SRES'S
SHREE RAMCHANDRA COLLEGE OF ENGINEERING,PUNE
Department of Civil Engineering

Supporting Documents

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Shree Ramchndra College of Engineering Pune

Principal
Shree Ramchandra Education Society's
Shree Ramchndra College of Engineering
Pune-Nagar Road, Lonikand, Pune-412216

SRES's
SHREE RAMCHANDRA COLLEGE OFENGINEERING
Lonikand, Pune – 412216

ReferenceN:SRCOE/ 1655B
A.Y.2019-2020 Sem. II

Date:06/11/2019
w.e.f:16/12/2019

Institutional Academic Calendar (2019-2020)

Term -II

Sr. No.	Day and Date	Activity
1	06/12/2019 Friday	• Time Table Display
2	07/12/2019 Saturday	• Principal's Meeting with HOD's • Principal Meeting With Staff- Term Commencement
3	10/12/2019 Tuesday	• Academic Planning and Monitoring Committee Meeting
4	16/12/2019 Monday	• Term Commencement F.E./S.E /T.E/B.E
5	21/12/2019 Saturday	• Principal's Meeting with HOD's
6	28th Dec. to 30th Dec. 2019 Saturday to Monday	• Sports and cultural activities.
7	2nd Jan. to 4th Jan. 2020 Thursday to Saturday	• Barclays Training Program
8	13/1/2020 Monday	• Term Commencement M.E I&II.
9	17/01/2020 Friday	• Principal's Meeting with HOD's
10	18/01/2020 Saturday	• Review of first month attendance F.E./S.E /T.E/B.E • Counseling by GFM and HOD
11	20/01/2020 Monday	• Academic Planning and Monitoring Committee Meeting
12	20nd Jan to 25th Jan 2020 Monday to Saturday	• Part Submission –I F.E./S.E /T.E/B.E
13	26/01/2020 Sunday	• Republic Day
14	27/01/2020 Monday	• Principal's Meeting with HOD's
15	01/02/2020 Saturday	• Parent's Meet F.E./S.E /T.E/B.E • Meditation
16	14/02/2020 Friday	• Review of first month attendance M.E I&II.
17	15/02/2020 Saturday	• Principal's Meeting with HOD's
18	17/02/2020 Monday	• Review of second month Attendance F.E./S.E /T.E/B.E • Counseling by GFM and HOD

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Reference№:SRCOE/1655B
A.Y.2019-2020 Sem. II

Date:06/12/2019
w.e.f:16/12/2019

Institutional Academic Calendar (2019-2020)

Term -II

Sr. No.	Day and Date	Activity
19	20/02/2020 Friday	• Academic Planning and Monitoring Committee Meeting
20	24th Feb to 29th Feb 2020 Monday to Saturday	• Part Submission –II F.E./S.E /T.E/B.E
21	02/03/2020 Monday	• Principal's Meeting with HOD's • Counseling by GFM and HOD
22	04/03/2020 Wednesday	• Academic Planning and Monitoring Committee Meeting
	7/03/2020 Saturday	• Meditation
23	09/03/2020 Monday	• Principal's Meeting with HOD's
24	12/03/2020 Thursday	• Parents Meet
25	14/03/2020 Saturday	• Review of Second month Attendance M.E -I & II.
26	16/03/2020 Monday	• Review of Third month Attendance F.E./S.E/T.E/B.E • Counseling by GFM and HOD
27	17th March to 21st march 2020 Tuesday to Saturday	• Part Submission –III F.E./S.E /T.E/B.E
28	21/03/2020 Saturday	• Principal's Meeting with HOD's
29	23/03/2020 Monday	• Academic Planning and Monitoring Committee Meeting
30	26/03/2020 Thursday	• Display of Submission Schedule F.E./S.E/T.E/B.E
31	27/03/2020 Friday	• Academic Planning and Monitoring Committee Meeting
32	28/03/2020 Saturday	• Principal's Meeting with HOD's
33	1st April 2020 to 7th April 2020 Wednesday to Tuesday	• Mock Practical Exam F.E./S.E/T.E/B.E • Final Submission F.E./ S.E/T.E/B.E
34	04/04/2020 Saturday	• Academic Planning and monitoring Committee Meeting • Meditation
35	07/04/2020 Tuesday	• Review of Final Attendance F.E./S.E/T.E/B.E • Counseling by GFM and HOD
36	11/04/2020 Saturday	• Term End F.E./S.E/T.E/B.E
37	13/04/2020	• Review of Third month Attendance M.E -I & II.

