P.R. GOVERNMENT COLLEGE, KAKINADA

AN AUTONOMOUSE COLLEGE WITH NAAC "A" GRADE

DEPARTMENT
OF
PHYSICS AND ELECTRONICS

Board of Studies

Electronics

2018 - 2019

P.R. Government College (A), Kakinada

Department of Physics and Electronics

INDEX

P.R. Government College (Autonomous), Kakinada

Department of Physics and Electronics

AGENDA FOR BOARD OF STUDIES IN ELECTRONICS

10th April 2018

Discuss and Approve

1. Syllabi for 3rd, 4th , 5th and 6th semesters.
2. Model question papers and Blue Print.
3. Semester End Practical Examination for I, II and III years
4. Panel of Question Paper Setters and Examiners.
5. Internal to External exams to be assessed in the ratio 40:60 for Second Year on par with First year and to continue 30:70 for III Year
6. Split up for Continuous Comprehensive Evaluation (CCE)
7. Utilization of funds under various heads
8. Department Action plan for 2018-19.
9. Any other proposal with the permission of the chair.
10.

P.R. Government College (Autonomous), Kakinada

Department of Physics and Electronics

RESOLUTIONS BOARD OF STUDIES MEETING OF ELECTRONICS

10th April 2018

1. It is resolved to introduce Digital Electronics as paper III in semester III & OP – AMP & Digital IC-applications as paper IV in Semester IV.

2. It is resolved to continue Microprocessor as paper V and introduce Electronic Communication Systems as paper VI in semester V

3. It is resolved to offer Two Electives in VI semester. The student has to choose one of the two electives.
   VII A Micro Controller and Interfacing
   VII B PC Maintenance and Trouble Shooting as paper

4. It is resolved to offer two Cluster Electives in VI semester. The student has to choose one of the two electives.
   Cluster Elective A
   VIII A1 Power Electronics
   VIII A2 Consumer Electronics
   VIII A3 Project work

   Cluster Elective B
   VIII B1 Computer Networks
   VIII B2 Electronic Instrumentation
   VIII B3 Project work

5. It is resolved to approve the model question paper and blue print for I and II year

6. It is resolved to approve the model question paper and blue print for III year

7. It is resolved to approve the conduct of semester end practical exams for II year also on par with I and III year from the academic year 2018-19

8. It is resolved to approve blue print for Practical examination for all years.

9. It is resolved to approve blue print for internal examination for all years.

10. It is resolved to approve the split up of Continuous Comprehensive Evaluation

    For I and II year CCE – 20 Marks
    10 M – Project, 5M Seminar/ Assignment, 5 M – Quiz /Group discussion

For III year CCE – 15 Marks

5M - Seminar, 5M – Assignment, 5 M – Quiz /Group discussion

11. It is resolved to approve Department Action Plan for the academic year 2018-19

12. Resolved to approve funds allocated under various heads

Sl. No	Purpose	Projected Amount
1	Board of Studies	10,000/-
2	Invited Lectures	10,000/-
3.	lab equipment	2,00,000/-
4	Reference Books	50,000/-
5.	Teaching learning Material	20,000/-
6.	Minor Repairs and Stationery	40,000/-
7.	Outreach Programme	10,000/-
8.	Field Trip	50,000/-
9	National Workshop /Seminar	1,00,000/-
Total		**4,90,000/-**

P.R. GOVERNMENT COLLEGE(A), KAKINADA

Department of Physics & Electronics

Aims

- Provide students with a sound base of knowledge and understanding of Electronics principles, to expose them to the applications of these principles in a broad range of areas and to allow them to study some of these in depth.
- Provide students with comprehensive training in laboratory techniques and handling of experimental apparatus, data analysis and interpretation, and the communication of results.
- Foster students' development of transferable and personal skills, including those of problem-solving, analysis, independent learning, team-working, which will be essential to their future careers.
- To support teaching and learning with well-equipped Simulation laboratory.
- Equip students for employment in a broad range of disciplines, particularly those which value numerate graduates who can apply their knowledge and problem-solving skills to real-world situations.

Objectives / Outcomes

At the end of the course the students would be exposed to

- Ψ To have knowledge of basics of AC fundamentals, Network theorems, Resonance.
- Ψ To have comprehensive knowledge of P-N Junction, Bipolar Junction Transistor.
- Ψ To know the Advantages of FET .
- Ψ Familiarity with the Power supply, RC coupled amplifier, Operational amplifiers .
- Ψ To have knowledge of feedback and Oscillators.
- Ψ To know the applications of Op-Amps.
- Ψ To understand about communication.
- Ψ To improve knowledge in Digital Electronics.
- Ψ To have fundamentals of Micro computer and Microprocessor.
- Ψ Familiarity with Microprocessor 8259& 8257 .
- Ψ To understand about Microcontrollers
- Ψ To have fundamentals in Embedded systems and its Applications.

*****

Abstract of Course Wise Allocation of Credits

College : P.R. Government College (A), Kakinada 2018 – 19 Course : B.Sc. Subject : Electronics

Department of Physics & Electronics

S. No.	Semester	PAPER	Course Code	Course	Hours/ Week
1	I	PAPER – 1	EL1202	Basic circuit theory	04
2	I	Practical – 1	EL1202 P	Basic circuit theory	02
3	II	PAPER – 2	EL2202	Electronic Devices and Circuits	04
4	II	Practical – 2	EL2202 P	Electronic Devices and Circuits	02
5	III	PAPER – 3	EL3202	Digital electronics	04
6	III	Practical – 3	EL3202 p	Digital electronics	02
7	IV	PAPER – 4	EL4202	OP – AMP & Digital IC-applications	04
8	IV	Practical – 4	EL4202 P	OP – AMP & Digital IC-applications	02
9	V	PAPER - 5	EL5202	Microprocessors (Intel 8085)	03
10	V	Practical - 5	EL5202 P	Microprocessors (Intel 8085)	02
11	V	PAPER - 6	EL6202	Electronic communication systems	03
12	V	Practical - 6	EL6202 P	Electronic communication systems	02
13	VI	PAPER VII - A	**Elective A**	Micro Controller and Interfacing	03
14	VI	Practical VII (A)		Micro Controller and Interfacing	02
15	VI	PAPER VII - B	Elective B	PC maintenance and trouble shooting	03
16	VI	Practical VII (B)		PC maintenance and trouble shooting	02
17	VI	PAPER VIII(A)-1		Power Electronics	03

18	VI	Practical VIII (A) -1	**Cluster Elective - A**	Power Electronics	02
19	VI	PAPER VIII(A)-2		Consumer Electronics	03
20	VI	Practical VIII (A) -2		Consumer Electronics	02
21	VI	PAPER VIII(A)-3		Project work	03
22	VI	Practical VIII (A) -3		Online course / Presentation in fests/workshops etc	02
23	VI	PAPER VIII(B)-1	Cluster Elective - B	Computer networks	03
24	VI	Practical VIII (B) - 1		Computer networks	02
25	VI	PAPER VIII(B)-2		Electronic instrumentation	03
26	VI	Practical VIII (B) - 2		Electronic instrumentation	02
27	VI	PAPER VIII(B)-3		Project work	03
28	VI	Practical VIII (B) - 3		Online course / Presentation in fests/workshops etc	02
				Total Credits 50	

P.R. Government College (A), Kakinada
Blue print for the model paper – Electronics
Semester End External examination
For I & II year core courses
2018 – 2019

S. No.	Type of question	Given in the Question paper			To be answered		
		No. of Questions	Marks allotted To each question	Total marks	No. of Questions	Marks allotted To each question	Total marks
1	Section – A Essay question	5	10	50	3	10	30
2	Section – B Short answer Question	9	5	45	6	5	30

TOTAL	**95**			**60**

Percentage of Choice given = $\frac{95-60}{95}$ x **100**

= $\frac{35}{95}$ x **100** = **36.8** %

For III year core courses

S. No.	Type of question	Given in the Question paper			To be answered		
		No. of Questions	Marks allotted To each question	Total marks	No. of Questions	Marks allotted To each question	Total marks
1	Section – A Essay question	6	10	60	4	10	40
2	Section – B Short answer Question	10	5	50	6	5	30
TOTAL				**110**			**70**

Percentage of Choice given = $\frac{110-70}{110}$ x **100**

= $\frac{40}{110}$ x **100** = **36.36** %

Blue print - f**or internal Examinations**

For I & II year core courses

S. No.	Type of question	Given in the Question paper			To be answered		
		No. of Questions	Marks allotted To each question	Total marks	No. of Questions	Marks allotted To each question	Total marks
1	**Section – A** Very short answer questions	6	4	24	6	4	24

2	**<u>Section – B</u>** Short answer questions	3	8	24	2	8	16
TOTAL				**48**			**40**

Percentage of Choice given $= \frac{8}{48} \times 100 = 16.66\%$

The total of two internals is reduced to 20 marks and the other 20 marks are further divided as follows

Seminar	= 5 marks
Assignment	= 10 marks
Group discussion/quiz	= 5 marks
Total	= 20 marks

Blue print - f**or internal Examinations**

For III year Core/Elective/Cluster courses

S. No.	Type of question	Given in the Question paper			To be answered		
		No. of Questions	Marks allotted To each question	Total marks	No. of Questions	Marks allotted To each question	Total marks
1	**Section – A** Very short answer questions	8	3	24	8	3	24
2	**Section – B** Short answer questions	2	6	12	1	6	6
TOTAL				**36**			**30**

Percentage of Choice given $= \frac{6}{36} \times 100 = 16.66\%$

The total of two internals is reduced to 15 marks and the other 15 marks are further divided as follows

Seminar	= 5 marks
Assignment	= 5 marks
Group discussion/quiz	= 5 marks
Total	= 15 marks

Blue print for Semester End Practical examination
For I Year,II year & III Year

Practial Paper

Scheme of Valuation for Practicals

Time:2 hrs Max.Marks:50

1. Formulae & Explanation - 06 Marks
2. Tabular form + graph + circuit diagram - 06 Marks
3. Observations - 12 Marks
4. Calculation, graph, precaution and results - 06 Marks
5. Viva voice - 10 Marks
6. Records - 10 Marks

Note: Minimum of 6 experiments to be done and recorded.

