

**KANDULA SRINIVASA REDDY MEMORIAL COLLEGE OF ENGINEERING
(AUTONOMOUS)**

KADAPA-516003. AP

(Approved by AICTE, Affiliated to JNTUA, Ananthapuramu, Accredited by NAAC)

(An ISO 9001-2008 Certified Institution)

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING



CERTIFICATION COURSE

ON

“Electrical Design Engineering”

Resource Person : Sri K.Rama Mohan Reddy, Associate Professor, Dept. of EEE, KSRMCE

Course Coordinator: Smt. Saleha Tabassum, Assistant Professor, Dept. of EEE, KSRMCE

Duration: 19/07/2019 to 06/08/2019

SB

Ref



K.S.R.M. COLLEGE OF ENGINEERING
(UGC-AUTONOMOUS)

Kadapa, Andhra Pradesh, India- 516 003

Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu.

An ISO 14001:2004 & 9001: 2015 Certified Institution

Lr./KSRMCE/EEE/2019-20/

Date:13-07-2019

To
The Principal,
KSRMCE,
Kadapa.

Respected Sir,

Sub: Permission to Conduct Certification Course on “**Electrical Design Engineering**” 19/07/2019 to 06/08/2019 – Req- Reg.

The Department of Electrical and Electronics Engineering is planning to offer a Certification Course on “**Electrical Design Engineering**” to B. Tech students. The course will be conducted from 19/07/2019 to 06/08/2019. In this regard, I kindly request you to grant permission to conduct Certification Course.

Thanking you sir,

*Forwarded to
Principal Sir
V. S. S. Murthy
13/07/2019*

Saleha Tabassum
Yours faithfully

(Saleha Tabassum, Asst.Professor in EEE)

*Permitted
V. S. S. Murthy*



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Cr./KSRMCE/EEE/2019-20/

Date: 15/07/2019

Circular

The Department of Electrical and Electronics Engineering is offering a Certification Course on “**Electrical Design Engineering**” from **19/07/2019 to 06/08/2019** to B.Tech IV Sem students. In this regard, interested students are requested to register for Certification Course. For further information contact Course Coordinator.

Course Coordinator: Smt.Saleha Tabassum, Assistant Professor, Dept. of EEE.-KSRMCE.
Contact No: 9949541921

Saleha
HOD 15/07/2019

Dept. of EEE

Cc to:

IQAC-KSRMCE

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Electronics Engineering
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Date:19/07/2019

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

REGISTRATION FORM

Certification Course

On

“Electrical Design Engineering” From 19/07/2019 to 06/08/2019

S.No	Full Name	Roll Number	Branch	Semester	Signature
1	ANKIREDDYPALLI BALAKONDA REDDY	189Y1A0201	EEE	IV	A. Balakonda
2	BANDELADEVA PAVAN KARUNYA	189Y1A0202	EEE	IV	Pavans
3	BOLLA VARAM PHANI KRISHNA	189Y1A0203	EEE	IV	Krishna
4	CHALLA MANASA	189Y1A0205	EEE	IV	C. Manasa
5	CHALLA SHIVA TEJA REDDY	189Y1A0206	EEE	IV	Shiva Teja
6	CHEVULA SAMPATH KUMAR	189Y1A0207	EEE	IV	M. Y. M. K.
7	DANDU BALA SAI	189Y1A0208	EEE	IV	Sai
8	GANGAVARAM GANESH KUMAR REDDY	189Y1A0209	EEE	IV	Ganesh
9	GUBILI NAVEEN KUMAR	189Y1A0210	EEE	IV	Naveen
10	GURAI AHGARI PAVAN KALYAN	189Y1A0211	EEE	IV	Kalyan
11			EEE	IV	
12	HASANAPURAM CHARAN PRAKASH	189Y1A0212			Prakash
13	ILLURI MARINA	189Y1A0213	EEE	IV	Marina
14	JANDYALA NAGA BHASKAR	189Y1A0214	EEE	IV	Bhaskar
15	KADIRI PARAMESWAR REDDY	189Y1A0215	EEE	IV	Parameswar Reddy
16	KALISSETTY SURENDRA MARUTHI	189Y1A0216	EEE	IV	Surendra
17	KAMISSETTY VAMSI	189Y1A0217	EEE	IV	Vamsi
18	KANIKE SRINIVASULU	189Y1A0218	EEE	IV	Srinivasulu
19	KARNATI SAI SIVANANDA REDDY	189Y1A0219	EEE	IV	Sai
20	KOKKANTI ROHITH	189Y1A0220	EEE	IV	Rohith Reddy
21	KOMMA PEDDI REDDY	189Y1A0221	EEE	IV	N. Kommani
22	KONANAVANI	189Y1A0222	EEE	IV	Sreenivasa Rao
23	KONDA SREENIVASA RAO	189Y1A0223	EEE	IV	S. Sreenivasa Rao
24	KONDREDDY MANJU BHARGAVI (W)	189Y1A0224	EEE	IV	Manju Bhargavi
25	KORAPALA VEERA CHANDRA LIKHITA	189Y1A0225	EEE	IV	Chandra Likhita
26	KUKKALAREDDY HEMANTH REDDY	189Y1A0226	EEE	IV	Hemant Reddy
27	KUKKALAREDDY SUMANTH REDDY	189Y1A0227	EEE	IV	Sumant Reddy
28	MACHA HARSHITH	189Y1A0228	EEE	IV	Harshith
29	MANJULA AKANKSHA	189Y1A0229	EEE	IV	Akanksha

