KG Reddy College of Engineering & Technology
(Approved by AICTE, New Delhi, Affiliated to JNTUH, Hyderabad)
Chilkur (Village), Moinabad (Mandal), R. R Dist, TS-501504
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ABOUT ARISTOTLE EDUCATIONAL SOCIETY

Aristotle Educational Society was established in 2000, with an aim of bringing quality Engineering and management education closer to the student's populace at large. The society is founded by experienced and visionary team of academicians, industrialists and NRI Entrepreneurs, whose valuable knowledge and experience are the guiding factors for K G Reddy College of Engineering & Technology (KGRCET). At KGRCET we are always for every driving improvements and innovation in education, is it infrastructure expansion or faculty talent acquisition. Our endeavour is to provide best of the class facilities and services to our students.

Twenty First Century society is considered to be a knowledge society. But many of our educationists and captains of industry are of the opinion that there is a significant mismatch between the kind of education students are equipped with from our institutions and the industry's expectations. It is precisely to bring down this gap that our focus is on continuous enhancement of both the technical skills as well as the soft skill of our students in order to compete and succeed in the global work places of tomorrow.

Vision:

To become new-age engineering institution which is recognized for its innovative teaching and learning culture, research and entrepreneurial ecosystem, and sustainable social impact in the community.

Mission:

- To offer undergraduate and post-graduate programs that is supported through industry relevant curriculum and innovative teaching and learning processes that would help students succeed in their professional careers.
- To provide necessary support structures for students, which will contribute to their personal and professional growth and enable them to become leaders in their respective fields.
- To provide faculty and students with an ecosystem that fosters research and development through strategic partnerships with government organisations and collaboration with industries.
- To contribute to the development of the region by using our technological expertise to work with nearby communities and support them in their social and economic growth.

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TEN RULES TO TRANSFORM YOURSELF INTO AN IDEAL STUDENT AND A PERFECT PROFESSIONAL

1. The first thing is punctuality. You are expected to be in your seat in the classroom by 9:00 am. However, 10 minutes of grace time is given to enter the class. If you arrive at the institute after 9:10 am and before 09:50 am you can attend the rest of the classes. From 10:00 am, no student will be allowed to gain entry into the campus. You are not permitted to enter the class after the commencement of the class (except 1st period) and should not leave a class before that class ends.

2. You should not leave the campus during the working hours (between 9:00 am and 3:45 pm) without prior permission from the principal. Students' who wishes to leave the campus for any reason may apply for permission to the concerned Head who in turn forward the case to the Principal. The Principal may issue the Gate pass after getting the consent of the parent.

3. You must wear neat and clean formal dress. Your attire should be befitting to the status of a student doing a professional course. You must wear (display) the Identity Card as long as you are in the campus.

4. Use of mobile phones is strictly prohibited in the class rooms/ labs/ workshops/ library/computer labs/Offices and other prominent places.

5. All the interpersonal communication within the campus must be only in English. If mistakes, fear/tension, mother tongue influence etc. are your reasons for not speaking in English, you must realize that they are all part and parcel of the learning process. Unless you make mistakes and learn from your mistakes you will never be able to acquire good command over English. As you are all aware, good command over English paves the way for a good professional career.

6. In case there is any delay on the part of any teacher in entering your class, and as a result the students are idle, one of the students from your class (preferably CR) may contact the HOD/Academic Counselor for corrective measures/necessary arrangements. You should not be seen in corridors, canteen, and buses or anywhere outside your classroom/lab without carrying a permission letter. If you do not have any teaching hours you are advised to make use of your free time productively, by utilizing various facilities

7. You must actively participate in all academic and extracurricular activities like; Seminars/Workshops, Tech Fests, College Day and all the National Festivals and use them as a platform to present yourself and grow as a better individual.

8. As a student, you are expected to cultivate habits like practicing self-discipline, showing dedication towards your studies and respecting the teachers and elders.

9. If any one of you has any complaints or grievances against the institution, you are always welcome to bring them to the notice of your respective departments and get your problems solved.

10. Never forget that you are always welcome to make your suggestions for the improvement of the institution. Your suggestions will be appreciated and implemented if they found to be good, innovative and helpful to us in offering better services to all

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CODE OF CONDUCT OF STUDENTS

It shall be the responsibility of the students of KGRCET to

1. Be familiar with and adhere to this Code and any amendment brought to this Code.
2. Behave in a dignified and courteous manner and show due respect to the authorities, employees, elders and fellow students.
3. Access all educational opportunities and facilities available in the college and make good use of them to benefit academically and develop scientific temper.
4. Respect the laws of the country and human rights and conduct in a responsible and dignified manner at all times.

BEHAVIOUR & CONDUCT OF THE STUDENT IN THE CAMPUS

- Students are expected to be in the classroom by 8.55 am. Only 5 minutes of grace time can be given. No student will be allowed to enter into the campus after 10 am. Students are not permitted to enter a class after the commencement of the class and leave before that class ends.
- Students should not leave the campus during working hours (between 9:00 am and 4:15 pm). Students may be permitted to leave the campus only in exceptional circumstances with the prior permission of the Head of the Department concerned and the Principal only. Gate pass will be issued only after the authorization of the Principal.
- Students must wear neat and clean formal dress. Wearing of jeans, T-shirts and sandals is not permitted. Identity Card is to be worn around the neck at all times.
- Use of mobile phones is strictly prohibited in the classrooms, labs, workshops, library, computer labs, offices and seminar halls.
- All the interpersonal communication within the campus must be in English only.
- If any teacher does not report to the class for any reason, the CR is to contact the HOD/Dean Academics for necessary alternative arrangements.
- Students are not to be seen in corridors, canteen, and buses or anywhere outside classrooms/labs without a letter of permission. Free time may be utilized in Library, Digital Library, Language Lab, Sports Lounge, etc.
- Students are encouraged to actively participate in all academic and extracurricular activities like seminars, workshops, clubs, technical fests, sports, College Day and National festivals and use them to develop their technical and soft skills.
- Students are expected to develop manners, self-discipline and integrity and groom themselves to be responsible engineers of the country.
- Students should not indulge in ragging of any form in the campus or off the campus.

Department of Electrical and Electronics Engineering

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RULES FOR STUDENTS

- Students are advised and expected to
- Be punctual for all the activities.
- Be regular for the classes, labs, workshops and examinations.
- Greet their faculty and seniors.
- Express themselves appropriately without the use of profane language or offensive gestures.
- Respect the safety of others by not bringing real or imitation weapons to college or the hostel.
- Avoid indulging in loose talk or spreading rumours on campus.
- Refrain from sitting in places such as parapets, stairs, footpaths, etc.
- Wear their identity cards while on the campus.
- Keep away from possession or consumption of chewing gum, narcotic drugs, tobacco, alcohol and other intoxicating substances which are strictly prohibited by law.
- Do not indulge in anti-institutional, anti-social, anti-national, communal, indecent, immoral or political activities within the campus and hostels☐
- Do not organize, attend or participate in any activity or agitation sponsored by political or religious organizations.
- Do not respond to any form of strike, procession or agitation including slogan shouting or boycott of activities.
- Take prior approval and permission of the Principal before undertaking any educational/recreational tours or industrial visits.
- Avoid coming to the college in their personal vehicles. Vehicles should be parked in the designated parking space only. Rash or negligent driving of vehicles, blowing of horns and riding with more than one pillion rider is prohibited.
- Report promptly any unauthorized entry of outsiders into the campus as well as hostels.

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ACADEMIC REGULATIONS

1. Holidays

KGRCET strictly follows the holidays notified by JNTUH Academic calendar.