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Lonikand, Pune – 412216
Department of Electrical Engineering

Reference №:SRCOE/EE/2019-2020/ AC-03

Date:09/04/2019

Academic Calendar (A.Y.-2019 -20)

SEM I **w.e.f 17-06-2019**

Sr. No.	Academic Program	Year	Date (dd-mm-yyy)
1	Commencement of Academic	S.E/T.E/B.E	15/06/2019
2	Industrial visit	S.E/T.E/B.E	28th June 2019
3	Attendance Submission & Assessment of journals & Assignments	S.E/T.E/B.E	17/07/2019
4	Unit test-I	S.E/T.E/B.E	15th -17th July 2019
5	Seminar/Workshop	T.E/B.E	8th July 2019 to 13th July 2019
6	Guest lecture	S.E/T.E/B.E	20th Sept. 2019
7	Attendance Submission & Assessment of journals & Assignments	S.E/T.E/B.E	16/08/2019
8	Student Feedback	S.E/T.E/B.E	19/08/2019
9	Parent Meet	S.E/T.E/B.E	20/09/2019
10	InSem Exam	T.E/B.E	19-26th August 2019
11	Unit test-II	S.E/T.E/B.E	13-16th August 2019
12	Attendance Submission & Assessment of journals & Assignments	S.E/T.E/B.E	16/09/2019
13	Prelim exam	S.E/T.E/B.E	07-12th Oct. 2019
14	Project Presentation phase-I	B.E	23/08/2019
15	Attendance Submission & Assessment of journals & Assignments	S.E/T.E/B.E	16/10/2019
16	Diwali vacation	S.E/T.E/B.E	23-29th Oct..2019
17	Term Work final submission	S.E/T.E/B.E	14-19th Oct. 2019
18	Conclusion of teaching	S.E/T.E/B.E	16/10/2019
19	Practical / Oral Examination SPPU	S.E/T.E/B.E	18-10-2019 to 05-11-2019
20	Theory Examination SPPU	S.E/T.E/B.E	14-11-2019 to 07-12-2019

Note:-i) Subject to change as per the schedule of University for A.Y. 2019-20.
ii) SPPU-Savitribai phule pune university.
iii)List of holidays is available on college website.

Academic Co-ordinator
Prof.J.Purohit

HOD(EE)
Prof. V.M.V. Rao

Principal
Prof. Dr. A.D. Desai

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Lonikand, Pune – 412216

Reference№:SRCOE/ 1655B
A.Y.2019-2020 Sem. II

Date:06/11/2019
w.e.f:16/12/2019

Institutional Academic Calendar (2019-2020)
Term -II

Sr. No.	Day and Date	Activity
38	9th April 2019	• Departmental Farewell
39	13th April 2020 to 27th April 2020 Monday to Monday	• University Practical/Oral Exam F.E./S.E/T.E/B.E
40	28/04/2020 Tuesday	• Principal's Meeting with HOD's
41	01/05/2020 Friday	• Display Of Submission Schedule M.E I & II.
42	02/05/2020 Saturday	• Principal's Meeting with HOD's
43	4th May to 9th May 2020 Monday to Saturday	• Mock Practical Exam M.E I & II. • Final Submission M.E I & II.
44	5th May to 30th May 2020	• University Theory Exam F.E./S.E/T.E/B.E
45	11/05/2020 Monday	• Principal's Meeting with HOD's
46	13/05/2020 Thursday	• Review of Final Attendance M.E I & II.
46	14/05/2020 Saturday	• Term End M.E I & II.
47	18th May -23th May 2020 Monday to Saturday	• University Practical Exam M.E I & II.
	27th May 2020 to12th June 2020 Wednesday to Friday	• University Theory Exam M.E I & II.

