PITHAPUR RAJAH'S GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA

(AN AUTONOMOUS COLLEGE WITH NAAC "A" GRADE)

Board of Studies for UG Programmes

RENEWABLE ENERGY

2023 – 2024

DEPARTMENT OF

PHYSICS & ELECTRONICS

PITHAPUR RAJAH'S GOVERNMENT COLLEGE (A), KAKINADA

DEPARTMENT OF PHYSICS & ELECTRONICS

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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.1/ A.C/BOS/2023-24 **Dt.29 Aug2023**

Sub: P.R.G.C[A] – Academic Cell - **Conduct of BOS Meetings for the Academic Year2023-24** – Guidelines issued - Regarding.

Ref: Resolutions adopted in 25th Staff Council Meeting held on 29 Aug 2023

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 attainme nt 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 equip students with such skills that translate them into leaders and potential entrepreneurs too besides credit transfer mechanism through ABC (Academic Bank of Credits).

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 by facilitating the students experience a wide range of participative and experiential learning strategies 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, etc.

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.

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 institutions vision and mission, SDG-4, NEP – 2020, NAAC, NIRF to the autonomous HEIs, need to customize, design and re-orient their academic and research administration in tune with the policies of above bodies, our insitution is no exception.

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 on **31 August 2023**. 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 and a 21st century student capable of facing challenges, adaptive to changes, creative and innovative.

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 60% for I mid-term examination, 75% for II mid-term examination 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 2023-24, if any, number of certificate courses, their frequency, Bloom 's- Taxonomy based evaluation system for effective learning outcomes as per the Annexure – I.

The Chairmen are, therefore, requested to

- Design curricula of Odd and even semesters for the A.Y 2023-24 both for U.G and P.G courses in tune with the stated vision, mission of the institution, RAF of NAAC, NEP-2020 and NIRF.
- Conduct meeting with employers, parents, alumni, shall take feedback on the existing curricula andinvite 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.

- Facilitate much room for intense deliberation on the design of the curricula, evaluation system, research component, enhancing learning experiences, resource utilization by staff ad 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 member's 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 IQACcoordinator will be the additional coordinator.
- The Academic Coordinator and IQAC coordinator conducted a meeting with the Chairmen, BOS on 28 August 2023 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.500/-)
- 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).

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 in case 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 in corporated

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
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 (2023-24 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 tobegiven as per the following structure for the courses with **5 units**

.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

CIA 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

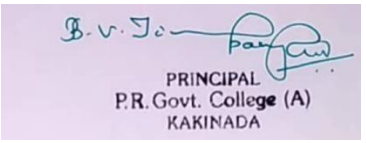
CIA structure for 3 Major system for Honors programmes (2020-21AB)

- 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.



PRINCIPAL
Pithapur Rajah's **Government AutonomousCollege**
Kakinada

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 2023-24,Dated:31.08.2023

Sub:- Pithapur raja's Government College [A], Kakinada – UG Boards of Studies (BoS) – Program Course- B.Sc/Physics 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 PHYSICS** for framing the syllabi in Physics subject for all semesters duly following the norms of the UGC Autonomous guidelines.

S. No	Name of the Nominee	Designation
1.	Smt.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.	Dr. MVK Meher,	Subject Expert,Principal GDC Permallapuram
5.	Sri.A.V.V Prasad	Representative from Industry, Solar Systems,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.	Sri P Himakar	Member
12.	Sri K. Durga Rao	Member
13.	Ms.D.Sravani	Member
14.	Mr.P.Veerendra	Member
15.	Sri Satya	Student Member, II MPCs
16.	D. Sri Durga Bhavani	Student Member, II MPC EM-2

The above members are requested attend the BOS meeting on 31-08-2023 and share their valuable views, suggestions on the following functionaries:

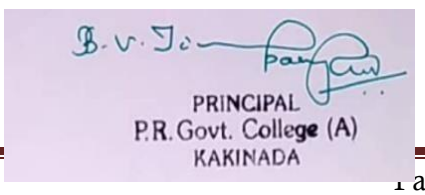
(a) Prepare syllabi for the subject keeping in view the objectives of the college, interest of the stake holders and national requirement for consideration and approval of the Academic Council

(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.



