P.R. GOVERNMENT COLLEGE (A), KAKINADA

(AN AUTONOMOUS COLLEGE WITH NAAC "A" GRADE)

Board of Studies Meeting for UG Programmes

ELECTRONICS

(Regular &Minor)

2024 – 2025

DEPARTMENT OF PHYSICS & ELECTRONICS

INDEX

DEPARTMENT OF COLLEGIATE EDUCATION
GOVERNMENT OF ANDHRA PRADESH
PROCEEDINGS OF THE PRINCIPAL, PITHAPUR RAJAH's GOVT. COLLEGE [A] :: KAKINADA
Present: Dr. B.V. TIRUPANYAM, Ph.D.

Rc.No.2/A.C/BOS/2024-25 Dt.23 Apr 2024

Sub: P.R.G.C[A] – Academic Cell - **Conduct of BOS Meetings for the Academic Year 2024-25** – Guidelines issued - Regarding.

The Autonomous colleges are, as per its vision, mission, stated objectives and core values, mandated to design and develop their own outcome -based curricula keeping in view the societal, local and global industry requirements, employability and industry – ready and transferable skills duly prescribing Course Outcomes (COs), Programme Outcomes (POs) and Programme Specific Outcomes (PSOs) and suitable learning outcome assessment management system through robust and transparent evaluation system to measure their attainment levels by the students.

The Sustained Developmental Goals (SDG-4) of UNEP recommended assurance of quality to students in HEIs promoting creativity, critical thinking and collaborative skills, while building curiosity, courage, resilience and gender equality among students.

Further, the NEP-2020 recommended that the HEIs shall embark upon rolling out 21st century students capable of facing challenges, adaptive to changes, creative and innovative, well rounded students equipped with inventive and creative skills, out-of-box thinking skills, problem solving skills, employability skills, etc., that translate them into leaders and potential entrepreneurs. Hence, the policy recommended internships/ apprenticeships embedded programs. Further, the policy laid much emphasis on rolling out environmentally conscious, value driven, constitution-respecting and socially responsible citizens too.

The HEIs are also, as per the Revised Accreditation Framework [RAF] of NAAC, endowed with the responsibility of rolling out quality and holistic human resources to the modern Indian Economy by ingraining quality in teaching- learning process, integrating IT into teaching-learning and help students experience and prescribed a wide range of participative and experiential learning experiences including field trips, conferences, integration of technology, community service programmes, career guidance, certificate and value added courses, research and inquisition based teaching, exchange programmes, gender equity programmes, collaborations, consultancies, community outreach strategies and encouraged HEIs to be distinctive and unique in practices.

Besides, the students shall have social consciousness, regard for constitutional provisions, right perspective on environmental protection, awareness on gender equity, health and hygiene, Yoga and wellness, college social responsibility, culture and values, etc., to mention a few.

Further, the Ministry of India, GoI, through NIRF, prescribes quality research,

infrastructure augmentation, enhanced placement and progression to higher education, equipment of employability skills leading to enhanced public perception about the college among the public.

Further, the A.P State Council of Higher Education, in the Post Graduation eco-system has come out with a revised curricular frame work from the Academic Year 2024-25 incorporating Skill Enhancement Courses, Open Online Courses, Indian Knowledge System, projects works in VI semester, besides new credit structure (APSCHE's curricular frame enclosed).

Our institution has, from AY 2022-23, has devised its new vision and mission along with objectives and core values necessitating design and re-orientation of its academic administration in tune with them.

ORDER:

In the light of the above mandate and responsibilities prescribed by institution's vision and mission, SDG-4, NEP – 2020, NAAC, NIRF to the autonomous HEIs, to meet the expectations of industries, students, Government and in tune with the APSCHE's revised and new P.G Curricular framework we need to customize, design and re-orient our academic and research administration.

Hence, the Chairmen of U.G and P.G Boards of Studies of various Departments are requested to make necessary arrangements for the conduct of the meetings in the Third week of April 2024. They are further requested to prepare curricula and extracurricular activities and devise suitable evaluation system keeping in mind above recommendations to make students a wholesome personality.

Further, the Chairman of the each BOS, in association with the IQAC coordinator, preceding the BOS meeting, is requested to prescribe benchmarking, quality initiatives in pedagogy and learning; in design of curriculum (with 20% change) and optimum utilization of existing human, physical and ICT resources and adopt resolutions to the extent of benchmarks (As per SOP given in **Annexure – I)**. Further, as the regular attendance of students to the classes is a deciding factor in enhancement of quality in learning, a minimum attendance of 75% for I & II mid-term examinations under CIA component shall be the benchmark for attendance and it shall be approved in the BOS. The Chairmen are also requested to approve the new programmes to be introduced for 2024-25, if any, number of certificate courses, their frequency, Bloom 's- Taxonomy based evaluation system for effective learning outcomes as per the Annexure – I.

Pre-BoS activity:

1. The Chairmen shall send the curricula designed for AY 2023-24 to the Industrialists, Alumni, parents and senior subject experts and get feed back and input on the quality of the syllabi, extra-curricular activities, student-centric activities by 6 April 2024.
2. The Chairmen are, therefore, requested to

- Design curricula of Odd and even semesters for the A.Y 2024-25 both for U.G (I to VIII semesters)and P.G(I to IV Semesters) courses in tune with the stated vision, mission of the institution, RAF of NAAC, NEP-2020 and NIRF.

- It is mandatory to change the syllabus every year for a maximum of 20% .
- Conduct meeting with employers, parents, alumni, shall take feedback on the existing curricula and invite suggestions and changes to be made.
- Invite the University nominee, subject experts, industrial nominees, student nominees, parents well in advance along with the date, venue, agenda, etc. A soft copy shall be communicated well in advance to the members to have an idea on the matters.

  The Subject experts should be preferably a Doctorate with more than 10 years of teaching experience. He should have experience in designing industry related, market and job oriented curriculum.
- Facilitate much room for intense deliberation on the design of the curricula, evaluation system, research component, enhancing learning experiences, resource utilization by staff and students, etc.,
- Each Department shall approve and recommend additional credits for additional modules, training programmes, N.S.S, N.C.C, participation in cultural programs, sports and games, environmental programs, blood donations camps, etc.
- All meetings shall be offline. Online attendance of members faculty will be permitted only in exceptional cases.
- The Chairmen shall submit minutes of the meeting in the prescribed format only (Annexure – II) in triplicate (hard copies) to the Academic cell for onward submission to the IQAC, Examination cell and library within three days from the completion of BOS meeting and besides hosting the soft copy in the college website within the period stipulated.
- Each Chairman of BOS, shall get the rough draft of the curricula verified and approved by the Principal, Academic Cell and IQAC before the actual BOS meetings to ensure uniformity and commensurate with the stated vision and mission of the college among the departments.
- The Academic Cell coordinator shall be the Chief Coordinator for the BOS meeting activity and IQAC coordinator will be the additional coordinator.
- The Academic Coordinator and IQAC coordinators will conduct a meeting with the Chairmen, BOS on 25 April 2024 and explain the structure of curricula, uniformity other modalities.
- The Controller of Examinations of the institution shall fund the BOS meetings from the available funds on the condition of reimbursement after receiving autonomous funds from UGC. Initially, he shall pay Rs. 5,000/- uniformly as an advance to each Chairman towards each course (If BOS meetings for multiple courses are held under one Chairmanship, he/ she shall be given advance amount equivalent to the number of courses x Rs.5000/-)
- The Chairman of each BOS shall apply to the principal for advance amount for meeting the BOS meetings with head-wise expenditure in the prescribed format (Annexure-III).

The chairmen of BOS are instructed to take suggestions from Industrialist (Part of Pre BOS)who is not in the previous BOS as member from industrialist category regarding the change in syllabus for the papers in BOS 2023-24 and proposal for new courses for the Academic year 2024-25 keeping in view of the future job opportunities .

S.No	Title of the Paper	Feedback or suggestions on the curriculum designed during 2023-24 BoS(Whether industry oriented/ relevant for equipping skills for 21st century students)	Proposal of New Courses fo r 2024-25	Justification

Following contents shall be presented in the BOS document in order

1. Proceedings of the Principal pertaining to BOS
2. Composition of BOS
3. Vision and Mission of the college
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 Lab incase of science subjects

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

6. Resolutions adopted in the meeting with detailed discussion that took place during the meeting (Activities and Bench marking as per Annexure –I)
7. At the end of each theory paper, each topic shall be mapped as per the Blooms taxonomy and scope of that topic for skill/ employability/ entrepreneurship opportunities in the following table incorporated

S. No	Subject	Semester	Title of the Course (Paper)	Topic	Parameter as per Blooms taxonomy (Knowledge/ Application/ Creativity/ Innovation	Experiential learning component	Scope (Skill/ employability/ entrepreneurship)
1	III	Botany	Plant Physiology	Plant Cell	Knowledge	Shall be shown Microscope	
2	III	History	Tourism	Tourism management	Application	Apprenticeship	Employability

8. Each BOS Chairman shall, immediately after syllabus, tabulate the changes made in the syllabus/ paper along with justification, in the Proforma given in Annexure – I.
9. Attendance of Members present with signatures in the tabular form.
10. List of Examiners & Paper setters (Minimum 20 members list)
11. 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.
12. Each student (2024-25 AB) has to complete one MOOCS course from SWAYAM in any subject per year which is mandatory.

