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

DEPARTMENT OF COMPUTER APPLICATIONS

BOARD OF STUDIES

2025-2026

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

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

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

ORDER:

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

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

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

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

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

The Chairpersons are further instructed to:

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

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

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

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

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

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

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

CIA structure for Single Major system

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

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

BOS COMPOSITION

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

Present: Dr. Kandula Anjaneyulu, M.A, Ph.D.

R.C.No.2/A.C/BOS - Members Nomination/2025-26 **Dated: 04.08.2025**

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

REF: Proc.RC.No.1/A.C/BOS/2025-26 dated: 31 July 2025 of the Principal, Pithapur Rajah's Government College(A) Kakinada.

ORDER:

The Principal, P.R. Government College(A), Kakinada is pleased to constitute UG Boards of Studies in **B.Com-Computer Applications** 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	Dr K.V.Sobha Rani, GDC Ramachandrapuram	University Nominee
3	Sri. R.V. Phani Kumar, GDC Perumallapuram	Subject Expert-1
4	Dr.M.Rajababu, Associate Professor,Dept. of IT, Aditya University, Surampalem	Subject Expert-2
5	P.Swamy Vandanam, M.D, BDPS Computers	Representative from Industry
6	Mr. K.Aswith Prem	Member
7	Ms. N.Sravani Devi	Member
8	Ms. S.Devi Prasanna	Member
9	Ms. P.V.Maheswari	Member
10	Ms. K.Sravani Devi	Member
11	Mr. K.Nani	Member
13	P.Asha Jyothi	Student Alumni Member
14	R.Pavani Priya	Student Member
15		Student Member

The above members are requested to attend the BoS meeting on 07-08-2025 FN and share their valuable reviews, and suggestions on the following functionaries.

- Prepare syllabi for the subject keeping in view the objectives of the college and interest of the stake holders 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.

5/8/25

PRINCIPAL

P. R. Government College(A), Kakinada

Dr. Kandula Anjaneyulu
M.A.,UGC.NET,JRF,Ph.D.
PRINCIPAL (FAC)
P.R.GOVERNMENT COLLEGE (A)
KAKINADA-533 001

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

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

PRINCIPAL
Pithapur Rajah's Government College(A)
Kakinada

Copy to:

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

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 website

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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 2025-2026

The twenty-first meeting of Board of Studies ***COMPUTER APPLICATIONS*** has been conducted in the Department of Computer Applications on 07th Aug, 2025 at 10:30.AM to discuss the following.

Agenda

1. 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 2025 -26 (I & II Semesters) (Syllabus as per APSCHE)
2. To approve the curriculum, blue print and model paper for 2nd year B.COM Computer Applications Major Course under CBCS based under the directions of the APSCHE for the admitted batch 2024 -25(III & IV Semesters)
3. To approve the curriculum, blue print and model paper for 3RD year B.COM Computer Applications, under CBCS based under the directions of the APSCHE for the admitted batch 2023 -24 (V & VI Semester)
4. To approve the curriculum, blue print and model paper for Skill courses of 2nd & 3rd Semester under the direction of the APSCHE
5. To approve the Two Certificate Courses for Computer Applications students were introduced in this academic year.
6. 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.
7. To approve the Examination procedure for the courses for I, II, III years of B.com Computer Applications (2025 – 26, 2024-23 & 2023-24 admitted batches).
8. To approve the Scheme of Valuation for Practical's
9. Every Student has to complete one MOOC's course per year. And the Student award two extra credits to who have registered and completed SWAYAM course successfully.
10. 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)
11. To implement pedagogical strategies to enrich teaching and learning process.
12. To approve the proposed departmental activities for 2025-26.
13. To approve the list of examiners and paper setters for the academic year 2025-26.
14. Mandatory attendance of 60% for I mid examinations, 75% of attendance for II mid examination and 75% attendance for SEE – theory and practical.
15. Introducing of New Courses of Study and the possibilities
16. 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.

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 2025 -26. (I Semester)

1st year : 1st sem – major (2)

Major I - handled by department of commerce

Major II – handled by department of computer applications

1st year : 2nd sem – major (2)

Major III - handled by department of commerce

Major IV – handled by department of computer applications

Question Paper Model Pattern

Major-II

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.

MAJOR-IV

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 – II

It is resolved to approve the syllabus for 2nd year of B.Com 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 this

2nd year- IIIrd sem total subjects are: 4 -Major and 1-Minor

Out of 4 major subjects Two subjects handled by the department of computer applications, remaining Two major subjects handled by the department of commerce.

2nd year -IVth sem total subjects are: 3 -Major and 2-Minor.

Out of 3 major subjects One subject handled by the department of computer applications, remaining 2 major subjects handled by the department of commerce.

Question Paper Model Pattern
Major Subject
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.

Minor Subject
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:
It is resolved to approve the syllabus for 3rd year of B.Com 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 this
3rd year- Vth sem total subjects are: 4 -Major and 2-Minor
Out of 4 major subjects Two subjects handled by the department of computer applications, remaining Two major subjects handled by the department of commerce.
3rd year VI th Sem : semester Internship/Apprenticeship

Question Paper Model Pattern
Major Subject
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.

Minor Subject
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

If the skill courses are opted, It is resolved to approved the curriculum, blue print and model paper for Skill courses IIIrd Sem Digital Literacy, IV th Sem Information and Communication Technology under CBCS based as per the directions of the APSCHE for the admitted batch 2024 -25.

Skill I – For all arts programs - handled by department of computer applications

Skill II – for all arts programs - handled by department of computer applications

Question Paper Model Pattern

Skill -I

Section-A

Given 5 questions

Write any three questions, each question carries 10 marks

Section-B

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

Skill -II

Section-A

Given 5 questions

Write any three questions, each question carries 10 marks

Section-B

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

Resolution – V

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 – VI

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.

Resolution – VII

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.

- 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

Resolution – VIII

it is resolved to set the Scheme of Valuation for Practical's

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

Resolution – IX

It is 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 – X

It is resolved to adopt Community Service Project for all the students at the end of Sem–II. Resolved to send all the final year 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.

Resolution – XI

It is resolved to implement pedagogical strategies to enrich teaching and learning process.
It is Resolved to conduct International / National , Webinar / Seminar like Data Science, etc.,
It is Resolved to conduct extension lectures by the eminent persons.

Resolution – XII:

It is resolved to approve the proposed departmental activities for 2024-25.

Resolution – XIII:

It is resolved to approve the list of examiners and paper setters for the academic year 2024-25.

Resolution – XIV

Streamlining of regularity in attendance. Resolved to make the eligibility to appear for 1st mid is 75% of attendance for the2nd 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 – XV

It is Resolved to introduce new courses of study whenever necessary.

Resolution – XVI

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

It is resolved to arrange a field trip.

MEMEBERS PRESENT

S.No	Name of the Person	Designation	Signature
1	Smt. P.Jyothi	Chairman & Lecturer Incharge, Department.	
2	Dr. K.Sobha Rani, Lecturer In Computer Applications GDC Ramachandrapuram	University Nominee	
3	Sri. R.V.Phani Kumar, Lecturer In Computer Applications GDC Perumallapuram.	Subject Expert -1	
5	Dr. M. Rajababu, Associate Professor, Dept of IT, Aditya University Surampalem.	Subject Expert -2	
	Sri. P.Swamy Vandanam, M.D BDPS Computers, KAKINADA	Representative from Industry	
6	Sri. K.Aswithprem Lecturer in Computer Applications	Member	
7	Ms. N.Sravani Devi Lecturer in Computer Applications	Member	
8	Ms. S.Devi Prasanna Lecturer in Computer Applications	Member	
9	Ms.P.V.Maheswari Lecturer in Computer Applications	Member	
10	Ms. K.Sravani Devi Lecturer in Computer Applications	Member	
11	Mr. K.Nani Lecturer in Computer Applications	Member	
12	A.Ashok	Alumni Member	
13	R.Pavani Priya	Student Member **III B.Sc - IT**	
14	A. Bala Durga Swaroop	Student Member **III B.com-CA**	
15	M.Shivani	Student Member **II B.com-CA**	

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Department of Computer Applications

PANEL OF NAMES FOR APPOINTMENT OF EXAMINERS/PAPERSETTERS

2025-26

S.No	NAME & DESIGNATION	COLLEGE	EXPERIENCE	Address
1.	**Smt S.Vaani Kumari**	Govt. Degree College(W) (A) , Srikakulam e-mail: vanikumari.s@gmail.com Ph:9885766144	7 Years	C/o college
2.	**Smt B.Lakshmi**	SKR GDC, Gudur, Email: Ph:7893204741	7 Years	C/o college
3.	**Smt. J. Sharmila Rani**	GDC, Gajapathinagaram, Vijayanagaram Dt, AP Email: sharmilarani.j@gmail.com Ph:8341548582	7 Years	C/o college
4.	**Smt K.Adilakshmi**	GDC Tiruvuru e-mail: computerdeptmpl@gmail.com Ph:9440027500	7 Years	C/o college
5.	**Smt A. Madhavi**	GC for (M)(A),Ananthapur Ph:9949672448	7 Years	C/o college
6.	**Smt D Aruna Padma**	GDC(W), VISAKHAPATNAM 9030615618	7 Years	C/o college
7.	**Smt B. Durga Anuja**	GDC for Women, Srikalahasti Ph no:9908236775	7 Years	C/o college
8.	**Mr T. Narendra Babu**	Dr YSR. GDC, Vedurukuppam, Ph: 7702917803	4 years	C/o college
9.	**Mr B.Ravi**	GDC Vijayanagaram Ph: 9494332331	4 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 2025-2026(Admitted Batch)
Course: LSC
For ALL B.Com and BA streams

YEAR	SEM	COURSE CODE	MODULE NATURE	COURSE TITLE	Hrs./ Week	Max. Marks			Credits
						Int.	Ext	Tot	
I	I	1	LSC-1	AI Fundamentals	4	50	50	100	4
			LSC-1 Practical	AI Fundamentals-Practice Session	2	-	-	0	0
	II	2	LSC-2	Applications of Artificial Intelligence	3	50	50	100	3
			LSC-2 Practical	Applications of Artificial Intelligence Practical	2	-	-	50	1

P.R.GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA – 533 001
DEPARTMENT OF COMPUTER APPLICATIONS
ALLOCATION OF CREDITS AT SUBJECT LEVEL
Under CBCS from 2025-2026(Admitted Batch) and Prior Batches
Course: B.Com (Computer Applications)-Major

YEAR	SEM	COURSE CODE	MODULE NATURE	COURSE TITLE	Hrs./ Week	Max. Marks			Credits
						Int.	Ext	Tot	
I	I	2	Major-2	Fundamentals of Information Technology & Office Automation	3	50	50	100	3
			Major-2 Practical	Fundamentals of Information Technology & Office Automation Practical	2	-	-	50	1
	II	4	Major-4	E-Commerce and Web Application and Development	3	50	50	100	3
			Major-4 Practical	E-Commerce and Web Application and Development Practical	2	-	-	50	1
				Community Service Project	-	-	-	100	4
II	III	7	Major-7	E Commerce & Web designing	3	50	50	100	3
			Major-7 Practical	E Commerce & Web designing Practical Course	2	-	-	50	1
		8	Major-8 Major	Digital Marketing	3	50	50	100	3
			Major -8 Practical	Digital Marketing Practical Course	2	-	-	50	1
	IV	11	Major-11	DBMS with Oracle	3	50	50	100	3
			Major 11 Practical	DBMS with Oracle Practical Course	2	-	-	50	1
				Short Term Internship	-	-	-	100	4
III	V	14	Major-14	Business Analytics	3	50	50	100	3
			Major 14 Practical's	Business AnalyticsPractical course	2	-	-	50	1
		15	Major-15 Major	Mobile Application Development	3	50	50	100	3
			Major 15 Practical's	Mobile Application Development Practical	2	-	-	50	1
				Semester Apprenticeship	-	-	-	200	4

P.R.GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA – 533 001
DEPARTMENT OF COMPUTER APPLICATIONS
ALLOCATION OF CREDITS AT SUBJECT LEVEL
Under CBCS from 2024-2025(Admitted Batch)
Course: B.Com (Computer Applications) – Minor

YEAR	SEM	COURSE CODE	MODULE NATURE	COURSE TITLE	Hrs./ Week	Max. Marks			Credits
						Int.	Ext	Tot	
II	III	2	Minor-2	Database Management System	3	50	50	100	3
			Minor-2Practical	Database Management System Lab	2	-	-	50	1
	IV	3	Minor-3	Python Programming	3	50	50	100	3
			Minor-3 Practical	Python Programming Lab	2	-	-	50	1
		4	Minor-4	Operating Systems	3	50	50	100	3
			Minor4 Practical	Operating Systems Lab	2	-	-	50	1
III	V	5	Minor-5	Web Programming	3	50	50	100	3
			Minor 5 Practical	Web Programming Practical	2	-	-	50	1
		6	Minor 6	Web Development using PHP & MySQL	3	50	50	100	3
			Practical	Web Development using PHP & MySQL Practical	2	-	-	50	1

LSC

	Pithapur Rajah's Government College(A) Kakinada **Department of Computer Applications**	**B.Sc / B.Com / BA** **Semester:** I
LSC-1	**Course Name**: AI Fundamentals	
	Hours Allocated:4hrs/week	Credits: 4

Course Objectives:

- Understand the fundamental concepts, history, and subfields of Artificial Intelligence and its real-world applications.
- Explore the various domains where AI is applied such as healthcare, finance, agriculture, and education.
- Analyze ethical considerations, bias, fairness, transparency, and accountability in AI systems.
- Familiarize with generative AI tools, prompt engineering concepts, and their importance in human–AI interaction.
- Apply prompt engineering techniques in different areas such as education, business, and creative content generation using AI tools.

Course Outcomes(Learning Outcomes):

- Explain the fundamentals, history, and various subfields of Artificial Intelligence.
- Identify and describe major real-world applications of AI across multiple industries.
- Evaluate ethical, fair, and transparent AI practices ensuring accountability and security in AI systems.
- Demonstrate an understanding of generative AI tools and prompt engineering concepts in AI/ML applications.
- Implement prompt engineering strategies for solving real-world problems in education, business, and creative industries.

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA

DEPARTMENT OF COMPUTER APPLICATIONS

B.Com / B.Sc / BA Semester- I (2025-26)

ARTIFICIAL INTELLIGENCE

SYLLABUS

Unit I. AI and its Subfields

Introduction to Artificial Intelligence, History, Definition, Artificial General Intelligence, Industry Applications of AI, Challenges in AI.

Knowledge Engineering, Machine Learning, Computer Vision, Natural Language Processing, Robotics.

Unit 2. Applications of AI

Healthcare, Finance, Retail, Agriculture, Education, Transportation.

Unit 3. Bias and Fairness in AI Systems

Ethics in AI, Bias and Fairness in AI Systems, Transparency in AI Systems, Accountability, Security, Privacy, Inclusivity, Sustainability, Robustness, Reliability.

Unit 4. AI in Research, Generative AI and prompt engineering

AI in Experimentation and Multi-disciplinary research, Generative AI introduction, ChatGPT, Hugging Face, Gemini and other tools basics, Perplexity, Prompt engineering Definition and its importance, Role of Prompt Engineering in AI/ML Interaction, Emerging trends and Future Directions in AI.

Unit 5. Applications of Prompt engineering

Applications of Prompt Engineering: Education, Business & Commerce, Content Creation: AI for Creative Writing, AI for creative design, writing AI scripts for video, generating slides and slidesGPT usage, Designing thumbnails and channel branding with AI

TEXT BOOKS:

1. AI for Everyone: A Beginner's Handbook for Artificial Intelligence (AI) by Saptarsi Goswami, Amit Kumar Das , Amlan Chakrabarti
2. Prompt Engineering for Beginners: by Kapila Arora, Geetu Garg, Gaurav Arora.

