

AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA Session: 2023-2024

Course Name: DIPLOMA Theory/Practical: Theory

Section : A Semester : 2 Branch Name: CIVIL

Subject Name: TH 2B: Engineering Chemistry

Teacher Name: SANGITA PANI

Credit '3' External Evaluation(Marked) '100' Internal Evaluation(Marked)

'20'

Text Books:

SI.No	Text Books
1	Text book of intermediate Chemistry Part 1 & part 2 by Nanda, Das, Sharma, Kalyani Publishers
	Engg. Chemistry by B.K Sharma Krishna Prakashan Media Pvt. Ltd.

Reference books:

SI.No	Reference books
1	Engg.Chemistry by Y.R. SHARMA, Krishna Prakashan Media Pvt.Ltd
2	Engg.Chemistry for Diploma -Dr. R K Mohapatra,PHI Publication,New Delhi.
3	Engg.Chemistry - Jain & Jain, Dhanpat Roy and Sons.

SI.No	Course Outcomes				
1	The students will be able to acquire knowledge in structure, bonding ,hybridization concept of acid and				
	bases of different comp				
2	Understand various uses and processes of Metallurgy and composition of Alloys				
3	To Analyze and Apply the basic concepts of Hydrocarbons , IUPAC nomenclature and uses of				
	aromatic compounds				
4	Students will be able To Develop innovative methods for water treatment and uses of Polymers and				
	Bio fertilizers				

SL No.	Lecture	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
	No.				
1	1	1	BASIC CONCEPT OF	Cos 1	
			CHEMISTRY,		
2	2	1	FUNDAMENTAL	Cos 1	
_		GG 14 (4)	PARTICLES	a # 5 a	
3	3	1	RUTHERFORD'S	Cos 1	
			ATOMIC MODEL	8 9 8 F	
4	4	1	ATOMIC MASS AND	Cos 1	
		**************************************	MASS NUMBER		
5	5	1	PROPERTIES OF	Cos 1	
	1 + 100	and the second second	ISOTOPES,	1 , 1 ex	
		secretarily secretarily	ISOBARS,		
			ISOTONES		
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	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
6	6	1	BOHR'S ATOMIC MODEL	Cos 1	
7	7.	1	AUFBAU'S	Cos 1	
	* * * * * *	* * *	PRINCIPLE, HUND'S RULE, ELECTRONIC CONFIGURATION		
8	8	1	IONIC BOND , COVALENT BOND,	Cos 1	
9	9	1	CO-ORDINATE	Cos 1	·
10	10	1	BOND CONCEPT OF ACID	Cos 1	
11	11	1	BASE THEORY ARRHENIOUS THEORY FOR ACID AND BASES	Cos 1	
12	12	1	BRONSTED-LOWRY THEORY FOR ACID AND BASES	Cos 1	
13	13	1	LEWIS THEORY FOR ACID AND BASES	Cos 1	
14	14	1	DEFINITION OF SALT, TYPES OF SALT	Cos 1	
15	15	1	ATOMIC WEIGHT, M OLECULARWEIGHT, EQUIVALENT WEIGHT	Cos 1	
16	16	1	NORMALITY, MOLARITY, MOLALITY WITH PROBLEMS	Cos 1	
17	17	1	IMPORTANCE OF P H IN INDUSTRY	Cos 1	
18	18	1	INTRODUCTION OF ELECTROCHEMISTR	Cos 1	
19	19	1	ELECTROLYSIS WITH EXAMPLE OF NaCl	Cos 1	
20	20	1	FARADAY'S LAW, ELECTROPLATING	Cos 1	
21	21		DEFINITION OF CORROSION, TYPES OF CORROSI ON,PROTECTION OF CORROSION	Cos 1	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
22	22	1	WATERLINE	Cos 1	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			CORROSION, MECHANISM OF RUSTING OF IRON ONLY		
23	23	2	INTRODUCTION OF METALLURGY	Cos 2	
24	24	2	ORE DRESSING,	Cos 2	
25	25	2	CONCENTRATION, OXIDATION	Cos 2	
26	26	2	REDUCTION, REFINING OF METAL	Cos 2	
27	27	2	DEFINITION OF ALLOY, TYPES OF ALLOYS	Cos 2	
28	28	2	COMPOSITION AND USES OF BRASS,BR ONZE,ALNICO,DURA LUMIN	Cos 2	
29	29	2	ALNICO,	Cos 2	
30	30	2	DURALUMIN	Cos 2	
31	31	3	BASIC CONCEPT OF ORGANIC CHEMISTRY	Cos 3	
32	32	3	SATURATED HYDROCARBON	Cos 3	
33	33	3	UNSATURATED HYDROCARBON	Cos 3	
34	34	3	ALIPHATIC HYDROCARBON	Cos 3	
35	35	3	NOMENCLATURE OF ALKANE	Cos 3	
36	36	3	NOMENCLATURE OF ALKENE	Cos 3	
37	37	3	NOMENCLATURE OF ALKYNE	Cos 3	
38	38	3	NOMENCLATURE OF ALKYL HALIDE	Cos 3	
39	39	3	NOMENCLATURE OF ALCOHOL	Cos 3	
40	40	3	USES OF SOME COMMON AROMATIC	Cos 3	
41	41	4	SOURCE OF WATER,SOFT AND HARD WATER	Cos 4	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
42	42	4	TYPES OF HARDNESS	Cos 4	
43	43	4 	REMOVAL OF HARDNESS BY LIME SODA METHOD	Cos 4	
44	44	4	ADVANTAGES OF HOT LIME PROCESS	Cos 4	
45	45	4	ADVANTAGES OF COLD LIME PROCESS	Cos 4	
46	46	4	ORGANIC ION EXCHANGE METHOD	Cos 4	
47	47	4	DEFINITION AND TYPES OF LUBRICANT	Cos 4	
48	48	4	SPECIFIC USES OF LUBRICANT	Cos 4	
49	49	4	DEFINITION AND CLASSIFICATION OF FUELS	Cos 4	
50	50	4	CALORIEFIC VALUE	Cos 4	
51	51	4	SOLID FUEL	Cos 4	
52	52	4	LIQUID FUEL	Cos 4	
53	53	4	GASEOUS FUEL(WATER AND PRODUCER GAS,CNG,LPG)	Cos 4	
54	54	4	DEFINITION AND TYPES OF POYMER	Cos 4	
55	55	4	DIFERRENCE BETWEEN	Cos 4	
			THERMOPLASTIC AND THERMOSETTING POLYMERS	tion was gave as interest to a	
56	56	4	COMPOSITION AND USES OF PVC AND BAKELITEUSES OF	Cos 4	
57	57	4	VULCANIZED RUBBER	Cos 4	
58	58	4	EXAMPLE AND USES OF PESTICIDES AND INSECTICIDES	Cos 4	
59	59	4	EXAMPLE AND USES OF	Cos 4	naka ana ana ana ana ana ana ana ana ana

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
		, 9	HERBICIDES AND FUNGICIDES		
60	60	4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 -	USES AND	Cos 4	
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AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA Session: 2023-2024

Course Name: DIPLOMA Theory/Practical: Theory

Section : A Semester : 2 Branch Name: CIVIL

Subject Name: TH 3 : Engineering Mathematics-II Teacher Name: RANJAN KUMAR SATAPATHY

Credit "External Evaluation(Marked) '80' Internal Evaluation(Marked) '20'

