PITHAPUR RAJAH'S GOVERNMENTCOLLEGE (AUTONOMOUS)
KAKINADA - 533 001, AP.

Affiliated to Adikavi Nannaya University

NAAC Accredited with "A" Grade (3.17 CGPA)

BOARD OF STUDIES OF CHEMISTRY

B.Sc. CHEMISTRY MAJORS & B.Sc. CHEMISTRY UNDER CBCS

Meeting Minutes/Resolutions

*Convened on 30 April 2024*AY 2024-25

DEPARTMENT OF CHEMISTRY

PITHAPUR RAJAH'S GOVERNMENTCOLLEGE (AUTONOMOUS)

Opp. Mc Laurin High School, Raja Ram Mohan Roy Road, Kakinada

www.prgc.edu.in; e-mail: chemistry@prgc.edu.in

PROCEEDINGS OF THE PRINCIPAL, P.R. GOVERNMENT COLLEGE (A)KAKINADA- A.P

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

R.C.No.2/A.C./BOS/2024-25, Dated: 23.04.2024

SUB: P.R. Government College (A), Kakinada-UG Board of Studies (BOS)- B.Sc-Chemistry- Nomination of Members-Orders issued.

REF: 1. UGC Guidelines for Autonomous Colleges-2018.

ORDERS:

The Principal, P.R. Government College (A), Kakinada is pleased to constitute UG Boards of Studies in CHEMISTRY for framing the syllabi in respective Subject for all Semesters duly following the normsof the UGC Autonomous guidelines.

S. No	Name of the Person	Designation
1	V. Sanjeeva Kumar	Chairman & Lecturer In charge
2	Dr. K. Jhansi Lakshmi ASD Govt. Degree College for Women (Autonomous) Kakinada	University Nominee
3	Dr. D. Chenna Rao Lecturer in Chemistry, Govt. Degree College, Yeleswaram	Subject Expert -I
4	U. Sai Krishna Lecturer in Chemistry, Govt. College, (Autonomous) Rajamahendravaram	Subject Expert - II
5	Dr.N. Ratnakar, AARKISH PHARMACEUTICALS INS NJ, NEW JERSEY	Subject Expert - III
6	Dr. P. KARUNA RAMAN MD, IDEAL ORGANICS HYDERABAD.	Representative from Industry
7	T. V. V. Satyanarayana	Member
8	P. Vijay Kumar	Member
9	V. Ram babu	Member
10	G. Pavani	Member
11	Dr. N. Bujji Babu	Member
12	Dr. Ch. Praveen	Member
13	V. Venkateswara Rao	Member
14	U.S.N. Prasad	Member
15	K.N.S. Swamy	Member
16	S. Vijaya Lakshmi	Member
17	D.Bhavyasri	Member
18	K.Umamaheswari	Student Alumni Member
19	Deepthi Anusha II FBC	Student Member
20	BVNagendra Kumar, II MCCS	Student Member
21	J.Veera Durga I CHEMISTRY MAJORS	Student Member

The above members are requested to attend the BoS meeting on 30-04-2024 and share their valuable reviews, and suggestions on the following functionaries.

- Prepare syllabi for the subject keeping in view the objectives of the college, the interest of the stakeholders
- and National requirements for consideration and approval of the IQAC and Academic Council.
- Suggest the panel of Paper Setters & Examiners to the academic council for appointment of Paper Setters & Examiners.
- Suggested methodologies for innovative teaching and evaluation techniques.
- Coordinate research, teaching, extension and other activities in the Department of the college.

PRINCIPAL
P. R. Government College(A),
Kakinada

PITHAPUR RAJAH'S GOVERNMENT COLLEGE (A)DEPARTMENT OF CHEMISTRY

Meeting of Board of Studies in Chemistry is convened on 30 April 2024 throughoffline/ online at P.R. Govt. College (A), Kakinada, at 10.00 AM.

Venue: JKC AC HALLS , Dt: 30-04-2024, Tuesday – 10.00 A.M.

