ATTAINMENT OF PROGRAM OUTCOMES
B.SC MPCS
2021-2022 AB

		ATTAINMENT OF PROGRAM OUTCOMES - B.Sc(MPCS) 2021-22 AB												
					SEMESTER - I ATTAINMENTS									
Course	Sem	Credits	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4
English	I	4	68.22	68.1	68.4			69.23			68.40			0
Telugu	I	4	69.06	69.06	69.06	68.8	69.09	69.06	68.98	68.83	69.06			
Mathematics	I	4	68.97	69.04		69.16	68.97	69				69	68.97	
Physics	I	4	62.62	62.5	62.68						62.62			
Chemistry	I	4	55.59	55.78	56.74		55.63	55.63			55.94			
Semester-I attainments			65.194	65.188	64.785	67.5	59.06	59.635	62.317	67.53	66.7175		69.52	0

Remarks:

The above statistics shows that the course wise attainment of Program outcomes is above the targeted level (60%) for all courses except chemistry. The faculty of chemistry advised to Concentrate on effective TLE to improve the attainment level.

P. A. Jayaraju

SIGNATURE OF IQAC CO-ORDINATOR

V K Prasad
PRINCIPAL
R.R.D.S.Govt. Degree College
BHIMAVARAM-534 202

SIGNATURE OF PRINCIPAL

ATTAINMENT OF PROGRAM OUTCOMES - B.Sc(MPCS) 2021-22 AB														
			SEMESTER - II ATTAINMENTS											
Course	Sem	Credits	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4
English	II	4	58.8	58.99	59.95			60.01	60.01		59.95			0
Telugu	II	4	67.76	67.761	67.76	67.5	67.8	67.76	67.68	67.53	67.76			
Mathematics	II	4	69.58	69.48			69.48	69.52			69.48		69.52	
Physics	II	4	70.45	70.34	70.28						70.34			
Chemistry	II	4	59.38	59.37	59.29		59.06	59.06	59.26		59.29			
Semester-II attainments			65.194	65.188	64.785	67.5	59.06	59.635	62.317	67.53	66.7175		69.52	0

Remarks:

The above statistics shows that the course wise attainment of program outcomes is above the targeted level for Telugu, Mathematics, physics and nearer to the targeted level for English and chemistry. Faculty members advised to Concentrate on TLE to improve the attainment level further.

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ATTAINMENT OF PROGRAM OUTCOMES - B.Sc(MPCS) 2021-22 AB													
				TOTAL ATTAINMENTS									
Semester		Credits	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4
I		4	65.194	65.188	64.785	67.5	59.06	59.635	62.317	67.53	66.7175		69.52	0
II		4	65.194	65.188	64.785	67.5	59.06	59.635	62.317	67.53	66.7175		69.52	0

Remarks:

Overall picture of the attainment of program outcomes of B.Sc (MPCS) revealed that PO's attainment is above the targeted level (60%) for all POs and PSOs except PO5 and PO6. Faculty members advised to Concentrate on PO5 and PO6 in particular.

P. A. [illegible]

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PROGRAM OUTCOMES
OF
B.Sc(MPCs) 2021-22 AB

PROGRAM OUTCOMES

On the successful completion of graduation, the students will be able to:

PO1: Domain expertise

● Acquire knowledge and skills

● Apply them effectively and innovatively

PO2: Continuous learning and research

● Continue learning with self-motivation

● Adapt to the evolving demands and needs of life

● investigate to see cause and effect relationship

PO3: Using modern equipment

● Use ICT effectively

● Use it for communication and innovation

PO4: Following ethics

● Ensure ethical practices in workplace and life

● Follow ethics in all endeavors

PO5: Complex problem solving

● Predict and analyze problems

● Investigate and interpret empirical data

● Plan and execute action for problem solving

PO6: Perform effectively both as individual and in team

● Work efficiently as an individual

● Cooperate, coordinate and ensure successful teamwork

● Prioritize common interest to individual interest

PO7: Efficient communication and life skills

● Listen, understand and express thoughts in an effective manner

● Choose appropriate media to share information

PO8: Environmental sustainability

● Understand environmental challenges

● Think critically on environment sustainability measures

● Follow and propagate environment-friendly practices

PO9: Societal contribution

● Render service for the general good of the society

● Involve voluntarily in social development activities at Regional, National, and global levels

● Take pride in volunteering to address calamities, disasters, poverty, & epidemics

● Be a patriotic citizen to uphold the values of the nation

PROGRAM SPECIFIC OUTCOMES

BSc. (MATHS, PHYSICS &COMPUTERSCIENCE)

PSO 1: Understand the concepts of vector spaces, group theory, quantum mechanics, optical, thermal, electrical, mechanical properties of materials, probability, algorithm design, and database.

PSO 2: Analyze the concepts of mathematics, physics and computer science able to relate them in numerical programming of models of physical systems.

PSO 3: Acquire the skills to study the properties of materials, implementation of numerical algorithms by using various.

PSO 4: Ability to interlink the skills developed and acquire an aptitude to address the problems in simulations of material properties, web and mobile app development**.**

ENGLISH:

ENGLISH PAPER I - A Course in Communication and Soft Skills

2021-22 BATCHE

PROGRAM: MPCS YEAR: I SEMESTER: 1
COURSE: ENGLISH CREDITS: 3 HOURS: 4

COURSE OBJECTIVES

CO1 To use grammar effectively in writing and speaking

CO2 To use soft skills in practical situations

CO3 To be able to use communication skills confidently.

COURSE CONTENTS

CONTENT	CO	HOURS
UNIT I: Listening Skills Importance of Listening ii. Types of Listening iii. Barriers to Listening iv. Effective Listening.	**2, 3**	**10**
UNIT II: Speaking Skills a. Sounds of English: Vowels and Consonants b. Word Accent c. Intonation	**3**	**10**
UNIT III: Grammar a) Concord b) Modals c) Tenses (Present/Past/Future) d) Articles e) Prepositions f) Question Tags g) Sentence Transformation (Voice, Reported Speech & Degrees of Comparison) h) Error Correction	**1, 2, 3**	**20**
UNIT IV: Writing : v.Punctuation vi.Spelling vii.Paragraph Writing	**1**	**10**
UNIT V: Soft Skills a. SWOC b. Attitude c. Emotional Intelligence d. Telephone Etiquette e. Interpersonal Skills	**2, 3**	**10**

ASSESSMENT/EVALUATION METHODS

ASSESSMENT TOOL	**WEIGHTAGE (Marks)**
MID I (20 Marks)	TOTAL 50 Marks SCALE DOWN TO 25 Marks
MID II (15 Marks)	
ASSIGNMENTS (5 Marks)	
CLASSROOM ACTIVITIES (5 Marks)	
CLEAN & GREEN ACTIVITIES (5 Marks)	
FINAL EXAMINATION	75 Marks
TOTAL	**100**

MID I Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
What do you know about interpersonal skills?	1,2	Remembering and Understanding
What is a positive attitude?	1,2	Remembering and Understanding
How can you improve your positive attitude?	1,2	Remembering and Understanding
What is the difference between hearing and listening?	1,2	Remembering and Understanding
What is passive listening?	1,2	Remembering and Understanding
Write any two barriers to effective listening.	1,2	Remembering and Understanding
Explain any two strategies for effective listening..	1,2	Remembering and Understanding
Write the names of types of listening (only names).	1,2	Remembering and Understanding

What is the stress shift?	3	Remembering and Understanding
What is SWOC analysis?	2	Applying and evaluating
Spell the following.	1	Remembering and applying

MID II Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
Fill in the blanks with the correct form of the verb	1	Remembering and applying
Add question tags.	1	Remembering and applying
Fill in the blanks with the appropriate prepositions	1	Remembering and applying

Assignments

S. No.	**Topic**	**Bloom's Taxonomy Level**
1	What is a positive attitude?	Understanding
2	What is the difference between hearing and listening?	Understanding and applying
3	What is swoc analysis?	Remembering and analyzing
4	Write any two barriers to effective listening.	Remembering Understanding
5	Add question tags.	Understanding and applying
6	Fill in the blanks with the appropriate prepositions	Understanding and applying

Classroom Activities

S. No.	**Activity and Topic**	**Bloom's Taxonomy Level**
1	Teach back session	Understanding and Analyzing
2	Student Seminar on 'Importance of listening'	Understanding and Analyzing
3	Group discussion on 'SWOC Analysis'	Analyzing and Evaluating
4	Google Quiz on 'Articles'	Understanding and Applying
5	Google Quiz on 'Prepositions'	Understanding and Applying,
6	Group Discussion on 'English as a Global Language	Thinking and analyzing skills

Mapping of Course Outcomes with program and Program Specific Outcomes (CO, PO & PSO Matrix)

CO/PO/PSO	PO 1	PO 2	PO 3	PO 5	PO 6	PSO1
CO 1	3	3	3		3	3
CO 2	3	3	3		3	3
CO 3	3	3	3		3	3

CO Attainments (Direct and Indirect)

CO	Direct	Indirect	Total CO Attainment
CO 1	67.34	76.16	68.22
CO 2	67.34	75.00	68.10
CO 3	68.07	79.65	69.23
CO 4			

PO and PSO Attainment (Direct and Indirect)

CO	PO 1	PO 2	PO 3	PO 6	PSO 1
	3	3	3	3	3
CO 1	68.22	68.22	68.22	68.22	68.22
CO 2	68.10	68.10	68.10	68.10	68.10
CO 3	69.23	69.23	69.23	69.23	69.23
PO Attainment	68.22	68.10	68.40	69.23	68.40

CO Attainment is good, try to improve it further

Program Coordinator

PROGRAM: MPCS YEAR: I SEMESTER: 2
COURSE: ENGLISH CREDITS: 3 HOURS: 4

ENGLISH PAPER II - A Course In Reading & Writing Skills

COURSE OBJECTIVES

CO1 To comprehend different texts while reading

CO2 To build up a repository of vocabulary

CO3 To use writing skills in future needs for any purpose.