30	MANNU KUMAR	189Y1A0230	EEE	IV	Kumar
31	MIMME SREENATH	189Y1A0231	EEE	IV	Greenath
32	MUGOLLA GANGAPRASANATH	189Y1A0232	EEE	IV	Prasanth
34	MUPPURI GIRIKUMAR	189Y1A0233	EEE	IV	Girikumara
35	NUKALA ARUNA (W)	189Y1A0234	EEE	IV	Aruna
36	PAGADALA PRIYANKA	189Y1A0235	EEE	IV	Priyanka
37	PERAM PAVANI	189Y1A0236	EEE	IV	Pavani
38	PULIMADYALA MOHAMMED SADAK	189Y1A0237	EEE	IV	Saduk
39	PUTLURU BHARATH KUMAR REDDY	189Y1A0238	EEE	IV	Bharath
40	RAVULA UPENDRA	189Y1A0239	EEE	IV	Upendra
41	SAMBU KEERTHI	189Y1A0241	EEE	IV	Keerthi
42	SANIVARAPURAMAKRISHNAREDDY	189Y1A0242	EEE	IV	Krishna
43	SHAIK AISHA	189Y1A0243	EEE	IV	Aisha
44	SHAIK KHALEEFA	189Y1A0244	EEE	IV	Khalifa
45	SHAIK MULLA KHAJA MOINUDDIN	189Y1A0245	EEE	IV	Moinuddin
46	SHAIK NAZEER BASHA	189Y1A0246	EEE	IV	Nazeer
47	SHAIK YOUSUF	189Y1A0247	EEE	IV	Yousuf
48	SURASURA GOWRINATH	189Y1A0248	EEE	IV	Gowrinath
49	UPPALAPATI SURENDRA BABU	189Y1A0250	EEE	IV	Surendra
50	VADDEMANI PAVAN KUMAR REDDY	189Y1A0251	EEE	IV	Pavankumar
51	VEMA VENKATESH	189Y1A0252	EEE	IV	Vematesh
52	VEMA YOGESWARA	189Y1A0253	EEE	IV	Yogeswara
53	BELLAGANTI DIVYASWINI (W)	199Y5A0201	EEE	IV	Divyashwini
54	CHINTHAKUNTA GAYATHRI (W)	199Y5A0202	EEE	IV	Gayathri
55	GORANTLA BHUPATHI RAJU	199Y5A0203	EEE	IV	Bhupathi
56	GUNDI NAGANNA	199Y5A0204	EEE	IV	Naganna
57	KALAMALLA KALANDAR	199Y5A0205	EEE	IV	Kalandar
58	KAMMARA UDAYA SREE	199Y5A0206	EEE	IV	Udaya
59	MODAPOTHULA ANIL	199Y5A0207	EEE	IV	Anil
60	MOPOORU RAMA CHANDRA REDDY	199Y5A0208	EEE	IV	M. Chandrayya
61	MUDE SRIKANTH NAIK	199Y5A0209	EEE	IV	M. S. Naik
62	MUTYALA VENKATA MEGANATH	199Y5A0210	EEE	IV	M. Venkata
63	SAGILI PUSHPANATHA REDDY	199Y5A0211	EEE	IV	S. Pushpanath
64	SHAIK SHABBIR BABA	199Y5A0212	EEE	IV	S. Shabbir
65	YAMAVARAM SWAPNA	199Y5A0213	EEE	IV	Y. Swapna
66	KRISHNAM SNEHALATHA	179Y1A0211	EEE	VI	K. Snehalatha
67	SYED SHAZIA TABASSUM	179Y1A0228	EEE	VI	S. Tabassum
68	SHAIK AHAMMAD	189Y5A0247	EEE	VI	S. Ahmmad
69	S.Riyaz Ahmed	189Y5A0249	EEE	VI	S. Riyaz
70	K. Mallikarjuna	189Y5A0261	EEE	VI	K. Mallikarjuna

Coordinator:



HOD

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Syllabus of Value Added Course

Course Name: Electrical Design Engineering

Course Objectives: This course, "Electrical Designing and Drafting Course (Part 1)," introduces the student to the process of designing residential and commercial projects. After completing this course, you will have high confidence in your practical work and start working on your projects.

Course Outcomes: On successful completion of this course, students will be able to

CO.1	Understand the basics of Electrical Generators, Machines, Transformers and UPS
CO.2	Analyze the characteristics of Diesel Generator
CO.3	Apply cooling methods for Transformers

UNIT-I

Electrical Designing: In this chapter, you will learn the calculation of lighting/raw power socket, calculation of fans, no. of lighting fixtures, size calculation of A/C, load scheduling/ Load Balancing, Size of DB.

UNIT-II

Electric Motors: Basic of electric motors, types of motor and their application, starting methods, starting current.

UNIT-III

Electrical Transformer: Introduction of the transformer, parts of transformer, classification of the transformer, cooling methods, winding insulation class, faults in transformer, size calculation of transformer.

UNIT-IV

Diesel Generator: Introduction of the DG, parts of DG, ATS, classification of the transformer, faults in DG, size calculation of DG.