For Microprocessor /Micro Controller Practicals

Scheme of Valuation for Practicals

Time:2 hrs Max.Marks:50

1. Flow chart - 05 M
2. Algorithm - 05 M
3. Program - 14 M
4. Execution and Result - 06 M
5. Viva voice - 10 M
6. Record - 10 M

P.R.GOVERNMENT COLLEGE (A), KAKINADA
Electronics-Semester –1
Paper - 1[Code: EL1202]
w.e.f. 2018-19 ADMITTED BATCH

Basic Circuit Theory

4 Hours/Week [Total: 60 hrs.] **Credits: 03**

Course Learning Outcomes

After completing the Basic Electronics program, students will be able to:

1. Students will demonstrate the ability to evaluate the parameters of basic electronic components (wires, resistors, capacitors, diodes etc.) based on their physical parameters and dimensions.

2. **Students will reliably demonstrate the ability to solve basic DC circuits using Kirchhoff's current and voltage laws.**

3. **Students will reliably demonstrate skills in solving problems concerning voltage, potential, current and Ohm's law.**

4. The capability to use abstractions to analyze and design simple electronic circuits.

5. An understanding of how complex devices such as semiconductor diodes and field-effect transistors are modeled and how the models are used in the design and analysis of useful circuits.

6. The capability to design and construct circuits, take measurements of circuit behavior and performance, compare with predicted circuit models and explain discrepancies.

7. Describe the scientific principles that apply to the basic flow of electricity and explain the function of various materials used as conducting, semiconducting, and insulating devices in the construction of standard electrical/electronic circuits.

8. The objective of this course is to provide you with a comprehensive understanding of electronic circuits and devices

9. Analyze resistive circuits and determine currents and voltages.

10. Analyze the transient behavior of RC and RL circuits

11. Provide the fundamental knowledge in electronics to enable understanding of its applications.

12. Provide hands-on opportunities for students to construct electronic circuits and build electronic projects of varying difficulty levels, ranging from simple to intermediate.

Learning Outcomes:

Students will able to

1. Learn how to develop and employ circuit models for elementary electronic components, e.g., resistors, sources, inductors, capacitors, diodes and transistors;

2. Become adept at using various methods of circuit analysis, including simplified methods such as series-parallel reductions, voltage and current dividers, and the node method;

3. Appreciate the consequences of linearity, in particular the principle of superposition and Thevenin-Norton equivalent circuits.

4. Develop the capability to analyze and design simple circuits containing non-linear elements such resistors, sources, inductors, capacitors.

5. Acquire experience in building and trouble-shooting simple electronic analog circuits.

6. distinguish between the two main types of voltage sources

7. distinguish between a voltage source and a current source

8. convert voltage sources to current sources, and vice versa

9. Identify a resistive voltage divider and apply the voltage division formula to solve related problems

10. Identify a resistive current divider and apply the current division formula to solve related problems

11. Define the terms 'circuit', 'load', 'source', 'short-circuit', 'open-circuit' and 'overload'

(a) apply Kirchhoff's current and voltage laws to a series-parallel resistive circuit

(b) apply branch current analysis to DC circuits

(c) apply Thevenin's theorem to simplify circuits for analysis

(d) calculate the Thevenin’s parameters at the input and output terminals of BJT transistor amplifiers

(e) Determine the conditions for maximum power transfer to any circuit element.

P.R.GOVERNMENT COLLEGE (A), KAKINADA
Electronics-Semester –1
Paper – 1 [Code: EL1202]
w.e.f. 2018-19 ADMITTED BATCH

Basic Circuit Theory

4 Hours/Week [Total: 60 hrs.] **Credits: 03**

Syllabus

UNIT- 1: (12 hrs)
Sinusoidal alternating waveforms**:**

Definition of current and voltage. The sine wave, general format of sine wave for voltage or current, phase relations, average value, effective (R.M.S) values. Differences between A.C and D.C, A.C through pure R, L & C elements.

UNIT-II: (12 hrs)
Passive networks: (D.C)

Kirchhoff's current and Voltage Law's, Resistor, Capacitor and Inductor - series and parallel networks. Mesh Analysis, Nodal Analysis, star to delta and delta to star conversions.

UNIT-III: (12 hrs)
Networks theorems: (D.C)

Superposition Theorem, Thevenin's Theorem, Norton's Theorem, Maximum Power, Milliman and Reciprocity theorems.

UNIT-IV: (15 hrs)
RC and RL circuits**:**

Transient response of RC and RL circuits with dc input, Time constants, Frequency response of RC and RL circuits their action as low pass, high pass. Passive differentiating and integrating circuits.

UNIT-V: (9 hrs)
Series and Parallel resonance circuits**:**

LCR Series resonance and parallel resonance circuits, Q - Factor, Selectivity and band width, Comparison of series and parallel resonance.
Reference Books:

1. Grob's Basic Electronics - Mitchel E.Schultz 10th Edn. Tata McGraw Hill (TMH)
2. Network lines and fields- Ryder- Prentice Hall of India (PHI)
3. Circuit analysis - P.Gnanasivam- Pearson Education
4. Circuits and Networks - A.Sudhaksr & Shyammohan S. Palli - TMH
5. Network Theory - Smarajit Ghosh - PHI
6. Electronic Devices and Circuits-Millman and Halkias - TMH
7. Electronic Devices and Circuits-Allen Mottershead - PHI
8. Principles of Electronics- V.K. Mehta and Rohit Mehta - S Chand &Co

9. Electronic Devices and Circuit Theory- R.L.Boylestad and L.Nashelsky- Pearson Education.
10. Pulse digital switching waveforms -Millman &Taub - TMH.
11. Applied Electronics- R.S.Sedha - S Chand &Co
12. A First course in Electronics- AA Khan & KK Day- PHI
13. Principles of Electronic circuits- Stanely G.Burns and Paul R. Bond- Galgotia.
14. Electronic Principles and Applications – A.B. Bhattacharya- New Central Book Agency Pvt.
15. Basic Electronics D.C. Tayal
16. Basic Electronics Grobb
17. Electrical Technology II B.L. Thereja & A.K. Thereja
18. Electronics Ryder
19. Hand book of Electronics Gupta & Kumar
20. Unified Electronics Vol 1 & 2 Arora

P.R.GOVERNMENT COLLEGE (A), KAKINADA
Electronics-Semester –1
Paper – 1 [Code: EL1202]
w.e.f. 2018-19 ADMITTED BATCH

Basic Circuit Theory

4 Hours/Week [Total: 60 hrs.] **Credits: 03**

MODEL QUESTION PAPER

Note: - Set the question paper as per the blue print given.

Time: $2\frac{1}{2}$ Hrs. Max.Marks: 60

Section	Questions to be given	Questions to be answered	Marks
A	5	3	3 x 10M = 30M
B	9	6	6 x 5 M = 30M
Total	14	9	60M

Blue Print

Chapter Name	Essay Questions [10 marks]	Short Questions [5 marks]	Problems [5 marks]	Marks allotted
Sinusoidal alternating waveforms	1	1	--	15
Passive networks	1	1	1	20
Network theorems	1	1	1	20
RC and RL Circuits	1	1	1	20
Series and Parallel resonance circuits	1	1	1	20
Total Marks				95

Note: At least two problems should be answered.

P.R. GOVERNMENT COLLEGE (A)
Electronics - Practical 1 [Code: EL1202P]
Semester – I
Basic Circuit Theory
w.e.f. 2018-19 ADMITTED BATCH

2 Hours/Week [Total hours-30] **Credits: 02**

Any **Five** experiments.

1) Measurements of D.C & A.C voltage, frequency using CRO
2) Verification of Kirchhoff's laws
3) Thevenin's Theorem-verification
4) Norton's Theorem-verification
5) Maximum Power Transfer Theorem-verification
6) RC circuit-Frequency response (low and High pass)

7) RL circuit-Frequency response (low and High pass)
8) LCR series resonance circuits-Frequency response-Determination of Q and Band Width.
9) LCR parallel resonance circuits-Frequency response-Determination of Q and Band width

---

P.R. GOVERNMENT COLLEGE (A), KAKINADA
Electronics - Semester – II
Paper – 2 [Code: EL2202]
w.e.f. 2018-19 ADMITTED BATCH

Electronic Devices and Circuits

4 Hours/Week [Total: 60 hrs.] **Credits: 3**

Course Learning Outcomes

The subject aims:

- ✓ Students will reliably demonstrate skills in solving problems concerning
- ✓ The capability to use abstractions to analyze and design BJT simple electronic circuits
- ✓ The capability to design and construct circuits, take measurements of circuit behavior and performance, compare with predicted circuit models and explain discrepancies.
- ✓ Describe the scientific principles that apply to the basic
- ✓ Understand the Photo Electric Devices.
- ✓ Analyze the SCR, FET, UJT.
- ✓ Provide hands-on opportunities for students to construct electronic circuits and build electronic projects of varying difficulty levels, ranging from simple to intermediate
- ✓ Cultivate and sustain students' interest in learning through circuit simulations and self-assessment activities
- ✓ Promote active learning through activities such as information search and presentations

Learning Outcomes:

Students will be able to:

- Recall construction, working, V-I characteristics of PN Junction Diode & Zener Diode.
- Observe Fixed bias and self bias arrangement
- Compare FET over BJT
- Explain UJT as a relaxation oscillator
- Demonstrate Solar Cell and LED
- Determination of h-parameters from the characteristics of BJT

P.R. GOVERNMENT COLLEGE (A), KAKINADA
Electronics - Semester – II
Paper – 2 [Code: EL2202]
w.e.f. 2018-19 ADMITTED BATCH

Electronic Devices and Circuits

4 Hours/Week [Total: 60 hrs.] **2018-19** **Credits: 3**

SYLLABUS

UNIT - 1: (12 Hrs)
P-N junction diodes:

P-N junction Diode, Depletion region, Barrier Potential, Working in Forward and Reverse bias condition – Junction capacitance, Diode current equation (no derivation)– Effect of temperature on reverse saturation current – construction, working, V-I characteristics and simple applications of Zener diode.

UNIT –II :(12 hrs)
Bipolar junction transistor and its biasing: (d.c)

Introduction, Transistor Construction, NPN and PNP transistors working, current components in BJT, Operation and characteristics of CB, CE, CC Configurations, Transistor as an amplifier.

BJT Biasing: Fixed-Bias Circuit, Collector to base bias and self bias, Bias Stabilization.