The Principal Dr. B.V. Tirupanyam; Chairman V. Sanjeeva Kumar; University Nominee Dr. K. Jhansi Lakshmi, Lecturer in Chemistry, ASD Govt. Degree College for Women (Autonomous), Kakinada; Dr. P. KARUNA RAMAN MD, IDEAL ORGANICS HYDERABAD. Industrialist; Subject Experts Dr. D. Chenna Rao, Lecturer in Chemistry, Govt. Degree College, Yeleswaram and U. Sai Krishna Lecturer in Chemistry, Govt. College, (Autonomous), Rajamahendravaram all the faculty members of the Chemistry Department and student alumni attended the meeting.

Agenda:

1. To discuss the I,II,III, IV semesters of a Single major system as B.Sc. Chemistry (Hons), B.Sc. OrganicChemistry (Hons), B.Sc. Analytical Chemistry (Hons) from the academic year 2024-25. & V ,VI semesters of CBCS System
2. To discuss 4th year B.Sc. Honours to the students who were admitted in the academicyear 2021-22.
3. To discuss the Semester System and revised Choice Based Credit System (CBCS)being implemented for the past 04 years, i.e., w.e.f. 2020-21.
4. To discuss and approve the Continuation/Modifications of the syllabus for the Odd& Even Semesters of I, II, III & IV Years for 2024-25.
5. Grant of Extra credits for Online SWAYAM MOOCs, edX, Coursera etc.
6. Syllabus, Model Question Papers and Model Blue Prints, Cos, POs, & PSOs mappingfor I, II, III, IV, V, VII and VIII Semesters.
7. Teaching-learning methodology by 50:50 (External: Internal) ratio I, II, I I I & IV Year Students commenced w.e.f. 2021-22.
8. Minimum attendance of 75% for both I mid-term examination, and II mid- term examination under CIA component shall be the benchmark for attendance and itshall be approved in the BOS.

9. Minimum of 50% integration of ICT into a transaction of curriculum.
10. Remedial coaching and assignments for slow learners, project works, research, Conferences, Industrial /academic tours & PG Entrance Coaching etc., for advanced learners.
11. Panel of paper setters and examiners.
12. Implementation of compulsory Community Service Project (CSP)/ Internships/ Apprenticeship and Extension activities for the benefit of the society.
13. Department action plan for 2024-25.
14. To discuss and resolve the minor modifications/refinement if any, in the I, II, III, IV, V, VII,&VIII Semester.
15. Any Other Proposal with the permission of the Chairman.
16. Proposal to start new UG honours course i.e, BSc., Pharmaceutical Chemistry for the AY 24-25

Signature of the members who attended the board of studies in B.sc Honors Chemistry and B.sc Three major system chemistry on 30th April 2024 at 10 a.m. Mode of conduct of meeting offline / online

SL.NO	NAME	SIGNATURE	CONTACT NO.
1	V. Sanjeeva Kumar	V. S.	9849324968
2	Dr. K. Jhansi Lakshmi	K. Jhansi Lakshmi	9441256409
3	Dr. P. KARUNA RAMAN MD, IDEAL ORGANICS, HYDERABAD.	Dr. P. Karuna Raman	9398249493
4	Dr. D. Chenna Rao		9560740108
5	U. Sai Krishna	U. Sai Krishna	9347334707
6	T. V. V. Satyanarayana	T. V. V. Satya	9490876913
7	P. Vijay Kumar	P. Vijay	9652023082
8	V. Ram babu		9948485537
9	G. Pavani		9912526493
10	Dr. N. Bujji Babu		9441394792
11	Dr. Ch. Praveen	Praveen	9491185518
12	V. Venkateswara Rao	V. Venkateswara Rao	9885165588
13	U.S.N. Prasad	USN Prasad	6300882584
14	K.N.S. Swamy	KNS Swamy	9908900962
15	S. Vijaya Lakshmi	S. Vijaya Lakshmi	9133941966
16	D.Bhavyasri	D. Bhavya Sri	
17	Ch. Veni	Ch Veni	
18	Deepthi Anusha II FBC	P. Deepthi Anusha	7382468859
19	Syamala, II MCCS	A. Syamala	6300192780
20			