Text Books:

SI.No	Text Books
1	Elements of Mathematics _ Vol 1 & 2 (Odisha State Bureau of Text Book preparation & Production

Reference books:

SI.No	Reference books
1	Mathematics Part- I & Part- II- Textbook for Class XII, NCERT Publication

SI.No	Course Outcomes
1	Students will be able to know the meaning of vectors, and use them when adding and subtracting
	They will be able to learn how
2	Calculate the limit of a function of two variables. Learn how a function of two variables can approach
	different values at a bou
3	An openended task that is given to all children. The children then attempt this task in their own way
	and at their own pace, thu
4	Integration is a mathematical technique to calculate the area under a curve. There are multiple
-	methods for integration, of whic
5	understand that physical systems can be described by differential equations. understand the practical
	importance of solving diff

			Tauria Ta Da Taught	Cos	Reference Material Links
SL No.	Lecture	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
	No.				
1	1	1	(VECTORS)	Cos 1	
1		-	definition,		
		-	representation ,Types		
			of vectors		
2	2	1	(VECTORS)	Cos 1	
Z , Z			definition,		
			representation ,Types		
			of vectors		
3	3		Component form of	Cos 1	
3			scalar product , Angle		
		- 12 T	between two vectors		
4	4	1	Scalar and vector	Cos 1	
4	, ,		projection of a vector		
			on another vector		5 ·

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
5	5	1	Vector or Cross product of vectors,	Cos 1	
	-		properties of cross product Right hand screw rule	and the second	
6	6	1	Component form of vector product, Geometrical meaning of cross p	Cos 1	
7	7	1	Area of a triangle and parallelogram	Cos 1	
8	8	2	(FUNCTION) Cartesian product of sets and relation on a set and from one set to another, Relation and function	Cos 2	
9	9	2	Types of function- constant fun. , absolute value function , signum Function , etc.	Cos 2	
10	10	2	Greatest integer function and Graphs, logarithmic and exponential Functions etc.	Cos 2	
11	11	2	Greatest integer function and Graphs, logarithmic and exponential Functions etc.	Cos 2	
12	12	2	(LIMIT) limit of a function , working rule to find limit , examples	Cos 2	
13	13	2	Limit formulas for indeterminate forms 0/0 ,infinty/infinity etc	Cos 2	
14	14	2	Limit formulas for indeterminate forms 0/0 ,infinty/infinity etc	Cos 2	
15	15	2	Limit formulas for indeterminate forms 0/0 ,infinty/infinity etc	Cos 2	
16	16	2	Existence of limits (LHL and RHL)	Cos 2	
17	17	2	(CONTINUITY OF A FUNCTION)	Cos 2	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			continuity at a point,		
18	18	2	Examples of pont of discontinuity , (x , [x] etc.)	Cos 2	
19	19	3	Problems on continuity and discontinuity	Cos 3	
20	20	3	(DERIVATIVE) definition , derivative at a point , examples	Cos 3	
21	21	3	Algebra of derivative , Addition , Subtraction , quotient , product rule etc	Cos 3	
22	22	3	Derivative of ex , log x , xn , a x etc.	Cos 3	
23	23	3	Derivative of sin x , cos x , sin ^(-)1 x , cos ^(-1)x , etc.	Cos 3	
24	24	3	Derivative of composite function (Chain Rule), examples	Cos 3	
25	25	3	More examples on Chain rule	Cos 3	
26	26	3	Methods or Technique s of derivative- parametric form , derivative of Implicit function	Cos 3	
27	27	3	Derivative using log	Cos 3	
28	28	3	Derivative of inverse Trigonometric function	Cos 3	
29	29	3	Derivative of a function w.r.t another function	Cos 3	
30	30	3	(APPLICATION OF DERIVATIVE) Successive differentiation, Higher dervative related	Cos 3	
31	31	3	problems Partial differential equation of f(x, y), f(x, y, z) etc.	Cos 3	
32	32	3	Eulers theorem , L 'Hospital Rule	Cos 3	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
33	33	3	More examples on partial derivatives	Cos 3	
34	34	4 1 2 2	(INTEGRATION) Integration as anti-	Cos 4	
			process of derivative - I (integration of sin x , cos x , 1/x , xn , e x etc.)		
35	35	4	Standard integration formulas , Properties of Indefinite integration	Cos 4	
36	36	4	Integration by substitution – (integration of tan x ,cot x sec x ,cosec x Etc.	Cos 4	
37	37	4	Integration by algebraic substitution and examples	Cos 4	
38	38	4	Integration by Trigonometric substitution and examples	Cos 4	
39	39	4	Integration by partial fraction	Cos 4	
40	40	4	Integration by by-parts method,	Cos 4	
41	41	4	More examples on integration by partial fraction	Cos 4	
42	42	4	Moe examples on integration by parts (integration of ln x , sin ^(– 1) x)	Cos 4	
43	43	4	(DEFINITE INTEGRATION) Properties I , II , II	Cos 4	
44	44	4	Properties of Definite Integration – IV , V , VI and applications	Cos 4	
45	45	4	Properties of definite integration VII, VII and applications	Cos 4	
46	46	4	(APPLICATION OF INTEGRATION) Area under a curve	Cos 4	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
47	47	4	Area between curve , Area of Circle , Right angled triangle etc	Cos 4	
48	48	4	Area under two curves	Cos 4	
49	49	4	Area of curves that changes sign	Cos 4	
50	50	5	(DIFFERENTIAL EQUATION) definition , order and degree	Cos 5	
51	51	5	Solution of differential equation , General and Particular sol.	Cos 5	
52	52	5	Differential equation of 1st order and 1st degree , Variable separation method,	Cos 5	
53	53	5	Homogeneous form and solution	Cos 5	
54	54	5	Linear differential equation (linear in y , dy/dx)	Cos 5	
55	55	5	Linear differential equation (linear in x and dx/dy)	Cos 5	
56	56	1	Sample previous year questions and solutions	Cos 1	
57	57	2	Sample previous year questions and solutions	Cos 2	
58	58	3	Sample previous year questions and solutions	Cos 3	
59	59	4	Sample previous year questions and solutions	Cos 4	
60	60	5	Sample previous year questions and solutions	Cos 5	

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AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA Session: 2023-2024

Course Name: DIPLOMA Theory/Practical: Theory

Section : B Semester : 2 Branch Name: ELECTRICAL

Subject Name: TH 2B: Engineering Chemistry

Teacher Name: SANGITA PANI

Credit '3' External Evaluation(Marked) '100' Internal Evaluation(Marked)

'20'

Text Books:

SI.No	Text Books
1	Text book of intermediate Chemistry Part 1 & part 2 by Nanda, Das, Sharma, Kalyani Publishers
-	Engg. Chemistry by B.K Sharma Krishna Prakashan Media Pvt. Ltd.

Reference books:

SI.No	Reference books
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2	Engg.Chemistry for Diploma -Dr. R K Mohapatra,PHI Publication,New Delhi.
3	Engg.Chemistry - Jain & Jain, Dhanpat Roy and Sons.