REFERENCE BOOKS:

1. Let's Learn Artificial Intelligence: Base Module, Niti Ayog, Atal Innovation Mission.
2. Prompt Engineering for Generative AI: Future-proof inputs for Reliable AI-outputs by James Phoenix & Mike Taylor.
3. Generative AI Tutorial:https://www.w3schools.com/gen_ai/
4. Generative AI 360°: Practical Guide to ChatGPT, Midjourney & AI Tools to Boost Productivity & Creativity , For Professionals, Marketers & Entrepreneurs by Hitesh Motwani , ZebraLearn, 2025.
5. Generative AI: Prompt Engineering Basics:
6. Learn Generative AI Prompt Engineering for everyone.https://www.coursera.org/learn/generative-ai-prompt-engineering-for everyone?action=enroll
7. Free Artificial Intelligence (AI) Tutorial - Hands-On Prompt Engineering for AI Beginners & Business User | Udemy, https://www.udemy.com/course/prompt-engineering-for-ai-beginners-business-users

	Pithapur Rajah's Government College(A) Kakinada **Department of Computer Applications**	**B.Sc / B.Com / BA** **Semester:** I
LSC-1	**Course Name**: AI Fundamentals	
	Hours Allocated:4hrs/week	Credits: 4

MODEL BLUE PRINT

EXAM STRUCTURE:

Section	Questions Given	To Answer	Marks Each	Total
Section-I(Part-A and Part-BEssay Questions)	6	3	10	30
Section-II(Section-II Short Questions)	7	4	5	20

UNIT-WISE DISTRIBUTION:

UNIT	Essay Qs (10m)	Short Qs (5m)	Total Marks
I	1	2	20
II	1	1	15
III	1	1	15
IV	2	1	25
V	1	2	20

Total Questions: 6 (Essay) + 7 (Short) = 13

Questions to Answer:3 (Essay) + 4 (Short) = 7

Total Marks before Choice: 95

Final Exam Marks: 50

Choice Percentage: 47.36% [(95-50)/95 × 100]

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SECTION-I

Answer any THREE questions (Must attempt at least one from each Part). Each question carries 10 Marks.

PART-A

1. Describe the challenges faced in Artificial Intelligence and its major industry applications.
2. Describe the role of AI in education and transportation with suitable examples.
3. Discuss transparency, accountability, and privacy issues in Artificial Intelligence.

PART-B

4. Define Prompt Engineering and explain its importance in AI–ML interaction.
5. Discuss Generative AI and describe the features of tools like ChatGPT, Hugging Face, Gemini, and Perplexity.
6. Explain the applications of Prompt Engineering in education and business sectors.

SECTION-II

Answer any FOUR questions. Each question carries 5 Marks.

7. What is Artificial General Intelligence (AGI)?
8. Write any two applications of AI in real-world industries.
9. Write a short note on AI in education.
10. What is meant by bias in AI systems?
11. Write a short note on Prompt Engineering.
12. What is the use of Prompt Engineering in education?
13. How is AI used for creative writing?

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Lab List

1. Create a mind map of AI subfields: NLP, CV, ML, Robotics, Knowledge Engineering using Canva/Napkin AI/ Similar Open AI tool
2. Text Analysis with Open-Source NLP Tools: **Tool:** Voyant Tools (text analysis web app)
   - Input sample texts (e.g., news articles, speeches).
   - Explore word frequency, keywords, sentiment.
   - Understand how NLP extracts meaning from text.
3. Train a basic image classifier using webcam images. Observe how the model "learns." UsingGoogle Teachable Machine
   - Train two image categories (e.g., "Smiling" vs. "Not Smiling") using their own webcam images.
   - Observe how the model learns to classify.
   - Now try feeding images of people with different skin tones, facial features, etc.
   - Observe misclassifications or differences in confidence.
4. Simulate an AI chatbot helping a farmer or a student. You may use any GenAI tool of your choice. You may use the prompt below and also try your own.

Prompt:

"Act as an agriculture assistant. A farmer wants to know the best crop based on soil and season. Ask questions and suggest crops."

5. Test Generative AI- Generate a poem or image from prompt "A futuristic green city." using ChatGPT, Hugging Face (e.g., image or text generation)
6. Observe how generative AI models may show biased results when prompted with neutral profession descriptions. (Bing Image Creator / DALL·E on ChatGPT/ChatGPT). Generate images using the following neutral prompts:
   - "A doctor treating a patient"
   - "A teacher in a classroom"
   - "A CEO giving a speech"

- "A software engineer working from home"

Observe and discuss:

- What gender/race/age are most commonly shown?
- Are the results stereotypical or diverse?

7. Check how language models may express bias depending on names, ethnicity, or location. **Use ChatGPT or Gemini**

   Prompts:

   Prompt A:

   "A person named Raj is applying for a bank loan. Will he be approved?"

   Prompt B:

   "A person named John is applying for a bank loan. Will he be approved?"

   Change names, genders, and nationalities.

   Observe the following and report your findings:

   - Are the responses different?
   - Is one version more positive or negative?
   - Does the model express bias or hesitate?
   - Should AI make such predictions?
   - How do developers prevent this?

8. Exploring Text Generation and Summarization with Google AI Studio

   Generate Creative Content

   "Write a short story (150 words) about a robot who wants to become a chef."

   - Submit and read the AI-generated story.
   - Discuss how detailed and creative the output is.

   Summarize a Paragraph

   Prompt:

   Summarize the following paragraph in 3 sentences:

   "Artificial Intelligence is a branch of computer science that aims to create intelligent machines that can mimic human thinking. It includes various subfields like machine learning, natural language processing, and robotics. AI is widely used in industries such as healthcare, finance, and transportation to improve efficiency and decision-making."

   - Submit and review the summary.
   - Evaluate how well AI extracts key points.

Refine Your Prompt

Try changing the summary prompt to:

"Summarize the paragraph above in simple language for 10-year-olds."

- Compare this output to the previous one.
- Note how prompt wording changes results.

9. AI for Creative Writing

   Prompt:

   "Write a short motivational story for 10-year-old students in under 150 words."

10. Generate **Slides:** Tool: SlidesGPT/Other Free AI tool

    Prompt:

    "Create a 5-slide presentation on 'AI in Smart Farming'."

11. YouTube Thumbnails / Branding: Tool: Canva + Magic Media AI

    Design a thumbnail using Canva's AI tools with a prompt like:

    "Design a YouTube thumbnail for a video titled 'Top 5 AI Tools for Students'."

	Pithapur Rajah's Government College(A) Kakinada **Department of Computer Applications**	**B.Com / BBA** **Semester: II**
LSC-2	**APPLICATIONS OFARTIFICIAL INTELLIGENCE**	
	Hours Allocated: 3hrs/week	Credits: 3

Course Objectives:

1. Provide a foundation in the AI ecosystem, including hardware, cloud, and edge platforms relevant to commerce and management.

2. Familiarize students with different types of datasets and public repositories used in AI research.

3. Develop skills in building AI data pipelines through collection, annotation, cleaning, and preprocessing.

4. Understand how AI enhances retail and e-commerce and explore personalization, recommendation systems, and customer engagement

5. Apply AI to streamline business processes and decision-making and explore AI in finance, HR, and supply chain management

Course Outcomes:

On successful completion of this course, students will be able to:

1. Explain the AI ecosystem (hardware, cloud, and edge devices) and its relevance to commerce and management.

2. Differentiate between structured and unstructured data, and utilize public datasets for business-oriented AI applications.

3. Design a conceptual AI data pipeline for solving real-world problems in commerce and management.

4. Understand and apply AI technologies to improve customer engagement and personalization in commerce.

5. Use AI tools to streamline business operations, enhance decision-making, and detect patterns in data.

Unit 1

Infrastructure and Platforms for Building Applications using AI

Hardware used in building AI applications: Processors - CPU, GPU, TPU, NPU, Memory -RAM, VRAM, Storage - HDD, SSD

Platforms for building applications using AI: Online platforms (Example - Google AutoML, H2O.ai, Teachable Machine or similar platforms - for practice only); Desktop (No-code/Low-code)platforms (Orange Data Mining, KNIME, Weka, Rapid Miner or similar tools –for practice only).

Edge AI: Concept; Applications in daily life in devices like Refrigerators, Led Bulbs, Surveillance Cameras, Micro Ovens, Smart Cars/Scooters; Edge AI in smart Appliances

Unit 2

Foundations of Data - Types, Ethics and Utility in Building Applications using AI Importance of data in building AI applications: Data as the fuel for AI, Role of big data in training AI models.

Conceptual Foundations of Data: Data vs. Information vs.Knowledge.

Structure of Data: Structured, Semi-Structured, and Unstructured Data.

Modalities of Data: Text, Image, Audio, Video, Tabular, Time-Series, and Spatial Data.

Formats of Data: Text Formats (CSV,JSON,XML), Image Formats (JPEG,GIF,PNG), Audio/Video (MP3, WAV, MP4, AVI).

Data Repositories: Definition of public Datasets; Definition of private Data sets; Importance of Public Data sets, Popular Public Dataset Repositories (Example-Kaggle,HuggingFaceDatasets, UCI Machine Learning Repository, Google Dataset Search or similar ones - for demonstration only), Dataset licensing and usage rights.

Ethics, Privacy in Data Usage: Privacy concerns related to data usage; Regulations governing data usage - GDPR, HIPAA (Overview), Ethical use of data, Responsible AI data practices.

Unit- 3

The AI Data Pipeline: From Collection to Model Readiness

The AI Data Pipeline: Stages and Components: Key Stages (Data Collection, Annotation, Preprocessing, Splitting, Feeding into AI Models

Core Components: Ingestion, Storage, Processing, Validation, Delivery

Data Collection Methods for AI: Manual Input(Surveys, forms, human-curated entries),Sensors & IoT Devices (Real-time data from physical environments), System Logs & Transactions, Web Scraping (Automated extraction from websites), APIs (Structured data access from external platforms)

Data Annotation and Labelling: Definition & Importance; Annotation Methods: Manual Annotation, Automated Annotation; Types of Annotation: Classification, Bounding Boxes, Segmentation, Transcription, Named Entity Recognition (NER)

Data Cleaning and Preprocessing: Importance of data cleaning; Understanding "Dirty" Data: Missing Values, Duplicates, Incorrect Formats, Outliers, Noise; Steps in Data Cleaning: Identify Issues, Handle Errors (Imputation, Removal), Validate Cleaned Data

Data Splitting: Splitting data into training set and test set.

Data Transformation Techniques: Normalization, Transformation, Feature Engineering (Conceptual)

Unit4

AI in Commerce – Transforming the Consumer Experience

Introduction to AI in Commerce, Recommendation Engines (Collaborative & Content-Based), Chatbots and Virtual Assistants, Sentiment Analysis and Review Mining, Inventory Optimization and Demand Forecasting, Ethical Issues related to use of AI in Commerce and Business: Bias, Privacy, and Transparency

Unit-5

AI in Business Operations – Driving Efficiency and Insight

AI in Business Intelligence and Predictive Analytics, Financial Applications: Fraud Detection, Risk Modelling, HR Applications: Resume Screening, Employee Analytics, Supply Chain Automation and Optimization, AI in Marketing: Customer Segmentation, Lead Scoring, Strategic Adoption of AI in Enterprises, Explainable AI in E-Commerce.

	Pithapur Rajah's Government College(A) Kakinada **Department of Computer Applications**	**B.Com / BBA** **Semester: II**
LSC-2	**APPLICATIONS OFARTIFICIAL INTELLIGENCE**	
	Hours Allocated: 3hrs/week	Credits: 3

Suggested Lab Practical's (No Coding)

Lab1-Exploring Public Data sets (Orange Data Mining)

- Visit a public repository (Kaggle,UCI,data.gov.in)
- Download a dataset(e.g.,rain fall data, literacy rates, or traffic accident statistics)
- **Procedure:**
    1. Open Orange→ Add *File* widget →Load a CSV (e.g.,Titanic dataset).
    2. Connect to *Data Table*→View rows/columns.
    3. Connect to *Data Info* →Check attributes, data types.
    4. View in *Data Table* and *Distributions* widget.
- **Observation**: Note numeric, categorical, missing values.
- **Outcome:** Students understand structured data format in CSV.

Lab 2 - Understanding Dataset Metadata and Formats

- Take two datasets in different formats (CSV, JSON)
- View metadata (description, features, size, license)
- Compare domain-specific datasets (e.g., medical vs. finance)

Lab 3 - Data Annotation Exercise

- Use **MakeSense.ai** or **VGG Image Annotator (VIA)**
- Annotate 10 sample images (traffic signs, fruits, or medical scans)
- Export annotations in XML or YOLO format
- Discuss annotation errors and challenges

Lab 4 - Data Cleaning and Visualization (Orange Data Mining)

- Aim: To clean dirty data and visualize categorical and numeric attributes.
- Procedure:

1. Load dataset.

2. Connect *File → Edit Domain* (to change types) and *Impute* (to fill missing values).

3. Compare cleaned vs. original in *Data Table*.

4. *Distributions* widget.

5. Check various features distribution.

(Optional: Create simple bar charts/line charts to visualize trends using Google Looker Studio)
● **Observation**: Missing values filled with mean/median., Graphical representation of data.

● **Outcome:** Learn importance of data cleaning., Students learn importance of visualization in preprocessing.

Lab 5: Train/Test Split in Orange

● Aim: To split dataset for AI training/testing.

● Procedure:
1. Load Titanic dataset.

2. Connect *File → Data Sampler* (70% train, 30% test).

3. Connect outputs to *Data Table* widgets to view.
● **Observation**: Students see two different subsets.

● **Outcome:** Concept of model validation using split data.

Lab 6: Introduction to AI in Commerce – Use Case Exploration

Prerequisite: Discuss conceptually about Clustering
Objective: Understand how AI is applied in commerce through data visualization and clustering.
Orange Workflow: Use Orange Data Mining Tool
Widgets Used: File → Data Table → Scatter Plot → Hierarchical Clustering
Dataset: Retail customer data (e.g., purchase frequency, amount spent)
Dataset Link: Retail Sales Data

Activities:

· Load customer data and visualize spending patterns.
· Apply clustering to identify customer segments.
· Discuss how businesses can tailor services to each segment.
Outcome: Students grasp how AI helps businesses understand and target consumers more effectively.

Lab 7: Recommendation Engine Simulation

Prerequisite: Discuss conceptually about Clustering
Objective: Simulate collaborative filtering using similarity-based clustering.
Orange Workflow:
Widgets Used: File → Distance → Hierarchical Clustering → Data Table
Dataset: User-product ratings matrix
Dataset Link: Amazon Product Recommendation System
Activities:
● Calculate similarity between users.

● Group similar users and recommend products based on cluster behavior.

● Discuss differences between collaborative and content-based filtering.

Outcome: Students understand the logic behind recommendation systems and how they personalize user experience.

Lab 8: Chatbot Intent Classification

Prerequisite: Discuss conceptually about Linear Regression & Logistic Regression
Objective: Train a model to classify customer queries into intents.
Orange Workflow:
Widgets Used: File → Preprocess Text → Bag of Words → Logistic Regression → Test & Score
Dataset: Sample customer queries labeled with intents (e.g., "track order", "return item")
Dataset Link: Customer Intent Classification
Activities:
● Preprocess and vectorize text data.

● Train a classifier to predict query intent.
● Evaluate accuracy and discuss chatbot training.
Outcome: Students learn how AI understands and responds to customer queries.

Lab 9: Sentiment Analysis of Reviews

Prerequisite: Discuss conceptually about Naive Bayes
Objective: Classify customer reviews as positive or negative.
Orange Workflow:
Widgets Used: File → Preprocess Text → Bag of Words → Naive Bayes → Test & Score
Dataset: Product reviews with sentiment labels
Dataset Link: Amazon Product Reviews – Sentiment Analysis
Activities:
● Clean and tokenize review text.

● Train a sentiment classifier.

● Visualize word clouds for positive vs. negative reviews.

Outcome: Students analyze customer feedback and extract actionable insights.

Lab 10: Demand Forecasting with Regression

Prerequisite: Discuss conceptually about Linear Regression & Logistic Regression
Objective: Predict future sales using regression models.
Orange Workflow:
Widgets Used: File → Linear Regression → Scatter Plot → Test & Score
Dataset: Historical sales data (e.g., monthly sales, promotions)
Dataset Link: Comprehensive Retail Sales Data
Activities:
● Train a regression model to forecast sales.

● Visualize predictions vs. actuals.

● Discuss implications for inventory planning.

Outcome: Students understand how AI supports demand forecasting and inventory control.

Lab 11: Bias Detection in AI Models

Prerequisite: Discuss conceptually about Linear Regression, Logistic Regression & Confusion Matrix
Objective: Explore bias in predictive models and its impact.
Orange Workflow:
Widgets Used: File → Logistic Regression → Confusion Matrix → Distributions
Dataset: HR hiring data with gender or age attributes
Dataset Link: HR Data Analytics

Activities:

● Train a model to predict hiring decisions.

● Analyze performance across demographic groups.

● Discuss fairness, transparency, and ethical implications.

Outcome: Students critically assess bias and propose ethical safeguards.

Lab 12: Predictive Analytics for Business Intelligence

Prerequisite: Discuss conceptually about Random Forest
Objective: Use classification to predict customer churn.
Orange Workflow:
Widgets Used: File → Random Forest → Test & Score → ROC Analysis
Dataset: Telecom or subscription data with churn labels
Dataset Link: Telco Customer Churn – IBM Dataset
Activities:

● Train and evaluate a churn prediction model.

● Interpret ROC curves and accuracy.

● Discuss how businesses can act on predictions.

Outcome: Students apply predictive analytics to improve customer retention.