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.
- I mid examination is to be conducted in offline mode at college level and II mid examination is to be conducted in online mode at department level.
- I mid examination to be conducted in offline mode in which the student should attempt **one essay** question for ten marks out of two questions, **two short** answer questions with five marks each out of four questions and five objective questions to be given for each paper.
- Question paper is to be given as per the following structure for the courses with **4 units**

S.No	Unit No	Long Answer Question(10M)	Short Answer Question(5 M)	Objective Questions(1M)
1	I	1	0	1
2	II	1	0	1
3	III	0	2	1
4	IV	0	2	1+ one question from anyunit with more syllabus weightage

- For I mid examination to be conducted in offline mode, Question paper is to begiven as per the following structure for the courses with **5 units**

S.No	Unit No	Long Answer Question(10M)	Short Answer Question(5 M)	Objective Questions(1M)
1	I	1	0	1
2	II	1	0	1
3	III	0	1	1
4	IV	0	1	1
5	V	0	1+ one question from any unit(III or IV or V) with more syllabus weightage	1

- The remaining 25 marks for CIA are allocated as per the following structure.

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

IA structure for 3 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.
- I mid examination is to be conducted in offline mode at college level and II mid examination is to be conducted in online mode at department level.
- I mid examination to be conducted in offline mode in which the student should attempt **one essay** question for ten marks out of two questions, **two short** answer questions with five marks each out of four questions and five objective questions with one mark each.
- The remaining 25 marks for CIA are allocated as per the following structure.

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

CIA structure for 3 Major system for Honors programmes(2020-21AB)

- Out of 40 marks for CIA, 20 marks are allocated for Mid examinations. In

each semester two mid examinations to be conducted and the average of the two will be considered.

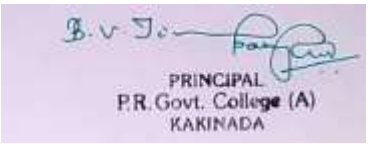
- I mid examination is to be conducted in offline mode at college level and II mid examination is to be conducted in online mode at department level.
- I mid examination to be conducted in offline mode in which the student should attempt **Two essay** questions for ten marks each out of three questions, **four short** answer questions with five marks each out of six questions.
- The remaining 20 marks for CIA are allocated as per the following structure.

Assignment- 10M	Seminar- 5M	Quiz -5M

13. Percentage of syllabus changes in each paper
14. Measure outcome attainment learning levels of students through direct and indirect methodology and mapping COs and POs
15. Text & Reference Books
16. e-content links.
17. The BoS meetings should be conducted as per the scheduled timelines given below.
18.

S.No	Activity	Scheduled Date
1	Issuing notification for conduct of BoS meetings	23.04.2024
2	Pre BOS (Offline/Online)	25.04.2024
3	Departmental level curricula design	27.04.2024
4	Finalization of draft BOS	27-04-2024
5	Scrutiny by academic cell	29-04-2024
6	Correspondence with Subject experts, University nominees, Industrialists	28-04-2024
7	BOS for UG & PG	30-04-2024

Enclosures:
Annexures- I, II & III
Copy to:
Lecturers-in-Charge (BOS Chairman) of all the departments
Academic Coordinator
IQAC coordinator
Controller of Examinations
Office



PRINCIPAL
Pithapur Rajah's **Government Autonomous College Kakinada**

OFFICE OF THE DEAN, ACADEMIC AFFAIRS

ADIKAVI NANNAYA UNIVERSITY

RAJAMAHENDRAVARAM

No. ANUR/DAA/PR Govt. College (A)/Sub. Experts/2021 Date: 22-10-2021

PROCEEDINGS OF THE VICE-CHANCELLOR

Sub:- ANUR- DAA – Nominated University Subject Experts for BOS – PR Govt. College (A), Kakinada – Orders - Issued.

Ref:- 1. Lr. dated 15.09.2021, from the Principal, PR Govt. College (A), Kakinada
2.Proc. No: ANUR/PRG College (A), KKD/UG BoS/2019/09, dated 19.03.2019

Read:-Note for Orders of the Vice-Chancellor dated 21.10.2021

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ORDERS

Having consider the request cited in the ref. 1, the Vice-Chancellor is pleased to order that the following members be nominated as University Subject Experts for UG Board of Studies of ***PR Govt. College (A), Kakinada*** for a period of three years from the date of the proceedings issued.

S.No.	UG Courses	Name of the Subject Expert
1	English	Dr. Prasanthi Sree, AKNU MNS Campus, Kkd, Ph No: 9848297555, sathupathi.sri@gmail.com
2	Hindi	Dr. N Venkata Ramana, SKBR College, Amalapuram, Ph. No: 9849373773
3	Telugu	Dr. P. Nagaraju, GDC, Palakollu, Ph.No: 9052038569, raju00517@gmail.com
4	Sanskrit	Dr. TGY Acharyulu, SKR Womens College, Rajahmundry, Ph. No: 9848628812
5	Mathematics	Dr. V. Anantha Lakshmi, Principal, GDC Pithapuram, Ph. No : 9963786386, ananthamaths@rediffmail.com
6	Statistics & Actuarial Sciences	Dr. D V Ramana Murthy, HoD of Statistics, SKVT College, Rajamahendravaram, Ph.No: 9949135864, drdvrmurthy@gmail.com
7	Chemistry & Analytical Chemistry	Dr. K. Jhansi Lakshmi, Principal, Ideal College of Arts & Sciences, KKD, Ph.No: 9441236409, jhansikalisindi@gmail.com
8	Physics & Electronics	Dr. Paul Diwakar, Sri CRR College (A), Eluru, 9985050696
9	Petro Chemicals	Dr. M Trinadh, Lecturer in Chemistry, Govt. College (A), Rajahmundry, Ph. No: 8639551783
10	Bio-Chemistry	Dr. M Suvarchala, Lecturer in home science, ASD women's Degree College, KKD, Ph. No: 9346512694, suvarchakamallela@gmail.com
11	Food Science	
12	Botany	Dr. J. Sujatha, Leturer in Botany, GDC Rjy, Ph.No: 9441050910, drjsuneetha@gcrjy.ac.in
13	Microbiology	Dr. D Aruna, Lecturer in Micro-biology, ASD Women's College, Kakinada, Ph. No: 9182525872
14	Zoology	Dr. B. Tejo Murthy, Lecturer in Zoology, GDC Yeleswaram, Ph. No: 9703799970, drmtm2011@gmail.com
15	Bio Technology	Dr. B. Nageswari, Lecturer in Biotechnology, GDC Rjy, Ph. No: 986621955

16	Commercial Aquaculture	Dr. P Ramamohana Rao, Aquaculture Consultant, KKD, Ph. No: 9885144557, asreenivasulu@gmail.com
17	Computer Science & Computer Applications	Mr. N. Naga Subrahmanyesweri, Lecturer in Computer Science, ASD Women's College, KKD, Ph. No: 9948438376, yesweri.velugu@asddgcw.ac.in
18	Commerce	Dr. K. Ratna Manikyam, Govt. College (A), RJY, Ph. No: 8919230362, drkrm@gcrjy.ac.in
19	Economics	Dr. D. V. Nageshwara Rao, Lecturer, GDC, RJY, Ph. No: 9490919676
20	History	Dr. B. Anjani Kumari, Lecturer in charge, GDC (W), Ph. No: 891989337
21	Philosophy	Dr. V. Venkatarao, Lecturer in Philosophy, MR College, Vijayanagaram, Ph. No: 9440096609
22	Political Science	Dr. Seetha Mahalaxmi, Lecturer in Political Science, GDC, RJY Ph. No: 9491011844
23	Journalism & Mass Communication	Prof. DVR Murthy, Dept. of Journalism & Mass Communication, Andhra University, Vishakapatnam, Ph. No: 9985051793, 9440974092
24	Horticulture	Dr. J. Sujatha, Lecturer in Botany, GDC, Rjy, Ph. No: 9441050910, drjsuneetha@gcrjy.ac.in
25	Pharmaceutical Chemistry	Dr. K. Deepthi, Asst. Professor, Dept. of Chemistry, AKNU, Rjy, Ph. No: 9985469607, deepthikorabandi@gmail.com

(BY ORDERS)

Dean 22/10/21
ACADEMIC AFFAIRS

To
The Principal, PR Govt. College (A), Kkd
PA to R
PS to VC,
OOF

Proceedings of the Principal, Pithapur raja's Government College [A], Kakinada

Present: Dr.B.V Tirupanyam, M.Sc, Ph.D

Rc. No: 12A/A.C/BOS 2024-25,Dated:31.04/2024

Sub:- Pithapur raja's Government College [A], Kakinada – UG Boards of Studies (BoS) – Program Course- B.Sc/ELECTRONICS Nomination of members - Orders Issued.

Ref:- UGC Guidelines for Autonomous colleges- 2018.

