P.R. GOVERNMENT COLLEGE (A), KAKINADA

(AN AUTONOMOUS COLLEGE WITH NAAC "B++" GRADE)

Board of Studies Meeting for UG Programmes

ELECTRONICS (Minor)

2025 – 2026

DEPARTMENT OF PHYSICS & ELECTRONICS

PROCEEDINGS OF THE PRINCIPAL (FAC), PITHAPUR RAJAH's GOVT. COLLEGE [A], KAKINADA
Present: Dr. Kandula Anjaneyulu, M.A, Ph.D.

Rc.No.9/A.C/BOS/2025-26 **Dt.31 July 2025**

Sub: Pithapur Rajah's Government College[A] Kakinada--Academic Cell- Conduct of BOS Meetings for the Academic Year 2025-26 - Guidelines issued - Regarding.

ORDER:

The autonomous colleges, in alignment with their vision, mission, stated objectives, and core values, are mandated to design and develop their own outcome-based curricula. This must be done with due consideration for societal, local, and global industry requirements, employability, and the development of industry-ready and transferable skills. Accordingly, every programme shall prescribe Course Outcomes (COs), Programme Outcomes (POs), and Programme Specific Outcomes (PSOs) along with a suitable learning outcome assessment management system, supported by a robust and transparent evaluation mechanism to measure attainment levels among students.

Further, the A.P. State Council of Higher Education (APSCHE) has introduced a revised curricular framework effective from the Academic Year 2025-26, incorporating Skill Enhancement Courses, Multi-Disciplinary courses, the Indian Knowledge System and a revised credit structure.

Our institution, from the Academic Year 2022–23 onwards, has defined a renewed vision and mission along with updated objectives and core values, necessitating the design and reorientation of its academic and research administration in line with these directives.

In light of the above responsibilities prescribed by the institution's vision and mission, NEP–2020, NAAC, NIRF, and the APSCHE's revised and new UG and P.G. curricular framework, it is imperative to customize, design, and re-orient our academic and research activities to meet the expectations of students, industries, and government stakeholders.

Accordingly, the Chairpersons of the U.G and P.G Boards of Studies (BoS) of various departments are hereby requested to make necessary arrangements to convene their BoS meetings before **09 Aug 2025**.

The Chairpersons are further instructed to:

1. Prepare the curricula and extracurricular activities for the Academic Year 2025–26 in line with the institution's vision, mission, NEP–2020, and NIRF norms.
2. Devise an appropriate evaluation system to ensure effective learning outcomes and holistic student development.
3. Ensure that the curriculum design includes a mandatory *20% revision* of the syllabus each year without deviating from the APSCHE prescribed syllabus.
4. If the syllabus is not prescribed by APSCHE/Affiliating University, then the syllabus is to be

framed by the BOS committee concerned with duly following the mandate prescribed above.

5. Engage stakeholders viz employers, parents, and alumni, to obtain feedback on the existing curricula and to invite suggestions for improvements.
6. Invite the University nominee, subject experts, industry representatives, student representatives, and parent representatives well in advance. The meeting notice shall clearly specify the date, venue, and agenda, and a soft copy of the agenda and relevant documents shall be circulated for their perusal.
7. Ensure that the subject experts invited preferably hold a Doctorate with at least 10 years of teaching experience and have relevant expertise in designing industry-related, market- and job-oriented curricula.
8. Facilitate thorough deliberations on curriculum design, evaluation methods, incorporation of research components, measures to enhance learning experiences, and optimal utilization of existing human, physical, and ICT resources.
9. Conduct all BoS meetings in offline mode. Online participation shall be permitted only under exceptional circumstances.
10. Prescribe benchmarking and quality initiatives in pedagogy and learning, including strategies for curriculum design and teaching-learning processes, in collaboration with the IQAC Coordinator, prior to the BoS meeting.
11. Ensure that a minimum student attendance of **75%** shall be required for eligibility to appear for I & II Mid-Term Examinations under the CIA component; this shall be formally approved in the BoS meeting.
12. Approve any new programmes to be introduced for the Academic Year 2025–26, the number and frequency of certificate courses, and SWAYAM MOOCs courses.
13. Submit the approved BOS copies in the prescribed format, in **quadruplicate (hard copies)** to the Academic Cell for onward submission to the IQAC, Examination Cell, and Library, within **three days** of the meeting and upload the soft copy in their respective department web pages in the college website.
14. Ensure strict alignment of all recommendations and curriculum changes with the institution's vision and mission.
15. Submit a request to receive advance funds from the Examination cell through Principal for conducting BoS meetings.

The details of honorarium to be paid to the University Nominee and Subject Experts attending the Board of Studies (BOS) meeting are as follows

UG BOS for AY 2025-26

S.No	Designation	Honorarium (Rs)	TA
1	University Nominee	1000	Below 20 Km @Rs.200/- (Local Conveyance) Above 20 Km, Bus fare/Train fare (Whichever is less)
2	Subject Expert	500	Below 20 Km @Rs.200/- (Local Conveyance) Above 20 Km, Bus fare/Train fare (Whichever is less)
3	Industrialist	500	Below 20 Km @Rs.200/- (Local Conveyance) Above 20 Km, Bus fare/Train fare (Whichever is less)

PG BOS for AY 2025-26

S.No	Designation	Honorarium (Rs)	TA
1	University Nominee	1000	Below 20 Km @Rs.200/- (Local Conveyance) Above 20 Km, Bus fare/Train fare (Whichever is less)
2	Subject Expert	500	Below 20 Km @Rs.200/- (Local Conveyance) Above 20 Km, Bus fare/Train fare (Whichever is less)
3	Industrialist	500	Below 20 Km @Rs.200/- (Local Conveyance) Above 20 Km, Bus fare/Train fare (Whichever is less)

- Binding charges limited to Rs.250/- per program.
- The Bills/Vouchers shall be in compliance with applicable rules and norms.

Following contents shall be presented in the BOS document in the order

1. Proceedings of the Principal pertaining to BOS
2. Composition of BOS
3. Vision and Mission of the department
4. Agenda: It shall include ATR on the previous BOS meeting first, resolutions, etc., later.
5. Table showing the Allocation of Credits in the following table for both theory and Practicals' in case of science subjects

S. No	Semester	Title of the Course (Paper)	Hrs./week	Max. Marks (SEE)	Marks in CIA	Credits
1	III	Physical Chemistry-1	3	50	50	4

6. Resolutions adopted in the meeting with detailed discussion that took place during the meeting.
7. Each BOS Chairman shall, immediately after syllabus, tabulate the changes made in the syllabus/ paper along with justification.
8. Attendance of Members present with signatures in the tabular form.
9. List of Examiners & Paper setters (Minimum 20 members and at least 02 members from other states)
10. Syllabus for each course (both theory & Practical in case of Science subjects) followed by model question papers (theory & practical) and allocation of CIA (50marks) for each course with structure.
11. Each student (2025-26 AB) has to complete one MOOCS course from SWAYAM in any subject per year.

CIA structure for Single Major system

- Out of 50 marks for CIA, 25 marks are allocated for Mid examinations. In each semester two mid examinations to be conducted and the average of the two will be considered.
- Mid examinations are to be conducted in offline mode at college level
- Mid examination to be conducted in offline mode in which the student should attempt **one essay** question for ten marks out of two questions, **three short** answer questions with five marks each out of five questions
- The remaining 25 marks for CIA are allocated as per the following structure.

Project-10M	Seminar- 5M	Assignment- 5M	Viva on theory- 3M	Clean & green and Attendance- 2M

Proceedings of the Principal, Pithapur raja's Government College [A], Kakinada
Present: Dr. Kandula Anjaneyulu, M.A, Ph.D
Rc. No: 2/A.C/BOS-Member Nomination/2025-26 Dated 31-07-2025

Sub:- Pithapur raja's Government College [A], Kakinada – UG Boards of Studies (BoS) – Program Course-B.Sc/ELECTRONICS Nomination of members - Orders Issued.
Ref:-Proc.R.C.No.1A.C/BOS/2025-26 Dated: 31-07-2025 of Principal, Pithapur raja's Government College [A], Kakinada.

ORDER:

The Principal, Pithapur raja's Government College [A], Kakinada is pleased to constitute UG **Board of studies in ELECTRONICS** for framing the syllabi in ELECTRONICS subject for all semesters duly following the norms of the UGC Autonomous guidelines.

S. No	Name of the Nominee	Designation
1.	Dr. M. Surekha Head of the Department	Chairman
2.	Dr. M V K Meher,	University Nominee, Principal, GDC, Perumallapuram
3.	Sri. K.Venkateswara Rao	Subject Expert, Govt. Degree College, Yeleswaram.
4.	Sri.D. Gangadharudu	Subject Expert,Lecturer in Electronics,MR government college,Peddapuram
5.	Mr.P.Suresh Kumar	Representative from Industry, Andhra Electronics,Kakinada
6.	Dr.K.Jayadev	Member
7.	Ms G. Sridevi	Member
8.	Smt.A.Padmavathi	Member
9.	Dr S V G V A Prasad	Member
10.	Dr P Himakar	Member
11.	Dr K. Durga Rao	Member
12.	Ms.D.Sravani	Member
13.	Ms M.Geetha Sri	Member
14.	Ravi Teja	Student Alumini Member
15.	K.Nirmala	Student Member-II Iot
16.	G.David	Student Member-III Iot

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The Chairpersons of all Boards of Studies are hereby instructed to comply with these directives in letter and spirit to ensure the highest standards of academic and administrative excellence.

PRINCIPAL
P.R. Govt. College (Autonomous)
KAKINADA-533 001.

PRINCIPAL
Pithapur Rajah's Government College(A)
Kakinada

Copy to:

1. Lecturers-in-Charge (BOS Chairmen) of all the departments
2. Academic Coordinator
3. IQAC coordinator
4. Controller of Examinations
5. Office

ADIKAVI NANNAYA UNIVERSITY RAJAMAHENDRAVARAM
OFFICE OF THE DEAN, ACADEMIC AFFAIRS

No.ANUR PR (A)/BoS/2025/38 Dt.17.06.2025

PROCEEDINGS OF THE VICE-CHANCELLOR

Sub: ANUR – University Nominees – UG Board of Studies of Pithapur Rajah's Government College (A) Kakinada – Orders – Issued
Read: -Note orders of the Vice-Chancellor dated 13.06.2025

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ORDER:

With reference to above, the Vice-Chancellor is pleased to order that the following members be nominated as University Subject Experts for constitution of UG Board of Studies of Pithapur Rajah's Government College (A) Kakinada, for a period of 3 years from the date of orders issued as detailed against each subject.

