

**PITHAPUR RAJAH'S
GOVT. COLLEGE(A),
KAKINADA**



Information Technology

**DEPARTMENT OF COMPUTER
APPLICATIONS**

**BOARD OF STUDIES
2023-2024**

**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 Year 2023-24** – 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 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 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 institution 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 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.
- 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 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 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 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	Plan 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 (50 marks) 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(10)	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 any with more syllabus weightage
---	----	---	---	---

➤ For I mid examination to be conducted in offline mode, Question paper is 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)	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

➤ 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
-----------------	-------------	----------

PRINCIPAL

B. V. J. P. Rajah
 PRINCIPAL
 P.R. Govt. College (A)
 KAKINADA

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

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

Present: Dr. B. V. Tirupanyam, M.Sc; Ph.D.
R.C.No.1/A.C./BOS/2023-24, Dated: 29.08.2023

SUB: P.R. Government College(A), Kakinada-UG Board of Studies (BOS)- Program/Course-Nomination of Members-Orders issued.

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

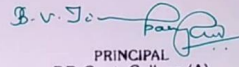
ORDERS:

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

S.No	Name of the Person	Designation
1	Smt. P.Jyothi	Chairman& Lecturer Incharge, Department.
2	Smt.N.NagaSubrahmanyeswari Lecturer In Computer Science ASD Govt degree College for Women(A) Kakinada	University Nominee
3	Smt. G.Satya Suneetha Lecturer In Computer Applications Govt degree Kovvur.	Subject Expert -I Lecturer in .
5	Sri.P.P.R.Mohan SME in TCS Pune.	Representative from Industry
6	Sri. K.Aswithprem Lecturer in Computer Applications P. R. Govt College (A) Kakinada	Member
7	P.Durga Bhavani	Student Alumni Member
8	P.Ashajyothi	Student Member
9	Sk. Kareemulla	Student Member
10	Sk.Madina	Student Member
11	A.Ashok	Student Member

The above members are requested to attend the BOS meeting on 31.08.2023 and share their valuable reviews, and suggestions on the following functionaries.

- 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 IQAC and Academic Council.
- Suggested methodologies for innovative teaching and evaluation techniques.
- Suggest the panel of Names to the academic council for appointment of Examiners.
- Coordinate research, teaching, extension and other activities in the Department of the college.


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

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

DEPARTMENT OF COMPUTER APPLICATIONS

Vision:

Department of Computer Applications Strives rigorously to provide quality education in both theoretical and applied foundations of computers and train the students to solve the real world problems effectively thus enhancing their potential for high quality careers.

Mission:

- To produce students with critical thinking and lifelong learning capabilities for applying their knowledge to uplift the living standards of the society.
- To equip students and faculty with excellent teaching-learning capabilities through advanced learning tools and technologies.
- To produce students with enriched skill set, professional behaviour, strong ethical values and leadership capabilities so as to work with commitment for the progress of the nation.

PSO's:

PSO 1: Students will improve their computer literacy, their basic understanding of operative systems and a working knowledge of software commonly used in academic and professional environments

PSO 2: Students will learn to organize information efficiently in the forms of outlines, charts , etc. using appropriate software.

PSO 3: Students will acquire skills for designing and delivering an effective presentation and developing the various IT skills to electronic databases.

PSO 4: Students will be able to design and implement a webpage

PSO 5: Students will be able to perform E-Banking , E-Marketing, E-Learning , E-Shopping.

PITHAPUR RAJAH'S GOVERNMENT COLLEGE [AUTONOMOUS] KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
BOARD OF STUDIES 2023-2024

The Nineteenth meeting of Board of Studies *COMPUTER APPLICATIONS* has been conducted in the Department of Computer Applications on 31st August, 2023 at 11.AM to discuss the following.

Agenda

1. a) To approve the curriculum, blue print and model paper for 1st year B.COM Computer Applications Major Course under CBCS based as per the directions of the APSCHE for the admitted batch 2023 -24 (I & II Semesters) (Syllabus as per APSCHE)
b) To approve the curriculum, blue print and model paper for 1st year B.Sc Information Technology Major Course under CBCS based as per the directions of the APSCHE for the admitted batch 2023 -24 (I & II Semesters) (Syllabus as per APSCHE)
2. To approve the curriculum, blue print and model paper for 2nd year B.COM Computer Applications Course and B.Com(cecs) , BBKA under CBCS based as per the directions of the APSCHE for the admitted batch 2022 -23 (III & IV Semesters)
3. To approve the curriculum, blue print and model paper for 3rd year B.COM Computer Applications Course and B.Com(cecs) under CBCS based as per the directions of the APSCHE for the admitted batch 2021 -22 (V & VI Semesters)
4. To approve the Two Certificate Courses for Computer Applications students were introduced in this academic year
5. To approve the incorporation of additional inputs to various courses (where ever it is felt necessary) for enhancing students understanding over the concerned course and this shall not be considered for evaluation purpose.
6. To approve the Examination procedure for the courses for I, II, III years of B.com Computer Applications & B.Sc (BBKA) (2023 – 24, 2022-21& 2021-20 admitted batches).
 - a) Each theory subject is evaluated for 100 Marks (I, II&III Years) out of which 50 Marks through semester end examination for I, II & III year, 50 marks for internal assessment.
 - b) The minimum pass mark for both internal and external examinations is 18 marks (36%), but as a whole student is subjected to get 40% marks (40 out of total 100 marks) to pass the subject. (I, II&III Years)

c) 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 **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 any unit with more syllabus weightage

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

S.No	Unit No	Long Answer Question(10 M)	Short Answer Question(5 M)	Objective Questions(1M)
1	I	1	0	1
2	I I	1	0	1
3	I I I	0	1	1
4	I V	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 **one essay** question for ten marks out of two questions, **three short** answer questions with five marks each out of five questions.
- The remaining 25 marks for CIA are allocated as per the following structure.