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	bases of different comp
2	Understand various uses and processes of Metallurgy and composition of Alloys
3	To Analyze and Apply the basic concepts of Hydrocarbons , IUPAC nomenclature and uses of aromatic compounds
4	Students will be able To Develop innovative methods for water treatment and uses of Polymers and Bio fertilizers

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
1	1	1	BASIC CONCEPT OF CHEMISTRY,	Cos 1	
2	2	1	FUNDAMENTAL PARTICLES	Cos 1	
3	3	1	RUTHERFORD'S ATOMIC MODEL	Cos 1	
4	4	1	ATOMIC MASS AND MASS NUMBER	Cos 1	
5	5	1	PROPERTIES OF ISOTOPES, ISOBARS, ISOTONES	Cos 1	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
6	6	1	BOHR'S ATOMIC MODEL	Cos 1	
7	7		AUFBAU'S PRINCIPLE, HUND'S RULE, ELECTRONIC CONFIGURATION	Cos 1	
8	8	1	IONIC BOND , COVALENT BOND,	Cos 1	
9	9	1	CO-ORDINATE BOND	Cos 1	
10	10	1	CONCEPT OF ACID BASE THEORY	Cos 1	
11	11	1	ARRHENIOUS THEORY FOR ACID AND BASES	Cos 1	
12	12	1	BRONSTED-LOWRY THEORY FOR ACID AND BASES	Cos 1	
13	13	1	LEWIS THEORY FOR ACID AND BASES	Cos 1	
14	14	1	DEFINITION OF SALT, TYPES OF SALT	Cos 1	
15	15	1	ATOMIC WEIGHT, M OLECULARWEIGHT, EQUIVALENT WEIGHT	Cos 1	
16	16	1	NORMALITY, MOLARITY, MOLALITY WITH PROBLEMS	Cos 1	
17	17	1	IMPORTANCE OF P H IN INDUSTRY	Cos 1	
18	18	1	INTRODUCTION OF ELECTROCHEMISTR	Cos 1	
19	19	1	ELECTROLYSIS WITH EXAMPLE OF NaCI	Cos 1	
20	20	1	FARADAY'S LAW, ELECTROPLATING	Cos 1	
21	21		DEFINITION OF CORROSION, TYPES OF CORROSI ON,PROTECTION	Cos 1	
22	22	4	OF CORROSION	01	. ~
22	22	1	WATERLINE	Cos 1	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			CORROSION, MECHANISM OF RUSTING OF IRON ONLY		
23	23	2	INTRODUCTION OF METALLURGY	Cos 2	
24	24	2	ORE DRESSING,	Cos 2	
25	25	2	CONCENTRATION, OXIDATION	Cos 2	
26	26	2	REDUCTION, REFINING OF METAL	Cos 2	
27	27	2	DEFINITION OF ALLOY , TYPES OF ALLOYS	Cos 2	
28	28	2	COMPOSITION AND USES OF BRASS,BR ONZE,ALNICO,DURA LUMIN	Cos 2	
29	29	2	ALNICO,	Cos 2	
30	30	2	DURALUMIN	Cos 2	
31	31	3	BASIC CONCEPT OF ORGANIC CHEMISTRY	Cos 3	
32	32	3	SATURATED HYDROCARBON	Cos 3	
33	33	3	UNSATURATED HYDROCARBON	Cos 3	
34	34	3	ALIPHATIC HYDROCARBON	Cos 3	
35	35	3	NOMENCLATURE OF ALKANE	Cos 3	
36	36	3	NOMENCLATURE OF ALKENE	Cos 3	
37	37	3	NOMENCLATURE OF ALKYNE	Cos 3	
38	38	3	NOMENCLATURE OF ALKYL HALIDE	Cos 3	
39	39	3	NOMENCLATURE OF ALCOHOL	Cos 3	
40	40	3	USES OF SOME COMMON AROMATIC COMPOUNDS	Cos 3	
41	41	4	SOURCE OF WATER,SOFT AND HARD WATER	Cos 4	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
42	42	4	TYPES OF HARDNESS	Cos 4	
43	43	4	REMOVAL OF HARDNESS BY LIME SODA METHOD	Cos 4	
44	44	4	ADVANTAGES OF HOT LIME PROCESS	Cos 4	
45	45	4	ADVANTAGES OF COLD LIME PROCESS	Cos 4	
46	46	4	ORGANIC ION EXCHANGE METHOD	Cos 4	
47	47	4	DEFINITION AND TYPES OF LUBRICANT	Cos 4	
48	48	4	SPECIFIC USES OF LUBRICANT	Cos 4	
49	49	4	DEFINITION AND CLASSIFICATION OF FUELS	Cos 4	
50	50	4	CALORIEFIC VALUE	Cos 4	
51	51	4	SOLID FUEL	Cos 4	
52	52	4	LIQUID FUEL	Cos 4	
53	53	4	GASEOUS FUEL(WATER AND PRODUCER GAS,CNG,LPG)	Cos 4	
54	54	4	DEFINITION AND TYPES OF POYMER	Cos 4	
55	55	4	DIFERRENCE BETWEEN THERMOPLASTIC AND THERMOSETTING POLYMERS	Cos 4	
56	56	4	COMPOSITION AND USES OF PVC AND BAKELITEUSES OF	Cos 4	
57	57	4	VULCANIZED RUBBER	Cos 4	
58	58	4	EXAMPLE AND USES OF PESTICIDES AND INSECTICIDES	Cos 4	
59	59	4	EXAMPLE AND USES OF	Cos 4	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			HERBICIDES AND FUNGICIDES		
60	60	4	USES AND	Cos 4	and a market
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PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA Session: 2023-2024

Course Name: DIPLOMA Theory/Practical: Theory

Section : B Semester : 2 Branch Name: ELECTRICAL

Subject Name: TH 3 : Engineering Mathematics-II Teacher Name: SUCHITRA SRICHANDAN

Credit '3' External Evaluation(Marked) '100' Internal Evaluation(Marked)

'20'

Text Books:

SI.No		Text Books	_
1	Elements of Mathematics		<u> </u>

Reference books:

SI.No	Reference books
1	Mathematics Part- I & Part- II- Textbook for Class XII, NCERT Publication

SI.No	Course Outcomes
1	Students will be able to know the meaning of vectors, and use them when adding and subtracting They will be able to learn how
2	Calculate the limit of a function of two variables. Learn how a function of two variables can approach different values at a bou
3	An openended task that is given to all children. The children then attempt this task in their own way and at their own pace, thu
4	Integration is a mathematical technique to calculate the area under a curve. There are multiple methods for integration, of whic
5	understand that physical systems can be described by differential equations. understand the practical importance of solving diff