UNIT-III :(12hrs)
Field Effect Transistors & UJT:

Introduction, Construction, Operation and Characteristics of FET/JFET, Drain and Transfer characteristics, Depletion-type, and Enhancement-Type MOSFETs.

UJT: construction-working, V-I characteristics, UJT as a Relaxation oscillator.

UNIT - IV: (10hrs)
Photo electric devices:

Light-Emitting Diodes (LEDs), Photo diode, Photo transistors, Structure and operation of LDR. IR emitters

UNIT-V :(14hrs)
Rectifiers & Power supplies:

Rectifiers: Half wave, full wave and bridge rectifiers - Efficiency-ripple factor-Regulation (only) Types of filters - L-section & π-section filters.

Block diagram of regulated power supply, Three terminal fixed voltage I.C.regulators (78XX and &79XX).

Block diagram and working of SMPS (switch mode power supplies)

Reference Books:

21. Grob's Basic Electronics - Mitchel E.Schultz 10th Edn. Tata McGraw Hill (TMH)
22. Network lines and fields- Ryder- Prentice Hall of India (PHI)
23. Circuit analysis - P.Gnanasivam- Pearson Education
24. Circuits and Networks - A.Sudhaksr & Shyammohan S. Palli - TMH
25. Network Theory - Smarajit Ghosh - PHI
26. Electronic Devices and Circuits-Millman and Halkias - TMH
27. Electronic Devices and Circuits-Allen Mottershead - PHI
28. Principles of Electronics- V.K. Mehta and Rohit Mehta - S Chand &Co
29. Electronic Devices and Circuit Theory- R.L.Boylestad and L.Nashelsky- Pearson Education.
30. Pulse digital switching waveforms -Millman &Taub - TMH.
31. Applied Electronics- R.S.Sedha - S Chand &Co
32. A First course in Electronics- AA Khan & KK Day- PHI
33. Principles of Electronic circuits- Stanely G.Burns and Paul R. Bond- Galgotia.
34. Electronic Principles and Applications – A.B. Bhattacharya- New Central Book Agency Pvt.
35. Basic Electronics D.C. Tayal
36. Basic Electronics Grobb
37. Electrical Technology II B.L. Thereja & A.K. Thereja
38. Electronics Ryder
39. Hand book of Electronics Gupta & Kumar
40. Unified Electronics Vol 1 & 2 Arora

P.R. GOVERNMENT COLLEGE (A), KAKINADA
Electronics - Semester – II
Paper – 2 [Code: EL2202]
w.e.f. 2018-19 ADMITTED BATCH

Electronic Devices and Circuits

4 Hours/Week [Total: 60 hrs.] **2018-19** **Credits: 3**

MODEL QUESTION PAPER

Note: - Set the question paper as per the blue print given.

Time: $2\frac{1}{2}$ Hrs. Max.Marks: 60

Section	**Questions to be given**	**Questions to be answered**	**Marks**
A	5	3	3 x 10M = 30M
B	9	6	6 x 5 M = 30M
Total	14	9	60M

Blue Print

Chapter Name	**Essay Questions 10 marks**	**Short Questions 5 marks**	**Problems 5 marks**	**Marks allotted**
P-N Junction	1	2		20
Bipolar Junction Transistor (BJT)	1	1	1	20
Field Effect Transistor & UJT	1	**1**	1	20
Photo Electric Devices	1	1		15
Rectifiers & Power supplies	1	1	1	20
Total Marks				95

Note: At least two problems should be answered.

P.R. GOVERNMENT COLLEGE (A)
Electronics - Practical 2 [Code: EL2202P]
Semester – 2
w.e.f. 2018-19 ADMITTED BATCH

Electronic Devices and Circuits

2 Hours/Week [Total hours-30] **Credits: 02**

Any **Five** experiments.

1. V-I Characteristics of junction diode
2. V-I Characteristics of Zener diode
3. Regulated power supply using Zener diode
4. BJT input and output characteristics
5. FET input and output characteristics
6. UJT characteristics
7. LDR characteristics
8. IC regulated power supply(IC-7805)

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. II Year - Electronics – Semester – 3

PAPER – 3 [Code: EL3202]

w.e.f. 2017-18 ADMITTED BATCH

DIGITAL ELECTRONICS

4 Hours/Week [Total: 60 hrs] **Credits: 3**

Course Learning Outcomes

The subject aims:

- ✓ Knowledge of Number System
- ✓ Comprehension about Logic Gates
- ✓ Know the applications of Semiconductor Memories
- ✓ Evaluate Combinational Circuits
- ✓ Analysis Karnaugh maps

Learning Outcomes:

Students will be able to:

- ➢ Recall Binary number system.
- ➢ Recognize Universal building blocks
- ➢ Observe Flip flops-RS,D flip flops-JK and JK master-slave
- ➢ Demonstrate Logic families

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. II Year - Electronics – Semester – 3

PAPER – 3 [Code: EL3202]

w.e.f. 2017-18 ADMITTED BATCH

DIGITAL ELECTRONICS

4 Hours/Week [Total: 60 hrs] **Credits: 3**

SYLLABUS

Unit – I (12 hrs)

Number system and codes:

Decimal, Binary, Hexadecimal, Octal, BCD, Conversions – Binary to Decimal vice versa – Binary to Hexa decimal vice versa, Decimal to Hexa decimal vice versa, Complements (1's and 2's,), Addition, Subtraction. Gray code & Excess-3 Code conversion of - BCD to Grey vice versa – BCD to Excess 3 Code vice versa.

Unit- II (12 hrs)

Boolean algebra and theorems:

Boolean algebra, De-Morgan's laws. Logic gates – AND, OR & NOT, NAND, NOR, EX-OR, EX-NOR, realization of basic gates from NAND & NOR. Minimization Techniques (Karnaugh Map Method: 2 & 4 variables), don't care condition. Standard representation of logic functions (SOP and POS),

Unit-III (15 hrs)

Combinational Digital circuits:

Adders-Half & full adder, Parallel binary adder. Subtractor-Half and full subtractors, Multiplexers (2:1, 4:1) and Demultiplexers (1:2, 1:4), Encoder (8-line-to-3-line) and Decoder (3-line-to-8-line).

UNIT-IV (9 hrs)

IC-Logic families:

TTL logic (NAND gate), DTL logic, RTL Logic, CMOS Logic families (NOR gate).

UNIT-V (12 hrs)

Sequential Digital circuits & Registers:

Flip Flops: S-R FF, J-K FF, T & D type FFs, Master-Slave J-K FFs and their Truth tables, registers: Types – SIPO, SISO, PIPO, and PISO.

TEXT BOOKS:

1. M.Morris Mano, “Digital Design “3rd Edition, PHI, New Delhi.
2. Ronald J. Tocci. “Digital Systems-Principles and Applications” 6/e. PHI. New Delhi. 1999. (UNITS I to IV)
3. G.K.Kharate-Digital electronics-oxford university press
4. S.Salivahana&S.Arivazhagan-Digital circuits and design
5. Fundamentals of Digital Circuits by Anand Kumar

Reference Books:

1. Herbert Taub and Donald Schilling. “Digital Integrated Electronics”. McGraw Hill. 1985.
2. S.K. Bose. “Digital Systems”. 2/e. New Age International. 1992.
3. D.K. Anvekar and B.S. Sonade. “Electronic Data Converters: Fundamentals & Applications”. TMH. 1994.
4. Malvino and Leach. “Digital Principles and Applications”. TMG Hill Edition.

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. II Year - Electronics – Semester – 3
PAPER – 3 [Code: EL3202]
w.e.f. 2017-18 ADMITTED BATCH

DIGITAL ELECTRONICS

4 Hours/Week [Total: 60 hrs] **Credits: 3**

MODEL QUESTION PAPER

Note: - Set the question paper as per the blue print given at the end of this model paper.

Time: $2\frac{1}{2}$ Hrs. Max.Marks: 60

Section	Questions to be given	Questions to be answered	Marks
A	5	3	3 x 10M = 30M
B	9	6	6 x 5 M = 30M
Total	14	9	60M

Blue Print

Chapter Name	Essay Questions 10 marks	Short Questions 5 marks	Problems 5 marks	Marks allotted
1. **Number system and codes**	1		2	20
2. **Boolean algebra and theorems**	1	1	1	20
3. **Combinational Digital circuits**	1	2	---	20
4. **IC-Logic families**	1	1	---	15
5. **Sequential Digital circuits & Registers**	1	2	---	20
Total Marks				95

Note: At least two problems should be answered.

P.R. GOVERNMENT COLLEGE (A)
Electronics - Practical 3 [Code: EL3202P]
Semester – 3
w.e.f. 2017-18 ADMITTED BATCH

DIGITAL ELECTRONICS

2 Hours/Week [Total hours-30] **Credits: 02**

Any **Five** experiments.

1. Verification of IC-logic gates
2. Realization of basic gates using discrete components (resistor, diodes & transistor)
3. Realization of basic gates using Universal gates (NAND & NOR gates)
4. Verify Half adder and full adder using gates
5. Verify half subtractor and full subtractor using gates.
6. Verify the truth table of RS , JK, T-F/F using NAND gates
7. 4-bit binary parallel adder and subtractor using IC 7483
8. BCD to Seven Segment Decoder using IC -7447/7448

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. II Year - Electronics – Semester – 4

PAPER – 4 [Code: EL4202]

w.e.f. 2017-18 ADMITTED BATCH

OP – AMP & Digital IC-applications

4 Hours/Week [Total: 60 hrs] **Credits: 3**

Course Learning Outcomes

The subject aims:

- ✓ Students will reliably demonstrate skills in solving simple second order differential equation.
- ✓ Provide hands-on opportunities for students to construct electronic circuits and build electronic projects of varying difficulty levels, ranging from simple to intermediate
- ✓ Cultivate and sustain students' interest in learning through circuit simulations and self-assessment activities
- ✓ Promote active learning through activities such as information search and presentations.