Lab 13: AI in HR and Marketing – Resume Screening & Segmentation

Prerequisite: Discuss conceptually about Clustering
Objective: Classify resumes and segment customers using clustering.
Orange Workflow:

HR Task: File → Preprocess Text → Bag of Words → Logistic Regression
Marketing Task: File → k-Means Clustering → Scatter Plot
Resume Screening Dataset: Employee Hiring Data
Customer Segmentation Dataset: Customer Segmentation Dataset
Activities:

● Screen resumes based on job fit.

● Segment customers by behavior or demographics.

● Discuss automation benefits and risks.

Outcome: Students explore how AI enhances HR and marketing efficiency.

Note: The Tools suggested above are tentative. Teacher/Student is free to choose any other similar tool to execute the said lab experiments.

Books/References

1. **Data Science for Beginners**, Andrew Park

(Introductory concepts of data types, collection, cleaning, and visualization without coding)

2. **AI Basics for Non-Programmers**, Tom Taulli

(Clear explanations of AI data lifecycle and real-world use cases)

3. **Data Preparation for Machine Learning**, Jason Brownlee

(Conceptual understanding of dataset quality, preprocessing, and pipelines)

4. **Hands-On Data Science for Non-Programmers**, David Meerman Scott *(Spreadsheet-based data exploration and visualization)*

5. You Look Like a Thing and I Love You – Janelle Shane

	Pithapur Rajah's Government College(A) Kakinada **Department of Computer Applications**	**B.Com / BBA** **Semester: II**
LSC-2	**APPLICATIONS OFARTIFICIAL INTELLIGENCE**	
	Hours Allocated: 3hrs/week	Credits: 3

MODEL BLUEPRINT

EXAM STRUCTURE:

Section	QuestionsGiven	ToAnswer	MarksEach	Total
Section-I (Part-Aand Part-B EssayQuestions)	6	3	10	30
Section-II(Section-II ShortQuestions)	7	4	5	20

UNIT-WISEDISTRIBUTION:

UNIT	EssayQs(10m)	ShortQs(5m)	TotalMarks
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III	1	2	20
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V	1	1	15

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Total Marks before Choice: 95

FinalExamMarks:50

ChoicePercentage:47.36%[(95-50)/95×100]

	Pithapur Rajah's Government College(A) Kakinada **Department of Computer Applications**	**Program:** I B.Com/BBA **Semester:** II
LSC2	**APPLICATIONS OFARTIFICIAL INTELLIGENCE**	
	MODEL QUESTION PAPER	
Time: 2Hrs		Max. Marks: 50M

SECTION-1

Answer any three of the following questions. Must attempt at least one question from each part. Each question carries 10 Marks. 3X10=30M

PART-A

1. Explain the different types of processors (CPU, GPU, TPU, NPU) used in AI applications and discuss how each contributes to AI performance.
2. What is Edge AI? Describe its architecture and explain how it enables real-time intelligence in smart devices.
3. Explain the importance of data as the "fuel for AI." How does big data contribute to the effectiveness of AI systems?

PART-B

4. Explain the key stages and components of an AI Data Pipeline.
5. Explain the concept of Inventory Optimization and Demand Forecasting?
6. Explain AI in E-Commerce.

SECTION-II

Answer any four of the following questions. Each question carries 5 marks. 4 X 5 = 20M

7. Define NPU and state its importance in AI hardware acceleration.
8. Differentiate between Data, Information, and Knowledge
9. List various modalities of data used in AI applications.
10. Explain the key stages and components of an AI Data Pipeline.
11. Define "Data Ingestion" and its role in the data pipeline.
12. Explain AI in Business Intelligence and Predictive Analytics?
13. Write the Supply Chain Automation and Optimization.

	Pithapur Rajah's Government College(A) Kakinada **Department of Computer Applications**	**B.A(All Streams)** **Semester:** II
LSC2	**APPLICATIONS OFARTIFICIAL INTELLIGENCE**	
	Hours Allocated: 3hrs/week	Credits: 3

Course Objectives:

1. Provide a foundation in the AI ecosystem, including hardware, cloud, and edge platforms, in a non-technical way for Arts and Social Sciences students.

2. Familiarize students with data types, sources, and public repositories that fuel AI applications in society and humanities.

3. Explain the process of preparing and managing AI data pipelines through collection, annotation, and cleaning.

4. Explore real-world applications of AI in arts, culture, literature, linguistics, and languages.

5. Introduce applications of AI in social sciences such as economics, political science, psychology, history, and sociology, with an emphasis on ethics and responsible adoption.

Course Outcomes:

On successful completion of this course, students will be able to:

1. Explain the AI ecosystem (hardware, cloud, edge devices) and its societal relevance.

2. Differentiate data types and identify public datasets relevant to social sciences, arts, and humanities.

3. Describe the steps of an AI data pipeline (collection, annotation, cleaning, preparation) in simple terms.

4. Illustrate the role of AI in arts, languages, and cultural heritage with practical, real-world examples.

5. Analyze applications of AI in social sciences (economics, politics, psychology, history, and society) and evaluate ethical concerns.

Unit 1

Infrastructure and Platforms for Building Applications using AI

Hardware used in building AI applications: Processors - CPU, GPU, TPU, NPU, Memory -RAM, VRAM, Storage - HDD, SSD

Platforms for building applications using AI: Online platforms (Example - Google AutoML, H2O.ai, Teachable Machine or similar platforms - for practice only); Desktop (No-code/Low-code)platforms (Orange Data Mining, KNIME, Weka, Rapid Miner or similar tools –for practice only).

Edge AI: Concept; Applications in daily life in devices like Refrigerators, Led Bulbs, Surveillance Cameras, Micro Ovens, Smart Cars/Scooters; Edge AI in smart Appliances

Unit 2

Foundations of Data - Types, Ethics and Utility in Building Applications using AI Importance of data in building AI applications: Data as the fuel for AI, Role of big data in training AI models.

Conceptual Foundations of Data: Data vs. Information vs.Knowledge.

Structure of Data: Structured, Semi-Structured, and Unstructured Data.

Modalities of Data: Text, Image, Audio, Video, Tabular, Time-Series, and Spatial Data.

Formats of Data: Text Formats (CSV,JSON,XML), Image Formats (JPEG,GIF,PNG), Audio/Video (MP3, WAV, MP4, AVI).

Data Repositories: Definition of public Datasets; Definition of private Data sets; Importance of Public Data sets, Popular Public Dataset Repositories (Example-Kaggle,HuggingFaceDatasets, UCI Machine Learning Repository, Google Dataset Search or similar ones - for demonstration only), Dataset licensing and usage rights.

Ethics, Privacy in Data Usage: Privacy concerns related to data usage; Regulations governing data usage - GDPR, HIPAA (Overview), Ethical use of data, Responsible AI data practices.

Unit- 3

The AI Data Pipeline: From Collection to Model Readiness

The AI Data Pipeline: Stages and Components: Key Stages (Data Collection, Annotation, Preprocessing, Splitting, Feeding into AI Models

Core Components: Ingestion, Storage, Processing, Validation, Delivery

Data Collection Methods for AI: Manual Input(Surveys, forms, human-curated entries),Sensors & IoT Devices (Real-time data from physical environments), System Logs & Transactions, Web Scraping (Automated extraction from websites), APIs (Structured data access from external platforms)

Data Annotation and Labelling: Definition & Importance; Annotation Methods: Manual Annotation, Automated Annotation; Types of Annotation: Classification, Bounding Boxes, Segmentation, Transcription, Named Entity Recognition (NER)

Data Cleaning and Preprocessing: Importance of data cleaning; Understanding "Dirty" Data: Missing Values, Duplicates, Incorrect Formats, Outliers, Noise; Steps in Data Cleaning: Identify Issues, Handle Errors (Imputation, Removal), Validate Cleaned Data

Data Splitting: Splitting data into training set and test set.

Data Transformation Techniques: Normalization, Transformation, Feature Engineering (Conceptual)

Unit4

AI in Social Sciences and Society:

AI in Economics: Predicting market trends, consumer behavior, and economic forecasting.

AI in Political Science & Public Policy: Social media analysis for political campaigns, Opinion mining & election trend prediction.

AI in Psychology & Sociology: Emotion recognition from facial expressions and text, AI chatbots in mental health counseling (conceptual).

AI in History & Society: Digital archives and historical document analysis, AI for preserving ancient languages and scripts, Social impact of AI on jobs, privacy, and democracy

Unit-5

AI in Arts, Languages, and Cultural Studies

AI in Literature & Languages: Machine translation (Google Translate, DeepL), Sentiment analysis in literature and media reviews, AI-assisted creative writing (chatbots, story generators, poetry) **AI in Arts & Culture:** AI in music composition & art generation (painting, film scripts), Digitization and preservation of cultural heritage using AI, Identifying fake art and forgeries

	Pithapur Rajah's Government College(A) Kakinada **Department of Computer Applications**	**B.A(All Streams)** **Semester:** II
LSC2	**APPLICATIONS OFARTIFICIAL INTELLIGENCE**	
	Hours Allocated: 3hrs/week	Credits: 3

Suggested Lab Practical's (No Coding)

Lab 1: Explore Open Data (Economics / Sociology)

- **Tool**: Our World in Data or World Bank Data Explorer (https://data360.worldbank.org/en/search)
- **Task**: Choose indicators (e.g., Literacy, GDP per capita, Poverty, Unemployment).
- Procedure:

1. Open World Bank / Our World in Data.
2. Select one country or compare multiple countries.
3. Use the interactive charts to see historical trends.

- **Observation**: How does education level impact income or health?
- **Outcome:** Understand correlations between **socio-economic indicators**.

Lab 2: Data Annotation (NER & Classification)

- **Tool**: Prodigy Demo (https://demo.prodi.gy/) -free online demo, no install
- Activity:

1. Try Named Entity Recognition (NER) demo.
2. Highlight organizations, people, and places in sample text.
3. Compare manual vs. automated annotation.

- **Outcome**: Students understand **manual vs. automated annotation** and why labeling is crucial.

Lab 3: Automatic Text Classification for Sociology

- **Tool:** Text2Data Sentiment Analysis Demo (https://text2data.com/Demo) -*free online demo*
- **Task:** Copy-paste 5 messages related to climate change, caste or gender.
- **Observation:** Tool classifies them as Positive, Neutral, or Negative.
- **Outcome:** Understand "annotation" and "classification labels."

Lab 4: Word Clouds for Political Speeches (Languages / Political Science)

- **Tool:** WordArt Cloud Generator (https://wordart.com/create) - Free Online
- **Procedure:**

1. Copy a Prime Minister's speech or Economic Budget highlights.
2. Paste into WordArt.
3. Generate a word cloud → biggest words = most repeated.

● **Observation:** Main themes in political communication.

● **Outcome:** Learn how text visualization shows political/economic priorities.

Lab 5: Bias in Job Advertisements (Sociology / Gender Studies)

● **Tool:** Gender Decoder for Job Ads (https://gender-decoder.katmatfield.com/) -Free Online or Any other related tool

● Procedure:

1. Copy text from 5 job advertisements.

2. Paste into the gender bias detector.

3. Note masculine vs feminine coded words.

● **Observation:** How language influences gendered hiring.

● **Outcome:** Awareness of AI in analyzing workplace bias.

Lab 6: Language Detection & Translation (Languages / Linguistics)

● **Tool**: Google Translate (https://translate.google.co.in/)

● **Task**: Enter text in regional/foreign languages.

● Procedure:

1. Paste short paragraph in Telugu, Hindi, French, etc.

2. Translate into English.

3. Reverse-translate to see changes.

● **Observation**: Which meanings are lost in translation?

● **Outcome**: Students understand **AI's strengths/limits in translation**

Lab 7: Text Summarization of Articles (Languages / Literature)

● **Tool**: SMMRY (https://smmry.com/) or

Scholarcy Free Summarizer (https://www.scholarcy.com/article-summarizer)

● **Task**: Take a long article or essay.

● Procedure:

1. Paste article into tool.

2. Generate summary.

3. Compare AI summary vs. student's manual summary.

● **Observation**: AI captures main ideas but may miss nuances.

● **Outcome**: Learn how **AI helps in academic reading & summarization**

Lab 8: Talk to a Free Chatbot

● Tool: ChatGPT Free or Poe or any other related tool

● **Activity:** Students ask questions like:

○ "Tell me a Telugu proverb and its meaning."

○ "Explain World War II in 5 simple lines."

● **Outcome: Data delivery/output** stage - AI as a dialogue system.

Lab 9: Story Generator (Creative Writing / Literature)

● **Tool:** AI Dungeon (https://play.aidungeon.com/) -free play or DeepAI Text Generator (https://deepai.org/chat/text-generator)

- **Activity:** Give a starting line (e.g., "Once upon a time in Amaravati…") → AI continues story
- **Outcome:** How **training data influences creativity** in AI.

Lab 10: AI Art Generator (Culture & Arts)

- **Tool:** DeepAI Text-to-Image *(free) (https://deepai.org/machine-learning-model/text2img) or any other related tool*
- **Activity:** Ask students to generate:
  - "A painting of Bharat Mata in Picasso style."
  - "Hyderabad Charminar in futuristic design."
- **Outcome:** Data pipeline applied to **images**.

Lab 11: AI Music Generation with Soundraw (Free Trial)

Tool: Soundraw.io

Steps:

Open the website → Click **Create Music**.
Select **Mood** (happy, sad, chill, dramatic).
Select **Genre** (pop, jazz, cinematic, lo-fi, etc.).
The AI will generate a full instrumental track.
You can adjust instruments, tempo, and structure.

Outcome: Students understand how AI composes music automatically based on mood/genre → linking to **psychology, culture, and media studies**.

Lab 12: Chatbot Roleplay (History / Social Science)

- **Tool:** Character.AI *(free, no coding)- https://character.ai/*
- **Activity:** Talk to AI characters like "Einstein" or "Shakespeare" and ask them questions. You can try with other AI characters and experiment.
- **Learning:** How AI **mimics personalities** using training data.

Note: The Tools suggested above are tentative. Teacher/Student is free to choose any other similar tool to execute the said lab experiments.

Books/References

1. **Data Science for Beginners**, Andrew Park

(Introductory concepts of data types, collection, cleaning, and visualization without coding)
2. **AI Basics for Non-Programmers**, Tom Taulli

(Clear explanations of AI data lifecycle and real-world use cases)
3. **Data Preparation for Machine Learning**, Jason Brownlee

(Conceptual understanding of dataset quality, preprocessing, and pipelines)
4. **Hands-On Data Science for Non-Programmers**, David Meerman Scott *(Spreadsheet-based data exploration and visualization)*

5. You Look Like a Thing and I Love You – Janelle Shane

	Pithapur Rajah's Government College(A) Kakinada **Department of Computer Applications**	**B.A(All Streams)** **Semester:** II
LSC2	**APPLICATIONS OFARTIFICIAL INTELLIGENCE**	
	Hours Allocated: 3hrs/week	Credits: 3

MODEL BLUEPRIN

EXAMSTRUCTURE:

Section	QuestionsGiven	ToAnswer	MarksEach	Total
Section-I (Part-Aand Part-B EssayQuestions)	6	3	10	30
Section-II(Section-II ShortQuestions)	7	4	5	20

UNIT-WISEDISTRIBUTION:

UNIT	EssayQs(10m)	ShortQs(5m)	TotalMarks
I	2	1	25
II	1	2	20
III	1	2	20
IV	1	1	15
V	1	1	15

Total Questions: 6 (Essay) + 7 (Short) = 13 QuestionstoAnswer:3(Essay)+4(Short)=7

Total Marks before Choice: 95

FinalExamMarks:50

ChoicePercentage:47.36%[(95-50)/95×100]

	Pithapur Rajah's Government College(A) Kakinada **Department of Computer Applications**	**B.A(All Streams)** **Semester:** II
	APPLICATIONS OFARTIFICIAL INTELLIGENCE	

LSC2	Hours Allocated: 3hrs/week	Credits: 3

SECTION-1

Answer any three of the following questions. Must attempt at least one question from each part. Each question carries 10 Marks. 3X10=30M

PART-A

14. Explain the different types of processors (CPU, GPU, TPU, NPU) used in AI applications and discuss how each contributes to AI performance.
15. What is Edge AI? Describe its architecture and explain how it enables real-time intelligence in smart devices.
16. Explain the importance of data as the "fuel for AI." How does big data contribute to the effectiveness of AI systems?

PART-B

17. Explain the key stages and components of an AI Data Pipeline.
18. Explain Social Media Analysis for Political campaigns?
19. Explain Sentiment analysis in literature and media reviews.

SECTION-II

Answer any four of the following questions. Each question carries 5 marks. 4 X 5 = 20M

20. Define NPU and state its importance in AI hardware acceleration.
21. Differentiate between Data, Information, and Knowledge
22. List various modalities of data used in AI applications.
23. Explain the key stages and components of an AI Data Pipeline.
24. Define "Data Ingestion" and its role in the data pipeline.
25. Explain Historical document Analysis?
26. Write about AI in music composition and art generation.