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

Two Mid Semester Examinations will be conducted for 50 marks (1 hour) & 1st Mid is

Centralized & 2nd Mid is Online mode in the following pattern

d) Internal assessment for 50 Marks is as follows: (For Certificate Courses)

vii) Study Project : 20 Marks

viii) Student Seminar : 10 Marks

ix) Viva-voce : 10 Marks

x) Assignment : 10 Marks

7. Scheme of Valuation for Practical's

- Record - 10 Marks
- Viva voce - 10 Marks
- Test - 30 Marks
- Total - 50 marks

8. Every Student has to complete one MOOC's course per year. And the Student award two extra credit to who have registered and completed SWAYAM course successfully.

9. To award 4 credits for each first year Community service project (CSP) , and second year Internship between 1st and 2nd year and 2nd and 3rd year (two summer vacations for Apprenticeship during 6th semester)

10. To implement pedagogical strategies to enrich teaching and learning process.

11. To approve the proposed departmental activities for 2023-24.

12. To approve the list of examiners and paper setters for the academic year 2023-24.

13. Mandatory attendance of 60% for I mid examinations, 75% of attendance for II mid examination and 75% attendance for SEE - theory and practical.

14. Introducing of New Courses of Study and the possibilities

15. Any other item with the permission of the chair.

CHAIRMAN
BOARD OF STUDIES

Resolutions taken :

The following resolutions are approved by university nominee and all the members of BOS

After reviewing the existing titles and contents of class I,II,III,IV and V framed by APSHE, a the board come out with the following resolutions.

Resolution – I

It is resolved to approve the following changes of course I,II of Computer Applications as it is given by APSCHE as a part of this, from the academic year as, NEP 2020, the Major and minor policy system has come into effect. According to in this 1st year course 1 & 2 papers were given as common to each major

1st year : COURSE-I & COURSE-II

It is resolved to approved the curriculum, blue print and model paper for 1st year B.COM

Course under CBCS based as per the directions of the APSCHE for the admitted batch
2023 -24. (I Semester)

1st year : 2nd sem – major(2) & minor(1)

Course-III :

Course-IV :

Resolution – II

20% change in each subject has been done in 2nd year & 3rd year papers.

2nd year : COURSE-III

Paper -3 Model can be changed

Section-I

Part-A : Given 3 questions

Part-B : Given 3 questions

Write any three questions, at-least one question from each part each question carries 10 marks

Section-II

Write any Four questions out of seven questions each question carries five marks.

2nd year : COURSE-IV

Paper -IV Model can be changed

Section-I

Part-A : Given 3 questions

Part-B : Given 3 questions

Write any three questions, atleast one question from each part each question carries 10 marks

Section-II

Write any Four questions out of seven questions each question carries five marks.

2nd year : COURSE-V

Paper -V Model can be changed

Section-I

Part-A : Given 3 questions

Part-B : Given 3 questions

Write any three questions, atleast one question from each part each question carries 10 marks

Section-II

Write any Four questions out of seven questions each question carries five marks.

Resolution – III

3rd year : COURSE-VI(A)

Paper - VI(A) Model can be changed

Section-I

Part-A : Given 3 questions

Part-B : Given 3 questions

Write any three questions, atleast one question from each part each question carries 10 marks

Section-II

Write any Four questions out of seven questions each question carries five marks.

3rd year : COURSE-VII(A)

Paper - VII(A) Model can be changed

Section-I

Part-A : Given 3 questions

Part-B : Given 3 questions

Write any three questions, atleast one question from each part each question carries 10 marks

Section-II

Write any Four questions out of seven questions each question carries five marks.

Resolution – IV

It is resolved to introduce certificate course with the Name **Basic Computer Applications** (30 hours) as per the requirement, possibility and feasibility, another certificate course name is **Emerging and Advanced Technologies**.

Resolution – V

It is resolved to approved the incorporation of additional inputs to various courses (where ever it is felt necessary) for enhancing students understanding over the concerned course and this shall not be considered for evaluation purpose.

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

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

4. It is resolved to approve the proposed departmental activities for 2023-24.

5. It is resolved to approve the list of examiners and paper setters for the academic year 2023-24.

Resolution – VI

Streamlining of regularity in attendance. Resolved to make the eligibility to appear for 1st mid is 75% of attendance for the 2nd mid it would be 75% , for 75% of attendance for semester examination and 90% for practical examinations .Also it is resolved that the student should attend at least one internal exam to appear for the Semester end examination.

Resolution – VII

Resolved 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.

Resolution – VIII

Resolved to Engage of 7th hour of time table.

Resolution – IX

Resolved to conduct International / National , Webinar / Seminar like Data Science, etc.,

Resolution – X

Resolved to introduce new courses of study whenever necessary.

Resolution – XI

Resolved to follow the admission criteria for the programmes offered by the department.

Resolution – XII

Resolved to conduct extension lectures by the eminent persons.

Resolution – XIII

It is resolved to conduct a workshop on Python ,by a eminent persons.

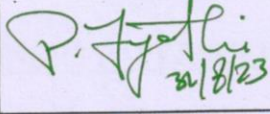
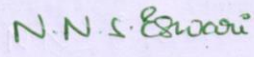
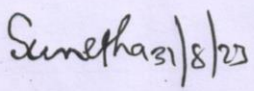
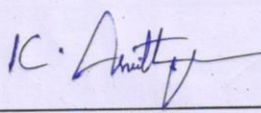
Resolution – XIV

It is resolved to arrange a field trip.