Sl. No	BOS	Name of the expert nominated
1	English	Prof.S.Prasanthi Sree, M.S.N Campus Kakinada
2	Telugu	Dr.S.Gopalayya, GDC Tadepalligudem
3	Hindi	Dr.N.V.Ramana, GDC Ramachandrapuram
4	Sanskrit	Dr.P.Umamaheswara Rao, Dr.V.S Krishna GDC (A), Visakhapatnam
5	Mathematics	Ms.Y.Padmaja GDC Ramachandrapuram
6	Statistics	Dr.N.Madavi GDC(A) RJY
7	Physics, Electronics & Renewable energy	Dr.M.V.K.Mehar, GDC, K.Perupalem
8	Chemistry, Organic Chemistry, Analytical Chemistry	Dr.T.Narasimha Murthy, GDC (A) RJY
9	Pharmaceutical Chemistry	P.Sai Kiran, Adithya University Kakinada
10	Botany	Dr.K.Usha sri GDC Pithapuram
11	Zoology	Dr.K.Ramaneswari, AKNU, RJY
12	Aquaculture	Dr.D.Kalyani, AKNU, RJY
13	Biotechnology	Dr.B.Nageswari, GDC (A) RJY
14	Microbiology	Dr.D.Aruna, SRR & CVR GDC (A) Vijayawada
15	Artificial Intelligence	N.Naga Subrahmanyeswari, ASD College for Women (A), Kakinada
16	Data Science	Sri.K.Rasmi Ranjan, GDC(A), Tuni
17	Internet of Things	Smt.Dr.K.Sobha Rani, GDC, Ramachandrapuram
18	Computer Applications	Smt.Dr.K.Sobha Rani, GDC, Ramachandrapuram
19	Information Technology	Smt.N.Naga Subrahmanyeswari, ASD College for Women (A), Kakinada
20	Economics	Dr.K.Yamuna, ASD GDC(W), Kakinada
21	History	Ch.Padmavathi, GDC, Pithapuram
22	Political Science & International relations	Dr.K.Swamiji, Ideal DC(A), Kakinada
23	Commerce & Management	Dr.G.Arun Kumar, Dr.VS Krishna GDC(A) Visakhapatnam
24	Philosophy	Dr.Ch.Lalitha, GDC(A) Tuni

(BY ORDER)

Dean,
Academic Affairs 17.6.25

To
The Principal, Pithapur Rajah's Government College (A) Kakinada
The Above Members
The Principals concerned
PS to VC,
PA to R,
OOF

Vision & Mission of the College

VISION: To contribute its might for holistic and quality human capital formation for modern economy with focus on developing employment opportunity – enhancing skilling ecosystem, through integration of research, value system and technology into teaching – learning process.

MISSION:

- To provide conducive and outcome-based skill development environment in the institution to brighten prospects for progression to higher education, employment opportunities in Government and Private agencies, for personal growth and enhanced productivity and economic growth.
- To collaborate with coaching centers or skill development institutions for skill development.
- To develop systems for quality enhancement in learning by student through promotion of ICT integration into learning, deployment of learning resources at the door steps of students for optimum utilization.
- Designing and implementing student-centric, inquisitive, practical-rich and research based curricula, including project works, problem-solving & applications oriented TLPs, field trips, etc., that facilitate experiential and participative learning.
- To strengthen research and development and create new research knowledge through intense research, collaborations, knowledge and technology transfer.
- To foster innovation among students through trainings and forging collaborations with outside organizations
- To turn each student into a wholesome personality through initiatives in Community Service, Gender equity initiatives, Environment protection, personality development, transferable skills, understanding constitution and its spirit and their role in nation building.
- To mold the character of each constitutional provisions-abiding and inquisition- arousing

P.R. GOVT.COLLEGE (A), KAKINADA

DEPARTMENT OF PHYSICS & ELECTRONICS

Board of Studies – Electronics

Meeting held on: Dt. 07 .08.2025 **Time: 10.30 am**

At Department of Physics & Electronics staff room

Agenda oftheMeeting

To discuss and approve:

1. Action taken report (ATR) of the A.Y.2024-25
2. Revised- Minor and semester wise curriculum.
3. Adoption of regulations on scheme of examination and marks/grading system.
4. Streamlining of regularity in attendance.
5. Value added courses viz. add on courses and skill development courses to be conducted by the department during the academic year 2025-26.
6. Collaboration with industry and third party sector organization in view of industrial internship.
7. Make students access to ICT infrastructure for enhanced quality in higher education.
8. Remedial coaching for slow learners and project/ research work for advanced learners
9. Allocation of extra credits for extracurricular activities.
10. List of equipment/software requirement for each lab/practical of **Semester-I,III&V**.
11. Conduct of parent teacher meeting.
12. Panel of Question paper setters and Examiners
13. Action plan for the academic year 2025-26.
14. Departmental budget proposal for the academic year 2025-26
15. Any other with the permission of the chair.

P.R. Government College (Autonomous), Kakinada

Department of Physics and Electronics

BOARD OF STUDIES - ELECTRONICS

Resolutions of the Meeting

The Board of Studies meeting was convened by the In-Charge Physics & Electronics Department on 07-08-2025 at 10:30am. under the chairmanship of Dr M. Surekha. Dr. M.V.K Meher, University Nominee, Sri. D. Gangadharudu, Subject expert, all members of the faculty of Physics & Electronics and student representatives attended the meeting. The following agenda items are discussed and resolutions are made

Agenda-1: Action taken report (ATR) of the A.Y.2024-25.

Proposal: Presented before the BOS members to discuss on the above agenda 1.

Discussion: Discussed the action taken report (ATR) of the A.Y.2024-25.

Resolution Adopted: Appreciated and approved as all the activities were successfully completed in the proposed time line.

Agenda-2: Revised-Minor, common program structure and semester wise curriculum.

Proposal: Placed before the BOS members to discuss on the above agenda 2.

Discussion: Discussed the entire program structure

Resolution Adopted: Resolved to adopt the revised Minor and verified course wise syllabi as per guidelines issued by APSCHE and ANUR. Also discussed and approved the revised course wise structure, Syllabi, Blue print and model papers of **Semesters I – V** for the academic year 2025-26.

Agenda-3: Adoption of regulations on scheme of examination and marks/grading system.

Proposal: It is put before the BOS members to discuss on the above agenda 3.

Discussion: Discussed the Continuous Internal Assessment (CIA): Examination pattern.

Resolution Adopted: Approved the Mode of internal assessment, pattern of examination of internal assessment and scheme of evaluation for both Theory & practical exams of Semesters I-IV as external 50Marks and internal assessment 50Marks. For all LSCs and SDCs has no internal assessment. All the practical classes of Semesters I-V will be conducted for 2 Hrs.

It is resolved to approve the split up of Continuous Comprehensive Evaluation CCE – 50 Marks for **Semesters I-IV** as follows:

Examination	Mode of Assessment	Marks allotted
(CIA) Continuous Internal Assessment SEM I-IV	Student study Project	10
	Viva Voce	10
	Seminar and Group Discussion	5
	Average of 2 Mid examinations conducted @25marks	25
TOTAL MARKS		**50**

- It is resolved to conduct one pre-final examination for I, II & III year students.
- Discussed and approved the scheme of evaluation of practical examinations for all the I – V semesters.
- It is resolved to approve the conduct of semester end practical exams only with internal examiners for odd semester and with both internal and external examiners for even semesters at the end of each semester.
- Resolved and approved the blue print, model papers of semester end examinations for all the I – V semesters.

Agenda-4: Streamlining of regularity in attendance.

Proposal: It is put before the BOS members to discuss the above agenda point 5.

Discussion: Discussed the measures to be taken for improving the regularity of the student. Class mentors will be given the responsibility of students of their class. They were advised not to allow any students who got below 75% of attendance to the SEM end examination

Resolution Adopted: Resolved to make the **75% of attendance is mandatory** to appear for both t **1st and 2nd mid-term examinations** and for SEM end examinations. Also it is resolved that the student should attend at least one internal exam to appear for the Semester end examination.

Agenda-5: Certificate courses viz. add on courses and skill development courses to be conducted by the department during the academic year 2025-26.

Proposal: It is placed before the BoS members to discuss on the above agenda 6.

Discussion: Discussed the LSCs and SDCs to be included.

Resolutions Adopted:

Resolved to adopt Community Service Project for all the students at the end of **Sem –II**.

Agenda-6: Collaboration with industry and third party sector organizations in view of industrial internship.

Proposal: It is placed before the BoS members to discuss on the above agenda 7.

Discussion: Discussed on collaboration with industry and third party sector organization in view of industrial internship.

Resolutions Adopted:

Resolved to send all the final year Physics and Electronics students for on job training apprenticeship in connection with industries for off-site Project in the end of **Sem V/VI with the following industries** in accordance with their interest of study.

S . No.	NAME OF THE INDUSTRY	LOCATION	NATURE OF SKILLS AIMED TO BE
1	ISIE India Pvt. Ltd., Noida	Kakinada	Electronic vehicle technology
2	JVS Technologies	Kakinada	Electronic devices manufacturing and repairs
3	Solar Systems	Kakinada	Installation of Solar panels
4	Ramakrishna Rewinding Works	Kakinada	Rewinding of Electrical appliances

Agenda-7: Make students access to ICT infrastructure for enhanced quality in higher education.

Proposal: It is placed before the BoS members to discuss on the above agenda 8.

Discussion: Discussed on making the students access to ICT infrastructure for enhanced quality in higher education.

Resolutions Adopted: By identifying various modules and topics for ICT platform and to develop e-content in 4- quadrants method to the students and upload in the college website. Students were also been advised to search in various educational platforms for getting exposure to advances in subject concerned.

Agenda-8: Remedial coaching for slow learners and project/ research work for advanced learners

Proposal: It is placed before the BoS members to discuss on the above agenda 9.

Discussion: Discussed on remedial coaching for slow learners and project/ research work for advanced learners.

Resolutions Adopted: Resolved to adopt a bench mark from the class examinations conducted and from previous appeared examinations to segregate the students into three categories

- Resolved to take '**O'** as benchmark for advanced learners and they will be assign critical assignments, project/research works and ICT based class seminars
- Resolved to take '**B'** as benchmark for moderate learners and they will be given assignments and class seminars
- Resolved to take '**F'** as benchmark for slow learners to conduct remedial coaching
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Agenda-9: Allocation of extra credits for extracurricular activities.