COURSE CONTENTS

CONTENT	**CO**	**HOURS**
UNIT I: Prose:1. How to Avoid Foolish Opinions Bertrand Russell Skills: 2. Vocabulary: Conversion of Words 3. One Word Substitutes : 4. Collocations	**1,2 &3**	**10**
UNIT II: Prose: 1. The Doll's House Katherine Mansfield Poetry: 2. Ode to the West Wind P B Shelley Non-Detailed Text : 3. Florence Nightingale Abrar Mohsin Skills : 4. Skimming and Scanning.	**1, 2**	**15**
UNIT III: Prose:1. The Night Train at Deoli Ruskin Bond Poetry: 2. Upagupta Rabindranath Tagore Skills : 3. Reading Comprehension : 4. Note Making/Taking	**1,2& 3**	**15**
UNIT IV: Poetry: 1. Coromandel Fishers Sarojini Naidu Skills:2. Expansion of Ideas: 3. Notices, Agendas and Minutes	**1,2& 3**	**10**
UNIT V: Non-Detailed Text:1. An Astrologer's Day R K Narayan Skills: 2. Curriculum Vitae and Resume: 3. Letters: 4. E-Correspondence	**1,2& 3**	**10**

ASSESSMENT/EVALUATION METHODS

ASSESSMENT TOOL	**WEIGHTAGE (Marks)**
MID I (20 Marks)	TOTAL 50 Marks SCALE DOWN TO 25 Marks
MID II (15 Marks)	
ASSIGNMENTS (5 Marks)	
CLASSROOM ACTIVITIES (5 Marks)	

CLEAN & GREEN ACTIVITIES (5 Marks)	
FINAL EXAMINATION	75 Marks
TOTAL	**100**

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MID I Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
How to Avoid Foolish Opinions.	2	Remembering and Understanding
The Doll's House	3	Analyzing and Evaluating
One Word Substitutes	3	Remembering and applying
Fill in the blanks with the given words	1, 2	Understanding and Applying

MID II Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
.fill in the blanks with the given words	12 & 3	Understanding and applying
Read the passage and answer the questions	1 &3	Understanding and analyzing

Assignments

S. No.	**Topic**	**Bloom's Taxonomy Level**
1	How to Avoid Foolish Opinions.	Remembering and understanding
2	Write about 'The Doll's House'	Remembering and understanding
3	Upagupta	Remembering and understanding
4	Night Train at Deoli	Remembering and understanding
5	Make a note of the following	Understanding and applying
6	Resume writing	Understanding and Evaluating

Classroom Activities

S. No.	**Activity and Topic**	**Bloom's Taxonomy Level**

1	Group Discussion on ‘Measures to Avoid Covid-19’	Understanding, Analyzing and thinking Skills
2	Online Quiz on ‘How to Avoid Foolish Opinions’.	Understanding and Evaluating
3	Online Quiz on ‘Upagupta’	Understanding and Evaluating
4	Online Quiz on ‘Night Train at Deoli’	Understanding and Evaluating
5	Online Quiz on ‘The Doll’s House’	Understanding and Evaluating
6	Online Quiz on ‘Coromandel Fishers’	Understanding and Evaluating
7	Online Quiz on ‘Ode to West Wind’	Understanding and Evaluating
8	Online Quiz on ‘An Astrologer’s Day’	Understanding and Evaluating

Mapping of Course Outcomes with program and Program Specific Outcomes (CO, PO & PSO Matrix)

CO/PO/ PSO	PO 1	PO 2	PO 3	PO 5	PO 6	PO 7	PSO 1
CO 1	3	3	3			3	3
CO 2	3	3	3			3	3
CO 3	3	3	3	3	3	3	3

CO Attainments (Direct and Indirect)

CO	Direct	Indirect	Total CO Attainment
CO 1	56.14	82.69	58.80
CO 2	56.14	84.62	58.99
CO 3	56.63	90.38	60.01

PO and PSO Attainment (Direct and Indirect)

CO	PO 1	PO 2	PO 3	PO 5	PO 6	PO 7	PSO 1
	3	3	3	3	3	3	3
CO 1	58.80	58.80	58.80		58.80	58.80	58.80
CO 2	58.99	58.99	58.99		58.99	58.99	58.99
CO 3	60.01	60.01	60.01		60.01	60.01	60.01
PO Attainment	58.80	58.99	59.95		60.01	60.01	59.95

Attainments of CO's is nearer to the bench mark. try to improve

Program Coordinator

DEPARTMENT OF TELUGU

2021-22 BATCH

PROGRAM: B.SC MPCS **YEAR: I** **SEMESTER: 1**
COURSE: CORE **CREDITS: 4** **HOURS: 4**

కోర్సు -1 : PAPER-1 Pracheena Telugu Kavitvam (ప్రాచీన తెలుగు కవిత్వం)

COURSE OBJECTIVES

CO 1. ప్రాచీన తెలుగుసాహిత్యం యొక్క ప్రాచీనతను , విశిష్టతను గుర్తిస్తారు . తెలుగు సాహిత్యంలో ఆదికవి నన్నయ కాలంనాటి భాషాసంస్కృతులను , ఇతిహాసకాలం నాటి రాజనీతి విషయాలపట్ల పరిజ్ఞానాన్ని సంపాదించగలరు .

CO 2. శివకవుల కాలంనాటి మతపరిస్థితులను , భాషావిశేషాలను గ్రహిస్తారు . తెలుగు నుడికారం , సామెతలు , లోకోక్తులు మొదలైన భాషాంశాల పట్ల పరిజ్ఞానాన్ని పొందగలరు .

CO 3.తిక్కన భారతంలాంటి మత , ధార్మిక పరిస్థితులను,తిక్కన కవితాశిల్పాన్ని , నాటకీయతను అవగాహన చేసుకోగలరు

CO 4. ఎఱ్ఱన సూక్తివైచిత్రిని,ఇతిహాస కవిత్వంలోని విభిన్న రీతులపట్ల అభిరుచిని పొందగలరు . శ్రీనాథుని కాలం నాటి కవితావిశేషాలను , మొల్ల కవితా విశిష్టతను గుర్తించగలరు .

CO 5. తెలుగు పద్యం స్వరూప స్వభావాలను , సాహిత్యాభిరుచిని పెంపొందించుకుంటారు. ప్రాచీన కావ్యభాషలోని వ్యాకరణాంశాలను అధ్యయనం చేయడం ద్వారా భాషాసామర్థ్యాన్ని , రచనలో మెళకువలను గ్రహించగలరు .

COURSE CONTENTS

CONTENT	CO	HOURS
యూనిట్- I రాజనీతి- నన్నయమహాభారతం - సభాపర్వం- ప్రథమాశ్వాసం- (26- 57 పద్యాలు)	1,5	12
యూనిట్-II దక్షయజ్ఞం –నన్నెచోడుడు కుమార సంభవం - ద్వితీయ శ్వాసం (49 - 86 పద్యాలు)	2 & 5	15
యూనిట్-III దౌమ్యధర్మోపదేశము - తిక్కన మహాభారతం - విరాటపర్వం - ప్రథమాశ్వాసం(116- 146) పద్యాలు	3 & 5	12
యూనిట్-IV పలనాటిబెబ్బులి - శ్రీ నాథుడు (పలనాటి వీర చరిత్ర - ద్విపద కావ్యం పుట	4&5	15

108- 112'బాలచంద్రుడు భీమంబగు సంగ్రామం బొనర్చుట.(108)….వెరగంది కుంది' (112) సం.అక్కిరాజు ఉమాకాంతం ముద్రణ: వి. కె .స్వామి, బెజవాడ 1911.		
యూనిట్ - V సీతారావణసంవాదం-మొల్ల రామాయణము-సుందరకాండము–(40 - 87పద్యాలు)	**4 & 5**	**12**

ASSESSMENT/EVALUATION METHODS

ASSESSMENT TOOL	**WEIGHTAGE (Marks)**
MID I (20 Marks)	TOTAL 50 Marks SCALE DOWN TO 25 Marks
MID II (15 Marks)	
ASSIGNMENTS (5 Marks)	
CLASSROOM ACTIVITIES (5 Marks)	
CLEAN & GREEN ACTIVITIES (5 Marks)	
FINAL EXAMINATION	75 Marks
TOTAL	**100**

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MID I Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
ఈ క్రింది పద్యాలలో ఒక దానికి తప్పనిసరిగా ప్రతిపదార్థ తాత్పర్యాలను వ్యాకరణాంశాలను రాయండి ? **బహు ధన ధాన్య సంగ్రహము బాణ శరాసన యోధ వీరసం** **గ్రహము నిరంత రాంతరుదకంబులు ఘాసర సేంధ నౌఘసం** **గ్రహము ననేక యంత్రములుఁ గల్గియ సాధ్యములై ద్విషద్భయా** **వహులగు చుండ నొప్పునె భావత్పరి రక్ష్యములైన దుర్గముల్.**	1,2 & 4	Remembering and Understanding
నారదుడు ధర్మరాజుకు చెప్పిన రాజనీతిని సంగ్రహంగా	1,2 & 4	Remembering and

తెలుపండి ?		Understanding
ధౌమ్యుడు పాండవులకు చేసిన ధర్మోపదేశాన్ని వివరించండి ?	1,2 & 4	Applying and Analyzing
దక్ష యజ్ఞం పాఠ్య భాగ సారాంశాన్ని రాయండి ?	1 & 4	Remembering
ఈ క్రింది వానికి సందర్భ సహిత వ్యాఖ్యలను రాయండి? i). వార్తయందు జగము వర్ధిల్లుచున్నది**ii)** ఉపదేశం బవస్య కర్తవ్యంబు	1,2 & 4	Remembering&Analyzing
i)రాజులు చేయకూడని దోషాలను తెలపండి? ii) **ధౌమ్యుడు పాండవులకు ధర్మోపదేశం ఎందుకు చేశాడు?**	1,2 & 4	Remembering&Analyzing
ఈ క్రింది ఇవ్వబడిన వానికి విడదీసి సంధి కార్యములు వ్రాయుము? **1 దేవోత్తములు2. అభ్యంతరము 3. విశ్వదాభిరామ4.** ఇట్లనిరి		
ఈ క్రింది వానికి విగ్రహవాక్యములు వ్రాసి, వాటి సమాసముల పేరును తెలియజేయుము ? **1**.రాజపుత్రులు**2.**ధనదాన్యములు**3.** గుణహీనుడు**4.** ప్రసన్నచిత్తులు	1,2 & 4	Remembering&Analyzing

MID II Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
1.పలనాటి బెబ్బులి కథాంశమును వ్రాయండి?	1 & 4	Remembering and Understanding
2.పలనాటి యుద్ధంలో బాలచంద్రునియుద్ధ కౌశలాన్ని వివరించండి?	1 & 4	Remembering and Understanding
3.సీతా రావణ సంవాదాన్ని సంగ్రహంగా రాయండి?	**1 & 4**	Remembering and Understanding

పారిపోతున్న తన సైన్యమునకు, నరసింహారాజు,చెప్పిన ధైర్య వచనములు ఏవి?	1&4	Remembering and Understanding
బాల చంద్రుని చూసి నలగామరాజు సైన్యం భయపడిన విధమెట్టిది?	1 & 2	Remembering and Understanding
తనను నిందించిన సీతను రావణుడు బెదిరించిన విధమెట్టిది?	1 & 2	Remembering and Understanding
త్రిజట తన స్వప్నాన్ని గురించి తోటి కావలికత్తెలతో ఏమని చెప్పింది?	2	Remembering and Applying
సందర్భం-చాల సేపీగతి సమరం బొనర్చె?	1	Remembering
సందర్భం-రాముడే రీతి లంకకు రాగలండు ?	1	Remembering and Applying
సందర్భం-సిద్ధం బీమాట వేద సిద్ధాంతముగన్	1	Remembering
పలనాటి బెబ్బులి పాఠ్యభాగ రచయిత ఎవరు ?	1	Remembering
శ్రీనాథుని బిరుదు ఏది ?	1	Applying
నాగమ్మ ఎవరి మంత్రి ?	1	Understanding
బ్రహ్మనాయుని కొడుకుపేరేమి?	1	Understanding
కొదమ సింహము ఏ సమాసం ?	1	Remembering
సమరోర్వి- విడదీయండి ?	1	Understanding
దశరథునికి ఎంతమంది భార్యలు?	1	Remembering
మాయలేడి రూపంలో ఉన్న రాక్షసుని పేరేమిటి?	1	Applying
రావణుని సోదరి పేరేమిటి ? 'శాంతవచనములు' ఏ సమాసం?	1	Understanding