Vision

To provide the right academic environment paving way for intellectual excellence, humane feelings and social commitment. The college believes in providing quality education for the socially disadvantaged, economically weaker sections of the society and thereby helps them move upthe ladder of success and social order.

Mission

- To impart holistic education with special emphasis on character, culture, updated knowledge and skill-oriented learning.
- To make the students enjoy the fruits of globalization without prejudice to their local and cultural environment.
- To impart necessary life skills so as to make them face any challenge in the bigger world – Social, ethical, psychological or professional

Department of Physics and Electronics

BOARD OF STUDIES - PHYSICS

Meeting held on: Dt.17Th Aug 2023 Time:2 P.M. at Department of Physics**.**

Agenda of the Meeting

To discuss and approve:

1. Adoption of Single major system for the Ist year as per the guidelines of APSCHE
2. Adoption of Single minor system for the Ist year as per the guidelines of APSCHE
3. Revised-common program structure and semester wise curriculum.
4. Adoption of regulations on scheme of examination and marks/grading system.
5. Engaging of 7th hour of time table
6. Streamlining of regularity in attendance.
7. Value added courses viz. add on courses and skill development courses to be conducted by the department during the academic year 2023-24.
8. Make students access to ICT infrastructure for enhanced quality in higher education.
9. Remedial coaching for slow learners and project/ research work for advanced learners
10. Allocation of extra credits for extracurricular activities.

11. Conduct of parent teacher meeting.
12. Panel of Question paper setters and Examiners
13. Action plan for the academic year 2023-24.
14. Departmental budget proposal for the academic year 2023-24
15. Any other with the permission of the chair.

Action Taken Report 2022 - 23

The Department of Physics conducted the BOS meeting for the academic year 2022-23 on 31.10.2022 in the Department of Physics. All the activities according tothe plan of action were successfully completed in the proposed timeline. By taking the valuable recommendations of the members for enhancement of knowledge and to enrichthe skills of the students, the department took initiatives and implemented various innovative steps viz.

1. Post admission test was conducted on 11.11.2022.
2. Distribution of money under the Upkar Scheme was held on 14-07-2022.
3. A field visit was conducted to the India Meteorological Department on 12-09-2022.
4. International day for preservation of the ozone layer was conducted on 16-09-2022.
5. Started an add on certificate course "Applications of Solar Cells in Home Energy Systems" in Sem IV @30 hrs. for 2 credits having 5units@ 2 theory hrs. per week and one Study Project at the end of the course.
6. Started a skill enhancement certificate course "Soldering and Desoldering of Components" in Sem IV @30 hrs. for 2 credits having 5units@ 2 theory hrs. per week and one Study Project at the end of the course.
7. Energy Audit in The Campus was conducted during the period 15-11-2022 TO 18- 11-2022.
8. Microwave Oven Day was conducted on 16-12-2022.
9. Distribution Of Kasarabada Scholarships was conducted on 06-02-2023.
10. **National Science Day** was conducted on **28-02-2023.**
11. **Zero Shadow Day** was conducted on **07-05-2023.**
12. **Chandrayaan 3 Live LaunchingProgram was conducted on 14-07-2023.**
13. Guest Lecture on Electronics andElectronic Devices was conducted on **17-06-2023.**
14. National Seminar On "Novel Materials, Nanotechnology and Biomedical Applications" was conducted on 15-07-2023.

15. Seminar On Rocket-SatelliteTechnology was conducted on 24-07-2023.
16. Chandrayaan 3 Live Landing Programme was conducted on 23-08-2023.
17. Started "Centre for Innovation and Incubation Centre" for innovative projects on the platform of 'Atal Tinkering Labs'
18. Installation of "Solar Tree" in before the Physics Block is in process

DETAIL OF COURSE TITLES&CREDITS (A.Y.2023-24)

Sem	Course no.	Course Name	Course type (T/L/P)	Hrs./Wk .(Science)	Credits (Science: 4+1)	Max. Marks Cont/Internal/ MidAssessment	Max.Marks Semend Exam
I	1	Essentials and applications of Mathematical, Physical and Chemical Sciences	T	3+2	4	50M	50M
	2	Advances in Mathematical, Physical and Chemical Scineces	T	3+2	4		50M
II	3	Renewable energy sources-1	T	3	3	50M	50M
		Renewable energy sources-1Practical Course	L	2	1		50M
	4	Renewable energy sources-2	T	3	3	50M	50M
		Renewable energy sources-2Practical course	L	2	1		50M