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
1	1	1	(VECTORS) definition , representation ,Types of vectors	Cos 1	
2	2	1	(VECTORS) definition , representation ,Types of vectors	Cos 1	
3	3	1	Component form of scalar product , Angle between two vectors	Cos 1	
4	4	1	Scalar and vector projection of a vector	Cos 1	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			on another vector	A 8	
5	5	1	Vector or Cross	Cos 1	
			product of vectors,	and the second	
			properties of cross		
	9,		product Right hand	an was at	
		1	screw rule		
6	6	1	Component form of	Cos 1	
			vector product,		
		i.	Geometrical meaning		
			of cross p		
7	7	1	Area of a triangle and	Cos 1	
			parallelogram		
8	8	2	(FUNCTION)	Cos 2	
		_	Cartesian product of	A	
			sets and relation on a		
			set and from one set		# I
			to another, Relation		
		1	and function		
9	9	2	Types of function-	Cos 2	
		, 4	constant fun.,		7
		1	absolute value		S
	9		function, signum		n _k 2
			Function, etc.		
10	10	2	Greatest integer	Cos 2	
			function and Graphs,		
	÷ ,		logarithmic and		
			exponential Functions		
		4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	etc.		1992 1 3
11	11	2	Greatest integer	Cos 2	
			function and Graphs,		'P
		1	logarithmic and		
	A 4		exponential Functions		
		i e	etc.		
12	12	2	(LIMIT) limit of a	Cos 2	1 200
		1	function , working rule		
			to find limit, examples		
13	13	2	Limit formulas for	Cos 2	
	1		indeterminate forms		1
			0/0 , â^ž-â^ž, â^ž/â^ž		· · · · · · · · · · · · · · · · · · ·
) b	* 1	etc		
14	14	2	Limit formulas for	Cos 2	
	and the second second	er green mile to amores.	indeterminate forms	area prince for	a manufacture of the second
			0/0 , â^ž/â^ž etc		100
15	15	2	Limit formulas for	Cos 2	and the contract of the contra
	12 20 0		indeterminate forms	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	
			0/0 , â^ž-â^ž, â^ž/â^ž		
	V 1.2 v v		etc (three)	V 1.4 E	
	<i>p</i> *	y c* 5			

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
16	16	2	Existence of limits (LHL and RHL)	Cos 2	
17	17	2	(CONTINUITY OF A FUNCTION) continuity at a point ,	Cos 2	
18	18	2	Examples of pont of discontinuity , (x , [x] etc.)	Cos 2	
19	19	2	Problems on continuity and discontinuity	Cos 2	•
20	20	3	(DERIVATIVE) definition , derivative at a point , examples	Cos 2	
21	21	3	Algebra of derivative , Addition , Subtraction , quotient , product rule etc	Cos 3	
22	22	3	Derivative of ex , log x , xn , a x etc.	Cos 3	
23	23	3	Derivative of sin x , cos x ,,,,,, , sin – 1 x , cos – 1x , etc.	Cos 3	
24	24	3	Derivative of composite function (Chain Rule), examples	Cos 3	
25	25	3	More examples on Chain rule	Cos 3	
26	26	3	Methods or Technique s of derivative- parametric form , derivative of Implicit function	Cos 3	
27	27	3	Derivative using log	Cos 3	
28	28	3	Derivative of inverse Trigonometric function	Cos 3	
29	29	3	Derivative of a function w.r.t another function	Cos 3	·
30	30	3	(APPLICATION OF DERIVATIVE) Successive differentiation, Higher	Cos 3	
			dervatve related problems		
31	31	3	Partial differential	Cos 3	

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SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			equation of f(x, y),		
32	32	_	f(x, y, z)etc.		
02	32	3	Euler's theorem, L'	Cos 3	
33			Hospital Rule		
55	33	3	More examples on	Cos 3	A
34			partial derivatives		
34	34	4	(INTEGRATION)	Cos 4	
			Integration as anti-		
			process of derivative -	.	
	1		I (integration of sin x ,		
			cos x , 1/x , xn , e x		
25	-		etc.)		
35	35	4	Standard integration	Cos 4	
			formulas , Properties		
			of Indefinite		
20			integration		
36	36	4	Integration by	Cos 4	
			substitution – (
			integration of tan x	Δ.	
			,cot x sec x ,cosec x		
37	07		Etc. ? F' / F dx)		
31	37	4	Integration by	Cos 4	
			algebraic substitution		
38	38	4	and examples		
00	30	4	Integration by	Cos 4	
			Trigonometric		
			substitution and		
39	39	4	examples		
		T	Integration by partial	Cos 4	
	1		fraction , (integration of 1/(???? ^2 ? ????	2	
			^2) etc.		
40	40	4	Integration by by-parts	0 4	
			method, (integration	Cos 4	
			of ?(???? ^2 + ????		
			^2), ?(???? ^2 ? ????		
			^2), ?(???? ^2 ? ????		
			^2) etc ,)		
41	41	4	More examples on	Cos 4	
			integration by partial		
42	40		fraction		
42	42	4	Moe examples on	Cos 4	
			integration by parts (
			integration of ln x , sin	-92 × 51	
43	43	4	^(- 1) x)		
		+	(DEFINITE	Cos 4	
			INTEGRATION)		
			Properties I , II , II		

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
44	44	4	Properties of Definite Integration – IV , V , VI and applications	Cos 4	
45	45	4	Properties of definite integration VII, VII and applications	Cos 4	
46	46	4	(APPLICATION OF INTEGRATION) Area under a curve	Cos 3	
47	47	4	Area between curve , Area of Circle , Right angled triangle etc	Cos 4	
48	48	4	Area under two curves	Cos 4	
49	49	4	Area of curves that changes sign	Cos 4	
50	50	5	(DIFFERENTIAL EQUATION) definition , order and degree	Cos 5	
51	51	5	Solution of differential equation , General and Particular sol.	Cos 5	
52	52	5	Differential equation of 1st order and 1st degree, Variable separation method,	Cos 5	
53	53	5	Homogeneous form and solution	Cos 5	
54	54	5	Linear differential equation (linear in y , dy/dx)	Cos 5	
55	55	5	Linear differential equation (linear in x and dx/dy)	Cos 4	
56	56	1	Sample previous year questions and solutions	Cos 1	
57	57	2	Sample previous year questions and solutions	Cos 2	
58	58	3	Sample previous year questions and solutions	Cos 3	
59	59	4	Sample previous year questions and solutions	Cos 3	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
60	60	5	Sample previous year questions and solutions	Cos 5	

Suchitra Strachardan Subject Teacher 724

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AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA Session: 2023-2024

Course Name: DIPLOMA Theory/Practical: Theory

Section : C Semester : 2 Branch Name: COMPUTER SCIENCE
Subject Name: TH 1A: Communicative English
Teacher Name: SUBHALAXMI SAMANTARA

Credit " External Evaluation(Marked) " Internal Evaluation(Marked) "

Text Books:

SI.No	Text Books
	Invitation to English, Book-1, (for +2 students), CSHE (2016 reprint), Odisha
2	Invitation to English, Book-1, (for +2 students), CSHE (2016 reprint), Odisha
3	Invitation to English, Book-2, (for +2 students), CSHE (2016 reprint), Odisha
3	Invitation to English, Book-3, (for +2 students), CSHE (2016 reprint), Odisha
4	Invitation to English, Book-4, (for +2 students), CSHE (2016 reprint), Odisha
5	Communication Skills, Sanjay Kumar and Puspalata, Oxford University Press

Reference books:

SI.No	Reference books
1	Invitation to English, Book-2, (for +2 students), CSHE (2016 reprint), Odisha
2	Communication Skills, Sanjay Kumar and Puspalata, Oxford University Press

SI.No	Course Outcomes
1	KNOWLEDGE ABOUT WHOLE LITERURE APPRECIATION SUCH AS NOTE MAKING
	SUMMERIZING ETC AND STORY AND POEM
2	USES OF SYNONYMS , ANTONYMS & SINGLE WORD SUBSTITUTE
3	TENSES, COUNTABLE AND UNCOUNTABLE NOUN ,MODELS, VOICE CHANGE ,ARTICLES &
	DETERMINERS, SUBJECT - VERB AGREEMENT
4	PARAGRAPH WRITING, NOTICE , AGENDA, REPORT WRITING , LETTER, APPLICATION
5	INTRODUCTION TO COMMUNICATION , PROFFESIONAL COMMUNICATION
5	HATTADOG TIC