MAJOR

SEMESTER-I

P.R.GOVERNMENT COLLEGE(AUTONOMOUS), KAKINADA					
Course Code :	**FUNDAMENTALS OF INFORMATION TECHNOLOGY & OFFICE AUTOMATION**	**I BCOM (CA) SEM-I Major 2 2025-26**			
Hours	90 (60+ 30)	L	T	P	C
Pre requisites		3	-	1	4

Course Objectives	
CO1	1. Understand foundational computing concepts including number systems, evolution of computers, and architectural components.
CO2	2. Explore basic computer organization and network fundamentals, recognizing device functions, system types, and internet components.
CO3	3. Demonstrate proficiency in word processing and presentation tools, applying formatting techniques and design elements for professional outputs.
CO4	4. Develop competency in spreadsheet operations, employing formulas, charts, and data-handling techniques.
CO5	5. Apply advanced data modeling and productivity features to analyze and visualize data efficiently using modern tools.

Course Outcomes

On completion of the course, the students will be able to		
Outcome	**Description**	**Cognitive Level**
CO1	Convert between binary, decimal, octal, and hexadecimal systems	Knowledge
CO2	Learners will demonstrate basic blocks of a computer and fundamental networking knowledge.	Knowledge
CO3	Create professional-level documents and design visually appealing presentations	Analysis and Evaluation
CO4	Manipulate data within spreadsheets, apply formulas	Application
CO5	Apply data modeling techniques to analyze, organize, and represent	Creativity

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

DEPARTMENTOFCOMPUTER APPLICATIONS

I B.COM (CA) Semester–I (W.E.F.2025-26) COURSE: 2

Fundamentals of Information Technology & Office Automation

Unit-I : Number Systems, Evolution , Block Diagram and Generations

Number Systems: Binary, Decimal, Octal, Hexadecimal; conversions between number systems. **Evolution of Computers:** History from early mechanical devices to modern-day systems. Block **Diagram of a Computer:** Input Unit, Central Processing Unit, Memory Unit, Output Unit. **Generations of Computers:** First to Fifth Generation – Technologies, Characteristics, Examples.

Unit-II : Basic Organization and Network Fundamentals Computer Organization:

Functional components: Input/Output devices, Storage types, Memory Hierarchy. **Types of Computers:** Micro, Mini, Mainframe, and Supercomputers. **Networking Fundamentals:** Definition, Need for Networks, Key Components: Nodes, Links, Protocols, Networking Devices. **Types of Computer Networks :** LAN, WAN, MAN. **Network Topologies:** Bus. Ring, Star, Mesh.

Internet Basics: History, IP Address, URL, WWW, Web browsers, Search engines, E-mail, Internet Security.

Unit-III : Word Processing and Presentations

Word Processing Basics: Definition, Using Microsoft Word / Google Docs. Templates for resumes, letters, reports. **Basic text editing and formatting** - Typing and editing text, Font styles, sizes, colors, and effects, Paragraph alignment, indentation, and spacing, Bullets, numbering, and text highlighting, Templates for resumes, letters and reports. **Working with Tables and Graphics** - Inserting and formatting tables, Adding images, shapes, icons, and SmartArt, Text wrapping and positioning graphics.

Document Layout and Design - Page setup, Headers, footers, and page numbering, Section breaks and columns, Applying themes and styles. **Advanced Features** - Spell check and grammar tools, Thesaurus, and Mail merge. **References and Citations** Footnotes, endnotes, and captions, Bibliography and citation tools, Table of contents and index creation.

Presentation Tools: Using PowerPoint/Google Slides – Creating, Saving and Opening presentations, Adding, deleting, and rearranging slides, Slide layouts and design themes, Using templates and master slides, Slide sorter and outline view, Applying transitions and Animations, Design and Layout.

Applications: Creating resumes, Reports, Brochures, and Presentations.

Unit-IV : Spread sheet Basics

Spreadsheet Concepts: Understanding rows, columns, cells in tools like MS Excel/Google Sheets, Workbook, Worksheet, **Cell referencing**- Relative, Absolute, Mixed. **Functions and Formulae:** Mathematical, Statistical, Logical, Text, Date and Time, Financial. **Lookup and Reference :** VLOOKUP, HLOOKUP, XLOOKUP, INDEX, MATCH. **Visual representations:** Creating a chart, common chart types, Column Chart, Bar Chart, Line Chart, Pie Chart, Scatter Chart, Histogram. **Data Handling:** Sorting data, Filtering data, Grouping Data, **Conditional formatting:** Data Bars, Color Scales, Icon Sets, Custom Formulas.

Unit-V: Data Modelling

Data Analysis Tools: Pivot Tables and Pivot Charts, Data Validation (Drop-downs, Input Messages, Error Alerts), **What-If Analysis:** Goal Seek, Scenario Manager, Data Tables. **Charts and Dashboards:** Creating Interactive Dashboards, Using slicers with Pivot Tables ,Combo Charts and Sparklines.

Productivity Tips: Using Named Ranges, Freeze Panes, Split View.

Text Books:

1. Thareja, R. (Second Edition). Fundamentals of Computers. Oxford University Press.
2. Rajaraman, V. (n.d.). Fundamentals of Computers. PHI Learning.
3. Norton, P. (2017). Introduction to Computers (7th ed.). McGraw Hill Education.
4. Nordell, R., Stewart, K., Easton, A., Graves, P. R., & Triad Interactive, Inc. (2022). Microsoft Office 365: In Practice (1st ed.). New York: McGraw Hill Education.

References Books:

1. Alexander, M., & Kusleika, R. (2022). Microsoft Excel 365 Bible (2nd ed.). Wiley.
2. Lowe, D. (2021). Networking All-in-One For Dummies (8th ed.). Wiley.
3. Microsoft Official Docs and Training: https://learn.microsoft.com
4. Google Workspace Learning Center: https://support.google.com/a/users/

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 form individual and collaborative work

COURSE 2: Fundamentals of Information Technology & Office Automation

Practical **Credits: 1** **2 hrs/week**

List of Experiments:

1. Demonstration of Assembling and Dessembling of Computer Systems.

2. Identify and prepare notes on the type of Network topology of your institution.

3. Prepare your resume in Word by using the Resume template.

4. Using Word, write a letter to your higher official seeking 10-days leave.

5. Create a multi-page academic report and format it using headers and footers. The header will include the document title and author name, while the footer will contain page numbers and the date.

6. Prepare a formal invitation letter and use Mail Merge to personalize it for a list of recipients.

7. Prepare a report that includes: A table summarizing sales data, A graphic (image or chart) illustrating product performance with the proper formatting and alignment of both elements

8. Prepare a document and add Citations, Footnotes, and Bibliography in Word.

9. Create a PowerPoint Presentation on the Role of AI in Business Decision-Making.

10. Using a spreadsheet, prepare your class Time Table.

11. Using a Spreadsheet, calculate the Gross and Net salary of employees(Min 5) considering all the allowances.

12. Generate the class-wise and subject-wise results for a class of 20 students. Also generate the highest and lowest marks in each subject.

13. Using IF, AND, OR, and IFERROR to Automate Grade Evaluation. a. Create a table of student scores in different subjects. b. Use IF to assign grades (A/B/C/Fail). c. Use IFERROR to handle missing scores or invalid data.

14. Consider the problem of preparing a stationary order for the month of March. The item description, quantity and cost per item are available. The total cost per item is to be calculated and the final cost per item involves a sales tax of 2% over the total cost. The gross total and the net total are to be displayed.

Sl. No.	Description	Quantity	Cost Per Item
1	Notepad	202	2.85

2	Writing Pad	86	3.95
3	Ball point pen (Blue)	520	2.50
4	Cello-tape	75	2.95
5	A4Refillpad	90	5.95
6	Pencils	603	0.50
7	Crayons	80	3.85
8	Stapler	30	9.95
9	Hole punch	25	14.95
10	Ring Binder	45	10.95

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

DEPARTMENTOFCOMPUTER APPLICATIONS

I B.COM (CA) Semester–I (W.E.F.2025-26)

Fundamentals of Information Technology & Office Automation

COURSE: 2

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-I Essay Questions	6	10	60	3	10	30
2	Section-II Short Questions	7	5	35	4	5	20
TOTAL		13		95	TOTALMARKS		50

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	1	2	20
UNIT-II	1	2	20
UNIT-III	2	1	25
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

DEPARTMENTOFCOMPUTER APPLICATIONS

I B.COM (CA) Semester–I (W.E.F.2025-26)

Fundamentals of Information Technology & Office Automation

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

SECTION –I

Answer any three of the following questions. Must attempt at l east one question from each part.

Each question carries 10 Marks. **3 X 10 = 30M**

Part-A

1. Explain the generations of Computers and their technology.
2. What are the different types of computers? Explain each type.
3. What is MS-Word? Explain features of MS –Word?.

Part-B

4. How to create presentation in MS-Power point?
5. What are the different types of charts that are available in MS-Excel? Explain.
6. Describe the purpose of data analysis tools.

SECTION - II

Answer any four of the following questions. Each question carries 5 marks. 4 X 5 = 20M

7. How to convert decimal number to binary number ? explain with example
8. Explain about Memory in Computer?
9. Explain about network Topologies?
10. Describe working of E-mail.
11. How to insert table in Microsoft word?
12. What are the types of Cell Referencing? Explain
13. Write about Pivot tables.

Mapping of Cos with POs/PSOs

CO /PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1															
CO 2															
CO 3															
CO 4															
CO 5															

SEMESTER-II

P R GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
Course Code	**E- Commerce and Web Application Development**	**I BCOM CA SEM – II Major 4 2025-26**			
Hours	90 (60 Theory + 30 Practical)	L	T	P	C
Pre requisites	Basic knowledge of Computers	3	-	1	4

Course Objective
1. Understand the evolution, types, and models of e-commerce, including technical, legal, and ethical frameworks. Explore web design technologies and content management systems relevant to e-commerce platforms 2. Apply online marketing principles, SEO techniques, and e-payment systems with attention to logistics and risk management. 3. Design interactive and responsive websites using HTML5, CSS3, and client-side scripting with JavaScript 4. Develop and customize CMS-based interfaces using the Bootstrap framework and responsive design principles.

Course Outcomes	
On Completion of the course, the students will be able to –	
CO1	Describe e-commerce models, revenue strategies, and legal considerations including cyber laws and data privacy.
CO2	Implement basic web structures using HTML5 and apply web design principles suitable for digital commerce.
CO3	Create and style dynamic websites using CSS for layout, animation, and visual enhancements.
CO4	Write client-side scripts using JavaScript to enable interactivity, form validation, and event handling.
CO5	Build responsive e-commerce front-ends using the Bootstrap framework, incorporating reusable UI components and custom styling

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
I B.Com CA Semester- II (2025-26)
Major-4
E- Commerce & Web Application Development

SYLLABUS

Unit 1:
Introduction to E-Commerce: Definition, scope, and evolution, Benefits and limitations
Types of E-Commerce: B2B, B2C, C2C, C2B, G2C models
E-Commerce Business Models: Revenue models (advertising, subscription, etc.)
Infrastructure for E-Commerce : Internet, intranet, Extranet
Payment gateways and digital wallets Legal and Ethical Issues: Cyber laws and data privacy, Intellectual property, taxation, and security.
Case study : Study of successful e-businesses

Unit 2:
Technology in E-Commerce: Essentials of web design for business - Content management systems (WordPress, Shopify, BootStrap)
Online Marketing & SEO: Digital marketing channels, Search engine optimization basics.
Digital Payment Systems: Credit/Debit Cards, Net Banking, Mobile Wallets, UPI, Electronic Fund Transfer (EFT) , Payment Gateways – Block chain and Crypto currencies, Artificial Intelligence and E-Commerce, Future of E-Commerce.
Web Designing: Web designing Principles, Introduction to HTML5, HTML Document Structure, Formatting Elements (text and block formatting), Lists, Images, Links and Navigation (External and internal links), Tables, Inline frames, HTML Forms. Embedding multimedia objects.

Unit 3: Cascading Style Sheets
CSS Basics: CSS Rule, Applying CSS Rules (Selectors), Embedding CSS code in HTML page Inline, internal, external style sheets.
CSS Properties: Font, Color, Types of CSS Color values, Background, CSS Box Model, Display properties, Styling Pseudo Elements, Positioning properties, Layering, Styling Lists and tables.

Unit 4: Client Side Scripting using JAVA SCRIPT
Javascript Basics: Datatypes, Variables, Operators, Control Statements, Functions.
Builtin Objects: Arrays, String, Date, Window, Document, RegEx.
Document Object Modelling: Introduction to DOM, Form Validation using Java Script, **Event Handling:** Mouse events, form submission events, load and unload events, keyboard events – focus and blur events.

Unit 5: BOOTSTRAP FRAMEWORK for designing CMS
Responsive Web design: Grid System, Breakpoints, Containers, Utilities.
Introduction to BOOT STRAP FRAME WORK: Benefits, Setup Bootstrap Project.
Boot Strap Components: Navigation, Creating navigation bars (.navbar), Dropdowns, and Responsive togglers. Buttons-Styling buttons with various classes for size, color, and state. Forms-Styling form elements like inputs, labels, and client side validation. Carousels-Creating image sliders. Alerts: Displaying informative messages
Customization: Overriding Bootstrap's default styles using custom CSS

TEXT BOOKS & REFERENCE BOOKS

1. Whiteley, D., 2000. *E-commerce: Strategy, technologies and applications*. McGraw-Hill Education.

2. Turban, Efraim, David King, Jae Kyu Lee, Ting-Peng Liang, and Deborrah Turban. *Electronic Commerce: Concepts, Models, Strategies*. Pearson Education, 2002.

3. Robbins, Jennifer Niederst. *Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics*. 5th ed., O'Reilly Media, 2018.

4. Kogent Learning Solutions Inc. *Web Technologies Black Book*. Dreamtech Press, 2009.

5. Diwan, Amit. *Ultimate Bootstrap for Responsive Web Design*. Orange Education Pvt. Ltd., 2024. ISBN: 9789348107251.

6. Hussain, Frahaan, and Kameron Hussain. *Mastering Bootstrap 5: From Basics to Expert Projects*. Sonar Publishing, 2023. ISBN: B0CPW9PRVT.

E-Resources

1. NPTEL / SWAYAM Online Lectures ::Course: E-Business (NPTEL)
2. https://www.tutorialspoint.com/e_commerce/index.htm
3. https://www.w3schools.com/bootstrap5/
4. https://www.w3schools.com/ (HTML-CSS- JAVASCRIPT)
5. https://developer.mozilla.org/en-US/docs/Learn/CSS
6. https://www.freecodecamp.org/learn/2022/responsive-web-design/
7. https://developer.mozilla.org/en-US/docs/Learn/HTML
8. https://www.freecodecamp.org/learn/2022/responsive-web-design/

Practical Component:@ 2 hours/week/batch

LIST OF EXPERIMENTS

1. Write an HTML Program of 6 Headings by using heading tags.
2. Write a HTML program to display a text or message by using font, size, or color tags.
3. Write a HTML Program by Using Ordered and Unordered description list tags.
4. Write a HTML Program by using Table tag.
5. Write a HTML Program for forms by using text elements.
6. Write a HTML Program for forms by using Radio buttons elements.
7. Write a HTML Program for forms by using checkbox.
8. Write a HTML Program Using link tags Or hyperlinks.
9. Write a HTML Program by using frame tags.
10. Create a Web page to display a hyperlink Which When Clicked directs you to Amazon Website.
11. Create a Web Page to demonstrate your college name aligned with the logo of your college.
12. Create a Web Page to Demonstrate definition lists various applications of ecommerce.
13. Create a Web Page Which asks of mode of Payment which includes the options Credit Card /Debit Card/Online Transfer (use Radio Buttons)
14. Create a Web Page to insert an image Which when Clicked Redirects you to your college website.

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 form individual and collaborative work

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
I B.Com CA – Semester - II (2025-26)
E- Commerce and Web Application Development

MAJOR- IV **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

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

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	1	15
UNIT -III	1	1	15
UNIT -IV	1	2	20
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.Com CA Semester- II (2025-26)
MODEL PAPER
E- Commerce and Web Application Development

Time : 2 Hrs. **SEMESTER-II** **Max. Marks: 50**

SECTION-I

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

Part-A

1. Define E-Commerce. What are the advantages and disadvantages of E-Commerce
2. Explain about Types of E-Commerce Business Models in detail
3. Explain about models and methods of e–payments

Part-B

4. What are the advantages and disadvantages of Online Transactions
5. Explain about Lists and Their Types in HTML
6. Explain about E-Commerce Security in detail

SECTION-II

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

7.Discuss about Applications of E-Commerce.

8.What are the key elements of business model in e commerce?

9.Discuss briefly about Electronic Fund Transfer(EFT).