It is resolved to introduce the following new courses in the programmes B.Com Computer applications, from the AY 2023-24

S.No	Course Code	Title of the new course	Programmes in which it is introduced
1.	IT01	Essentials and Applications of Mathematical, Physical and Chemical Sciences	BSC (IT) MAJOR
2.	IT02	Advances in Mathematical, Physical and Chemical Sciences	BSC (IT) MAJOR
3.	IT03	Problem Solving in C	BSC (IT) MAJOR
4.	IT04	Mathematics for Computer Science	BSC (IT) MAJOR

MEMBERS PRESENT

1	Smt. P.Jyothi Lecturer In-charge (Computer Applications) P. R. Govt College (A) Kakinada	Chairman  21/8/23
2	Smt. N.Naga Subrahmanyeswari Lecturer In Computer Science ASD Govt degree College for Women(A) Kakinada Ph: 9948438376 Eswari.velugu@asgdcw.ac.in	University Nominee 
3	Smt. G.Satya Suneetha Lecturer In Computer Applications Govt degree College Kovvur. Ph:9491215695 satyasuneetha10@gmail.com gdckovvur@gmail.com	Subject Expert 
4	Sri.P.P.R.Mohan SME in TCS Pune.	Representative from Industry
5.	Sri. K.Aswithprem Lecturer in Computer Applications P. R. Govt College (A) Kakinada	Member 
6.	P.Durga Bhavani	Alumini P.Durga Bhavani

STUDENT REPRESENTATIVES

- | | |
|-------------------|------------------------------|
| 1. P.Asha Jyothi | II B.Com CECs P. Asha Jyothi |
| 2. Sk. Kareemulla | II B.Com CA Sk. Kareemulla |
| 3. Sk.Madina | I B.Com CA Sk. Madina Patla. |
| 4. A.Ashok | I B.Com CECs A. Ashok |

PANEL OF NAMES FOR APPOINTMENT OF EXAMINERS/PAPERSETTERS

2023-24

S.No	NAME & DESIGNATION	COLLEGE	EXPERIENCE	Address
1.	Dr.K.V.Sobha Rani	Govt Degree College, Ramachandrapuram 8500856417	10 Years	C/o college
2.	Sri R.V.Phani Kumar	Govt Degree College, Perumallapuram 784223115	5 Years	C/o college
3.	Smt. N.Naga Subrahmanyeswari	ASD Womens College, Kakinada Ph: 9948438376	5 Years	C/o college
4.	Smt. G.Satya Suneetha	Govt Degree College, Kovvur Ph:9491215695	5 Years	C/o college
5.	Dr. U.Subhashini	Govt Degree College, Ravulapalem Ph:9700507249	5 Years	C/o college
6.	Smt S.Vaani Kumari	Govt. Degree College(W) (A) , Srikakulam Ph:9885766144	5 Years	C/o college
7.	Sri G.B.V.Padmanadh	Govt Degree College, Mummidivaram Ph:9866604328	5 Years	C/o college
8.	Sri D.Sunil Kumar	Govt Arts College, Rajahmundry Ph:9700507249	5 Years	C/o college

\

\

P.R.GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA – 533 001
DEPARTMENT OF COMPUTER APPLICATIONS
ALLOCATION OF CREDITS AT SUBJECT LEVEL
Under CBCS from 2023-2024(Admitted Batch)
Course: B.Sc (Information Technology)

YEAR	SE M	COURSE CODE	MODULE NATURE	COURSE TITLE	Hrs./ Week	Max. Marks			Credits
						Int.	Ext	Tot	
I	I		Course-1	Essentials and applications of Mathematical, Physical and Chemical Sciences	5	50	50	100	4
			Course-2	Advances in Mathematical, Physical and Chemical Sciences	5	50	50	100	4
	II		CORE-1	Problem Solving in C - (T)	4	50	50	100	3
			CORE-1 Practicals	Problem Solving in C - (P)	2	-	-	50	1
			CORE-2	Mathematics for Computer Science- (T)	4	50	50	100	3
			CORE-1 Practicals	Mathematics for Computer Science- (P)	2	-	-	50	1
				Community Service Project	-	-	-	100	4

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
Course Code	Essentials and applications of mathematical, physical and chemical sciences	I B.Sc-(IT) Sem - I 2023-24			
Hours	60	L	T	P	C
Pre requisites		4	-	-	4

Course Objective
1.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.
2.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. .

Course Outcomes	
On Completion of the course, the students will be able to –	
CO1	Apply critical thinking skills to solve complex problems involving complex numbers, trigonometric ratios, vectors, and statistical measures.
CO2	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.
CO3	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.
CO4	Understand the interplay and connections between mathematics, physics, and chemistry in various applications. Recognize how mathematical models and physical and chemical
CO5	To explore the history and evolution of the Internet and to gain an understanding of network security concepts, including threats, vulnerabilities, and countermeasures.

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
Programme: B.Sc – Information Technology (Major)
I B.Sc-(IT) Semester- I w.e.f (2023-24)

**ESSENTIALS AND APPLICATIONS OF MATHEMATICAL, PHYSICAL AND
CHEMICAL SCIENCES**

UNIT I: ESSENTIALS OF MATHEMATICS

Complex Numbers: Introduction of the new symbol i – General form of a complex number – Modulus- Amplitude form and conversions

Trigonometric Ratios: Trigonometric Ratios and their relations – Problems on calculation of angles Vectors: Definition of vector addition – Cartesian form – Scalar and vector product and problems Statistical Measures: Mean, Median, Mode of a data and problems

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- Behaviour of atomic and nuclear particles- Wave-particle duality, the uncertainty principle- Theories and understanding of universe

UNIT III: ESSENTIALS OF CHEMISTRY

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.

UNIT IV: APPLICATIONS OF MATHEMATICS, PHYSICS & CHEMISTRY

Applications of Mathematics in Physics & Chemistry: Calculus , Differential Equations & Complex Analysis

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.

Application of Chemistry in Industry and Technology: Chemical Manufacturing, Pharmaceuticals and Drug Discovery, Materials Science, Food and Beverage Industry.