2. Attendance

● A student shall be eligible to appear for University Examinations, if he/she possesses an aggregate of at least of 75% of attendance in all the subjects.

● A student will not be promoted to the next semester unless he/she satisfies the attendance requirement of the present semester / 1st year.

● If any student wants to go on leave for three or four days, the parents should meet the academic Counselor of the class, to which the student belongs to, to get the permission.

● Attendance is compulsory on the preceding and the proceeding days of any holiday.

3. Credit System

The credit system is as per the JNTUH Course Structure and syllabus. Students can have the details by going through the syllabus books.

4. Distribution and weight age of marks:

The performance of a student in each semester / I year shall be evaluated subject wise with a maximum of 100 marks for theory and 100 marks for practical subject.

Subject	Internal Exam	Assignments	End semester Exam	Total Marks
Theory	20	5	75	100
Practical	25	-	75	100

After a student has satisfied the requirements prescribed for the completion of the program and is eligible for the award of B. Tech. Degree he shall place in one of the following 4 Classes:

Class Awarded	% of marks to be secured	
First class with Distinction	70 % and above	From the aggregate, marks secure from the best 196 credits
First Class	Below 70% but not less than 60%	
Second Class	Below 60% but not less than 50%	
Pass Class	Below 50% but not less than 40%	

For further details on academic regulations, please refer the syllabus books

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GENERAL INFORMATION

Communication

In case any student or parent wants to contact the college, authorities and put forward their views should communicate the same to the Head of the department/Principal. Any change of address, the parents have to report it to the academic counselor concerned either personally or by making a phone call.

Ragging

Ragging is strictly prohibited, on the campus and there is an anti-ragging squad working in the college premises and if any senior students are observed troubling the fresher's stringent action will be taken against the culprits and there should be no doubt in any body's mind about the commitment of the college authorities to crush the ragging with an iron hand.

Library (Rules and Regulations)

The college has a spacious and well-stocked library with text books and reference books and several national and international journals and magazines. The stockpile of the books goes on increasing year after year to help students keep abreast of the latest information. All the students are advised to put the library to the optimum utilization and try to widen your knowledge. The Digital library is equipped with 21000+ online E journals.

Titles	:	3012
Volume of books	:	22793
Print Journals	:	60
E-Journals	:	DELNET-1230
Seating Capacity	:	150
Timings	:	8 AM – 6 PM
Digital Library	:	30 systems, High speed Internet, 21000+ online journals

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SEMESTER I
ACADEMIC CALENDAR-JNTUH

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
REVISED ACADEMIC CALENDAR 2020-21
For All Constituent & Affiliated Colleges of JNTUH
B. Tech./B.Pharm. II, III & IV Years I & II Semesters

B. Tech./B.Pharm. II, III & IV Years - I Semester

S. No	Description	Duration	
		From	**To**
1	Commencement of I Semester classwork	01.09.2020	
2	1st Spell of Instructions (including Dussehra Recess)	01.09.2020	31.10.2020 (9 Weeks)
3	Dussehra Recess	19.10.2020	24.10.2020
4	End Examinations preparation holidays - Previous Semesters	02.11.2020	04.11.2020 (3 days)
5	2nd Spell of Instructions (including First Mid Term Examinations)	14.12.2020	13.02.2021 (9 Weeks)
6	First Mid Term Examinations	21.12.2020	28.12.2020 (1 Week)
7	Submission of First Mid Term Exam Marks to the University on or before	04.01.2021	
8	Second Mid Term Examinations	15.02.2021	20.02.2021 (1 Week)
9	Practical classes	22.02.2021	27.02.2021 (1 Week)
10	Preparation Holidays and Practical Examinations	01.03.2021	06.03.2021 (1 Week)
11	Submission of Second Mid Term Exam Marks to the University on or before	27.02.2021	
12	End Semester Examinations	08.03.2021	20.03.2021 (2 Weeks)

B. Tech./ B.Pharm. II, III & IV Years - II Semester

S. No	Description	Duration	
		From	**To**
1	Commencement of II Semester classwork	22.03.2021	
2	1st Spell of Instructions	22.03.2021	15.05.2021 (8 Weeks)
3	Summer Vacation	17.05.2021	29.05.2021 (2 Weeks)
4	First Mid Term Examinations	31.05.2021	05.06.2021 (1 Week)
5	Submission of First Mid Term Exam Marks to the University on or before	11.06.2021	
6	2nd Spell of Instructions	07.06.2021	31.07.2021 (8 Weeks)
7	Second Mid Term Examinations	02.08.2021	07.08.2021 (1 Week)
8	Preparation Holidays and Practical Examinations	09.08.2021	14.08.2021 (1 Week)
9	Submission of Second Mid Term Exam Marks to the University on or before	14.08.2021	
10	End Semester Examinations	16.08.2021	28.08.2021 (2 Weeks)

Note: 1 All the laboratory courses shall be conducted once normalcy is restored.
2 Regular End Semester Examinations of previous Semester (including lab exams) as per the data received from the Examination branch: 05.11.2020 to 11.12.2020.

Sd/- xxxxxx
DIRECTOR, ACADEMIC & PLANNING

Department of Electrical and Electronics Engineering

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SEMESTER I
ACADEMIC CALENDAR – EEE Department

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KGRCET/A.Y/Dept./
Department of Electrical and Electronics Engineering
Academic Calendar   Academic Year:2020-2021   Semester:ODD
Date:31-08-2020

Week	Month	Mon	Tue	Wed	Thu	Fri	Sat	No. of working days	Events
1.	Sept		1	2	3	4	5	26	1st DAB Meeting; 14th –II Year Guest Lecture on ECA 21st DAB Meeting; 22nd –III Year Expert Lecture on MI 28th –IV Year HVDC Expert Lecture
2.		7	8	9	10	11	12		
3.		14	15	16	17	18	19		
4.		21	22	23	24	25	26		
5.		28	29	30					
6.	Oct				1		3	19	2nd –Gandhi Jayanti; 5th –DAB Meeting; 12th –III Year Seminar on CA; 6th –IV Year Guest Lecture on PSD; 17th –Bathukamma; 19th –24th Dusshera; 30th –EHD Mehadinath; 31st –DAB Meeting
7.		5	6	7	8	9	10		
8.		12	13	14	15	16	17		
9.		19	20	21	22	23	24		
10.		26	27	28	29	30	31		
11.	Nov	2	3	4	5	6	7	22	Revision Classes; Remedial Classes; 13th –14th –Diwali; 16th –DAB Meeting; 28th –DAB Meeting; 30th –Guru Nanak jayanthi
12.		9	10	11	12				
13.		16	17	18	19	20	21		
14.		23	24	25	26	27	28		
15.		30							
16.	Dec		1	2	3	4	5	25	2nd –II Year Expert Lecture on AE; 7th –DAB Meeting; 12th –Second Saturday; 23rd –DAB Meeting; 23rd to 31st – Mid –I Examinations; 25th –Christmas; 26th –Boxing Day
17.		7	8	9	10	11	12		
18.		14	15	16	17	18	19		
19.		21	22	23	24	25	26		
20.		28	29	30	31				
21.	Jan					1	2	22	1st –Newyear; 11th –DAB Meeting; 13th –Bhogi; 14th –Pongal; 18th – Webinar on E- vehicles; 19th – Webinar on E- vehicles; 25th – Workshop on E- vehicles; 26th – Republic Day; 30th –DAB Meeting
22.		4	5	6	7	8	9		
23.		11	12	13	14	15	16		
24.		18	19	20	21	22	23		
25.		25	26	27	28	29	30		
26.	Feb	01	02	03	04	05	06	24	13- Last Working Day; 13- DAB Meeting; 15 to 20 -Second Mid Term Exams; 22-27 –Practical Classes
27.		08	09	10	11	12	13		
28.		15	16	17	18	19	20		
29.		22	23	24	25	26	27		
	Total Working Days							**138**	

Extra-curricular Activities		Holidays		Co-curricular Activities	

Student Counseling by the Faculty in the First week of every month					
Term Start	Last Working Day	Practical Examination	Theory Examination	End Of Theory Examination	Next Semester Starts
01-09-2020	13-02-2021	01-03-2021 to 06-03-2021	8-03-2021	20-03-2021	22-03-2021

HOD
HEAD
Dept. of Electrical & Electronics Engineering
KG Reddy College of Engineering & Technology
Chilkur (V), Moinabad (M), R.R. Dist-501 504.