10.Explain about Online Portal and Online Learning.

11.Explain about text formatting tags in HTML.

12.Explain about hyperlinks in HTML.

13.Write about Encryption Techniques.

SEMESTER-III

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
Course Code	**E- Commerce and Web Designing**	**II BCOM CA SEM – III Major 7 2025-26**			
Hours	90 (60 Theory + 30 Practical)	L	T	P	C
Pre requisites	Basic knowledge of Computers	3	-	1	4

Course Objective
5. The course aims to help learners to acquire conceptual knowledge of fundamental concept of E-commerce & Web Designing. 6. Emphasize the importance of various E-commerce & Web Designing. Developing and implementing efficient algorithms

Course Outcomes	
On Completion of the course, the students will be able to –	
CO1	Analyze the impact of E-commerce on business models and strategy.
CO2	Describe the major types of E-commerce.
CO3	Identify the key security threats in the E-commerce environment.
CO4	Be able to use the HTML, XML languages
CO5	Runs the page he/she has designed using HTML, XML codes

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
II B.Com CA Semester- III (2025-26)
E- Commerce & Web Designing

SYLLABUS

Unit 1: Basics And Definitions: Definition, E-Commerce with 5-C Model, Additional Terms, Business Models Related To E-Commerce, Advantages And Disadvantages, Web 2.0, Technical And Economic Challenges

Frameworks and Architectures: Actors And Stakeholders, Fundamental Sales Process And His 7+1 Process Steps Work, Technological Elements, Typical Applications

Case Study: Identify different E-Commerce websites and write their functionality.

Unit 2: B2C Business: B2c Basics, B2c-Business AndCrm, B2c Software Systems, Customer Relationship Management (Crm)

B2B Business: B2b Basics, Differences Between B2b And B2c, B2b Software Systems, Supply Chain Management

Case Study: Identify B2B and B2C websites in Unit-I Case Study and differentiate their functionality

Unit 3: Security & Compliance Management: Foundations Of Risk Management, Compliance Management, Information Security Management (Ism), Technology

Electronic Payment: Business and Money, the Payment Challenge, Payment Procedures, Receivables Management, Cyber Money

Case Study: Identify different payment methods used in purchasing of goods in Amazon, Flipkart etc.. and write their Pros and Cons of each payment method

Unit 4: Introduction to Web Programming: Introduction, creating a website, HTML tags, HTML Elements, HTML attributes, CSS Preview, History of HTML, Differences between old HTML and HTML5, how to check your HTML code

Coding Standards, Block Elements:
HTML coding conventions, Comments, HTML Elements.

Case Study: Create a web page of your department using standard HTML tags, HTML elements and HTML attributes

Unit 5: Cascading Style Sheet (CSS): CSS Overview, CSS Rules, Example with Type Selectors and the Universal Selector, CSS Syntax and Style, Class Selectors, ID Selectors, span and div Elements, Cascading, style Attribute, CSS Properties, Color Properties, RGB Values for Color, Font Properties, line-height Property, Text Properties, Border Properties, Element Box, padding Property, margin Property.

Case Study: Description of your City or place with the use of CSS and compare it with previous two case studies

Reference Books:

1. Introduction to E-Commerce:Combining Business And Information Technology By Martin Kutz

2. Lallana, Quimbo, Andam, 4. Cf. Ravi Kalakota and Andrew B. Whinston, Electronic Commerce:A Manager's Guide (USA: Addison Wesley Longman, Inc., 1997), 19-20.

3. Web Programming with HTML5,CSS and JavaScript, John Dean, Jones & Bartlett Learning
4. HTML & CSS: The Complete Reference, 5th Edition, Thomas. A. Powell

Online Resources:
http://www.kartrocket.com
http://www.e-commerceceo.com
http://www.fastspring.com
https://teamtreehouse.com/tracks/web-design

Practical Component:@ 2 hours/week/batch

Note: All the questions should be practiced using **Blue Griffon, Google Web Designer, KompoZer and open Element /any related tools.** The students should be taught the usage of appropriate html tags for these questions
In the practical examination the students have to write the procedure for performing the given task in front page followed by the html tags used to perform the task.

LIST OF EXPERIMENTS

1. Write an HTML Program of 6 Headings by using heading tags.
2. Write a HTML program to display a text or message by using font, size, or color tags.
3. Write a HTML Program by Using Ordered and Unordered description list tags.
4. Write a HTML Program by using Table tag.
5. Write a HTML Program for forms by using text elements.
6. Write a HTML Program for forms by using Radio buttons elements.
7. Write a HTML Program for forms by using checkbox.
8. Write a HTML Program Using link tags Or hyperlinks.
9. Write a HTML Program by using frame tags.
10. Create a Web page to display a hyperlink Which When Clicked directs you to Amazon Website.
11. Create a Web Page to demonstrate your college name aligned with the logo of your college.
12. Create a Web Page to Demonstrate definition lists various applications of ecommerce.
13. Create a Web Page Which asks of mode of Payment which includes the options Credit Card /Debit Card/Online Transfer (use Radio Buttons)
14. Create a Web Page to insert an image Which when Clicked Redirects you to your college website.

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 form individual and collaborative work

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
II B.Com CA Semester- III (2025-26)
E- Commerce and Web Designing

PAPER- II **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

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

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	1	15
UNIT -III	1	1	15
UNIT -IV	1	2	20
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
II B.Com CA Semester- III (2025-26)
MODEL PAPER
E- Commerce and Web Designing

Time : 2 Hrs. **SEMESTER-III** **Max. Marks: 50**

SECTION-I

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

Part-A

1. Define E-Commerce. What are the advantages and disadvantages of E-Commerce
2. Explain about Types of E-Commerce Business Models in detail
3. Explain about models and methods of e–payments

Part-B

4. What are the advantages and disadvantages of Online Transactions
5. Explain about Lists and Their Types in HTML
6. Explain about E-Commerce Security in detail

SECTION-II

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

7.Discuss about Applications of E-Commerce.

8.What are the key elements of business model in e commerce?

9.Discuss briefly about Electronic Fund Transfer(EFT).

10.Explain about Online Portal and Online Learning.

11.Explain about text formatting tags in HTML.

12.Explain about hyperlinks in HTML.

13.Write about Encryption Techniques.

Mapping of Cos with POs/PSOs

CO /PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1															
CO 2															
CO 3															
CO 4															
CO 5															

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
Course Code	**DIGITAL MARKETING**	**II BCOM (Major 8) SEM - III 2025-26**			
Hours	90 (60 Theory + 30 Practical)	L	T	P	C
Pre requisites	Basic Computer Knowledge	3	-	1	4

Course Objective
1. The course aims to identify the impact of digital space and digital marketing in reaching out to customers. 2. Understanding the importance of search engines and explain the working of search engines. 3. Able to define email marketing and have knowledge on how social media marketings to be used by marketers?

Course Outcomes On Completion of the course, The students will be able to	
CO1	The students will be able to: Use digital media for the creation of products and services
CO2	Understand use search engine marketing for advertisements and know the youtube & link din for marketing.
CO3	Develop analytical skills Outline email marketing and strategy to craft email marketing
CO4	Evaluate the social media platform like facebook, Twitter

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA

DEPARTMENT OF COMPUTER APPLICATIONS

II B.Com CA Semester- III (2025-26)

DIGITAL MARKETING

SYLLABUS

Unit 1: Digital Marketing: Introduction to Digital Marketing Traditional Vs. Digital Marketing, Technology behind Digital Marketing, Characteristics of Digital Marketing. Digital Marketing Strategy, Understanding Digital Consumer.
Case Study: Analyse the change in ranking of your Web Promotion Page

Unit 2: Online Advertising: Introduction. Objective, Where to Advertise. Online AdFormat, Search Engine Ad. Network Advertising. Affiliate Programs. Landing Pages
Case Study: Create Google Add for your college

Unit 3: Email Marketing: Introduction, Types of Email. Email Marketing Campaign Process. Email marketing Tools. Advantages and Disadvantages, Opt-in Email Advertising. Email tracking
Case Study: Analyse the impact of your E-Mail Campaign

Unit 4: Social Media Marketing (SMM):
What is Social Media Marketing. Seven Myths of SMM, Characteristics of Successful Social Media Marketer, Social Media Marketing plan. Social Media marketing Tools. Publishing Blogs, Podcast and Webinars, Social Media Monitoring. Social Media: Face book. Twitter?
Case Study:1. Analyze the performance of your Facebook and Instagram Page

2. Analyze the performance of your YouTube Video

Unit-5: Search Engine Optimization (SEO): understanding SEO, Search Engine Optimization Process-Goals, On-Page Optimization, Off-Page Optimization and Analyze, Search Engine Result Process (SERP), SEO Tools.
Case Study: Analyze the impact of your twitter campaign
Text Books:

1. Digital Marketing by Seema Gupta, McGraw Hill Education
2. Fundamentals of Digital Marketing by Punit Singh Bhatia, Pearson

References:

1. Basics of Digital Marketing-course (swayam2.ac.in)

List Of Experiments:

1. Digital Marketing Implementation in Business Scenario
2. Create The Digital Marketing Webpage
3. Conducting The Search Engine Optimization and Search Engine Marketing
4. Using Google Analytics to analyze website performance
5. Creating Promotional banner through Canva
6. Face book Promotion using banners
7. Creating YouTube Channel for Marketing
8. Twitter Marketing
9. Instagram Marketing
10. Email Marketing

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA

DEPARTMENT OF COMPUTER APPLICATIONS

II B.Com CA Semester- III (2025-26)

DIGITAL MARKETING

PAPER- 8 **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

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

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	1	15
UNIT -III	1	1	15
UNIT -IV	1	2	20
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

II B.Com CA Semester- III (2025-26)

DIGITAL MARKETING

SECTION-I

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

Part-A

1. What is Digital Marketing? Distinguish between Traditional and Digital Marketing? (BT2)
2. What are the Technologies behind Digital marketing? (BT2)
3. Explainthedifferentformatsofonlineadvertisingincludingsearchengineadsand networkadvertising? (BT2)

Part-B

4. Explain the process of email marketing campaigns, including planning, execution, and tracking?(BT2)
5. What is Social Media marketing and explain the seven Myths of SMM?(BT1)
6. Describe the different techniques of On-Page Optimization and Off-Page Optimization?(BT3)

SECTION-II

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

7. What is Digital marketing, how does it differ from traditional marketing?(BT2)
8. What are the key features of digital marketing?(BT1)
9. What is online Advertising and what are its objectives?(BT1)
10. Explain the different types of email marketing? (BT2)
11. Discuss social media marketing and how does it works? (BT3)
12. What are the key features of social media marketing? (BT1)
13. What are the key features of SEO? (BT1)

Mapping of Cos with POs/PSOs

CO /PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1															
CO 2															
CO 3															
CO 4															
CO 5															

SEMESTER-IV

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
Course Code	**DATA BASE MANAGEMENT SYSTEM WITH ORACLE**	**II BCOM CA Major 11 SEM - IV 2025-26**			
Hours	90 (60 Theory + 30 Practical)	L	T	P	C
Pre requisites	Basic Computer Knowledge	3	-	1	4

Course Objective
1. Understand the role of a database management system in an organization. *2.* Understand basic database concepts, including the structure and operation of the relational data model. *3.* Understand and successfully apply logical database design principles, including E-R diagrams and database normalization *4.* Understand Functional Dependency and Functional Decomposition. *5.* Gets the information about creating tables, modifications of tables etc. *6.* Gets knowledge about writing of PL/SQL program with many options like Triggers, functions, procedures etc.

Course Outcomes	
On Completion of the course, the students will be able to –	
CO1	Students would learn about Understand the role of a database management system in an organization. Understand basic database concepts, including the structure and operation of the relational data model. Understand and successfully apply logical database design principles, including E-R diagrams and database normalization Understand Functional Dependency and Functional Decomposition.
CO2	Students would learn about To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS. Perform PL/SQL programming using concept of Cursor Management, Error Handling, Packages.
CO3	Students would learn about Apply various Normalization techniques Model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model .
CO4	Students would learn about Design and implement a small database project.

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
II B.Com – CA Semester- IV (2025-26)
Data Base Management System with Oracle
SYLLABUS

Unit 1: Overview of Database Systems: Introduction: Database system, Characteristics (Database Vs File System), Database Users, Advantages of Database systems, Database applications.
Data Models: Introduction; types of data models, Concepts of Schema, Instance and data independence; Three tier schema architecture for data independence; Database system structure, environment, Centralized and Client Server architecture for the database.
Case Study:
1. Describe the differences between Database systems and File based systems
2. Study about database models and their advantages and dis-advantages

Unit 2: Relational Model: Introduction to relational model, Codd's rules, concepts of domain, attribute, tuple, relation, constraints (Domain, Key constraints, integrity constraints) and their importance , concept of keys (super key, candidate key, primary key, surrogate key, foreign key) , relational Algebra & relational calculus.
Normalization: Purpose of Normalization or schema refinement, concept of functional dependency, normal forms based on functional dependency(1NF, 2NF and 3NF), Boyce-codd normal form(BCNF).
Case Study: Describe Relational model and normalization for database design

Unit 3: Entity Relationship Model: Introduction, Representation of entities, attributes, entity set, relationship, relationship set, constraints, sub classes, super class, inheritance, specialization, generalization using ER Diagrams,
BASIC SQL: Database schema, data types, DDL operations (create, alter, drop, rename), DML operations (insert, delete, update), basic SQL querying (select and project) using where clause, arithmetic & logical operations, aggregation, grouping, ordering.
Case Study:
1. Examine issues in data storage and query processing using SQL.
2. Create, maintain and manipulate a relational database using SQL

Unit 4: SQL: Nested queries/ sub queries, implementation of different types of joins, SQL functions(Date, Numeric, String, Conversion functions), Creating tables with relationship, implementation of key and integrity constraints, views, relational set operations , Transaction Control Language: commit, Rollback, Savepoint , DCL :Grant, Revoke
Case Study:
Try to convert some sample data to information and show how it can you be used in decision making.

Unit 5: PL/SQL: Introduction, Structure , Control Structures , Cursors , Procedure , Function , Packages , Exception Handling ,Triggers.
Transaction processing Concepts : Transaction State, Implementation of Atomicity and Durability, Concurrent Executions, Serializability, Recoverability, Implementation of Isolation, Testing for Serializability, Failure Classification, Storage, Recovery and Atomicity, Recovery algorithm.
Case Study:
Outline the role and issues in Transaction management of data such as efficiency, privacy, security.

References:

1. Paneerselvam:Database Management system,PHI.
2. David Kuklinski, Osborne, Data management system McGraw Hill Publication.
3. Shgirley Neal And Kenneth LC Trunik Database management system in Business-PHI.
4. Godeon C. EVEREST, Database Management-McGraw Hill Book Company.
5. MARTIN,Database Management-Prentice Hall of India, New Delhi.
6. Bipin C.Desai ,`An Introduction to Database System`,Galgotia Publications
7. Korth, Database Management System.
8. Navathe, Database Management System.
9. S. Sumathi, S. Esakkirajan,Fundamentals of Relational Database Management System

Online resources:
http:// www.onlinegdb.com/
http:// www.tutorialspoint.com/

Practical Component: @ 2 hours/week/batch

Aim: An enterprise wishes to maintain a database to automate its operations. Enterprise is divided into certain departments and each department consists of employees. The following two tables describe the automation schemas.
Emp(Empno, Ename, Job, Mgr, Hiredate, Sal, Comm, Deptno)
Dept(Deptno, Dname, Loc)

1. List the details of employees who have joined before the end of September ’81.
2. List the name of the employee and designation of the employee, who does not report to anybody.
3. List the name, salary and PF amount of all the employees(PF is calculated as10%of salary)
4. List the names of employees who are more than 2 years old in the organization.
5. Determine the number of employees, who are taking commission.
6. Update the employee salary by 20%,whose experience is greater than 12 years.
7. Determine the department does not contain any employees.
8. Create a view, which contains employee name and their manager names working in sales department.
9. Determine the employees, whose total salary is like the minimum salary of any department.
10. List the department numbers and number of employees in each department.

PL/SQL PROGRAMS

1. Writea PL/SQL program to check the given string is palindrome or not.
2. The HRD manager has decided to raise the employee salary by 15% write a PL/SQL block to accept the employee number and update the salary of that employee. Display appropriate messages based on the existence of the record in the Emp table.
3. Write a PL/SQL program to display the top 10 rows in the Emp table based on their job and salary.
4. Write a PL/SQL program to raise the employee salary by 10% for department number 30 people and also maintain the raised details in the rais table.
5. Create a procedure to update the salaries of Employees by 20%, for those who are not getting commission
6. Create a trigger to avoid any transactions (insert, update, delete) on EMP table on Saturday & Sunday.