SL No.	Lecture	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
	No.				
1	1	1	Skimming the gist	Cos 1	
2	2		Skimming the gist	Cos 1	A GALLAND CAMBRANC WORK W
3	3	1	Skimming the gist	Cos 1	
4	4	1	Scanning for necessary information	Cos 1	
5	5	1	Close reading for inference and evaluation	Cos 1	
6	6	1	Main idea and supporting points	Cos 1	
			Constitution of the consti		

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
7	7	1	Main idea and supporting points	Cos 1	
8	8	· 1 · · · · ·	Guessing the	Cos 1	
			meaning of un-familiar words		
9	9	1	Guessing the meaning of un-familiar words	Cos 1	
10	10	1	Note- making	Cos 1	
11	11	1	Note- making	Cos 1	
12	12	1	Summarizing	Cos 1	
13	13	1	Summarizing	Cos 1	
14	14	1	Supplying a suitable title	Cos 1	
15	15	1	Standing Up For Yourself By Yevgeny Yevtushenko	Cos 1	
16	16	1	The Magic Of Teamwork By Sam Pitroda	Cos 1	
17	17	1	The Magic Of Teamwork By Sam Pitroda	Cos 1	
18	18	1	Inchcape Rock By Robert Southey	Cos 1	. A
19	19	, 1	To My True Friend By Elizabeth Pinard	Cos 1	
20	20	1	To My True Friend By Elizabeth Pinard	Cos 1	
21	21	2	synonyms	Cos 2	
22	22	2	antonyms	Cos 2	
23	23	2	Same word used in different situations in different meaning	Cos 2	
24	24	2	Same word used in different situations in different meaning	Cos 2	
25	25	2	Single word substitute	Cos 2	
26	26	3	Countable an Uncountable Noun	Cos 3	
27	27	3	Articles and Determiners	Cos 3	
28	28	3	Modal Verbs	Cos 3	and the second s
29	29	3	Tenses	Cos 3	
30	30	3	Tenses	Cos 3	
31	31	3	Tenses	Cos 3	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
32	32	3	Voice-change	Cos 3	
33	33	3			
		3	Subject-verb Agreement	Cos 3	
34	34	4	Paragraph writing	Cos 4	p do a man variable come of the contract
35	35	4	Meaning	Cos 4	
36	36	4	Features of Paragraph Writing	Cos 4	
37	37	4	Developing Ideas into Paragraphs	Cos 4	
38	38	4	Notice	Cos 4	
39	39	4	Agenda	Cos 4	
40	40	4	Report writing	Cos 4	
41	41	4	Writing personal letter	Cos 4	
42	42	4	Letter to the Principal, Librarian	Cos 4	
43	43	4	Letter toHead of the Deptt, and Hostel Superintenden	Cos 4	
44	44	4	Writing Business letters	Cos 4	
45	45	4	Layout of a Business Letter	Cos 4	A
46	46	4	Letter of Enquiry, Placing an Order, Execution of an Order, Complaint, Cancellation of an order	Cos 4	
47	47	4	Job application and C.V.	Cos 4	
48	48	4	Job application and C.V.	Cos 4	
49	49	5	Meaning, Definition and concept of communication	Cos 5	
50	50	5	Good Communication and Bad Communication	Cos 5	
51	51	5	Communication model	Cos 5	
52	52	5	Process of	Cos 5	MANY CONTRACTOR OF THE STATE OF
			communication and factors responsible for it		
53	53	5	Meaning of professional communication	Cos 5	
54	54	5	Types of professional	Cos 5	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			communication		
55	55	5	Formal or Systematic	Cos 5	
			Communication	orac entr	
56	56	5	Informal communication	Cos 5	
57	57	5	Meaning of nonverbal Communication	Cos 5	
58	58	5	Different areas of Non- verbal Communication	Cos 5	
59	59	5	Kinesics or Body Language & Proxemics or Spatial Language	Cos 5	
60	60	5	Language of Signs and Symbols	Cos 5	



AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA Session: 2023-2024

Course Name: DIPLOMA Theory/Practical: Theory

Section : C Semester : 2 Branch Name: COMPUTER SCIENCE Subject Name: TH 2A: Engineering Physics

Teacher Name: NAYAN MEHER

Credit '02' External Evaluation(Marked) '80' Internal Evaluation(Marked)

'20

Text Books:

SI.No	Text Books
1	Engineering Physics for Diploma by Ranjan Kumar Bhuyan, PHI Private Ltd. New Delhi
2	Text book of physics for XI (part -I, Part-II), N.C.E.R.T
3	Text book of physics for XII (part -I, Part-II), N.C.E.R.T

Reference books:

SI.No	Reference books
1	Applied Physics-I (English) Author Name-Prof. Vinod Kumar Yadav
2	Optical fibre communications by GERD KEISER, MGH publication .
3	Electronic communication Systems, by George kennedy, Tata McGraw Hill
4	An Introduction to Fiber Optics. By Ajoy K. Ghatak, K. Thyagarajan, Cambridge University Press.

SI.No	Course Outcomes
1	Estimate errors in measurement of physical quantities.
	Students will be able to Apply laws of motion in various applications and Calculate effects of gravitational force on planets.
	Comprehend concept of Heat, Temperature and and their effects on Solids, Acquire knowledge on properties of light.
4	Apply Coulomb's law to calculate electrostatics force, electric field and electric potential.
5	Use basic principles of light, X-rays, Laser and Fibre optics in related engineering problems.