Learning Outcomes:

Students will be able to:

- ➢ Recall Frequency modulation
- ➢ Illustrate Amplitude modulation

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. II Year - Electronics – Semester – 4

PAPER – 4 [Code: EL4202]

w.e.f. 2017-18 ADMITTED BATCH

OP – AMP & Digital IC-applications

4 Hours/Week [Total: 60 hrs] **Credits: 3**

SYLLABUS

Unit – I (12hrs)

Operational Amplifiers:

Definition, Basic op-amp Ideal op-amp, Block diagram of op-amp, op-amp parameters, inverting - non inverting amplifiers, concept of virtual ground. OP-Amp as adder, subtractor, summing amplifier, voltage follower, integrator, differentiator, differential amplifier, Logarithmic amplifier.

Unit- II (14 hrs)

Op-Amp applications:

Voltage regulator, comparator, multivibrators – astable & monostable, Schmitt trigger. sine wave generator, square wave generator, triangular wave generator, Active filters (Basics) -low pass, high pass, band pass filters (operation only)

Unit - III (10 hrs)

IC555 Timer:

IC 555 timer pin diagram and its description, astable and monostable multivibrators.

Unit-IV (12 hrs):

Combinational & Sequential Logic Circuits:

Design of Code convertor: BCD to Decimal decoder (IC7442), BCD to Seven Segment display decoder (logic diagram & truth table only).

Counters: Counters – Synchronous & Asynchronous, Design of asynchronous Mod16, Mod-10, Mod N counter, Binary Up/Down Counter.

UNIT-V (12 hrs)

Data converters:

A/D converter: - Introduction, Digital to Analog (DAC) converter: Binary weighted Resistor DAC, R-2R Ladder type DAC, Analog to Digital Converters (ADC): Successive Approximation type ADC, Single Slop & Dual-Slope type ADC.

Reference Books:

1. Jacob Millan, Micro Electronics, McGraw Hill.
2. Mithal G K, Electronic Devices and Circuits Thana Publishers.
3. Allan Motter shead, Electronic Devices and Circuits – An Introduction- Prentice Hall

TEXT BOOKS:

1. G.K.Kharate-Digital electronics-oxford university press
2. M.Morris Mano, "Digital Design "3rd Edition, PHI, New Delhi.
3. Op Amp and Linear Integrated Circuits by Ramakant Gaykwad
4. Linear Integrated Circuits by Roy Choudary

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. II Year - Electronics – Semester – 4

PAPER – 4 [Code: EL4202]

w.e.f. 2017-18 ADMITTED BATCH

OP – AMP & Digital IC-applications

4 Hours/Week [Total: 60 hrs] **Credits: 3**

Model Question Paper

Note: - Set the question paper as per the blue print given at the end of this model paper.

Time: $2\frac{1}{2}$ Hrs. Max.Marks: 60

Section	**Questions to be given**	**Questions to be answered**	**Marks**
A	5	3	3 x 10M = 30M
B	9	6	6 x 5 M = 30M
Total	14	9	60M

Blue Print

Chapter Name	**Essay Questions 10 marks**	**Short Questions 5 marks**	**Problems 5 marks**	**Marks allotted**
Operational Amplifiers	1	---	2	20
Op-Amp Applications	1	1	1	20
IC555 Timer	1	1	---	15
Combinational & Sequential Logic Circuits	1	2	---	20
Data converters	1	2	---	20
Total Marks				95

Note: At least two problems should be answered

P.R. GOVERNMENT COLLEGE (A)
Electronics - Practical 4 [Code: EL4202P]
Semester – 4
w.e.f. 2017-18 ADMITTED BATCH

OP – AMP & Digital IC-application

2 Hours/Week [Total hours-30] **Credits: 02**

Any **Five** experiments.

1. Op-Amp as inverting and non-inverting (simulation experiment also)
2. Op-Amp as integrator and differentiator (simulation experiment also)
3. Op-Amp as adder & subtractor (simulation experiment also)
4. Op-Amp as voltage to current converter
5. Op-Amp as sine wave generator (Wien bridge oscillator)
6. Op-Amp as sine wave generator
7. Astable multivibrator determination of frequency (using IC-555)
8. Schmitt trigger using IC-555 timer

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. III Year - Electronics – Semester – V

w.e.f. 2016-17 ADMITTED BATCH

PAPER – 5 [Code: EL5202]

MICROPROCESSORS (INTEL 8085)

3 Hours/Week [Total: 45 hrs] **Credits: 3**

Course Learning Outcomes

The subject aims:

- ✓ Knowledge of microcomputer and microprocessor
- ✓ Comprehension about Programming Examples
- ✓ Know the applications of Interfacing of devices
- ✓ Evaluate the Cycles
- ✓ Analysis of each Block

Learning Outcomes:

Students will be able to:

- ➢ Recall data and control buses.
- ➢ Recognize PIN configuration of 8085 and its description
- ➢ Observe classification of instructions
- ➢ Illustrate Interfacing of I/O devices
- ➢ Demonstrate programmable timer/counter(8253)

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. III Year - Electronics – Semester – V

w.e.f. 2016-17 ADMITTED BATCH

PAPER – 5 [Code: EL5202]

MICROPROCESSORS (INTEL 8085)

3 Hours/Week [Total: 45 hrs] **Credits: 3**

Syllabus

UNIT- I (10 hrs)

Architecture of 8085 Microprocessor

Block diagram of Intel 8085-Register structure- multiplexing & Demultiplexing of address / data bus - Control Signal Generation and status signals - 8085 pin-out diagram & functions - Interrupts

Instruction set of 8085 -Instruction set classification - addressing modes

UNIT - II (8 hrs)

Memory:

Instruction cycle - machine cycle - T-state -Timing diagrams for Opcode Fetch Cycle Memory Read, Memory Write, I/O Read, I/O Write.

UNIT- III (9 hrs)

Programming of 8085:

Addition & subtraction (8 – Bit & 16-bit), multiplication, division, largest, smallest (all 8-bit data), Ascending & Descending order (8 bit) - Stack & Subroutines (Concept only) - Debugging (concept).

UNIT- IV (9 hrs)

Interfacing Memory:

2K X 8 ROM, RAM to 8085interfacing, interfacing an I/O port in Memory Mapped I/O and I/O Mapped I/O - Difference between I/O mapped I/O and Memory Mapped I/O.

UNIT - V (9 hrs)

Microprocessor applications:

Programmable peripheral device (8255) - Block Diagram - Pin functions – Modes. 8279 - Architecture & block diagram – interfacing stepper motor with 8085.

TEXTBOOKS

1. Ramesh S. Gaonakar, Microprocessor Architecture, Programming and Application with the8085-PenramLnternational Publishing, Mumbai.

2. Ram, Fundamentals of microprocessors and microcomputers - Dhanpat Rai Publications, New Delhi

3. Microprocessors & Microcontrollers by N .Senthilkumar, M. Saravanan& S. Jeevananthan, 1st edition, Oxford press (Helpful for interfacing applications)

4. Microprocessors & Microcontrollers by B.P.Singh, Galgotia publications Pvt.Ltd.

REFERENCE BOOKS

1. Mathur A.P., Introduction to Microprocessors. (3rd edn, Tata McGraw, New Delhi,

2. Leventhal L.A., Microprocessor Organization and Architecture, Prentice Hall India.

3. Microprocessor lab premier by K.A.Krishnamurthy 1. Addition & Subtraction (8-bit)

2. Addition & Subtraction (16-bit)

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – V
w.e.f. 2016-17 ADMITTED BATCH

PAPER – 5 [Code: EL5202]
MICROPROCESSORS (INTEL 8085)
3 Hours/Week [Total: 45 hrs] **Credits: 3**

MODEL QUESTION PAPER

Note: - Set the question paper as per the blue print given at the end of this model paper.

TIME: 3 Hrs Max Marks: 70

Section	Questions to be given	Questions to be answered	Marks
A	**6**	**4**	**4 x 10M = 40M**
B	**10**	**6**	**6 x 5 M = 30M**
Total	**16**	**10**	**70M**

Blue Print

Chapter Name	Essay Questions 10 marks	Short Questions 5 marks	Programs 5 marks	Marks allotted
Architecture of 8085 Microprocessor	1	2	---	20
Memory	1	2	---	20
Programming 8085	1	---	2	20
Interfacing memory	1	2	---	20
Microprocessor applications	2	2	---	30
Total Marks				110

P.R. GOVERNMENT COLLEGE (A)
Electronics - Practical 5 [Code: EL5202P]
w.e.f. 2016-17 ADMITTED BATCH

Semester – 5
MICROPROCESSORS (INTEL 8085)

2 Hours/Week [Total hours-30] **Credits: 02**

Any **Five** experiments.

1. Multiplication & Division (8 - bit)
2. Largest & Smallest number in the given array.
3. Ascending & Descending order.
4. Addition & subtraction(8 – Bit)
5. Addition & subtraction(16-bit)
6. Waveform generation using DAC interface.
7. Stepper motor interface.

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – V
w.e.f. 201**6-17** ADMITTED BATCH

PAPER – 6 [Code: EL6202]
ELECTRONIC COMMUNICATION SYSTEMS

3 Hours/Week [Total: 45 hrs] **Credits: 3**

Course Learning Outcomes

The subject aims:

- This course provides a thorough introduction to the basic principles and techniques used in analog and digital communications.
- The course will introduce analog and digital modulation techniques.
- Communication receiver and transmitter design, baseband and band pass communication techniques, line coding techniques, noise analysis, and multiplexing techniques.
- The course also introduces analytical techniques to evaluate the performance of communication systems.

Learning Outcomes:

Students will be able to:

- The student can gain good knowledge on analog and digital communication.
- Understand basic elements of a communication system.
- Conduct analysis of baseband signals in time domain and in frequency domain.
- Demonstrate understanding of various analog and digital modulation and demodulation techniques techniques.
- Analyse the performance of modulation and demodulation techniques in various transmission environments

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. III Year - Electronics – Semester – V

w.e.f. 201**6-17** ADMITTED BATCH

PAPER – 6 [Code: EL6202]

ELECTRONIC COMMUNICATION SYSTEMS

3 Hours/Week [Total: 45 hrs] **2018-2019** **Credits: 3**

Syllabus

UNIT –I (12Hrs)

MODULATION:

Amplitude modulation: Need for modulation, amplitude modulation-frequency spectrum of AM wave, representation of AM, power relations in the AM wave. Generation of AM - Diode modulators. Suppression of carrier, suppression of one side band- phase shift method.

Frequency modulation: Theory of FM, frequency spectrum of FM wave, narrow band FM, wide band FM, power contents of the carrier and sidebands, Generation of FM signals.