Note:- i) Subject to change as per the schedule of University for A.Y. 2019-20.
ii) List of holidays/vacation is available on college website.

Dahatre
Prof. Dahatre R.S.
Prepared by

Prof. Kanchan Pradhan
Checked by

Prof. Dr. Avinash Desai
Principal

Shree Ramchndra College of Engineering Pune

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Lonikand, Pune – 412216
Department of Electrical Engineering

Course File

Year: SE
Subject: ADE (203143)

Sem: I/II

Academic Year: 2019-20
Faculty In charge: Prof.Arbale S.P.

Section	Index	
1	1.1	Vision, Mission
	1.2	Program Educational Objectives(PEO)
	1.3	Program Outcomes(PO)
	1.4	Program Specific Outcomes(PSO)
	1.5	Time Table
	1.6	Master Time Table
	1.7	Individual Time Table
	1.8	Academic Calendar
	1.9	Roll Call List
2	2.1	Syllabus with Course structure
	2.2	Teaching Plan
	2.3	Course Outcomes(CO)
	2.4	Course Gap Analysis
	2.5	Mapping of CO to the PO
3	3.1	Subject Notes
	3.2	Question Bank
	3.3	Assignments/Tutorials
4	4.1	Unit Test-I: Question paper, Sample solution, modal Answer sheets
	4.2	Unit Test-II: Question paper, Sample solution , modal Answer sheets
	4.3	Previous Year University Question Papers with solution
5	Attendance Record	

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Lonikand, Pune – 412216

Department of Electrical Engineering.

Reference №: SRCOE/Electrical/2019-20/ Date:

Master Time Table

Academic Year : 2019-20 **Semester I** **w.e.f.**

SE

Lect no	Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	09:00 am-11:00 am	S1- EMI S2- MS S3- SS	S1- MS S2- EMI S3- ADE	S1- ADE S2- SS S3- EMI	S1- SS S2- ADE S3- MS	EM-III( )	Audit Course-I
2						EMI(RYS)	
	11:00 am-11:20 am	SHORT BREAK					
3	11:20 am-12:20 pm	EM-III( )	ADE(SPA)	MS(PRP)	EMI(RYS)	MS(PRP)	Value addition course
4	12:20 pm-01:20 pm	ADE(SPA)	EM-III( )	PGT(SVA)	MS(PRP)	ADE(SPA)	
	01:20 pm-02:00 pm	LUNCH BREAK					
5	02:00 pm-03:00 pm	PGT(SVA)	PGT(SVA)	EMI(RYS)	EM-III( )	EM-III( ) -TU	Remedial Classes
6	03:00 pm-04:00 pm	EMI(RYS)	MS(PRP)	ADE(SPA)	PGT(SVA)	Library	

TE

Lect. no	Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	09:00 am-10:00 am	AMCA(PRA)	EM-II(SVA)	EIMT(PSS)	PE(RYS)	PE(RYS)	Value addition course
2	10:00 am-11:00 am	EM-II(SVA)	ITM(VMV)	AMCA(PRA)	EIMT(PSS)	EM-II(SVA)	
	11:00 am-11:20 am	SHORT BREAK					
3	11:20 am-01:20 pm	T1- PE T2- EIMT	T1- AMCA T2- PE	T1- EIMT T2- AMCA	T1- STC T2- EM-II	T1- EM-II T2- STC	Remedial Classes
4							
	01:20 pm-02:00 pm	LUNCH BREAK					
5	02:00 pm-04:00 pm	ITM(VMV)	AMCA(PRA)	ITM(VMV)	AMCA(PRA)	Audit Course-III	Other Activity
6		EIMT(PSS)	PE(RYS)	EM-II(SVA)	PE(RYS)		