UNIT-V

UPS: Introduction, types of UPS, UPS size calculation, Battery size calculation

Text Books/Reference Books:

1. Electrical Design Details 2nd Edition By Neil Sclater and John E Transfer.
 2. Electrical Design, Lighting, Protection-Er.Sadiq, 2nd Edition.
-



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SCHEDULE

Department of Electrical and Electronics Engineering

Certification Course

“Electrical Design Engineering” From 19/07/2019 to 06/08/2019

Date	Timing	Resource Person	Topic to be covered
19/07/2019	4:00PM-6:00 PM	Sri K.Rama Mohan Reddy	Unit-I-Electrical Designing: In this chapter, you will learn the calculation of lighting/raw power socket.
20/07/2019	4:00PM-6:00 PM	Smt.Saleha Tabassum	calculation of fans, no. of lighting fixtures, size calculation of A/C
22/07/2019	4:00PM-6:00 PM	Smt.Saleha Tabassum	load scheduling/ Load Balancing, Size of DB
23/07/2019	4:00PM-6:00 PM	Sri K.Rama Mohan Reddy	Unit-II- Electric Motors: Basic of electric motors, types of motor
24/07/2019	4:00PM-6:00 PM	Sri K.Rama Mohan Reddy	Application, starting methods, starting current.
25/07/2019	4:00PM-6:00 PM	Sri K.Rama Mohan Reddy	Unit-III Electrical Transformer: Introduction of the transformer, parts of transformer
26/07/2019	4:00PM-6:00 PM	Sri K.Rama Mohan Reddy	classification of the transformer,
27/07/2019	4:00PM-6:00 PM	Sri K.Rama Mohan Reddy	cooling methods
29/07/2019	4:00PM-6:00 PM	Smt.Saleha Tabassum	winding insulation class
30/07/2019	4:00PM-6:00 PM	Smt.Saleha Tabassum	faults in transformer, size calculation of transformer
31/07/2019	4:00PM-6:00 PM	Smt.Saleha Tabassum	Unit-IV Diesel Generator: Introduction of the DG, parts of DG,
01/08/2019	4:00PM-6:00 PM	Smt.Saleha Tabassum	ATS, classification of the transformer,
02/08/2019	4:00PM-6:00 PM	Sri K.Rama Mohan Reddy	faults in DG, size calculation of DG
03/08/2019	4:00PM-6:00 PM	Sri K.Rama Mohan Reddy	Unit-V- UPS: Introduction, types of UPS,
05/08/2019	4:00PM-6:00 PM	Sri K.Rama Mohan Reddy	UPS size calculation,
06/08/20219	4:00PM-6:00 PM	Sri K.Rama Mohan Reddy	Battery size calculation

Resource Person(s)

Coordinator(s)

HOD

HEAD
Department of Electrical &
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Kadapa -516003,



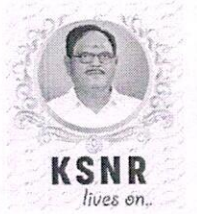
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Report of
Certification Course on
“Electrical Design Engineering” From 19/07/2019 to 06/08/2019

Target Group	:	B.Tech Students
Details of Participants	:	70 Students
Co-coordinator(s)	:	Smt.Saleha Tabassum
Resource Person(s)	:	Sri K.Rama Mohan Reddy
Organizing Department	:	Elcetrical and Electronics Engineering
Venue	:	SJ-111

Description:

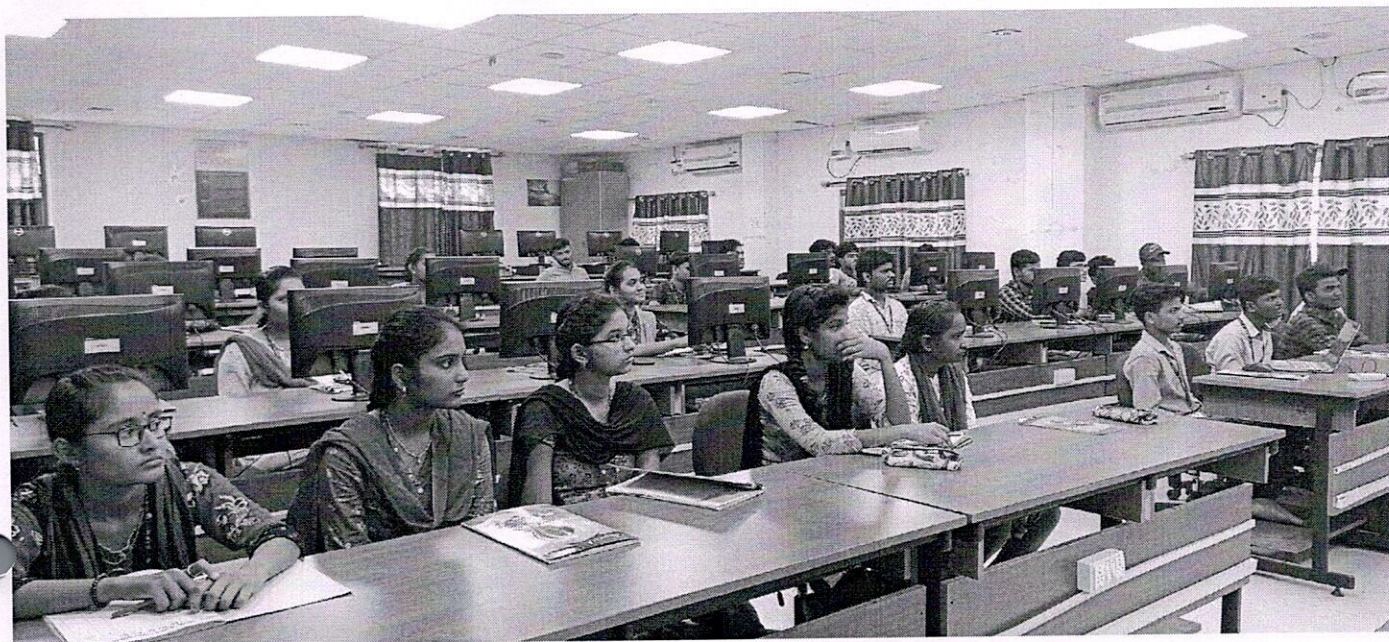
The Department of Electrical and Electronics Engineering conducted a Certification Course on “**Electrical Design Engineering**” From 19/07/2019 to 06/08/2019

The course Resource Persons is : **Sri K.Rama Mohan Reddy** Associate Professor,EEE Deparrtment, KSRMCE.