Proposal: It is presented before the BOS members to discuss on the above agenda10.

Discussion: Discussed the allocation of extra credits for extracurricular activities.

Resolution Adopted: Approved to give extra credits for MOOCS courses, N.S.S., N.C.C., winners of zonal level sports and games competitions, participation in state level/ National level competitions, blood donations camps, environmental programs like extending services in facing the natural calamities etc. as mentioned in the following table.

Sl.No.	Activity	Details of achievement	Credits
1	**MOOC Course**	SWAYAM /NPTEL /CEC etc., (Course Completion certificate with credits should be produced for the claim of extra credits)	Total credits achieved will be considered
2	**NCC**	B CERTIFICATE	2
		Participation in National Camp after 'B' certificate	3
		C certificate	4
		Adventure camp/RD parade along with "B"	5
		Failed in B certificate Examination	1
3	**Sports**	South zone selection	3
		All India participation	4
		Winning medals in all India	5
		competitions	

		40% attendance in regular NSS	1
		activities	
4	**NSS**	50% attendance with Community Service	2
		Conduct of survey/Youth	3
		exchange/RD	
		Enrollment and training	1
5	**JKC**	Campus recruitment local level	2
		MNCs/reputed companies	3
6	**Community service**	Participation in community service by departments (outreach programmes)	2
7	**Cultural**	Winning medals at state level-2,	2
	activity	District level-1	1
8	**COP/Add**	Pass in Certificate Exam-1,	1
	on Course	Diploma-2	2
9	**Support servic es**	Lead India, Health club, RRC and Eco Club etc., participation in various programmes	1

Agenda-10: List of equipment/software requirement for each lab/practical of **Semester-V**.

Proposal: Placed before the BOS members to discuss on this agenda point 11.

Discussion: Discussed the requirement for each lab/practical of **Semester-V**.

Resolution Adopted: Approved and resolved to purchase the needy and essential equipment to conduct the practical classes without any difficulty. For this the members of BOS have made some suggestions and given the list of equipment to be procured.

Agenda-11: Conduct of parent teacher meeting.

Proposal: It is presented before the BOS members for the discussion on this agenda point 12

Discussion: Discussed the conduct of parent teacher meeting

Resolution Adopted: Approved and resolved to conduct parent teacher meeting twice in the academic year at each semester and to make them aware of their role as stakeholders in the college administration and look after their wards performance at least twice a year

Agenda-12: Panel of examiners to be approved in BOS.

Proposal: It is presented before the BOS members to discuss on the above agenda 13.

Discussion: Discussed the panel of Question paper setters and examiners.

Resolution Adopted: Approved and resolved.

Agenda-13: Action plan for the academic year 2025-26.

Proposal: It is put before the BOS members to discuss on the above agenda 14.

Discussion: Discussed the action plan to implement the departmental activities more effectively as per the plan.

Resolution Adopted: It is resolved to approve Department Action Plan for the Academic Year 2025-26. They are advised to do the activities more vibrant and meticulously by involving more number of students in the activities as this is one of the oldest college in South India and Prestigious by its name.

Agenda-14: Departmental budget proposal for the academic year 2025-26

Proposal: It is presented before the BOS members to discuss on the above agenda 15.

Discussion: Discussed the budget proposal

Resolution Adopted: Approved the budget proposal for the academic year 2025-26.

P. R. Government College (Autonomous), Kakinada
DEPARTMENT OF PHYSICS & ELECTRONICS

Board of Studies Meeting 2025-26

Action Taken Report 2024-25

The Department of Physics conducted the BOS meeting for the academic year 2024-25 on 30-04-2024 in the Department of Physics. All the activities according to the plan of action were successfully completed in the proposed time line. By taking the valuable recommendations of the members for enhancement of knowledge and to enrich the skills of the students, the department took initiatives and implemented various innovative steps viz.

1. We take MOU with Trontech Lab Pvt. Ltd. on 25-06-2024.
2. Distribution of Kasarabada Scholarship to merit students on 02-07-2024.
3. Low temperature Physics & Refrigeration Practical demonstration by Technician Mahesh, A-Z Technical services.
4. Awareness program on Ill effects of Tobacco was conducted on 02-08-2024.
5. Invited talk on Career Guidance conducted on 08-08-2024.
6. Invited talk on Career Guidance & Motivational talk conducted on 23-09-2024.
7. Essay writing competitions on Swarnandhra @ 2047 on 01-10-2024.
8. Student exchange program with GDC, Yeleswaram on Solar Energy and It's Applications practicals on 22-10-2024.
9. Sir C.V.Raman Birthday celebrations on 07-11-2024.
10. Inauguration of certificate course on Basic Electronics on 18-11-2024.
11. Inauguration of certificate course on Sensor based Smart wiring on 18-11-2024.
12. Physics Faculty Forum Started on 21-11-2024.
13. Attended Drone Development Workshop along with Final year students at JNTUK, Kakinada on 06-12-2024.
14. Inauguration of certificate course on Smart materials on 06-01-2025.
15. Inauguration of certificate course on Troubleshooting and Fixing of Laboratory Instruments on 06-01-2025.
16. ISRO 100th Rocket Mission (i.e., GSLV-F15, NVS-02 Satellite) celebrations on 30-01-2025.
17. Inauguration of certificate course on "Harnessing Solar Power-Solar panels Technology and Applications" 30-01-2025.

18. Extension activity i.e., student exchange program to Jr. college students of GJC, Kirlampudi.
19. Distribution of Upkar Scholarship to the poor and merit students on 31-01-2025.
20. MOU with EMF Institutions (venous solutions & Research, Visakhapatnam) on 03-02-2025.
21. Swarna Andhra & Swachh Andhra clean & Green activity conducted on 15-02-2025.
22. Parent Teacher meeting was conducted on 17-02-2025.
23. Inauguration of Online Coaching for APPGCET on 17-02-2025.
24. National Science Day celebrations conducted on 28-02-2025.
25. Interactive secession by Kasarabada Chalapathi garu with students on Importance of Education on 18-03-2025.
26. Field trip was conducted to final year students to Doppler weather RADAR station & AU Nuclear Physics department lab, Visakhapatnam on 27-03-2025.

Certificate

The syllabus and model question papers including blueprint in physics subject for 3 years BSc course (Electronics Minor) for the semesters II.III, IV and V for the academic years 2025- 26. list of examiners and paper setters' departmental activities which contains pages is approved in the board of studies meeting held on 07-08-2025.

S.No.	Name of the Nominee	Designation	Signature
1.	Dr. M. Surekha Head of the Department	Chairman	
2.	Dr. M V K Meher	University Nominee	
3.	Sri. K.Venkateswara Rao	Subject Expert	7/8/25
4.	Sri.D. Gangadharudu	Subject Expert	
5.	Mr.P.Suresh Kumar	Representative from Industry, JVS technologies,Kakinada.	7/8/25
6.	Dr.K.Jayadev	Member	
7.	Ms G. Sridevi	Member	7-8-25
8.	Smt.A.Padmavathi	Member	7.8.25
9.	Dr S V G V A Prasad	Member	
10.	Dr P Himakar	Member	7/8/25
11.	Dr K. Durga Rao	Member	
12.	Ms.D.Sravani	Member	
13.	Ms M.Geetha Sri	Member	
14.	Ravi Teja	Student Alumini Member	
15.	K.Nirmala	Student Member-II Iot	
16.	G.David	Student Member-III Iot	

Certificate

The syllabus and model question papers including blueprint in physics subject for 3 years BSc course(Electronics Minor)for the semesters II.III, IV and V for the academic years 2025-26. list of examiners and paper setters' departmental activities which contains pages is approved in the board of studies meeting held on 07-08-2025

S.No.	Name of the Nominee	Designation	Signature
1.	Dr. M. Surekha Head of the Department	Chairman	
2.	Dr. M V K Meher	University Nominee	
3.	Sri. K.Venkateswara Rao	Subject Expert	
4.	Sri.D. Gangadharudu	Subject Expert	
5.	Mr.P.Suresh Kumar	Representative from Industry, JVS technologies,Kakinada.	
6.	Dr.K.Jayadev	Member	
7.	Ms G. Sridevi	Member	
8.	Smt.A.Padmavathi	Member	
9.	Dr S V G V A Prasad	Member	
10.	Dr P Himakar	Member	
11.	Dr K. Durga Rao	Member	
12.	Ms.D.Sravani	Member	
13.	Ms M.Geetha Sri	Member	
14.	Ravi Teja	Student Alumini Member	
15.	K.Nirmala	Student Member-II Iot	
16.	G.David	Student Member-III Iot	

UG Program (4 years Honors) Structure (CBCS)

2020-21 A.Y., onwards Up to 2025-26.

BACHELOR OF SCIENCE

(3rd. and 4th year detailed design will be followed as per APSCHE GUIDELINES)

Subjects/ Semesters		I		II		III		IV		V	
		H/ W	C	H/W	C	H/W	C	H/W	C	H/ W	C
Languages											
English		4	3	4	3	4	3				
Language (H/T/S)		4	3	4	3	4	3				
Life Skill Courses		2	2	2	2	2+2	2+2				
Skill Development Courses		2	2	2+2	2+2	2	2				
Core Papers											
M-1	C1 to C5	4+2	4+1	4+2	4+1	4+2	4+1	4+2 4+2	4+1 4+1		
M-2	C1 to C5	4+2	4+1	4+2	4+1	4+2	4+1	4+2 4+2	4+1 4+1		
M-3	C1 to C5	4+2	4+1	4+2	4+1	4+2	4+1	4+2 4+2	4+1 4+1		
M-1	SEC (C6,C7)									4+2 4+2	4+1 4+1
M-2	SEC (C6,C7)									4+2 4+2	4+1 4+1
M-3	SEC (C6,C7)									4+2 4+2	4+1 4+1
Hrs/ W (Academic Credits)		30	25	32	27	32	27	36	30	36	30
Project Work											
Extension Activities (Non Academic Credits)											
NCC/NSS/Sports/Extra-Curricular									**2**		
Yoga							**1**		**1**		
Extra Credits											
Hrs/W (Total Credits)		30	25	32	27	32	28	36	33	36	30