SL No.	Lecture	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
	No.				
1	1	. 1	Definition of	Cos 1	
	20.00		fundamental and		
			derived units, systems		
	8 2 3	der e e e e	of units (FPS, CGS,		31 - No. 10 - No. 100
			MKS and SI units)		
2	2	I	Definition of	Cos 1	
	recent visit of the	and the colony of the sections	dimension and	and we have more by the constant.	and the control of the second
	ari bar	S Tax Tax	Dimensional formulae	ena y e y a	
	4-2-m		of physical quantities	.e. 8: 8	
3	3		Dimensional	Cos 1	
		* **	equations and	a a a a a	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			Principle of homogeneity		
4	4	11	Scalar and Vector quantities	Cos 1	
5	5	ll l	Resolution of Vectors	Cos 1	
6	6	li	Vector multiplication	Cos 1	
7	7	III	Concept of Rest and Motion, Displacement, Speed, Velocity, Acceleration & Force	Cos 2	
8	8	III	Equations of Motion under GravityCircular motion: Angular displacement, Angular velocity and Angular acceleration	Cos 2	
9	9	III	Circular motion: Angular displacement, Angular velocity and Angular accelerationLinear & Angular velocity	Cos 2	
10	10	III	Relation between Linear & Angular acceleration	Cos 2	
11	11	III	Projectile, Expression for Equation of Trajectory	Cos 2	
12	12	III	Time of Flight, Maximum Height	Cos 2	5
13	13	III	Horizontal Range for a projectile fired at an angle, Condition for maximum Horizontal Range	Cos 2	
14	14	IV	Definition, Formula & SI units of WORK AND FORCE	Cos 2	
15	15	IV	Static, dynamic & Limiting Friction	Cos 2	
16	16	IV	Laws of Limiting Friction	Cos 2	
17	17	IV	Coefficient of Friction with problems	Cos 2	
18	18	IV	Useful Methods to reduce friction	Cos 2	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
19	19	V	Newton's Laws of Gravitation	Cos 2	
20	20	V	Universal Gravitational Constant (G), Acceleration due to gravity (g)	Cos 2	
21	21	V	Definition of mass and weight& Relation between g and G.	Cos 2	
22	22	V	Variation of g with altitude and depth	Cos 2	
23	23	V	Kepler's Laws of Planetary Motion	Cos 2	
24	24	VI	Simple Harmonic Motion	Cos 3	
25	25	VI	Expression (Formula/Equation) for displacement, velocity, acceleration of a body/ particle in SHM	Cos 3	
26	26	VI	Wave motion Introduction	Cos 3	
27	27	VI	Amplitude, Wavelength, Frequency, Time Period	Cos 3	
28	28	VI	Derivation of Relation between Velocity, Frequency and Wavelength of a wave	Cos 3	
29	29	VI	Introduction to Ultrasonic	Cos 3	
30	30	VII	Heat and Temperature, Units of Heat,Specific heat	Cos 3	
31	31	VII	Change of state (concept), Latent Heat (concept, definition, unit, dimension and simple numerical)	Cos 3	
32	32	VII	Thermal Expansion, Expansion of Solids	Cos 3	The state of the s
33	33	VII	Coefficient of linear, superficial and cubical expansions of Solids.Definition &	Cos 3	
ste - X	8.9.		Johns, Definition &	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			Units.		
34	34	VII	Relation between ?, ? & ?Relation between ?, ? & ?Relation between ?, ? & ?Relation between ?, ? & ?	Cos 3	
35	35	VII	Work and Heat - Concept & Relation	Cos 3	
36	36	VII	Joule's Mechanical Equivalent of Heat (Definition, Unit) ,First Law of Thermodynamics (Statement and concept only)	Cos 3	
37	37	VIII	Reflection & Refraction, Laws of reflection and refraction	Cos 3	
38	38	VIII	Refractive index, Critical Angle and Total internal reflection	Cos 3	
39	39	VIII	Refraction through Prism (Ray Diagram & Formula only)	Cos 3	
40	40	VIII	Fiber Optics :Definition, Properties & Applications.	Cos 3	
41	41	IX	Electrostatics, Statement & Explanation of Coulombs laws, Definition of Unit charge.	Cos 4	
42	42	IX	Absolute & Relative Permittivity (ε), Electric potential and Electric Potential difference	Cos 4	
43	43	IX	Electric field, Electric field intensity (E), Capacitance	Cos 4	
44	44	IX	Series and Parallel combination of Capacitors, Magnet, Properties of a	Cos 4	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			magnet.		
45	45	IX	Series and Parallel	Cos 4	
	(combination of		e de la companya del companya de la companya de la companya del companya de la co
			Capacitors, Magnet, Properties of a	e e e galego	
	<u> </u>		magnet		
46	46	IX	Magnetic lines of force	Cos 4	
47	47	IX	Magnetic Flux (?) & Magnetic Flux Density	Cos 4	
10	1.5		(B)		
48	48	X	Electric Current , Ohm's law and its applications	Cos 4	
49	49	X	Series and Parallel combination of resistors	Cos 4	
50	50	X	Kirchhoff's laws	Cos 4	
	1		(Statement &	J 500 T	
Y	(Explanation with		
			diagram).	-	
51	51	X	Application of	Cos 4	
	1		Kirchhoff?s laws to		
FO	F0	\	Wheatstone bridge	00-1	
52	52	X	Balanced condition of Wheatstone?s Bridge	Cos 4	
:			- Condition of		
			Balance (Equation).		
53	53	XI	Electromagnetism,	Cos 4	
55			Force acting on a		1
			current carrying	1	l
		1	conductor placed in a	1	
			uniform magnetic field		
54	54	XI	Fleming's Left Hand	Cos 4	
e es 8 - 5			Rule,Fleming?s Right		
			Hand Rule	-	
55	55	XI	Faraday?s Laws of	Cos 4	
		3	Electromagnetic	7 × 3	
F -		VI VI	Induction, Lenz's law		1
56	56	XI	Comparison between Fleming?s Right Hand	1	
			Rule and Fleming?s		
0 000			Left Hand Rule.		
57	57	XII	LASER & laser beam		en e
58	58	XII	Principle of LASER	Cos 5	
2 2	1 1 1		(Population Inversion		
		, a	& Optical Pumping)	4 2 1	I was a second of the second

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
59	59	XII	Properties & Applications of LASER	Cos 5	
60	60	XII	Wireless Transmission – Ground Waves, Sky Waves, Space Waves (Concept & Definition)	Cos 5	

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AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA Session: 2023-2024

Course Name: DIPLOMA Theory/Practical: Theory

Section : C Semester : 2 Branch Name: COMPUTER SCIENCE Subject Name: TH 3 : Engineering Mathematics-II

Teacher Name: SUCHITRA SRICHANDAN

Credit '3' External Evaluation(Marked) '100' Internal Evaluation(Marked)

Text Books:

SI.No	Text Books					
1	Elements of Mathematics _ Vol 1 & 2 (Odisha State Bureau of Text Book preparation & Production	1				

Reference books:

SI.No	Reference books
1	Mathematics Part- I & Part- II- Textbook for Class XII, NCERT Publication

SI.No	Course Outcomes
1	Students will be able to know the meaning of vectors, and use them when adding and subtracting They will be able to learn how
2	Calculate the limit of a function of two variables. Learn how a function of two variables can approach different values at a bou
3	An openended task that is given to all children. The children then attempt this task in their own way and at their own pace, thu
4	Integration is a mathematical technique to calculate the area under a curve. There are multiple methods for integration, of whic
5	understand that physical systems can be described by differential equations. understand the practical importance of solving diff

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
1	1	1	(VECTORS) definition , representation ,Types of vectors	Cos 1	
2	2	1	(VECTORS) definition , representation ,Types of vectors	Cos 1	
3	3	1	Component form of scalar product, Angle between two vectors	Cos 1	
4	4	1	Scalar and vector projection of a vector	Cos 1	,

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			on another vector		
5	5	1	Vector or Cross product of vectors,	Cos 1	
			properties of cross product Right hand screw rule		. 30.4
6	6	1	Component form of vector product, Geometrical meaning of cross p	Cos 1	
7	7	1	Area of a triangle and parallelogram	Cos 1	
8	8	2	(FUNCTION) Cartesian product of sets and relation on a set and from one set to another, Relation and function	Cos 2	
9	9	2	Types of function- constant fun. , absolute value function , signum Function , etc.	Cos 2	
10	10	2	Greatest integer function and Graphs, logarithmic and exponential Functions etc.	Cos 2	
11	11	2	Greatest integer function and Graphs, logarithmic and exponential Functions etc.	Cos 2	
12	12	2	(LIMIT) limit of a function , working rule to find limit , examples	Cos 2	-
13	13	2	Limit formulas for indeterminate forms 0/0, â^ž-â^ž, â^ž/â^ž etc	Cos 2	
14	14	2	Limit formulas for indeterminate forms 0/0, â^z/â^z etc	Cos 2	
15 -	15	2	Limit formulas for indeterminate forms 0/0, â^ž-â^ž, â^ž/â^ž etc (three)	Cos 2	