UNIT V: ESSENTIALS OF COMPUTER SCIENCE

Milestones of computer evolution - Internet, history, Internet Service Providers, Types of Networks, IP, Domain Name Services, applications.

Ethical and social implications: Network and security concepts- Information Assurance Fundamentals, Cryptography-Symmetric and Asymmetric, Malware, Firewalls, Fraud Techniques- Privacy and Data Protection

Recommended books:

1. Functions of one complex variable by John.B.Conway, Springer- Verlag.
2. Elementary Trigonometry by H.S.Hall and S.R.Knight
3. Vector Algebra by A.R.Vasishtha, Krishna Prakashan Media(P)Ltd. 4.Basic Statistics by B.L.Agarwal, New age international Publishers
5. University Physics with Modern Physics by Hugh D. Young and Roger A. Freedman
6. Fundamentals of Physics by David Halliday, Robert Resnick, and Jearl Walker
7. Physics for Scientists and Engineers with Modern Physics" by Raymond A. Serway and John W. Jewett Jr.

8. Physics for Technology and Engineering" by John Bird
9. Chemistry in daily life by Kirpal Singh
10. Chemistry of bio molecules by S. P. Bhutan
11. Fundamentals of Computers by V. Raja Raman
12. Cyber Security Essentials by James Graham, Richard Howard, Ryan Olson

Activities:

□ **UNIT V: ESSENTIALS OF COMPUTER SCIENCE:**

1. Identifying the attributes of network (Topology, service provider, IP address and bandwidth of your college network) and prepare a report covering network architecture.
2. Identify the types of malwares and required firewalls to provide security.
3. Latest Fraud techniques used by hackers

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
Programme: B.Sc – Information Technology (Major)
I B.Sc-(IT) Semester- I w.e.f (2023-24)

**ESSENTIALS AND APPLICATIONS OF MATHEMATICAL, PHYSICAL AND
CHEMICAL SCIENCES**

Marks: 50M

Model blue print for the model paper and choice

S.NO	Type of Question	To be 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 Questions	6	10	60	3	10	30
2	Section-B Short Questions	7	5	35	4	5	20
TOTAL		13		95	TOTAL MARKS		50

$$\text{Percentage of choice given} = \frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 47.36\%$$

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
Programme: B.Sc – Information Technology (Major)
I B.Sc-(IT) Semester- I w.e.f (2023-24)

**ESSENTIALS AND APPLICATIONS OF MATHEMATICAL, PHYSICAL AND
CHEMICAL SCIENCES**

PAPER- II

Marks: 50M

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Marks allotted to the chapter
UNIT-I	2	2	30
UNIT -II	1	2	20
UNIT -III	1	1	15
UNIT -IV	1	1	15
UNIT -V	1	1	15
Total No. of questions	6	7	
Total Marks Including choice			95

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
Programme: B.Sc – Information Technology (Major)
I B.Sc-(IT) Semester- I w.e.f (2023-24)

**ESSENTIALS AND APPLICATIONS OF MATHEMATICAL, PHYSICAL AND
CHEMICAL SCIENCES**

MODEL PAPER
SEMESTER-I

Time: 2Hrs

Max. Marks: 50

SECTION-I

Answer Any Three Questions. At least One question from each part (3x10=30)

Part-A

1. Long Answer Question1.
2. Long Answer Question2.
3. Long Answer Question3.

Part-B

4. Long Answer Question4.
5. Long Answer Question5.
6. Long Answer Question6.

SECTION-II

Answer any FOUR Questions. Each question carries 5 marks (4x5=20)

7. Short answer question1.
8. Short answer question2.
9. Short answer question3.
10. Short answer question4.
11. Short answer question5.
12. Short answer question6.
13. Short answer question7.

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
Course Code	ADVANCES IN MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES	I B.Sc-(IT)			
		Sem - I			
		2023-24			
Hours	60	L	T	P	C
Pre requisites		4	-	-	4

Course Objective
1 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.
2.The course aims to broaden students' knowledge beyond the foundational concepts and expose them to the latest developments in these disciplines, fostering critical thinking, research skills, and the ability to contribute to scientific advancements.

Course Outcomes	
On Completion of the course, the students will be able to –	
CO1	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..
CO2	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..
CO3	Understand the principles and techniques used in computer-aided drug design and drug delivery systems, to understand the fabrication techniques and working principles of nanosensors. Explore the effects of chemical pollutants on ecosystems and human health.
CO4	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.
CO5	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)..

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
Programme: B.Sc – Information Technology (Major)
I B.Sc-(IT) Semester- I w.e.f (2023-24)

ADVANCES IN MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES
SYLLABUS

UNIT I: ADVANCES IN BASICS MATHEMATICS

Straight Lines: Different forms – Reduction of general equation into various forms –Point of intersection of two straight lines

Limits and Differentiation: Standard limits – Derivative of a function –Problems on product rule and quotient rule

Integration: Integration as a reverse process of differentiation – Basic methods of integration

Matrices: Types of matrices – Scalar multiple of a matrix – Multiplication of matrices – Transpose of a matrix and determinants

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 III: ADVANCES IN CHEMISTRY

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

UNIT IV: ADVANCED APPLICATIONS OF MATHEMATICS, PHYSICS & CHEMISTRY

Mathematical Modelling applications in physics and 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

Solid waste management, Environmental remediation- Green Technology, Water treatment.

UNIT V: ADVANCED APPLICATIONS OF COMPUTER SCIENCE

Number System-Binary, Octal, decimal, and Hexadecimal, Signals-Analog, Digital, Modem, Codec, Multiplexing, Transmission media, error detection and correction- Parity check and CRC, Networking devices- Repeater, hub, bridge, switch, router, gateway.