Principal

Department of Electrical and Electronics Engineering

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ABOUT THE DEPARTMENT

Electrical and Electronics Engineering Department, established in the year 2008, is one of the oldest departments of K G Reddy College of Engineering and Technology. The Primary objective of the department is to impart quality education and training at the undergraduate level in the areas of Electrical and Electronics Engineering.

The Department has qualified and experienced faculty in all the related fields of Electrical and Electronics Engineering. The theoretical knowledge is further supplemented by well equipped laboratories. The department regularly organizes invited lectures by experts from industries in various fields of Electrical and Electronics Engineering. Workshops and Industrial visits are regularly conducted under the association of Electro Technia Association for Empowering (EAE)**.**The department is headed by **Mrs P.Samyuktha, Associate Professor**, who is having vast academic and research experience. Students are encouraged to participate in various Workshops, Seminars, Conferences and technical competitions at various levels.

Vision:

- To become a renowned department imparting both technical and non-technical skills to the students by implementing new engineering pedagogy's and research to produce competent new age electrical engineers.

Mission:

- To transform the students into motivated and knowledgeable new age electrical engineers.
- To advance the quality of education to produce world class technocrats with an ability to adapt to the academically challenging environment.
- To provide a progressive environment for learning through organized teaching methodologies, contemporary curriculum and research in the thrust areas of electrical engineering.

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Subject allocation:

S. No.	Name of the Faculty	Name of the Subject	Mobile	E-mail Id
1	Mr. Gopala Krishna	Measurements and Instrumentation	6301298297	gopalakrishna@kgr.ac.in
2	SK Syed Hussain	Power systems-II	9948429742	syedhussain@kgr.ac.in
3	Mrs. P. Samyuktha	Power Electronics	97100615315	Hod.eeee@kgr.ac.in
4	Mrs. Saraswathi	Computer Architecture		
5	Dr. Neethu	Basics of Economics and financial analysis	7675037633	th.naveen24@gmail.com
6	Mr. Gopala Krishna	Electrical measurements Lab	6301298297	gopalakrishna@kgr.ac.in
7	Srinivas d	Power system Simulation lab	7032154067	shrinudepally@gmail.com
8	Mrs. P. Samyuktha	Power Electronics Lab	78750593546	Kashinath pateil@gmail.com
9	Mrs. Sophiya	Advanced English Communication skills Lab		

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Mentor Details:

S. No.	Name of the Mentor	Mobile	Mentees Roll No.
1	Mr. Gopala Krishna	6301298297	17QM1A0201 to 13QM1A0214 (18), 13QM5A0201 to 13QF1A0204
2	Mrs. P. Samyuktha	9505592404	13QM5A0205 to 13QF1A0225 (20)

Class In-charges:

S. No.	Name of the Class In-charge	Mobile	E-mail Id
1	Mr. Gopala Krishna	6301298297	gopalakrishna@kgr.ac.in

Class Representative Details:

S. No.	Name of the CR	Roll No.	Mobile
1	Praneeth	19QM5A0208	9490381791

Department of Electrical and Electronics Engineering

Time Table:

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Department of Electrical and Electronics Engineering

Time Table for the Academic Year 2020-21

Class: III YEAR –I SEM

Date: 07-01-2021

Effective from: 07/01/21

BRANCH: EEE

Day/Date	09.30 AM to 10:15 AM	10.30 AM to 11:15NOON	11:30 AM to 12:15PM	12:30 PM to 01.15PM
Monday	PS – II	M&I	CA	AI
Tuesday	CA	BEFA	PS – II	AI
Wednesday	BEFA	CA	PE	PE
Thursday	CA	PE	M&I	IPR
Friday	PS-II	M&I	PE	SWD
Saturday	PS – II	BEFA	M&I	IPR

CODE	SUBJECT TITLE	SUBJECT NAME	NAME OF THE FACULTY
EE501PC	M&I	Measurements And Instrumentation	Mr. K. Gopala Krishna
EE502PC	PS-II	Power Systems II	Mr. SK Syed Hussain
EI503PC	PE	Power Electronics	Mrs.P.Samyuktha
SM504MS	CA	Computer Architecture	Mrs.Saraswathi
CS512OE	BEFA	Business Economics and Financial Analysis	Dr. Neethu
	IPR	Intellectual Property Rights	Mr. Vijay Kumar
	AI	Artificial Intelligence	Dr. J. Srinivas

In-charge   HOD   PRINCIPAL

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COURSE DESCRIPTION DOCUMENTS

Year / Semester   : III YEAR I-SEM
Subject   : Measurements and Instrumentation (EE503PE)
Name of the faculty : Mr. Gopala Krishna
No of contact hours/week : 4

Course overview:

This **course** will **study** the **basic** functions of all the different measuring instruments and their principle of operation. Accuracy of measurement and error analysis. Absolute and secondary instruments and indicating instrument. Moving coil and moving iron instruments, Dynamometer type instruments, Induction type instruments, Wattmeter of Measuring of power and power factor. Bridges (DC), Bridges (AC) Current and potential transformers, Oscilloscopes.

Test portion	
Test no.	**Topics**
1	**L1-L25**
2	L26-L65
Assignment portion	
Assignm ent no.	**Topics**
1	**L1-L25**
2	L26-L65

Submitted by   **Approved by**
 (Signature of the Faculty)   **(Signature of HOD)**
 Date: **Date:**

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Course Objectives

1.   To introduce the basic principles of all measuring instruments.
2.   To measure the voltage, current, Power factor, power, energy.
3.   To measure resistance, inductance and capacitance by using DC and AC bridges.
4.   To analyze the principle and working of non-electrical quantities.

Course Outcomes

At the end of the course, the students will be able to:

CO1. Analyze the different types of measuring instruments, their construction, operation and characteristics.

CO2. Distinguish the instruments suitable for typical measurements.

CO3. Check the null deflection in bridges to find unknown values.

CO4. Compare the knowledge about transducers and instrument transformers to use them effectively.

CO5. Measure the physical quantities like strain, temperature,velocity,pressure,vacuum.