The main objective of this course is to introduce the fundamental concepts of Electrical design considerations, cooling, transformer maintenance, UPS Characteristics’ and Diesel engine analysis.With this Certificate course students enhanced their knowledge in the area Electrical Design emceeing concepts students asked various doughts and clarified

Photos:

The pictures taken during the course are given below:



Coordinator(s)

**HoD
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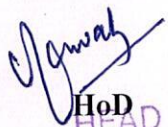
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING Attendance sheet of Certification Course on "Electrical Design Engineering" From 19/07/2019 to 06/08/2019

S.No	Full Name	Roll Number	19/7	20/7	22/7	23/7	24/7	25/7	26/7	27/7	27/7	30/7	31/7	1/8	2/8	3/8	5/8	6/8
1	ANKIREDDYPALLI BALAKONDA REDDY	189Y1A0201	P	P	A	P	P	P	P	A	P	P	P	P	P	P	P	P
2	BANDELADEVA PAVAN KARUNYA	189Y1A0202	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P
3	BOLLAVARAM PHANI KRISHNA	189Y1A0203	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P
4	CHALLA MANASA	189Y1A0205	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P
5	CHALLA SHIVA TEJA REDDY	189Y1A0206	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P
6	CHEVULA SAMPATH KUMAR	189Y1A0207	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
7	DANDU BALA SAI	189Y1A0208	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P
8	GANGAVARAMGANESHKUMARREDDY	189Y1A0209	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P
9	GUBILI NAVEEN KUMAR	189Y1A0210	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P
10	GURAI AHGARI PAVAN KALYAN	189Y1A0211	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P
11			P	P	P	P	A	P	P	P	P	P	P	P	A	A	P	P
12	HASANAPURAMCHARANPRAKASH	189Y1A0212	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A
13	ILLURI MARINA	189Y1A0213	P	A	P	P	P	P	P	P	P	P	P	P	P	P	A	P
14	JANDYALA NAGA BHASKAR	189Y1A0214	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P
15	KADIRI PARAMESWAR REDDY	189Y1A0215	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P
16	KALISSETTY SURENDRA MARUTHI	189Y1A0216	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P
17	KAMISSETTY VAMSI	189Y1A0217	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
18	KANIKE SRINIVASULU	189Y1A0218	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P

19	KARNATI SAI SIVANANDA REDDY	189Y1A0219	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
20	KOKKANTI ROHITH	189Y1A0220	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P
21	KOMMA PEDDI REDDY	189Y1A0221	P	P	P	A	P	P	P	P	A	P	P	P	P	A	P	P
22	KONANAVANI	189Y1A0222	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
23	KONDA SREENIVASA RAO	189Y1A0223	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
24	KONDREDDY MANJU BHARGAVI (W)	189Y1A0224	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A
25	KORAPALA VEERA CHANDRA LIKHITA	189Y1A0225	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P
26	KUKKALAREDDY HEMANTH REDDY	189Y1A0226	P	P	P	A	P	P	P	P	P	P	P	P	P	A	P	P
27	KUKKALAREDDY SUMANTH REDDY	189Y1A0227	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
28	MACHA HARSHITH	189Y1A0228	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
29	MANJULA AKANKSHA	189Y1A0229	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P	P
30	MANNU KUMAR	189Y1A0230	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
31	MIMME SREENATH	189Y1A0231	P	P	P	P	P	A	P	P	P	A	P	P	P	P	P	P
32	MUGOLLA GANGAPRASANTH	189Y1A0232	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
34	MUPPURI GIRIKUMAR	189Y1A0233	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P
35	NUKALA ARUNA (W)	189Y1A0234	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P
36	PAGADALA PRIYANKA	189Y1A0235	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P
37	PERAM PAVANI	189Y1A0236	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
38	PULIMADYALA MOHAMMED SADAK	189Y1A0237	A	P	P	A	P	P	P	P	P	P	P	P	P	P	P	A
39	PUTLURU BHARATH KUMAR REDDY	189Y1A0238	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
40	RAVULA UPENDRA	189Y1A0239	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P
41	SAMBU KEERTHI	189Y1A0241	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P
42	SANIVARAPURAMAKRISHNAREDDY	189Y1A0242	P	A	P	P	P	P	P	P	P	P	P	P	P	P	A	P
43	SHAIK AISHA	189Y1A0243	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
44	SHAIK KHALEEFA	189Y1A0244	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P
45	SHAIK MULLA KHAJA MOINUDDIN	189Y1A0245	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
46	SHAIK NAZEER BASHA	189Y1A0246	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P
47	SHAIK YOUSUF	189Y1A0247	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
48	SURASURA GOWRINATH	189Y1A0248	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
49	UPPALAPATI SURENDRA BABU	189Y1A0250	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P
50	VADDEMANI PAVAN KUMAR REDDY	189Y1A0251	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P
51	HEMA VENKATESH	189Y1A0252	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P