M= Major; C= Core; SEC: Skill Enhancement Course

P.R. Government College (Autonomous), Kakinada

Marks & Credits Marks & Credits

Sl. No	Course type	No. of courses	Each course teaching Hrs/wk.	Credit for each course	Total credits	Each course evaluation			Total marks
						Conti-Assess	Univ-exam	Total	
1	English	3	4	3	9	50	50	100	300
2	S. Lang	3	4	3	9	50	50	100	300
3	LS	4	2	2	8	0	50	50	200
4	SD	4	2	2	8	0	50	50	200
5	Core/SE -I	5+2	4+2	4+1	35	50	50+50	150	1050
	Core/SE -II	5+2	4+2	4+1	35	50	50+50	150	1050
	Core/SE -III	5+2	4+2	4+1	35	50	50+50	150	1050
6	Summer-Intern	2		4	8		100	200	200
7	Internship/ Apprentice/ on the job training	1		12	12		200	200	200
		38			**159**				**4550**
8	**Extension Activities (Non Academic Credits)**								
	NCC/NSS/Sports/ Extra-Curricular			**2**	**2**				
	Yoga	**2**		**1**	**2**				
	Extra Credits								
	Total	**40**			**163**				

DETAILS OF COURSE TITLES & CREDITS Admitted batch (2024 - 25)

Sem	Cours e no.	Course Name	Course type (T/L/P)	Hrs./ Wk. (Scien ce: 4+2)	Credits (Science : 4+1)	Max. Marks Cont./Internal/ Mid Assessment	Max. Marks Sem-end Exam
II	1	Fundamentals of Electricity and Electronics	T	3	3	50M	50M
	1 P	Practical course -1	L	2	1	0	50M
III	2	Semiconductor Devices and circuit theory	T	3	3	50M	50M
	2 P	Practical Course - 2	L	2	1	0	50M
IV	3	Electrical and Electronic Instrumentation	T	3	3	50M	50M
	3 P	Practical Course - 3	L	2	1	0	50M
	4	Microprocessor systems	T	3	3	50M	50M
	4 P	Practical Course - 4	L	2	1	0	50M
V	6A	Industrial Electronics	T	4	4	50M	50M
		Industrial Electronics Lab	L	2	1	0	50M
	7A	Electronic Instrumentation	T	4	4	50M	50M
		Electronic Instrumentation Lab	L	2	1	0	50M
	OR						
	6B	Cellular Mobile Communication	T	4	4	50M	50M
		Cellular Mobile Communication Lab	L	2	1	0	50M
	7B	Consumer Electronics	T	4	4	50M	50M
		Consumer Electronics Lab	L	2	1	0	50M

Note: *Course type code: T: Theory, L: Lab

P.R. Government College (A), Kakinada

Blue print for the model paper – Electronics

Semester End External examination

For I , II &III year core courses 2025 –26

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	3	10	30
2	Section – B Short answer Question	7	5	35	4	5	20
TOTAL				**95**			**50**

Percentage of Choice given $= \frac{95-50}{95} \; x \; 100$

$= \frac{45}{95} \; x \; 100$ $= 47.4$ %

P.R. Government College (A), Kakinada

Blue Print for Internal Theory Examination

For Single Major system

S. No.	Type of question	Unit	No. of Questions	No. of Questions Given			No. of Questions to be answered		
				Total Questions	Marks allotted to each question	Total marks	No. of Questions	Marks allotted to each question	Total marks
1	**Section – A** Essay question	I	1	2	10	20	1	10	10
		II	1						
2	**Section – B** Short answer Questions	III	2	4	5	20	2	5	10
		IV	2						
3	**Section – C** Objective type questions	One question from each unit		5	1	5	5	5	5
TOTAL						**45**			**25**

Percentage of Choice given = $\frac{45-25}{45}$ X 100 = 44.44 %

The total of two internals is reduced to 25 marks and the other 25 marks allocated for CCE are further divided as follows

Study project - 10 marks
VIVA - 3 MARKS
ASSIGNMENT - 5 MARKS
SEMINAR - 5 MARKS
CLEAN & GREEN - 2 MARKS

Percentage of Choice given = $\frac{\square\square-\square\square}{45}$ X 100 = 44.44 %

Blue print for Semester End Practical Examination

For I, II & III Year Practical Paper

Scheme of Valuation for Practical

Time: 2 hrs. Max. Marks: 50

1. Formulae & Explanation - 10 Marks
2. Tabular form + graph + circuit diagram - 10 Marks
3. Observations - 10 Marks
4. Calculation, graph, precaution and results - 10 Marks
5. Viva voice - 05 Marks
6. Record - 05 Marks

Note: Minimum of 5 experiments to be done and recorded.

For Microprocessor /Micro Controller practical
Scheme of Valuation for practical

Time:2 hrs. Max.Marks:50

1. Flow chart - 08 M
2. Algorithm - 07 M
3. Program - 15 M
4. Execution and Result - 10 M
5. Viva voice - 05 M
6. Record - 05 M

For Cellular mobile communication practicals

Time:2 hrs. Max.Marks:50

1. Submission of Project - 30M
2. Presentation - 10M
3.Viva voce - 10M

For Consumer Electronics practical's

Time:2 hrs. Max.Marks:50

1. Written exam - 30M
2. Submission of Record - 10M
3.Viva voce - 10M

P.R.GOVT. COLLEGE (A), KAKINADA

Department of Physics and Electronics

B.Sc. - Programme Outcomes

On successful completion of B.Sc. program students will be able to:

PO 1 Domain Expertise:

- Acquire comprehensive domain knowledge and skills.
- Make use of the knowledge in an innovative manner.

PO 2 Life-long Learning and Research:

- Learn "how to learn"- Self-motivated and self-learning.
- Adopt to the ever-emerging demands of work place and life.
- Investigate the problem and report in a proper manner.

PO 3 Modern Equipment Usage

- Adopt ICT mode of learning effectively.
- Access, retrieve and use authenticated information.
- Have knowledge of software applications to analyze data
- Usage of technology without deviating from the dedication of learning.

PO 4 Computing Skills and Ethics

- Develop rational and scientific thinking.
- Ensure the human values & ethics and to follow them throughout the life.

PO 5 Complex problem Investigation & Solving

- Predict and analyze problems.
- Frame hypotheses.
- Investigate and interpret empirical data.
- Plan and execute action.

PO 6 Perform effectively as Individuals and in Teams

- Work efficiently as an individual
- Cooperate, coordinate and perform effectively in diverse teams/groups.

PO 7 Efficient Communication & Life Skills

- To face challenges and self-sustainability in overcoming the psychological problems.

- Listen, understand and express views in a convincing manner.
- Develop skills to present information clearly and concisely to interested groups.

PO 8 Environmental Sustainability

- Following the green energy measures.
- Understand sensibly the environmental challenges.
- Think critically on preventing of environmental pollution.
- Propagate and follow environment friendly practices.

PO 9 Societal contribution

- Involve voluntarily in social development activities at Regional, National levels.
- Voluntary participation in serving the society from natural calamities viz. disasters, cyclones, epidemics.
- Be a patriotic citizen to uphold the constitutional values of the Nation.

PO 10 Effective Project Management

- Adoption of changes time to time in accordance with the situations.
- Identify the goals, objectives and components of a project for its completion.
- Plan, organize and direct the endeavors of teams to achieve the targets in time.
- Be competent in identifying opportunities and develop strategies and decision making for contingencies.

PSO of the Courses offered during 2025-26

COURSE: B.Sc. - Physics, Electronics and Renewable Energy

- **PSO 1:** Domain knowledge and understand the mechanism behind various electronic and physical systems and qualitative way through experiential learning with firm mathematical tools.
- **PSO 2:** Analyze the physical properties materials, electronic components to develop essential tools for better livelihood.
- **PSO 3:** Skills to study the optical, thermal, electrical and electronic properties of materials and also to explore the properties of various electronic components, communication systems, microprocessor and micro-controller.
- **PSO 4:** Ability to interlink the skills developed to select proper materials for suitable electronic applications, and acquires an aptitude to address the problems in simulation of electronic circuits, developing web and mobile applications.

P. R. GOVT. COLLEGE (A), KAKINADA DEPARTMENT OF

PHYSICS & ELECTRONICS

BOS OF ELECTRONICS

ADDITIONS & DELETIONS IN THE CURRICULAM

*** After having the deep discussions and deliberations with the Principal sir and other BOS members, it is resolved to change the syllabus of III B.Sc (Minor) Paper to adopt the present syllabus .

Program : B.Sc
Semester : V
Course : Electronics Minor
Title of the Paper : CONSUMER ELECTRONICS

S. No.	Proposed APSCHE paper	Replaced with	Justification
1	Computer Network	Consumer Electronics	Proposed paper was covered in the computer science subject for IoT students.Hence,it is replaced with Consumer Electronics.

Total Percentage of changes : 100

*** After having the deep discussions and deliberations with the Principal sir and other BOS members, it is resolved to change the paper of III B.Sc (Minor) Paper Titled **COMPUTER NETWORK,** and to adopt the Paper CONSUMER ELECTRONICS.. The entire committee thought that the previous syllabus lacks the foundational content and it is appropriate to include the basic concepts to encourage the students to build a strong foundation/

Program : B.Sc
Semester : III
Course : Electronics Minor
Title of the Paper : Semiconductor devices & Circuit theory

S.No	Name of the Module	Topics Added/ Deleted	Justification
1	UNIT I	**Deleted:** Hybrid parameters and hybrid equivalent of CE circuit **Added:** Transistor equations	Transistor equations have more weightage in competitive exams

Total Percentage of changes: 10%

Program : B.Sc
Semester : II
Course : Electronics Minor
Title of the Paper : Fundamentals of Electricity & Electronics

S.No	Name of the Module	Topics Added/ Deleted	Justification
1	UNIT V	**Deleted:** Thevenins & Nortons theorems	Will be covered in the 3rd sem in semiconductor devices paper

Total Percentage of changes : 10%

PITHAPUR RAJAHS GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA

DEPARTMENT OF PHYSICS & ELECTRONICS

Percentage of Syllabi included/Excluded-2025-26

Sl No	Title of Paper	% of Change
1.	Fundamentals of Electricity & Electronics	10
2.	Semiconductor devices & Circuit theory	10
3.	Consumer Electronics	Complete paper change
4.	Cellular Mobile Communication	0
5.	Microprocessor systems	0
6.	Electronic instrumentation	0

PITHAPUR RAJAH'S GOVERNMENT COLLEGE(A), Kakinada

Blue print for the model paper – Electronics

Semester End External Examination For II to V year core courses 2024 – 2025

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	3	10	30
2	Section – B Short answe Question	7	5	35	4	5	20
TOTAL		13		95	07		50

Blue Print

Module	Essay Questions 10marks	Short Questions 5marks	Marks allotted
I	1	2	20
II	1	1	15
III	1	2	20
IV	2	1	25
V	1	1	20
			95

	P. R. College (Autonomous), Kakinada	**Program & Semester** II B.Sc. Electronics Minor-2 (III Semester)			
Course Code **ELE 2**	**TITLE OF THE COURSE** **SEMICONDUCTOR DEVICES AND CIRCUIT THEORY**				
Teaching	Hours Allocated: 45 (**Theory**)	L	T	P	C
Pre-requisites	Ohm's Law, A.C & D.C currents, Semiconductor Physics	3	-	-	3

Course Objectives:

1. The course on Semiconductor Devices and Circuit Theory aims to provide students with a fundamental understanding of electronic devices and their applications in various circuits.