UNIT –II (7Hrs)

Basic receiver circuits:

Super heterodyne Receiver block diagram, FM receiver, discriminators- slope, and balanced slope & Ratio detector

UNIT –III (10Hrs)

Radio wave propagation: Communication bands, Electromagnetic waves - properties and applications.

Pulse modulation: Introduction, Sampling theorem, PAM- Generation & Detection, PWM- Generation & Detection, PPM- Generation & Detection

UNIT –IV (8Hrs)

Digital Communications:

Advantages of digital over analog communications. Advantages of shift keying over digital communication, Types of shift keying, ASK – Generation & Detection, FSK – Generation & Detection.

Unit V (8 Hrs)

Cellular Mobile Communications:

Basic concept, frequency bands, SIM number, IMEI number, need for data encryption, block diagram of mobile communication network, idea of GSM, CDMA, TDMA and FDMA technologies, 2G, 3G and 4G concepts.

TEXT BOOKS:

1. Electronic Communications - George Kennedy
2. Antennas and Wave Propagation – G.S.N.Raju – PHI
3. Principles of communication system –Herbert Taub & D.L.Schilling

REFERENCES:

1. Electronic Communications – Roody & Colen
2. Communication Systems – Hayken --- 4th Edition
3. Advance Electronic communication system ---Tomasi wayne
4. Modern digital and analog communication system –B.P.lathi

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – V
w.e.f. 2018-19 ADMITTED BATCH

PAPER – 6 [Code: EL6202]
ELECTRONIC COMMUNICATION SYSTEMS

3 Hours/Week [Total: 45 hrs] **2018-2019** **Credits: 3**

Model Question Paper

Note: - Set the question paper as per the blue print given at the end of this model paper.

TIME: 3 Hrs Max Marks: 70

Section	Questions to be given	Questions to be answered	Marks
A	**6**	**4**	**4 x 10M = 40M**
B	**10**	**6**	**6 x 5 M = 30M**
Total	**16**	**10**	**70M**

Blue Print

Chapter Name	Essay Questions 10 marks	Short Questions 5 marks	Programs 5 marks	Marks allotted
Modulation	2	---	2	30
Basic receiver circuits	1	2	---	20
Radio wave propagation	1	1	1	20
Digital communications	1	2	---	20
Cellular mobile communications	1	2	---	20
Total Marks				110

P.R. GOVERNMENT COLLEGE (A)
Electronics - Practical 6 [Code: EL6202P]
w.e.f. 2016-17 ADMITTED BATCH

Semester – 5
ELECTRONIC COMMUNICATION SYSTEMS

2 Hours/Week [Total hours-30] **Credits: 02**

Any **Five** experiments.

1. Pulse Amplitude Modulation(PAM) circuit and study its wave forms
2. Pulse Width Modulation(PWM) circuit and study its wave forms
3. Pulse Position Modulation(PPM) circuit and study its wave forms
4. Pulse Code Modulation(PCM) circuit and study its wave forms
5. Modulation of LED and detection through Photo detector.
6. Pre-emphasis circuit
7. De-emphasis circuit
8. Amplitude modulation (simulation experiment also)

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – VI
w.e.f. 2016-17 ADMITTED BATCH

PAPER – 7 A [Elective - A]
MICRO CONTROLLER AND INTERFACING

3 Hours/Week [Total: 45 hrs] **Credits: 3**

Course Learning Outcomes

The subject aims:

- To understand the concepts of microcontroller based system.
- To enable design and programming of microcontroller based system.
- To know about the interfacing Circuits.

Learning Outcomes:

Students will be able to:

- The student can gain good knowledge on microcontrollers and implement in practical applications
- learn Interfacing of Microcontroller
- get familiar with real time operating system

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – VI
w.e.f. 2016-17 ADMITTED BATCH

PAPER – 7 A [Elective - A]
MICRO CONTROLLER AND INTERFACING

3 Hours/Week [Total: 45 hrs] **Credits: 3**

Syllabus

UNIT-I: (6Hrs)

Introduction, comparison of Microprocessor and micro controller, 8-bit and 16- bit Microcontrollers, Harvard and Von-Neumann Architectures, Assembler-Compiler-Simulator/Debugger.

UNIT -II: (12Hrs)

Microcontroller Architecture:

Block diagram of 8051, Architecture of 8051, program counter and memory organization, Data types and directives, PSW register Register banks and stack, pin diagram of 8051, interrupts.

UNIT-III :(9Hrs)

Addressing modes, instruction set of 8051:

Addressing modes and accessing memory using various addressing modes, instruction set: Arithmetic, Logical, Simple bit, jump, loop and call instructions and their usage. Timer/Counter Programming,

Unit -IV: (9 Hrs)

Programming:

Assemble language programming Examples: Addition, Multiplication, Subtraction, division, arranging a given set of numbers in largest/smallest order.

UNIT-V: (9 Hrs)

Data communication:

Serial Communication – basics of serial communication, Half and Full duplex transmission, Asynchronous Serial Communication and framing, Data communication classification.8051 Serial Communication programming. 8051 Interrupts. Interrupt priority in the 8051.

TEXT BOOKS:

1. The 8051 microcontroller and embedded systems using assembly and c-kennet j.Ayalam, Dhananjay V.gadre, cengage publishers
2.The 8051 microcontrollers and Embedded systems - By Muhammad Ali Mazidi and Janice Gillispie Mazidi – Pearson Education Asia, 4th Reprint, 2002.

REFERENCE BOOKS:

1. Microcontrollers Architecture Programming, Interfacing and System Design – Raj kamal.
2. The 8051 Microcontroller Architecture, Programming and Application - **Kenneth J.Ajala,** west publishing company (ST PAUL, NEW YORK, LOS ANGELES, SAN FRANCISCO).
3. Microcontroller theory and application-Ajay V.Deshmukh

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – VI
w.e.f. 2016-17 ADMITTED BATCH

Elective PAPER – 7 A
Elective A - MICRO CONTROLLER AND INTERFACING

3 Hours/Week [Total: 45 hrs] **Credits: 3**

Model Question Paper

Note: - Set the question paper as per the blue print given at the end of this model paper.

TIME: 3 Hrs Max Marks: 70

Section	Questions to be given	Questions to be answered	Marks
A	**6**	**4**	**4 x 10M = 40M**
B	**10**	**6**	**6 x 5 M = 30M**
Total	**16**	**10**	**70M**

Blue Print

Chapter Name	Essay Questions 10 marks	Short Questions 5 marks	Programs 5 marks	Marks allotted
Introduction	1	2	---	20
Microcontroller Architecture	2	2	---	30
Addressing modes, instruction set of 8051	1	1	1	20
Programming	1	---	2	20
Data communication	1	2	---	20
Total Marks				110

P.R. GOVERNMENT COLLEGE (A)
Electronics - Practical 7 A [Elective A]
w.e.f. 2016-17 ADMITTED BATCH

Semester – 6
MICRO CONTROLLER AND INTERFACING

2 Hours/Week [Total hours-30] **Credits: 02**

Any **Five** experiments.

1. Addition and subtraction of two 8-bit numbers.
2. Multiplication and division of two 8-bit numbers.
3. Addition of two 8-bit numbers
4. Addition of two 16-bt numbers
5. Subtraction of two 8-bit numbers
6. Subtraction of two 16-bit numbers.
7. Multiplication of two 8-bit numbers
8. Program to find the largest number in given array
9. Program to find the smallest number in given array

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – VI
w.e.f. 2016-17 ADMITTED BATCH

PAPER – 7 B [Elective B]
PC MAINTAINANCE AND TROUBLE SHOOTING

3 Hours/Week [Total: 45 hrs] **Credits: 3**

Course Learning Outcomes

The subject aims:

- **Introduction to Computers**.
- To **trouble shoot various components like Keyboard, Mouse and add on cards**.
- To understand the operation of **Storage devices**
- To understand the operation of **SMPS**
- To understand the operation of **Monitor**
- To understand the operation of **Printers**
- To **Prevent maintenance**

Learning Outcomes:

Students will be able to:

- The student can gain good knowledge on various electronic appliances.
- Learn Interfacing of Various components of computer.
- Learn about Software installation.
- Learn about Hardware identification.

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. III Year - Electronics – Semester – VI

w.e.f. 2016-17 ADMITTED BATCH

PAPER – 7 B [Elective B]

PC MAINTAINANCE AND TROUBLE SHOOTING

3 Hours/Week [Total: 45 hrs] **Credits: 3**

SYLLABUS

UNIT – I: 9 Hrs

Introduction to Computers:

Block diagram & types of computers. Mother Board Characteristics, choosing a Motherboard, Installing a Mother board, Upgrading system BIOS. Bus Slots – ISA, MCA, EISA, PCI, USB and firmware (IEEE 1394). Features and comparison of 80286, 80386 and 80486, Characteristics of Pentium MMX, Comparison of Pentium-2 with all other processors. Dual core, core 2 duos, quad, P4, P4HT, I3, I5, I7 processors.

UNIT – II: 9Hrs

Basic trouble shooting:

Introduction about proper tools in system maintenance, various test equipment for PC servicing, Reasons for failure of resistor, Reasons for failure of capacitor, Reasons for failure of other components, Safety precautions during trouble shooting.

Keyboard: Types of keyboards block diagram of keyboard, keyboard connectors. reasons for failure of keyboard.

Mouse: Working and components of mouse and different connectors.

Add on cards: MDA, CGA, VGA, Sound card, NIC card, SCSI Controller and FDC and HDC.

UNIT – III: 9Hrs

Storage devices:

Introduction about disk drives, Characteristics of different disk drives

FDD: - Different types, working and components of drives.

HDD:-Different types, working and components of HDD drives partitioning & Formatting HDD

CDROM: - Different types working and components of CDROM drives.

DVD: - Different types, working and components of DVD.

Reasons for failure of disk drives

UNIT –IV: 9Hrs

SMPS: linear, AT, ATX, Block of SMPS and description of each block. INTRODUCTION to UPS& SPS: Reasons for power supply failure, Impact of power supply failure on PC.

Monitor: Introduction about display units, Different display technologies, block diagram, Reasons for display failure.

UNIT – V: 9Hrs

Printers: - Different types of printers, dot matrix, INKJET & LASER PRINTER – components and working.