52	HEMA YOGESWARA	189Y1A0253	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P
53	BELLAGANTI DIVYASWINI (W)	199Y5A0201	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P
54	CHINTHAKUNTA GAYATHRI (W)	199Y5A0202	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P
55	GORANTLA BHUPATHI RAJU	199Y5A0203	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	A
56	GUNDI NAGANNA	199Y5A0204	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
57	KALAMALLA KALANDAR	199Y5A0205	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P
58	KAMMARA UDAYA SREE	199Y5A0206	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P
59	MODAPOTHULA ANIL	199Y5A0207	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
60	MOPOORU RAMA CHANDRA REDDY	199Y5A0208	P	A	P	P	P	P	P	P	P	P	A	P	P	P	P	A
61	MUDE SRIKANTH NAIK	199Y5A0209	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
62	MUTYALA VENKATA MEGANATH	199Y5A0210	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P
63	SAGILI PUSHPANATHA REDDY	199Y5A0211	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
64	SHAIK SHABBIR BABA	199Y5A0212	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P
65	YAMAVARAM SWAPNA	199Y5A0213	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P
66	KRISHNAM SNEHALATHA	179Y1A0211	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P
67	SYED SHAZIA TABASSUM	179Y1A0228	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P
68	SHAIK AHAMMAD	189Y5A0247	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P
69	S.Riyaz Ahmed	189Y5A0249	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P
70	K. Mallikarjuna	189Y5A0261	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P


Coordinator(s)


HoD
HEAD
Department of Electrical &
Electronics Engineering
K.S.R.M. College of Engineering
Kadapa -516003.



K.S.R.M. COLLEGE OF ENGINEERING

(UGC - Autonomous)

Kadapa, Andhra Pradesh, India- 516 003

Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu.

Certification Course on Electrical Design Engineering Certificate of Particiaption

*This is to certify that Mr/Ms _____
bearing Roll Number _____ has participated
in Certification Course on "Electrical Design Engineering"
Conducted by the Department of Electrical and Electronics
Engineering from 19/07/2019-06/08/2019.*

[Signature]
Coordinator

HOD EEE

Principal



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Department of Electrical and Electronics Engineering

Organizing a

Certification Course on

Electrical Design Engineering

Resource Person: Sri K.Rama Mohan Reddy,

Associate Professor,EEE Department.

Faculty Coordinator: Smt.Saleha Tabassum,Asst.Prof,EEE Department

Date:19/07/2019-06/08/2019

Time:4:00Pm - 6 :00PM



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Resource Person-Sri K. Rama Mohan Reddy, Associate Professor, EEE Dept
Faculty Coordinator-Smt. Saleha Tabassum, Asst. Prof, EEE Dept.

Electrical Design Considerations

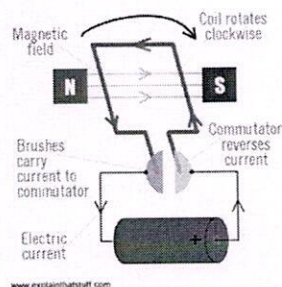
- To promote the work and other activities carried out within the building
- To promote the safety of the people using the building
- To create in conjunction with the structure and decoration, a pleasing environment Design aspects of good lighting scheme
- Careful planning of the brightness and color pattern within the work space
- Controlling direct and indirect glare
- Minimizing flicker and paying attention to color rendering properties of light source

- Good lighting is also the process of providing the right quantity of light at the right quality. The quantity of lighting or the level of illumination depends on the following factors.
- > Adequacy for preventing both strain in seeing and liability to accidents due to poor visibility
- > Adequacy for realizing visual comfort
- > Adequacy for performance of the task at high efficiency
- > Adequacy for pleasantness

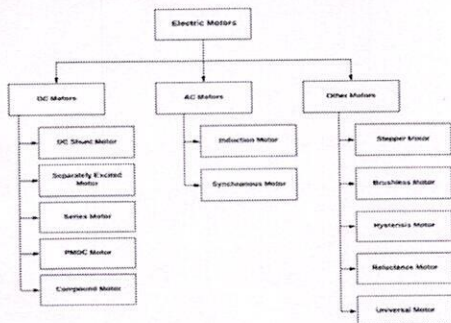
- CLASSIFICATION OF VOLTAGES, STANDARDS AND SPECIFICATIONS Standard voltages to be used in electrical systems as per NEC are as detailed.
- The standard distribution voltage for DC system shall be 220/440V. For single phase AC: 240V, 50 Hz, 2 wire For three phase AC: 415V, 50 Hz, 4 wire
- 240V- voltage to neutral
- 415V- line to line voltage
- 3.3kV-HV
- 6.6kV- Thermal Power Stations
- 11kV- Primary distribution
- 22kV- Not in Kerala
- 33kV- EHV
- 66kV
- 110kV
- 132kV- Transmission voltage
- 220kV- Transmission voltage
- 400kV- National Grid voltage Low voltage- Not exceeding 250V Medium voltage- Not exceeding 650V HV- Not exceeding 33kV EHV-Exceeding 33kV

- Voltage limits for AC systems The supply authorities are required to maintain the voltages on the system under normal condition within the tolerances specified below:
- 6% in case of low and medium voltage installations
- 6% on the higher side or 9% on the lower side of high voltage systems
- 12.5% in case of extra high voltage systems
- Under Indian Electricity Rules, the voltage fluctuation may not vary by more than 5% above or below the declared nominal voltage
- Frequency must be within $\pm 1\%$ of the declared frequency of 50Hz ie. 228V to 252V for nominal voltage of 240V & 394.25V to 435.75V for nominal voltage of 415V
- Load Balancing, Size of DB.