BE

Lect. no	Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	09:00 am-10:00 am	PSOC(JMP)	PLC(PRA)	PQ(PRP)	EHV(DAT)	CS-II(PSS)	Training activities
2	10:00 am-11:00 am	CS-II(PSS)	EHV(DAT)	PSOC(JMP)	PSOC(JMP)	PQ(PRP)	
	11:00 am-11:20 am	SHORT BREAK					
3	11:20 am-12:20 pm	PLC(PRA)	CS-II(PSS)	EHV(DAT)	PLC(PRA)	EHV(DAT)	Audit Course-V
4	12:20 pm-01:20 pm	PQ(PRP)	PQ(PRP)	PSOC(JMP)	CS-II(PSS)	PLC(PRA)	
	01:20 pm-02:00 pm	LUNCH BREAK					
5 6	02:00 pm-04:00 pm	B1-PLC B2- PQ	B1- CS-II B2- PSOC	B1- PQ B2- PLC	B1- PSOC B2- CS-II	Project (TU)	Other Activities

Time Table In charge
Prof. S.V.Ahirrao

H.O.D.
Prof. V.M.V.Rao.

Principal
Prof. Dr. Avinash Desai

Principal
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Department of Electrical Engineering.

Reference No: SRCOE/EE/2019-20/SE/TT/Sem-I-01 Date: 02/05/2019.

Time Table

SE Electrical Engineering **Aca. Year : 2019-20**

Sem: III **Classroom No: - 10** **w.e.f. 15/06/2019**

Lect no	Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	09:00 am-11:00 am	S1- EMI S2- MS S3- SS	S1- MS S2- EMI S3- ADE	S1- ADE S2- SS S3- EMI	S1- SS S2- ADE S3- MS	EM-III( ) EMI(RYS)	Audit Course-I
	11:00 am-11:20 am	SHORT BREAK					
3	11:20 am-12:20 pm	EM-III( )	ADE(SPA)	MS(PRP)	EMI(RYS)	MS(PRP)	Value addition course
4	12:20 pm-01:20 pm	ADE(SPA)	EM-III( )	PGT(SVA)	MS(PRP)	ADE(SPA)	
	01:20 pm-02:00 pm	LUNCH BREAK					
5	02:00 pm-03:00 pm	PGT(SVA)	PGT(SVA)	EMI(RYS)	EM-III( )	EM-III( )-TU	Remedial Classes
6	03:00 pm-04:00 pm	EMI(RYS)	MS(PRP)	ADE(SPA)	PGT(SVA)	Library	

Subject Name	Subject Initial	Staff Name	Staff Initial
Power Generation Technologies	PGT	Prof. Ahirrao Shraddha	SVA
Engineering Mathematics- III	EM-III		
Material Science	MS	Prof. P. R. Patil	PRP
Electrical Measurements and Instrumentation	EMI	Prof. Rajgire Yohan	RYS
Analog & Digital Electronics	ADE	Prof. S.P.Arbale	SPA
Soft Skills	SS	Prof. Dhiraj Tikar	DAT

SUBJECT	LAB NAME
Analog & Digital Electronics	Analog & Digital Electronics Lab
Material Science	EM-I & MS Lab
Electrical Measurements and Instrumentation	Electrical Measurements and Instrumentation Lab
Soft Skills	Classroom No.

BATCHES	ROLL NO.
S1	1 TO 25
S2	26 TO 50
S3	51 Onwards

Time Table In charge
Prof. S.V.Ahirrao

H.O.D.
Prof. V.M.V.Rao.

Principal
Prof. Dr. Avinash Desai

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Department of Electrical Engineering.