Preventive maintenance – Effect of heat and noise, Effect of corrosion on PC, Effect of power fluctuations, Effect of magnetic fields on system performance, EMI effect, Virus protection, Tools and techniques of S/W trouble shooting.

TEXT BOOKS:

1. UPGRADING AND REPAIRING PC – Scott Muller.
2. IBM PC and Clones: Hardware, Troubleshooting and Maintenance - Govindarajalu. B

REFERNCE BOOKS:

1. I.T. HARDWARE - NATSHELL.
2. PRINTER MANUALS.

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – VI
w.e.f. 2016-17 ADMITTED BATCH

PAPER – 7 B [Elective B]
PC MAINTAINANCE AND TROUBLE SHOOTING

3 Hours/Week [Total: 45 hrs] **Credits: 3**

Model Question Paper

Note: - Set the question paper as per the blue print given at the end of this model paper.

TIME: 3 Hrs Max Marks: 70

Section	Questions to be given	Questions to be answered	Marks
A	**6**	**4**	**4 x 10M = 40M**
B	**10**	**6**	**6 x 5 M = 30M**
Total	**16**	**10**	**70M**

Blue Print

Chapter Name	Essay Questions 10 marks	Short Questions 5 marks	Marks allotted
Introduction to computers	1	2	20
Basic trouble shooting	2	2	30
Storage devices	1	2	20
Smps & monitor	1	2	20
Printers & preventive maintenance	1	2	20
Total marks			110

P.R. GOVERNMENT COLLEGE (A)
Electronics - Practical 7 B [Elective B]
Semester – 6
w.e.f. 2018-19 ADMITTED BATCH

PC MAINTENANCE AND TROUBLE SHOOTING

2 Hours/Week [Total hours-30] **Credits: 02**

2018-19

Any **Five** experiments.

1. Identification of different peripherals and components in a PC.
2. Identification of different types of motherboards.
3. Identification of different expansion slots and add-on cards.
4. Assembling a PC.
5. Study of CMOS ROM BIOS setup utilities.
6. Change of CMOS password and boot sequence.
7. Connecting hard drives, floppy drives and DVD writer.
8. Creating partitions and formatting a hard drive.
9. Installation of windows 2000 Professional and windows XP.
10. Installation of application software's and antivirus software.
11. Installation of windows server 2003.
12. Installation and configuring display sound and LAN cards.

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – 6
w.e.f. 2016-17 ADMITTED BATCH

PAPER – 8 A 1 [Cluster Elective A 1]
POWER ELECTRONICS

3 Hours/Week [Total: 45 hrs] **Credits: 3**

Course Learning Outcomes

The subject aims:

- To study the characteristics of various power semiconductor devices.
- To understand the operation of power inverters.
- To study the operation of rectifiers with different loads.
- To understand the operation of different types of choppers.
- To understand the operation and controlling of motors.

Learning Outcomes:

Students will be able to:

- Explain the characteristics of various power semiconductor devices and analyze the static and dynamic characteristics of SCR's.
- Design firing circuits for SCR.
- Explain the operation of rectifiers with different loads.
- Analyze the operation of different types choppers.

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – 6
w.e.f. 2016-17 ADMITTED BATCH

PAPER – 8 A 1 [Cluster Elective A 1]
POWER ELECTRONICS

3 Hours/Week [Total: 45 hrs] **Credits: 3**

SYLLABUS

Unit- 1 (9 Lectures)

Power devices: Need for semiconductor power devices, Power diodes, Introduction to family of thyristors.

Silicon Controlled Rectifier (SCR): structure, I-V characteristics, Turn-On and Turn-Off characteristics, Factors affecting the characteristics of SCR, Control circuits design and Protection circuits.

Unit- 2 (9 Lectures)

Diac and Triac: Basic structure, working and V-I characteristics of diac and triac.

Insulated Gate Bipolar Transistors (IGBT): Basic structure, I-V Characteristics, switching characteristics.

Unit- 3 (9 Lectures)

Choppers: Basic chopper circuit, types of choppers (Type A-D), step-down chopper, step-up chopper, Morgan's chopper (operation only)

Unit-4 (9 Lectures)

Power Inverters: Need for commutating circuits and their various types, D.C. link inverters, Parallel capacitor commutated invertors with and without reactive feedback and its analysis, Series Inverter, bridge invertors.

Unit- 5 (9 Lectures)

Electromechanical Machines: DC Motors, Principle of operation, EMF equation, Back EMF, Factors controlling motor speed, AC motor (Induction Motor only), Rotor and stator, torque & speed of induction motor.

Suggested Books:

1. Power Electronics, K. Hari Babu, Scitech Publication.

2. Power Electronics, P.C.Sen, TMH

3. Power Electronics & Controls, S.K. Dutta

4. Power Electronics, M.D.Singh&K.B. Khanchandani, TMH

5. Power Electronics Circuits, Devices and Applications, 3rd Edition, .H.Rashid, Pearson Education

6. Power Electronics, Applications and Design, Ned Mohan, Tore.

7. Power Electronics, P.C.Sen, TMH.

8. Power Electronics, M.S.Jamil Asghar, PHI.

9. A Textbook of Electrical Technology-Vol-II, B.L.Thareja, A.K.Thareja, S.Chand

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. III Year - Electronics – Semester – 6

w.e.f. 2016-17 ADMITTED BATCH

PAPER – 8 A 1 [Cluster Elective A1]

POWER ELECTRONICS

3 Hours/Week [Total: 45 hrs] **Credits: 3**

Model Question Paper

Note: - Set the question paper as per the blue print given at the end of this model paper.

TIME: 3 Hrs Max Marks: 70

Section	Questions to be given	Questions to be answered	Marks
A	**6**	**4**	**4 x 10M = 40M**
B	**10**	**6**	**6 x 5 M = 30M**
Total	**16**	**10**	**70M**

Blue Print

Chapter Name	Essay Questions 10 marks	Short Questions 5 marks	Marks allotted
Unit - 1	1	2	20
Unit – 2	2	2	30
Unit – 3	1	2	20
Unit – 4	1	2	20
Unit – 5	1	2	20
Total marks			110

P.R. GOVERNMENT COLLEGE (A)
Electronics - Practical 8 A 1 [Cluster Elective A 1]
w.e.f. 2016-17 ADMITTED BATCH

Semester – 6
POWER ELECTRONICS

2 Hours/Week [Total hours-30] **Credits: 02**

Any **Five** experiments.

1. Study of I-V characteristics of DIAC
2. Study of I-V characteristics of a TRIAC
3. Study of I-V characteristics of a SCR
4. SCR as a half wave and full wave rectifier switch R and RL loads
5. DC motor control using SCR.
6. Study of parallel and bridge inverter.
7. Design of snubber circuit
8. V-I Characteristic of IGBT
9. Study of chopper circuits

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – VI
w.e.f. 2016-17 ADMITTED BATCH

PAPER – 8 A 2 [Cluster Elective A 2]
CONSUMER ELECTRONICS

3 Hours/Week [Total: 45 hrs] **Credits: 3**

Course Learning Outcomes

The subject aims:

- To understand the operation of Micro wave oven.
- To understand the operation of Washing machines.
- To understand the operation of Air conditioners
- To understand the operation of Refrigerators
- To understand the operation of Xerox copier
- To understand the operation of Digital calculator
- To understand the operation of Digital clocks
- To understand the operation of Digital access devices like Barcode Scanner, ATM's, digital cable TV etc

Learning Outcomes:

Students will be able to:

- The student can gain good knowledge on various electronic appliances.
- Learn Interfacing of Various components of electronic appliances.
- Get familiar with real time operating system.
- Learn about power ratings of electronic appliances
- Learn about different types of digital access devices.

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. III Year - Electronics – Semester – VI

w.e.f. 2016-17 ADMITTED BATCH

PAPER – 8 A 2 [Cluster Elective A2]

CONSUMER ELECTRONICS

3 Hours/Week [Total: 45 hrs] **Credits: 3**

SYLLABUS

UNIT-I (9 hrs)

Microwave Ovens:

Microwaves (Range used in Microwave Ovens) – Microwave oven block diagram -LCD timer with alarm - Single-Chip Controllers - Types of Microwave oven - Wiring and Safety instructions -Care and Cleaning.

UNIT-II (9 hrs)

Washing Machines:

Electronic controller for washing machines - Washing machine hardware and software- Types of washing machines - Fuzzy logic washing machines Features of washing machines.

UNIT-III (9 hrs)

Air Conditioners and Refrigerators:

Air Conditioning - Components of air conditioning systems -All water air conditioning systems - All air conditioning systems - Unitary and central air conditioning systems -Split air conditioners.

UNIT-IV (9 hrs)

Home/Office Digital Devices:

Facsimile machine - Xerographic copier -Calculators - Structure of a calculator - Internal Organization of a calculator - Digital clock - Block diagram of a digital clock.

UNIT-V (9 hrs)

Digital access devices:

Digital computer -Internet access - Online ticket reservation - Functions and networks - Barcode Scanner and decoder - Electronic Fund Transfer - Automated Teller Machines (ATMs) - Set-Top boxes - Digital cable TV - Video on demand.

Suggested Books:

1. S.P. Bali, Consumer Electronics - Pearson Education, New Delhi, 2005.
2. R. G. Gupta Audio and Video systems Tata McGraw Hill (2004)

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – VI
w.e.f. 2016-17 ADMITTED BATCH

PAPER – 8 A 2 [Cluster Elective A2]
CONSUMER ELECTRONICS
3 Hours/Week [Total: 45 hrs] **Credits: 3**

Model Question Paper

Note: - Set the question paper as per the blue print given at the end of this model paper.