2. To facilitate students, with the physical principles and operational characteristics of UJT, BJT, FET's and some of its important applications.

Pre-requisites: Basic understanding of semi conducting materials, PN junction diode and its characteristics.

Course Outcomes:

On Completion of the course, the students will be able to	
CO1	Analyze and compare the characteristics and operation of different BJT configurations (CB, CE, and CC) and demonstrate proficiency in biasing techniques, and explain the working principles and characteristics of UJTs.
CO2	Students would Comprehend the operation and characteristics of FETs, including JFETs and MOSFETs,
CO3	Students would learn about the Alternating current, its wave forms and phase relations. Students would also learn about different parameters of Alternating current like average, RMS values of AC
CO4	Students will learn about the frequency response of RC, RL circuits and various combinations of R,L and C. They will learn about the applications of these combinations as low pass and high pass filters
CO5	Students would learn about Node analysis, branch and mesh current methods and also the network theorems

SYLLABUS

UNIT-I: BJT, UJT:

BJT: Construction, working, and characteristics of CE Configurations. Transistor equations- relation between alpha,beta. UJT: Construction, working and characteristics of UJT. UJT as a Relaxation oscillator.

UNIT -II : FET ,MOSFET

FET: Construction, working and characteristics of JFET and MOSFET. Advantages of FET over BJT. MOSFET: Structures and Device Characteristics, Short-Channel effects. Charge coupled Devices (CCDs), application to VLSI.

UNIT- III: 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. Phase relation of R, L and C.

UNIT- IV: RC, RL AND RLC CIRCUITS:

Frequency response of RC and RL circuits, their action as low pass and high pass filters. Passive differentiating and integrating circuits. Series resonance and parallel resonance circuits, Q – Factor.

UNIT-V: PASSIVE NETWORKS AND NETWORKS THEOREMS (D.C):

Branch current method, Nodal Analysis, star to delta & delta to star conversions. Superposition Theorem, Thevenin's Theorem, Norton's Theorem, Maximum Power, Milliman and Reciprocity theorems.

Reference Books

1. Donald A. Nea men, Semiconductor Physics and Devices Basic 24 Principles, 3rdedn.McGraw-Hil (2003)

2. B.G. Streetman and Sanjay Banerjee, Solid State Electronic Devices, 6thEdn., Prentice Hall, 2006.

3. S. M. Sze and Kwok K. Ng Physics of Semiconductor Devices, Wiley (2013).

4. M. Hussa, A. Dimoulas and A. Molle, 2D Materials for Nano Electronics, CRC press (2016)

CO-PO Mapping:

(1:Slight[Low]; 2:Moderate [Medium]; 3:Substantial [High], '-':No Correlation)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO
CO1	3	3	2	3	3	3	1	-	-	1	3	3	1	3
CO2	3	3	3	3	2	2	3	1	1	2	2	2	2	2
CO3	2	2	2	2	3	2	1	-	1	3	3	2	2	2
CO4	3	2	2	3	2	2	3	-	-	1	3	3	2	3
Avg.														

P.R.GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. II Year - Electronics – Semester III, PAPER – 2

w.e.f. 2023 - 24 ADMITTED BATCH

SEMICONDUCTOR DEVICES AND CIRCUIT THEORY

3 Hours/Week [Total: 45 hrs.] Credits: 03

MODEL QUESTION PAPER

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

Time: 2 Hrs. **Max.Marks:50**

Section	Part	Questions to be given	Questions to be answered	Marks
A	A	3	3	3 x 10M = 30M
	B	3		
B	-	7	4	4 x 5 M = 20M
Total		13	7	50M

Blue Print

Module Name	Essay Questions [10 marks]	Short Questions [5 marks]	Marks allotted
BJT,UJT	2	1	25
FET,MOSFET	1	1	15
Sinusoidal alternating waveforms	1	1	15
RC,RL & RLC Circuits	1	2	20
Passive networks and network theorems	1	2	20
Total	6	5	95

P.R.GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. II Year – Electronics(Minor)

Semester – III PAPER 2

w.e.f. 2023 - 24 ADMITTED BATCH

SEMICONDUCTOR DEVICES AND CIRCUIT THEORY

3 Hours/Week [Total: 45 hrs.] **Credits: 03**

MODEL QUESTION PAPER

Time: 2 hrs. **Max Marks: 50M**

Section - A

Answer any Three questions by choosing at least one question from each part

3 X 10 = 30 M

Part - A

1. Essay question from Module –1
2. Essay question from Module –1
3. Essay question from Module –2

Part - B

4. Essay question from Module –3
5. Essay question from Module –4
6. Essay question from Module –5

Section - B

Answer any Four questions **4 X 5 = 20 M**

7. Short answer question from Module - 1
8. Short answer question from Module - 2
9. Short answer question from Module - 3
10. Short answer question from Module – 4
11. Short answer question from Module – 4
12. Short answer question from Module - 5
13. Short answer question from Module - 5

QUESTION BANK

UNIT - I

ESSAY QUESTIONS

1. Write about Bipolar Junction Transistor (BJT) and explain the construction and working of NPN Transistor.
2. Write about Bipolar Junction Transistor (BJT) and explain the construction and working of PNP Transistor.
3. Describe the construction and working of Uni junction Transistor (UJT).
4. Write about the different configurations of BJT.Derive the relation between the current gain alpha,beta.

Short Answer QUESTIONS

1. Explain V-I characteristics of UJT.
2. Write about input characteristics of BJT in CE Configuration. and draw the circuit diagram.
3. Write about output characteristics of BJT in CE Configuration. and draw the circuit diagram.

UNIT – II

ESSAY QUESTIONS

1. What is FET? Describe the construction and working of a JFET.
2. Explain the construction and working of Depletion mode MOSFET.
3. Explain the construction and working of Enhancement mode MOSFET.

Short Answer QUESTIONS

1. Write the advantages of FET over BJT.
2. Write short note on Charge coupled Device.
3. Write any five Applications of VLSI.

UNIT – III

ESSAY QUESTIONS

1. Explain the following terms a) Average Value of Current b) R.M.S Value of current
2. What is Phase difference. Write about a) Leading and Lagging Phase difference b) In phase and out phase
3. Explain about the phase relation when an alternating current is passing through a resistor and inductor.

Short Answer QUESTIONS

1. Define Current and Voltage.
2. Write differences between A.C and D.C
3. Write about the phasor representation of an alternating current.
4. Explain about the phase relation when an alternating current is passing through a capacitor.
5. Explain about the phase relation when an alternating current is passing through a resistor.

UNIT – IV

ESSAY QUESTIONS

1. Discuss the frequency response of RC circuit for high pass filter circuit.
2. Discuss the frequency response of RC circuit for low pass filter circuit.
3. Deduce an expression for resonant frequency of Series RLC circuit.

Short Answer QUESTIONS

1. Describe the working of RC circuit as differentiating network.
2. Describe the working of RC circuit as integrating network

3. Discuss the frequency response of RL circuit for high pass filter circuit
4. Discuss the frequency response of RL circuit for low pass filter circuit

UNIT – V

ESSAY QUESTIONS

1. State and prove Superposition theorem.
2. State and prove Norton's theorem.
3. State and prove Thevenin's theorem.

Short Answer QUESTIONS

1. State and prove Maximum power transfer theorem.
2. State and prove Reciprocity theorem.
3. Write the conversion of Star to delta.
4. Write the conversion of delta to Star.

	P. R. College (Autonomous), Kakinada	Program & Semester			
Course Code **ELE 2**	**TITLE OF THE COURSE** **SEMICONDUCTOR DEVICES AND CIRCUIT THEORY**	II B.Sc. Electronics Minor-2 (III Semester)			
Teaching	Hours Allocated: 45 (**Practical**)	L	T	P	C
Pre-requisites	Voltage & Current divider rule,	-	-	2	1

List of Experiments

1. RC circuit-Frequency response (High pass)
2. V-I characteristics of UJT
3) Thevenin's Theorem-verification
4) Norton's Theorem-verification
5) Maximum Power Transfer Theorem-verification
6) RL circuit-Frequency response (low Pass)
7) RL circuit-Frequency response (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 .
10. RC circuit-Frequency response (low pass)

	P. R. College (Autonomous), Kakinada	**Program & Semester** Electronics Minor-3 (IV Semester) Paper 3			
Course Code ELE 3	ELECTRICAL & ELECTRONIC INSTRUMENTATION				
Theory	Hours Allocated: 45 (Theory)	L	T	P	C
Pre-requisites	Differences between analog & digital	3	-	-	3

Course Objectives:

The students will learn:

a. basic concepts of indicating instruments.
b. various electronic instruments such as CRO, storage oscilloscopes, function generators, spectrum analyzer etc.,
C. transducers, sensors and display devices.

Course Outcomes:

CO 1	Students will learn about the basic instruments like Voltmeter,Ammeter,Galvanometer
CO2	Students will learn various electronic instruments such as CRO, storage oscilloscopes, function generators, spectrum analyzer
CO3	Students will learn about sensors and display devices
CO4	Students will learn about the Instrumentation Amplifiers
CO5	Students will learn about DC and AC bridges.

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. II Year – **Electronics Minor – Semester – 4 PAPER – 3**

w.e.f. 2023 - 24 ADMITTED BATCH

ELECTRICAL & ELECTRONIC INSTRUMENTATION

3 Hours/Week [Total: 45 hrs.]

Credits: 03

UNIT-I

DC and AC indicating Instruments: Accuracy and precision – Types of errors PMMC galvanometer, sensitivity, Loading effect – Conversion of Galvanometer into ammeter, Voltmeter and Shunt type ohmmeter- Multimeter

UNIT-II

DC and AC bridges: Wheatstone bridge Kelvin's bridge Balancing condition for AC bridge Maxwell's bridge Determination of frequency. Schering's bridge Wein's bridge

UNIT – III

CRO: Block diagram of basic CRO, construction of CRT, electron gun, electrostatic focusing and acceleration (only explanation), time base operation, synchronization, front panel controls. specifications of CRO and their significance.