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

Pithapur Rajah's Government College (Autonomous), Kakinada

Board of Studies–Department of Physics & Electronics

Resolutions of the Meeting - PHYSICS

The Board of Studies meeting was convened by the Physics & Electronics Department on 31- 08 -2023 at10 a.m. under the chairmanship of Smt. M. Surekha, In-charge of the Department., Dr. P. Paul Diwakar, University Nominee, Dr K Jyothi, Subject expert, Dr. M.V.K.Meher and Dr. D. Gangadhar, remaining external members, all the faculty members of Physics & Electronics and student representatives attended the meeting. The following agenda items are discussed and resolutions are made

Agenda 1: Adoption of Single major system for the Ist year as per the guidelines of APSCHE

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

Discussion: Discussed on the introduction of Single major system in our undergraduate program as per the guidelines issued by APSCHE

Resolution Adopted: All the BOS members have approved the adoption of Single major system for the Ist year as per the guidelines of APSCHE

Agenda 1(a): Adoption of Single minor system for the Ist year in Sem II as per the guidelines of PSCHE

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

Discussion: Discussed on the introduction of Single minor system in our undergraduate program as per the guidelines issued by APSCHE

Resolution Adopted: All the BOS members have approved the adoption of Single minor system for the Ist year in Sem II as per the guidelines of APSCHE

Agenda 2 : Revised-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 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 2023-24.

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

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

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

Resolution Adopted: Approved the Mode of internal assessment, pattern of examination of internal assessment and scheme of evaluation of practical exams of Semesters II -V as external 50Marks and internal assessment 50Marks. All the practical classes of Semesters I-V will be conducted for 2Hrs.

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

Examination	Mode of Assessment	Marks allotted
(CIA) Continuous Internal Assessment SEM I-V	Student study Project	10
	Viva Voce	3
	Seminar and Group Discussion	5
	Assignment	5
	Clean & Green and attendance	2
	Average of 2 Mid examinations conducted @25marks	25
TOTAL MARKS		**50**

- It is resolved to conduct 2 mid examinations @ 25 marks of each for **Semesters I-V** and the student should attend at least one internal exam. It is also resolved to conduct one mid exam through ICT platform (Online)
- 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 7thhr introduced by APCCE

Resolution Adopted: It is resolved to dedicate the7th hour classes for extra-curricular activities 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 the students

Resolution Adopted: Resolved to make the **75% of attendance is mandatory** to appear for both the **1stand 2ndmid 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 be conducted by the department during the academic year 2023-24.

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 start a value-added certificate course "**Household Electrical Wiring"** for **Sem III @** 30 hrs. for 2 credits having 5units @ 2 theory hrs. per week and one Study Project at the end of the course, designed by the Department.
- 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 organization in view of industrial internship.

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

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

Agenda 8: Make students access to ICT infrastructure for enhanced quality in higher education.

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

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

Resolutions Adopted: By identifying various modules and topics for ICT platform and to develop e-content in 4- quadrants method to the students and upload in the college website.

Agenda 9: Remedial coaching for slow learners and project/ research work for advanced learners

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

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

learners

Resolutions Adopted: Resolved to adopt a benchmark from previous appeared examinations to divide the students into three categories

- Resolved to take '**O'** as benchmark for advanced learners to assign critical assignments, project/research works and ICT based class seminars
- Resolved to take '**B'** as benchmark for moderate learners to assign assignments and class 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 like extending services in facing the natural calamities etc.as mentioned in the following table.

Agenda11: 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 yearat each semester and to make them aware of their role as stakeholders in the college administration.

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

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

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

Resolution Adopted: Approved and resolved.

Agenda 13: Action plan for the academic year 2023-24.

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 perthe plan.

Resolution Adopted: It is resolved to approve Department Action Plan for the AcademicYear2023-24

Agenda 14: Departmental budget proposal for the academic year 2023-24

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 2023-24.