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.P.Paul Diwakar	University nominee, Y.V.N.R Government college,Kaikaluru
3.	Dr.K.Jyothi	Subject Expert, Principal SVRKGDC(M),Nidadavolu
4.	Sri.D. Gangadharudu	Subject Expert,Lecturer in Electronics,MR government college
5.	Mr.P.Suresh Kumar	Representative from Industry, Andhra Electronics,Kakinada
6.	Dr.K.Nanda Gopal	Sr.Scientific Asst.IMD,Alumni
7.	Dr.K.Jayadev	Member
8.	Ms G. Sridevi	Member
9.	Smt.A.Padmavathi	Member
10.	Dr S V G V A Prasad	Member
11.	Dr P Himakar	Member
12.	Dr K. Durga Rao	Member
13.	Ms.D.Sravani	Member
14.	K.Sai kumar	Student Member-II MPE
15.	G.Sailaja	Student Member-II MPE

The above members are requested attend the BOS meeting on 30-04-2024 and share their valuable views, suggestions on the following functionaries:

(a) Prepare syllabi for the subject keeping in view the objectives of the college, interest of the stake holders and national requirement for consideration and approval of the Academic Council

(b) Suggest methodologies for innovate teaching and evaluation techniques

(c) Suggest panel of names to the Academic council for appointment of examiners

(d) Coordinate research, teaching, extension and other activities in the department of the college.

The term of the members will be two years from the date of the nomination. The Chairman of the BoS (HoD/lecturer In-Charge of the department) is directed to coordinate with the Principal of the College and conduct BoS meetings as and when necessary, but at least once a year.

PRINCIPAL
P.R.Govt. College (A)
KAKINADA

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 mould 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. 28.04.2024 Time: 2 PM

At: Department of Physics & Electronics staff room

Agenda of the Meeting

To discuss and approve:

1. Action taken report (ATR) of the A.Y.2023-24
2. Revised- Minor, common program structure and semester wise curriculum.
3. Adoption of regulations on scheme of examination and marks/grading system.
4. Engaging of 7^{th} hour of time table
5. Streamlining of regularity in attendance.
6. Value added courses viz. add on courses and skill development courses to be conducted by the department during the academic year 2024-25.
7. Collaboration with industry and third party sector organization in view of industrial internship.
8. Make students access to ICT infrastructure for enhanced quality in higher education.
9. Remedial coaching for slow learners and project/ research work for advancedlearners
10. Allocation of extra credits for extracurricular activities.
11. List of equipment/software requirement for each lab/practical of **Semester-V**.
12. Conduct of parent teacher meeting.
13. Panel of Question paper setters and Examiners
14. Action plan for the academic year 2024-25.
15. Departmental budget proposal for the academic year 2024-25
16. Any other with the permission of the chair.

P.R. Government College (Autonomous), KakinadaDepartment of Physics and Electronics

BOARD OF STUDIES - PHYSICS

Resolutions of the Meeting

The Board of Studies meeting was convened by the Physics & Electronics Department on 30-08-2023 at 10:30am. under the chairmanship of Dr M.Surekha, In-charge of the department, Dr. P. Paul Divakar, 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.2023-24.
Proposal: Presented before the BOS members to discuss on the above agenda 1.
Discussion: Discussed the action taken report (ATR) of the A.Y.2023-24.
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, common program structure 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 2024-25.

Agenda-3: Adoption of regulations on scheme of examination and marks/gradingsystem.
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 of 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: Engaging of 7th hour of time table

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

Discussion: Discussed the engagement of 7th hr introduced by the authorities

Resolution Adopted: It is resolved to dedicate the 7th hour classes for extra-curricularactivities and student counseling by class mentors.

Agenda-5: 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 thestudent

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

Agenda-6: Certificate courses viz. add on courses and skill development courses to beconducted by the department during the academic year 2024-25.

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-7: Collaboration with industry and third party sector organisation in view ofindustrial 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 organisationin 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-8: Make students access to ICT infrastructure for enhanced quality in highereducation.
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 enhancedquality 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.

Agenda-9: Remedial coaching for slow learners and project/ research work for advancedlearners
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 workfor advanced learners.
Resolutions Adopted: Resolved to adopt a bench mark from previous appeared examinations to divide the students into three categories

- Resolved to take '**O'** as benchmark for advanced learners to assign criticalassignments, project/research works and ICT based class seminars
- Resolved to take '**B'** as benchmark for moderate learners to assign assignments andclass seminars
- Resolved to take '**F'** as benchmark for slow learners to conduct remedial coaching

Agenda-10: 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 likeextending 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 theclaim of extra credits)	Total credits achieved willbe considered
2	**NCC**	B CERTIFICATE	2
		Participation in National Camp after 'B' certificate	3
		C certificate	
		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	
4	**NSS**	40% attendance in regular NSS	1
		activities	
		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 activity**	Winning medals at state level-2,	2
		District level-1	1
8	**COP/Add on Course**	Pass in Certificate Exam-1,	1
		Diploma-2	2
9	**Support services**	Lead India, Health club, RRC and Eco Club etc., participation in various programmes	1

Agenda-11: 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 equipment, which are suggested after discussion.

Agenda-12: 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.

Agenda-13: 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-14: Action plan for the academic year 2024-25.

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 2024-25.

Agenda-15: Departmental budget proposal for the academic year 2024-25

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 2024-25.

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

Board of Studies Meeting 2024-25

Action Taken Report 2023 - 24

The Department of Physics conducted the BOS meeting for the academic year 2023-24 on 31.08.2023 in the Department of Physics. All the activities according to the plan of action were successfully completed in the proposed timeline. 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. Conducted awareness programme on usage of Waste material on 02.09.2023.
2. Sir C.V.Raman birth day celebrations on 07.11.2023
3. Distribution of Upkar scholarships to the poor students on 29.11.2023.
4. Parent Teacher meeting was conducted on 29.11.2023.
5. PG BOS for 2023-24 conducted on 04.12.2023.
6. Inauguration of certificate courses "Soldering and De soldering of Components" & "Household Electrical Wiring" in Sem IV @30 hrs on 08.12.2023.
7. Invited Talk on some aspects of thin films & Instrumentation by Dr9 Tenneti Venkateswara Rao, Ph.D, IIT-Delhi on 29.01.2024.
8. Outreach Programme by our faculty on the eve of ANVESHAN-2024 conducted on 22.02.2024 at Mc. Laurin School, kkd.
9. Training on projects/ working models development to students on 23.02.2024 & 24.02.2024 by faculty of Dept. of Physics on the eve of ANVESHAN-2024
10. Teaching competency building training programme for Physics Teachers in our district by Dr K. Chandrasekhar Rao, Dept of Collegiate Education on 26.02.2024 on the eve of ANVESHAN-2024.
11. State level poster/ power point presentation on science / business projects on 27.02 2024 on the eve of ANVESHAN-2024.
12. National Science day celebrations (Inauguration of Science park ,Open day science exhibition & prize distribution) was conducted on 28.02.2024.
13. Einstein birth day celebrations conducted on 13.03.2024.
14. Field visit was conducted to M.Sc Physics students at Rajamahendravaram Airport to create awareness on signaling & air traffic controlling by Airport authority of India on 22.04.2024.

certificate

UG Program (4 years Honors) Structure (CBCS)

2020-21 A.Y., onwards Up to 2024-25.

BACHLOR OF SCIENCE

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

Subjects/ Semesters		I		II		III		IV		V		VI			
		H/ W	C	H/W	C	H/W	C	H/W	C	H/ W	C	H/ W	C		
Languages												THIRD PHASE of APPRENTICESHIP Entire 5th / 6th Semester		FIRST and SECOND PHASES (2 spells) of APPRENTICESHIP between 1st and 2nd year and between 2nd and 3rd year (two summer vacations).	
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	0	12	4	4
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	0	12	4	4

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

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 C O U R S E TITLES & CREDITS Admitted batch (2024 - 25)							
Sem	Course no.	Course Name	Course type (T/L/P)	Hrs./ Wk. (Science: 4+2)	Credits (Science : 4+1)	Max. Marks Cont./Internal/Mid Assessment	Max. Marks Sem-end Exam
I	1	Essentials and applications of Mathematical, Physical and Chemical Sciences	T	3	3	50M	50M
	2	Advances in Mathematical, Physical and Chemical Sciences	T	3	3	50M	50M
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	Embedded systems design	T	4	4	50M	50M
		Embedded systems design Lab	L	2	1	0	50M
	7B	Consumer Electronics	T	4	4	50M	50M
		Consumer Electronics Lab	L	2	1	0	50M
	OR						
	6C	VLSI Design	T	4	4	50M	50M
		VLSI Design Lab	L	2	1	0	50M

	7C	Data communication and Networking	T	4	4	50M	50M
		Data communication and Networking Lab	L	2	1	0	50M
Note: *Course type code: T: Theory, L: Lab							

Note 1: For Semester–V, for the domain subject **ELECTRONICS**, any one of the three pairs of Skill Enhancement Courses shall be chosen as courses 6 and 7, i.e., 6A & 7A or 6B & 7B or 6C & 7C. The pair shall not be broken (ABC allotment is random, not on any priority basis).