Applications CRO: Measurement of voltage, d.c. and a.c. frequency, time period, special features of dual trace, digital storage oscilloscope, block diagram and principle of working.

UNIT-IV

Instrumentation Amplifiers and Signal Analysers: Instrumentation amplifier Electronic Voltmeter and Multimeter Digital Voltmeter Function Generator Wave Analyser – Fundamentals of Spectrum Analyser.

UNIT-V: Display Instruments

Introduction to Display devices, Seven Segment Displays, LED Displays, Construction and operation (Display of numbers), Types of SSDs (Common Anode & Common Cathode type), Limitations of SSDs, Liquid Crystal Displays, Applications of LCD modules.

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. II Year – **Electronics Minor – Semester – 4 PAPER – 3**

w.e.f. 2023 - 24 ADMITTED BATCH

ELECTRICAL & ELECTRONIC INSTRUMENTATION

MODEL QUESTION PAPER

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

Time: 2 Hrs. **Max.Marks:50**

Section	Part	Questions to be given	Questions to be answered	Marks
A	A	3	3	3 x 10M = 30M
	B	3		
B	-	7	4	4 x 5 M = 20M
Total		13	7	50M

Blue Print

Module Name	Essay Questions [10 marks]	Short Questions [5 marks]	Marks allotted
DC and AC indicating Instruments	1	2	20
DC and AC bridges	1	1	15
CRO	2	1	25
Instrumentation Amplifiers and Signal Analysers	1	1	15
Display Instruments	1	2	20
Total	6	5	95

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. II Year – **Electronics Minor – Semester – 4 PAPER – 3**

w.e.f. 2023 - 24 ADMITTED BATCH

ELECTRICAL & ELECTRONIC INSTRUMENTATION

3 Hours/Week [Total: 45 hrs.] Credits: 03

MODEL QUESTION PAPER

Time: 2 hrs. Max Marks: 50M

Section – A

Answer any Three questions by choosing at least one question from each part

3 X 10 = 30 M

Part - A

1. Essay question from Module – 1
2. Essay question from Module – 2
3. Essay question from Module – 3

Part - B

4. Essay question from Module – 3
5. Essay question from Module – 4
6. Essay question from Module – 5

Section - B

Answer any Four questions 4 X 5 = 20 M

7. Short answer question from Module - 1
8. Short answer question from Module - 2
9. Short answer question from Module - 3
10. Short answer question from Module - 4
11. Short answer question from Module - 5
12. Short answer question from Module – 1
13. Short answer question from Module - 5

ELECTRICAL & ELECTRONIC INSTRUMENTATION

QUESTION BANK

UNIT-I (DC and AC indicating Instruments)

Essay questions-10M

1.Convert the given galvanometer into ammeter?
2.Convert the given galvanometer into voltmeter?

Short questions- 5m

1.What is meant by accuracy and precision?
2.Explain types of errors in PMMC galvanometer?
3.Explain about sensitivity and loading effect?

Unit-ii (DC and AC bridges)

Essay questions-10m

1.Determine the frequency of the given source by using Maxwell's bridge?
2.Determine the inductance by unsingSchering bridge?
3.Determine the unknown inductance by using Wein's bridge?

Short questions- 5m

1.Determine the balancing condition of Wheatstone bridge?
2.Determine the unknown resistance by Kelevin's bridge?

Unit-iii (: Oscilloscopes)

Essay questions-10m

1.Draw and explain the block diagram of CRO?
2.Explain construction and working of CRT?
3.Draw and explain the block diagram of Digital Storage Oscilloscope?

Short questions- 5m

1.Explain about time base generator?
2.Explain about electrostatic focusing?
3.Explain about electron gun?

Unit-iv (instrumentation amplifiers and signal Analysers)

Essay questions-10m

1.Draw and explain block diagram of electronic voltmeter?
2. Draw and explain block diagram of a function generator?

Short questions – 5m

1.What are the various front panel switches in digital multimeter(DMM)?
2.What is the principal of operation of an function generator?

Unit-v(Transducer and Display Devices)

Essay questions-10m

1.Draw and explain vi-characteristics of LED?
2.Explain construction and working of seven segment LED display?
3.Discuss passive and active-matrixLED displays?

Short questions- 5m

1.What is an LED?
2.Explain operation of LED?
3.Write brief note on SEVEN SEGMENT display?

	P. R. College (Autonomous),Kakinada	Program&Semester II B.Sc. Electronics (IV Semester)			
CourseCode **ELE 3**	**TITLE OF THE COURSE** **ELECTRICAL & ELECTRONIC INSTRUMENTATION**				
Teaching	HoursAllocated:45(**Practical**)	L	T	P	C
Pre-requisites		-	-	2	1

Any Five experiments should be done.

1. 1. Familiarization of digital multimeter and its usage in the measurements of (i) resistance (ii) current, (iii) AC & DC voltages

2. Measure the AC and DC voltages, frequency using a CRO and compare the values measured with other instruments like Digital multimeter.

3. Formation of Sine, Square wave signals on the CRO using Function Generator and measure their frequencies. Compare the measured values with actual values.

4. Display the numbers from 0 to 9 on a single Seven Segment Display module by applying voltages.

5. Displacement transducer-LVDT

6. A.C - Impedance and Power Factor.

7. Maxwell's Bridge – Determination of Inductance.

8. Measurement of body temperature using a digital thermometer and list out the error and corrections.

9. Measurement of Blood Pressure of a person using a B.P. meter and record your values and analyze them.

10. Display the letters a to h on a single Seven Segment Display module by applying voltages.

11. Get acquainted with an available ECG machine and study the ECG pattern to understand the meaning of various peaks.

12. Observe and understand the operation of a Digital Pulse oximeter and measure the pulse rate of different people and understand the working of the meter.

		P. R. College (Autonomous), Kakinada	Program & Semester II B.Sc. Electronics Minor-4 (IV Semester) Paper – 4				
	Course Code **ELE4**	**TITLE OF THE COURSE MICROPROCESSOR SYSTEMS**					
	Teaching	Hours Allocated: 45 (**Theory**)	L	T	P	C	
	Pre-requisites	Multiplexing, Demultiplexing, Memory Organization	3	-	-	3	

Course Objectives:

1. To understand basic architecture of 16 bit and 32 bit microprocessors.
2. To understand interfacing of 16 bit microprocessor with memory and peripheral chips involving system design.
3. To understand techniques for faster execution of instructions and improve speed of operation and performance of microprocessors.
4. To understand RISC based microprocessors.
5. To understand concept of multi core processors.

Course Outcomes:

	On Completion of the course, the students will be able to
CO1	The student can gain good knowledge on microprocessor and implement in practical applications
CO2	Design system using memory chips and peripheral chips for 16 bit 8086 microprocessor.
CO3	Understand and devise techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors.
CO4	Understand multi core processor and its advantages

SYLLABUS

MODULE -I: (9 Hrs.) CPU ARCHITECTURE:

Introduction to Microprocessor, INTEL -8085 – Architecture of 8085, CPU, ALU unit, Register organization, Address, data and control Buses. Pin configuration of 8085. Flag register, Interrupts – maskable, non-maskable, hardware & software interrupts. Addressing modes of 8085. Instruction format.

MODULE -II: (9 Hrs).

8085Instruction set: Datatransfer Instruction, Logical Instructions Arithmetic Instructions, Branch Instructions, Machine Control instructions.

MODULE -III: (9 Hrs.)

Assembly Language Programming using 8085:

Programs for Addition, Subtraction, Multiplication, Division, largest and smallest number in an array.

MODULE -IV: (9 Hrs.)

8086:

Architecture of 8086, Register organization, Flag register, Addressing modes of 8086,

instruction format. Basic 8086 Configurations – Minimum mode and Maximum Mode, Interrupts. I/O Interfaces: Serial Communication interfaces (8251)

MODULE -V: (9 Hrs.)

Arm architecture & organization,Features of ARM, Instruction set, Addressing modes of ARM processor

Text books:

1. **Microprocessor Architecture, Programming and Applications with the 8085 –** Penram International Publishing, Mumbai.- Ramesh S. Gaonakar
2. **Microcomputer Systems the 8086/8088 family – YU-Cheng Liu and Glenn SA Gibson**
3. Microcontrollers Architecture Programming, Interfacing and System Design– Raj Kamal Chapter: 15.1, 15.2, 15.3, 15.4.1
4. **8086 and 8088 Microprocessor by Tribel and Avatar Singh.**

REFERENCES:

1. **Microprocessors and Interfacing – Douglas V. Hall**
2. Microprocessor and Digital Systems – Douglas V. Hall
3. **Advanced Microprocessors & Microcontrollers - B.P. Singh & Renu Singh – New Age**
4. The Intel Microprocessors – Architecture, Programming and Interfacing – Bary B. Brey.
5. **Arm Architecture reference manual –Arm ltd**

CO-PO Mapping:

(1:Slight[Low]; 2:Moderate [Medium]; 3:Substantial [High], '-':No Correlation)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PSO1**	**PSO2**	**PSO3**	**PSO**
CO1	3	3	3	3	3	3	1	-	1	1	3	3	1	3
CO2	2	3	3	3	2	2	3	1	-	2	2	3	2	2
CO3	3	2	3	2	3	2	2	-	1	2	2	2	2	2
CO4	2	3	2	3	2	2	2	1	-	1	3	2	2	3
Avg.														