Certificate

The syllabus and model question papers including blueprint in physics subject for 3 years BSc course for the semesters I, II.III, IV and V for the academic years 2023- 24 list of examiners and paper setters' departmental activities which contains pages is approved in the board of studies meeting held in blended mode through the Google meet app on 31.08.2023

S.No.	Members of Board of Studies		Signature
1	Smt.M.Surekha	Chairman	
2	Dr. P. Paul Diwakar	University nominee, Lec.In Phy,Y.V.N.R. Government College, Kaikaluru.	
3	Dr. K. Jyothi	Subject Expert; Principal; SVRKGDC(M), Nidadavolu	
4	Dr. M.V.K. Meher	Subject Expert, Lec.in charge/ Phy/A.S.D. Degree College (W), Kakinada.	
5	Sri A.V.V.V. Prasad	Representative from Industry, Solar Systems, Kakinada.	
6	Dr. K. Nanda Gopal	Sr. Scientific Asst., Indian Meteorology Dept, Alumni	
7	Dr. Jayadev	Member	
8	Ms. G. Sridevi	Member	
9	Ms. A. Padmavathi	Member	
10	Dr. SVGVA Prasad	Member	
11	Dr P. Himakar	Member	
12	Sri K. Durga Rao	Member	
13	Ms. D. Sravani	Member	
14	Mr. P. Veerendra	Member	
15	Kum. Satya Sri, II MPCs	Student Member	
16	D. Sri Durga Bhavani II MPC EM 2	Student Member	

PITHAPUR RAJAH'S GOVERNMENT COLLEGE(A)Kakinada

Blue print for the model paper – Physics

Semester End External Examination

For I toV 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

$$\text{Percentage of Choice} = \frac{(95-50)}{95} \times 100 = \frac{45}{95} \times 100 = 47\%$$

PITHAPUR RAJAH'S GOVERNMENT COLLEGE(A)Kakinada

Blue Print for Internal Theory (Mid) Examination

For Single Major system

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

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

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 Practicals

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 - 05Marks

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

	P.R. Government College (Autonomous) Kakinada
Department of Physics	
B.Sc. Program outcomes	

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.

New Courses introduced during the year 2023 - 24

S.No.	SEM	Course	Title of the Paper
	I	1	Essentials and applications of Mathematical, Physical and Chemical Sciences
		2	Advances in Mathematical, Physical and Chemical Scineces
	II	3	Renewable Energy Resources-1
			Renewable Energy Resources-1 PRACTICAL COURSE-1
		4	Renewable Energy resources-2
			PRACTICAL COURSE -2

	Pithapur Rajahs Government College (Autonomous) Kakinada	**Program & Semester** I B.Sc. (I Sem) COURSE-1 W.e.f. 2023 - 24 ADMITTED BATCH			
Course Code PH	**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, knowledge about 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. o 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 theresults. 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 (Autonomous), Kakinada

I B.Sc., SEMESTER–I

W.e.f. 2023 - 24 ADMITTED BATCH

COURSE 1 BLUE PRINT

Course Code: **No. of credits: 03 Hours/Week** **Total hours: 60hrs**

Course Code: **No. of Credits: 04**

Answer **ANY THREE** questions by choosing at least one from each Section

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	Essay Questions 10 marks	Short Questions 5 marks	Problems 5 marks	Marks allotted
I	1	1	-	15
II	1	-	1	15
III	1	2	-	20
IV	2	-	1	25
V	1	1	1	20
Total Marks				**95**

Percentage of Choice $= \frac{(95-50)}{95}$ **X 100 =** $\frac{45}{95}$ **x 100 = 47%**

PITHAPUR RAJAH'S GOVERNMENT COLLEGE (A),

KAKINADA I B.Sc., SEMESTER–I

W.e.f. 2023 - 24 ADMITTED BATCH

COURSE 1

Course Code: No. of credits: 03 3Hours/Week Total hours: 60hrs

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

Time: 2 $\frac{1}{2}$Hours Max Marks: 50

PART-I

Answer **any Three** questions by attempting at least one question form each section3 X 10= 30 Marks

SECTION-A

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

SECTION-B

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

PART-II

Answer **any Four** Questions from the following 4 X 5= 20 Marks

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

	Pithapur Rajahs Government College (Autonomous) Kakinada	**Program & Semester** I B.Sc. (I Sem) COURSE-2 W.e.f. 2023 - 24 ADMITTED BATCH			
Course Code PH	**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, knowledge about 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 themto the latest developments 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: Nanomedicine,