Recommended books:

1. Coordinate Geometry by S.L.Lony, Arihant Publications
2. Calculus by Thomas and Finny, Pearson Publications
3. Matrices by A.R.Vasishtha and A.K.Vasishtha, Krishna Prakashan Media(P)Ltd.
4. "Renewable Energy: Power for a Sustainable Future" by Godfrey Boyle
5. "Energy Storage: A Nontechnical Guide" by Richard Baxter
6. "Nanotechnology: Principles and Applications" by Sulabha K. Kulkarni and Raghvendra A. Bohara
7. "Biophysics: An Introduction" by Rodney Cotterill
8. "Medical Physics: Imaging" by James G. Webster
9. "Shape Memory Alloys: Properties and Applications" by Dimitris C. Lagoudas
10. Nano materials and applications by M.N.Borah
11. Environmental Chemistry by Anil.K.D.E.

12. Digital Logic Design by Morris Mano
13. Data Communication & Networking by Bahrouz Forouzan.

Activities:

UNIT V: Advanced Applications of computer Science

1. Students must be able to convert numbers from other number system to binary number systems
2. Identify the networking media used for your college network
3. Identify all the networking devices used in your college premises.

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
Programme: B.Sc – Information Technology (Major)
I B.Sc-(IT) Semester- I w.e.f (2023-24)

ADVANCES IN MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES
Marks: 50M

Model blue print for the model paper and choice

S.NO	Type of Question	To be 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 Questions	6	10	60	3	10	30
2	Section-B Short Questions	7	5	35	4	5	20
TOTAL		13		95	TOTAL MARKS		50

$$\text{Percentage of choice given} = \frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 47.36\%$$

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
Programme: B.Sc – Information Technology (Major)
I B.Sc-(IT) Semester- I w.e.f (2023-24)

ADVANCES IN MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES

PAPER- I

Marks: 50M

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Marks allotted to the chapter
UNIT-I	2	2	30
UNIT -II	1	2	20
UNIT -III	1	1	15
UNIT -IV	1	1	15
UNIT -V	1	1	15
Total No. of questions	6	7	
Total Marks Including choice			95

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
Programme: B.Sc – Information Technology (Major)
I B.Sc-(IT) Semester- I w.e.f (2023-24)

ADVANCES IN MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES
MODEL PAPER

Time: 2Hrs

SEMESTER-I

Max. Marks: 50

SECTION-I

Answer Any Three Questions. At least One question from each part

(3x10=30)

Part-A

1. Long Answer Question1.
2. Long Answer Question2.
3. Long Answer Question3.

Part-B

4. Long Answer Question4.
5. Long Answer Question5.
6. Long Answer Question6.

SECTION-II

Answer any FOUR Questions. Each question carries 5 marks

(4x5=20)

7. Short answer question1.
8. Short answer question2.
9. Short answer question3.
10. Short answer question4.
11. Short answer question5.
12. Short answer question6.
13. Short answer question7.

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
Course Code	PROBLEM SOLVING IN C	I B.Sc- (IT)			
		Sem - II			
		2023-24			
Hours	90 (60 Theory + 30 Practical)	L	T	P	C
Pre requisites		3	-	2	4

Course Objective
<ol style="list-style-type: none"> 1. Understand the basics of C 2. Understand the syntax of C-programming language 3. Apply C-programming skill to solve problems

Course Outcomes	
Upon successful completion of the course, a student will be able to:	
CO1	1. Understand the functionality of a Digital Computer and fundamental constructs of programming.
CO2	2. Analyze and develop solutions to a given problem using control statements.
CO3	3. Work with arrays and textual information
CO4	4. Understand the concept of functional hierarchical code organization.
CO5	5. Gain knowledge on derived data types and file handling.

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
I B.Sc (IT) Semester- II (2023-24)
PROBLEM SOLVING IN C
SYLLABUS.

UNIT I

Introduction to Computer and Programming: Introduction - Block diagram of a computer - Hardware and Software -Generations of Programming Languages – Algorithms - Flowcharts.
Introduction to C: Introduction – Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comments – Keywords –Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C - Operators in C.

UNIT II

Decision Control and Looping Statements: Decision making statements: if, else if, else if ladder, switch statements; Loop Control Statements: while, do-while, for loop; break,continue and goto statements.

UNIT III

Arrays: Introduction – One Dimensional Arrays - Declaration, Initialization and Memory representation; Two Dimensional Arrays - Declaration, Initialization and Memory Representation; Strings: Declaring and Initializing string variables, character and string handling functions.

UNIT IV

Functions: Introduction – Function declaration/ prototype – Function definition – function call – return statement – Categories of functions - Recursion - Parameter Passing techniques - Scope of variables – Storage Classes.

Pointers: Introduction to Pointers – declaring and initializing pointer Variables – accessing values using pointers - Pointer Arithmetic – Dynamic Memory Allocation.

UNIT V

Structures and Unions: Introduction – Structure definition - accessing structure members – Array of Structures - union definition – difference between structures and unions.

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file – Accepting Command Line Arguments.

TEXT BOOKS:

1. E Balagurusamy – Programming in ANSI C – Tata McGraw-Hill publications.
2. Computer fundamentals and programming in C, REEMA THAREJA, OXFORD UNIVERSITY PRESS

REFERENCE BOOKS:

1. Brain W Kernighan and Dennis M Ritchie - The 'C' Programming language - Pearson Publications.
 2. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publications.
- YashavantKanetkar - Let Us 'C' – BPB Publications.