Note 2: One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate field skills related to the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training tostudents on the field skills embedded in the syllabus citing related real field situations.

Note 3: To insert assessment methodology for Internship / on the Job Training / Apprenticeship underthe revised CBCS as per APSCHE Guidelines.

First internship (After 1st Year Examinations): Community Service Project. To inculcate social responsibility and compassionate commitment among the students, the summer vacation in the intervening 1st year of study shall be for Community Service Project (the detailed guidelines are enclosed).

- **Credit For Course: As per APSCHE and AKNU guidelines.(for 2024-25 admitted batch)**

- **Examples of community service project offered by the department**
- Consumption of solar energy in industrial sector Survey of electricity consumption on primary needsEffect of social media on society
- Impact of online payments in daily life Urge of Internet for education purpose Utilization ofsolar energy in public sector Effect of social media on society Recommendations for energy saving houses
- Utilization of solar energy in Kakinada Smart cityEnergy saving techniques in houses

- **Second Internship (After 2nd Year Examinations):** Apprenticeship / Internship / on the job training / In-house Project / Off-site Project. To make the students employable, this shall be undertaken by the students in the intervening summer vacation between the 2nd and 3rd years (the detailed guidelines are enclosed).

- **Credit For Course: 04 for 100 marks(for 2022-23 admitted batch)**
- **Third internship/Project work (6th Semester Period):**

During the entire 6th Semester, the student shall undergo Apprenticeship / Internship / On the Job Training. This is to ensure that the students develop hands on technical skills which will be of great help in facing the world of work (the detailed guidelines are enclosed).

- **Credit For Course:12 for 200 marks(for 2021-22 admitted batch)**

P.R. Government College (Autonomous), Kakinada

Department of Physics& Electronics

For **Sem IV**, in accordance with the prescribed on job training apprenticeship, all the Physics and Electronics students are supposed to connect with the following industries for off-site Project.

S. No.	NAME OF THE INDUSTRY	LOCATION	NATURE OF SKILLS AIMED TOBE
1	ISIE INDIA PVT. LTD., Noida	Kakinada	Electronic vehicle technology
2	JVS Technologies	Kakinada	Electronic devices manufacturingand repairs
3	Solar Systems	Kakinada	Installation of Solar panels
4	Ramakrishna Rewinding Works	Kakinada	Rewinding of Electrical appliances

- List of Suitable levels of positions eligible in the Govt /Pvt organizations

Suitable levels of positions for these graduates either in industry/govt organization like., technical assistants/ scientists/ school teachers., clearly definethem, with reliable justification

S. No	Position	Company/ Govt. organization	Remarks	Additional skills required, if any
1	Clerk	IBPS		Skill in functional English, and aptitude.
2	SSC	Central Govt.		Skill in functional English, and aptitude with GK.
3	Asst. Programmer	MNC (Software Companies)		Skill in functional English, and aptitude and expected domain skills
4	Technical Assistant	Pharma Companies	Chemistry background student	Along with aptitude and English, domain skills.

P.R. Government College (A), Kakinada Blue print
for the model paper – Electronics Semester End
External examination
For I , II &III year core courses 2023 – 2024

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 $= \frac{95-50}{95} \times 100$

$= \frac{45}{95} \times 100 = 47.4\ \%$

P.R. Government College (A), Kakinada
Blue Print for Internal Theory Examination
For Single Major system

S. No.	Type of question			No. of Questions Given			No. of Question		
		Unit	No. of Questions	Total Questions	Marks	Total	No. of Ques	Marks	Total
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 forCCE are further divided as follows

Study project = 10 marks
(Theoretical for odd Sem / Practical for even Sem)
Viva on subject =3 marks

Assignment = 5marks

Seminar = 5 marks

Clean & Green and Attendance =2 marks

Total = 25 marks

P.R. Government College (A), Kakinada

Blue Print for Internal Theory Examination

For Three Major system

S. No.	Type of question	Unit	No. of Questions	No. of Questions Given: Total Questions	No. of Questions Given: Marks allottedto each question	No. of Questions Given: Total marks	No. of Questions to be answered: No. of Questions	No. of Questions to be answered: Marks allottedto each question	No. of Questions to be answered: Total marks
1	**Section – A** Essay question	I	1	2	10	20	1	5	5
		II	1						
2	**Section – B** Short answer Questions	III, IV & V One from Any of above units	4	4	5	20	2	5	10
3	**Section – C** Objective type questions	One question from each unit	5	5	1	5	5	5	5
						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 forCCE are further divided as follows

Study project	= 10 marks
(Theoretical for odd Sem / Practical for even Sem)	
Viva on subject	=3 marks
Assignment	= 5marks
Seminar	= 5 marks
Clean & Green and Attendance	=2 marks
Total	**= 25 marks**

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 6 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

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

Department of Physics and ElectronicsB.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 2022-23

COURSE: B.Sc. - Mathematics, Physics, Electronics (M.P.E)

- **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.

COURSE: B.Sc. - Mathematics, Electronics, Computer Science (M.E.CS)

- **PSO 1:** Domain knowledge and understand the concepts of basic electronic components, microprocessors and micro controllers, algorithms, C language, Arduino programming, Networking, cloud and Big Data.
- **PSO 2:** Analyze the concepts of mathematics, Electronics and computer Networks and able to use them in solving real world problems
- **PSO 3:** Acquire the skills to use various electronic components, implementation of numerical algorithms by using various experiential techniques.
- **PSO 4:** Ability to interlink and adopt the skills developed and acquires an aptitude to address the problems in simulation of electronic circuits, developing web and mobile apps.

COURSE: B.Sc. - Mathematics, Electronics, Internet of Things (M.E.Iot)

- **PSO 1:** Domain knowledge and understand the concepts of basic electronic components, networks, communication systems, microprocessors and micro controllers, algorithms, C language, Arduino programming, Networking, cloud and Big Data.
- **PSO 2:** Analyse the concepts of mathematics, Electronics and computer Networks and able to use them in solving real world problems.
- **PSO 3:** Acquire the skills to use various electronic components, microprocessor, microcontroller, Arduino, Raspberry PI and simulators.

PSO 4: Ability to interlink the skills developed to design tools for internet of things, and gets an aptitude to address the problems in smart home design, smart vehicles, and smart sensors in various fields

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 II B.Sc (Minor) Paper to adopt the present syllabus .

Program : B.Sc

Semester : III
Course : Electronics Minor
Title of the Paper : Semiconductor Devices & Circuit Theory

S. No.	Name of the Module	Topics Added	Justification
1	Module I to Module V	Entire syllabus of the paper has been changed	Previous syllabus lacks the foundational content and it is appropriate to include the basic concepts to encourage the students to build a strong foundation,

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 entire syllabus of II B.Sc (Minor) Paper Titled **SEMICONDUCTOR DEVICES AND CIRCUIT THEORY,** and to adopt the present syllabus under the same title. 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 : IV
Course : Electronics Minor
Title of the Paper : Electrical & Electronic Instrumentation

S.No	Name of the Module	Topics Added/ Deleted	Justification
1	UNIT I	**Deleted:** Electrodynamometer-Thermocouple Instrument-Electrostatic Voltmeter-Watt hour meter	Topics are already covered in the same paper
2	UNIT III	**Deleted:** Oscilloscopes: Block diagram Deflection Sensitivity Electrostatic Deflection-Electrostatic Focusing CRT Screen Measurement of Waveform frequency, phase difference and Time intervals Sampling	As CRT is a part of CRO and all the other concepts and topics are covered in CRO.Hence, we deleted the topic of CRT and included CRO

		Oscilloscope-Analog and Digital Storage Oscilloscopes **Added:** 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 V	**Deleted:** Transducer and Display Devices Strain Gauge-Unbounded Strain Gauge LVDT-Resistance Thermometer Photoelectric Transducer Pen Recorder Audio Tape Recorder Seven Segment Display – LCD **Added:** 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.	Instead of Transducers it is useful to include various display devices and its applications in this unit.. Hence, we introduce display devices exclusively.

Total Percentage of changes : 45%

PITHAPUR RAJAHS GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA

DEPARTMENT OF PHYSICS & ELECTRONICS

Percentage of Syllabi included/Excluded-2024-25

Sl No	Title of Paper	% of Change
1	Embedded systems Design	0
2	Consumer Electronics	0
3	Semiconductor Devices & Circuit Theory	100
4	Electrical & Electronic Instrumentation	45

	Pithapur Rajahs Government College (Autonomous) Kakinada	Program & Semester I B.Sc. (I Sem) COURSE-1 W.e.f. 2024 - 25 ADMITTED BATCH			
Course Code	**ESSENTIALS AND APPLICATIONS OF MATHEMATICAL, PHYSICALANDCHEMICAL SCIENCES**				
Teaching	Hours Allocated: 60(**Theory**)	L	T	P	C
Pre-requisites:	Different types of Physical quantities, Basic mathematical equations & formulae, Forces and its properties, knowledgeabout celestial bodies	5	0	-	4

Course Objective:

The objective of this course is to provide students with a comprehensive understanding of the essential concepts and applications of mathematical, physical, and chemical sciences. The course aims to develop students' critical thinking, problem-solving, and analytical skills in these areas, enabling them to apply scientific principles to real-world situations.