Topic Outcomes:

S.NO	Topic to be covered	Topic outcome
	UNIT I	
1	Introduction to measuring instruments	Discuss About measuring instruments
2	Characteristics of instruments and Errors	Select the suitable instrument
3	Classification	Classify different types of torques
4	Ammeters and voltmeters	Explain ammeter and voltmeter
5	PMMC	Analyze Permanent magnet moving coil
6	Tutorial class	Solve the numerical problems

Department of Electrical and Electronics Engineering

7	Moving iron type instruments	Explain MI instruments
8	Expression for deflecting torque and control torque	Formulate expression for Td and Tc
9	Errors and compensations	Define different errors
10	Extension of range using shunt and series resistance	Analyze using shunt and series resistance
11	Electrostatic voltmeters	Discuss electrostatic voltmeters
12	Electrometer type	Examine the electrometer type
13	Attracted disc type	Explain attracted types
14	Tutorial class	Solve the numerical problems
UNIT – II		
15	Potentiometers & Instrument Transformers	Interpret the potentiometers and instrument transformers
16	Principle and operation of DC Crompton's potentiometer - standardization	Apply operation of Crompton's potentiometer
17	Measurement of resistance, current, voltage	Calculate measurement of resistance, current and voltage
18	Tutorial class	Solve the numerical problems
19	AC Potentiometers	Familiarize with AC potentiometer
20	Types	Categorize different types of AC potentiometers
21	Applications of CT and PT	Describe functional applications of CT and PT
22	Ratio and phase angle error's	Estimate ratio and phase angle errors
23	Tutorial class	Solve the numerical problems

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	UNIT-III	
24	Measurement of power and energy: Introduction	Measure the power and energy
25	Single phase dynamometer wattmeter, LPF and UPF	Familiarize with single phase dynamometer
26	Double element and three element dynamometer wattmeter	Hypothesize the method for 3-phase dynamometer wattmeter
27	Expression for deflection and control torques	Identify expressions for Tc and Td
28	Tutorial class	Solve the numerical problems
29	Extension of range of wattmeter using instrument transformer	Demonstrate range of wattmeter using IT
30	Measurement of active and reactive powers	Calculate measurement of active and reactive power in balanced and unbalanced cases
31	Tutorial class	Solve the numerical problems
32	Single phase induction type energy meter	summarize the basics of 1-phase of induction type energy meter
33	Driving and braking torques	Analyze terms of driving and braking torques
34	Errors and compensations, testing by phantom loading using R. S. S. meter.	Appraise testing by phantom loading using R. S. S. method
35	Three phase energy meter	Interpret the 3- phase energy meter
36	Tri-vector meter, maximum demand meters	Evaluate tri-vector meter and demand meters

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37	Tutorial class	Solve the numerical problems

UNIT-IV

38	DC & AC Bridges Introduction	Differentiate between DC and AC Bridges
39	Method of measurement of low, medium and high resistance	Evaluate Measurement of low, medium and high resistances
40	Wheatstone bridge	Explain the Wheatstone bridge
41	Carey foster's bridge	Analyze the Carey fosters bridge
42	Kelvin's double bridge	Analyze Kelvin's double bridge
43	Tutorial class	Solve the numerical problems
44	Loss of charge method	Analyze loss of charge method
45	Measurement of inductance - Maxwell's bridge	Examine the Maxwell's bridge
46	Hays bridge	Explain Hays bridge
47	Anderson's bridge	Evaluate the Anderson's bridge
48	Owen's bridge	Compute Owens bridge
49	Measurement of capacitance – desauty's bridge	Analyze desauty's bridge
50	Wein's bridge	Formulate wein's bridge
51	Schering bridge	Estimate Schering bridge
52	Tutorial class	Solve the numerical problems

UNIT-V

53	Transducers introduction	Differentiate between measurement of electrical and non electrical quantities
54	Transducer's and its classification	Analyze the working of transducer

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55	Electrical transducer, characteristics and choice of transducers	Formulate and estimate the choice of transducers
56	LVDT	Explain LVDT
57	Capacitor transducers	Analyze capacitor transducers
58	Applications of LVDT, strain gauge	Evaluate the strain gauge
59	Thermistors and thermocouples	Explain thermistors and thermocouples
60	Piezo electric transducers, photovoltaic	Analyze the photovoltaic cells
61	Photo conductive cells and photo diodes	Examine the working of photo diodes
62	Tutorial class	Solve the numerical problems
63	Measurement of Non-Electrical Quantities: Measurement of strain,	Analyze the working of strain gauge
64	Measurement of Displacement, Velocity, Angular Velocity, Acceleration	Identify the suitable transducer for measurement of displacement, velocity, acceleration
65	Measurement of Force, Torque, Temperature, Pressure, Vacuum Flow and Liquid level.	Differentiate in measuring force & torque, vacuum flow & liquid level

Text Books:

1. "G. K. Banerjee", "Electrical and Electronic Measurements", PHI Learning Pvt. Ltd., 2nd Edition, 2016

2. "S. C. Bhargava", "Electrical Measuring Instruments and Measurements", BS Publications,2012.

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Reference Books:

1. "A. K. Sawhney", "Electrical & Electronic Measurement & Instruments", Dhanpat Rai & Co. Publications, 2005.

2. "R. K. Rajput", "Electrical & Electronic Measurement & Instrumentation", S. Chand and Company Ltd., 2007.

3. "Buckingham and Price", "Electrical Measurements", Prentice – Hall, 1988.

4. "Reissland, M. U", "Electrical Measurements: Fundamentals, Concepts, Applications", New Age International (P) Limited Publishers, 1st Edition 2010.

5. "E.W. Golding and F. C. Widdis", "Electrical Measurements and measuring Instruments", fifth Edition, Wheeler Publishing, 2011.

Activities in the class:

- Conducted seminars to students in the form of power point presentation.
- Once in a week quiz on the subject will be conducted.

Grading:

- Depending upon the performance on seminars and quiz the student will be awarded **GRADE –A(5 marks)**
- If the students performance is good only in seminars then they will be awarded with **GRADE-B (4 marks)**
- If the students performance is good only in quiz then they will be awarded with **GRADE-C (3 marks)**

Evaluation Methods:

Assessment Tool	Weightage(Marks)
Home Assignment1	5
Home Assignment2	
Descriptive1	10
Descriptive2	
Objective1	10
Objective2	
Final Examination	75
Total	100

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Year / Semester   **:** III YEAR I-SEM

Subject   **:** POWER SYSTEMS-II (EE502PE)

Name of the faculty   : SK Syed Hussain

No of contact hours/week   : 6

Course overview:

This course is an extension of Power systems-I course. It deals with basic theory of transmission lines modelling and their performance analysis. Also this course gives emphasis on mechanical design of transmission lines, cables and insulators. This course Deals with the field of electric power systems and electrical to mechanical energy conversion. Electric power has become increasingly important as a way of transmitting and transforming energy in industrial, military and transportation uses.

Test portion	
Test no.	**Topics**
1	**L1-L32**
2	**L33-L56**
Assignment portion	
Assignment no.	**Topics**
1	**L1-L32**
2	**L33-L56**

Submitted by   **Approved by**

(Signature of the Faculty)   **(Signature of HOD)**

Date: **Date:**

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Course Objectives

- Compute inductance and capacitance of different transmission lines.
- Explain the performance of short, medium and long transmission lines.
- Examine the traveling wave performance and sag of transmission lines.
- Design insulators for over head lines and understand cables for power transmission.

Course Outcomes

After completion of this course, the student will be able to

CO1: Compute inductance and capacitance for different configurations of transmission lines.

CO2: Analyze the performance of transmission lines Can understand transient's phenomenon of   transmission lines

CO3: Analyze the skin and Proximity effects, Describe the effect on Resistance of Solid Conductors.

CO4: Calculate sag and tension for overhead line insulators with equal and unequal heights of towers.