Online Resources:

<https://www.tutorialspoint.com/cprogramming/index.html>

<https://www.learn-c.org/>

<https://www.programiz.com/c-programming>

<https://www.w3schools.in/c-tutorial/>

<https://www.cprogramming.com/tutorial/c-tutorial.html>

<https://www.tutorialspoint.com/cplusplus/index.html>

<https://www.programiz.com/cpp-programming><http://www.cplusplus.com/doc/tutorial/>

<https://www.learn-cpp.org/>

<https://www.javatpoint.com/cpp-tutorial>

SUGGESTED CO-CURRICULAR ACTIVITIES:

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
 - a. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
 - b. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

PROBLEM SOLVING IN C – PRACTICAL

1. Write a program to find the area of circle and triangle.
2. Write a program to find simple and compound interest.
3. Write a program to convert temperature from Celsius to Fahrenheit
4. Write a program to find whether a number is even or odd
5. Write a program to find sum and average of 5 numbers
6. Write a program to check whether the given number is Armstrong or not.
7. Write a program to find the sum of individual digits of a positive integer.
8. Write a program to generate the first n terms of the Fibonacci sequence.
9. Write a program to find both the largest and smallest number in a list of integer values
10. Write a program to calculate factorial of given integer value using recursive functions
11. Write a program for addition of two matrices.
12. Write a program for multiplication of two matrices.
13. Write a program to perform various string operations.
14. Write a program to search an element in a given list of values.
15. Write a C program to write and read data into/from a File.

RECOMMENDED CO-CURRICULAR ACTIVITIES: MEASURABLE

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))

4. Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity))
5. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

General Group Discussion

Visit to Software Technology parks / industries

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted:

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Coding exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports,
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs from individual and collaborative work

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
I B.Sc (IT) Semester- III (2023-24)
PROBLEM SOLVING IN C

Marks: 50M

Model blue print for the model paper and choice

S.NO	Type of Question	To be 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 Questions	6	10	60	3	10	30
2	Section-B Short Questions	7	5	35	4	5	20
TOTAL		13		95	TOTAL MARKS		50

$$\text{Percentage of choice given} = \frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 47.36\%$$

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
I B.Sc (IT) Semester- II (2023-24)
PROBLEM SOLVING IN C

Marks: 50M

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Marks allotted to the chapter
UNIT-I	2	2	30
UNIT -II	1	2	20
UNIT -III	1	1	15
UNIT -IV	1	1	15
UNIT -V	1	1	15
Total No. of questions	6	7	
Total Marks Including choice			95

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
I B.Sc (IT) Semester- II (2023-24)
PROBLEM SOLVING IN C

MODEL PAPER

Time : 2Hrs

SEMESTER-II

Max. Marks: 50

SECTION-I

Answer Any Three Questions. At least One question from each Part (3x10=30M)

Part-A

14. Define Computer? Explain Block diagram of a computer?
15. Explain various operators in C with example.
16. Explain various Looping Statements in C with example.

Part-B

17. Write about Two Dimensional Array?
18. What is Function ? Explain about Function call?
19. Write difference between structures and unions?

SECTION-II

Answer any FOUR Questions. Each question carries 5 marks (4x5=20M)

20. Write about features of C language.
21. Explain various data types in C.
22. Write about one dimensional array with example.
23. Write about break and continue statements with examples.
24. What is recursion? What advantage is there in its use?
25. Write about switch statements.
26. Explain about Dynamic Memory Allocation.

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
Course Code	MATHEMATICS FOR COMPUTER SCIENCE	I B.Sc- (IT)			
		Sem - II			
		2023-24			
Hours	90 (60 Theory + 30 Practical)	L	T	P	C
Pre requisites		3	-	2	4

Course Objective
<p>The objective of this course is to provide students</p> <ol style="list-style-type: none"> 1.To apply mathematical logic to solve the problems 2.To understand sets, relations, functions, groups and discrete structures 3.To apply combinations and permutations to real world applications 4.To solve real world problems using graphs & trees

Course Outcomes	
Students after successful completion of the course will be able to:	
CO1	1. Apply mathematical logic to solve problem
CO2	2. Understand sets, relations, functions, and discrete structures as sets, relations, and functions.
CO3	3. Use logical notation to define and reason about fundamental mathematical concepts such
CO4	4. Formulate problems and solve recurrence relations.
CO5	5. Model and solve real-world problems using graphs and trees

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
I B.Sc (IT) Semester- II (2023-24)
MATHEMATICS FOR COMPUTER SCIENCE
SYLLABUS.

UNIT I

Mathematical logic: Introduction, Statements and Notation, Connectives, Normal Forms, Theory of Inference for the Statement Calculus, The Predicate Calculus, Inference Theory of the Predicate Calculus.

UNIT II

Set theory: Introduction, Basic Concepts of Set Theory, Representation of Discrete Structures, Relations and Ordering, Functions. Algebraic Structures: Introduction, Algebraic Systems, Semi groups and Monoids, Groups, Lattices as Partially Ordered Sets, Boolean algebra.

UNIT III

Elementary Combinatorics: Basics of Counting, Combinations and Permutations, Enumeration of Combinations and Permutations, Enumerating Combinations and Permutations with Repetitions, Enumerating Permutations with Constrained Repetitions, Binomial Coefficients, The Binomial and Multinomial Theorems, The Principle of Inclusion- Exclusion.

UNIT IV

Recurrence Relations: Generating Functions of Sequences, Calculating Coefficients of generating functions, Recurrence relations, Solving recurrence relations by substitution and Generating functions, the method of Characteristic roots, Solutions of Inhomogeneous Recurrence Relations.

UNIT V

Graphs: Basic Concepts, Isomorphisms and Subgraphs, Trees and their Properties, Spanning Trees, Directed Trees, Binary Trees, Planar Graphs, Euler's Formula, Multigraphs and Euler Circuits, Hamiltonian Graphs, Chromatic Numbers, The Four-Color Problem.