Assignments

S. No.	Topic	Bloom's Taxonomy Level

1	బహు ధన ధాన్య సంగ్రహము బాణ శరాసన యోధ వీరసం గ్రహము నిరంత రాంతరుదకంబులు ఘాసర సేంధ నౌఘసం గ్రహము ననేక యంత్రములుఁ గల్గియ సాధ్యములై ద్విషద్భయా వహులగు చుండ నొప్పునె భావత్పరి రక్ష్యములైన దుర్గముల్.	Understanding&Remembering
2	రాజులు చేయకూడని దోషాలను తెలపండి? ధౌమ్యుడుపాండవులకు ధర్మోపదేశం ఎందుకు చేశాడు? రాజనీతి పాఠ్య భాగ సారాంశం రాయండి?	Understanding and applying
3	దక్షయజ్ఞం పాఠ్య భాగ సారాంశాన్ని వివరించండి ?	Remembering and applying
4	సంధులు సమాసాలు అలంకారాలు చంధస్సు	Understanding
5	ఎండకు వాన కోర్చితనయిల్లుప్రవసపుఁజోటు నాక యా కొండునలంగుదున్నిదురకుందఱిదప్పెడుడప్పివుట్టె నొ క్కుండనయెట్లొకోయనక కార్యము ముట్టినచోటనేలినా తం డొకచాయ చూపినను దత్పరతం బని సేయుటొప్పగుస్.	Understanding and applying
6	ధౌమ్యుడు పాండవులకు చేసిన ధర్మోపదేశాన్ని వివరించండి ?	Remembering, understanding and evaluation
7	పలనాటి బెబ్బులి కథాంశాన్ని రాయండి?	Understanding and applying
8	బాలచంద్రుని పరాక్రమం వర్ణించండి?పారిపోతున్న సైన్యానికి నరసింహ భూపతి చెప్పిన ధైర్య వచనాలేవి?	Understanding
9	సీతారావణ సంవాద పాఠ్యభాగ సారాంశాన్ని వివరించండి ?	Understanding and applying
10	మొల్లను పరిచయం చేయండి? మరియు త్రిజట స్వప్న వృత్తాంతాన్ని తెలపండి?	Understanding and applying

Classroom Activities

S. No.	Activity and Topic	Bloom's Taxonomy Level
1	Chart preparation and Teach back session	Understanding and Analysis

2	**Debate on ప్రాచీన సాహిత్య అధ్యయనం ఆవసరమా? అనవసరమా?**	Applying , Analyzing and Evaluating
3	Clean and Green	Understanding
4	స్టూడెంట్ సెమినార్స్ Students Seminars	Remembering, Understanding and Applying
5	పదాలతో అంత్యాక్షరి Padalato Antyakshari	Understanding, Applying, Analyzing and Evaluating
6	QUIZ	Analyzing and Evaluating
7	Group Discussion	Covering of Lower order and Higher order thinking skills

Mapping of Course Outcomes with program and Program Specific Outcomes (CO, PO & PSO Matrix)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1
CO1	3	3	3			3	3	3	3
CO2	3	3	3			3	3	3	3
CO3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3		3			3

CO Attainments (Direct and Indirect)

CO	DIRECT	INDIRECT	Total CO Attainment
CO1	67.40	81.40	68.80
CO2	67.40	82.56	68.92
CO3	67.40	81.40	68.80
CO4	67.40	87.21	69.38
CO5	67.40	83.72	69.04

PO and PSO Attainment (Direct and Indirect)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1
CO1	68.80	68.80	68.80		68.80	68.80	68.80	68.80	68.80
CO2	68.92	68.92	68.92		68.92	68.92	68.92	68.92	68.92
CO3	68.80	68.80	68.80	**68.80**	68.80	68.80	68.80	68.80	68.80
CO4	69.38	69.38	69.38	68.80	69.38	69.38	69.38	68.80	69.38
CO5	69.38	69.38	69.38	68.80	69.38	69.38	69.38	68.80	69.38
PO Attainment	**69.06**	**69.06**	**69.06**	**68.80**	**69.09**	**69.06**	**68.98**	**68.83**	**69.06**

CO Attainment is good, try to improve it further

Program Coordinator

021-22 BATCH

PROGRAM: B.SC MPCS **YEAR: I** **SEMESTER: 2**

COURSE: CORE **CREDITS: 4** **HOURS: 4**

Telugu PAPER II – Adhunika Telugu Sahityam (ఆధునిక తెలుగుసాహిత్యం)

COURSE OBJECTIVE

CO 1. ఆంగ్లభాష ప్రభావం కారణంగా తెలుగులో వచ్చిన ఆధునిక సాహిత్యాన్ని , దాని విశిష్టతను గుర్తిస్తారు .

CO 2. సమకాలీన ఆధునిక సాహిత్య ప్రక్రియలైన " వచన కవిత్వం , కథ , నవల , నాటకం , విమర్శ " లపై అవగాహన పొందుతారు .

CO 3. భావకవిత , అభ్యుదయ కవితాలక్ష్యాలను గూర్చిన జ్ఞానాన్ని పొందుతారు . అస్తిత్వవాద ఉద్యమాలపుట్టుకను , ఆవశ్యకతను గుర్తిస్తారు .

CO 4. కథాసాహిత్యం ద్వారా సామాజిక చైతన్యాన్ని పొందుతారు . సిద్ధాంతాల ద్వారా కాకుండా , వాస్తవ పరిస్థితులను తెలుసుకోవడం ద్వారా సిద్ధాంతాన్ని సమీక్షించగలరు .

CO 5. ఆధునిక తెలుగు కల్పనాసాహిత్యం ద్వారా సామాజిక , సాంస్కృతిక , రాజకీయ చైతన్యాన్ని పొందుతారు .

COURSE CONTENTS

CONTENT	CO	HOURS
యూనిట్- I : ఆధునిక కవిత్వం **1.ఆధునిక కవిత్వం-** పరిచయం **2.కొండవీడు**–దువ్వూరి రామిరెడ్డి(కవి కోకిల గ్రంథావళి-ఖండకావ్యాలు-**నక్షత్రమాల**సంపుటి నుండి) 3.**మాతృ సంగీతం**–అనిసెట్టిసుబ్బారావు(అగ్నివీణ కవితా సంపుటి నుండి) **4.తాతకోనూలు పోగు**-బండారు ప్రసాద మూర్తి (కలనేత కవితా సంపుటి నుండి)	**1,2,3 & 4**	**12**
యూనిట్ – II : కథానిక **5.తెలుగు కథానిక**- పరిచయం **6.భయం(కథ)**-కాళీపట్నం రామారావు **7.స్వేదం ఖరీదు…?-** రెంటాల నాగేశ్వరరావు	**1, 2, 3 & 4**	**12**
యూనిట్ – III : నవల **8.తెలుగు నవల**- పరిచయం **9.రథచక్రాలు(నవల)**– మహీధరరామ్మోహనరావు **(సంక్షిప్త ఇతివృత్తం మాత్రం)** **10.రథచక్రాలు - సమీక్ష(వ్యాసం)**- -డాIIయల్లాప్రగడ మల్లికార్జునరావు	**1, 2, 3 & 4**	**12**

యూనిట్-lV : నాటకం **11.తెలుగు నాటకం-** పరిచయం **12.యక్షగానము(నాటిక)–ఎం. వి. ఎస్. హరనాథరావు** **13.అపురూప కళారూపాల విధ్వంస దృశ్యం'యక్షగానం'**-డాllకందిమళ్ళ సాంబశివరావు	**1, 2, 3 & 4**	**12**
యూనిట్- V : విమర్శ - డాllనాగభైరవ ఆదినారాయణ **14.తెలుగు సాహిత్య విమర్శ -** పరిచయం **15.విమర్శ - స్వరూప స్వభావాలు ; ఉత్తమ విమర్శకుడు - లక్షణాలు ; విమర్శ - భేదాలు**	**1, 2, 3 & 4**	**12**

ASSESSMENT/EVALUATION METHODS

ASSESSMENT TOOL	**WEIGHTAGE (Marks)**
MID I (20 Marks)	TOTAL 50 Marks SCALE DOWN TO 25 Marks
MID II (15 Marks)	
ASSIGNMENTS (5 Marks)	
CLASSROOM ACTIVITIES (5 Marks)	
CLEAN & GREEN ACTIVITIES (5 Marks)	
FINAL EXAMINATION	75 Marks
TOTAL	**100**

MID I Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
1.ఆధునిక కవిత్వ ఆరంభ వికాసాల్ని తెలపండి?	2 & 4	Remembering and Understanding
2. 'తాతకో నూలుపోగు' పాఠ్యభాగ సారాంశమును గురించి రాయండి?	3 & 4	Analyzing and Evaluating
3.కథానిక ఆవిర్భావ వికాసాల్ని వివరించండి?	3&4	Analyzing&Evaluating

1. ఆధునిక కవిత్వ లక్షణాల్ని రాయండి ?	1, 2 & 4	Understanding
2. దువ్వూరి రామిరెడ్డి'ని గురించి రాయండి ?	1 & 4	Remembering
3. అనిశెట్టి సుబ్బారావును పరిచయం చేయండి?	1 & 4	Remembering
4. బండారు ప్రసాదమూర్తిని గురించి తెలపండి?	3 & 4	Understanding and analyzing
5. తెలుగు కథానికను పరిచయం చేయండి	3 & 4	Understanding and analyzing
6. తెలుగు కథానిక లక్షణాల్ని తెలపండి?	3 & 4	Applying
7. కాళీపట్నం రామారావు ని పరిచయం చేయండి?	3 & 4	Remembering
1.కొండవీడు పాఠ్య భాగము ఎందులోనుండి తీసుకున్నారు?	1	Remembering
2.అనిశెట్టి సుబ్బారావు రాసిన పాఠ్యాంశం పేరు?	1	Remembering
3.తాతకో నూలుపోగు ఏ కవితా సంపుటి నుండి తీసుకున్నారు?	2	Applying
4.దువ్వూరి రామిరెడ్డి బిరుదు ?	2	Applying
5.అభ్యుదయ కవితకు పునాది ?	2	Understanding
6.స్వేదం ఖరీదు పాఠం రచయిత ?	1 & 2	Remembering
7.కాళీపట్నం రామారావు రాసిన కథ పేరేమి ?	1 & 4	Remembering and applying
8.కథ లక్షణం ఒకటి?	1	Remembering
9.కవిత లక్షణం ఒకటి?	1	Remembering
10.బండారు ప్రసాదమూర్తి ఏ ఊరు?	1	Remembering

MID II Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
థచక్రాలు నవలలోని ముఖ్య పాత్ర * **a.నిత్యానందం b.సత్యానందం**	1	Remembering and Understanding

c.ఆత్మానందం d.సత్య వేదం అరిస్టాటిల్ నాటకానికి ఎన్ని లక్షణాలు చెప్పాడు ?*		
ఆచార్య SV రామారావు రాసిన పుస్తకం పేరేమి?* a.సాహిత్య దర్శనం b.ఆంధ్ర సాహిత్య విమర్శ ఆంగ్ల ప్రభావం c.తెలుగులో సాహిత్య విమర్శ d.ఆంధ్ర కవుల చరిత్ర	1	Remembering
"అపురూప కళా రూపాల విధ్వంస దృశ్యం యక్షగానం" పాఠం రాసిందెవరు?* a.హరనాథరావు b.యల్లాప్రగడ మల్లికార్జున రావు c.కందిమల్ల సాంబశివరావు d.ఎవరు కాదు	1 & 2	Remembering and Understanding
విశ్వం ఎవరి కొడుకు * a.సత్యానందం b.భద్ర c.జానకి d.దీవాస్	1 & 2	Remembering and Understanding
ఈకింది వానిలో ఏది ఉత్తమ విమర్శకుని లక్షణం కాదు ? a.పక్షపాతం b. సహృదయత c.సత్య ప్రకటన d.సమదర్శనం	1 & 2	Remembering and Understanding
ఆలంకారిక విమర్శకున్న మరొక పేరు?* a.మనస్తత్వ విమర్శ b.లాక్షణిక విమర్శ c.నైతిక విమర్శ d. స్వతంత్ర విమర్శ	1 & 2	Remembering and Understanding
శంభూక వధ నాటక రచయిత * 1.త్రిపురనేని 2.అక్కినేని 3.భీమినేని 4.కేశినేని	1	Remembering
యం.వి.యస్.హరనాథ రావు రాసిన పాఠం పేరేమి ?* a.యక్షగానం b.నవల c.నాటకం d.కథానిక	2	Remembering and Understanding
సమకాలీన జీవితానికి దర్పణం* aకవిత్వం bవిమర్శ cకథానిక d నవల	1	Remembering