CO5: Explain overhead line insulators and underground cables

Topic Outcomes:

S.N	Topic to be covered	Topic outcome
	UNIT I	
1	Introduction To The Course	Recollect the Electrical components and devices.
2	Types Of Conductors - Calculation Of Resistance For Solid Conductors	Classify the conductors.
3	Calculation Of Inductance For Single Phase And Three Phase	Calculate the Inductance For Single Phase And Three Phases.
4	Single And Double Circuit Lines, Concept Of GMR & GMD	Estimate the Single And Double Circuit Lines
5	Symmetrical Conductor Configuration With And Without Transposition	Apply the Symmetrical Conductor Configuration With And Without Transposition.
6	Asymmetrical Conductor Configuration With And Without Transposition	Apply the Asymmetrical Conductor Configuration With And Without Transposition.
7	Numerical Problems.	Solve the problems.

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8	Calculation Of Capacitance For 2 Wire And 3 Wire Systems	Calculate the Capacitance For 2 Wire And 3 Wire Systems.
9	Effect Of Ground On Capacitance,	Identify Effect Of Ground On Capacitance.
10	Capacitance Calculations For Symmetrical Single And Three Phase	Analyze the Capacitance Calculations For Symmetrical Single And Three Phase.
11	Capacitance Calculations For Asymmetrical Single And Three Phase	Analyze the Capacitance Calculations For Symmetrical Single And Three Phases.
12	Single And Double Circuit Lines	Identify Single And Double Circuit Lines
13	Numerical Problems	Solve the problems.
UNIT – II		
14	Classification Of Transmission Lines - Short, Medium And Long Line And Their Model Representations	Classify the transmission lines
15	Nominal-T, Nominal-Pie And A, B, C, D Constants For Symmetrical & Networks	Apply Nominal-T, Nominal-Pie And A, B, C, D Constants For Symmetrical & Networks
16	Nominal-T, Nominal-Pie And A, B, C, D Constants For Asymmetrical Networks	Apply Nominal-T, Nominal-Pie And A, B, C, D Constants For Symmetrical & Networks
17	Numerical problems	Solve the problems
18	Mathematical Solutions to estimate regulation and efficiency of all types of lines	Apply Mathematical Solutions to estimate regulation and efficiency of all types of lines
19	Numerical Problems	Solve the problems
20	Interpretation of the Long Line Equations	Derive Interpretation of the Long Line Equations
21	Incident, Reflected And Refracted Waves	Identify the Incident, Reflected And Refracted Waves
22	Surge Impedance And SIL Of Long Lines	Analyze the Surge Impedance And Sil Of Long Lines
23	Wave Length And Velocity Of Propagation Of Waves	Analyze Wave Length And Velocity Of Propagation Of Waves

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24	Representation Of Long Lines - Equivalent-T And Equivalent Pie Network Models	Classify the network models
25	Numerical Problems	Applying the learned concepts

UNIT – III

26	Types of System Transients	Classify the types of system transients
27	Travelling or Propagation of Surges	Analyze the travelling surges
28	Attenuation, Distortion, Reflection and Refraction Coefficients	Attenuation, Distortion, Reflection and Refraction Coefficients
29	Termination of lines with different types of conditions	Classify the transmission lines
30	Open Circuited Line, Short Circuited Line	Draw the open circuited and short circuited lines
31	T- Junction, Lumped Reactive Junctions (Numerical Problems)	Solve the problems
32	Bewley's Lattice Diagrams (for all the cases mentioned with numerical examples).	Draw the Bewley's Lattice diagram
33	Skin and Proximity effects - Description and effect on Resistance of Solid Conductors	Derive the effect on resistance of solid conductors
34	Ferranti effect - Charging Current - Effect on Regulation of the Transmission Line.	Derive the regulation of the transmission lines
35	Corona - Description of the phenomenon, factors affecting corona	Identify the factors effecting corona
36	Critical voltages and power loss, Radio Interference.	Derive the critical voltages and power loss , Radio interference

UNIT – IV

37	Types of Insulators, String efficiency and Methods for improvement	Classify the insulators
38	Numerical Problems	Solve the problems

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39	voltage distribution	Analyze voltage distribution
40	calculation of string efficiency	Calculate string efficiency
41	Capacitance grading and Static Shielding.	Analyze the capacitance grading and static shielding.
42	Sag and Tension Calculations with equal heights of towers	Calculate the sag and tension calculations with equal heights of towers
43	Sag and Tension Calculations with unequal heights of towers	Calculate the sag and tension calculations with equal heights of towers
44	Effect of Wind and Ice on weight of Conductor	Derive the wind and ice on weight of conductor
45	Numerical Problems -	Solve the problems
46	Stringing chart and sag template and its applications	Identify the Stringing chart and sag template and its applications
UNIT – V		
47	Types of Cables, Construction	Classify the cables
48	Types of Insulating materials, Calculation of Insulation resistance and stress in insulation	Classify the insulating materials
49	Types of Insulating materials	Classify the insulating materials
50	Calculation of Insulation resistance and stress in insulation.	Calculate the insulation resistance and stress in insulation
51	Numerical Problems.	Solve the problems
52	Capacitance of Single and 3-Core belted cables	Derive the capacitance of single and 3-core belted cables
53	Numerical Problems	Solve the problems
54	Grading of Cables	Identify the cables
55	Capacitance grading - Numerical Problems	Solve the problems
56	Description of Inter-sheath grading - HV cables	Describe the inter sheath grading

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| 57 | Revision | Revise the types of insulating materials |

Text Books:

1.   "C. L. Wadhwa", "Electrical power systems", New Age International (P) Limited

 2. "M. L. Soni, P. V. Gupta, U.S. Bhatnagar and A. Chakrabarthy", Power System Engineering, Dhanpat Rai   & Co Pvt. Ltd, 2009.

Reference Books:

1. "I. J. Nagarath & D. P Kothari" , "Power System Engineering", TMH, 2nd Edition

2.   B. R. Gupta", "Power System Analysis and Design", Wheeler Publishing, 1998.

Activities In The Class:
- Conducted seminars by students in the form of power point presentation.
- At the end of each class quiz will be conducted.

Grading:
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- If the students performance is good only in seminars then they will be awarded with **GRADE-B (4 marks)**
- If the students performance is good only in quiz then they will be awarded with **GRADE-C (3 marks)**

Evaluation Methods:

Assessment Tool	Weightage(Marks)
Home Assignment1	5
Home Assignment2	
Descriptive1	10
Descriptive2	
Objective1	10
Objective2	
Final Examination	75
Total	100

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Year / Semester	: III year I sem (R18)
Subject	: Power Electronics
Name of the faculty	: Mrs. P. Samyuktha
No of contact hours/week	: 5

Course overview:

The basic principle of thyristor, BJT,MOSFET,IGBT can be explained and after going through this students get a knowledge get a knowledge on constructional operation of V-I characteristics commutation firing and protection of various power semi conductor devices , focused analysis of thyristor device. Single phase and three phase AC-DC, DC-DC, and DC-AC converters working and principles and characteristics of devices will be explained

Test portion	
Test no.	**Topics**
1	L1-L36
2	L37-L65
Assignment portion	
Assignment no.	**Topics**
1	L1-L36
2	L37-L65

Submitted by   **Approved by**

(Signature of the Faculty)   **(Signature of HOD)**
Date: **Date:**

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Course Objectives

(a) To design suitable power converter for efficient control or conversion of power
(b) To develop suitable power converters for transmission and utilization of power in Power systems.
(c) To control the AC voltages and currents to control the industrial drives
(d) To convert dc to variable dc to control dc drives
(e) To apply the PWM techniques to the Inverters

Course Outcomes

(CO1) Choose the appropriate converters for various applications
(CO2) Design the power converters suitable for various applications
(CO3) Develop the novel control methodologies for better performance
(CO4) Apply the principle of operation of chopper
(CO5) Discuss about inverters and its PWM Methods