Learning outcomes:

1. Apply critical thinking skills to solve complex problems involving complex numbers, trigonometric ratios, vectors, and statistical measures.

2. To Explain the basic principles and concepts underlying a broad range of fundamental areas of physics and to Connect their knowledge of physics to everyday situations

3. To Explain the basic principles and concepts underlying a broad range of fundamental areas of chemistry and to Connect their knowledge of chemistry to daily life.

4. Understand the interplay and connections between mathematics, physics, and chemistry in various applications. Recognize how mathematical models and physical and chemical principles can be used to explain and predict phenomena in different contexts.

5 To explore the history and evolution of the Internet and to gain an understanding of network security concepts, including threats, vulnerabilities, and countermeasures.

UNIT II: ESSENTIALS OF PHYSICS:

Definition and Scope of Physics- Measurements and Units - Motion of objects: Newtonian Mechanics and relativistic mechanics perspective - Laws of Thermodynamics and Significance- Acoustic waves and electromagnetic waves- Electric and Magnetic fields and their interactions- Behavior of atomic and nuclear particles- Wave-particle duality, the uncertainty principle- Theories and understanding of universe

UNIT IV: APPLICATIONS OF MATHEMATICS, PHYSICS & CHEMISTRY:

Application of Physics in Industry and Technology: Electronics and Semiconductor Industry, Robotics and Automation, Automotive and Aerospace Industries, Quality Control and Instrumentation, Environmental Monitoring and Sustainable Technologies.

Reference Books:

1. University Physics with Modern Physics by Hugh D. Young and Roger A. Freedman
2. Fundamentals of Physics by David Halliday, Robert Resnick, and Jearl Walker
3. Physics for Scientists and Engineers with Modern Physics" by Raymond A. Serway and John W. Jewett Jr.
4. Physics for Technology and Engineering" by John Bird

STUDENT ACTIVITIES:

UNIT II: ESSENTIALS OF PHYSICS:

1. Concept Mapping

Divide students into groups and assign each group one of the topics.

Students will create a concept map illustrating the key concepts, relationships, and applications related to their assigned topic.

Encourage students to use visual elements, arrows, and labels to represent connections and interdependencies between concepts.

2. Laboratory Experiment

Select a laboratory experiment related to one of the topics, such as motion of objects or electric and magnetic fields.

Provide the necessary materials, instructions, and safety guidelines for conducting the experiment.

Students will work in small groups to carry out the experiment, collect data, and analyze the results.

After the experiment, students will write a lab report summarizing their findings, observations, and conclusions.

UNIT IV: APPLICATIONS OF MATHEMATICS, PHYSICS & CHEMISTRY

1: Interdisciplinary Case Studies

Divide students into small groups and provide them with interdisciplinary case studies that involve the interdisciplinary application of mathematics, physics, and chemistry.

Each case study should present a real-world problem or scenario that requires the integration of concepts from all three disciplines.

2: Design and Innovation Project

Challenge students to design and develop a practical solution or innovation that integrates mathematics, physics, and chemistry principles.

Students can choose a specific problem or area of interest, such as renewable energy, environmental conservation, or materials science.

3: Laboratory Experiments

Assign students laboratory experiments that demonstrate the practical applications of mathematics, physics, and chemistry.

Examples include investigating the relationship between concentration and reaction rate, analyzing the behavior of electrical circuits, or measuring the properties of materials.

PITHAPUR RAJAH'S GOVERNMENT COLLEGE(A), Kakinada

Blue print for the model paper –Physics

Semester End External Examination For I to V year core courses 2023 – 2024

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		13		95	07		50

BluePrint

Module	Essay Questions 10marks	Short Questions 5marks	Marks allotted
I	1	2	20
II	1	1	15
III	1	2	20
IV	2 (M, P)	1 (C)	25
V	1	1	20
			95

	Pithapur Rajahs Government College (Autonomous) Kakinada	**Program & Semester** I B.Sc. (I Sem) COURSE-2 W.e.f. 2024 - 25 ADMITTED BATCH			
Course Code	**ADVANCES IN MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES**				
Teaching	**Hours Allocated: 60 (Theory)**	L	T	P	C
Pre-requisites:	Different types of Physical quantities, Basic mathematical equations & formulae, Forces and its properties, knowledgeabout celestial bodies	5	0	-	4

Course Objective:

The objective of this course is to provide students with an in-depth understanding of the recent advances and cutting-edge research in mathematical, physical, and chemical sciences. The course aims to broaden students' knowledge beyond the foundational concepts and expose them to the latestdevelopments in these disciplines, fostering critical thinking, research skills, and the ability to contribute to scientific advancements.

Learning outcomes:

1. Explore the applications of mathematics in various fields of physics and chemistry, to understand how mathematical concepts are used to model and solve real-world problems.

2. To Explain the basic principles and concepts underlying a broad range of fundamental areas of physics and to Connect their knowledge of physics to everyday situations.

3. Understand the different sources of renewable energy and their generation processes and advances in nanomaterials and their properties, with a focus on quantum dots. To study the emerging field of quantum communication and its potential applications. To gain an understanding of the principles of biophysics in studying biological systems. Explore the properties and applications of shape memory materials.

3. Understand the principles and techniques used in computer-aided drug design and drug delivery systems, to understand the fabrication techniques and working principles of nano sensors. Explore the effects of chemical pollutants on ecosystems and human health.

4. Understand the interplay and connections between mathematics, physics, and chemistry in various advanced applications. Recognize how mathematical models and physical and chemical principles can be used to explain and predict phenomena in different contexts.

5 Understand and convert between different number systems, such as binary, octal, decimal, and hexadecimal. Differentiate between analog and digital signals and understand their characteristics. Gain knowledge of different types of transmission media, such as wired (e.g., copper cables, fiber optics) and wireless (e.g., radio waves, microwave, satellite).

UNIT II: ADVANCES IN PHYSICS:

Renewable energy: Generation, energy storage, and energy-efficient materials and devices. **Recent advances in the field of nanotechnology**: Quantum dots, Quantum Communication- recent advances in biophysics- recent advances in medical physics- Shape Memory Materials.

UNIT IV: ADVANCED APPLICATIONS OF MATHEMATICS, PHYSICS & CHEMISTRY

Application of Renewable energy: Grid Integration and Smart Grids,

Application of nanotechnology: Nano medicine,

Application of biophysics: Biophysical Imaging, Biomechanics, Neurophysics,

Application of medical physics: Radiation Therapy, Nuclear medicine

Recommended books:

1. Renewable Energy: Power for a Sustainable Future" by Godfrey Boyle

2. "Energy Storage: A Nontechnical Guide" by Richard Baxter

3. "Nanotechnology: Principles and Applications" by Sulabha K. Kulkarni and Raghvendra A. Bohara

4. "Biophysics: An Introduction" by Rodney Cotterill

5. "Medical Physics: Imaging" by James G. Webster

1: Case Studies

Provide students with real-world case studies related to renewable energy, nano technology, biophysics, medical physics, or shape memory materials.
Students will analyze the case studies, identify the challenges or problems presented, and propose innovative solutions based on the recent advances in the respective field.They will consider factors such as energy generation, energy storage, efficiency, sustainability, materials design, biomedical applications, or technological advancements.

2: Experimental Design

Assign students to design and conduct experiments related to one of the topics: renewable energy, nanotechnology, biophysics, medical physics, or shape memorymaterials.
They will identify a specific research question or problem to investigate and design an experiment accordingly.

Students will collect and analyze data, interpret the results, and draw conclusions based on theirfindings. They will discuss the implications of their experimental results in the context of recent advances in the field.

3: Group Discussion and Debate

Organize a group discussion or debate session where students will discuss the ethical, social, and environmental implications of the recent advances in renewable energy, nanotechnology, biophysics, medical physics, and shape memory materials.

Assign students specific roles, such as proponent, opponent, or moderator, and provide them with key points and arguments to support their positions.

PITHAPUR RAJAH'S GOVERNMENT COLLEGE(A), Kakinada

Blue print for the model paper –Physics

Semester End External Examination For I to V year core courses 2023 – 2024

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		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 (M, P)	1 (C)	25
V	1	1	20
			95

	P. R. College (Autonomous), Kakinada		**Program & Semester** I B.Sc. Electronics (Minor-1)(II Semester) W.e.f. 2024-25 Admitted batch			
Course Code ELE I	**TITLE OF THE COURSE FUNDAMENTALS OF ELECTRICITY AND ELECTRONICS**					
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:

The students will learn:

1) basics of electrostatics, Gauss theorem and its applications,
2) about the concept of a capacitor, various types of capacitors and dielectric constant, magnetic effects of current,
3) about the cells and the measuring instruments like ammeter and voltmeter
4) basics of p-n junction, rectifying action of a diode, regulated power supplies and wave shaping circuits, and
5) transistor and its three modes of operation, h-parameter model of a transistor and the frequency response of an amplifier.