యక్షగానంలోని హాస్య పాత్ర పేరు * a.భట్టు b.కేతిగాడు c.యక్షుడు d.ప్రహ్లాదుడు	3	Applying
కప్పి చెబితే కవిత్వం విప్పి చెబితే విమర్శ అన్నదెవరు ?* sv రామారావు b.దివాకర్ల వేంకటావధాని c.పింగళి లక్ష్మీకాంతం d.సింగిరెడ్డి నారాయణరెడ్డి	1	Remembering
రథ చక్రాలు నవలా రచయిత * a.బుచ్చిబాబు b.గోపిచంద్ c.మహీధర రామ్మోహన రావు d.చలం	4	Applying
విమర్శని ఆంగ్లంలో ఏమంటారు ?* a. Criticism d.Romanticism c.Patriotism d.Marxism	3	
కన్యాశుల్కం నాటక రచయిత * a.గురజాడ b.శ్రీ శ్రీ c.చలం d.కృష్ణశాస్త్రి	4	

Assignments

S. No.	Topic	Bloom's Taxonomy Level
1	ఆధునిక కవిత్వ ఆవిర్భావ వికాసాలను వివరించండి?	Understanding
2	'కొండవీడు'లోదువ్వూరిరామిరెడ్డిసందేశాన్నివివరించండి?	Remembering and understanding
3	అనిశెట్టిసుబ్బారావు మాతృ సంగీతాన్ని తెలపండి.?	Understanding and analyzing
4	తాతకో నులుపోగు ద్వారా బండారు ప్రసాద్ మూర్తి నేతగాని స్థితిని ఎలా వర్ణించారు?	Remembering
5	తెలుగుకథానికనుపరిచయంచేసికథానికాలక్షణాలనుతెలపండి ?	Remembering
6	భయం"కథలోని రచయిత సందేశాన్ని రాయండి(లేదా)"భయం" కథ ద్వారా రచయిత సమాజానికిచ్చిన సందేశం ఏమిటి?	Understanding and evaluation

7	**“స్వేదంఖరీదు”ఇతివృత్తాన్ని తెలుపండి(లేదా)“ స్వేదంఖరీదు”కథా అంశాన్ని తెలియజేయండి**	Remembering
8	**నవల ఆవిర్భావ వికాసాలను తెలపండి ?**	Remembering
9	**తెలుగునాటకంలో అభ్యుదయ తెలుగు నాటక లక్షణాలు**	Remembering and evaluation
10	**యక్షగానం నాటికపై సమీక్ష వ్యాసం రాయండి.**	Remembering

Classroom Activities

S. No.	Activity and Topic	Bloom’s Taxonomy Level
1	Chart preparation and Teach back session	Understanding and Analysis
2	**Debate on ఆధునిక సాహిత్య అధ్యయనం ఆవసరమా? అనవసరమా?**	Covering Lower and Higher order thinking skills
3	Clean and Green	Covering Lower and Higher order thinking skills
4	స్టూడెంట్ సెమినార్స్ Students Seminars	Covering Lower and Higher order thinking skills
5	పదాలతో అంత్యాక్షరి Padalato Antyakshari	Covering Lower and Higher order thinking skills
6	**ONLINE QUIZ**	

Mapping of Course Outcomes with program and Program Specific Outcomes (CO, PO & PSO Matrix)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1
CO1	3	3	3			3	3	3	3
CO2	3	3	3			3	3	3	3
CO3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3		3			3

CO Attainments (Direct and Indirect)

CO	DIRECT	INDIRECT	Total CO Attainment
CO1	65.96	81.40	67.50
CO2	65.96	82.56	67.62
CO3	65.96	81.40	67.50
CO4	65.96	87.21	68.09
CO5	65.96	83.72	67.74

PO and PSO Attainment (Direct and Indirect)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1
CO1	67.5	67.505	67.5		67.50	67.50	67.50	67.50	67.50
CO2	67.62	67.621	67.62		67.62	67.62	67.62	67.62	67.62
CO3	67.5	67.505	67.5	67.5	67.50	67.50	67.50	67.50	67.50
CO4	68.09	68.086	68.09	67.5	68.09	68.09	68.09	67.50	68.09
CO5	68.09	68.086	68.09	67.5	68.09	68.09	68.09	67.50	68.09
PO Attainment	67.76	67.761	67.76	67.5	67.80	67.76	67.68	67.53	67.76

CO Attainment is good, try to improve it further

Program Coordinator

DEPARTMENT OF MATHS

2021-22 BATCH

PROGRAM:B.SC(MPC) **YEAR: I** **SEMESTER: 1**

COURSE: CORE **CREDITS: 5** **HOURS: 6**

MATHEMATICS PAPER I - DIFFERENTIAL EQUATIONS

COURSE OUTCOMES:

CO1 Solve linear differential equations
CO2 Convert non exact homogeneous equations to exact differential equations by using integrating factors
CO3 Know the methods of finding solutions of differential equations of the first order but not of the first Degree.
CO4 Solve higher-order linear differential equations, both homogeneous and non homogeneous, with constant coefficients.
CO5 Understand the concept and apply appropriate methods for solving differential equations.

COURSE CONTENTS

CONTENT	CO	HOURS
UNIT I: Differential Equations of first order and first degree: Linear Differential Equations; Differential equations reducible to linear form; Exact differential equations; Integrating factors.	1, 2 & 5	12
UNIT II: Differential Equations of first order but not of the first degree: Equations solvable for p; Equations solvable for y; Equations solvable for x; Equations homogeneous in x and y; Equations of the first degree in x and y – Clairaut's Equation.	1, 3 & 5	12

UNIT III: Higher order linear differential equations-I: Solution of homogeneous linear differential equations of order n with constant coefficients; Solution of the non-homogeneous linear differential equations with constant coefficients by means of polynomial operators. General Solution of f(D)y=0. General Solution of f(D)y=Q when Q is a function 1/f(D) is expressed as partial fractions of x, P.I. of f(D)y = Q when Q= beax P.I. of f(D)y = Q when Q is bsin ax or b cos ax**.**	**1, 4 & 5**	**12**
UNIT IV: Higher order linear differential equations-II: Solution of the non-homogeneous linear differential equations with constant coefficients. P.I. of f(D)y = Q when Q= bxk P.I. of f(D)y = Q when Q= eax V , where V is a function of x. P.I. of f(D)y = Q when Q= xV , where V is a function of x. P.I. of f(D)y = Q when Q= xmV , where V is a function of x.	**1, 4 & 5**	**12**
UNIT V: Higher order linear differential equations-III : Method of variation of parameters; Linear differential Equations with non-constant coefficients(Solution when a part of CF is known method only); The Cauchy-Euler Equation, Legendre's linear equations.	**1, 4 & 5**	**12**

ASSESSMENT/EVALUATION METHODS

ASSESSMENT TOOL	**WEIGHTAGE (Marks)**
MID I (20 Marks)	TOTAL 50 Marks SCALE DOWN TO 25 Marks
MID II (15 Marks)	
ASSIGNMENTS (5 Marks)	
CLASSROOM ACTIVITIES (5 Marks)	
CLEAN & GREEN ACTIVITIES (5 Marks)	
FINAL EXAMINATION	75 Marks
TOTAL	**100**

PROGRAM SPECIFIC OUTCOMES

.**MID I Questions**

Question	**Course Objective**	**Bloom's Taxonomy Level**
Solve (*xy^3)dx-(x^3+y^3)dy=0	1,2 & 5	Remembering and Applying
Solve (1+y^2)dx=(tan−1y–x)dy=0	1,2 & 5	Remembering and Applying
Solve (dy/dx)(x^2y^3+xy)=1	1,4 & 5	Remembering and Applying
Solve (D^2-4D+3)y=Sin3xCos2x	1,4 & 5	Remembering and Applying
Solve (D^2-3D+2)y=Coshx	1,4 & 5	Remembering and Applying
Solve (D^2+4)y=e^x+sin2x+cos2x	1,4 & 5	Remembering and Applying
Find the angle b/w the line (x-1)/-3=(y-2)/2=(z-3)/2 & (x-1)/3=(y-5)/1=z/-5.	2,3 & 4	Remembering and Applying
Find the image of the point (2,-1,3) to the plane 3x-2y+z-9=0	1 & 4	Remembering, Applying and Analyzing
P.T the points (1,2,3),(4,0,4)(-2,4,2),(7,-2,5) are collinear.	2,3 & 4	Remembering and Applying
Angle between two planes is _____	1 & 3	Remembering
The distance b/w the parallel planes ax+by+cz+d1=0, ax+by+cz+d2=o is _____	1 & 3	Remembering
Equation of the plane making intercepts a,b,c on the co - ordinate axis is_____	1 & 3	Remembering
Distance of the origin from the plane ax+by+cz+d=0 is _____	1 & 3	Remembering
Condition from H=0 represents the equation of the pair of planes is_____	1 & 3	Remembering
If θ is the angle b/w the pair of planes H=0 then_____	1 & 3	Remembering
Equation of the line through the point (x,y,z) and dr's (l,m,n) in symmetric form_____	2 & 3	Remembering

(y-y1)/m=(z-z1)/n represents the plane through perpendicular to_____	1 & 3	Remembering
Condition for perpendicular planes is_____	1 & 3	Remembering

MID II Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
Solve (x^2D^2+3Dx+1)y=1/(1-x)^2	1,4 & 5	Remembering and Applying
Solve y^2 logy = xyp+p^2	1,3 & 5	Remembering and Applying
Solve xy^2(p^2+2) = 2py^3+x^3	1,3 & 5	Remembering and Applying
Solve (x^3D^3+2x^2d^2+xD-1)y = 0	1,4 & 5	Remembering and Applying
Solve (D^4-2D^3+2D^2-2D+1)y=0	1,4 & 5	Remembering and Applying
Solve (D^2+D+1)y=0	1,4 & 5	Remembering and Applying
Solve (y-xp)(p-1) = p	1,3 & 5	Remembering and Applying
Solve y^2-2pxy+p^2(x^2-1)= m^2 by clairaut's method	1,3 & 5	Remembering and Applying
Solve y+px=p^2x^4	1,3 & 5	Remembering and Applying
Solve xp^3 = a+bp	1,3 & 5	Remembering and Applying
If Yp=AU+BV in method of variation of parameter. Give the values of A and B is_____	4	Remembering
If y=x and y=xe^(ax) are linearly independent solutions of homogeneous equations then yc=_____	4	Remembering and Applying
Yc=C1cosx=C2sinx then find A=_____ in method of variation of parameters	4	Remembering and Applying