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

STUDENT ACTIVITIES

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 proposeinnovative 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 memory materials.
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 their findings. 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 (Autonomous), Kakinada

I B.Sc., SEMESTER–I

W.e.f. 2023 - 24 ADMITTED BATCH

COURSE 2 BLUE PRINT

Course Code: **No. of credits: 03 Hours/Week** **Total hours: 60hrs**

Course Code: PH3202 **No. of Credits: 04**

Answer **ANY THREE** questions by choosing at least one from each Section

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	Essay Questions 10 marks	Short Questions 5 marks	Problems 5 marks	Marks allotted
I	1	1	-	15
II	1	-	1	15
III	1	2	-	20
IV	2	-	1	25
V	1	1	1	20
Total Marks				**95**

$$\text{Percentage of Choice} = \frac{(95-50)}{95} \times 100 = \frac{45}{95} \times 100 = 47\%$$

PITHAPUR RAJAHS GOVERNMENT COLLEGE (A), KAKINADA

I B.Sc., SEMESTER–I

W.e.f. 2023 - 24 ADMITTED BATCH

COURSE 2 MODEL PAPER

Course Code: **No. of credits: 03Hours/Week** **Total hours: 60hrs**

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

Time: 2 $\frac{1}{2}$Hours Max Marks: 50

PART-I

Answer **any Three** questions by attempting at least one question form each section3 X 10= 30 Marks

SECTION-A

3. Essay question from UNIT- I
4. Essay question from UNIT- II
3. Essay question from UNIT- II

SECTION-B

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

PART-B

Answer **any Four** Questions from the following 4 X 5= 20 Marks

3. Short answer question from UNIT - I
4. Short answer question from UNIT - II
5. Short answer question from UNIT - III
6. Short answer question from UNIT - IV
7. Short answer question from UNIT - V
8. Problem from UNIT - I
9. Problem from UNIT - III

	Pithapur Rajah's Government College (Autonomous) Kakinada	**Program & Semester** I B.Sc. (II Sem) W.e.f. 2023 - 24 ADMITTED BATCH			
Course 3	**RENEWABLE ENERGY RESOURCES-1**				
Teaching	Hours Allocated: 45 (**Theory**)	L	T	P	C
Pre-requisites:	Units of Energy & Power, Primary & Secondary, Commercial & Non Commercial, EM Spectrum, and Photo Electric effect, Bureau of Energy Efficiency, Wind energy, Ocean energy, Bio-energy.	3	0	-	3

UNIT-I (10hrs)

Introduction to Energy: Definition and units of energy - Joule, Erg, Calorie, Ton of Coal Equivalent, Ton of oil equivalent, Ton of TNT, KWH, electron Volt, British Thermal Unit, Definition and Units of Power – Watt, Horse power, Ton of refrigeration, Ton of air cooling.(Wiki)

Classification of energy resources: Primary-Secondary, Commercial-Non-commercial, Conventional-Non conventional, Renewable-Nonrenewable, Green energy, Clean energy (Definitions and examples),

Green Foot print, Carbon Foot print, Ecological Foot print Concepts.

Bureau of Energy Efficiency–Actions and Activities, BE Star label, ISEER introduction.

UNIT-II (10 hrs)

Solar constant, Solar Radiation spectrum, Classification of Solar cells - First generation, Second Generation, Third Generation. Key elements of Silicon Solar cell, PV Solar cell, Module, panel and array. Solar Thermal systems types, applications of Solar PV and Solar Thermal systems.

UNIT-III (8 hrs)

Wind Energy: Origin of winds, Wind turbine site selection (Shobh Nath Singh 6.5), Wind Turbine Types and Their Construction (B H Khan 7.8)

UNIT-IV (10 hrs)

Ocean Energy: Origin and nature of tidal energy, Ocean tidal energy conversion schemes, Wave energy technology, Ocean thermal energy conversion technology (Open cycle, closed cycle and Hybrid cycle).(BH Khan Ch.10,ShobhNathSingh Ch.11,12,13)

UNIT-V(7 hrs)

Bio-Energy: Photosynthesis, Usable forms of Biomass, Biomass resources, Biomass conversion technologies –Wet processes, Dry processes.(BH Khan Ch.8, GD Roy)