Topic Outcomes

Lecture No.	Topic to be covered	Topic Outcome
At the end of the topic, the student will be able to		
L1	Over view of course	Explain the course objectives, outcomes, assessment methods, grading policy and basic ground rules for the subject
L2	**Unit-I :**Introduction	Define THYRISTOR and its definition
L3	Basics on Power semi conductor devices (Gaps in the syllabus)	Recollect semi conductor devices
L4	Thyristors	Analyze characteristics with the help of suitable graphs.
L5	BJT	Name control techniques and compute the temperature rise
L6	Power MOSFET	Study the control techniques.
L7	Power IGBT	Evaluate control techniques, equalization techniques in real world.
L8	Basic theory of operation of scr	Study the basics of scr
L9	Static characteristics	Draw the characteristics.
L10	Turn on and turn of methods	Discuss the method of turn on.
L11	Dynamic characteristics of scr	Draw the characteristics
L12	Turn on and turn off times,	Differentiate the turn on and turn off

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Lecture No.	Topic to be covered	Topic Outcome
	salient points	times.
L13	Two transistor analogy scr, R, RC	Apply two transistor analogy its applications.
L14	UJT firing circuit	Analyze the process of firing circuit
L15	Series and parallel connection of scr	Describe the process of parallel connection of scr
L16	Snubber circuit details, Ratings of SCR, BJT, IGBT	Apply a Snubber circuit to SCR
L17	Line commutation and forced commutation circuits	Critique regarding the use of various commutation circuits.
L18	**Unit-II**: AC-DC converters	Outline the concepts in Unit-II
L19	Phase control technique	Explain control circuits
L20	Single phase line commutated converters	Analyze line commutated techniques.
L21	Half controlled converters with R, RL and RLE loads	Convert the Half controlled converters with R, RL and RLE loads
L22	Derivation of average load voltage and current	Estimate and design the polar curves and get the knowledge about freewheeling diodes
L23	Active and Reactive power inputs to the converters without and with Freewheeling Diode	Interpret photometry and understand three phase converters
L24	Numerical problems	Solve the Numerical problems
L25	Fully controlled converters	Draw Fully controlled converters
L26	Midpoint and Bridge connections with Resistive, RL loads and RLE load	Build Midpoint and Bridge connections with Resistive, RL loads and RLE load
L27	Derivation of average load voltage and current	Derive average load voltage and current
L28	Line commutated inverters, semi-converters	Discuss Line commutated inverters, semi-converters
L29	active and Reactive power inputs to the converters	Derive the active and Reactive power inputs to the converters
L30	Effect of source inductance	Identify the effect of source inductance
L31	Expressions of load voltage and Current - Numerical problems.	Write Expressions of load voltage and Current - Numerical problems
L32	Three pulse and six pulse converters	Design and evaluate a three pulse and six pulse converters.

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Lecture No.	Topic to be covered	Topic Outcome
L33	Semi Converters, Effect of Source inductance	Design and evaluate a three pulse and six pulse converters.
L34	Dual converters and its wave forms	Explain dual converters.
L35	**Unit-III**: ac-ac converters	Explain ac voltage controllers
L36	AC voltage controllers	Apply the features of ac voltage controllers
II MID EXAMINATION		
L37	Single phase two SCR'S in parallel with Rand RL loads Modes of operation of triac	Explain the wave forms
L38	TRIAC with R and RL loads	Conduct experiment based on TRIAC
L39	Derivation of RMS load voltage	Examine the RMS load voltage.
L40	Firing circuits	Estimate firing circuits
L41	Cyclo converters	Demonstrate cyclo-converters
L42	Single phase midpoint converter with R and RL load	Draw characteristics of R and RL loads.
L43	Single phase and three phase cycloconverters (principle of operation only).	Apply The principle of operation Single phase and three phase cycloconverters
L44	Revision	Revise the Cyclo converters
L45	**Unit-IV:** Step down choppers derivation of load voltage and currents with R, RL and RLE loads Problems on step up chopper	Describe the working of dc-dc converters.
L46	Time ratio control and Current limit control strategies	Differentiate and explain choppers and time ratio control
L47	Equations for DC choppers	Compute equations
L48	Wave forms for DC choppers	Draw wave forms
L49	Step down chopper	Explain step down chopper
L50	Problems	Solve problems
L51	step up chopper	Derivation of load voltage
L52	Problems on step up chopper	Display the working of step p chopper
L53	Load voltage expression	Evaluate load voltage expression
L54	Jones chopper	Analyze Jones chopper
L55	DC chopper	Demonstrate the working of ac chopper.

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Lecture No.	Topic to be covered	Topic Outcome
L56	Real time applications of power converters(Beyond the syllabus)	Identify the Real time applications
L57	**Unit V**: DC-AC converters	Explain dc-ac converter
L58	Single phase inverter	Analyze single phase inverter
L59	bridge inverter	
L60	Basic series, parallel inverter	Differentiate series and parallel inverter
L61	Waveforms,. Simple bridge inverters	Draw wave forms and can solve problems
L62	Voltage control techniques for inverters	Analyze three phase inverters
L63	Pulse width modulation techniques	Compute three phase inverter equations
L64	Numerical problems.	Draw wave forms
L65	Revision	Revise the Operation and wave forms
II Mid Examination		

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Text books and References

	Text Books
1.	M. D. Singh & K. B. Kanchandhani, "Power Electronics", Tata Mc Graw – Hill Publishing Company, 1998.
2.	"M. H. Rashid", "Power Electronics : Circuits, Devices and Applications", Prentice Hall of India, 2nd edition, 1998
	Suggested / Reference Books
1.	Vedam Subramanyam, "Power Electronics", New Age International (P) Limited, Publishers, 2nd Edition 2008.

Activities in class:

 Sudden test, Presentations by students, Quiz, Group discussions, and case study.

Grading:
Based on assignments and mid tests along with performance in activities held in the class room.

NOTE: Assessments should be submitted in time
        Accessing the mobile phones is not acceptable in the class.

Evaluation scheme:
- Internal Assessment (sum of scores obtained in two tests)   – 20
- Assignments   - 5
- End Semester Examination   - 75
                                              Total   - 100

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Year / Semester	**: III YEAR I-SEM**
Subject	**:** Business Economics & Financial Analysis
(SM504MS)	
Name of the faculty	: Dr.Neetu Sachdeva
No of contact hours/week	**:** 4

Course overview:

The subject enlightens the basic business types, impact of the economy on Business and Firms specifically with the analyze of Business from the Financial Perspective. The students will understand the various Forms of Business and the impact of economic variables on the Business. The Demand, Supply, Production, Cost, Market Structure, Pricing aspects are learnt. The Students can study the firm's financial position by analysing the Financial Statements of a Company.

Test portion	
Test no.	**Topics**
1	**L1-L22**
2	**L23-L51**
Assignment portion	
Assignment no.	**Topics**
1	**L1-L22**
2	**L23-L51**

Submitted by   **Approved by**

(Signature of the Faculty)   **(Signature of HOD)**
Date: **Date:**

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Course Objectives

- Able to Learn the Basic Business types
- To develop the economy on Business and firms specifically
- To analyze the Business from the Financial Perspective
- To Analyze, interpret & comment on the financial statements of a business enterprise by using liquidity leverage, coverage and turnover & profitability ratios.