ADDITIONS/DELETIONS IN COURSESCHEMISTRY

2024-25

Year	SEMESTER & PAPER	ADDITIONS	DELETIONS
I	I & I	Adopted the same from APSCHE	
I	I & II	Adopted the same from APSCHE	
I	II & III	Adopted the same from APSCHE	
I	II & IV	Adopted the same from APSCHE	
II	III & III	Adopted the same from APSCHE	
II	IV & IV	Adopted the same from APSCHE	
II	IV & V	Adopted the same from APSCHE	
III	V & VIA	Added Green synthesis of pyrimidine	Green synthesis of Adipic acid
III	V & VIIA	NIL	NIL
III	VI	APPERENTICESHIP	
IV HONOURS	VII & VIIIA/B	Adopted the same from APSCHE	
IV HONOURS	VII & IXA/B	Adopted the same from APSCHE	
IV HONOURS	VII & XA/B	Adopted the same from APSCHE	
IV HONOURS	VII & XIA/B	Adopted the same from APSCHE	
IV HONOURS	VII & XIIA/B	Adopted the same from APSCHE	
IV HONOURS	XIII	ONLINE COURSE	
IV HONOURS	VIII & XIV A/B	Adopted the same from APSCHE	
IV HONOURS	VIII & XV A/B	Adopted the same from APSCHE	
IV HONOURS	VIII & XVIA/B	Adopted the same from APSCHE	
IV HONOURS	VIII & XVIIA/B	Adopted the same from APSCHE	
IV HONOURS	VIII & XVIIIA/B	Adopted the same from APSCHE	
IV HONOURS	XIX	ONLINE COURSE	

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 will be conducted and the average of the two is considered.
- I mid-examination is to be conducted in offline mode at the college level and II mid-examination is to be conducted in online mode at the 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** answerquestions with five marks each out of four questions and five objective questionswith one mark each for each paper.
- Question paper is to be given as per the following structure for the courses with **4 units**

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

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

S.No	Unit No	Long Answer Question(10M)	Short Answer Question (5 M)	ObjectiveQuestions (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 followingstructure.

Study 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 beconsidered
  .
- 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**

Allotment of Extra credits guidelines

Sl.No.	Activity	Details of achievement	Credits
1	**MOOC Course**	*SWAYAM /NPTEL /CEC etc., (Course Completion certificate with credits should be produced for the claim of extra credits)*	*Total credits achieved will be considered*
2	**NCC**	***B CERTIFICATE***	*2*
		Participation in National Camp after 'B' certificate	*3*
		C CERTIFICATE	*4*
		Adventure camp/RD parade along with 'B'	*5*
		Failed in B certificate Examination	*1*
3	**Sports**	*Intercollegiate selection*	*2*
		South zone selection	*3*
		All India participation	*4*
		Winning medals in all India competitions	*5*
4	**NSS**	*40% attendance in regular NSS activities*	*1*
		50% attendance with Community Service	*2*
		Conduct of survey/Youth exchange/RD	*3*
5	**JKC**	*Enrollment and training*	*1*
		Campus recruitment local level	*2*
		MNCs/reputed companies	*3*
6	**Community service**	*Participation in community service by departments (outreach programmes)*	*2*
7	**Culturalactivity**	*Winning medals at state level-2,District level-1*	*2* *1*
8	**COP/Add on Course**	*Pass in Certificate Exam-1,* *Diploma-2*	*1* *2*
9	**Support services**	*Lead India, Health club, RRC and Eco Club etc.,participation in various programmes*	*1*

SEMESTER-I

I -SEMESTER

COURSE 1: ESSENTIALS AND APPLICATIONS OF MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES

Hours: 5hrs/week Credits: 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.

	PITHAPUR RAJAH'S GOVERNMENT COLEGE (A) Kakinada DEPARTMENT OF CHEMISTRY	Program & Semester I B.Sc. (I Semester)			
Course CodeCHE-1	TITLEOFTHECOURSE ESSENTIALS AND APPLICATIONS OF MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES (MATHS STREAM)				
Teaching	HoursAllocated:9 (**Theory**)	L	T	P	C
Pre-requisites	Fundamentals	9	9	0	3/5

UNIT III: ESSENTIALS OF CHEMISTRY: : 9hrs

Definition and Scope of Chemistry- Importance of Chemistry in daily life -Branches of chemistry and significance- Periodic Table- Electronic Configuration, chemical changes, classification of matter, Biomolecules- carbohydrates, proteins, fats and vitamins.