1. Non- Conventional Energy Sources, G. D. Rai, New Delhi.
2. NonconventionalEnergyResources,B.H.Khan,3rd Ed,Tata McGrawHill (2017)
3. Nonconventional Energy Resources, Shobh Nath Singh, Pearson India (2017)

PITHAPUR RAJAHS GOVERNMENT COLLEGE (A), KAKINADA

B.Sc., SEMESTER–II **PAPER 3**

W.e.f. 2023 - 24 ADMITTED BATCH

Renewable Energy resources-1

Course Code: **No. of credits: 03 Hours/Week** **Total hours: 45 hrs**

Course Code: **No. of Credits: 04**

Answer **ANY THREE** questions by choosing at least one from each Section

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	Essay Questions 10 marks	Short Questions 5 marks	Problems 5 marks	Marks allotted
I	1	1	-	15
II	1	-	1	15
III	1	2	-	20
IV	2	-	1	25
V	1	1	1	20
Total Marks				**95**

Percentage of Choice $= \frac{(95-50)}{95}$ **X 100 =** $\frac{45}{95}$ **x 100 = 47%**

PITHAPUR RAJAHS GOVERNMENT COLLEGE (A), KAKINADA

I B.Sc., SEMESTER–II PAPER 3

W.e.f. 2023 - 24 ADMITTED BATCH

Renewable Energy resources-1

Course Code: **No. of credits: 03** Hours/Week Total hours: 45hrs

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

Time: 2 $\frac{1}{2}$ Hours Max Marks: 50

PART-I

Answer **any Three** questions by attempting at least one question form each section 3 X 10= 30 Marks

SECTION-A

5. Essay question from UNIT- I
6. Essay question from UNIT- II
3. Essay question from UNIT- II

SECTION-B

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

PART-II

Answer **any Four** Questions from the following 4 X 5= 20 Marks

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

COURSE 3: Renewable Energy resources-1

Practical Credits: 1 2hrs/week

LIST OF EXPERIMENTS

Minimum of 6 experiments to be done and recorded

I-V Characteristics of Solar cell. fill factor.

2. P-V Characteristics of solar cell. Efficiency.

3. Spectral characteristics of solar cell

4. Intensity characteristics of solar cell

5. Area characteristics of solar cell

6. Effect of temperature on the efficiency of the solar cell.

7. Effect of tilt angle on the efficiency of the solar cell.

8. Determination of Planck's constant using photocell

Scheme of Evaluation for Practicals

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 Voce -5 Marks
6. Record - 5 Marks

	Pithapur Rajahs Government College (Autonomous) Kakinada	**Program & Semester** W.e.f. 2023 - 24 ADMITTED BATCH			
Course 4	**Renewable Energy resources-2**				
Teaching	Hours Allocated: 45 (**Theory**)	L	T	P	C
Pre-requisites:	Different Forms of Energy.	3	0	-	3

Theory Credits: 3 3hrs/week

UNIT-I(7hrs)

Global Energy Scenario: Energy demand and Energy Trilemma index, Indian Energy Scenario: Energy resources available in India, Governance of energy sector in India, National Green Tribunal (NGT)act, NGT activities.

UNIT-II(7hrs)

Geothermal energy: Origin of geothermal energy, Types of geothermal resources and basic extraction mechanisms-Hydrothermal Resources, Geo-pressured resources, Hot dry rock resources, Magma resources. (BH Khan Chapter 9)

UNIT-III(10hrs)

Introduction to Hydropower, Hydrology – descriptive hydrology, hydrograph,mass curve, storage, dams. Classification of Hydropower Plants, Small Hydropower, Systems: Overview of micro, mini and small hydro systems Status of Hydropower Worldwide Advantages and Disadvantages of Hydropower, Selection of site for hydroelectric plant, Hydrological cycle, Essential elements of a hydroelectric power plant.

UNIT-IV(10hrs)

Radioactivity; Mass defect and binding energy; Chain reaction; Materials used in nuclear plants; Classifications of nuclear reactors, Construction and working of conventional nuclear reactor, pressurized water reactor, boiling water reactor, supercritical water reactor, Fast breeder reactor-types, Gas cooled reactor-types, Nuclear fusion reactor schematic, Nuclear power plant.