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. II Year - Electronics – Semester – 4
PAPER – 4 Minor-4
MICROPROCESSOR SYSTEMS
Model Question Paper

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

Time: 2Hrs. Max.Marks: 50

Section	Questions to be given	Questions to be answered	Marks
A	6	3	3 x 10M =30M
B	7	4	4x 5 M = 20M
Total	13	**7**	50M

Blue Print

Chapter Name	Essay Questions 10 marks	Short Questions 5 marks	Problems (Programs) 5 marks	Marks allotted
CPU Architecture	1	2	---	20
8085 Instruction Set	1	1	---	15
Assembly Language Programming using 8085	2	---	1	25
8086microprocessors	1	2	---	20
Arm Processor	1	1	---	15
Total Marks				95

P.R.GOVERNMENT COLLEGE (A), KAKINADA

Electronics-Semester - IV Paper – 4 [Code: EL4205]

Microprocessor Systems

MODEL QUESTION PAPER

Time: 2 hrs. **Max Marks: 50 M**

Section - A

Answer any Three questions by choosing at least one question from each part

3 X 10 = 30 M

Part – A

1. Essay question from Module – 1
2. Essay question from Module – 2
3. Essay question from Module – 3

Part – B

4. Essay question from Module – 3
5. Essay question from Module – 4
6. Essay question from Module – 5

Section – B

Answer any Four questions **4 X 5 = 20 M**

7. Short answer question from Module - 1
8. Short answer question from Module – 1
9. Short answer question from Module – 2
10. Short answer question from Module – 4
11. Short answer question from Module – 4
12. Short answer question from Module – 5
13. Program from Module – 3

QUESTION BANK

MICROPROCESSOR SYSTEMS

UNIT-I: CPU Architecture

ESSAY QUESTIONS

1. Draw the pin diagram of 8085 & explain each pin functioning. (BT 3)
2. Draw the Block diagram of Intel 8085 and explain each block. (BT 3)
3. Explain the addressing modes of 8085 with give examples. (BT 2)

SHORT QUESTIONS

4. Explain 8085 bus organization. (BT 2)
5. Write about different types of interrupts. (BT 3)
6. Describe 8085 flag register. (BT 2)
7. Write a short note on Instruction formats. (BT 1)

UNIT-II: 8085 Instruction Set

ESSAY QUESTIONS

9. What are data transfer instructions? Explain any eight data transfer instructions. (BT 1,2)

10. What are arithmetic instructions? Describe any eight arithmetic group of instruction. (BT 1,2)

11. What are branch group instructions? Explain any eight branch group of instruction. (BT 1,2)

SHORT QUESTIONS

12. What are increment and decrement group of instructions.(BT 1)

13. Describe any three logical group of operations.(BT 2)

14. Explain DI & EI instructions.(BT 2)

15. Write a note on RIM & SIM instructions.(BT 2)

UNIT-III: Assembly Language Programming using 8085

ESSAY QUESTIONS

16. Write a program on addition of two 8-bitnumbers. (BT-4)
17. Write a program on multiplication of two 8-bit numbers. (BT-4)
18. Write a program on largest of set numbers each of 8-bit. (BT-4)

SHORT QUESTIONS

19. Write a program on subtraction of two 8-bit numbers. (BT-4)
20. Write a program on smallest of set numbers each of 8-bit (BT-4).
21. Write a program on division of two 8-bit numbers (BT-4).

UNIT-IV: 8086 Microprocessor

ESSAY QUESTIONS

24. Explain the addressing modes of 8086 with give examples. (BT 3)
25. Write a note on maximum mode configuration of 8086. (BT 2)
26. Draw the Block diagram of Intel 8086 and identify each block. (BT-3)

SHORT QUESTIONS

27. Write a note on minimum mode configuration of 8086. (BT-2)
28. Describe 8086 flag register. (BT-2)
29. Draw the block diagram of Keyboard and display (8279). (BT-3)
30. Sketch the block diagram of USART (8251) and identify each block. (BT-3)
31. Write about Registers of 8086. (BT-2)

UNIT-V: ARM Processor

ESSAY QUESTIONS

33. Sketch the architecture of ARM processor. (BT -3)
34. Explain the addressing modes of ARM processor. (BT-2)

SHORT QUESTIONS

35. What are the features of ARM processor? (BT-1)
36. Give the instruction set of ARM processor. (BT-1)

	P. R. College (Autonomous),Kakinada	**Program&Semester** II B.Sc. Electronics (IV Semester)			
CourseCode **ELE 3**	**TITLE OF THE COURSE** **MICROPROCESSOR**				
Teaching	HoursAllocated:45(**Practical**)	L	T	P	C
Pre-requisites		-	-	2	1

Any Five experiments should be done.

1. Addition of two 8 bit numbers
2. Subtraction of two 8-bit numbers
3. Multiplication of two 8-bit numbers
4. Division of two 8-bit numbers
5. Largest number in an array.
6. Smallest number in an array
7. Addition of two 16 bit numbers
8. Subtraction of two 16-bit numbers

		P. R. College Autonomous), Kakinada	**Program & Semester** III B.Sc. Electronics (V Sem) Paper –			
	Course Code	**TITLE OF THE COURSE CELLULAR MOBILE COMMUNICATION**				
	Teaching	Hours Allocated: 45 (**Theory**)	L	T	P	C
	Pre-requisites		3	-	-	3

Course Objectives:

The students will learn:

a. basics of digital cellular system, cordless telephony and cell structure
b. GSM wireless protocol and markup language fundamentals
c. basics of WLL and Bluetooth technology

SYLLABUS

UNIT-I
Advanced mobile phone service - Global system for mobile communication - Digital cellular system Cordless telephony - Third generation wireless systems.
UNIT-II -
7 Cell structure - Hand off - roaming management - Hand off detection - Channel assignment techniques - Interference - ACI, CCI - Intersystem hand off and authentication - Network signaling - Cellular digital packet data

UNIT-III
GSM - Network signaling, mobility management, short message service - International roaming, administration and operation.

UNIT-IV
Wireless application protocol - Architecture - Datagram - Transport layer securities - Transaction protocol - Session protocol application environment, wireless markup language, WML - Script wireless telephony applications.

UNIT-V
Third generation mobile services - Wireless local loop - Bluetooth technology.

Text Books :

1. Mobile Communications - Jochen Schiller, 7/e, Pearson Education, 2003.
2. Principles of Wireless Networks - Kauch Pahalavan & Prahanet Krishnamoorthy, 2/e, Pearson Education, 2004.

P.R. GOVERNMENT COLLEGE (A), KAKINADA

B.Sc. III Year - Electronics – Semester – 5

PAPER – 4 Minor-4

CELLULAR MOBILE COMMUNICATION

Model Question Paper

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

Time: 2Hrs. Max.Marks: 50

Section	Questions to be given	Questions to be answered	Marks
A	6	3	3 x 10M =30M
B	7	4	4x 5 M = 20M
Total	13	**7**	50M

Blue Print

Chapter Name	Essay Questions 10 marks	Short Questions 5 marks	Marks allotted
I	1	2	20
II	1	2	20
III	1	1	15
IV	2	1	25
V	1	1	15
TOTAL			95

P.R. GOVERNMENT COLLEGE (A), KAKINADA

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

w.e.f. 2023 - 24 ADMITTED BATCH PAPER –

CELLULAR MOBILE COMMUNICATION

MODEL QUESTION PAPER

Time: 2 hrs. Max Marks: 50M

Section - A

Answer any Three questions by choosing at least one question from each part

3 X 10 = 30 M

Part – A

1. Essay question from Module –1
2. Essay question from Module –2
3. Essay question from Module –3

Part – B

4. Essay question from Module –4
5. Essay question from Module –4
6. Essay question from Module –5

Section – B

Answer any Four questions **4 X 5 = 20 M**

7. Short answer question from Module - 1
8. Short answer question from Module - 1
9. Short answer question from Module - 2
10. Short answer question from Module - 2
11. Short answer question from Module - 3
12. Short answer question from Module - 4
13. Short answer question from Module - 5

QUESTIONBANK

UNIT- I ESSAY QUESTIONS

1. Explain the Global System for Mobile communication

SHORT QUESTIONS

1. Explain Advanced Mobile Phone Service 2. Explain Cordless telephony 3. Explain briefly the 3G wireless system

UNIT- II

ESSAY QUESTIONS

1.Explain the Hand off and Roaming management 2.Explain the Intersystem Hand off and Authentication

SHORT QUESTIONS

1. Explain the structure of a Cell phone
2. Explain various channel assignment techniques
3. Explain ACI and CCI in the interference of mobile communication
4. Explain the Network Signaling in GSM
5. Explain Cellular Digital Packet Data

UNIT- III ESSAY QUESTIONS

1. Explain the Mobility management in mobile communication
2. Explain the GSM network and it's uses

SHORT QUESTIONS

1. Explain the Short Message Service (SMS)
2. Explain International roaming in mobile communication

UNIT- IV ESSAY QUESTIONS

1. Explain WAP programming architecture
2. Explain wireless session protocol

SHORT QUESTIONS

1. Explain briefly Wireless Markup Language (WML)
2. Explain key features of Wireless Transaction protocol
3. Script wireless telephone application

UNIT- V ESSAY QUESTIONS

1. Explain 3G mobile service in detail

SHORT QUESTIONS

1. Explain briefly about Wireless Local Loop
2. Explain briefly about Blue tooth

		P. R. College Autonomous), Kakinada	**Program & Semester**				
	Course Code	**TITLE OF THE COURSE** **CELLULAR MOBILE COMMUNICATION**	III B.Sc. Electronics (V Sem) Paper –				
	Teaching	Hours Allocated: 30(Practical)	L	T	P	C	
	Pre-requisites		-	-	2	1	

Course Objectives:

The students will learn:

a. basics of digital cellular system, cordless telephony and cell structure
b. GSM wireless protocol and markup language fundamentals
c. basics of WLL and Bluetooth technology

Arduino-based projects will be prepared by the students and submitted as a project at the end of the semester, followed by a presentation and viva voce.

For Cellular mobile communication practicals

Time:2 hrs. Max.Marks:50

1. Submission of Project	**-**	**30M**
2. Presentation	**-**	**10M**
3.Viva voce	**-**	**10M**

		P. R. College (Autonomous), Kakinada	**Program & Semester** III B.Sc. Electronics (V Semester) Paper – VII B			
	Course Code **EL7205B**	**TITLE OF THE COURSE** **Consumer Electronics**				
	Teaching	Hours Allocated: 45 (**Theory**)	L	T	P	C
	Pre-requisites		3	-	-	3

Course Objectives:

1. To study Microwave ovens – block diagram - working - types – wiring and safety instructions. – care and cleaning.
2. To study washing machines – block diagram - working - types – wiring and safety instructions. – care and cleaning.
3. To study Air conditioners and refrigerators – block diagram - working - types – wiring and safety instructions. – care and cleaning.
4. To study Home/Office digital devices – block diagram - working - types – wiring and safety instructions. – care and cleaning.
5. To study Digital access devices like – block diagram - working - types – wiring and safety instructions. – care and cleaning.

Course Outcomes:

	On Completion of the course, the students will be able to
CO1	The student can gain a good knowledge of microwave ovens and implement them in practical applications.
CO2	The student can gain a good knowledge of Washing Machines and implement in practical applications.
CO3	The student can gain a good knowledge of Air conditioners and Refrigerators and implement them in practical applications.
CO4	The student can gain a good knowledge of Digital access devices and implement in practical applications.