TIME: 3 Hrs Max Marks: 70

Section	Questions to be given	Questions to be answered	Marks
A	**6**	**4**	**4 x 10M = 40M**
B	**10**	**6**	**6 x 5 M = 30M**
Total	**16**	**10**	**70M**

Blue Print

Chapter Name	Essay Questions 10 marks	Short Questions 5 marks	Marks allotted
Microwave ovens	1	2	20
Washing machines	1	2	20
Air conditioners and refrigerators	2	2	30
Home/office digital devices	1	2	20
Digital access devices	1	2	20
Total marks			110

P.R. GOVERNMENT COLLEGE (A)
Electronics - Practical 8 A 2 [Cluster Elective A 2]
Semester – 6
w.e.f. 2016-17 ADMITTED BATCH

CONSUMER ELECTRONICS

2 Hours/Week [Total hours-30] **Credits : 02**

At least two Activities should be done

1. Study of PA systems for various situations - Public gathering, closed theatre /Auditorium, Conference room, Prepare Bill of Material (Costing)
2. Installation of Audio /Video systems - site preparation, electrical requirements, cables and connectors
3. Market Survey of Products (at least one from each module)
4. Identification of block and tracing the system. Assembly and Disassembly of system using Toolkit
5. Assembly and Disassembly of system & printer

NOTE: One activity as directed in practical course is equivalent to 4 experiments 5

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – VI
w.e.f. 2016-17 ADMITTED BATCH

PAPER – 8 B 1 [Cluster Elective B 1]
COMPUTER NETWORKS
3 Hours/Week [Total: 45 hrs] **Credits: 3**

Course Learning Outcomes

The subject aims:

- To understand Network models.
- To understand Physical layer.
- To understand Medium Access Sub Layer.
- To understand Network Layer.
- To understand Transport Layer.
- To understand Application Layer.

Learning Outcomes:

Students will be able to:

- The student can gain good knowledge on various Network models.
- Learn about Interfacing of Various Layers.
- Get familiar with different types of Layers.

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. III Year - Electronics – Semester – VI

w.e.f. 2016-17 ADMITTED BATCH

PAPER – 8 B 1 [Cluster Elective B 1]

COMPUTER NETWORKS

3 Hours/Week [Total: 45 hrs] **Credits: 3**

SYLLABUS

UNIT-I: 9 Hrs

Introduction:

Introduction to OSI,TCP/IP and other Network models, Examples of Networks, Novel Networks, Arpanet, Internet, Network topologies, WAN, LAN, MAN.

Physical Layer: Transmitted media copper, twisted pair wireless, switching and encoding asynchronous communications, Narrowband, Broadband, ISDN& ATM.

UNIT-II: 9 Hrs

Data Link Layer:

Design issues, framing, error detection &correction, CRC, elementary protocol-Stop and wait, Sliding window, slip, data link layer in HDLC, Internet, and ATM.

UNIT-III: 9 Hrs

Medium Access Sub Layer:

ALOHA, MAC, Address, Carrier sense multiple access, IEEE 802.X standard Ethernet, Wireless LAN, Bridges.

UNIT-IV: 9 Hrs

Network Layer:

Virtual circuits and data gram sub nets-routing algorithm, shortest path routing, fooding, Hierarchical routing, broadcast, multicast, distance vector routing

UNIT-V: 9 Hrs

Transport Layer: Transport services, Connection management, TCP & UDP protocols, ATM AAL layers protocol

Application Layer: Network security, domain name system, SNMP, Electronic mail, the world web, multimedia

TEXT BOOKS:

1. Computer Networks - Andrew S. Tanenbaum,4thEdition,Pearson education
2. Data communications & Networking -Behrouz A.Forouzan.3rdEditionTMH

References

1. An engineering approach to Computer Networks - S. Kesav 2ndEdition,Pearson education

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – VI
w.e.f. 2016-17 ADMITTED BATCH

PAPER – 8 B 1 [Cluster Elective B 1]
COMPUTER NETWORKS
3 Hours/Week [Total: 45 hrs] **Credits: 3**

Model Question Paper

Note: - Set the question paper as per the blue print given at the end of this model paper.

TIME: 3 Hrs Max Marks: 70

Section	Questions to be given	Questions to be answered	Marks
A	**6**	**4**	**4 x 10M = 40M**
B	**10**	**6**	**6 x 5 M = 30M**
Total	**16**	**10**	**70M**

Blue Print

Chapter Name	Essay Questions 10 marks	Short Questions 5 marks	Marks allotted
Unit - 1	1	2	20
Unit – 2	1	2	20
Unit – 3	1	2	30
Unit – 4	1	2	20
Unit – 5	2	2	30
Total marks			110

P.R. GOVERNMENT COLLEGE (A)
Electronics - Practical 8 B 1 [Cluster Elective B 1]
w.e.f. 2016-17 ADMITTED BATCH

Semester – 6
COMPUTER NETWORKS

2 Hours/Week [Total hours-30] **Credits: 02**

Any four Activities should be done

1. Study of different types of network cables and practically implement the cross wired cable and straight through cable using clamping tool.
2. Study of network Devices in detail.
3. Study of network IP
4. Connect the computers in local area network
5. Study of basic network command and network configuration command
6. Configure a network topology using packet tracer software
7. Configure a network using link state vector routing protocol

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – VI
w.e.f. 2016-17 ADMITTED BATCH

PAPER – 8 B 2 [Cluster Elective B 2]
ELECTRONIC INSTRUMENTATION

3 Hours/Week [Total: 45 hrs] **Credits: 3**

Course Learning Outcomes

The subject aims:

- To introduce students to monitor, analyze and control any physical system.
- To understand students how different types of meters work and their construction.
- To Study of absolute is merely confirmed within laboratories.
- To Study integrating instruments like ammeter, voltmeter.
- To Measurement of impedance using bridges.
- To Study of PLL ,ph-meter, PLC

Learning Outcomes:

Students will be able to:

- Design a system, component or process to meet desired needs in electrical engineering.
- Measurement of R, L, C, Voltage, Current, Power factor, Power, Energy.
- Ability to balance Bridges to find unknown values.
- Ability to measure frequency, phase with Oscilloscope.
- Ability to use Digital voltmeters.
- Ability to measure strain, displacement, Velocity, Angular Velocity, temperature, Pressure, Vacuum, and Flow.

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. III Year - Electronics – Semester – VI

w.e.f. 2016-17 ADMITTED BATCH

PAPER – 8 B 2 [Cluster Elective B 2]

ELECTRONIC INSTRUMENTATION

3 Hours/Week [Total: 45 hrs] **Credits: 3**

SYLLABUS

UNIT-I (7 hrs)

Measurements:

Basic block diagram of measurement system, Accuracy and precision, resolution, sensitivity, linearity, Errors, systematic and random errors, standards &calibrations of an instrument. Applications of instrument.

UNIT –II (9 hrs)

Basic Measurement Instruments:

DC measurement-ammeter, voltmeter, ohm meter, AC measurement, Digital voltmeter systems (integrating and non-integrating). Digital MultiMate; Block diagram principle of measurement of I, V, C. Accuracy and resolution of measurement.

Measurement of Impedance: A.C. bridges, Measurement of Self Inductance (Anderson's bridge), Measurement of Capacitance (De Sauty Bridge), Measurement of frequency (Wien's bridge).

UNIT-III (11 hrs)

Lock-in-amplifier:

Basic Principles of phase locked loop (PLL), Phase detector (XOR& edge triggered), Voltage Controlled Oscillator (Basics, varactor), lock and capture. Basic idea of PLL IC (565 or 4046). Lock-in-amplifier, Idea of techniques for sum and averaging of signals.

Signal Generators: Function generator, Pulse Generator, (Qualitative only).

UNIT-IV (11 hrs)

Analytical instruments

Spectrophotometer, working with block diagram, features of spectrophotometer, **PH** meter - principle working with block diagram, features of **PH** meter.

Temperature Transducers: Standards and calibration, Fluid expansion and metal expansion type transducers, like bimetallic strip, Thermometer, RTD, Thermo couple and their characteristics.

UNIT-V: (7 hrs)

Direct digital control (DDC), Distributed control system (DCS),

PLC'S: Block diagram**,** hardware, PLC operation, basic logic program (ladder logic), Applications of PLC'S

TEXT BOOKS

1. Introduction to instrumentation and control By A.K.Ghosh
2. Sensors and transducers PHI 2Ed By D.Patranabis.

3. Industrial instrumentation –Eckman.P.
4. Instrument measurement analysis By Nakra and chaudhry.

Reference Books:

1. W.D. Cooper and A. D. Helfrick, Electronic Instrumentation and Measurement Techniques, Prentice Hall (2005).
2. E.O. Doebelin, Measurement Systems: Application and Design, McGraw Hill Book - fifth Edition (2003).
3. David A. Bell, Electronic Devices and Circuits, Oxford University Press (2015).
4. Alan S. Morris, "Measurement and Instrumentation Principles", Elsevier (Butterworth Heinmann-2008).

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – VI
w.e.f. 2016-17 ADMITTED BATCH

PAPER – 8 B 2 [Cluster Elective B 2]
ELECTRONIC INSTRUMENTATION
3 Hours/Week [Total: 45 hrs] **Credits: 3**

Model Question Paper

Note: - Set the question paper as per the blue print given at the end of this model paper.

TIME: 3 Hrs Max Marks: 70

Section	Questions to be given	Questions to be answered	Marks
A	**6**	**4**	**4 x 10M = 40M**
B	**10**	**6**	**6 x 5 M = 30M**
Total	**16**	**10**	**70M**

Blue Print

Chapter Name	Essay Questions 10 marks	Short Questions 5 marks	Marks allotted
Measurements	1	2	20
Basic Measurement Instruments	1	2	20
Lock-In-Amplifier & Signal Generators	2	2	30
Analytical Instruments & Temperature Transducers	1	2	20
Control Systems	1	2	20
Total marks			110

P.R. GOVERNMENT COLLEGE (A)
Electronics - Practical 8 B 2 [Cluster Elective B 2]
w.e.f. 2016-17 ADMITTED BATCH

Semester – 6
COMPUTER NETWORKS

2 Hours/Week [Total hours-30] **Credits : 02**

Any four Activities should be done

1. Design of multi range ammeter and voltmeter using galvanometer.
2. Measurement of resistance by Wheatstone bridge and measurement of bridge sensitivity.
3. Measurement of Capacitance by De'Sautys.
4. Measure of low resistance by Kelvin's double bridge.
5. To determine the Characteristics of resistance transducer - Strain Gauge (Measurement of Strain using half and full bridge)
6. To determine the Characteristics of LVDT.
7. To determine the Characteristics of Thermistors and RTD.
8. Measurement of temperature by Thermocouples and study of transducers like AD590 (two terminal temperature sensor), PT-100, J- type, K-type.
9. To study the Characteristics of LDR, Photodiode, and Phototransistor.