Reference №: SRCOE/Electrical/2019-20/Sem –I /SE /IT/02 Date: 2 / 5 /2019

Time Table

SE Electrical Engineering **Aca. Year : 2019-20**

Sem : III **Classroom No :- 10** **w.e.f. :15/6/2019**

Lect. no	Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	09:00 am-11:00 am		S3- ADE	S1- ADE	S2- ADE		Audit Course-I
2	11:00 am-11:20 am	SHORT BREAK					
3	11:20 am-12:20 pm		ADE(SPA)				Value addition course
4	12:20 pm-01:20 pm	ADE(SPA)				ADE(SPA)	
5	01:20 pm-02:00 pm	LUNCH BREAK					
6	02:00 pm-03:00 pm						Remedial Classes
7	03:00 pm-04:00pm			ADE(SPA)			

Subject Name	Subject Initial	Staff Name	Staff Initial
Analog and Digital Electronics (203143)	ADE	Prof. Arbale S.P.	SPA

Time Table In charge
Prof. Ahirrao S.V.

H.O.D.
Prof. V.M. V. Rao.

Principal
Prof. Dr. Avinash Desai

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Shree Ramchandra College of Engineering Pune

Savitribai Phule Pune University
(Formerly University of Pune)

ACADEMIC CALENDAR FOR VARIOUS ACTIVITES FOR ENGINERRING COURSES FOR THE YEAR 2019-20

FIRST TERM

Sr. No	Courses	Details of Activites	Date
01	S.E./T.E./ B.E. & MCA – II / III Year	Commencement of Teaching	15/06/2019
		Conclusion of Teaching	16/10/2019
		Practical/Oral /Project Stage-I Examination	18/10/2019 To 05/11/2019
		Theory Examination	14/11/2019 To 07/12/2019
02	M. E. II Year	Commencement of Teaching	01/07/2019
		Conclusion of Teaching	02/11/2019
		Practical Examination	04/11/2019 To 09/11/2019
		Theory Examination	09/12/2019 To 24/12/2019

SECOND TERM

Sr. No	Courses	Details of Activites	Date
01	F.E./S.E./T.E./ B.E. & MCA – I/II / III Year	Commencement of Teaching	16/12/2019
		Conclusion of Teaching	11/04/2020
		Practical/Oral /Project/ Examination	13/04/2020 To 27/04/2020
		Theory Examination	05/05/2020 To 30/05/2019
02	M. E. I & II Year	Commencement of Teaching	13/01/2020
		Conclusion of Teaching	14/05/2020
		Practical Examination	18/05/2020 To 23/05/2020
		Theory Examination	27/05/2020 To 12/06/2020

Project stage – II examniations will start three days later from conclusion of theory examination.

Deputy Registrar
(P.G. Admission)

Ganeshkhind, Pune-07
Ref. No. PGS/ 1355
Date : 25/04/2019

Shree Ramchandra College of Engineering Pune

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SavitribaiPhule Pune University
S.E. Electrical Engineering 2015 – Course
(w. e. f. 2016-2017)

Semester I													
Sr. No.	Subject Code	Subject Title	Teaching Scheme			Semester Examination Scheme of Marks						Credit	
						Paper							
			Th.	Tut.	Pr.	In Sem(Online)	End Sem	TW	PR	OR	Total	TH/ TUT	PR+OR
1.	203141	Power Generation Technologies	04	--	--	50	50	--	--	--	100	04	---
2.	207006	Engineering Mathematics-III	04	01	--	50	50	25	--	--	125	05	---
3.	203142	Material Science	04	--	02	50	50	--	--	50	150	04	01
4.	203143	Analog and Digital Electronics	04	--	02	50	50	25	50	--	175	04	01
5.	203144	Electrical Measurements and Instrumentation	04	--	02	50	50	25	50	--	175	04	01
6.	203151	Soft Skills	--	--	02	--	--	25	--	--	25	--	01
										Total		21	04
7.	203154	Audit Course I	--	--	--	--	--	--	--	--	--	Grade: PP/NP	
	Total		20	01	08	250	250	100	100	50	750	25	