RECOMMENDED CO-CURRICULAR ACTIVITIES:
(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

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
3. Group Discussion
4. 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 form individual and collaborative work

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA

DEPARTMENT OF COMPUTER APPLICATIONS

II B.Com – CA Semester- IV (W.E.F. 2025-26)

Data Base Management System with Oracle

PAPER- II **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**

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

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**	**1**	**15**
UNIT -III	**1**	**1**	**15**
UNIT -IV	**1**	**2**	**20**
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

II B.Com – CA Semester- IV (W.E.F. 2025-26)

Data Base Management System with Oracle

MODEL PAPER

Time : 2 Hrs **SEMESTER-IV** **Max. Marks: 50**

SECTION-I

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

Part-A

1. What is meant by DBMS? Explain advantages of DBMS (BT2)
2. Explain the components of database system with a neat diagram (BT1)
3. Discuss about building blocks of Entity-Relationship diagram (BT1)

Part-B

4. What is data model? Write about relational data model (BT2)
5. Explain DDL, DML and DCL commands in SQL (BT1)
6. Write about while loop used in PL/SQL (BT1)

SECTION-II

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

7. Explain about objectives of DBMS (BT2)
8. What are the functions of DBA (BT1)
9. Explain about Aggregation (BT2)
10. Explain about i) Candidate key ii) Primary key iii) Foreign key (BT1)
11. What is SQL? Explain about different data types in SQL (BT1)
12. Explain about Aggregate functions in SQL (BT1)
13. Write about cursors in PL/SQL (BT2)

Mapping of Cos with POs/PSOs

CO /PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1															
CO 2															
CO 3															
CO 4															
CO 5															

SEMESTER-V

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
Course Code	**BUSINESS ANALYSTICS**	**III BCOM CA SEM - V 2025-26**			
Hours	90 (60 Theory + 30 Practical)	L	T	P	C
Pre requisites	Basic Computer Knowledge	3	-	1	4

Course Objectives:

CO1: The course aims to help learners to acquire knowledge on Business Analytics

CO2: Explain why Business Analytics is important. State some typical examples of Business Applications

CO3: Differentiate between OLAP and OLTP.

CO4: Explain the concepts of Business Intelligence and understand different types of Analytics

CO5: Differentiate between Data Mining and Machine Learning Concepts.

Learning Outcomes:

- After completing this course, the students will be able to Understand business analytics
- Develop business intelligence.
- Analyze data using statistical and data mining techniques for business intelligence.
- Understand case studies for predictive models. Expertise in OLAP Tools.
- Apply different Analytic Techniques.

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

DEPARTMENT OF COMPUTER APPLICATIONS

III B.Com (CA) SEMESTER -V (W.E.F. 2025-26)

BUSINESS ANALYSTICS

SYLLABUS

Unit 1: Business Analytics:

Definition, Components of Business Analytics, Types of Business Analytics methods, Benefits of Business Analytics, Business Analytics Tools, Applications of Business Analytics, Trends in Business Analytics.

Case Study: 1. Retail Analytics **2.** Marketing Analytics

Unit 2: Descriptive Analytics, Statistics:

Types of Statistics, Types of Data, Measure of Central Tendency: Mean, Median, Mode, Standard Deviation.

Case Study:1. Financial Analytics **2.** Social Media and Web Analytics

Unit 3: OLAP, OLAP Operations:

Roll Up, Drill Down, Slice and Dice, Pivot, Types of OLAP, OLAP Tools, OLTP, Characteristics of OLTP, OLTP advantages and disadvantages.

Unit 4:

Architecture and Components of Business Intelligence, Business Intelligence for Management, Operational BI, What is Business Intelligence, Benefits of BI, Roles and Responsibilities of BI, Overview of Popular BI Tools in Market

Case Study: Real-Time Credit and Debit Card Fraud Detection, an HPE Shadowbase

Unit 5:

Data Mining Concept, Concepts of data mining model with its development and deployment in business scenario, Types of Data Mining Models, Machine Learning: definition, How ML works, Features and Importance of ML, Machine Learning Concepts: Classification of ML

Case Study: Healthcare Analytics

Text Books:

1. Module 5, Business Data Analytics by IBM
2. Essentials of Business Analytics: An Introduction to the Methodology and its Applications by Bhima Sankaram P, Sridhar S

SEMESTER-V
COURSE 14: BUSINESS ANLYSTICS
Practical Credits: 1 2 hrs/week
LIST OF EXPERIMENTS

1. Draw the diagram showing the types of Variables with examples.

2. Differentiate between Numerical and Categorical Variables.

3. What are Named variables? Using Ms-Excel, create a list of 10 named variables and add the numbers automatically.

4. What is a Ratio Variable? State the importance of Ratio Variable in Data Analytics.

5. Explain the Data Table in Excel. Create a One Variable Data Table in Excel.

6. What is a two Variable Data Table? Write steps to create a Two Variable Data Table.

7. Write steps for analyzing a Data Table with Multiple Formulas in Excel.

8. How do you Create, Rename, Recode, and Merge Variables in R?

9. Write steps to create Your Name, Age, Class, and College Name in R.

10. Draw a Chart for R- Variables.

11. Find the Average Price of given items using MS-Excel.

Rice Bag Ashirwad	1450
Rice Bag India Gate	1200
Sona's Sona Masurie	1300
Kohinoor Rice	1100
Aabida Basmati Rice	1400
Indian Valley	1250
Mannat Rice	1200
Shaalimaar Rice	1425

12. Using Ms-Excel, find the Median Value of the following items.

Items	**Status**	**Amount Rs.**
Banana	Delivered	758
Apple	Cancelled	258
Cherry	In-transit	587
Banana	Delivered	495
Banana	Cancelled	687
Apple	Delivered	258
Cherry	Delivered	684

13. Find the most frequently ordered Quantity from a supermarket store in MS-Excel.

Products	**Quantity**	**MRP (Rs.)**
Tang Orange Flavour	5	1050
Rasna Orange	6	1200
RoohAfza	5	1800
Tang Apple	10	1200

Rasna Green Apple	5	1700
Tang Cocktail	5	1400
Jaljeera	15	120

14. Find the Highest and Lowest Marks of Students obtained in English using Ms-Excel.

Himabindu	85
Karthik	15
Renuka	78
Mallika .S	15

15. Find the Geometric and Harmonic Mean Wages from the following data using Ms-Excel.

Job	**Wages (Rs.)**
Electrician	200
Nurse	500
Sales Manager	540
Manufacturing Engineer	540
Celebrity	450
Beautician	480
Data entry operator	350
Plumber	240

16. Using Ms-Excel, calculate Standard Deviation of total sales from the given data.

Total Sales (Rs.)	**Branch**
258000	Delhi
485220	Mumbai
875010	Kolkata
235461	Hyderabad
875212	Indore
785223	Surat
345621	Pune

17. Find Q1 and Q3 and also Quartile Deviation from the following information in Ms-Excel.

S. No.	**Value**
1	145
2	254
3	156
4	354
5	253
6	253
7	245
8	892
9	242
10	268

18. Find the Quartiles from the following data in Ms-Excel.

Height (in inches)	58	59	60	61	62	63	64	65	66
No. of Persons	2	3	6	15	10	5	4	3	1

19. Compare and find the Range of 10 Students' marks in Mathematics and Statistics using Ms-Excel.

Maths	25	40	30	35	21	45	23	33	10
Statistics	30	39	23	42	2	40	25	30	18

20. Calculate Variance from the following data in MS-Excel.
X: 10, 11, 17, 25, 7, 13, 21, 10, 12, 14

P.R. GOVT.COLLEGE (AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
III B.Com(CA) SEMESTER -V (W.E.F. 2025-26)
BUSINESS ANALYSTICS

PAPER – 14 **MARKS 50 M**

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 Shorts Questions	7	5	35	4	5	20
TOTAL		13		95	TOTAL MARKS		50

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

Model Blueprint 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
III B.Com(CA) SEMESTER -V (W.E.F. 2025-26)
BUSINESS ANALYSTICS
MODEL PAPER

SECTION-I

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

Part-A

1. What is Business Analytics? Explain the components of Business Analytics? (BT1)
2. Explain about types of Business Analytics methods. (BT2)
3. Discuss about Descriptive Analytics. (BT1)

Part-B

4. Differentiate between OLAP & OLTP (BT1)

5. Explain about Architecture and components of business intelligence (BT2)

6 What is Data Mining and explain types of data mining models.(BT2)

SECTION-II

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

7.Define Business Analytics. (BT2)

8.Explain applications of Business Analytics? (BT2)

9.What is Descriptive Analytics. (BT2)

10.Give a short note on Statistics?(BT2)

11.What is OLAP?(BT1)

12.Define Business Intelligence.(BT2)

13. Give a short note machine learning.(BT2)

Mapping of Cos with POs/PSOs

CO /PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1															
CO 2															
CO 3															
CO 4															
CO 5															

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
Course Code	**MOBILE APPLICATON DEVELOPMENT USING ANDROID**	**III BCOM CA SEM - V 2025-26**			
Hours	90 (60 Theory + 30 Practical)	L	T	P	C
Pre requisites	Basic Computer Knowledge	3	-	1	4

Course Objectives:

CO1: The course aims to help learners to acquire conceptual knowledge of understanding Android SDK .

CO2: To help students to gain a basic understanding of Android application development

CO3: Instill working knowledge of the Android Studio development tool

Learning Outcomes:

- Identify various concepts and features of Android operating system.
- Configure Android environment and development tools.
- Develop rich user Interfaces by using layouts and controls.
- Use User Interface components for android application development.
- Create Android application using database. Publish Android applications.

P.R. GOVT.COLLEGE (AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
III B.Com(CA) SEMESTER -V (W.E.F. 2025-26)
MOBILE APPLICATON DEVELOPMENT USING ANDROID
SYLLABUS

Unit 1: Introduction to Android: - Overview, History, Features of Android, The Android Platform, Understanding the Android Software Stack – Android Application Architecture –The Android Application Life Cycle – The Activity Life Cycle, Creating Android Activity -Views- Layout Android SDK, Android Installation, Building you First Android application, Understanding Anatomy of Android Application, Android Manifest file.
Case Study:
1. Give a brief description of Android Architecture and its parts.
2. List out the challenges we face while using Android?
3. List the new features of Android in the latest version.

Unit 2: Android Application Design Essentials: Anatomy of an Android applications, Android terminologies, Creating User Interfaces with basic views- Application Context, Activities, Services, Intents, linking activities with Intents,, Receiving and Broadcasting Intents, Android Manifest File and its common settings, Using Intent Filter, Permissions.
Case Study:
1. Present an idea that you would like to convert it into an application in the future.

Unit 3: Android User Interface Design Essentials: User Interface Screen elements, Designing User Interfaces with Layouts, Drawing and Working with Animation. Layouts, Recycler View, List View, Grid View and Web view
Input Controls: Buttons, Checkboxes, Radio Buttons, Toggle Buttons, Spinners, Input Events, Menus, Toast, Dialogs, Styles and Themes, Creating lists, and Custom lists.
Case Study:
1. Present detail report on the features of Check Boxes, Radio Buttons and Toggle Buttons.

Unit 4: Testing Android applications: Publishing Android application, Using Android preferences, Managing Application resources in a hierarchy, working with different types of resources.
Case Study:
1. List out the special features of Android with its counterparts.

Unit 5: Using Common Android APIs: Internal Storage, External Storage, SQLite Databases, Managing data using Sqlite, Sharing Data between Applications with Content Providers, Using Android Networking APIs, Using Android Web APIs, JSON Parsing, Using Android Telephony APIs, Deploying Android Applications to the World. Google Maps, Using GPS to find the current location, Sensors, and Bluetooth / Wi-Fi Connectivity.
Case Study:
1. List out the points to keep in mind to make you application more attractive.
2. List the controls that make you application attractive.

REFERENCE BOOKS:
1. Reto Meier, “Professional Android 2 Application Development”, Wiley India Pvt Ltd
2. Mark L Murphy, “Beginning Android”, Wiley India Pvt Ltd
3. “Android Application Development All in one for Dummies” by Barry Burd, Edition: I

4. “Android”, Dixit, Prasanna Kumar Vikas Publications, New Delhi 2014, ISBN: 9789325977884
5. Maclean David, Komatineni Satya,Allen Grant , “Pro Android 5”, ApressPublications2015ISBN: 978-1-4302-4680-0
6. ” Android Programming for Beginners” by Hortan, John, Packet Publication, 2015ISBN: 978-1-78588-326-2
7. Lauren Darcey and Shane Conder, “Android Wireless Application Development”,Pearson Education, 2nd ed. (2011)
ONLINE READING / SUPPORTING MATERIAL:
1. http://www.developer.android.com
2. http://developer.android.com/about/versions/index.html
3. http://developer.android.com/training/basics/firstapp/index.html
4. http://docs.oracle.com/javase/tutorial/index.htm (Available in the form of free downloadable ebooks also).
5. http://developer.android.com/guide/components/activities.html
6. http://developer.android.com/guide/components/fundamentals.html
7. http://developer.android.com/guide/components/intents-filters.html.
8. http://developer.android.com/training/multiscreen/screensizes.html Syllabus of BCA (Honours) under CBCS 33 9. http://developer.android.com/guide/topics/ui/controls.html
9. http://developer.android.com/guide/topics/ui/declaring-layout.html
10. http://developer.android.com/training/basics/data-storage/databases.html

SEMESTER-V

Practical Credits: 1 2 hrs/week

LIST OF EXPERIMENTS:

1. Develop a program to implement frame layout, table layout and relative layout.
2. Develop a program to implement Text View and Edit Text.
3. Develop a program to implement Auto Complete Text View.
4. Develop a program to implement Button, Image Button and Toggle Button.
5. Develop a program to implement login window using the above U1 controls.
6. Develop a program to implement Checkbox.
7. Develop a program to implement Radio Button and Radio Group.
8. Develop a program to implement Progress Bar.
9. Develop a program to implement List View, Grid View, Image View and Scroll View.
10. Develop a program to implement Custom Toast Alert.
11. Develop a program to implement Date and Time Picker.
12. Develop a program to create an activity. Develop a program to implement new activity using explicit intent and implicit intent.
13. Develop a program to implement content provider.
14. Develop a program to implement service.
15. Develop a program to implement broadcast receiver.
16. Develop a program to implement sensors.
17. Develop a program to build Camera.
18. Develop a program for providing Bluetooth connectivity.
19. Perform CRUD operations using SQLite.
20. Develop a program for JSON parsing.

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MOBILE APPLICATON DEVELOPMENT USING ANDROID

PAPER – 15 **MARKS 50 M**

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 Shorts Questions	**7**	**5**	**35**	**4**	**5**	**20**
TOTAL		**13**		**95**	**TOTAL MARKS**		**50**

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

Model Blueprint 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
III B.Com(CA) SEMESTER -V (W.E.F. 2025-26)
MOBILE APPLICATON DEVELOPMENT USING ANDROID
MODEL PAPER

SECTION-I

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

Part-A

1. Describe the Android architecture in your own words.
2. Write about the history of Android.
3. Describe the structure of an Android application.

Part-B

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

4. Write about different User Interface elements in Android.
5. Write a short note on Android storage APIs.
6. Describe the role of SQLite databases in Android app development.

SECTION-II

7. What is android?
8. What is an activity in android?
9. Write about different user interface elements in android.
10. What does gps do in android apps?
11. What is shared preferences used for in android?
12. What is a layout in android?
13. What api is used for location services in android?

Mapping of Cos with POs/PSOs

CO /PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1															
CO 2															
CO 3															
CO 4															
CO 5															

MINOR

SEMESTER-III

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
Course Code	**DATA BASE MANAGEMENT SYSTEM**	**II BCOM (Minor 2) Sem - III 2025-26**			
Hours	90 (60 Theory + 30 Practical)	L	T	P	C
Pre requisites	Basic Computer Knowledge	3	-	1	4

Course Objective
• *Understand the role of a database management system in an organization.* • *Understand basic database concepts, including the structure and operation of the relational data model.* • *Understand and successfully apply logical database design principles, including E-R diagrams and database normalization* • *Understand Functional Dependency and Functional Decomposition.* • *Gets the information about creating tables, modifications of tables etc.* • *Gets knowledge about writing of PL/SQL program with many options like Triggers, functions, procedures etc.*

Course Outcomes	
On Completion of the course, the students will be able to –	
CO1	Students would learn aboutUnderstand the role of a database management system in an organization. Understand basic database concepts, including the structure and operation of the relational data model. Understand and successfully apply logical database design principles, including E-R diagrams and database normalization Understand Functional Dependency and Functional Decomposition.
CO2	Students would learn aboutTo design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.
CO3	Students would learn aboutApply various Normalization techniques Model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model .
CO4	Students would learn aboutDesign and implement a small database project.