Course Outcomes

At the end of the course, the students will be able to:

CO1: Able to understand the various forms of Business

CO2: Able to utilize the pricing concepts in the Business

CO3: Able to study the firm's financial position by analyzing the Financial statements of a company

CO4: Able to Analyze the economic variables on the Business

Topic Outcomes:

Lecture No.	Topic to be covered	Topic outcome
	Unit-I Introduction to Business and Economics:	
L1	Business: Structure of Business Firm	Learn about the process of business firm.
L2	Theory of Firm,	Know earning of profit
L3	Types of Business Entities, Limited Liability Companies,	Analyze different types of business forms
L4	Sources of Capital for a Company,	Identify different types of sources of capital
L5	Non-Conventional Sources of Finance.	know innovative source of finance
L6	Economics: Significance of Economics, Micro and Macro Economic Concepts,	Know the concepts of economics foe decision making

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Lecture No.	Topic to be covered	Topic outcome
L7	Concepts and Importance of National Income, Inflation, Money Supply in Inflation	Learn the impact of national income and inflation on money supply
L8	Business Cycle, Features and Phases of Business Cycle	Investigate the impact of business cycle to develop economy
L9	Nature and Scope of Business Economics, Role of Business Economist	Understand the role and scope of business economics for decision making
L10	Multidisciplinary nature of Business Economics.	Learn other areas covered by business economics
	Unit-II Demand and Supply Analysis:	
L11	Elasticity of Demand: Elasticity, Types of Elasticity	Examine the impact of elasticity of demand for price making decision.
L12	Law of Demand, Measurement and Significance of Elasticity of Demand,	Understand the law of demand and the impact of significance and measurement of elasticity of demand.
L13	Factors affecting Elasticity of Demand, Elasticity of Demand in decision making,	Know different factors of elasticity of demand for decision making.
L14	Demand Forecasting: Characteristics of Good Demand Forecasting, Steps in Demand Forecasting	Identify different characteristics and steps of demand forecasting for developing sales.
L15	Methods of Demand Forecasting	Understand different methods of demand forecasting for

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Lecture No.	Topic to be covered	Topic outcome
		decision making on product.
L16	Methods of Demand Forecasting	Understand different methods of demand forecasting for decision making on product.
L17	Supply Analysis: Determinants of Supply,	Learn the impact of supply with compare to price and other factor.
L18	Supply Function & Law of Supply.	Know about supply functions and law of supply for product development.
L19	Review	Briefly understand overall topics
	Unit-III Production, Cost, Market Structures & Pricing:	
L20	Production Analysis: Factors of Production, Production Function,	Classify various types of production functions of optimum utilization of resources.
L21	Production Function with one variable input,	Know the impact of one variable input on outcome
	Review –Mid 1	Review –Mid 1
L22	two variable inputs	Know the impact of two variable input on outcome
L23	Cost analysis: Types of Costs	Understand different cost concepts for optimum utilization of resources
L24	Short run and Long run Cost Functions.	Analyze the impact of short run and long run cost to minimize the cost and maximize revenue.
L25	Market Structures: Nature of Competition,	Describe various Types of markets competitions

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Lecture No.	Topic to be covered	Topic outcome
L26	Features of Perfect competition, Monopoly, Oligopoly Monopolistic Competition	Understand different features of perfect competition, monopoly ,monopolistic competition
L27	Pricing: Types of Pricing	Analyze the impact of price for decision making
L28	Product Life Cycle based Pricing, Break Even Analysis	Understand about product life cycle for product development
L29	Break Even Analysis, Cost Volume Profit Analysis.	Analyze the impact of BEP for profit decision
L30	Recap of the unit	
	Unit-IV Financial Accounting:	
L31	Introduction of account	Understand different accounting terms for making transactions
L31	Accounting concepts and Conventions	Know the impact of accounting concepts and convention for understanding accounting rules and polices.
L32	Accounting Equation, Double-Entry system of Accounting,	Examine the process of accounting equation and double entry system of accounting.
L33	Rules for maintaining Books of Accounts,	Understand the rules of accounting to financial statements
L34	Journal	Analyze the process of making journal entries.
L35	Journal	Analyze the process of making journal entries

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Lecture No.	Topic to be covered	Topic outcome
L36	Posting to Ledger	Analyze the process of posting ledger to separate individual transactions
L37	Posting to Ledger, Preparation of Trial Balance,	Understand posting ledger and trial balance for without errors
L38	Elements of Financial Statement	Know different elements of financial statements for good or bad of business
L39	Preparation of Final Accounts.	Examine different kinds of final accounts for decision making
L40	Preparation of Final Accounts.	Examine different kinds of final accounts for decision making
L41	Preparation of Final Accounts.	Examine different kinds of final accounts for decision making
	Unit-V Financial Analysis through Ratios	
L42	Concept of Ratio Analysis, Liquidity ratios	Understand different concepts of ratios for financial decision making.
L43	Liquidity Ratios	Examine the impact of liquidity ratios for short term financial decision making.
L44	Turnover Ratios	Examine the impact of turnover ratios to know efficiency of the business
L45	Turnover Ratios,	Examine the impact of turnover ratios to know efficiency of the business
L46	Profitability Ratios,	Examine the impact of profitability ratios to know profitability and capacity of business earnings.

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Lecture No.	Topic to be covered	Topic outcome
L47	Profitability Ratios,	Examine the impact of profitability ratios to know profitability and capacity of business earnings
L48	Solvency, Leverage Ratios (simple problems).	Analyze the impact of solvency and leverage ratios for long term decision making.
L49	Introduction to Fund Flow and Cash Flow Analysis (simple problems	Understand the procedure of funds flow and cash flow statement for inflow and outflow of fund.
L50	Introduction to Fund Flow and Cash Flow Analysis (simple problems	Understand the procedure of funds flow and cash flow statement for inflow and outflow of fund
L51	Introduction to Fund Flow and Cash Flow Analysis (simple problems	Understand the procedure of funds flow and cash flow statement for inflow and outflow of fund

Text Books:

1. D. D. Chaturvedi, S. L. Gupta, Business Economics - Theory and Applications, International Book House Pvt. Ltd. 2013.
2. Geethika Ghosh, Piyali Gosh, Purba Roy Choudhury, Managerial Economics, 2e, Tata Mc Graw Hill Education Pvt. Ltd. 2012.
3. A.R. Aryasri, "Managerial Economics and Financial Analysis", TMH Publications, 3nd Edition, 2007.
4. Dhanesh K Khatri, Financial Accounting, Tata Mc –Graw Hill, 2011.

References:

1. Paresh Shah, Financial Accounting for Management 2e, Oxford Press, 2015.
2. S. N. Maheshwari, Sunil K Maheshwari, Sharad K Maheshwari, Financial Accounting, 5e, Vikas Publications, 2013.

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Activities in the class:

- Conducted seminars by students in the form of power point presentation.

- At the end of each class quiz will be conducted.

Grading:

- Depending upon the performance on seminars and quiz the student will be awarded **GRADE –A(5 marks)**
- If the students performance is good only in seminars then they will be awarded with **GRADE-B (4 marks)**
- If the students performance is good only in quiz then they will be awarded with **GRADE-C (3 marks)**

Basic ground rules:

Assessment / Evaluation Methods:

Assessment Tool	Weightage(Marks)
Home Assignment1	5
Home Assignment2	
Descriptive1	10
Descriptive2	
Objective1	10
Objective2	
Final Examination	75
Total	100

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Year / Semester   : III YEAR I-SEM
Subject   : COMPUTER ARCHITECTURE
Name of the faculty   : Sraswathi Devi.P
No. of contact hours/week : 3
Course Overview:

Introduce the concepts of Computer Architecture, and the functionality of 8086 processors and their related instruction sets ,addressing modes and design related concepts.