Semester II													
Sr. No.	Subject Code	Subject Title	Teaching Scheme			Semester Examination Scheme of Marks						Credit	
						Paper							
			Th.	Tut.	Pr.	In Sem (Online)	End Sem	TW	PR	OR	Total	TH/ TUT	PR+OR
1.	203145	Power System I	04	--	--	50	50	--	--	--	100	04	--
2.	203146	Electrical Machines I	04	--	02	50	50	25	50	--	175	04	01
3.	203147	Network Analysis	04	--	02	50	50	50	--	--	150	04	01
4.	203148	Numerical Methods and Computer Programming	04	01	02	50	50	25	50	--	175	05	01
5.	203149	Fundamentals of Microcontroller and Applications	04	--	02	50	50	--	--	50	150	04	01
										Total		21	04
6.	203155	**Audit Course II**										Grade: PP/NP	
Total			20	01	08	250	250	100	100	50	750	25	

TW: Term Work **OR:Oral** **PR:** Practical

PP: Passed (Only for non-credit courses) **NP:** Not Passed (Only for non-credit courses)

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203143: Analog And Digital Electronics

Teaching Scheme	Credits	Examination Scheme [Marks]
Lecture : 04 Hrs/ Week	Th/Tut: 04	In Sem (Online) : 50 Marks
Practical : 02 Hrs/ Week	PR:01	End Sem : 50 Marks
		Practical : 50 Marks
		Term Work : 25 Marks

Prerequisite:

- Basics of numbering system.
- Basics of diodes and BJT.

Course Objective:

- To demonstrate the concept of numbering system & Boolean's algebra reduction using K map.
- To design and analyze sequential and combinational circuits.
- To develop the concept of basics of operational Amplifier and its applications.
- To introduction to BJT and diode rectifier.

Course Outcome: Upon successful completion of this course, the students will be able to :-

- Understand conversion of number system, perform binary arithmetic and reduce Boolean expressions by K- Map.
- Demonstrate basics of various types of Flip flops, design registers and counter.
- Analyze parameter of Op-amp and its applications.
- Apply the knowledge of Op-amp as wave form generators & filters.
- Use BJT as amplifier with various configurations.
- Analysis of uncontrolled rectifier.

Unit 01 : Number system & Boolean's Algebra: **(8 Hrs)**

Numbering systems-binary, octal, decimal and hexadecimal and their conversion, codes-BCD, Grey and excess3, Binary arithmetic: - addition and subtraction by 1's and 2's compliment. Booleans algebra, De-Morgan's theory etc. K-map: - structure for two, three and four Variables, SOP and POS form reduction of Boolean expressions by K-map.

Unit 02 : Combinational & Sequential circuits: **(9 Hrs)**

Concept of Combinational & Sequential circuits, Flip flops – R-S, Clocked S-R, D latches, Edge Triggered D flip-flops, Edge triggered JK flip flops, JK Master - slave flip flop, Register- Buffer registers, shift registers, controlled shift registers, ring counter, Counters – asynchrónous Counters, synchronous counter, up - down counter , twisted ring counters, N –moduleCounters.

Unit 03 : Operational Amplifier & Applications: **(8 Hrs)**

Op-Amp: Block diagrams of 741, ideal and practical parameters, open loop and close loop configuration of Op-Amp. Applications of Op- Amp- Comparator, Schmitt trigger, zero crossing detectors, V-I and I-V converters, Instrumentation amplifier, peak detector.

Unit 04 : Waveform generators, Filters & Regulators: **(8 Hrs)**

Waveform generation using Op-amp - sine, square, saw tooth and triangular generator, Active filters-Its configuration with frequency response, Analysis of first order low pass and high pass filters, IC 555 –construction, working and modes of operation- astable and monostable multi vibrators, Sequence generator, voltage regulators using ICs 78xx, 79xx, LM 317

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Unit 05 : BJT & Applications: **(8 Hrs)**

BJT amplifier: Introduction, Class A amplifier, AC-DC load line analysis, Single stage and Multistage BJT amplifier, direct coupled, RC coupled and transformer coupled, Darlington pair, Push-Pull amplifier and differential amplifier FET-construction, Parameters, Characteristics.