PITHAPUR RAJAH'S GOVERNMENT COLLEGE (A), KAKINADA

DEPARTMENT OF CHEMISTRY

I SEMESTER (Admitted batch 2023-24)

Course -1

Essentials and Applications of Mathematical, Physical and Chemical Sciences

Question Bank

Unit - III

Essay Questions 10M

1) Discuss about the various branches of chemistry? BT-2

2) Write a note on classification of carbohydrates? BT-1

3) Write an essay on classification of Amino acids? BT-1

.

Short questions 5M

1) Explain the classification of lipids? BT-1

2) Distinguish anomers and epimers with suitable examples? BT-3

3) What are essential and non essential amino acids? Give examples. BT-2

4) Explain fat soluble vitamins? BT-1

5) Explain scope of chemistry? BT-1

Unit – IV

Short questions 5M

1) Write a note on clinical trials? BT-2

2) Explain the applications of chemistry in materials science? BT-

I SEMESTER (Admitted batch 2023-24)

COURSE 1-ESSENTIALS AND APPLICATIONS OF MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES

MODEL QUESTION PAPER

Time: 2 Hours **Max Marks: 50M**

Section -I

Answer any three of the following questions. Must attempt at least one question from each part. Each question carries 10 Marks. **3 X 10 = 30M**

Part – A

1. Change the complex number -4+ i4√3 in polar form. (BT-2)
2. Explain Newtonian mechanics and Relativistic mechanics. (BT2)
3. Discuss about the various branches of chemistry? BT-2

Part – B

4. Spring has a natural length of 1m. A force of 24 N Stretches the spring to a length of 1.8m
   a) Find the force constant k
   b) How much work will be taken to stretch the spring 2 m beyond its natural length?
   c) How far will a 45-N force stretch the spring.
5. Categorize various types of Networks? [BT2]
6. Summarize the various applications of Physics in Environmental Monitoring and Sustainable Technologies. (BT3)

Section-II

Answer any three of the following questions. **4 X 5 = 20M**

7. Evaluate $sin45^{\circ}cos30^{\circ} - cos45^{\circ}sin30^{\circ}$ (BT-3)
8. Evaluate the angle between the vectors $\bar{a} = i\hat{} - j\hat{} + k\hat{}$ and $\bar{b} = i\hat{} + j\hat{} - k$ (BT-3)
9. Explain Laws of Thermodynamics and Physical significance.(BT1)
10. Distinguish anomers and epimers with suitable examples? BT-3
11. What are essential and non essential amino acids? Give examples. BT-2
12. Explain the applications of chemistry in materials science? BT-1
13. What is cryptography? What are its fundamental types? [BT1]

	PITHAPUR RAJAH'S GOVERNMENT COLEGE (A) **Kakinada** **DEPARTMENT OF CHEMISTRY**	**Program & Semester**
Course CodeCHE-2	TITLEOFTHECOURSE ADVANCES IN MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES(MATHS STREAM)	I B.Sc. (I Semester)

Teaching	HoursAllocated:9 (**Theory**)	L	T	P	C
Pre-requisites		9	9	0	3/5

UNIT III: ADVANCES IN CHEMISTRY: 9hrs

Computer aided drug design and delivery, nano sensors, Chemical Biology, impact of chemical pollutants on ecosystems and human health, Dye removal - Catalysis method

PITHAPUR RAJAH'S GOVERNMENT COLLEGE (A), KAKINADA

DEPARTMENT OF CHEMISTRY

I SEMESTER (Admitted batch 2023-24)

Course -2

Advances in MathemaƟcal, Physical and Chemical Sciences

QuesƟon Bank

Unit - III

Essay Questions 10M

1. What is Computer Aided Drug Design? Write briefly about Structure based drug design and Ligand based drug design? BT1

2. Explain the impact of Chemical pollutants on human health? BT2

Short answer Questions 5M

1. What are nano sensors? Write the applications of nano sensors? BT1

2. Explain dye degradation by photocatalysis method? BT3

3. Write about green house effect? BT1

4. Write the applications of chemical biology? BT2

Unit – III

Short answer Questions 5M

1. Write briefly about the solid waste management? BT1

2. Analyse various methods of water treatment? BT3

PITHAPUR RAJAH'S GOVERNMENT COLLEGE(A) KAKINADA

I SEMESTER (Admitted batch 2023-24)

COURSE 2- ADVANCES IN MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES

MODEL QUESTION PAPER

Time: 2 Hours Max Marks: 50M

Section -I

Answer any three of the following questions. Must attempt at least one question from each part. Each question carries 10 Marks. 3 X 10 = 30M

Part – A

1 -2 3 1 0 2

1. If A = [2 3 −1] and B = [0 1 2] from the product AB and BA and show

−3 1

that AB ≠ BA.