UNIT-V(11 hrs)

Environmental Effects :Environmental degradation due to energy production and utilization, air and water

pollution, depletion of ozone layer, global warming, biological damage due to environmental degradation. **Environmental effects of thermal power station, nuclear power generation,** hydroelectric power, Geothermal power, Ocean energy harvesting. Wind energy harvesting, Solar energy harvesting, Bioenergy.(Frank R Spellman)

https://sci-hub.ru/10.1016/b978-0-08-098330-1.00017-x and Wikipedia

https://libgen.rs/scimag/?q=nuclear+power+paul+breeze

PITHAPUR RAJAH'S GOVERNMENT COLLEGE (A) KAKINADA.

II B.Sc., Physics-Semester – II, Paper – III

Renewable Energy resources-2
w.e.f. 2021-22 ADMITTED BATCH

Course Code: **No. of Credits: 04**

Answer **ANY THREE** questions by choosing at least one from each Section

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	Essay Questions 10 marks	Short Questions 5 marks	Problems 5 marks	Marks allotted
I	1	1	-	15
II	1	1	1	20
III	1	2	-	20
IV	2	-	1	25
V	1	1		15
Total Marks				**95**

Percentage of Choice $= \frac{(95-50)}{95}$ **X 100 =** $\frac{45}{95}$ **x 100 = 47%**

PITHAPUR RAJAHS GOVERNMENT COLLEGE (A), KAKINADA

I B.Sc., SEMESTER–II PAPER 4

W.e.f. 2023 - 24 ADMITTED BATCH

Renewable Energy resources-2

Course Code: **No. of credits: 03 Hours/Week** **Total hours: 45hrs**

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

Time: 2 $\frac{1}{2}$Hours Max Marks: 50

PART-I

Answer **any Three** questions by attempting at least one question form each section3 X 10= 30 Marks

SECTION-A

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

SECTION-B

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

PART-II

Answer **any Four** Questions from the following 4 X 5= 20 Marks

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

SEMESTER-II

COURSE 4: Renewable Energy resources-2

Practical Credits: 1 2hrs/week

Minimum of 6 experiments to be done and recorded

Experiments

. 1.Effect of wind speed on windmill efficiency.

2. Effect of tilt on wind mill efficiency.

3. Effect of water source height on turbine power generation.

4.Wind-rose analysis

https://www.climate.gov/maps-data/dataset/wind-roses-charts-and-tabular-data

https://www.wikihow.com/Read-a-Wind-Rose

5. Spectral analysis of intensities on selective absorbers in solar cookers.

6. Biomass conversion analysis

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9160279/

Scheme of Evaluation for Practicals

Time: 2hrs 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 Voce -5 Marks
6. Record - 5 Marks

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

PITHAPUR RAJAH'S GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA

LIST OF EXAMINERS/ PAPER SETTERS IN PHYSICS
2023-2024

S.No.	Name of the examiner	Subject	Name of the College
1	L. Malleswara Rao 9985137973	Physics	Y.N.College, Narsapur
2.	Dr. A. Nirmala Jyotsna 9490171202	Physics	St. Theresa College (W), Eluru
3	Dr.K .Srilatha	Physics	St.Theresa College (W), Eluru
4	K.AnandaRao	Physics	C.R.R. College (M), Eluru
5	K.B.S.Gopal	Physics	C.R.R. College (M),Eluru
6	P.P.Divakar	Physics	Y.V.N.R. GDC, Kaikaluru.
7	R.SuryanarayanaRaju	Physics	K.G.R.L.College , Bhimavaram
8	Smt.V.Vidyamallika	Physics	K.G.R.L.College , Bhimavaram
9	P.Rajyalakshmi	Physics	C.R.R. College (W), Eluru
10	K.Sireesha	Physics	C.R.R. College (W), Eluru
11	M.Jayalakshmi Devi	Physics	C.R.R. College (W), Eluru
12	N.S.Satyanarayana Murthy	Physics	S.K.B.R.College, Amalapuram
13	V.V.SubbaRao	Physics	S.K.B.R.College, Amalapuram
14	J.PrabhakaraRao	Physics	S.K.B.R.College, Amalapuram
15	S.V.KumaraSastry	Physics	S.K.B.R.College, Amalapuram
16	V.Radha Krishna	Physics	S.K.B.R.College, Amalapuram