SL No.	Locture	NA	Tania Ta Da Tanaki	0	D.C.
	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
16	16	2	Existence of limits (LHL and RHL)	Cos 2	
17	. 17	2	(CONTINUITY OF A FUNCTION) continuity at a point ,	Cos 2	
18	18	2	Examples of pont of discontinuity , (x , [x] etc.)	Cos 2	
19	19	2	Problems on continuity and discontinuity	Cos 2	
20	20	2	(DERIVATIVE) definition , derivative at a point , examples	Cos 2	
21	21	3	Algebra of derivative , Addition , Subtraction , quotient , product rule etc.	Cos 3	
22	22	3	Derivative of ex , log x , xn , a x etc.	Cos 3	
23	23	3	Derivative of sin x , cos x ,,,,, , sin – 1 x , cos – 1x , etc	Cos 3	
24	24	3	Derivative of composite function (Chain Rule), examplesvvv	Cos 3	
25	25	3	More examples on Chain rule	Cos 3	
26	26	3	Methods or Technique s of derivative- parametric form, derivative of Implicit function	Cos 3	
27	27	3	Derivative using log	Cos 3	*
28	28	3	Derivative of inverse Trigonometric function	Cos 3	
29	29	3	Derivative of a function w.r.t another function	Cos 3	
30	30	3	(APPLICATION OF DERIVATIVE) Successive differentiation, Higher dervatve related problems	Cos 3	
	31	3	Partial differential	Cos 3	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			equation of f(x , y) , f(x , y , z)etc.		
32	32	3	Euler's theorem , L â€~ Hospital Rule	Cos 3	
33	33	3	More examples on partial derivatives	Cos 3	
34	34	4	(INTEGRATION) Integration as antiprocess of derivative - I (integration of sin x, cos x, 1/x, xn, e x etc.)	Cos 4	
35	35	4	Standard integration formulas , Properties of Indefinite integration	Cos 4	
36	36	4	Integration by substitution – (integration of tan x ,cot x sec x ,cosec x Etc. ? F' / F dx)	Cos 4	
37	37	4	Integration by algebraic substitution and examples	Cos 4	
38	38	4	Integration by Trigonometric substitution and examples	Cos 4	
39	39	4	Integration by partial fraction, (integration of 1/(???? ^2????? ^2) etc.	Cos 4	
40	40	4	Integration by by-parts method, (integration of ?(???? ^2 + ???? ^2), ?(???? ^2 ? ???? ^2), ?(???? ^2 ? ???? ^2) etc,)	Cos 4	
41	41	4	More examples on integration by partial fraction	Cos 4	
42	42	4	Moe examples on integration by parts (integration of ln x , sin^(- 1) x)	Cos 4	
43	43	4	(DEFINITE INTEGRATION) Properties I , II , II	Cos 4	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
44	44	4	Properties of Definite Integration – IV , V , VI and applications	Cos 4	
45	45	4	Properties of definite integration VII , VII and applications	Cos 4	
46	46	4	(APPLICATION OF INTEGRATION) Area under a curve	Cos 4	・対象を乗りませる。 ・ ・
47	47	4	Area between curve , Area of Circle , Right angled triangle etc	Cos 4	
48	48	4	Area under two curves	Cos 4	
49	49	4	Area of curves that changes sign	Cos 4	
50	50	5	(DIFFERENTIAL EQUATION) definition , order and degree	Cos 5	
51	51	5	Solution of differential equation, General and Particular sol.	Cos 5	
52	52	5	Differential equation of 1st order and 1st degree , Variable separation method,	Cos 4	
53	53	5	Homogeneous form and solution	Cos 5	
54	54	5	Linear differential equation (linear in y , dy/dx)	Cos 5	
55	55	5	Linear differential equation (linear in x and dx/dy)	Cos 5	
56	56	1	Sample previous year questions and solutions	Cos 1	
57	57	2	Sample previous year questions and solutions	Cos 2	
58	58	3	Sample previous year questions and solutions	Cos 3	
59	59	4	Sample previous year questions and solutions	Cos 4	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
60	60	5	Sample previous year	Cos 5	
			questions and	X*	
	#1.44	ar a war and a g	solutions	Kila Kila a wasi	And the second of the second o

Suchitra Smichandan Subject Teacher 16/02/24

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Principal .



PLOT NO. 1293, MAHATAPALLA, BAJAPUR, KHURDA

Session: 2023-2024

Course Name: DIPLOMA

Subject Name: TH 1A: Communicative English

Section: D
Semester: 2

Branch Name: MECHANICAL Theory/Practical: Theory

Teacher Name: SUPRAVA RATH

Credit " External Evaluation(Marked) '80' Internal Evaluation(Marked) '20'

Text Books:

Sl.No	Text Books
1	Invitation to English, Book-1, (for +2 students), CSHE (2016 reprint), Odisha
2	Invitation to English, Book-2, (for +2 students), CSHE (2016 reprint), Odisha
3	Invitation to English, Book-3, (for +2 students), CSHE (2016 reprint), Odisha
4	Invitation to English, Book-4, (for +2 students), CSHE (2016 reprint), Odisha
5	Communication Skills, Sanjay Kumar and Puspalata, Oxford University Press

Reference books:

Sl.No	Reference books
1	Invitation to English, Book-2, (for +2 students), CSHE (2016 reprint), Odisha
2	Communication Skills, Sanjay Kumar and Puspalata, Oxford University Press

SI.No	Course Outcomes
	KNOWLEDGE ABOUT WHOLE LITERURE APPRECIATION SUCH AS NOTE MAKING
1	,SUMMERIZING ETC AND STORY AND POEM
2	USES OF SYNONYMS , ANTONYMS & SINGLE WORD SUBSTITUTE
	TENSES, COUNTABLE AND UNCOUNTABLE NOUN ,MODELS, VOICE CHANGE ,ARTICLES
3	& DETERMINERS, SUBJECT - VERB AGREEMENT
4	PARAGRAPH WRITING, NOTICE , AGENDA, REPORT WRITING , LETTER, APPLICATION
5	INTRODUCTION TO COMMUNICATION , PROFFESIONAL COMMUNICATION

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference
1	1	1	Skimming the gist	Cos 1	
2	2	1	Skimming the gist	Cos 1	- 10 % TO TO
3	3	1	Skimming the gist	Cos 1	
4	4	1	Scanning for necessary	Cos 1	3
			Close reading for inference		* · · · · · · · · · · · · · · · · · · ·
5	5	1	and evaluation	Cos 1	