If y=xp=f(p) then find a general solution?	3	Understanding, Remembering and Applying
∫UdV=_____	1	Remembering
∫Cosec X dx= ____	1	Remembering
∫xe^x dx =____	1	Remembering
Linear differential equation of first order is (dy/dx)+y P(x) = Q(x) then integrating factor(IF) is ____	1 & 3	Remembering
Mdx+Ndy=0 is a homogeneous differential equation and Mx=Ny≠0. Then integrating factor(IF) of Mdx+Ndy is _____	1 & 4	Remembering
∫{f'(x)/f(x)} dx=_____	1	Remembering

Assignments

S. No.	Topic	Bloom's Taxonomy Level
1	Solve (D^2+a^2)= sec ax Solve (D^2+16)= tan 4x	Understanding and applying
2	Solve (D^2-2D+4)y=8(x^2+e^2x+ sin2x) Solve (D^3+2D^2+D)y= e^2x+ x^2+x	Understanding and applying
3	Solve (D^2-5D+6)y= e^4x(x) Solve D^2y-6Dy+13y=8e^(3x)sin2x	Understanding and applying
4	Solve D^2y+3 Dy+2y= x e^x sinx Solve (D^2+2D+1)y=x cosx Solve (D^2+4) = x Sinx	Understanding and applying
5	Solve(D^4+2D^2+1)y = x^2 cosx Solve (D^2-4D=4)y = 8x^2 e^(2x) six	Understanding and applying
6	a)Solve x^3D^3y+2x^2D^2y+2y=10[x=(1/x)] b)If y=x and y=xe^(ax) are linearly independent solutions of homogeneous equations corresponding to x^2D^2y-2x(1+x)Dy+2(x+1)y = x^3	Understanding, Remembering and applying
7	Solve 3 x^2D^2y+xDy+y=x Solve (x^3D^2+2xD-12)y=x^3 logx	Understanding and applying
8	Solve D^2y+(1/x)Dy=12 (logx/x^2) Solve x^2D^2y+3xDy+y=1/(1-x)^2	Understanding and applying

9	Solve x^2 D^2y-3xDy+5y= x^2 sin(log x) Solve (x^2D^2+2xD-20)y=(x+1)^2	Understanding and applying
10	Solve p^2+2py cotx=y^2 Solve x+yp^2=(1+xy)p	Understanding and applying
11	Solve y+px=p^2x^4 Solve y=2xp+x^2p^4	Understanding and applying
12	Solve (1+e^(x/y))dx+e^(x/y)[1-(x/y)]dy=0 Solve (4x+3y+1)dx+(3x+2y+1)dy=0 Solve xdy-ydx=xy^2dx Solve xdx+ydy+{[xdy-ydx]/[x^2+y^2]}=0	Understanding and applying
13	Solve x^2ydx-(x^3+y^3)dy=0 Solve y^2 dx+(x^2-xy-y^2)=0 Solve xDy=y+xe^(y/x)	Understanding and applying
14	Solve (x^3y^3+x^2y^2+xy+1)ydx + (x^3y^3-x^2y^2-xy+1)xdy=0 Solve y(1+xy)dx+x(1-xy)dy=0	Understanding and applying
15	Solve cos^2 x (dy/dx)+y=tanx Solve (1+x^2)(dy/dx)+2xy-4x^2=0	Understanding and applying

Classroom Activities

S. No.	Activity and Topic	Bloom's Taxonomy Level
1	Quiz on general knowledge	Knowledge Remembering
2	Quiz on 'life of Srinivasa Ramanujan"	Knowledge Remembering
3	Student seminar on Method of variation of parameters	Understanding and Applying
4	Chart preparation on value of Pi(π=3.14)	Analyzing and Creating
5	Chart preparation on Constructing parabola by simple straight lines.	Analyzing and Creating
6	Group discussion on Differential equations.	Remembering, Understanding, Applying , Analyzing and Evaluating
7	Study project on Correlation of Maths in Agriculture	Understanding, Applying, Analyzing and Evaluating
8	Clean and Green	Understanding

Mapping of Course Outcomes with program and Program Specific Outcomes (CO, PO & PSO Matrix)

CO/PO/ PSO	PO 1	PO 2	PO 4	PO 5	PO 6	PSO 2	PSO 4
CO 1	3			3		3	
CO 2	3	3		3	3	3	3
CO 3	3	3		3	3	3	3
CO 4	3	3		3	3	3	3
CO 5	3	3	3	3		3	

CO Attainments (Direct and Indirect)

CO	Direct	Indirect	Total CO Attainment
CO 1	66.30	90.12	68.68
CO 2	66.28	90.12	68.66
CO 3	66.46	91.28	68.94
CO 4	66.31	97.09	69.38
CO 5	66.25	95.35	69.16

PO and PSO Attainment (Direct and Indirect)

	PO 1	PO 2	PO 4	PO 5	PO 6	PSO 2	PSO 4
	3	3	3	3	3	3	3
CO 1	68.68			68.68			68.68
CO 2	68.66	68.66		68.66	68.66	68.66	68.66
CO 3	68.94	68.94		68.94	68.94	68.94	68.94
CO 4	69.38	69.38		69.38	69.38	69.38	69.38
CO 5	69.16	69.16	69.16	69.16			69.16
PO Attainment	68.97	69.04	69.16	68.97	69.00	69.00	**68.97**

CO Attainment is good, try to improve it further

Program Coordinato

PROGRAM: B.SC(MPC) **YEAR: I** **SEMESTER: 2**
COURSE: CORE **CREDITS: 5** **HOURS: 6**

MATHEMATICS PAPER II - THREE DIMENSIONAL ANALYTICAL SOLID GEOMETRY

COURSE OBJECTIVES

CO1. get the knowledge of planes.

CO2. basic idea of lines, sphere and cones.

CO3. understand the properties of planes, lines, spheres and cones.

CO4. express the problems geometrically and then to get the solution.

COURSE CONTENTS

CONTENT	CO	HOURS
UNIT I: The Plane: Equation of plane in terms of its intercepts on the axis, Equations of the plane through the given points, Length of the perpendicular from a given point to a given plane, Bisectors of angles between two planes, Combined equation of two planes, Orthogonal projection on a plane.	**1,3 & 4**	**12**
UNIT II: The Line :Equation of a line; Angle between a line and a plane; The condition that a given line may lie in a given plane; The condition that two given lines are coplanar; Number of arbitrary constants in the equations of straight line; Sets of conditions which determine a line; The shortest distance between two lines; The length and equations of the line of shortest distance between two straight lines; Length of the perpendicular from a given point to a given line.	**2, 3 & 4**	**12**
UNIT III: The Sphere :Definition and equation of the sphere; Equation of the sphere through four given points; Plane sections of a sphere; Intersection of two spheres; Equation of a circle; Sphere through a given circle; Intersection of a sphere and a line; Power of a point; Tangent plane; Plane of contact; Polar plane; Pole of a Plane; Conjugate points; Conjugate planes;	**2, 3 & 4**	**12**

UNIT IV: The Sphere and Cones : Angle of intersection of two spheres; Conditions for two spheres to be orthogonal; Radical plane; Coaxial system of spheres. Limiting Points. Definitions of a cone; vertex; guiding curve; generators; Equation of the cone with a given vertex and guiding curve; equations of cones with vertex at origin are homogenous; Condition that the general equation of the second degree should represent a cone;	**2, 3 & 4**	**12**
UNIT V: Cones :Enveloping cone of a sphere; right circular cone: equation of the right circular cone with a given vertex, axis and semi vertical angle: Condition that a cone may have three mutually perpendicular generators; intersection of a line and a quadric cone; Tangent lines and tangent plane at a point; Condition that a plane may touch a cone; Reciprocal cones; Intersection of two cones with a common vertex.	**2, 3 & 4**	**12**

ASSESSMENT/EVALUATION METHODS

ASSESSMENT TOOL	**WEIGHTAGE (Marks)**
MID I (20 Marks)	TOTAL 50 Marks SCALE DOWN TO 25 Marks
MID II (15 Marks)	
ASSIGNMENTS (5 Marks)	
CLASSROOM ACTIVITIES (5 Marks)	
CLEAN & GREEN ACTIVITIES (5 Marks)	
FINAL EXAMINATION	75 Marks
TOTAL	**100**

MID I Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
A variable plane is at a constant distance 3p from the origin and meets axis A,B,C . Show that the locus of the centroid of a triangleABC is x^(-2)+y^(-2)+z^(-2)=p^(-2).	1,3 & 4	Remembering, Understand and Applying

Find the bisecting plane of the acute angle b/w planes 3x-2y-6z+2=0, -2x+y+2z-2=0.	1,3 & 4	Remembering, Applying and Analyzing
S.T (1,3,-2) is the point of intersection of a line (x+1)/1=(y+3)/3=(z-2)/2 to the plane 3x+4y+5z-5=0	1,2,3 & 4	Remembering and Applying
Find the angle between the planes 2x-3y+4z-11=0,3x-2y-3z+27=0	1, 2 & 4	Remembering and Applying
S.T the following point are co planner (-6,3,2),(-13,17,-1),(3,-2,4),(5,7,3)	1 & 4	Remembering and Applying
Find the equations of the plane passing through (1,0,-2) and perpendicular to the plane 2x+y-z-2=0;x-y-z-3=0	1 & 4	Remembering and Applying
P.T the equation 2x^2-6y^2-12z^2+18yz+2zx+xy=0 represent a pair of planes	1 & 4	Remembering and Applying
Find the angle b/w the line (x-1)/-3=(y-2)/2=(z-3)/2 & (x-1)/3=(y-5)/1=z/-5.	2,3 & 4	Remembering and Applying
Find the image of the point (2,-1,3) to the plane 3x-2y+z-9=0	1 & 4	Remembering, Applying and Analyzing
P.T the points (1,2,3),(4,0,4)(-2,4,2),(7,-2,5) are collinear.	2,3 & 4	Remembering and Applying
Angle between two planes is _____	1 & 3	Remembering
The distance b/w the parallel planes ax+by+cz+d1=0, ax+by+cz+d2=o is _____	1 & 3	Remembering
Equation of the plane making intercepts a,b,c on the co - ordinate axis is_____	1 & 3	Remembering
Distance of the origin from the plane ax+by+cz+d=0 is _____	1 & 3	Remembering
Condition from H=0 represents the equation of the pair of planes is_____	1 & 3	Remembering
If θ is the angle b/w the pair of planes H=0 then_____	1 & 3	Remembering
Equation of the line through the point (x,y,z) and dr's (l,m,n) in symmetric form_____	2 & 3	Remembering
(y-y1)/m=(z-z1)/n represents the plane through perpendicular to_____	1 & 3	Remembering
Condition for perpendicular planes is_____	1 & 3	Remembering

MID II Questions

Question	Course Objective	Bloom's Taxonomy Level
Find the equation of a plane which is parallel to the planes (y/b)+(z/c)=1, x=0. And PT the distance between two planes is (1/d^2)=(1/a^2)+(1/b^2)+(1/c^2)	1, 3, & 4	Remembering and Applying
Find the equation of the sphere whose axis is passing through the origin. ST the condition through the intercept plane is 4r^2=(x^2+y^2+z^2)^2(x^(-2)+y^(-2)+z^(-2))	1, 2, 3, & 4	Remembering and Applying
Find the pole of the plane x-y+5z=a and whose sphere is x^2+y^2+z^2=9	1, 2, 3 & 4	Remembering and Applying
Find the radius of the sphere 2x^2+2y^2+2z^2-2x+4y+2z+1=0	2, 3, & 4	Remembering and Applying

Assignments

S. No.	Topic	Bloom's Taxonomy Level
1	Find the angle between the planes 2x-y+z=0 x+y+2z=7 A variable plane is at constant distance p from the origin and meets the coordinate axis O,A,B,C. S T the locus of the tetrahedron OABC is x^(-2)+y^(-2)+z^(-2)=16p^(-2)..	Remembering, Understanding and Applying.
2	Show that the four points are coplanar (-6,3,2) (-13,17,-1) (3,-2,4) (5,7,3). Find the locus of the point whose distance from the origin is 3 times is distance from the plane 2x-y+2z=3	Remembering, Understanding and Applying.
3	Find the equation of the plane through (4,4,0) and perpendicular to the plane x=2y+2z=5 and 3x+3y+2z-8=0 ST the equation of the plane through the points (1,-2,4) (3,-4,5) and perpendicular to XY-plane is x+y+1=0	Remembering, Understanding and Applying.
4	PT the equations of the plane passing through the points (1,-2,4) (3,-4,5) and parallel to the X-axis is y+2z=6 If P is the point such that the sum of the squares of it is distance from the plane x+y+=0, x+y-2z=0, x-y=0 is 5. ST locus of P is x^2+y^2+z^2=5	Remembering, Understanding and Applying.