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
II B.Com (Minor) Semester- III (2025-26)

Data Base Management System

SYLLABUS

Unit 1: Overview of Database Systems: Introduction: Database system, Characteristics (Database Vs File System), Database Users, Advantages of Database systems, Database applications.
Data Models: Introduction; types of data models, Concepts of Schema, Instance and data independence; Three tier schema architecture for data independence; Database system structure, environment, Centralized and Client Server architecture for the database.
Case Study:
1. Describe the differences between Database systems and File based systems
2. Study about database models and their advantages and dis-advantages

Unit 2: Relational Model: Introduction to relational model, Codd's rules, concepts of domain, attribute, tuple, relation, constraints (Domain, Key constraints, integrity constraints) and their importance , concept of keys (super key, candidate key, primary key, surrogate key, foreign key) , relational Algebra & relational calculus.
Normalization: Purpose of Normalization or schema refinement, concept of functional dependency, normal forms based on functional dependency(1NF, 2NF and 3NF), Boyce-codd normal form(BCNF).
Case Study: Describe Relational model and normalization for database design

Unit 3: Entity Relationship Model: Introduction, Representation of entities, attributes, entity set, relationship, relationship set, constraints, sub classes, super class, inheritance, specialization, generalization using ER Diagrams,
BASIC SQL: Database schema, data types, DDL operations (create, alter, drop, rename), DML operations (insert, delete, update), basic SQL querying (select and project) using where clause, arithmetic & logical operations, aggregation, grouping, ordering.
Case Study:
1. Examine issues in data storage and query processing using SQL.
2. Create, maintain and manipulate a relational database using SQL

Unit 4: SQL: Nested queries/ sub queries, implementation of different types of joins, SQL functions(Date, Numeric, String, Conversion functions), Creating tables with relationship, implementation of key and integrity constraints, views, relational set operations , Transaction Control Language: commit, Rollback, Savepoint ,DCL :Grant, Revoke
Case Study:
Try to convert some sample data to information and show how it can you be used in decision making.

Unit 5: PL/SQL: Introduction, Structure , Control Structures ,Cursors ,Procedure ,Function ,Packages , Exception Handling ,Triggers.
Transaction processing Concepts : Transaction State, Implementation of Atomicity and Durability, Concurrent Executions, Serializability, Recoverability, Implementation of Isolation, Testing for Serializability, Failure Classification, Storage, Recovery and Atomicity, Recovery algorithm.
Case Study:
Outline the role and issues in Transaction management of data such as efficiency, privacy, security.

References:

1. Paneerselvam:Database Management system,PHI.
2. David Kuklinski, Osborne, Data management system McGraw Hill Publication.
3. Shgirley Neal And Kenneth LC Trunik Database management system in Business-PHI.
4. Godeon C. EVEREST, Database Management-McGraw Hill Book Company.
5. MARTIN,Database Management-Prentice Hall of India, New Delhi.
6. Bipin C.Desai ,`An Introduction to Database System`,Galgotia Publications
7. Korth, Database Management System.
8. Navathe, Database Management System.
9. S. Sumathi, S. Esakkirajan,Fundamentals of Relational Database Management System

Online resources:

http:// www.onlinegdb.com/
http:// www.tutorialspoint.com/

Practical Component: @ 2 hours/week/batch

1. Create Table using create command and inserting data into create table with insert command
2. Write a sql commands to the given statements and to excuse the commands and display the outputs.

   Query-1: statements display unique jobs from table

   Query-2: statements list the detail of the employees who are working as clerk.

   Query-3: list all the clerk of department 20.

   Query-4: display the details of smith.

   Query-5: statement list the details of the employees who are either clerk or analyst.
3. Write a sql commands to the given statements and to excuse the commands and display the outputs.

   Query-1: list the details of employee in the ascending order of their salaries.

   Query-2: list the details of departments in descending order of their department number.

   Query-3: list the employee names starting with " s".

   Query-4: Find the name and salary of employees form table where salary is between 1000 and 2000.

   Query-5: Find the names from table when job in ('Analyst' , 'salesman').
4. Write a sql commands to the given statements and to excuse the commands and display the output using Aggregate functions.

   Query-1: find the maximum salary of table

   Query-2:find the minimum salary of table

   Query-3: find the no of employee working in department no 20.

   Query-4: find the total salary given out of all employees.

   Query-5: find the average salary of the employee.

5. Write a sql commands to the given statements and to excuse the commands and display the outputs.

   Query-1: list the employe numbers and names belonging to department 10 and 30 of table.

   Query-2: display the different designations (jobs) in dept 20 and 30 of table.

   Query-3: display all the jobs in the dept 20 and 30 of table

   Query-4: list the jobs common to dept 20 and 30.

   Query-5: list the jobs that are in dept no 20 but not in dept 30.

6. Write a sql commands to the given statements and to excuse the commands and display the outputs.

   Query-1: list the department details is where at least 2 employees are working.

   Query-2: delete the records of clerk from table'

   Query-3: delete the table structure and the data in the table.

   Query-4: delete the total records in a table not the structure.

   Query-5: truncate table.

PL/SQL PROGRAMS

1. Write a pl/sql program to swap 2 numbers.
2. Write a program to print the given number from 1 to 10.
3. Write a program to accept the values of a,b and c display which is greatest.
4. Write a program to check the number is prime or not.
5. Write a program to calculation of the factorial of a given no.
6. Write a program to display names and salary of highest 5 salary paid employees through cursor.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

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

3. Group Discussion
4. 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 form individual and collaborative work

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
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II B.Com (Minor 2) Semester- III (2025-26)
Data Base Management System

PAPER- II **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**

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

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**	**1**	**15**
UNIT -III	**1**	**1**	**15**
UNIT -IV	**1**	**2**	**20**
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
II B.Com (Minor) Semester- III (2025-26)
Data Base Management System

MODEL PAPER

Time : 2 Hrs **SEMESTER-III** **Max. Marks: 50**

SECTION-I

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

Part-A

1. What is meant by DBMS? Explain advantages of DBMS (BT2)
2. Explain the components of database system with a neat diagram (BT1)
3. Discuss about building blocks of Entity-Relationship diagram (BT1)

Part-B

4. What is data model? Write about relational data model (BT2)
5. Explain DDL, DML and DCL commands in SQL (BT1)
6. Write about while loop used in PL/SQL (BT1)

SECTION-II

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

7. Explain about objectives of DBMS (BT2)
8. What are the functions of DBA (BT1)
9. Explain about Aggregation (BT2)
10. Explain about i) Candidate key ii) Primary key iii) Foreign key (BT1)
11. What is SQL? Explain about different data types in SQL (BT1)
12. Explain about Aggregate functions in SQL (BT1)
13. Write about cursors in PL/SQL (BT2)

Mapping of Cos with POs/PSOs

CO /PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1															
CO 2															
CO 3															
CO 4															
CO 5															

SEMESTER-IV

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
Course Code	**OPERATING SYSTEMS**	**II BCOM (Minor 3) Sem - IV 2025-26**			
Hours	90 (60 Theory + 30 Practical)	L	T	P	C
Pre requisites	BASIC COMPUTER KNOWLEDGE	3	-	1	4

Course Objective
1.To know the basic Structure, Components and Organization of Operating System. 2. To learn the notation of a Process- a Program in Execution, Management, Scheduling and Classic Problems of Synchronization. 3. To gain knowledge in various Memory Management Techniques. 4. To understand Unix Operating System and Various File operations.

Course Outcomes	
On Completion of the course, the students will be able to –	
CO1	1.Understand the main components and Structure of Operating System & their functions.
CO2	2. Analyze various ways of Process Management & CPU Scheduling Algorithms.
CO3	3. Evaluate various device and resources like Memory, Time and CPU Management techniques in distributed systems.
CO4	4. Apply different methods for Preventing Deadlocks in a Computer System.
CO5	5. Create and build an Application/Service over the UNIX operating system.

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
II B.Com (Minor) Semester- IV (2025-26)
OPERATING SYSTEMS

SYLLABUS

Unit I

Introduction: What is Operating System? ,History and Evolution of OS, Basic OS Functions, Computer System Architecture, Operating System Structure.

System Structures: Operating System Services, User Operating System Interface, System Calls, Types of System Calls, Overview of UNIX Operating System, Basic Features of Unix Operating System.

Case Study : Understanding and listing the basic differences between UNIX OS and Windows OS in usage, user interface, features etc.

Unit II

Process Management: Process Concept, Operation on Processes, Communication in Client-Server Systems.

Process Scheduling: Basic Concepts, Scheduling Criteria, Scheduling Algorithms, CPU Scheduling in UNIX.

Case Study: Present your understanding on how CPU Scheduling is different in WINDOWS compared to UNIX/LINUX.

Unit III

Synchronization: Process Synchronization, Semaphores: Usage, Implementation, The Critical Section Problem., Classic problems of synchronization.

Deadlocks: Introduction, Deadlock Characterization, Necessary and Sufficient conditions for Deadlock, Deadlock Handling Approaches : Deadlock prevention, Deadlock Avoidance and Deadlock detection and Recovery .

Case Study: Present your understanding of Deadlocks and new methodologies available in new Operating Systems released in the market.

Unit IV

Memory Management: Overview, Swapping, Contiguous Memory Allocation, Paging, Paging Examples, Segmentation, Page Replacement Algorithms, Memory management in UNIX.

Case Study: Present a paper on new methods used in Memory management in the present day Operating Systems .

Unit V

Files and Directories in UNIX: Files, Directory Structure, File Operations, File System Implementation: File Allocation Methods, Comparison of UNIX and Windows.

Case Study: Present a Paper on how UNIX treats regular files and directories differently from other operating systems.

TEXTBOOKS

1. Operating System Concepts: Abraham Silberschatz, Peter B. Galvin, GregGagne, 8th Edition,Wiley.
2. Unix and shell Programming by B.MH Arwani, OXFORD University Press.

REFERENCEBOOKS:

1. Operating System Principles, Abraham Silberchatz, PeterB.Galvin, GregGagne 8thEdition, WileyStudentEdition.
2. Principles of Operating Systems by Naresh Chauhan, OXFORD University Press.
3. Tanenbaum A S, Woodhull A S, Operating System Design and Implementation,3rd edition, PHI 2006.
4. Unix Shell Programming-YashwantKanetkar

COURSE 4: OPERATING SYSTEMS

Practical Credits: 12 hrs/week

List of Experiments

1. Introducing the LINUX Native editor vi: Working on basics of creating and editing a text file using standard commands of vi.
2. Introduction to UNIX Operating System, Compare with Windows OS. Writing and executing simple Hello World C Program in UNIX Environment.
3. Getting hands-on on basic UNIX Commands.
4. Write a program using the following system calls of UNIX OS fork, exec, getpid, exit, wait, close, opendir, readdir ?
5. Write a Simple shell script for basic arithmetic and logical calculations?
6. Write Shell script to check the given number is even or odd?
7. Write a shell script to swap the two integers?
8. Write Shell script to perform various operations on given strings.
9. Write Shell scripts to explore system variables such as PATH, HOME etc.
10. Write a shell script to display list of users currently logged in.
11. Write a shell script to delete all the temporary files.
12. Write a shell script to find the Factorial of a Number ?
13. Write C programs to implement the following Scheduling Algorithms:

a) First Come First Serve.
b) Shortest Job First.
c) Round Robin.

Reference Text Books:

1. Brian W. Kernighanand Rob Pike,“The UNIX Programming Environment” Prentice Hall India (Edition available in LR Candin the form of E Book on student resource).
2. Yashwant Kanetkar,“UNIXShell Programming” BPB Publications (FirstEdition).

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
II B.Com (Minor) Semester- IV (2025-26)
OPERATING SYSTEMS

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**

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

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**	**1**	**15**
UNIT -III	**1**	**1**	**15**
UNIT -IV	**1**	**2**	**20**
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
II B.Com (Minor) Semester- IV (2025-26)
OPERATING SYSTEMS

MODEL PAPER

Time : 2 Hrs **SEMESTER-IV** **Max. Marks: 50**

SECTION –I

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

Part-A

14. Define is Operating system? Explain function of Operating System.[BT1]
15. Explain about Process Scheduling Algorithms in detail?[BT1]
16. Discuss about Deadlock Detection and recovery?[BT1]

Part-B

17. Categories various types of Operating Systems?[BT2]
18. Classify various types of Classical Process Synchronization problem?[BT2]
19. Describe Segmentation and Memory Allocation Strategies?[BT1]

SECTION - II

Answer any four of the following questions. Each question carries 5 marks. 4 X 5 = 20M

20. Differentiate between Real Time System and Time sharing Operating System?[BT2]
21. Write about Resource Abstraction?[BT1]
22. Write about the Process and the Process state diagram?[BT1,BT3]
23. Explain Threading issues in os?[BT1]
24. Write about some necessary and sufficient conditions for Deadlock?[BT1]
25. Explain about Virtual memory?[BT1]
26. Write about file Operations?[BT1]

Mapping of Cos with POs/PSOs

CO /PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1															
CO 2															
CO 3															
CO 4															
CO 5															

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
Course Code	**PYTHON PROGRAMMING**	**II BCOM (Minor 4) SEM - IV 2025-26**			
Hours	90 (60 Theory + 30 Practical)	L	T	P	C
Pre requisites		3	-	1	4

Course Objective
1. . Understand the basics of Data Science 2. Understand the syntax of Python programming language. 3. Apply python programming skills to solve problems.

Course Outcomes	
On Completion of the course, the students will be able to –	
CO1	Understand basic concepts of Programming
CO2	Understand why python is a useful scripting language for developers.
CO3	Use standard programming constructs like selection and repetition.
CO4	Use aggregated data (list, tuple, and dictionary).
CO5	Implement functions and modules

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
II B.Com (Minor) Semester- IV (2025-26)
PYTHON PROGRAMMING

SYLLABUS

Unit-I

Getting Started with Python: Introduction to Python , Python Keywords , Identifiers , Variables , Comments, Data Types , Operators, Input and Output , Type Conversion , Debugging . Flow of Control, Selection , Indentation , Repetition , Break and Continue Statement , Nested Loops .
Strings- String Operations , Traversing a String , String handling Functions.
Case Study: Study the features that make Python different from Procedural Languages.

Unit-II

Functions: Functions, Built-in Functions, User Defined Functions, recursive functions, Scope of a Variable
Python and OOP: Defining Classes, Defining and calling functions passing arguments, Inheritance, polymorphism, Modules – date time, math, Packages.
Exception Handling- Exception in python, Types of Exception, User-defined Exceptions.
Case Study: Present a report of how Exception handling is different from JAVA Exceptional Handling.

Unit-III

List: Introduction to List, List Operations, Traversing a List, List Methods and Built-in Functions.
Tuples and Dictionaries, Introduction to Tuples, Tuple Operations, Tuple Methods and Built-in Functions, Nested Tuples. Introduction to Dictionaries, Dictionaries are Mutable, Dictionary Operations, Traversing a Dictionary, Dictionary Methods and Built-in functions.
Case Study: What are the special features of dictionaries and try to analyze about the same features in any other language.

Unit-IV

Introduction to NumPy, Array , NumPy Array , Indexing and Slicing , Operations on Arrays , Concatenating Arrays , Reshaping Arrays , Splitting Arrays , Statistical Operations on Arrays.
Data Handling using Pandas , Introduction to Python Libraries, Series, DataFrame, Importing and Exporting Data between CSV Files and DataFrames, Pandas Series Vs NumPy ndarray.
Case Study: Present a paper on advanced features of NumPy and Pandas.

Unit-V

Plotting Data using Matplotlib: Introduction, Plotting using Matplotlib –Line chart, Bar chart, Histogram, Scatter Chart, Pie Chart.
GUI Programming and Database Connectivity Using Python. Graphical User Interfaces. Using the Tkinter Module, Creating Label, Text, Buttons, info Dialog Boxes, Radiobutton, Checkbutton, Getting Input, Importing MySQL for Python , Connecting with a database, Forming a query in MySQL, Passing a query to MySQL.
Case Study: Present a paper on the features and advantages of MySQL compared to other commercial Databases.

References:

1. Mark Lutz, Learning Python,5th Ed. O‟REILLY
2. Core Python Programming by Dr. R. Nageswara Rao
3. Problem Solving and Python Programming by E. Balaguru Swamy 4. Python programming: using problem solving approach by Reema Thareja. 5. Albert Lukaszewski ,MySQL for Python,Packet Publishing

Practical Credits: 12 hrs/week

Lab Programs

1. Write a Program to check whether given number is Armstrong or not.

2. Write a Program to check whether given number is perfect or not.

3. Write a program to find factorial of given number using recursive function

4. Write a program to implement inheritance and polymorphism

5. Demonstrate a python code to print try, except and finally block statements

6. Write a program to demonstrate String handling functions

7. Write a program to input n numbers from the user. Store these numbers in a tuple. Print the maximum and minimum number from this tuple.