Unit 06 : Diode & Precision Rectifiers: **(7 Hrs)**

Diode rectifier: Introduction, Single phase half wave rectifier with R, RL loads. Single phase full wave rectifier-Center tap and bridge rectifier supplying R and RL load and performance parameters. Three phase full wave bridge rectifier with R load. Comparison of single phase half wave and full wave rectifiers,

Precision rectifiers: Half wave and Full wave. Comparison of diode and precision rectifier.

Guidelines for Instructor's Manual

Practical Sessions -

The Instructor's Manual should contain following related to every experiment –

- Brief theory related to the experiment.
- Connection diagram /circuit diagram
- Observation table
- Sample calculations for one reading
- Result table
- Graph and Conclusions.
- Data sheets of the ICs used.
- Few questions related to the experiment (3 to 5)
- List of components required with their specifications , data sheets of ICs used

Guidelines for Student's Lab Journal

TheStudent's Lab Journal should contain following related to every experiment –

- Theory related to the experiment.
- Connection diagram /circuit diagram
- Observation table
- Sample calculations for one reading
- Result table
- Graph and Conclusions.
- Data sheets of the ICs used.
- List of components required with their specifications, data sheets of ICs used.

Guidelines for Lab /TW Assessment

- There should be continuous assessment of the TW.
- Assessment must be based on understanding of theory, attentiveness during practical session, how efficiently the student is able to do connections on bread board and get the results.
- Timely submission of journal.

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Reference Books:

[R1] Tokheim, "Digital Electronics-Principles and Application", 6th edition, Tata McGraw Hill, New Delhi.

[R2] A Jaico and Charles H. Roth, "Fundamentals of Logic Design" Jr. Forth Edition.

[R3] K. R. Botkar, "Integrated Circuits", Khanna Publication, New Delhi.

[R4] James, "Operational Amplifier and Linear Integrated Circuits Theory and Application."

[R5] P John Paul, "Electronics Devices and circuits", New Age international Publications.

[R6] P. S. Bimbhra, "Power Electronics", Khanna Publications.

Unit	Text Books	Reference Books
1	T1, T2	R1
2	T1, T2, T3	R2
3	T4, T5	R3, R4
4	T4, T5	R3, R4
5	T5, T6	R5
6	T7	R6

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Course Outline & Teaching Plan

COURSE PROGRAM: U.G.
CLASS: S.E.
SUBJECT NAME & CODE: Analog and Digital Electronics (203143)

A.Y .: 2019 -20
SEM :III
TOTAL HOURS = 48

NAME OF FACULTY: Prof. Shubhangi Arbale

Contact Hours / Week			Max Marks (Total = 175)				
L	T	P	TH (In-Sem / Online)	TH End-Sem	PR	OR	TW
4	-	2	50	50	50	-	25

Course Objectives:

1. To demonstrate the concept of numbering system & Boolean's algebra reduction Using K map.
2. To design and analyze sequential and combinational circuits.
3. To develop the concept of basics of operational Amplifier and its applications.
4. To introduction to BJT and diode rectifier.

Course Outcomes:

Upon successful completion of this course, the students will be able to :-

1. Understand conversion of number system, perform binary arithmetic and reduce Boolean expressions by K- Map.
2. Demonstrate basics of various types of Flip flops, design registers and counter.
3. Analyze parameter of Op-amp and its applications.
4. Apply the knowledge of Op-amp as wave form generators & filters.
5. Use BJT as amplifier with various configurations.
6. Analysis of uncontrolled rectifier.