Test portion	
Test No.	**Topics**
1	**L1-L28**
2	**L29-L58**
Assignment portion	
Assignment No.	**Topics**
1	**L1-L28**
2	**L29-L51**

Submitted by   **Approved by**

(Signature of the Faculty)   **(Signature of HOD)**
Date: **Date:**

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Course Objectives

➢ To understand basic components of computers.

➢ To understand the architecture of 8086 processor..

➢ To understand the instruction sets, instruction formats and various addressing modes of 8086.

➢ To understand the representation of data at the machine level and how computations are performed at machine level.

➢ To understand the memory organization and I/O organization.

To understand the parallelism both in terms of single and multiple processors.

Course Outcomes

At the end of this course students will be able to

CO1. Explalin the concepts of microprocessors, their principles and practices..

CO2. Write efficient programs in assembly language of the 8086 family of

CO3. Describe a modern computer system with an examples

CO4. Implement the programs in assembly language for 80286, 80386 and MIPS processors in real and protected modes.

Topic Outcomes:

S.NO	TOPIC NAME	TOPIC OUTCOMES
At the end of the course students will be able to		
Unit I		
L1	Introduction to Computer Organization. Architecture	Explain basics of computer
L2	Architecture and function of general computer system.	Ability to understand basic strictures of computer architecture
L3	CISC Vs RISC.	List the different type of architectures
L4	Data types, Integer Arithmetic - Multiplication	Understand the various data types
L5	Division, Fixed and Floating-point representation and arithmetic	Able to do the different arthemetic representations
L6	Control unit operation.	Understands the basic control unit
L7	Hardware implementation of CPU with Micro instruction.	Understands the hardwired implementation of micro instruction
L8	Microprogramming, System buses, Multi-bus organization.	Ability to know the system buses
UNIT II		

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L9	Memory Organization, System memory.	List out the different memory organizations
L10	Cache memory - types and organization.	Differentiate different memory organizations
L11	Virtual memory, Virtual memory and its implementation.	Understand the virtual memory concept
L12	Memory management unit, Magnetic Hard disks, Optical Disks.	Able to understand the different secondary memory units
L13	Input – Output Organization Accessing I/O devices.	Understand the input/output organization
L14	Direct Memory Access and DMA controller,	Understand about DMA
L15	Interrupts and Interrupt Controllers.	Able to mention interrupts and controllers
L16	Arbitration, Multilevel Bus Architecture,	Understand the Arbitration for Interrupts
L17	Interface circuits - Parallel and serial port.	Differentiate the various parallel and serial ports
Unit III		
L18	Features of PCI and PCI Express bus. 16 AND 32 Microprocessors ,80x86 Architecture.	Mention the features of PCI
L19	IA – 32 and IA – 64.	Understand the IA_32 and IA-64 architectures
L20	Programming model. Concurrent operation of EU and BIU.	Understand the concept of programming model,and EU and BIU
L21	Real mode addressing. Segmentation.	Able to mention the Real mode addressing and segmentation
L22	addressing modes of 80x86.	Understand the Addressing modes of 80x86
L23	Instruction set of 80x86.	Understand the instruction set of 80x86
L24	I/O addressing in 80x86. Pipelining	Mention and explain I/O Addressing in 80x86
L25	Introduction to pipelining.	Ability to understand the pipelining
UNIT IV		
L26	ILP,Data hazards.	Understand the ILP Data hazards
L27	Dynamic scheduling.	Able to understand the dynamic scheduling
L28	Dependability.	Understand the Dependability
L29	Branch cost.	Understand the branch code
L30	Branch Prediction.	Ability to understand the branch prediction
L31	Branch Prediction.	Ability to understand the branch prediction
UNIT V		
L32	Influence on instruction set	Ability to understand the influence of instruction set
L33	Different Architectures	List out the different architectures
L34	VLIW Architecture.	Understand the VLIW architecture
L35	VLIW Architecture.	Understand the VLIW architecture
L36	VLIW Architecture.	Understand the VLIW architecture
L37	DSP Architecture	Ability to Understand the DSP architecture
L38	DSP Architecture	Ability to Understand the DSParchitecture
L39	DSP Architecture	Ability to Understand the DSP architecture

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L40	DSP Architecture	Ability to Understand the DSParchitecture
L41	DSP Architecture.	Ability to Understand the DSParchitecture
L42	DSP Architecture.	Ability to Understand the DSP architecture
L43	SoC architecture.	Understand the SOC Architecture
L44	SoC architecture.	Understand the SOC architecture
L45	SoC architecture.	Understand the SOC architecture
L46	MIPS Processor and programming.	Ability to understand the MIPS processor and programming
L47	MIPS Processor and programming.	Ability to understand the MIPS processor and programming
L48	MIPS Processor and programming.	Ability to understand the MIPS processor and programming

Text Books:

1. V. Carl, G. Zvonko and S. G. Zaky, **"Computer organization"**, McGraw Hill, 1978.

2. B. Brey and C. R. Sarma, **"The Intel microprocessors"**, Pearson Education, 2000.

References:

1. J. L. Hennessy and D. A. Patterson, **"Computer Architecture A Quantitative Approach"**, Morgan Kauffman, 2011.

2. W. Stallings, **"Computer organization"**, PHI, 1987.

3. P. Barry and P. Crowley, **"Modern Embedded Computing"**, Morgan Kaufmann, 2012.

4. N. Mathivanan, **"Microprocessors, PC Hardware and Interfacing"**, Prentice Hall, 2004.

5. Y. C. Lieu and G. A. Gibson, **"Microcomputer Systems: The 8086/8088 Family"**, Prentice Hall India, 1986.

6. J. Uffenbeck, **"The 8086/8088 Design, Programming, Interfacing"**, Prentice Hall, 1987.

7. B. Govindarajalu, **"IBM PC and Clones"**, Tata McGraw Hill, 1991.

8. P. Able, **"8086 Assembly Language Programming"**, Prentice Hall In

Activities in class:

- After completion of every class students has to write 1 or 2 keynote points.
- After completion of every unit students has to give presentations on the covered unit.
- For every 2 units one quiz will be there.
- All the assessment, quiz and presentations marks are considered for external exam as assignment marks.

Evaluation Scheme:

Internal Exam I	:	**25**
(10 Descriptive+ 10 Objective+ 5 Assignments)		
Internal Exam II	:	**25**
(10 Descriptive+ 10 Objective+ 5 Assignments)		
Total internal Marks	:	**25**
(Average of Internal Exam I and Internal Exam II)		
University Exam Marks	:	**75**
Total Marks	:	**100**

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PROGRAM OUTCOMES

PO 1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

PO 2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural science and engineering sciences.

PO 3: Design/development of solutions: design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations.

PO 4: Conduct investigations of complex problems: use research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5: Modern tool usage: create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO 6: The engineer and society: apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7: Environment sustainability: understand the impact of the professional engineering solutions in the societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8: Ethics: apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and team work: function effectively as an individual and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10: Communication: communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

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PO 11: Project management and finance: demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12: Lifelong learning: recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broader context of technological change.

PROGRAM SPECIFIC OUTCOMES

PSO-1: Apply the engineering fundamental knowledge to identify, formulate, design and investigate complex engineering problems of electric circuits, power electronics, electrical machines and power systems and to succeed in competitive exams like GATE, IES, GRE, OEFL, GMAT, etc.

PSO-2: Apply appropriate techniques and modern engineering hardware and software tools in power systems and power electronics to engage in life-long learning and to get an employment in the field of Electrical and Electronics Engineering.

PSO-3: Understand the impact of engineering solutions in societal and environmental context, commit to professional ethics and communicate effectively.

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