REFERENCES: TEXT BOOK (S)

1. Discrete Mathematical Structures with Applications to Computer Science, J.P. Tremblay, R. Manohar, McGraw Hill education (India) Private Limited. (UNITS - I, II)
2. Discrete Mathematics for Computer Scientists & Mathematicians, Joe L. Mott, Abraham Kandel, Theodore P. Baker, Pearson , 2nd ed. (Units - III, IV, V)
3. Discrete Mathematics by R.K. Bisht and H.S.Dhami, Oxford University Press

REFERENCE BOOKS

1. Discrete Mathematics and its Applications, Kenneth H. Rosen, 7th Edition, McGraw Hill education (India) Private Limited.
2. Discrete Mathematics, D.S. Malik & M.K. Sen, Revised edition Cengage Learning.
3. Elements of Discrete Mathematics, C. L. Liu and D. P. Mohapatra, 4th edition, McGraw Hill education (India) Private Limited.
4. Discrete Mathematics with Applications, Thomas Koshy, Elsevier.
5. Discrete and Combinatorial Mathematics, R. P. Grimaldi, Pearson.

SUGGESTED CO-CURRICULAR ACTIVITIES:

1. Assignments
2. Seminars, Group discussions, Quiz, Debates etc.(on related topics).
3. Presentation by students on applications related to Graph Theory

MATHEMATICS FOR COMPUTER SCIENCE – PRACTICAL

1. Programming illustration of various propositional logic operations
2. Programming illustration of sets and their operations
3. Implementation of Graphs
4. Illustration of Graph operations including BFS and DFS
5. Implementation of Binary Trees
6. Implementation of various operations on Binary Trees
7. Implementation of Spanning Tree algorithms
8. Illustration of Euler circuits and Hamiltonian circuits
9. Illustration of chromatic number and its applications
10. Illustration of algebraic structure

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
I B.Sc (IT) Semester- III (2023-24)
MATHEMATICS FOR COMPUTER SCIENCE

Marks: 50M

Model blue print for the model paper and choice

S.NO	Type of Question	To be 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 Questions	6	10	60	3	10	30
2	Section-B Short Questions	7	5	35	4	5	20
TOTAL		13		95	TOTAL MARKS		50

$$\text{Percentage of choice given} = \frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 47.36\%$$

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
I B.Sc (IT) Semester- II (2023-24)
MATHEMATICS FOR COMPUTER SCIENCE

Marks: 50M

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Marks allotted to the chapter
UNIT-I	2	2	30
UNIT -II	1	2	20
UNIT -III	1	1	15
UNIT -IV	1	1	15
UNIT -V	1	1	15
Total No. of questions	6	7	
Total Marks Including choice			95

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
I B.Sc (IT) Semester- II (2023-24)
MATHEMATICS FOR COMPUTER SCIENCE

MODEL PAPER

Time : 2Hrs

SEMESTER-II

Max. Marks: 50

SECTION-I

Answer Any Three Questions. At least One question from each part

(3x10=30M)

Part-A

1. Long Answer Question1.
2. Long Answer Question2.
3. Long Answer Question3.

Part-B

4. Long Answer Question1.
5. Long Answer Question2.
6. Long Answer Question3.

SECTION-II

Answer any FOUR Questions. Each question carries 5 marks

(4x5=20M)

7. Short answer question1.
8. Short answer question2.
9. Short answer question3.
10. Short answer question4.
11. Short answer question5.
12. Short answer question6.
13. Short answer question7.

P R GOVT COLLEGE (A):: KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
Certificate Course-01 : BASIC COMPUTER APPLICATIONS

Duration:40 Hrs
01

No.of Credits (Extra) :

Period of the Course: During Even Semester

Overview:

This course aims at providing exposure to students in skill development towards basic office applications.

Learning Outcomes:

After successful completion of the course, student will be able to:

1. Demonstrate basic understanding of computer hardware and software.
2. Apply skills and concepts for basic use of a computer.
3. Identify appropriate tool of MS office to prepare basic documents, charts, spreadsheets and presentations.
4. Create personal, academic and business documents using MS office.
5. Create spreadsheets, charts and presentations.
6. Analyze data using charts and spread sheets.

Unit-I:

Basics of Computers: Definition of a Computer - Characteristics of computers, Applications of Computers – Block Diagram of a Digital Computer – I/O Devices, hardware, software, human ware, application software, system software, Memories - Primary, Auxiliary and Cache Memory.

MS Windows – Desktop, Recycle bin, My Computer, Documents, Pictures, Music, Videos, Task Bar, Control Panel.

Unit-II:

MS-Word : Features of MS-Word - MS-Word Window Components - Creating, Editing, Formatting and Printing of Documents – Headers and Footers – Insert/Draw Tables, Table Auto format – Page Borders and Shading – Inserting Symbols, Shapes, Word Art, Page Numbers, Mail Merge.

Unit-III:

MS-Excel : Overview of Excel features – Creating a new worksheet, Selecting cells, Entering and editing Text, Numbers, Inserting Rows/Columns –Changing column widths and row heights, Formulae, Referencing cells , Changing font sizes and colors, Insertion of Charts, Auto fill, Sort.

Unit-IV:

MS-PowerPoint: Features of PowerPoint – Creating a Presentation - Inserting and Deleting Slides in a Presentation – Adding Clip Art/Pictures -Inserting Other Objects, Audio, Video - Resizing and scaling of an Object – Slide Transition – Custom Animation.

REFERENCE BOOKS:

1. Working in Microsoft Office – Ron Mansfield - TMH.
2. MS Office 2007 in a Nutshell –Sanjay Saxena – Vikas Publishing House. 3. Excel 2020 in easy steps-Michael Price – TMH publications

P R GOVT COLLEGE (A):: KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
Certificate Course-01 : BASIC COMPUTER APPLICATIONS

MODEL PAPER

Time: 2 Hrs

Max Marks: 40

SECTION – A

Answer any FOUR questions the following

4 x 5= 20M

1. Write about characteristics of Computer?
2. Explain about applications of computers.
3. Explain about Desktop and Recycle bin.
4. Explain about features of MS-Word.
5. Explain about header and Footer in MS-Word.
6. How to inserting Rows and Columns in MS-Excel?
7. How to entering and editing text and numbers in Excel?
8. Explain features of MS-Power point?