17	K.SrinivasaRao	Physics	Govt. Deg.College,Razole
18	ValluriSrinivasaRao	Physics	Govt. College (W) Nidadavolu
19	E.NageswaraRao	Physics	Govt. College, Eleswaram
20	EsubBasha Sheik	Physics	Govt. College (A), RJY
21	P.S. Brahamachari	Physics	Govt. College , Tadepalligudem
22	K.Ganesh Kumar	Physics	Govt. College , Tadepalligudem
23	M.Sudhadhar	Physics	Govt. College (A), RJY
24	B.DurgaLakshmi	Physics	Govt. College (A), RJY
25	T.Y.H.A.G.Gandhi	Physics	Govt. College , Ravulupalem
26	P. Rama Krishna Rao	Physics	Y.N. College (A), Narasapur
27	D. Gangadharudu	Physics	M.R. College, Peddapuram
28	A.Satyanarayana Murthy	Physics	M.R. College, Peddapuram
29	N. Veer Kumar	Physics	M.R. College, Peddapuram
30	S. Rama Rao	Physics	M.R. College, Peddapuram
31	Smt. M. Satyavani	Physics	D.N.R. College (A), Bhimavaram
32	M.V.S. Prasad	Physics	D.N.R. College (A), Bhimavaram
33	Smt. N. Udaya Sri	Physics	D.N.R. College (A), Bhimavaram
34	A. Veeraiah	Physics	D.N.R. College (A), Bhimavaram
35	N. Srinivasarao	Physics	Govt. College , Tadepalligudem
36	K.Srinivasa Rao	Physics	GDC, Mandapeta

Action Plan - 2023-24

The department of Physics and Electronics is planning to conduct the following programs for the academic year 2023-24

S.No.	Activity	Probable date to be conducted	Remarks
1	Student Counseling Discussion on Result Analysis	Sept 3rd week	
2	Sensitization on Departmental Activities particularly on Kasarabada Scholarship and Endowment Prizes	Oct 2th week	
3	**Parent -Teacher meeting**	Nov 1st week	
4	Disbursement of Kasarabada Scholarship both for UG and PG	Nov 2nd week	
5	Celebration of Birth day of Sir C.V.Raman	7.11.2023	
6	Guest Lecture -1	Nov3rdweek	
7	Launching Upkar Scheme	Nov4thweek	
8	Extension activity – **Open Lab for School students**	Dec 2nd week	
9	Awareness programme on IMD	Dec3rd week	
10	Guest Lecture -2	Jan 3rd week	
11	Study Area Programme/ CSP	Jan4th week	
12	Workshop / Intercollegiate Science Competitions	February 2nd week	
13	**National Science day celebrations**	**28.02.2024**	
14	Student Counseling before commencement of semester end exams	Feb 4th week	
15	Guest Lecture - 3	Mar 2nd week	
16	Parent Teacher Meeting	April 1st week	
17	Online Quiz programme	May 1st week	
18	Field visit	Jun 2nd week	
19	Guest Lecture - 4	July 1st week	

20	Observing World Chess Day	20.07.2024	
21	Parent Teacher Meeting	Aug 1st week	
22	Observing Hiroshima/ Nagasaki Day	6.8.2024/ 9.08.2024	
23	UPKAR scheme – Disbursement of scholarships to the students	August 3rd week	
24	Observing World Ozone Day	16.09.2024	

P. R. GOVERNMENT COLLEGE (A), KAKINADA
Department of Physics & Electronics

Budget Proposal for the Academic Year 2023-24

S.No.	PURPOSE	EXPENDITURE ESTIMATED	REMARKS
1.	Upgradation of 1st year Lab	Rs. 1,00,000=00	
2.	Upgradation of 2nd year Lab and dark room	Rs. 1,00,000=00	
3.	Upgradation of final year Lab	Rs1,00,000=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	
.	National level Activity	Rs. 1,50,000=00	
8.	Departmental Activities@ National Sc.Day, Guest Lectures, Inter collegiate competitions	Rs.1,00,000=00	
9.	Miscellaneous@Stationery,Maintenance of Laboratories etc.	Rs. 50,000=00	
	TOTAL:	Rs. 11,00,000=00	

Budget Estimated Rupees Eleven Lakhs only.

ANDHRA PRADESH STATE COUNCIL OFHIGHER 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 / ruralcommunity 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 systematicprogramme 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 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**