Electric Motors: Basic of electric motors



Types of motor and their application



starting methods

Starting of DC Motor

- The **starting** of DC motor is somewhat different from the starting of all other types of electrical motors.
 - This difference is credited to the fact that a **DC motor** unlike other types of motor has a very high **starting current** that has the potential of damaging the internal circuit of the DC motor if not restricted to some limited value.
 - This limitation to the **starting current** of DC motor is brought about by means of the starter.
 - Thus the distinguishing fact about the **starting methods** of DC motor is that it is facilitated by means of a starter.
- A device containing a variable resistance connected in series to the armature winding so as to limit the starting current of DC motor to a desired optimum value taking into consideration the safety aspect of the motor.

Parts of transformer, classification of the transformer

- Transformers are used to transfer electrical energy from one circuit to another through electromagnetic induction. They are used either to step up or step down voltage levels. A transformer is made of several different parts that function in their own different ways to enhance the overall functioning of a transformer. These include core, windings, insulating materials, transformer oil, tap changer, conservator, breather, cooling tubes, Buchholz Relay and explosion vent. The core, windings, insulating materials and transformer oil are seen in almost every transformer, while the other components are seen in transformers that are more than 50 KVA.
- **Core**
The core of the transformer is used to support the windings. It is made of soft iron to reduce eddy current loss and Hysteresis loss, and provides low reluctance path to the flow of magnetic flux. The diameter of a transformer's core is directly proportional to copper loss and inversely proportional to iron loss.

• Windings

Windings consist of several copper coil turns bundled together, each bundle connected to form a complete winding. Windings can be based either on the input-output supply or on the voltage range. Windings that are based on supply are classified into primary and secondary windings, meaning the windings to which the input and output voltage is applied respectively. On the other hand, windings based on voltage range can be classified into high voltage and low voltage windings.

• Insulating materials

- Insulating materials like papers and card boards are used to isolate primary and secondary windings from each other as well as the transformer core. These windings are made of copper due to high conductivity and ductility. High conductivity minimizes the amount of copper needed and minimizes losses. Moreover, high ductility results in easy bending of conductors into tight winding around the core that also minimizes the amount of copper and volume of winding.
- **Transformer oil**
- The transformer oil insulates as well as cools the core and coil assembly. The core and windings of the transformer must be completely immersed in the oil that normally contains hydrocarbon mineral oils.

• Conservator

- The conservator is an airtight metallic cylindrical drum fitted above the transformer that conserves the transformer oil. It is vented at the top and is filled only half with the oil to allow expansion and contraction during temperature variations. However the main tank of the transformer with which the conservator is connected is completely filled with the oil through a pipeline.
- **Breather**
- The breather is a cylindrical container filled with silica gel, which is used to keep the air that enters the tank moisture-free. This is because the insulating oil when reacts with moisture can affect the insulation and cause internal faults, which is why it is a must to keep the air free from moisture. In the breather, when the air passes through the silica gel, the moisture contents are absorbed by the silica crystals.

- **Tap changer**
- To balance voltage variations within the transformer, tap changers are used. There are two types of tap changers – on load and off load. In on load tap changers, tapping can be changed without isolating transformer from the supply, while in off load, the transformer needs to be disconnected from the supply.
- **Cooling tubes**
As the name suggests, cooling tubes are used to cool the transformer oil. The circulation of oil within the transformer may be natural or forced. In the case of natural circulation, when the oil temperature rises, the hot oil naturally moves to the top and cold oil moves down, while in case of forced circulation, an external pump is used.
- **Buchholz Relay**
Placed over the connecting pipe that runs from the main tank to conservator tank the Buchholz Relay senses the faults occurring within the transformer. It operates by the gases emitted due to decomposition of transformer oil during internal faults. Thus, this device is used to sense and in turn protect the transformer from internal faults.

- **Transformer Fault Current Calculator:**
- Enter the transformer rating in kVA (kilo Volt-Amp), Enter the secondary terminal voltage in volts and the percentage impedance in %. Then press the calculate button to get the transformer short circuit fault current in kilo Amps (kA). Reset button resets the input values.

- Parts of DG
- Diesel Engine.
- Alternator.
- Exciter.
- Fuel System.
- Voltage Regulator.
- Cooling System & Exhaust System.
- Lubrication System.
- Battery Charger

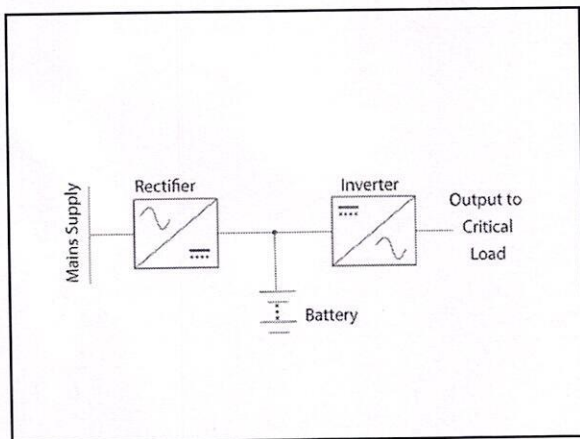
Fault in DG

- **The internal fault in DG Set occurs due to problems in the DG Set components & external faults due to abnormal Genset operational conditions or any external network issue.**
- Most of the time the fault comes in the prime mover mechanical components of diesel generator, gas, or any other fuel DG Set

UPS- Size calculations

- Because UPS systems are rated by VA or kVA ratings, this may require a conversion from W to VA, which can be calculated by **dividing the power consumption (W) by the power factor**.
- Add up all the VA, then multiply this by a figure such as 1.2 or 1.25, which factors in future growth and system expansion.