P.R. GOVERNMENT COLLEGE (A), KAKINADA

DEPARTMENT OF PHYSICS & ELECTRONICS

WORK LOAD FOR THE YEAR 2018-19

Name of the Subject : PHYSICS

Total No. of Hours : **164**

No. of Permanent posts sanctioned : 09

No. of Permanent staff working : 03

No. of Contract faculty : 01

No. of Part – Time Faculty :

S. No	Strength	Name of the class	Theory hours	Practical Hours	No. of Batches	Total Practical Hours	Total hrs.(Theory + Practical)
1	60	I MPC TM	4	2	4	8	12

2	30	I MPC EM	4	2	2	4	8
3	30	I MPE	4	2	2	4	8
4	30	I MPCS	4	2	2	4	8
5	60	II MPC TM	4	2	4	8	12
6	30	I IMPC EM	4	2	2	4	8
7	30	I IMPE	4	2	2	4	8
8	30	I IMPCS	4	2	2	4	8
9	60	I IIMPC TM Sem V Paper V	3	2	4	8	11
10	60	I IIMPC TM Sem V Paper VI	3	2	4	8	11
11	30	I IIMPC EM Sem V Paper V	3	2	2	4	7
12	30	I IIMPC EM Sem V Paper VI	3	2	2	4	7
13	30	I II MPE Sem V Paper V	3	2	2	4	7
14	30	I II MPE Sem V Paper VI	3	2	2	4	7
15	30	II IMPCS Sem V Paper V	3	2	2	4	7
16	30	II IMPCS Sem V Paper VI	3	2	2	4	7
17	30	Cluster A Sem VI Paper VII	3	2	2	4	7
18	30	Cluster A Sem VI Paper VIII	3	2	2	4	7
19	30	Cluster B Sem VI Paper VIII	3	2	2	4	7
20	30	Cluster C Sem VI Paper VIII	3	2	2	4	7
		Total Work load for the department of PHYSICS					**<u>164</u>**

DEPARTMENT OF PHYSICS & ELECTRONICS

WORK LOAD FOR THE YEAR 2018-19

Name of the Subject : ELECTRONICS

Total No. of Hours : **88**

	Strength	Name of the class	Theory hours	Practical Hours	No. of Batches	Total Practical Hours	Total hrs.(Theory + Practical)
1	30	I MPE	4	2	2	4	8
2	30	I MECS	4	2	2	4	8
3	30	II MPE	4	2	2	4	8
4	30	II MECS	4	2	2	4	8
5	30	III MPE Sem V Paper V	3	2	2	4	7
6	30	III MPE Sem V Paper VI	3	2	2	4	7
7	30	III MECS Sem V Paper V	3	2	2	4	7
8	30	III MECS Sem V Paper VI	3	2	2	4	7
9	30	Cluster A Sem VI Paper VII	3	2	2	4	7
10	30	Cluster A Sem VI Paper VIII	3	2	2	4	7
11	30	Cluster B Sem VI Paper VIII	3	2	2	4	7
12	30	Cluster C Sem VI Paper VIII	3	2	2	4	7
		Total Work load for the department of ELECTRONICS					**88**

DEPARTMENT OF PHYSICS & ELECTRONICS

WORK LOAD FOR THE YEAR 2018-19

Name of the Subject : **M Sc., Physics**

Total No. of Hours : **46**

S. No	Strength	Name of the class	Theory hours	Practical Hours	No. of Batches	Total Practical Hours	Total hrs.(Theory + Practical)
1	30	I M Sc	20	3	1	3	23
2	30	II MSc	20	3	1	3	23
		Total Work load for M Sc Physics					**46**

Consolidated Work Load for the Academic Year 2018-19

Group	**Work Load**	**Staff Required**
Physics	164	8
Electronics	88	4
M Sc	46	2
Total Work Load	**298**	**14**

LIST OF EXAMINERS / PAPER SETTERS IN ELECTRONICS

2018 – 19

S.No.	Name of the examiner	Subject	Name of the College
1	Ch.Kanakarao 9848943943	Electronics	Y.N.College, Narsapur
2.	S.Venkataraju 9246678554	Electronics	D.N.R.College, Bhimavaram, W.G.Dist.
3.	Dr.Y.V.Apparao	Electronics	S.V.K.P. & Dr.K.S.Raju College of Arts & Science, Penugonda, West Godavari dist.
4.	Dr.P.L.Rambabu	Electronics	M/s A.V.N.College, visakhapatnam
5	K.Ramesh	Electronics	C.R.R. College (M) Eluru
6	K.B.S.Gopal	Electronics	C.R.R. College (M) Eluru
7	P.P.Divakar	Electronics	C.R.R. College (M) Eluru
8	V.Venkateswararao	Electronics	C.R.R. College (M) Eluru
9	A.Veerabhadra Rao	Electronics	C.R.R. College (M) Eluru
10	L.S.R.Ch.V.K.Nageswararao	Electronics	C.R.R. College (M) Eluru
11	K.S.Ch.Srinivasa Rao	Electronics	C.R.R. College (M) Eluru
12	G.Vijayalakshmi	Electronics	C.R.R. College (M) Eluru
13	K.Ravikumar	Electronics	C.R.R. College (M) Eluru
14	A.Srinivasa Rao	Electronics	K.G.R.L.College , Bhimavaram
15	S.Srinivas	Electronics	K.G.R.L.College , Bhimavaram
16	Y.Sri Devi	Electronics	C.R.R. College (W), Eluru
17	S.V.Kumara Sastry	Electronics	S.K.B.R.College, Amalapuram
18	V.Radha Krishna	Electronics	S.K.B.R.College, Amalapuram
19	Esub Basha Sheik	Electronics	GC (A), Rajamahendravaram
20	E.Nageswara rao	Electronics	GDC, Yeleswaram
21	P.V.S.S.S.N.Reddy	Electronics	GC (A), Rajamahendravaram
22	V. Ratna Sekhar	Electronics	D.N.R. College (A), Bhimavaram
23	K.H.R. Singh	Electronics	D.N.R. College (A), Bhimavaram
24	D.Ganga dharudu	Electronics	M.R. College, Peddapuram
25	A.Satya narayana Murthy	Electronics	M.R. College, Peddapuram
26	K.Venkateswarlu HOD	Electronics	Y.N.College, Narsapur

P. R . GOVERNMENT COLLEGE (A), KAKINADA

Department of Physics & Electronics
Departmental Activities Planned for 2018-2019

The department of Physics and Electronics is planning the following programmes to conduct for the academic year 2018 –19.

S. No.	Activity	Probable date	Remarks
1	Counseling session for all classes of I year. a) About curriculum b) About semester system c) CBCS system d) About examination system e) About co curricular activities f) About extra curricular activities g) About extension activities h) About carrier guidance	June 4th week	
2	Post admission test	July 1st week	
3	Inaugural function of Physics Association a) To explain aims and objectives of dept., b) To start UPKAR SCHEME c) Helping hands	July 1st week	
4	Guest Lecture	July 3rd week	
5	Local Field trip surrounding industries, Awareness programme on IMD and importance	August 2nd week	
	One day work shop on Research Orientation in Physics	August 4th week	
6	Extension activity to local high schools	September 2nd week	
7	UPKAR scheme – disbursement of money to the students for their semester end examinations.	September 4th week	
8	Celebration of Sir C.V.Raman's Birth day	November 7th	
9	Guest lecture	November 3rd week	
10	College Quiz programme	December 2nd week	
11	Helping hands programme	January 1st week	

12	School level and college level Competitions with in the district for two days to inculcate awareness in science and technology	February 3rd week	
13	National Science day celebrations	February 28th	
14	UPKAR scheme – disbursement of money to the students for their semester end examinations.	March 1st week	

Certificate

The syllabus and model question papers including **Blue – Print** in Electronics subject for 3 years B.Sc. course for the semester I, II, III, IV, V and VI for the academic year **2018-19**, list of examiners and paper setters, departmental activities which contains pages **75,** is approved in the Board of Studies meeting held in the Department of Physics and Electronics on **10- 04 - 2018**.

Members of Board of Studies			**Signatures of members**
1	Dr. K. Jyothi	Chair person	
2	Dr. Y.V.V Appa Rao	University nominee	
3	Dr. Gangadharudu	Subject Expert, Lecturer in Electronics, MR College, Peddapuram	
4	Sri N.L.V.R.K.Prasad	Subject Expert, Lec.in charge/ phy, Govt.Degree College, Ramachandrapuram	
5	Sri B. Sudarshan	Representative from Industry, Andhara Electronics, kkd	
6	Sri. P. Rambabu	Alumni	
7	Sri. U.V.B.B.Krishna Prasad	Member	
8	Sri. K. Jaya Dev	Member	
9	Sri B.Srikanth	Member	
10	Kum. P.Divya	Member	
11	Kum. B. Jhony	Member	
12	M. Rama Swamy	Student III MPE	
13	Y. Srujana	Student II MPE	
14	N. Rajani	Student II MPE	
15	V. Poojitha	Student III MECs	

Certificate

The syllabus and model question papers including **Blue – Print** in Electronics subject for 3 years B.Sc. course for the semester I, II, III, IV, V and VI for the academic year **2018-19**, list of examiners and paper setters, departmental activities which contains pages **75**, is approved in the Board of Studies meeting held in the Department of Physics and Electronics on **10- 04 - 2018**.

Members of Board of Studies			Signatures of members
1	Dr. K. Jyothi	Chair person	Jyothi. K 10/4/18
2	Dr. Y.V.V Appa Rao	University nominee	
3	Dr. Gangadharudu	Subject Expert, Lecturer in Electronics, MR College, Peddapuram	
4	Sri N.L.V.R.K.Prasad	Subject Expert, Lec.in charge/ phy, Govt.Degree College, Ramachandrapuram	
5	Sri B. Sudarshan	Representative from Industry, Andhara Electronics, kkd	
6	Sri. P. Rambabu	Alumni	
7	Sri. U.V.B.B.Krishna Prasad	Member	
8	Sri. K. Jaya Dev	Member	
9	Sri B.Srikanth	Member	
10	Kum. P.Divya	Member	
11	Kum. B. Jhony	Member	
12	M. Rama Swamy	Student III MPE	
13	Y. Srujana	Student II MPE	
14	N. Rajani	Student II MPE	
15	V. Poojitha	Student III MECs	