5	Find the equation of the plane passing through (1,0,-2) and perpendicular to the plane 2x+y-z=0, x-y-z=3 Find the equation of the plane through the points (2,2,1) (9,3,6) perpendicular to the plane 2x+6y+6z=9	Remembering, Understanding and Applying.
6	Find the equation of the plane to the intersection of plane x+3y+6=0 & 3x-y-4z=0 such that the perpendicular distance of each from the origin is unity. If x+2y+3z+4=0 & 4x+3y+3z+1=0 are two planes. Find the equation of the plane is perpendicular to the plane x+y+z+9=0	Remembering, Understanding and Applying.
7	Find the equation of the plane bisecting the plane point of the plane is acute angle 3x-6y+2z+5=0, 4x-12y+3z-2+0.	Remembering, Understanding and Applying.
8	If H=2x^2-6y^2-12z^2+18yz+2zx+xy=0 represents a pair of planes and angle between the pair of planes.	Remembering, Understanding and Applying.
9	Find the point of intersection of the line (x-1)/(-3)=(y-1)/2=(z-3)/2 and (x-1)/3=(y-1)/2=(z-3)/2	Remembering, Understanding and Applying.
10	If r1,r2 are the radius of two orthogonal spheres then the radius of the circle of intersection is (r1.r2)/√(r1^2+r2^2).	Remembering, Understanding and Applying.

Classroom Activities

S. No.	**Activity and Topic**	**Bloom's Taxonomy Level**
1	Student seminar on Angle between two planes.	Remembering, Understanding, Applying and Analysis
2	Clean and Green	Understanding
3	Quiz on three dimensional solid geometry.	Remembering and Understanding

Mapping of Course Outcomes with program and Program Specific Outcomes (CO, PO & PSO Matrix)

CO/PO/ PSO	PO 1	PO 2	PO 5	PO 6	PSO 1	PSO 3
CO 1		3	3		3	
CO 2	3	3	3	3	3	3
CO 3	3	3	3	3	3	3
CO 4		3	3	3	3	3

CO Attainments (Direct and Indirect)

CO	Direct	Indirect	Total CO Attainment
CO 1	66.79	92.31	69.34
CO 2	66.76	96.15	69.70
CO 3	66.79	93.59	69.47
CO 4	66.71	93.59	69.40

PO and PSO Attainment (Direct and Indirect)

	PO 1	PO 2	PO 5	PO 6	PSO 1	PSO 3
	3	3	3	3	3	3
CO 1		69.34	69.34		69.34	
CO 2	69.70	69.70	69.70	69.70	69.70	62.04
CO 3	69.47	69.47	69.47	69.47	69.47	62.25
CO 4		69.40	69.40	69.40	69.40	
PO Attainment	69.58	69.48	69.48	69.52	69.48	69.52

CO Attainments is good, try to improve further

Program Coordinator

DEPARTMENT OF PHYSICS

PROGRAM: B Sc (MATHS, PHYSICS & COMPUTER SCIENCE YEAR: I
SEMESTER:I
COURSE: CORE CREDITS: 4+1 HOURS: 4+2

PHYSICS PAPER I - Mechanics, Waves & Oscillations

COURSE OBJECTIVES:

CO1• To understand basic theories related with properties of matter and its applications to determine values of various quantities associated with matter.

CO2 • Be able to know the properties of matter to explain natural physical processes and related technological advances.

CO3 • To learn about fundamentals of verbal and mathematical concepts of waves and oscillations.

CO4 • We should make the students to know their skills required to get the information from the syllabus and use them in a proper way.

COURSE CONTENTS

CONTENT	CO	HOURS
UNIT I:. Mechanics of Particles: Review of Newton's Laws of Motion, Motion of variable mass system, Motion of a rocket, Multistage rocket, Concept of impact parameter, scattering cross-section, Rutherford scattering-Derivation. Mechanics of Rigid bodies: Rigid body, rotational kinematic relations, Equation of motion for a rotating body, Angular momentum and Moment of inertia tensor, Euler equations, Precession of a spinning top, Gyroscope, Precession of the equinoxes	1, 2, 3 & 4	12
UNIT II:. Motion in a Central Force Field: Central forces, definition and examples, characteristics of central forces, conservative nature of central forces, Equation of motion under a central force, Kepler's laws of planetary motion- Proofs, Motion of satellites, Basic idea of Global Positioning System (GPS), weightlessness, Physiological effects of astronauts	1, 2, 3 & 4	12

UNIT III Relativistic Mechanics: Introduction to relativity, Frames of reference, Galilean transformations, absolute frames, Michelson-Morley experiment, negative result, Postulates of Special theory of relativity, Lorentz transformation, time dilation, length contraction, variation of mass with velocity, Einstein's mass-energy relation	**1, 2, 3 & 4**	**12**
UNIT IV: Undammed, Damped and Forced oscillations: Simple harmonic oscillator and solution of the differential equation, Damped harmonic oscillator, Forced harmonic oscillator – Their differential equations and solutions, Resonance, Logarithmic decrement, Relaxation time and Quality factor. Coupled oscillations: Coupled oscillators - introduction , Two coupled oscillators, Normal coordinates and Normal Modes	**1, 2, 3 & 4**	**12**
UNIT V:. Vibrating Strings: Transverse wave propagation along a stretched string, General solution of wave equation and its significance, Modes of vibration of stretched string clamped at ends, Overtones and Harmonics. Ultrasonic's: Ultrasonic's, General Properties of ultrasonic waves, Production of ultrasonic's by piezoelectric and magneto striation methods, Detection of ultrasonic's, Applications of ultrasonic waves, SONAR	**1, 2, 3 & 4**	**12**

ASSESSMENT/EVALUATION METHODS

ASSESSMENT TOOL	**WEIGHTAGE (Marks)**
MID I (20 Marks)	TOTAL 50 Marks SCALE DOWN TO 25 Marks
MID II (15 Marks)	
ASSIGNMENTS (5 Marks)	
CLASSROOM ACTIVITIES (5 Marks)	
CLEAN & GREEN ACTIVITIES (5 Marks)	
FINAL EXAMINATION	75 Marks
TOTAL	**100**

MID I Questions

Question	Course Objective	Bloom's Taxonomy Level
Explain the principle of motion of a rocket and derive for its velocity at any instant when it is moving under constant gravitational field	**1, 2, 3 & 4**	Remembering and Understanding
. Derive Euler equations	**1, 2, 3 & 4**	Remembering and Understanding
Explain Impact Parameters	**1, 2, 3 & 4**	Applying and Analyzing
Write a short note on Gyroscope	**1, 2, 3 & 4**	Remembering

MID II Questions

Question	Course Objective	Bloom's Taxonomy Level
What is the frequency range of ultrasonic waves?	**1, 2, 3 & 4**	Remembering and Understanding
What is the main application of ultrasonic waves?	**1, 2, 3 & 4**	Remembering and Understanding
.How are ultrasonic waves generated?	**1, 2, 3 & 4**	Remembering and Understanding
What is the velocity of ultrasonic waves in water?	**1, 2, 3 & 4**	Remembering and Understanding
.What is the principle behind ultrasonic testing of materials?	**1, 2, 3 & 4**	Remembering and Understanding
What is the wavelength of ultrasonic waves in air?	**1, 2, 3 & 4**	Remembering and Understanding
.What is the most common frequency used in ultrasonic testing?	**1, 2, 3 & 4**	Remembering and Applying
What is the main advantage of using ultrasonic waves for inspection?	**1, 2, 3 & 4**	Remembering
How do ultrasonic waves interact with a material?	**1, 2, 3 & 4**	Remembering and Applying
.What is the use of ultrasonic waves in welding?	**1, 2, 3 & 4**	Remembering
What is the most common material used to generate ultrasonic waves?	**1, 2, 3 & 4**	Remembering

What is the main disadvantage of using ultrasonic waves for inspection?	**1, 2, 3 & 4**	Applying
.What is the effect of temperature on the velocity of ultrasonic waves?	**1, 2, 3 & 4**	Understanding
What is the most common method used to detect ultrasonic waves?	**1, 2, 3 & 4**	Understanding
What is the effect of frequency on the velocity of ultrasonic waves?	**1, 2, 3 & 4**	Remembering

Assignments

S. No.	**Topic**	**Bloom's Taxonomy Level**
1	Explain the principle of motion of a rocket and derive for its velocity at any instant when it is moving under constant gravitational field	Understanding
2	. Derive Euler equations	Understanding and applying
3	Explain Impact Parameters	Remembering and applying
4	Write a short note on Gyroscope	Understanding
5	Derive Lorentz transformations	Understanding and applying
6	Solve the differential equation of damped Harmonic Oscillator and discuss the critical damping	Remembering, understanding and evaluation
7	Discuss about two coupled oscillator and derive expression for normal modes.	Understanding and applying
8	Derive an equation for the propagation of transverse waves along string. Discuss the case of string clamped at both ends	Understanding

Classroom Activities

S. No.	**Activity and Topic**	**Bloom's Taxonomy Level**
1	Student seminar Einstein's mass energy relation	Understanding and Analysis
2	Group Discussion Impact Parameters	Applying , Analyzing and Evaluating
3	Clean and Green	Understanding
4	Quiz on Motion in a Central Force Field	Remembering, Understanding and Applying
5	Student Study Project on GPS	Understanding, Applying, Analyzing and Evaluating

6	” Student seminar Ultrasonic	Analyzing and Evaluating
7	Student Study Project	Covering of Lower order and Higher order thinking skills

Mapping of Course Outcomes with program and Program Specific Outcomes (CO, PO & PSO Matrix)

CO/PO/PSO	PO 1	PO 2	PO 3	PO 5	PO 6	PSO 1
CO 1	**3**	**3**	**3**			**3**
CO 2	**3**	**3**	**3**			**3**
CO 3	**3**	**3**	**3**			**3**
CO 4	**3**	**3**	**3**			**3**

CO Attainments (Direct and Indirect)

CO	DIRECT	INDIRECT	Total CO Attainment
CO1	60.27	83.72	62.62
CO2	60.27	82.56	62.50
CO3	60.27	84.30	62.68
CO4	60.27	84.30	62.68

PO and PSO Attainment (Direct and Indirect)

	PO1	PO2	PO3	PSO1
CO1	62.62	62.62	62.62	62.62
CO2	62.50	62.50	62.50	62.50
CO3	62.68	62.68	62.68	62.68
CO4	62.68	62.68	62.68	62.68
PO Attainment	62.62	62.50	62.68	62.62

CO's Attainments is good, try to improve further

Program Coordinator

PROGRAM: B SC **YEAR: I** **SEMESTER 2**
COURSE: CORE **CREDITS: 4+1** **HOURS: 4+2**

PHYSICS PAPER II: WAVE OPTICS

COURSE OBJECTIVES

CO1 ● Understand the nature of light and principles of Laser and holography.

