21	17
4	18KF1A0404	28	11
5	18KF1A0405	23	29
6	18KF1A0406	26	17
7	18KF1A0407	21	49
8	18KF1A0408	22	28
9	18KF1A0409	27	56
10	18KF1A0410	20	39
11	18KF1A0412	21	17
12	18KF1A0413	27	28
13	18KF1A0414	23	28
14	18KF1A0415	18	28
15	18KF1A0416	20	34
16	18KF1A0417	28	38
17	18KF1A0418	22	28
18	18KF1A0419	25	38
19	18KF1A0421	21	28
20	18KF1A0422	23	42
21	18KF1A0423	28	34
22	18KF1A0424	20	35
23	18KF1A0425	21	34
24	18KF1A0426	28	46
25	18KF1A0427	22	32
26	18KF1A0428	24	40
27	18KF1A0429	23	28
28	18KF1A0430	20	13
29	18KF1A0431	23	38
30	18KF1A0432	20	38
31	18KF1A0433	22	44
32	18KF1A0434	21	30
33	18KF1A0435	22	33
34	18KF1A0436	26	43
35	18KF1A0437	22	30

	CIE	SEE	FINAL	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	1	3													
CO2	3	3	3	3	1													
CO3	3	3	3	1	1													
CO4	3	3	3	3	1													
CO5	3	3	3	1	1													
CO-PO Mapping				2	1													
PO Attainment				3	3													

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36	18KF1A0439	25	35
37	18KF1A0440	27	37
38	18KF1A0441	23	28
39	18KF1A0442	28	38
40	18KF1A0443	23	43
41	18KF1A0444	21	33
42	18KF1A0445	20	33
43	18KF1A0446	20	28
44	18KF1A0447	22	46
45	18KF1A0448	29	40
46	18KF1A0449	29	44
47	18KF1A0450	22	29
48	18KF1A0451	26	25
49	18KF1A0453	23	36
50	18KF1A0454	21	28
51	18KF1A0455	21	29
52	18KF1A0456	23	36
53	19KF5A0401	20	30
54	19KF5A0403	27	44
55	19KF5A0404	20	30
56	19KF5A0405	25	40
57	19KF5A0406	23	37

Principal
Sanskrithi School of Engineering
Beedupalli Road, Prasanthinagram,
PUTTAPARTHI - 515 134.
Anantapuramu (Dt) A.P.

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Sanskrithi School of Engineering		
EXAMINATION		
Question Paper OBE ANALYSIS		
Course Name : AUTOMOBILE ENGINEERING	Department : MECH	
Course Code : 15A03701	Max Marks :100	

	CIE	SEE
Question	All Questions	All Questions
Blooms Level	L3	L3,L4,L5
Course Outcome	CO 1, 2, 3, 4, 5	CO 1, 2, 3, 4, 5
Max Marks	30	70

COs are given equal weightage in all the two Internal Tests (CIE) /Semester End Examinations (SEE)

Benchmark for CO (0.75*Average CO Mark)	CIE	SEE
	17	20
No. of Students Above Bechmark	25	23
CO Attainment %	89	79
Attainment Level	3	3
Final CO Attainment Level	3	

Target	Attainment Level
>=70%	3
>=60%	2
>=50%	1

		CIE	SEE	FINAL	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
	CO1	3	3	3	2	3													
	CO2	3	3	3	3	1													
	CO3	3	3	3	1	1													
	CO4	3	3	3	3	1													
	CO5	3	3	3	2	1													
	CO-PO Mapping				2	1													
	PO Attainment				3	3													

1	18KF1A0301	23	32
2	18KF1A0302	18	11
3	18KF1A0303	20	2
4	18KF1A0304	18	1
5	18KF1A0305	25	28
6	18KF1A0306	26	30
7	18KF1A0307	27	30
8	18KF1A0308	20	6
9	18KF1A0309	18	28
10	18KF1A0310	19	25
11	18KF1A0312		31
12	18KF1A0313	21	4
13	18KF1A0314	19	26
14	18KF1A0315	15	26
15	18KF1A0316	24	28
16	18KF1A0317	17	25
17	18KF1A0318	30	42
18	18KF1A0319	27	38
19	18KF1A0322	30	31
20	18KF1A0323	18	25
21	18KF1A0324	24	27
22	19KF5A0301	27	38
23	19KF5A0302	27	26
24	19KF5A0303	19	14
25	19KF5A0304	26	40
26	19KF5A0305	27	44
27	19KF5A0306	24	38
28	19KF5A0307	26	42
29	19KF5A0308	20	25

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Sanskrithi School of Engineering
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Anantapuramu (Dt) A.P.