Syllabus

MODULE- 1: (9Hrs)

Electrostatics: Electric charges - Coulomb's law - Electric field - Electric intensity and electric potential - Relation between electric potential and intensity - Electric intensity and potential due to a uniform charged conducting sphere at a point outside, on, and inside the conductor. Electric dipole - Dipole moment - Intensity and potential due to a dipole - Statement and proof of Gauss law - Application of Gauss law to uniformly charged solid sphere.

MODULE-II: (9hrs)

Capacitors: Definition and unit of capacity - Capacitance of a parallel plate capacitor,- Effect of dielectric on capacity - Capacitors in series and parallel - Energy stored in a charged Capacitors - Loss of energy on sharing of charges between two capacitors,- Force of attraction between plates of charged parallel plate capacitor –Kelvin's attracted disc electrometer - Measurement of potential and dielectric constant. Type of capacitors - Mica capacitor, Electrolytic capacitors, Variable air capacitor –Uses of capacitors.

MODULE-III: (9hrs)

Electrical Measurements: Carey-Foster bridge - Determination of specific resistance - Potentiometer - Calibration of low and high range voltmeters - Calibration of Low range ammeter. Magnetic Effect of Current: Biot-Savart's law [Force on a conductor carrying

current placed in a magnetic field] - Principle, construction and theory of a moving coil ballistic galvanometer - Measurement of figure of merit of B.G. - Comparison of capacitors using B.G.

MODULE-IV: (9hrs)

Diode circuits and power Supplies: Junction diode characteristics – Half and full wave rectifiers – Expression for efficiency and ripple factor - Construction of low range power peak using diodes - Bridge rectifier - Filter circuits - Zener Diode - Characteristics - Regulated power supply using Zener diode - Clipper and Clamper using diodes. Differentiator and integrator using resistor capacitor.

MODULE-V: (9hrs)

Transistor circuits: Characteristics of a transistor in CB, CE modes - Relatively merits Graphical analysis in CE configuration - Transistor as an amplifier - RC coupled Single stage amplifier - Frequency response - Thevenin's and Norton's theorems - h parameters. Basic logic gates AND, OR, and NOT - Construction of basic logic gates using diodes and transistor

TEXT BOOKS:

1. **Electricity and Magnetism - M. Narayanamoorthi and Others, National Publishing Co., Chennai.**
2. **Electricity and Magnetism - R. Murugeshan, S. Chand & Co. Ltd., New Delhi, Revised Edition, 2006.**
3. **Principles of Electronics - V.K. Mehta, S. Chand & Co., 4/e, 2001.**
4. **Basic Electronics - B.L. Theraja, S. Chand & Co., 4/e, 2001.**

REFERENCE BOOKS:

1. Electricity and Magnetism - Brijlal & Subrahmanyam, Ratan Prakashan Mandir, Agra.
2. Fundamentals of Electricity and Magnetism - B.D. Duggal & C.L. Chhabra, Shoban Lal Nagin Chand & Co., Jallundur.
3. Physics, Vol. II - Resnick, Halliday & Krane, 5/e, John Wiley & Sons, Inc.,.
4. Basic Electronics - B. Grob, McGraw - hill, 6/e, NY, 1989.
5. Elements of Electronics - Bagde & Singh, S. Chand

P.R. GOVERNMENT COLLEGE (A), KAKINADA

Electronics (Minor)-Semester –II Paper – 3

w.e.f. 2023 - 24 ADMITTED BATCH

FUNDAMENTALS OF ELECTRICITY AND ELECTRONICS

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

MODEL QUESTION PAPER

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

Section	Part	Questions to be given	Questions to be answered	Marks
A	A	3	3	3x10=30M
	B	3		
B		7	4	4x5=20M
Total		13	7	50M

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

Blue Print

Module Name	Essay Questions [10 marks]	Short Questions [5 marks]	Problems [5 marks]	Marks allotted
Electrostatics	1	1	-	15
Capacitors	1	1	1	20
Electrical Measurements	1	1	-	15
Diode Circuits And Power Supplies	2	1	-	25
Transistor Circuits	1	1	1	20
Total Marks				95

Note: At least two problems should be answered.

P.R.GOVERNMENT COLLEGE (A), KAKINADA

Electronics (Minor)- Semester – II Paper – 1

w.e.f. 2023 - 24 ADMITTED BATCH

FUNDAMENTALS OF ELECTRICITY AND ELECTRONICS

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

	P. R. College (Autonomous),Kakinada	Program & Semester			
Course Code **ELE 2**	**TITLE OF THE COURSE FUNDAMENTALS OF ELECTRICITY AND ELECTRONICS**	I B.Sc. Electronics minor 2(II Semester)			
Teaching	Hours Allocated: 30 (**Practical**)	L	T	P	C
Pre-requisites	Voltage & Current divider rule,	-	-	2	1

List of Experiments

1. Logic gates – AND, OR, NOT, NOR & NAND gates – Verification of their truth tables
2. De Morgans theorem – Verification of two laws
3. V-I Characteristics of given PN Junction Diode
4. V-I Characteristics of given Zener Diode
5. Verification of Truth tables of Half adder and Full adder
6. Carey-Foster bridge - Determination of specific resistance -Potentiometer

	P. R. College (Autonomous), Kakinada	**Program & Semester** II B.Sc. Electronics Minor-3 (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

Course with focus on employability / entrepreneurship / Skill Development modules

Skill Development			**Employability**			**Entrepreneurship**	

SYLLABUS

UNIT-I: BJT, UJT:

BJT: Construction, working, and characteristics of CE Configurations. Hybrid parameters and hybrid equivalent circuit of CE Transistor, 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]	Problems (5M)	Marks allotted
BJT,UJT	2	1	-	25
FET,MOSFET	1	1	-	15
Sinusoidal alternating waveforms	1	1	1	20
RC,RL & RLC Circuits	1	1	1	20
Passive networks and network theorems	1	1	-	15
Total	6	5	2	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. Problem from Module - 3
11. Short answer question from Module – 4
12. Problem from Module - 4
13. Short answer question from Module - 5

	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 (**Practical**)	L	T	P	C
Pre-requisites	Voltage & Current divider rule,	-	-	2	1

List of Experiments

1. To study the Hall Effect: determine the Hall coefficient, type of semiconductor and carrier concentration in the given semiconductor sample.
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. V-I characteristics of BJT

	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

	P. R. College (Autonomous),Kakinada	Program&Semester			
CourseCode **ELE 3**	**TITLE OF THE COURSE** **ELECTRICAL & ELECTRONIC INSTRUMENTATION**	II B.Sc. Electronics (IV Semester)			
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 peripheralchips involving system design.
3. To understand techniques for faster execution of instructions and improve speed ofoperation 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: Data transfer 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 smallestnumber 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 Processor: Introduction to 16/32 bit processors, Arm architecture & organization, Arm based MCUs, 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– RajKamal 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

Electronics-Semester – IV Paper – 4

ELE 4

w.e.f. 2022 - 23 ADMITTED BATCH

Microprocessor Systems

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	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]	Programs [5 marks]	Marks allotted
CPU Architecture	1	2	-	20
8085 Instruction set	1	1	-	15
Assembly language programming using 8085	2 (Program)	1	-	25
8086	1	2	-	20
ARM Processor	1	1	-	15
Total Marks				95

P.R.GOVERNMENT COLLEGE (A), KAKINADA

Electronics-Semester – IV Paper – 4

w.e.f. 2022 - 23 ADMITTED BATCH

MICROPROCESSOR SYSTEM

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 - 3
11. Short answer question from Module - 4
12. Short answer question from Module – 4
13. Short answer question from Module – 5

	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**			
	Course Code **EL6205B**	**TITLE OF THE COURSE EMBEDDED SYSTEMS DESIGN**	III B.Sc. Electronics(V Semester) Paper – VI B			
	Teaching	Hours Allocated: 45 (**Theory**)	L	T	P	C
	Pre-requisites		3	-	-	3

Course Objectives:

1. Design embedded computer system hardware.
2. Design, implement, and debug multi-threaded application software that operatesunder real-time constraints on embedded computer systems.
3. Use and describe the implementation of a real-time operating system on an embedded computer system.
4. Formulate an embedded computer system design problem including multiple constraints, create a design that satisfies the constraints, implement the design in hardware and software, and measure performance against the design constraints.
5. Create computer software and hardware implementations that operate according towell-known standards.

Course Outcomes:

	On Completion of the course, the students will be able to
CO1	The student can gain good knowledge on Embedded Systems and implement in practical applications.
CO2	To study advanced communication principles.
CO3	An ability effectively as a member or leader on a technical team.
CO4	A commitment to quality, timeliness and continuous improvement.

SYLLABUS

MODULE - 1: (10 Hrs.) Introduction to Embedded Systems:

Embedded systems overview, Design Challenge, Processor Technology, IC Technology, and Design Technology.

MODULE - 2: (15 Hrs.) Custom Single Purpose Processor – Hardware Development:

Introduction, Combinational logic, Sequential logic, Custom Single Purpose Processor Design, RT-Level Custom Single-Purpose Processor.

MODULE - 3: (15 Hrs.) General Purpose Processor – Software Development:

Introduction, Basic Architecture, Operation, Programmer's View, ASIPs, and Development Environment: Host and Target Machines, Linker / Locators for Embedded Software, Getting Embedded Software into the target system. Debugging Techniques: Testing on your Host Machine, and Instruction Set Simulators.