CO2 ● Analyze the intensity variation of light due to interference, diffraction and polarization.

CO3 ● Solve problems in Optics by selecting the appropriate equations and performing numerical or analytical calculations.

CO4 ● Students are able to operate optical devices including polarisers, interferometers, and Lasers.

COURSE CONTENTS

CONTENT	CO	HOURS
UNIT I: : Interference of light: (12hrs) Introduction, Conditions for interference of light, Interference of light by division of wave front and amplitude, Phase change on reflection- Stokes' treatment, Lloyd's single mirror, Interference in thin films: Plane parallel and wedge- shaped films, colours in thin films, Newton's rings in reflected light-Theory and experiment, Determination of wavelength of monochromatic light, Michelson interferometer and determination of wavelength	**1,2,3 & 4**	**12**
UNIT II:. Diffraction of light:(12hrs) Introduction, Types of diffraction: Fresnel and Fraunhoffer diffractions, Distinction between Fresnel and Fraunhoffer diffraction,Fraunhoffer diffraction at a single slit, Plane diffraction grating, Determination of wavelength of light using diffraction grating, Resolving power of grating, Fresnel's half period zones, Explanation of rectilinear propagation of light, Zone plate, comparison of zone plate with convex lens	**1, 2, 3 & 4**	**12**
UNIT III : Polarisation of light:(12hrs) Polarized light: Methods of production of plane polarized light, Double refraction, Brewster's law, Malus law, Nicola prism, Nicola prism as polarizer and analyzer, Quarter wave plate, Half wave plate, Plane, Circularly and Elliptically polarized light-Production and detection, Optical activity, Laurent's half shade polar meter: determination of specific rotation.	**1, 2, 3 & 4**	**12**

UNIT IV. : Aberrations and Fibre Optics: (12hrs) Monochromatic aberrations, Spherical aberration, Methods of minimizing spherical aberration, Coma, Astigmatism and Curvature of field, Distortion; Chromatic aberration-the achromatic doublet; Achromatise for two lenses (i) in contact and (ii) separated by a distance. Fibre optics: Introduction to Fibbers, different types of fibbers, rays and modes in an optical fiber, Principles of fibre communication (qualitative treatment only), Advantages of fibre optic communication.	**1, 2, 3 & 4**	**12**
UNIT V: : Lasers and Holography:(12hrs) Lasers: Introduction, Spontaneous emission, stimulated emission, Population Inversion, Laser principle, Einstein coefficients, Types of lasers-He-Ne laser, Ruby laser, Applications of lasers; Holography: Basic principle of holography, Applications of holography	**1, 2, 3 & 4**	**12**

ASSESSMENT/EVALUATION METHODS

ASSESSMENT TOOL	**WEIGHTAGE (Marks)**
MID I (20 Marks)	TOTAL 50 Marks SCALE DOWN TO 25 Marks
MID II (15 Marks)	
ASSIGNMENTS (5 Marks)	
CLASSROOM ACTIVITIES (5 Marks)	
CLEAN & GREEN ACTIVITIES (5 Marks)	
FINAL EXAMINATION	75 Marks
TOTAL	**100**

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MID I Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
Explain the defects coma and astigmatism in a lens. How are they minimized?	**1, 2, 3 & 4**	Remembering and Understanding
Distinguish between Fresnel and Fraunhoffer diffractions	**1, 2, 3 & 4**	Analyzing and Evaluating
What are quarter and half wave plates?	**1, 2, 3 & 4**	Analyzing
What is chromatic aberration?	**1, 2, 3 & 4**	Understanding

Obtain an expression for the chromatic aberration of a lens	**1, 2, 3 & 4**	Remembering
Explain spherical aberration. Describe minimization techniques	**1, 2, 3 & 4**	Remembering
How are Newton's rings formed ?	**1, 2, 3 & 4**	Understanding and analyzing
Describe Newton's rings experiment to determine the wave length of a monochromatic light.	**1, 2, 3 & 4**	Remembering
Explain how to determine thickness of given thin wire by forming wedge shaped film	**1, 2, 3 & 4**	Remembering

MID II Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
What is a zone plate ?	**1, 2, 3 & 4**	Remembering and Understanding
Describe its action. Explain how a zone plate acts like a convergent lens having multiple foci	**1, 2, 3 & 4**	Remembering
Explain diffraction of light due to single slit.	**1, 2, 3 & 4**	Remembering and Understanding
Describe the construction and working of a Nichol prism. Give any method of producing plane polarized light	**1, 2, 3 & 4**	Remembering and Understanding
Define optical activity.	**1, 2, 3 & 4**	Remembering and Understanding
Describe how the specific rotation of given optically active substance using laurant's half shaded polar meter	**1, 2, 3 & 4**	Remembering and Understanding
Explain construction and working of He-Ne laser.	**1, 2, 3 & 4**	Remembering
A 15 cm tube containing cane sugar solution shows optical rotation 70. Calculate the strength of the solution	**1, 2, 3 & 4**	Applying

Assignments

S. No.	**Topic**	**Bloom's Taxonomy Level**
1	Explain the defects coma and astigmatism in a lens. How are they minimized?	Understanding

2	Distinguish between Fresnel and Fraunhoffer diffractions	Remembering and understanding
3	What are quarter and half wave plates?	Understanding and analyzing
4	What is chromatic aberration?	Remembering
5	Obtain an expression for the chromatic aberration of a lens	Remembering
6	Explain spherical aberration. Describe minimization techniques	Understanding and evaluation
7	How are Newton's rings formed ?	Remembering
8	Describe how the specific rotation of given optically active substance using laurant's half shaded polar meter	Remembering
9	Explain construction and working of He-Ne laser.	Remembering and evaluation
10	What is a zone plate	Remembering

Classroom Activities

S. No.	**Activity and Topic**	**Bloom's Taxonomy Level**
1	Student seminar diffraction of light	Understanding and Analysis
2	Group Discussion chromatic aberration	Covering Lower and Higher order thinking skills
3	Clean and Green	Covering Lower and Higher order thinking skills
4	Quiz on Motion in a Newton's rings	Covering Lower and Higher order thinking skills
5	Student Study Project on coma and astigmatism	Covering Lower and Higher order thinking skills

Mapping of Course Outcomes with program and Program Specific Outcomes (CO, PO & PSO Matrix)

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

CO Attainments (Direct and Indirect)

CO	DIRECT	INDIRECT	Total CO Attainment
CO1	68.33	89.53	70.45
CO2	68.33	88.37	70.34
CO3	68.33	87.79	70.28
CO4	68.33	87.79	70.28

PO and PSO Attainment (Direct and Indirect)

	PO1	PO2	PO3	PSO1
CO1	70.45	70.45	70.45	70.45
CO2	70.34	70.34	70.34	70.34
CO3	70.28	70.28	70.28	70.28
CO4	70.28	70.28	70.28	70.28
PO Attainment	70.45	70.34	70.28	70.34

CO's Attainments is good
try to improve further

Program Coordinator

DEPARTMENT OF COMPUTER SCIENCE

2021-22 BATCH

PROGRAM: IST B.Sc CSE **YEAR: I**
SEMESTER: 1
COURSE: CORE **CREDITS: 4** **HOURS: 5**

C LANGUAGE PAPER I - C LANGUAGE PROGRAMMING

COURSE OBJECTIVES

CO1 introduction to computer and explain block diagram of computer

CO2 To expain varies data types in c lanuage

CO3 To explain arrays and differnt types of arrays

CO4 To define pointer and explain pointers.

COURSE CONTENTS

CONTENT	CO	HOURS
UNIT I: General Fundamentals: Introduction to computers: Block diagram of a computer, characteristicsand limitations of computers, applications of computers, types of computers, computer generations. Introduction to Algorithms and Programming Languages: Algorithm – Key features of Algorithms, Flow Charts, Programming Languages – Generations of Programming Languages –Structured Programming Language- Design and Implementation of Correct, Efficient and Maintainable Programs..	1, 3	12
UNIT II: Introduction to C: Introduction – Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comments – Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in C- Programming Examples. Decision Control and Looping Statements: Introduction to Decision Control Statements– Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statemen	1, 2, 3 & 4	15

UNIT III: Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array– Operations on Arrays – one dimensional, two dimensional and multi dimensional arrays, chacter handling and strings	**1, 2, 3 & 4**	**12**
UNIT IV: Functions: Introduction – using functions – Function declaration/ prototype – Functiondefinition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive functions. Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Structures and Functions– Union – Arrays of Unions Variables – Unions inside Structures – Enumerated Data Types.	**1, 2, 3 & 4**	**15**
UNIT V: Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays – Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments		

ASSESSMENT/EVALUATION METHODS

ASSESSMENT TOOL	**WEIGHTAGE (Marks)**
MID I (20 Marks)	TOTAL 50 Marks SCALE DOWN TO 25 Marks
MID II (15 Marks)	
ASSIGNMENTS (5 Marks)	
CLASSROOM ACTIVITIES (5 Marks)	
CLEAN & GREEN ACTIVITIES (5 Marks)	
FINAL EXAMINATION	75 Marks
TOTAL	**100**

PROGRAM SPECIFIC OUTCOMES

B.S.CS. (MATHS, PHYSICS & COMPUTER SCIENCE)

PSO 1: To understand basic concepts in maths, physics and computer science and their inter-relationship with each other.

PSO 2: To analyze the computer science importance of various sectors like software company oranisations, industry and service sector in different dynasties.

PSO 3: To understand the role of computer science in the present-day planning and its impact on human dynamics.

PSO 4: To be aware that development in rural areas happens only with the participation of local communities and inculcating social service among rural youth is essential for the success of rural development initiatives.