2 1 2 0

(BT-2)

2. Write in detail write about the storage of renewable energy (BT1)

3. What is Computer Aided Drug Design? Write briefly about Structure based drug design and Ligand based drug design? BT-1

Part – B

4. The half-life of radioactive cobalt is 5.27 years. Suppose that a nuclear accident has left the level of cobalt radiation in a certain region at 100 times the level acceptable for human habitation. How long will it be unit the region is again habitable? (BT-4)

5. Define Network? Explain various networking devices. [BT1]

6. Describe the recent advances in medical physics (BT2)

Section-II

Answer any three of the following questions. 4 X 5 = 20M

7. Find the equation of a line, which passes through the points (-1, 1) and (2, -4). (BT-1)

8. Find the derivative of x cosx. (BT-2)

9. Explain dye degradation by photocatalysis method? BT3

10. Write about green house effect? BT1

11. Write briefly about the solid waste management? BT1

12. Describe about Shape Memory Materials (BT2)

13. Explain various types of number systems in computer. [BT1]

	PITHAPUR RAJAH'S GOVERNMENT COLEGE (A) Kakinada DEPARTMENT OF CHEMISTRY	**Program & Semester** I B.Sc. (I Semester)			
Course CodeCHE-1	TITLEOFTHECOURSE INTRODUCTION TO CLASSICAL BIOLOGY (BIOLOGY STREAM)				
Teaching	HoursAllocated:9 (**Theory**)	L	T	P	C
Pre-requisites	Fundamentals	9	9	0	3/5

Unit 5: Essentials of Chemistry

5.1. Definition and scope of chemistry, applications of chemistry in daily life.

5.2. Branches of Chemistry

5.3. Chemical bonds – ionic, covalent, noncovalent – Vander Waals, hydrophobic, hydrogen bonds.

5.4. Green chemistry.

PITHAPUR RAJAH'S GOVERNMENT COLLEGE (A), KAKINADA

DEPARTMENT OF CHEMISTRY

I SEMESTER (Admitted batch 2023-24)

Course -1

INTRODUCTION TO CLASSICAL BIOLOGY

Question Bank

ESSENTIALS OF CHEMISTRY Unit - V

Essay Questions 10M

1) Explain the principles of Green Chemistry. BT-2

2) Write any five applications of Chemistry in your daily life? BT-1

3) Describe any five differences between ionic and covalent bond. BT-2

.

Short questions 5M

1. Define and scope of Chemistry.
2. Write any five branches of chemistry
3. Write a short note on hydrogen bonds
4. How do you consider Green Chemistry principles over traditional chemistry principles?
5. Which branch of chemistry do you think is useful in your daily life? why?

PITHAPUR RAJAH'S GOVERNMENT COLLEGE(A) KAKINADA

I SEMESTER (Admitted batch 2023-24)

COURSE 1-INTRODUCTION TO CLASSICAL BIOLOGY

MODEL QUESTION PAPER

Time: 2 Hours **Max Marks: 50M**

Section -I

Answer any three of the following questions. Must attempt at least one question from each part. Each question carries 10 Marks. **3 X 10 = 30M**

Part – A

1. Define taxonomy and explain hierarchy levels BT1
2. Explain the hierarchical classification of Kingdom animalia and chordate BT1
3. Describe the process of gametogenesis, highlighting the key differences between spermatogenesis and Oogenesis BT2

Part – B

4. Explain the fertilization in Angiosperms BT2
5. Explain the central dogma of molecular biology. BT2
6. Explain the principles of Green Chemistry BT2

Section-II

Answer any three of the following questions. **4 X 5 = 20M**

7.List out the rules and principles of ICBN BT-1
8. Compare C3 and C4 cycles BT-2
9. Explain the processes of Mushroom Cultivation BT-3
10. Hormonal disorder BT-1
11. Mitochondria BT-2
12. Discuss the application of Chemistry in daily life. BT1
13. Elaborate various branches of Chemistry. BT3