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TEACHING PLAN

Sr. №:	Topic	Ref. No.	No. of Lectures Required	No. of Lectures Taken	Planned Date(s)
	UNIT- I. Number system & Boolean's Algebra:		(8)		
1	Numbering systems-binary, octal,	T1	1	1	17/6/19
2	Decimal and hexadecimal and their conversion, codes-BCD	T1	1	1	18/6/19
3	Grey and excess3	T2	1	1	21/6/19
4	Binary arithmetic: - addition and subtraction by 1's and 2's compliment.	R1	1	1	24/6/19
5	Booleans algebra, De-Morgan's theory etc.	R1	1	1	25/6/19
6	K-map: - structure for two, three and four variables,	R1	1	1	25/6/19
7	SOP form reduction of Boolean expressions by K-map.	T1	1	1	28/6/19
8	POS form reduction of Boolean expressions by K-map.	T2	1	1	1/7/19
	UNIT TEST-I				
	UNIT- IICombinational & Sequential circuits:		(9)		
9	Concept of Combinational & Sequential circuits,	T2	1	1	2/7/19
10	Flip flops – R-S, Clocked S-R, D latches	R1	1	1	5/7/19
11	Edge triggered D flip-flops, Edge triggered JK flip flops,	R1	1	1	8/7/19
12	JK Master - slave flip flop	T1	1	1	9/7/19
13	Register- Buffer registers	T1	1	1	12/7/19
14	Shift registers, controlled shift registers, ring counter,	T2	1	1	19/7/19
15	Counters – asynchronous counters, synchronous counter,	R1	1	1	19/7/19
16	Up- Down Counter, twisted ring counters,	R1	1	1	22/7/19
17	N – Module counters.	T1	1	1	23/7/19
	UNIT TEST-II				
	UNIT- IIIOperational Amplifier &Applications:		(8)		
18	Op-Amp: Block diagrams of 741	T1	1	1	26/7/19
19	Ideal and practical parameters,	R1	1	1	29/7/19
20	Open loop and close loop configuration of Op-Amp.	R2	1	1	30/7/19
21	Applications of Op- Amp- Comparator	T1	1	1	2/8/19
22	Schmitt trigger,	R1	1	1	5/8/19
23	zero crossing detectors,	R1	1	1	6/8/19
24	V-I and I-V converters,	T2	1	1	6/8/19
25	Instrumentation amplifier, peak detector	T1	1	1	9/8/19
	UNIT TEST-III				

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	UNIT-IV Waveform generators, Filters & Regulators :		(8)		
26	Waveform generation using Op-amp - sine	T2	1	1	12/8/19
27	square, saw tooth and triangular generator	R1	1	1	30/8/19
28	Active filters-Its configuration with frequency response	R2	1	1	3/9/19
29	Analysis of first order low pass andhigh pass filters	R1	1	1	6/9/19
30	IC 555 –construction, working and modes of operation- Astable and MonostableMultivibrators,	R2	1	1	9/9/19
31	Sequence generator	T2	1	1	10/9/19
32	voltage regulators using ICs 78xx	T1	1	1	13/9/19
33	voltage regulators using ICs 79xx				
	UNIT TEST-IV				
	UNIT-V BJT & Applications:		(8)		
34	BJT amplifier: Introduction	R1	1	1	16/9/19
35	Class A amplifier, AC-DC load line analysis,	R2	1	1	17/9/19
36	Single Stage and Multistage BJT amplifier,	T1	1	1	20/9/19
37	direct coupled,	T2	1	1	23/9/19
38	RC coupled and transformer coupled,	R1	1	1	24/9/19
39	Darlington pair	R2	1	1	27/9/19
40	Push-Pull amplifier and differential amplifier	T1	1	1	30/9/19
41	FET-construction, Parameters,Characteristics.	R1	1	1	1/10/19
	UNIT TEST-V				
	UNIT –VIDiode & Precision Rectifiers:		(7)		
42	Diode rectifier: Introduction, Single phase half wave rectifier with R loads.	R1	1	1	4/10/19
43	Diode rectifier: Introduction, Single phase half wave rectifier with RL loads.	T1	1	1	4/10/19
44	Single phase full wave rectifier supplying R and RL load and performance parameters.	T1	1	1	7/10/19
45	Center tap and bridge rectifier supplying R and RL load and performance parameters.	R1	1	1	8/10/19
46	Three Phase full wave bridge rectifier with R load.	T3	1	1	11/10/19
47	Comparison of single phase half wave and full wave rectifiers,	R2	1	1	14/10/19
48	Precision rectifiers: Half wave and Full wave. Comparison of diode and precision rectifier.	T2	1	1	15/10/19
	UNIT TEST-VI				

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