8. Write a program to enter names of employees and their salaries as input and store them in a dictionary

9. Write a program to implement statistical operations on arrays using numPy

10. Write a program to import and export CSV file to DataFrame.

11. Create the DataFrame Sales containing year wise sales and perform basic operation on it.

12. Visualize the plots using matplot lib.

13. Create GUI interface with different types button and labels

14. Create GUI interface and connect with MySQL database and perform CRUD(Create, Read, Update and Delete) operations

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
II B.Com (Minor) Semester- IV (2025-26)
PYTHON PROGRAMMING

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**

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

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**	**1**	**15**
UNIT -III	**1**	**1**	**15**
UNIT -IV	**1**	**2**	**20**
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
II B.Com (Minor) Semester- IV (2025-26)
PYTHON PROGRAMMING

MODEL PAPER

Time : 2 Hrs **SEMESTER-IV** **Max. Marks: 50**

SECTION-I

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

Part-A

1. Illustrate the Features of Python Language?

2. Explain the Data types in Python?

3. Discuss Conditional statements in python?

Part-B

4. Define Function? Explain create a function and Function calling?

5. Define String? And Explain String Operations in Python

6. Define Inheritance? Explain the Types of Inheritance.

SECTION-II

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

7. Demonstrate the process of installing python?

8. Describe about Literals?

9. Explain Standard I/O Operations?

10.Explain Break and continue statements?

11. Explain How to declare and defining functions?

12.Explain Class Variables and Object Variables.

13. Explain Abstract Classes and Int

Mapping of Cos with POs/PSOs

CO /PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1															
CO 2															
CO 3															
CO 4															
CO 5															

SEMESTER-V

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
Course Code	**WEB PROGRAMMING**	**II BCOM (Minor 5) SEM - V 2025-26**			
Hours	90 (60 Theory + 30 Practical)	L	T	P	C
Pre requisites	Basic Computer Knowledge	3	-	1	4

Course Objective
1. Learn the basics of creating a website. 2. Understand HTML5 coding conventions 3. Understand the philosophy of how HTML and CSS should fit together 4. Learn how JavaScript came to be.

On Completion of the course, the students will be able to-		Cognitive Domain
CO1	Understand the Web Design Process.	Understanding
CO2	Apply the HTML tags, elements and attributes	Application
CO3	Apply different types of HTML elements	Application
CO4	Use of organizational elements, tables and images.	Application
CO5	Use of audio, video files. Apply JavaScript concepts	Application

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
III BCOM Semester-V (W.E.F. 2025-26)
WEB PROGRAMMING

SYLLABUS

Unit-I: Introduction to Web Programming: Introduction, creating a website, HTML tags, HTML Elements, HTML attributes, CSS Preview, History of HTML, Differences between old HTML and HTML5, how to check your HTML code

Case Study: Create a web page of your department using standard HTML tags, HTML elements and HTML attributes

Unit-II: Coding Standards, Block Elements:

HTML coding conventions, Comments, HTML Elements, Should Describe Web Page Content Accurately, Content Model Categories, Block Elements, blockquote Element, Whitespace Collapsing, pre Element, Phrasing Elements, Editing Elements, q and cite Elements, dfn, abbr, and time Elements, Code-Related Elements, br and wbr Elements.

Text Elements, and Character References: sup, sub, s, mark, and small Elements, strong, em, b, u, and i Elements, span Element, Character References, Web Page with Character References, and Phrasing Elements.

Case Study: Create a web page related to famous water reservoir/ famous tourist spots near by your location using block elements, text elements and character references

Unit-III:

Cascading Style Sheet(CSS) : CSS Overview, CSS Rules, Example with Type Selectors and the Universal Selector, CSS Syntax and Style, Class Selectors, ID Selectors, span and div Elements, Cascading, style Attribute, style Container, External CSS Files, CSS Properties, Color Properties, RGB Values for Color, Opacity Values for Color, HSL and HSLA Values for Color, Font Properties, line-height Property, Text Properties, Border Properties, Element Box, padding Property, margin Property,

Case Study: Description of your City or place with the use of CSS and compare it with previous two case studies

Unit-IV: Organizing a Page's, Content with Lists, Figures, and Various, Organizational Elements: List, Descendant selector, Figure with picture and caption, Organizational elements, Navigation bar, Header and Footer, User agent stylesheet, Child selector, CSS inheritance Tables and CSS Layout: Data tables vs Layout tables, Table elements, Format table Links and Images: Implement a link with the a element, different types of href attribute Values, relative URLs, Implement a link that jumps to a particular location within a web page, element's target attribute, Understand the concepts behind GIF, JPEG, and PNG bitmap image formats, implement bitmap image elements within a web page, implement SVG image elements within a web page

Case Study: Create a web page related to your department time table and images of any activity

Unit-V: Image Manipulations, Audio and Video: Position an image, how to display a shortcut icon in a browser's tab area, iframe, Create an image sprite file, Implement an audio player using the audio element, Handle different audio file formats, Cover a web page's background with an image, web fonts, Implement a video player using the video element, Center a web page's content, Cover a web page's background with a color gradient Introduction to JavaScript: Button control with an event Handler, Syntax rules for functions, variables, identifiers, and assignments, Document Object Model(DOM), form with a text control and a button, event-handler attributes, rollover using mouse events

Case Study: Create a webpage involving audio and video of your college day activities Prescribed Text Books: 1. Web Programming with HTML5,CSS and JavaScript, John Dean, Jones & Bartlett Learning Reference Text Books: 1. HTML & CSS: The Complete Reference, 5th Edition, Thomas. A. Powell

SEMESTER-V
COURSE 5: WEB PROGRAMMING
Practical Credits: 12 hrs/week

Course Outcomes: On successful completion of this practical course, student shall be able to:
1. Create web pages using HTML.
2. Apply different styles to HTML page.
3. Work with different scripting elements .

WEEK-1
1. Write an HTML code to display your education details in a tabular format.
2. Write an HTML code to display your CV on a web page.

WEEK-2
1. Create a webpage with HTML describing your department. Use paragraph and list tags.
2. Apply various colors to suitably distinguish key words. Also apply font styling like italics, underline and two other fonts to words you find appropriate. Also use header tags.
3. Create links on the words e.g. "Wi-Fi" and "LAN" to link them to Wikipedia pages.
4. Insert an image and create a link such that clicking on image takes user to other page.
5. Change the background color of the page. At the bottom create a link to take user to the top of the page.

WEEK-3
1. Create a table to show your class time-table.
2. Use tables to provide layout to your HTML page describing your university infrastructure.
3. Use and tags to provide a layout to the above page instead of a table layout.
4. Use frames such that page is divided into 3 frames 20% on left to show contents of pages, 60% in center to show body of page, remaining on right to show remarks.
5. Embed Audio and Video into your HTML web page.

WEEK-4
1. Write an HTML code to illustrate the usage of the following:
- Ordered List
- Unordered List
- Definition List

WEEK-5
1. Write an HTML code to create a frameset having header, footer, navigation and content sections.

WEEK-6

1. Write an HTML code to demonstrate the usage of inline CSS.
2. Write an HTML code to demonstrate the usage of internal CSS.
3. Write an HTML code to demonstrate the usage of external CSS.

WEEK-7

1. Create a form similar to the one in previous experiment. Put validation checks on values entered by the user using JavaScript (such as age should be a value between 1 and 150).
2. Write a JavaScript program to display information box as soon as page loads.
3. Write a JavaScript program to change background color after 5 seconds of page load.
4. Write a JavaScript program to dynamically bold, italic and underline words and phrases based on user actions.
5. Write a JavaScript program to display a hidden div (e.g. showing stats of a player when user clicks on his name
6. Write a Java script to prompt for users name and display it on the screen.
7. Design HTML form for keeping student record and validate it using Java script.
8. Write programs using Java script for Web Page to display browsers information.

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
III BCOM Semester-V (W.E.F. 2025-26)
WEB PROGRAMMING

PAPER- V **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**

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

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**	**1**	**15**
UNIT -III	**1**	**1**	**15**
UNIT -IV	**1**	**2**	**20**
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
III BCOM Minor Semester-V (W.E.F. 2025-26)
WEB PROGRAMMING
MODELPAPER

WEBPROGRAMMING

Time:2Hrs **SEMESTER-V** **MaxMarks:50**

SECTION-I

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

Part-A

1. What is Html? Explain about basic tags in Html?

2.Write about sup, sub, s, mark, and em, b, u, Elements in html?

3.What is HTML list ? Explain different types of offlist.

Part-B

4.Write the difference between the old HTML and new HTML

5.How many ways to apply css to HTML document?

6.What is java script? Explain it's features.

SECTION-II

AnsweranyFOURQuestions.Eachquestioncarries5marks (4x5=20)

7.What are the basic tags to create a table in HTML document?

8.What is an attribute and give an example?

9.What is a comment in HTML ? How to create a comment?

10.Disscus about the colour property in HTML.

11.What are the concepts of image formating in HTML?

12. What is a selection tag and give an example ?

13.What are the identifiers?

Mapping of Cos with POs/PSOs

CO /PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1															
CO 2															
CO 3															
CO 4															
CO 5															

PR GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA					
Course Code	**WEB DEVELOPMENT USING PHP & MYSQL**	**III - BCOM (Minor 6) SEM - V 2025-26**			
Hours	90 (60 Theory + 30 Practical)	L	T	P	C
Pre requisites	BASIC COMPUTER KNOWLEDGE	3	-	1	4

Course Objective
• **Understanding PHP Fundamentals:** Grasping core concepts like syntax, variables, data types, operators, control structures (if/else, loops), and functions.
• **Server-Side Scripting Proficiency:** Learning how PHP functions as a server-side scripting language to process requests, generate dynamic content, and interact with the server environment.
• **Database Integration:** Mastering the connection of PHP applications to databases, primarily MySQL, and performing CRUD (Create, Read, Update, Delete) operations on data.
• **Building Dynamic Web Applications:** Developing skills to create interactive web pages, handle user input through forms, manage sessions and cookies, and implement user authentication.

On Completion of the course, the students will be able to-		Cognitive Domain
CO1	Upon Completion of the course, the students will be able to	Understanding
CO2	1. Write simple programs in PHP.	Application
CO3	2. Understand how to use regular expressions, handle exceptions, and validate data.	Application
CO4	3. Apply In-Built functions and Create User defined functions in PHP programming.	Application
CO5	4. Write PHP scripts to handle HTML forms.	Application

P R GOVT COLLEGE (AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
III BCOM Semester-V (W.E.F. 2025-26)
WEB DEVELOPMENT USING PHP & MYSQL

Unit-I:

Using PHP: PHP Basics: Accessing PHP, Creating Sample Application, Embedding PHP in HTML, Adding Dynamic Content, Identifiers, Variables, Constants, Operators, Data types, Accessing Form Variables, Variable handling Functions, Making Decisions with Conditions, Repeating actions through Iterations, Breaking Out of a Control Structure Storing and Retrieving Data: Processing Files, opening a File, writing to a File, closing a File, Reading from a File, Other File Functions, Locking Files.

CASE STUDY: Web Based Social Network Application Development

Unit-II: Arrays: Arrays basics, Types, Operators, Array Manipulations.

String Manipulation and Regular Expressions: Strings Basics, Formatting Strings, Joining and Splitting Strings with String Functions, Comparing Strings, Matching and Replacing Substrings with String Function, Introducing Regular Expressions, Find, Replace, Splitting in regular Expressions

CASE STUDY: Retail E-commerce Application Development for Apparels & Garments

Unit-III: Reusing Code and Writing Functions: The Advantages of Reusing, Using require () and include (), Using Functions in PHP, Scope, Passing by Reference Versus Passing by Value, keyword, Recursion.

Object-Oriented PHP: OOP Concepts, Creating Classes, Attributes, and Operations in PHP, Implementing Inheritance in PHP, Understanding Advanced Object-Oriented Functionality in PHP. Error and Exception Handling: Error and Exception Handling, Exception Handling Concepts.

CASE STUDY: e-Commerce Application for Manufacturing Industry

Unit-IV: Using MySQL: Relational Database Concepts, Web Database Architecture, Introducing MySQL's Privilege System, Creating Database Tables, Understanding MySQL, Identifiers, Database

Operations, querying a Database, Understanding the Privilege System, Making Your MySQL Database Secure, Optimization, Backup, Restore.

CASE STUDY: Custom CMS Website Development

Unit-V: Introduction of Laravel PHP Framework: Why Lavarel, setting up Lavarel Development Environment, Routing and Controllers: introduction to MVC, the HTTP verbs, and REST, Route Definitions, Route Groups, Signed Routes, Views, Controllers, Route Model Binding, Redirects, Custom Responses

Case Study: E-commerce Business Solution delivered for Groceries Vendor Prescribed Text Books:

1. Luke Welling, Laura Thomson, "PHP and MySQL Web Development", 5th Edition

2. Matt Stauffer, “Lavarel: Up & Running”, 2nd Edition

3. Julie C. Meloni, SAMS Teach yourself PHP MySQL and Apache, Pearson Education (2007).

4. Steven Holzner , PHP: The Complete Reference, McGraw-Hill

5. Robin Nixon, Learning PHP, MySQL, JavaScript, CSS & HTML5, Third Edition O'reilly, 2014

6. Xue Bai Michael Ekedahl, The web warrior guide to Web Programming, Thomson (2006).

7. Web resources:

http://www.codecademy.com/tracks/ph

http://www.w3schools.com/PHP

http://www.tutorialpoint.com

8. Other web sources suggested by the teacher concerned and the college librarian including reading material.

SEMESTER-V

COURSE 6: WEB DEVELOPMENT USING PHP & MYSQL

Practical Credits: 12 hrs/week

Course Outcomes: On successful completion of this practical course, student shall be able to:

▪ Write, debug, and implement the Programs by applying concepts and error

handling techniques of PHP.

▪ Create an interactive and dynamic website.

▪ Create a website with reports generated from a database.

▪ Create an interactive website for e-commerce sites like online shopping, etc.

Practical (Laboratory) Syllabus: (30 hrs.)

1. Write a PHP program to Display “Hello”, and today’s date.

2. Write a PHP program to display Fibonacci series.

3. Write a PHP Program to read the employee details.

4. Write a PHP program to prepare the student marks list.

5. Write a PHP program to generate the multiplication of two matrices.

6. Create student registration form using text box, check box, radio button, select, submit button. And display user inserted value in new PHP page.

7. Create Website Registration Form using text box, check box, radio button, select, submit button. And display user inserted value in new PHP page.

8. Write PHP script to demonstrate passing variables with cookies.

9. Write a program to keep track of how many times a visitor has loaded the page.

10. Write a PHP application to add new Rows in a Table.

11. Write a PHP application to modify the Rows in a Table.

12. Write a PHP application to delete the Rows from a Table

13. Write a PHP application to fetch the Rows in a Table.

14. Develop an PHP application to implement the following Operations.

Registration of Users. Insert the details of the Users. Modify the Details.

Transaction Maintenance. No of times Logged in Time Spent on each login. Restrict the user for three trials only.

Delete the user if he spent more than 100 Hrs of transaction.

15. Write a PHP script to connect MySQL server from your website.

16. Write a program to read customer information like cust-no, cust-name, itempurchased, and mob-no, from customer table and display all these information in table format on output screen.

17. Write a program to edit name of customer to “Kiran” with cust-no =1, and to delete record with cust-no=3.

18. Write a program to read employee information like emp-no, emp-name, designation and salary from EMP table and display all this information using table format.

19. Create a dynamic web site using PHP and MySQL.

P R GOVT COLLEGE(AUTONOMOUS), KAKINADA
DEPARTMENT OF COMPUTER APPLICATIONS
III BCOM SEMESTER - V (W.E.F. 2025-26)
WEB DEVELOPMENT USING PHP & MYSQL

PAPER- **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**

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

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**	**1**	**15**
UNIT -III	**1**	**1**	**15**
UNIT -IV	**1**	**2**	**20**
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
III BCOM SEMESTER - V (W.E.F. 2025-26)
WEB DEVELOPMENT USING PHP & MYSQL

MODEL PAPER

Time : 2 Hrs **SEMESTER-V** **Max. Marks: 50**

SECTION-I

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

Part-A

1. Discuss about Conditional Statements in PHP ?

2. Explain the Various Data types in PHP?

3.What is an Array? Explain different types of array?

Part-B

4. Discuss the advantages of reusing code? How require() , include() using in PHP

5. Explain RDBMS concepts. How Mysql used for database management in web development?

6. Explain the concept of MVC architecture in Laravel.

SECTION-II

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

7. Explain Break and Continue statements ?

8. Explain about Assignment Operators?

9. Discuss about String formatting in PHP ?

10.Diffrentiate Passing by Reference vs Passing by Value ?

11. Define Class and Object with an example program?

12. List some database operations?

13. Explain Single Routes in PHP?

Mapping of Cos with POs/PSOs

CO /PO	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1															
CO 2															
CO 3															
CO 4															
CO 5															