SYLLABUS

Module – I (12 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.

Module - II (12 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.

Module – III (12 hrs.): Air Conditioners :

Air Conditioning – Components of air conditioning systems – All water air conditioning systems – All air

conditioning systems – Modularly and central air conditioning systems – Split air conditioners.

Module – IV (12 hrs.): Home/Office Digital Devices:

Facsimile machine – Xerographic copier – calculators – Structure of a calculator – Internal organization of a calculator – Servicing electronic calculators – Digital clocks – Block diagram of a digital clock.

Module – V (12 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.

Text books:

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

CO-PO Mapping:

(1:Slight[Low]; 2:Moderate [Medium]; 3:Substantial [High], '-':No Correlation)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO
CO1	3	3	2	3	3	3	1	1	-	1	3	3	1	3
CO2	3	2	2	3	3	3	3	1	-	3	2	2	2	3
CO3	3	3	3	2	2	2	1	1	1	2	2	3	3	2
CO4	3	3	2	2	2	3	3	1	1	1	3	3	2	3
Avg.														

P.R. GOVERNMENT COLLEGE (A), KAKINADA
B.Sc. III Year - Electronics – Semester – V

CONSUMER ELECTRONICS

3 Hours/Week [Total: 45 hrs.] Credits: 03

MODEL QUESTION PAPER

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

Time: 2Hrs. **Max. Marks: 50**

Section	Questions to be given	Questions to be answered	Marks
A	6	3	3 x 10M = 30M
B	7	4	4 x 5 M = 20M
Total	13	7	50M

Blue Print

Module Name	Essay Questions [10 marks]	Short Questions [5 marks]	Marks allotted
Microwave oven	1	2	20
Washing machines	1	1	15
Air conditioners & Refrigerators	2	1	25
Home/Office digital devices	1	1	20
Digital access devices	1	2	15
Total Marks			95

III B. ScElectronics-7B-Semester-V (Model Paper)

(Model Paper w.e.f. 2023-24)

CONSUMER ELECTRONICS

2021-22 ADMITTEDBATCH

Time:2hrs **Max.Marks:50M**

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

PART-I

Answer **ANY Three** questions by attempting at least one question form each section

SECTION-A 3X10=30M

1. Essay question from UNIT-I
2. Essay question from UNIT-II
3. Essay question from UNIT-III

SECTION-B

4. Essay question from UNIT-III
5. Essay question from UNIT-IV
6. Essay question from UNIT-V

PART-II

Answer **any Four** Questions from the following 4X5=20M

7. Short answer question from UNIT-I
8. Short answer question from UNIT-I
9. Short answer question from UNIT-II
10. Short answer question from UNIT-III
11. Short answer question from UNIT-IV
12. Short answer question from UNIT-IV
13. Short answer question from UNIT-V

Consumer Electronics

Question Bank

MODULE-I

ESSAY QUESTIONS

1. Explain the block diagram of microwave oven.[BT-2]
2. Sketch and explain the LCD timer with alarm.[BT-2]
3. Discuss Wiring and Safety instructions of microwave oven.[BT-1]

SHORT ANSWER QUESTIONS

4. List out Types of Microwave oven.[BT-1]
5. Describe Care and Cleaning of Microwave oven.[BT-1]
6. Explain Single-Chip Controllers with the help of diagrams.[BT-2]
7. Write about the Properties of Microwaves[BT-1]

MODULE-II

ESSAYS

8. Explain the block diagram of electronic controller for washing machine.[BT-2]
9. Discuss briefly about hardware components of washing machine.[BT-1]
10. Explain the software development of washing machine.[BT-2]

SHORT ANSWER QUESTIONS

11. Write about Fuzzy logic washing machine.[BT-1]
12. What are the Types of washing machine.[BT-2]
13. Describe the features of washing machine.[BT-1]

MODULE-III

ESSAY QUESTIONS

14. What is Air conditioning? Describe various components of air conditioning systems.[BT-1]
15. What is Air conditioning ?Explain about All water air conditioning systems.[BT-2]
16. What is Air conditioning ?Explain about All air conditioning systems.[BT-2]

SHORT ANSWER QUESTIONS

17. Write about central air conditioning systems.[BT-2]
18. Describe Split air conditioners.[BT-1]

MODULE-IV

ESSAY QUESTIONS

1. Describe Calculator? Explain the structure of a calculator[BT-1]
2. Explain Internal Organization of a calculator.[BT-2]
3. Draw the Block diagram of a digital clock. Explain each block.[BT-2]

SHORTANSWERQUESTIONS

4. Describe Xerographic copier.[BT-1]
5. Explain about Facsimile machine.[BT-2]
6. Write about Digital clock.[BT-1]
7. Describe how electronic calculators can be serviced.[BT-1]

MODULE-V

ESSAY QUESTIONS

8. Write about Digital computer in detail.[BT-1]
9. Describe about the Barcode scanner and decoder.[BT-1]
10. Explain how electronic fund transfer can be done.[BT-2]
11. Illustrate online ticket reservation.[BT-2]

SHORT ANSWER QUESTIONS

12. Illustrate Automated Teller Machines(ATMs).[BT-2]
13. Explain Set-Top boxes.[BT-2]

	P. R. College (Autonomous), Kakinada		**Program & Semester** III B.Sc. Electronics (V Semester) Paper – VI B			
Course Code **EL6205BP**	**TITLE OF THE COURSE Consumer Electronics**					
Demonstration	Hours Allocated: 30 (Practical)	L	T	P	C	
Pre-requisites		-	-	2	1	

Course Objectives:

1. To study the working of different instruments/appliances.
2. 2. To install and uninstall of different appliances.
3. 3. To survey of products.
4. 4. To identify a problem and learn how to troubleshoot.

Course Outcomes:

On Completion of the course, the students will be able to	
CO1	Studied the working of different instruments/appliances.
CO2	CO2 Installation and uninstallation of different appliances.
CO3	CO3 Survey of different products.
CO4	CO4 Identify problem and its trouble shooting.

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

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

PITHAPUR RAJAH'S GOVERNMENT COLLEGE [A]:: KAKINADA
PLAN OF ACTION FOR AY 2025-26

The department of Physics and Electronics is planning to conduct the following programs for the academic year 2025-26

S.No	Activity planned	Dates/Period
1	Distribution of Kasarabada Scholarship both for UG & PG Students	18-07-2025
2	Zero shadow day	05-08-2025
3	Independence Day Competitions for II & III year Physics & REM students	06-08-2025
4	Hiroshima Day	06-08-2025
5	BOS	07-08-2025
6	Nagasaki day	09-08-2025
7	Number of Publications for each faculty @ 2	01-08-2025 to 07-10-2025
8	Patent-1	01-08-2025 to 07-10-2025
9	MOU	01-08-2025 to 07-10-2025
10	Guest Lecture-1	09-09-2025
11	World Ozone Day	16-09-2025
12	Michel Faraday Birthday Celebrations	22-09-2025
13	C.V. Raman Bithday Celebrations	07-11-2025
14	Workshop/webinar	17-11-2025 to 31-01-2026
15	Guest Lecture-2	09-12-2025
16	Parent-TeacherMeeting	1-12-2025 to 31-12-2025
17	UPKAR scheme – Disbursement of scholarships to Poor & merit students	1-12-2025 to 31-12-2025
18	Fieldtrip for III Physics students	1-01-2026 to 31-01-2026
19	Fieldtrip for III REM	1-01-2026 to 31-01-2026
20	Certificate course	1-01-2026 to 31-01-2026
21	National Science Day celebrations	28-02-2026

LIST OF EXAMINERS/PAPER SETTERS IN ELECTRONICS 2025-26

S.No	Name of the examiner	Subject	Name of the College
1	Ch. Kanakarao 9848943943	Electronics	Y.N.College,Narsapur
2.	S. Venkata Raju9246678554	Electronics	D.N.R.College,Bhimavaram, W.G.Dist.
3.	Dr.Y.V.Apparao	Electronics	S.V.K.P.&Dr.K.S.RajuCollege of Arts&Science,
4.	Dr.P.L.Rambabu	Electronics	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.VeeraBhadraRao	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.SrinivasaRao	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.SrinivasaRao	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.KumaraSastry	Electronics	S.K.B.R.College, Amalapuram
18	V.RadhaKrishna	Electronics	S.K.B.R.College, Amalapuram
19	EsubBashaSheik	Electronics	GC(A),Rajamahendravaram
20	E.Nageswararao	Electronics	GDC(M),Nidadavole
21	Dr.P.V.S.S.S.N.Reddy	Electronics	GC(A),Rajamahendravaram
22	V.RatnaSekhar	Electronics	D.N.R.College(A),Bhimavaram
23	K.H.R.Singh	Electronics	D.N.R.College(A),Bhimavaram
24	D.Gangadharudu	Electronics	M.R.College,Peddapuram
25	A.SatyanarayanaMurthy	Electronics	M.R.College,Peddapuram
26	K.Venkateswarlu,HOD	Electronics	Y.N.College,Narsapur

P.R.GOVERNMENTCOLLEGE (A), KAKINADA

Department of Physics & Electronics

Budget Proposal for the Academic Year 2025-26

S.No	PURPOSE	EXPENDITURE ESTIMATED
1.	Upgradation of 1st year Lab	Rs.50,000=00
2.	Upgradation of 2nd year Lab and darkroom	Rs.50,000=00
3.	Upgradation of final year Lab	Rs.50,000=00
4.	Requirement of Lab Equipment for V-SEM papers	Rs. 1,00,000=00
5. `	Research Materials and Characterization Devices for Research lab	Rs.3,00,000=00
6.	Student projects/ Educational Tour	Rs.1,00,000=00
7.	National level Activity	Rs.2,00,000=00
8.	Departmental Activities@ National Sc.Day,Guest Lectures,Inter collegiate competitions	Rs.1,00,000=00
9.	Miscellaneous@Stationery, Maintenance of Laboratories etc.	Rs.50,000=00
	TOTAL:	Rs.10,00,000

Budget estimated is Rupees Ten Lakhs only

Pithapur Rajah's Government College (A),Kakinada
Department of Physics & Electronics
Subject: Electronics Minor A.Y: 2025-26

It is resolved to introduce the following new courses in the programmes in Department of Physics & Electronics, from the AY 2025-26

YEAR	SEMESTER	COURSE	APSCHE SYLLABUS	PROPOSED PAPER FOR REPLACEMENT
III	V	MINOR-6	COMPUTER NETWORK	**CONSUMER ELECTRONICS**