SECTION – B

Answer any THREE questions the following

2 x 10= 20M

1. Draw and explain block diagram of Computer in details.
2. Explain various input and output devices.
3. Explain How to Creating Table in MS-Word?
4. What is Presentation? How to create a presentation in MS-Power point?

P R GOVT COLLEGE (A):: KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
Certificate Course-02 :EMERGING AND ADVANCED TECHNOLOGIES.

Duration:40 Hrs
01

No.of Credits (Extra) :

Period of the Course: During Even Semester

Overview:

The objective of the course is to present an overview of artificial intelligence (AI) principles and approaches

To study fundamental concepts of IoT

Data Science is a fast-growing interdisciplinary field, focusing on the analysis of data to extract knowledge and insight.

Learning Outcomes:

After successful completion of the course, student will be able to:

1. Students will acquire a fundamental understanding of the principles of artificial intelligence and its foundations
2. Understand the various concepts, terminologies and architecture of IoT systems.
3. Recognize the various discipline that contribute to a successful data science effort.

Syllabus:

Unit 1 - Cloud Computing

Cloud Computing Overview Understand key concepts relating to cloud computing. Recognize the features, benefits, examples, and limitations of Infrastructure as a Service (IaaS). Recognize the features, benefits, limitations and provide examples of Platform as a Service (PaaS) Recognize the features, benefits, limitations and provide examples of Software as a Service (SaaS).

Unit-II: Internet of Things

Understand key concepts relating to Internet of Things (IoT), Fundamentals of IoT: Introduction, Definitions & Characteristics of IoT, IoT Architectures, Physical & Logical Design of IoT, Enabling Technologies in IoT, History of IoT, About Things in IoT, The Identifiers in IoT, About the Internet in IoT, IoT frameworks, IoT and M2M.

Unit III - Artificial Intelligence

Define Artificial Intelligence. Understand how AI works, including the key principles underpinning AI. Define the terms machine learning, neural network, and deep learning and the characteristics of each. Identify the need for AI and recognize examples of how AI supports data mining, natural language processing, and decision making

UNIT IV: Data Science

Defining Data Science and Big data, Benefits and Uses, facets of Data, Data Science Process. History and Overview of R. History and Overview of Python. Define Data Science Process Overview of the Data Science Process Setting the research goal, Retrieving Data, Data Preparation, Exploration, Modeling, data Presentation and Automation.

P R GOVT COLLEGE (A):: KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
Certificate Course-02 : EMERGING AND ADVANCED TECHNOLOGIES.
MODEL PAPER

Time: 30 min

Max Marks:40

SECTION – A

Answer all the Questions Each question carries 2 marks

2x20=40 ;

1. What is Cloud Computing?
 - a) Cloud Computing providing services like storage, servers, database, networking, etc
 - b) Cloud Computing means storing data in a database
 - c) Cloud Computing is a tool used to create an application
 - d) None of the mentioned

2. Who is the father of cloud computing?
 - a) Sharon B. Codd b) Edgar Frank Codd c) J.C.R. Licklider d) Charles Bachman

3. Which of the following is a type of cloud computing service?
 - a) Service-as-a-Software (SaaS)
 - b) Software-and-a-Server (SaaS)
 - c) Software-as-a-Service (SaaS)
 - d) Software-as-a-Server (SaaS)

4. Choose the correct relationship of cloud services to customers.
 - a) One - One b) One - Many c) Many - One d) Many - Many

5. What is the Full form of PaaS?
 - a) Payment as a Service
 - b) Platform as a Service
 - c) Performance as a Service
 - d) Protocol as a Service

6. What is the full form of IoT?
 - a) Internet of Technology
 - b) Incorporate of Things
 - c) Internet of Things
 - d) Incorporate of Technology

7. What is the characteristic of Processed Data?
 - a) Data is not ready for analysis
 - b) Difficult to use for data analysis
 - c) All steps should be noted
 - d) None of these

8. Which of the following is the correct statement.
 - a) Preprocessed data is original source of data
 - b) Raw data is original source of data

- c) Raw data is the data obtained after processing steps
 - d) None of these
9. Which is one of the significant data science skills?
- a) Statistics
 - b) Machine Learning
 - c) Data Visualization
 - d) All of these
10. A graphical representation of a data set is referred to as a _____
- a) Visualization
 - b) Data Set
 - c) Investigative Cycle
 - d) None
11. Who is known as the -Father of AI"?
- a)Fisher Ada
 - b)Alan Turing
 - c)John McCarthy
 - d)Allen Newell
12. Which of the following is the common language for Artificial Intelligence?
- a)Python
 - b)Java
 - c)PHP
 - d) C-lang
13. Which of the following is the branch of Artificial Intelligence?
- a) Machine Learning
 - b) Cyber forensics
 - c) Full-Stack Developer
 - d) Network Design
14. Artificial Intelligence is classified into ____ category processes.
- a) 2
 - b) 5
 - c) 3
 - d) 4
15. The main tasks of an AI agent are _____.
- a) Moment and Humanly Actions
 - b) Perceiving, thinking, and acting on the environmen
 - c) taking input from human
 - d) none of the above
16. Data science is the process of diverse set of data through ?
- a) Organizing data
 - b) Processing data
 - c) Analysing data
 - d) All of the above
17. Which of the following language is used in Data science?
- a) C
 - b) C++
 - c)R
 - d)Ruby
18. Which of the following is not a part of data science process?

- a) Retrieving Data
- b) Model Planning
- c) Communication Building
- d) Setting the research goal

19. Which of the following are the Data Sources in data science?

- a) Structured
- b) Un-Structured
- c) Both A and B
- d) None Of the above

20. Point out the correct statement.

- a) Raw data is original source of data
- b) Preprocessed data is original source of data
- c) Raw data is the data obtained after processing steps
- d) None of the above