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Sanskrithi School of Engineering
EXAMINATION
Question Paper OBE ANALYSIS
Course Name : POWER SYSTEM OPERATION AND CONTROL Department : EEE
Course Code : 15A02702 Max Marks :100

COs are given equal weightage in all the two Internal Tests (CIE) /Semester End Examinations (SEE)

Benchmark for CO (0.75*Average CO Mark)	CIE	SEE
	17	23
No. of Students Above Bechmark	24	20
CO Attainment %	100	83
Attainment Level	3	3
Final CO Attainment Level	3	

Target	Attainment Level
>=70%	3
>=60%	2
>=50%	1

		CIE	SEE
	Question	All Questions	All Questions
	Blooms Level	L3	L3,L4,L5
	Course Orteome	CO 1, 2, 3, 4, 5	CO 1, 2, 3, 4, 5
	Max Marks	30	70
1	18KF1A0201	21	28
2	18KF1A0202	20	38
3	18KF1A0203	20	40
4	18KF1A0204	20	17
5	18KF1A0205	20	30
6	18KF1A0206	25	6
7	18KF1A0207	27	48
8	18KF1A0208	25	36
9	18KF1A0209	23	30
10	18KF1A0210	26	27
11	18KF1A0212	23	43
12	18KF1A0213	22	45
13	18KF1A0214	21	31
14	18KF1A0215	20	6
15	19KF5A0201	24	16
16	19KF5A0202	20	25
17	19KF5A0203	21	39
18	19KF5A0204	22	32
19	19KF5A0205	20	33
20	19KF5A0206	23	46
21	19KF5A0207	20	25
22	19KF5A0208	20	30
23	19KF5A0209	20	25
24	19KF5A0210	23	37

	CIE	SEE	FINAL	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	3													
CO2	3	3	3	3	1													
CO3	3	3	3	1	1													
CO4	3	3	3	3	1													
CO5	3	3	3	2	1													
CO-PO Mapping				2	1													
PO Attainment				3	3													

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Sanskrithi School of Engineering	
EXAMINATION	
Question Paper OBE ANALYSIS	
Course Name : FINITE ELEMENT METHODS	Department : CIVIL
Course Code : 15A01701	Max Marks :100

COs are given equal weightage in all the two Internal Tests (CIE) /Semester End Examinations (SEE)

	CIE	SEE
Benchmark for CO (0.7)*Average (CO Mark)	17	22
No. of Students Above Benchmark	23	21
CO Attainment %	100	91
Attainment Level	3	3
Final CO Attainment Level	3	

Target	Attainment Level
>=70%	3
>=60%	2
>=50%	1

		CIE	SEE	CIE	SEE	FINAL	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
	Question	All Questions	All Questions																		
	Blooms Level	L3	L3,L4,L5																		
	Course Outcome	CO 1, 2, 3, 4, 5	CO 1, 2, 3, 4, 5																		
	Max Marks	30	70	CO1		3	3	3	2	3											
1	18KF1A0101	20	29	CO2		3	3	3	3	3											
2	18KF1A0102	21	32	CO3		3	3	3	3	3											
3	18KF1A0107	20	27	CO4		3	3	3	3	3											
4	18KF1A0108	20	28	CO5		3	3	3	3	3											
5	18KF1A0109	24	38	CO-PO Mapping					3	3											
6	18KF1A0110	20	42	PO Attainment					3	3											
7	18KF1A0113	20	39																		
8	18KF1A0114	21	39																		
9	18KF1A0116	23	35																		
10	18KF1A0117	20	37																		
11	18KF1A0118	20	37																		
12	18KF1A0120	21	26																		
13	18KF1A0121	26	42																		
14	18KF1A0122	23	25																		
15	18KF1A0123	28	28																		
16	18KF1A0124	25	40																		
17	18KF1A0125	23	14																		
18	18KF1A0126	20	28																		
19	18KF1A0129	25	25																		
20	19KF5A0102	20	25																		
21	19KF5A0104	20	30																		
22	19KF5A0106	24	25																		
23	19KF5A0108	20	5																		

Sanskrithi School of Engineering * Pillopalli * Puttaparthi

Principal
Sanskrithi School of Engineering
Beedupalli Road, Prasanthigram,
PUTTAPARTHI - 515 134.
Ananthapuramu (Dt) A.P.