MID I Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
Explain Block diagram of Computer.	1,2 & 4	Remembering and Understanding
Define an Algorithm. What are the key features of an algorithm?	1,2 & 4	Remembering and Understanding
Write about go to statement with syntax and example	3	Applying and Analyzing
Briefly explain various types of recursions	1 & 4	Remembering

MID II Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
Briefly explain about generations of computers.	1 & 4	Remembering and Understanding
Explain about iterative statements available in C	1 & 4	Remembering and Understanding
What is a Flowchart? Explain significance with an example?	1 & 4	Remembering and Understanding
Explain basic data types in C?	1	Remembering and Understanding
How to write data from files with example?	1 & 2	Remembering and Understanding
What is an Array? Explain different types of arrays with example?	1 & 2	Remembering and Understanding

. Write about enumerated data types..?	2	Remembering and Applying
Write about single dimensional array?	1	Remembering
Define looping structure and explain looping structes?	1	Remembering and Applying
What are two dimensional array?	1	Remembering
1. Which of the following language is the predecessor to C Programming Language? a) A b) B c) BCPL d) C++	1	Remembering
C programming language was developed by a) Dennis Ritchie b) Ken Thompson c) Bill Gates d) Peter Norton	1	Applying
C was developed in the year ___ a) 1970 b) 1972 c) 1976 d) 1980	1	Understanding
4. C is a ___ language a) High Level b) Low Level c) Middle Level d) Machine Level	1	Understanding
C language is available for which of the following Operating Systems? a) DOS b) Windows c) Unix d) All of these	1	Remembering
Which of the following symbol is used to denote a pre-processor statement? a) ! b) # c) ~ d) ;	1	Understanding

. Which of the following is a Scalar Data type a) Float b) Union c) Array d) Pointer	1	Remembering
8. Which of the following are tokens in C? a) Keywords b) Variables c) Constants d) All of the above	1	Applying
. What is the valid range of numbers for int type of data? a) 0 to 256 b) -32768 to +32767 c) -65536 to +65536 d) No specific range	1 & 4	Understanding
10. Which symbol is used as a statement terminator in C? a) ! b) # c) ~ d) ;	4	Applying

Assignments

S. No.	**Topic**	**Bloom's Taxonomy Level**
1	Explain the block diagram of computer?	Understanding
2	Explain the characteristics of computers?	Understanding and applying
3	What are the features of computers?.	Remembering and applying
4	Explain the input statement and output statements?	Understanding
5	What is assignment operator and explain with example of assignment operator?	Understanding and applying
6	What is keyword and explain keywords?	Remembering, understanding and evaluation
7	Define loop? Explain different looping structure?	Understanding and applying
8	What is if statement and explain different if statements?	Understanding

Classroom Activities

S. No.	Activity and Topic	Bloom's Taxonomy Level
1	Chart preparation and Teach back session	Understanding and Analysis
2	Group Discussion on "Determination of Wage: Time Vs. Performance"	Applying , Analyzing and Evaluating
3	Clean and Green	Understanding
4	Google Quiz on Intellectual Property Rights	Remembering, Understanding and Applying
5	Student Study Project on "Advertisements"	Understanding, Applying, Analyzing and Evaluating
6	Public opinion Poll on "Distribution of Foodgrains Vs. Money Transfer"	Analyzing and Evaluating
7	Online Objective Tests	Covering of Lower order and Higher order thinking skills

Mapping of Course Outcomes with program and Program Specific Outcomes (CO, PO & PSO Matrix)

CO/PO/PSO	PO 1	PO 2	PO 3	PO 5	PO 6	PSO 1
CO 1	3					3
CO 2		3				3
CO 3				3	3	3
CO 4			3			3

CO Attainments (Direct and Indirect)

CO	Direct	Indirect	Total CO Attainment
CO 1	52.58	82.69	55.59
CO 2	52.58	84.62	55.78
CO 3	51.77	90.38	55.63
CO 4	52.58	94.23	56.74

PO and PSO Attainment (Direct and Indirect)

	PO 1	PO 2	PO 3	PO 5	PO 6	PSO 1
	3	3	3	3	3	3
CO 1	55.59					55.59
CO 2		55.78				55.78
CO 3				55.63	55.63	55.63
CO 4			56.74			56.74
PO Attainment	55.59	55.78	56.74	55.63	55.63	55.94

CO's Attainment is nearn to bench mark try to improve it

Program Coordinator

PROGRAM:B.S. CS(COMPUTER SCIENCE) **YEAR: I**
SEMESTER: 2
COURSE: CORE **CREDITS: 4** **HOURS: 5**

COMPUTER SCIENCE PAPER II – DATA STRUCTURE USING C
COURSE OBJECTIVES

CO1 To introduce the fundamental concept of data structures a

CO2 To emphasize the importance of various data structures in developing and implementing efficient algorithm

s**CO3** To Understand available Data Structures for data storage and processing

CO4 Design and develop programs using various data structure

COURSE CONTENTS

CONTENT	CO	HOURS
UNIT I: Introduction to Data Structures: Introduction to the Theory of Data Structures, Data Representation, Abstract Data Types, Data Types, Primitive Data Types, Data Structure and Structured Type, Atomic Type, Difference between Abstract Data Types, Data Types, and Data Structures, Refinement Stages. Principles of Programming and Analysis of Algorithms: Software Engineering, Program Design, Algorithms, Different Approaches to Designing an Algorithm, Complexity, Big 'O' Notation, Algorithm Analysis, Structured Approach to Programming, Recursion, Tips and Techniques for Writing Programs in 'C'	**1,2,3 & 4**	**12**
UNIT II: Arrays: Introduction to Linear and Non- Linear Data Structures, One- Dimensional Arrays, Array Operations, Two-Dimensional arrays, Multidimensional Arrays, Pointers and Arrays, an Overview of Pointers. Linked Lists: Introduction to Lists and Linked Lists, Dynamic Memory Allocation, Basic Linked List Operations, Doubly Linked List, Circular Linked List, Atomic Linked List, Linked List in Arrays, Linked List versus Arrays. t.	**1, 2, 3 & 4**	**12**
UNIT III: Stacks: Introduction to Stacks, Stack as an Abstract Data Type, Representation of Stacks through Arrays, Representation of Stacks through Linked Lists, Applications of Stacks,Stacks and Recursion. Queues: Introduction, Queue as an Abstract data Type, Representation of Queues, Circular Queues, Double Ended Queues- Deques, Priority Queues, Application of Queues.	**1, 2, 3 & 4**	**12**
UNIT IV: Binary Trees: Introduction to Non- Linear Data Structures, Introduction Binary Trees, Types of Trees, Basic Definition of Binary Trees, Properties of Binary Trees, Representation of Binary Trees, Operations on a Binary Search Tree, Binary Tree Traversal, Counting Number of Binary Trees, Applications of Binary Tree.	**1, 2, 3 & 4**	**12**

UNIT V: Searching and sorting: Sorting – An Introduction, Bubble Sort, Insertion Sort, Merge Sort, Searching – An Introduction, Linear or Sequential Search, Binary Search, Indexed Sequential Searc.		

ASSESSMENT/EVALUATION METHODS

ASSESSMENT TOOL	**WEIGHTAGE (Marks)**
MID I (20 Marks)	TOTAL 50 Marks SCALE DOWN TO 25 Marks
MID II (15 Marks)	
ASSIGNMENTS (5 Marks)	
CLASSROOM ACTIVITIES (5 Marks)	
CLEAN & GREEN ACTIVITIES (5 Marks)	
FINAL EXAMINATION	75 Marks
TOTAL	**100**

MID I Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
Explain about Abstract Data Type.	2 & 4	Remembering and Understanding
Define linear and non-linear data structures	3 & 4	Analyzing and Evaluating
Explain Atomic Linked List	3	Analyzing
What are the applications of stacks?	1, 2 & 4	Understanding
What is priority queue?	1 & 4	Remembering
Explain about binary search tre	1 & 4	Remembering
Define sorting. What are the advantages and disadvantages of merge sort?	3 & 4	Understanding and analyzing
Briefly explain various representations of Graphics.	1	Remembering
Minimum number of fields in each node of a doubly linked list is ____ (A) 2 (B) 3 (C) 4 (D) None of the	1	Remembering
Marginal Propensity to consume is equal to A. C/Y B. ▲ C/ ▲ Y C. Y/C	1	Remembering

A vertex of in-degree zero in a directed graph is called a/an (A) Root vertex (B) Isolated vertex (C) Sink (D) Articulation point	1	Remembering
. A graph is a tree if and only if graph is (A) Directed graph (B) Contains no cycles (C) Planar (D) Completely connected	1	Remembering
The elements of a linked list are stored (A) In a structure (B) In an array (C) Anywhere the computer has space for them (D) In contiguous memory locations	2	Applying
A parentheses checker program would be best implemented using (A) List (B) Queue (C) Stack (D) Any of the above	2	Applying
To perform level-order traversal on a binary tree, which of the following data structure will be required? (A) Hash table (B) Queue (C) Binary search tree (D) Stack	2	Understanding
Which of the following data structure is required to convert arithmetic expression in infix to its equivalent postfix notation? (A) Queue (B) Linked list (C) Binary search tree (D) None of above	1 & 2	Remembering
Which of following data structure is more appropriate for implementing quick sort iteratively? (A) Deque (B) Queue (C) Stack (D) Priority queue	1 & 4	Remembering and applying

MID II Questions

Question	**Course Objective**	**Bloom's Taxonomy Level**
What are primitive and non-primitive data structures with an example?	1	Remembering and Understanding
Explain different approaches to designing an algorithm.	1	Remembering
Explain different types of arrays.	1 & 2	Remembering and Understanding
What is linked list? Explain different types of linked lists in data structure	1 & 2	Remembering and Understanding
What is stack? Write ADT. Explain various operations of stack	1 & 2	Remembering and Understanding

What is a Deque? What are the different techniques used to represent Deque? Explai	1 & 2	Remembering and Understanding
Write about different tree traveling techniques and write an algorithm for traveling techniques.	1	Remembering
Explain different applications and properties of binary tree.	2	Remembering and Understanding
Write about various Graph Travelling techniques	1	Remembering
What is searching? Explain Linear Search Algorithm with exampl	3	Applying
What is heap sort algorithem?	1	Remembering
What the binary trees with example?	4	Applying

Assignments

S. No.	Topic	Bloom's Taxonomy Level
1	Explain Data Structures?	Understanding
2	Explain abstract data types?	Remembering and understanding
3	Analyze the bubble sort?	Understanding and analyzing
4	Explain linear searching?	Remembering
5	Explain sorting and types of sorting?	Remembering
6	Evaluate the arithmetic expression?	Understanding and evaluation
7	What is binary tree?	Remembering
8	What are advantages of data structures	Remembering
9	Define stack and explain operations?	Remembering and evaluation
10	Define queue and explain operations in queue?	Remembering

Classroom Activities

S. No.	Activity and Topic	Bloom's Taxonomy Level
1	Poster Presentation on National Income	Understanding and Analysis
2	Online Quiz on I Module	Covering Lower and Higher order thinking skills
3	Online Quiz on II Module	Covering Lower and Higher order thinking skills

4	Online Quiz on III Module	Covering Lower and Higher order thinking skills
5	Online Quiz on V Module	Covering Lower and Higher order thinking skills

Mapping of Course Outcomes with program and Program Specific Outcomes (CO, PO & PSO Matrix)

CO/PO/ PSO	PO 1	PO 2	PO 3	PO 5	PO 6	PO 7	PSO 1
CO 1	3	3	3			3	3
CO 2		3	3			3	3
CO 3			3	3	3	3	3
CO 4	3		3				3

CO Attainments (Direct and Indirect)

CO	Direct	Indirect	Total CO Attainment
CO 1	56.38	86.54	59.40
CO 2	56.10	88.46	59.33
CO 3	55.58	90.38	59.06
CO 4	55.92	90.38	59.37

PO and PSO Attainment (Direct and Indirect)

	PO 1	PO 2	PO 3	PO 5	PO 6	PO 7	PSO 1
	3	3	3	3	3	3	3
CO 1	59.40	59.40	59.40			59.40	59.40
CO 2		59.33	59.33			59.33	59.33
CO 3			59.06	59.06	59.06	59.06	59.06
CO 4	59.37		59.37				59.37
PO Attainment	59.38	59.37	59.29	59.06	59.06	59.26	59.29

CO's Attainment is nearer to bench Mark try to improve further

Program Coordinator