MODULE - 4: (10 Hrs.) RTWA for Embedded Systems:

Introduction, Timers, Counters and Watchdog Timers, UART, Pulse Width Modulators, Stepper Motor Controllers, Analog – to – Digital Converters, and Real Time Clocks.

MODULE -5: (10 Hrs.)Advanced Communication Principles:

Parallel Communication, Serial Communication, Wireless Communication, **Serial Protocols**: I^2C, CAN, FireWire, and USB. **Parallel Protocols**: PCI BUS and ARM BUS. **Wireless Protocols**: IrDA, Bluetooth, and IEEE 802.11.

Text books:

1. Embedded System Design – A Unified Hardware / Software Introduction By **Frank Vahid / Tony Givargis** – WILEY EDITION.
2. Embedded Systems Architecture, Programming and Design – 2nd Edition By **Raj Kamal** – Tata McGraw-Hill Education.

Reference books:

1. An Embedded Software Premier - **David E- Siman**, PEARSON Education
2. Education Embedded / real - time systems - **DR. K.V.K.K. Prasad**, dreamtech
3. The art of programming Embedded systems, **Jack G. Ganssle**, academic press
4. Intelligent Embedded systems, **Louis L. Odette, Adison Wesley**, 1991

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	2	3	2	2	2	3	1	1	3	2	2	2	2
CO3	2	3	2	3	3	2	2	1	1	2	2	3	2	2
CO4	3	3	2	2	2	2	2	-	1	1	3	3	3	3
Avg.														

P.R. GOVERNMENT COLLEGE (A), KAKINADA

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

w.e.f. 2021-22 ADMITTED BATCH PAPER – 6 B

EMBEDDED SYSTEMS DESIGN

4 Hours/Week [Total: 60 hrs.] Credits: 04

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
Rectifiers and filters Voltage Regulators	2	2	30
Power Supplies	1	2	20
Voltage Multipliers	1	1	15
Controlled rectifiers	1	1	15
Heat effects	1	1	15
Total Marks			95

P.R. GOVERNMENT COLLEGE (A), KAKINADA

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

w.e.f. 2021-22 ADMITTED BATCH PAPER –

EMBEDDED SYSTEMS DESIGN

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 - 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

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

Course Objectives:

1. To develop programs for different applications.
2. To Interface 8051 with D/A & A/D converter and generate different types of wave forms.
3. To generate traffic signals using embedded systems.
4. To control temperature by using embedded systems.

Course Outcomes:

On Completion of the course, the students will be able to	
CO1	Develop a program to generate time delay.
CO2	Interfacing of 8051 with D/A converter and generate different types of wave forms .
CO3	Interfacing of 8051 with stepper motor and controlling of clock angle.
CO4	Generate traffic signals.

Any **Five** experiments should be done

1. Configure timer control registers of 8051 and develop a program to generate given time delay.
2. Port I/O: Use one of the four ports of 8051 for O/P interfaced to eight LED's. Simulate binary counter (8 bit) on LED's.
3. Serial I/O: Configure 8051 serial port for asynchronous serial communication with serial port of PC exchange text messages to PC and display on PC screen. Signify end of message by carriage return.
4. Interface 8051 with D/A converter and generate square wave of given frequency on oscilloscope.
5. Interface 8051 with D/A converter and generate triangular wave of given frequency on oscilloscope.
6. Using D/A converter generate sine wave on oscilloscope with the help of lookup table stored in data area of 8051.
7. Interface Stepper motor with 8051 and write a program to move the motor through a given angle in clock wise or counter clock wise direction.
8. Generate traffic signal.
9. Temperature controller.10. Elevator control

		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 Microwaveoven – Wiring and Safety instructions – care and Cleaning.

Module - II (12 hrs.): Washing Machines:

Electronic controller for washing machines – Washing machinehardware and software – Types of washing machines – Fuzzy logic washing machinesFeatures of washing machines.

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

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:

1.
2.

Activities proposed

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), KAKINADAB.Sc.

III Year - Electronics – Semester – V

w.e.f. 2020 - 21 ADMITTED BATCH PAPER – 7 B

[General Elective EL7205B]

CONSUMER ELECTRONICS

4 Hours/Week [Total: 60 hrs.] Credits: 04

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	2	2	30
Washing machines	1	2	20
Air conditioners & Refrigerators	1	1	15
Home/Office digital devices	1	1	15
Digital access devices	1	1	15
Total Marks			95

P.R. GOVERNMENT COLLEGE (A), KAKINADAB.Sc.

III Year - Electronics – Semester – V

w.e.f. 2021 - 22 ADMITTED BATCH PAPER – 7 B

CONSUMER ELECTRONICS

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

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

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

Section – B

Answer any Four questions **4x5=20M**

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

		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

LIST OF EXAMINERS / PAPER SETTERS IN ELECTRONICS2024 – 25

S. No.	Name of the examiner	Subject	Name of the College
1	Ch. Kanakarao 9848943943	Electronics	Y.N. College, Narsapur
2.	S. Venkata Raju 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,
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. Veera Bhadra 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 (M), Nidadavole
21	Dr. 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

PITHAPUR RAJAH'S GOVERNMENT COLLEGE [A]:: KAKINADA
PLAN OF ACTION FOR AY 2024-25

The department of Physics and Electronics is planning to conduct the following programs for the academic year 2024-25

S.No	Activity planned	Dates/ Period
1	Distribution of Kasarabada Scholarship both for UG& PG Students	2.7.2024
2	Expenses for repair of damaged equipment in lab	01.08.2024 to 30.04.2025
3	National /International online webinar	01-08-2024 to 30-10-2024
4	Certificate course-1/Diploma Course	August 2024 onwards
5	Guest Lectures - 4	1.20.08.2024 2. 12.10.2024 3. 28.12.2024 4. 11.03.2024
6	MoUs - 3 (Target)	01.08.2024 to 30.04.2025
7	Developing Innovation Incubation Center	01.08.2024 to 30.04.2025
8	Research publications - 5 (target)	01.07.2024 to 30.04.2025
9	Parent-Teacher Meeting	01.08.2024 to 30.04.2025
10	Best Practice: 1. Collaboraton with Industries. 2. UPKARscheme – Disbursement of scholarships to Poor & merit tudents	01.07.2024 to 30.04.2025
11	Field trip	4th week 2024
12	Observation of important days 1.Observing World Chess Day 2.Observing Hiroshima/NagasakiDay 3.Observing World OzoneDay 4. Celebration of Birthday of Sir C.V.Raman 5. National Science Day 6. Zero shadow day	1.20-07-2024 2.06-08-2024 3.16-09-2024 3.07-11-2024 4.28-02-2025

P. R. GOVERNMENT COLLEGE (A), KAKINADA
Department of Physics & Electronics
Budget Proposal for the Academic Year 2024-25

S. No.	PURPOSE	EXPENDITURE ESTIMATED	REMARKS
1.	Upgradation of 1st year Lab	Rs. 50,000=00	
2.	Upgradation of 2nd year Lab and dark room	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, Intercollegiate 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

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

Assessment methodology for Internships / On the Job Training / Apprenticeship under the revised CBCS (2020 – 21 onwards)

First internship (After 1st year examinations):

Community Service Project

To inculcate social responsibility and compassionate commitment among the students, the summer vacation in the intervening 1st and 2nd years of study shall be for Community Service Project.

Learning outcomes:

- To facilitate an understanding of the issues that confronts the vulnerable /marginalized sections of the society.
- To initiate team processes with the student groups for societal change.
- To provide students an opportunity to familiarize themselves with urban / rural community they live in.
- To enable students to engage in the development of the community.
- To plan activities based on the focused groups.
- To know the ways of transforming the society through systematic programme implementation.

Assessment Model:

There will be only internal evaluation for this internship. Each faculty member is to be assigned with 10 t0 15 students depending upon availability of the faculty members. The faculty member will act as a faculty-mentor for the group and is in- charge for the learning activities of the students and also for the comprehensive and continuous assessment of the students.

The assessment is to be conducted for 100 marks. The number of credits assigned is 4. Later as per the present practice the marks are converted into grades and grade points to include finally in the SGPA and CGPA.

Each student is required to maintain an individual logbook, where he/she is supposed to record day to day activities. The project log is assessed on an individual basis, thus allowing for individual members within groups to be assessed this way. The assessment will take into consideration the individual student's involvementin the assigned work.

While grading the student's performance, using the student's project log, the following should be taken into account -

a. The individual student's effort and commitment.
b. The originality and quality of the work produced by the individual student.
c. The student's integration and co-operation with the work assigned.
d. The completeness of the logbook.

The assessment for the ***Community Service Project implementation*** shall include the following components and based on the entries of Project Log and Project Report:

a. Orientation to the community development
b. Conducting a baseline assessment of development needs
c. Number and Quality of Awareness Programmes organised on beneficiary programmes and improvement in quality of life, environment and social consciousness, motivation and leadership, personality development, etc.
d. Number Quality and Duration of Intervention/service Programmes (Prevention or promotion programs that aim to promote behavioural change in defined community contexts to address social problems) organised.
e. Follow up Programmes suggested (Referral Services, Bringing Community Participation)
f. Developing short and mid-term action plans in consultation with local leadership and local government officers.