Inverter / UPS Details		
Total Loss	150	VA
Total Starting Load	300	VA
Inverter efficiency	92%	
Size of Inverter / UPS	0.33	KVA
Inverter / UPS Battery Details:		
Battery Voltage	24	Volts DC
Inverter / UPS Back Up Time	2	Hour
Loose Connection/Wire Loss Factor:	25%	
Battery Efficiency	95%	
Battery Aging	50%	
Depth of Discharge (DOD):	50%	
Battery Operating Temp:	40	C°
Current drain from battery	13.6	Amp
Normal storage capacity of Battery	27.2	Amp.Hr
Average Load	43.5	Amp.Hr
Size of Battery	87.0	Amp.Hr
Battery Bank Connection Detail :		
If You are Select Battery Volt	12	Volts DC
If You are Select Battery Size	60	Amp.Hr
Batteries connection for Battery Bank	Series-Parallel	
Selection of Batteries Connection:	O.K	
Selection of Each Battery Voltage	O.K	
Number of String for Battery Bank	1	Nos
Total Amp.Hr of Each String	60	Amp.Hr
Total No of Battery in Each String	2	Nos
Total Battery Bank Amp.Hr	60	Amp.Hr
Total Nos of Batteries in Battery Bank	2	Nos
Results:		
Size of Inverter / UPS	0.33	KVA
Size of Battery	87	Amp.Hr
Inverter / UPS Back Up Time	2	Hour



**K.S.R.M. COLLEGE OF ENGINEERING
(AUTONOMOUS)**
Department of Electrical & Electronics Engineering
Feedback of students on Certification Course on
"Electrical Design Engineering"

S. No.	Roll Number	Name of The Student	The content was Clear & Understandable	The program was well paced within the allotted	The instructor was a good communicator	The material was presented in an organized manner	The instructor was knowledgeable on the topic	Rate the value of course in increasing your skills
1	189Y1A0201	ANKIREDDYPALLI BALAKONDA REDDY	LOW	LOW	HIGH	MODERATE	HIGH	5
2	189Y1A0202	BANDELADEVA PAVAN KARUNYA	HIGH	MODERATE	HIGH	HIGH	MODERATE	5
3	189Y1A0203	BOLLAVARAM PHANI KRISHNA	HIGH	MODERATE	MODERATE	HIGH	HIGH	5
4	189Y1A0205	CHALLA MANASA	MODERATE	HIGH	HIGH	MODERATE	MODERATE	5
5	189Y1A0206	CHALLA SHIVA TEJA REDDY	HIGH	HIGH	MODERATE	HIGH	MODERATE	5
6	189Y1A0207	CHEVULA SAMPATH KUMAR	MODERATE	HIGH	HIGH	HIGH	MODERATE	5
7	189Y1A0208	DANDU BALA SAI	HIGH	HIGH	MODERATE	MODERATE	MODERATE	5
8	189Y1A0209	GANGAVARAMGANESHKUMARREDDY	LOW	MODERATE	MODERATE	HIGH	HIGH	4
9	189Y1A0210	GUBILI NAVEEN KUMAR	HIGH	HIGH	MODERATE	HIGH	HIGH	5
10	189Y1A0211	GURAI AHGARI PAVAN KALYAN	LOW	MODERATE	HIGH	HIGH	HIGH	5
11	189Y1A0212	HASANAPURAMCHARANPRAKASH	HIGH	HIGH	HIGH	HIGH	HIGH	4
12	189Y1A0213	ILLURI MARINA	HIGH	HIGH	MODERATE	HIGH	HIGH	4
13	189Y1A0214	JANDYALA NAGA BHASKAR	HIGH	LOW	HIGH	HIGH	HIGH	5
14	189Y1A0215	KADIRI PARAMESWAR REDDY	HIGH	HIGH	LOW	HIGH	HIGH	4
15	189Y1A0216	KALISSETTY SURENDRA MARUTHI	MODERATE	HIGH	MODERATE	HIGH	MODERATE	5
16	189Y1A0217	KAMISSETTY VAMSI	LOW	HIGH	HIGH	HIGH	MODERATE	4
17	189Y1A0218	KANIKE SRINIVASULU	LOW	HIGH	HIGH	MODERATE	MODERATE	4
18	189Y1A0219	KARNATI SAI SIVANANDA REDDY	HIGH	HIGH	HIGH	MODERATE	HIGH	5
19	189Y1A0220	KOKKANTI ROHITH	LOW	HIGH	HIGH	HIGH	LOW	4