The **Project Report** should contain

a) Introduction, scope, objectives, and methodology
b) Project specifications (area / background of the work assigned).
c) Problems identified.
d) Analyses of the problems
e) Community awareness programmes conducted w.r.t the problems and their outcomes.
f) Intervention/service programmes taken up
g) Short-term and long term action plan for implementation
h) Recommendations and conclusions.
i) References

The **Project Presentation** is to be made by the student after he/she reports back to the College. The components for assessment are –

a. assessing the involvement in the project
b. presentation skills
c. final outcome of the project as evinced by the student.

For Example:

II MPC-EM

S.No.	Name of the Student	Class & Year of Study	Register Number	Project Log	Project Implementation	Project Report	Presentation	Total
				(20)	(30)	(25)	(25)	(100)

Signature of Project Mentor **Signature of Nominated faculty** **Signature of HOD/ In-Charge**

ANDHRA PRADESH STATE COUNCIL OF HIGHEREDUCATION

Assessment methodology for Internships / On the Job Training / Apprenticeship under the revised CBCS (2020 – 21 onwards)

Second Internship (After 2nd year examinations): Apprenticeship / Internship / On the job training / In-house Project / Off-site Project

To make the students employable, an Apprenticeship / Internship / On the job training / In-house Project / Off-site Project shall be undertaken by the students in the intervening summer vacation between the 2nd and 3rd years.

Learning outcomes

- Explore career alternatives prior to graduation.
- Integrate theory and practice.
- Assess interests and abilities in their field of study.
- Learn to appreciate work and its function towards future .
- Develop work habits and attitudes necessary for job success.
- Develop communication, interpersonal and other critical skills in the future job.
- Build a record of work experience.
- Acquire employment contacts leading directly to a full-time job following graduation from college.
- Acquire additional skills required for world of work.

Assessment Model

There will be only internal evaluation for this internship. Each faculty member is to be assigned with 10 t0 15 students depending upon availability of the faculty members. The faculty member will act as a faculty-mentor for the group and is in- charge for the learning activities of the students and also for the comprehensive and continuous assessment of the students.

The assessment is to be conducted for 100 marks and the credits assigned are 4. Later as per the present practice the marks are converted into grades and grade points to include finally in the SGPA and CGPA.

The weightings shall be:

Project Log	20%
Project Implementation	30%

Project report	25%,
Presentation	25%

Each student is required to maintain an individual logbook, where he/she is supposed to record day to day activities. The project log is assessed on an individual basis, thus allowing for individual members within groups to be assessed this way. The assessment will take into consideration the individual student's involvement in the assigned work.

While grading the student's performance, using the student's project log, the followingshould be taken into account -

a. The individual student's effort and commitment.
b. The originality and quality of the work produced by the individual student.
c. The student's integration and co-operation with the work assigned.
d. The completeness of the logbook.

The assessment for Project Implementation during ***second internship / Project Work / On the Job Training / Apprenticeship*** shall include the following components and based on the entries of Project Log and Project Report:

a. Involvement in the work assigned
b. Regularity in the work assigned
c. New knowledge acquired
d. New skill acquired

The Project Report should contain

a. Introduction.
b. Project specifications (area / background of the work assigned).
c. Problems taken up.
d. Analysis of the problem.
e. Recommendations and conclusions.

The Project Presentation is to be made by the student after he/she reports back to theCollege. The components for assessment are –

a. assessing the involvement in the project
b. presentation skills
c. final outcome of the project as evinced by the student.

For Example:

II MPC-EM

S.No.	Name of the Student	Class & Year of Study	Register Number	Project Log	Project Implementation	Project Report	Presentation	Total
				(20)	(30)	(25)	(25)	(100)

Signature of Project Mentor **Signature of Nominated faculty** **Signature of HOD/ In-Charge**

ANDHRA PRADESH STATE COUNCIL OF HIGHEREDUCATION

Assessment methodology for Internships / On the Job Training / Apprenticeship under the revised CBCS (2020 – 21 onwards)

Third internship/Apprenticeship (5th/6th Semester period):

During the entire 5th /6th Semester, the student shall undergo Apprenticeship / Internship / On the Job Training. This is to ensure that the students develop hands on technical skills which will be of great help in facing the world of work.

Learning outcomes

- Explore career alternatives prior to graduation.
- Integrate theory and practice.
- Assess interests and abilities in their field of study.
- Learn to appreciate work and its function towards future .
- Develop work habits and attitudes necessary for job success.
- Develop communication, interpersonal and other critical skills in the future job.
- Build a record of work experience.
- Acquire employment contacts leading directly to a full-time job following graduation from college.
- Acquire additional skills required for world of work.

Assessment model for the semester long apprenticeship / on the job training /internships during the V/VI Semester:

The assessment for the V / VI Semester long apprenticeship is for 200 marks and credits assigned are 12.

A monthly report is to be submitted to the teacher guide online within 15 days after thecompletion of the every month upto four months. The last two months of internship period shall be used for preparation of final project report simultaneously undergoing on the job training / internship / apprenticeship.

The assessment for this internship / on the job training will be both internal and external assessment. The internal assessment will be for 25% of marks which will be continuous and the assessment by the industry / enterprise / organization where the student does his/her internship will be indicated in

grades. This assessment is to be conducted by a responsible person (General Manager / HR Manager / Head of the Division) in consultation with the supervisor under whom the internship was done.

The components of internal assessment during *this* ***third internship / Project Work / On the Job Training / Apprenticeship*** shall include the following components and based on the entries of Project Log and Project Report:

a. Involvement in the work assigned
b. Regularity in the work assigned
c. New knowledge acquired
d. New skill acquired

The Project Report should contain

a. Introduction.
b. Project specifications (area / background of the work assigned).
c. Problems taken up.
d. Analysis of the problem.
e. Recommendations and conclusions.

The Project Presentation is to be made by the student after he/she reports back to the College. The components for assessment are –

a. assessing the involvement in the project
b. presentation skills
c. final outcome of the project as evinced by the student.

There shall be a final evaluation committee comprising of Principal, Teacher Guide, Internal Expert and External Expert nominated by the affiliating University. The final evaluation committee shall consider the following for evaluation –

A. Monthly Reports submitted by the student

B. Final Project Report

C. Grading given by the Company / Business unit / Enterprise where the student has undergone the training. The grades shall be converted into marks on the scale followed by the University.

To evaluate and award marks, the Committee conducts viva voce examination at thecollege.

Example:

Name of the Student:	
Class & Year of Study	
Registered Number	
Internal Assessment Component	**Max. Marks**
1. Project Log	10
2. Project Implementation	20
3. Project Report	10
4. Presentation	10
TOTAL	**50**
External Assessment Component	**Max. Marks**
Performance Assessment by the Evaluation Committee, converting the grades awarded by the industry, enterprise, etc.	**100**
External Viva Voce	**50**
GRAND TOTAL	**200**

Pithapur Rajah's Government College (A),Kakinada
Department of Physics & Electronics
Subject: Electronics Minor A.Y: 2024-25

It is resolved to introduce the following new courses in the programmes in Department of Physics & Electronics, from the AY 2024-25

YEAR	SEMESTER	COURSE	APSCHE SYLLABUS	PROPOSED PAPER FOR REPLACEMENT
II	III	2	SEMICONDUCTOR DEVICES AD MATERIALS	**SEMICONDUCTOR DEVICES & CIRCUIT THEORY**
	IV	3	ELECTRICAL & ELECTRONICS INSTRUMENTATION	**ELECTRICAL & ELECTRONICS INSTRUMENTATION**
		4	MICROPROCESSOR SYSTEMS	**MICROPROCESSOR SYSTEMS**

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 **2024-25**, list of examiners and paper setters, departmental activities which contains pages is approved in the Board of Studies meeting held offline and on line through the Google Meet app on **30 –04- 2024**

	Members of Board of Studies		Signatures of members
1	Dr. M.Surekha Head of the Department	Chairman	
2	Dr.P.Paul Diwakar	University nominee, Y.V.N.R Government college,Kaikaluru	
3	Dr.K.Jyothi	Subject Expert, Principal SVRKGDC(M),Nidadavolu	
4	Sri.D.Gangadharudu	Subject Expert,Lecturer in Electronics,MR government college	
5	Mr.P.Suresh kumar	Representative from Industry, JVS TECHNOLOGIES, Kakinada	
6	Dr.K.Nanda Gopal	~~Sr.Scientific Asst~~.IMD,Alumni METEOROLOGIST	
7	Dr.K.Jayadev	Member	
8	Ms G. Sridevi	Member	
9	Smt.A.Padmavathi	Member	
10	Dr S V G V A Prasad	Member	
11	Dr.P Himakar	Member	
12	Dr. K. Durga Rao	Member	
13	Ms.D.Sravani	Member	
14	Mr.P.Veerendra	Member	
15	K.Sai kumar	Student Member-II MPE	
16	G.Sailaja	Student Member-II MPE	