20	189Y1A0221	KOMMA PEDDI REDDY	HIGH	HIGH	HIGH	MODERATE	HIGH	5
21	189Y1A0222	KONANAVANI	LOW	HIGH	HIGH	MODERATE	LOW	5
22	189Y1A0223	KONDA SREENIVASA RAO	MODERATE	MODERATE	MODERATE	HIGH	LOW	5
23	189Y1A0224	KONDREDDY MANJU BHARGAVI (W)	LOW	HIGH	HIGH	HIGH	LOW	5
24	189Y1A0225	KORAPALA VEERA CHANDRA LIKHITA	HIGH	LOW	MODERATE	HIGH	HIGH	5
25	189Y1A0226	KUKKALAREDDY HEMANTH REDDY	LOW	LOW	HIGH	MODERATE	HIGH	5
26	189Y1A0227	KUKKALAREDDY SUMANTH REDDY	HIGH	MODERATE	HIGH	HIGH	MODERATE	5
27	189Y1A0228	MACHA HARSHITH	HIGH	MODERATE	MODERATE	HIGH	HIGH	5
28	189Y1A0229	MANJULA AKANKSHA	MODERATE	HIGH	HIGH	MODERATE	MODERATE	5
29	189Y1A0230	MIANNU KUMAR	HIGH	HIGH	MODERATE	HIGH	MODERATE	5
30	189Y1A0231	MIMME SREENATH	MODERATE	HIGH	HIGH	HIGH	MODERATE	5
31	189Y1A0232	MUGOLLA GANGAPRASANTH	HIGH	HIGH	MODERATE	MODERATE	MODERATE	5
32	189Y1A0233	MUPPURI GIRIKUMAR	LOW	MODERATE	MODERATE	HIGH	HIGH	4
33	189Y1A0234	NUKALA ARUNA (W)	HIGH	HIGH	MODERATE	HIGH	HIGH	5
34	189Y1A0235	PAGADALA PRIYANKA	LOW	MODERATE	HIGH	HIGH	HIGH	5
35	189Y1A0236	PERAM PAVANI	HIGH	HIGH	HIGH	HIGH	HIGH	4
36	189Y1A0237	PULIMADYALA MOHAMMED SADAK	HIGH	HIGH	MODERATE	HIGH	HIGH	4
37	189Y1A0238	PUTLURU BHARATH KUMAR REDDY	HIGH	LOW	HIGH	HIGH	HIGH	5
38	189Y1A0239	RAVULA UPENDRA	HIGH	HIGH	LOW	HIGH	HIGH	4
39	189Y1A0241	SAMBU KEERTHI	MODERATE	HIGH	MODERATE	HIGH	MODERATE	5
40	189Y1A0242	SANIVARAPURAMAKRISHNAREDDY	LOW	HIGH	HIGH	HIGH	MODERATE	4
41	189Y1A0243	SHAIK AISHA	LOW	HIGH	HIGH	MODERATE	MODERATE	4
42	189Y1A0244	SHAIK KHALEEFA	HIGH	HIGH	HIGH	MODERATE	HIGH	5
43	189Y1A0245	SHAIK MULLA KHAJA MOINUDDIN	LOW	HIGH	HIGH	HIGH	LOW	4
44	189Y1A0246	SHAIK NAZEER BASHA	HIGH	HIGH	HIGH	MODERATE	HIGH	5
45	189Y1A0247	SHAIK YOUSUF	LOW	HIGH	HIGH	MODERATE	LOW	5
46	189Y1A0248	SURASURA GOWRINATH	MODERATE	MODERATE	MODERATE	HIGH	LOW	5
47	189Y1A0250	UPPALAPATI SURENDRA BABU	LOW	LOW	HIGH	MODERATE	HIGH	5

48	189Y1A0251	VADDEMANI PAVAN KUMAR REDDY	HIGH	MODERATE	HIGH	HIGH	MODERATE	5
49	189Y1A0252	VEMA VENKATESH	HIGH	MODERATE	MODERATE	HIGH	HIGH	5
50	189Y1A0253	VEMA YOGESWARA	MODERATE	HIGH	HIGH	MODERATE	MODERATE	5
51	199Y5A0201	BELLAGANTI DIVYASWINI (W)	HIGH	HIGH	MODERATE	HIGH	MODERATE	5
52	199Y5A0202	CHINTHAKUNTA GAYATHRI (W)	MODERATE	HIGH	HIGH	HIGH	MODERATE	5
53	199Y5A0203	GORANTLA BHUPATHI RAJU	HIGH	HIGH	MODERATE	MODERATE	MODERATE	5
54	199Y5A0204	GUNDI NAGANNA	LOW	MODERATE	MODERATE	HIGH	HIGH	4
55	199Y5A0205	KALAMALLA KALANDAR	HIGH	HIGH	MODERATE	HIGH	HIGH	5
56	199Y5A0206	KAMMARA UDAYA SREE	LOW	MODERATE	HIGH	HIGH	HIGH	5
57	199Y5A0207	MODAPOTHULA ANIL	HIGH	HIGH	HIGH	HIGH	HIGH	4
58	199Y5A0208	MOPOORU RAMA CHANDRA REDDY	HIGH	HIGH	MODERATE	HIGH	HIGH	4
59	199Y5A0209	MUDE SRIKANTH NAIK	HIGH	LOW	HIGH	HIGH	HIGH	5
60	199Y5A0210	MUTYALA VENKATA MEGANATH	HIGH	HIGH	LOW	HIGH	HIGH	4
61	199Y5A0211	SAGILI PUSHPANATHA REDDY	MODERATE	HIGH	MODERATE	HIGH	MODERATE	5
62	199Y5A0212	SHAIK SHABBIR BABA	LOW	HIGH	HIGH	HIGH	MODERATE	4
63	199Y5A0213	YAMAVARAM SWAPNA	LOW	HIGH	HIGH	MODERATE	MODERATE	4
64	179Y1A0211	KRISHNAM SNEHALATHA	HIGH	HIGH	HIGH	MODERATE	HIGH	5
67	179Y1A0228	SYED SHAZIA TABASSUM	LOW	HIGH	HIGH	MODERATE	LOW	5
68	189Y5A0247	SHAIK AHAMMAD	MODERATE	MODERATE	MODERATE	HIGH	LOW	5
67	189Y5A0249	S.Riyaz Ahmed	LOW	HIGH	HIGH	MODERATE	LOW	5
68	189Y5A0261	K. Mallikarjuna	MODERATE	MODERATE	MODERATE	HIGH	LOW	5

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