6 7	6	1	Main idea and supporting	Cos 1	
	7	1	Main idea and supporting	Cos 1	
8	0		Guessing the meaning of un-		
	8	1	familiar words	Cos 1	
9	0	Section acceptance	Guessing the meaning of un-		1
	10	1	familiar words	Cos 1	
10	10	1	Note- making	Cos 1	
11	11	1	Note- making	Cos 1	
12	12	1	Summarizing	Cos 1	
13	13	1	Summarizing	Cos 1	
14	14	1	Supplying a suitable title	Cos 1	
15	15	1	Supplying a suitable title	Cos 1	
1.0	16		Standing Up For Yourself By		
16	16	1	Yevgeny Yevtushenko	Cos 1	
17	17	1	The Magic Of Teamwork By	Cos 1	
18	18	1	The Magic Of Teamwork By	Cos 1	
19	19	1	Inchcape Rock By Robert	Cos 1	
20	20	1	To My True Friend By	Cos 1	
	21	2	synonyms	Cos 2	
22	22	2	antonyms	Cos 2	
22	22		Same word used in different		
23	23	2	situations in different meaning	Cos 2	
24	24		Same word used in different	_	
24	24	2	situations in different meaning		S-
25	25	2	Single word substitute	Cos 2	2.0
26	26	3	Countable an Uncountable	Cos 3	
27	27	3	Articles and Determiners	Cos 3	
28	28	3	Modal Verbs	Cos 3	
29	29	3	Tenses	Cos 3	
30	30	3	Tenses	Cos 3	
31	31		Tenses	Cos 3	
32	32	3	Voice-change	Cos 3	
33	33	4	Subject-verb Agreement	Cos 3	
34	34	4	Paragraph writing	Cos 4	
35	35	4	Meaning Footures of Paragraph West	Cos 4	
36	36	4	Features of Paragraph Writing	Cos 4	-
37	37	4	Developing Ideas into	Cos 4	
38	38		Notice	Cos 4	
39 40	39 40	4	Agenda	Cos 4	
41	41	4	Report writing	Cos 4	
41	41	4	Writing personal letter	Cos 4	
42	42	4	Letter to the Principal,	Cos 4	
43	43		Letter to Head of the Deptt,		
43	44	4	and Hostel Superintenden	Cos 4	The second second second second
45	45	4	Writing Business letters	Cos 4	
73	43	4	Layout of a Business Letter	Cos 4	

			Letter of Enquiry, Placing an		Service of the servic
			Order, Execution of an Order,		,
46	46	4	Complaint, Cancellation of an	Cos 4	
47	47	4	Job application and C.V.	Cos 4	
48	48	4	Job application and C.V.	Cos 4	an a sussession of
			Meaning, Definition and		
49	49	5	concept of communication	Cos 5	2 D 0 KD
		V	Good Communication and Bad		2 8 1 18 91 1
50	50	5	Communication	Cos 5	
51	51	5	Communication model	Cos 5	
			Process of communication and		
52	52	5	factors responsible for it	Cos 5	
			Meaning of professional		. 9-
53	53	5	communication	Cos 5	
54	54	5	Types of professional Cos		
55	55	5	Formal or Systematic Co.		
56	56	5	Informal communication	Cos 5	
57	57	5	Meaning of nonverbal	Cos 5	
			Different areas of Non-verbal		
58	58	5	Communication	Cos 5	
			Kinesics or Body Language &		
59	59	5	Proxemics or Spatial Language	Cos 5	
60	60	5	Language of Signs and Symbols	Cos 5	
			-		

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AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA Session: 2023-2024

Course Name: DIPLOMA Theory/Practical: Theory

Section : D Semester : 2 Branch Name: MECHANICAL

Subject Name: TH 2A: Engineering Physics Teacher Name: RADHASHYAM MOHANTA

Credit '2' External Evaluation(Marked) '80' Internal Evaluation(Marked)

'20

Text Books:

SI.No	Text Books
1	Engineering Physics for Diploma by Ranjan Kumar Bhuyan, PHI Private Ltd. New Delhi
2	Text book of physics for XI (part -I, Part-II), N.C.E.R.T
3	Text book of physics for XII (part -I, Part-II), N.C.E.R.T

Reference books:

SI.No	Reference books
1	Applied Physics-I (English) Author Name-Prof. Vinod Kumar Yadav
2	Optical fibre communications by GERD KEISER, MGH publication .
3	Electronic communication Systems, by George kennedy, Tata McGraw Hill
4	An Introduction to Fiber Optics. By Ajoy K. Ghatak, K. Thyagarajan, Cambridge University Press.

SI.No	Course Outcomes
1	Estimate errors in measurement of physical quantities.
2	Students will be able to Apply laws of motion in various applications and Calculate effects of
_	gravitational force on planets.
3	Comprehend concept of Heat, Temperature and and their effects on Solids, Acquire knowledge on
	properties of light.
1	Apply Coulomb's law to calculate electrostatics force, electric field and electric potential.
	Use basic principles of light, X-rays, Laser and Fibre optics in related engineering problems.
5	Use basic principles of light, 70 rays, 2000

SL No.	Lecture	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
OL No.	No.	,,			
1	1		Definition of	Cos 1	. 7 - 4
1			fundamental and		
			derived units, systems		
			of units (FPS, CGS,		
		and the second s	MKS and SI units)		The second secon
2	2		Definition of	Cos 1	
2		and was a superior of the supe	dimension and	a paragrama na energia	was in an in an and he commenced the contract of the contract
			Dimensional formulae		A CONTRACTOR
			of physical quantities		
3	3		Dimensional	Cos 1	
			equations and	and the second	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			Principle of homogeneity	4 ×	
4	4	1	Scalar and Vector quantities	Cos 1	
5	5		Resolution of Vectors	Cos 1	
6	6	11	Vector multiplication	Cos 1	
7	7	 	Concept of Rest and	Cos 2	
·	,		Motion, Displacement, Speed, Velocity, Acceleration & Force		
8	8	III	Equations of Motion under GravityCircular motion: Angular displacement, Angular velocity and Angular	Cos 2	
			acceleration		
9	9	III	Circular motion: Angular displacement, Angular velocity and Angular accelerationLinear & Angular velocity	Cos 2	
10	10	III	Relation between Linear & Angular	Cos 2	
		1	acceleration		
11	11	III	Projectile, Expression for Equation of Trajectory	Cos 2	
12	12	III	Time of Flight, Maximum Height	Cos 2	
13	13	III	Horizontal Range for a projectile fired at an angle, Condition for maximum Horizontal Range	Cos 2	
14	14	IV	Definition, Formula & SI units of WORK AND FORCE	Cos 2	
15	15	IV	Static, dynamic & Limiting Friction	Cos 2	
	10	IV	Laws of Limiting	Cos 2	
16	16	I V	Friction		(a secretic to 15
17	17	IV	Coefficient of Friction with problems	Cos 2	though after a continuous and advantage special continuous approach a population strain a
18	18	IV	Useful Methods to reduce friction	Cos 2	

SL No.	Lecture	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
	No.	1 15 4 15 15 15 15 15 15 15 15 15 15 15 15 15			
19	19	V	Newton's Laws of Gravitation	Cos 2	
20	20		Universal	Cos 2	66 C C C C C C C C C C C C C C C C C C
***************************************			Gravitational Constant		
	, - w a	(G), Accele		an and an	
- 04		, .	to gravity (g)		
21	21	V	Definition of mass and	Cos 2	
			weight& Relation		
			between g and G.		
22	22	V	Variation of g with	Cos 2	
			altitude and depth		
23	23	V	Kepler's Laws of Planetary Motion	Cos 2	
24	24	VI	Simple Harmonic Motion	Cos 3	
25	25	VI	Expression	Cos 3	
		•	(Formula/Equation)		
			for displacement,		
	87		velocity, acceleration	, s , ni	
			of a body/ particle in		
			SHM		
26	26	VI	Wave motion	Cos 3	
			Introduction	11 X 11 X	
27	27	VI	Amplitude,	Cos 3	
			Wavelength,		
			Frequency, Time		
			Period		
28	28	VI	Derivation of Relation	Cos 3	
			between Velocity,	8	
	7.		Frequency and		
			Wavelength of a wave		
29	29	VI	Introduction to	Cos 3	
			Ultrasonic		(1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-
30	30	VII	Heat and	Cos 3	
	-19° P		Temperature, Units of		
			Heat,Specific heat		
31	31	VII	Change of state	Cos 3	
	e o e esta e		(concept), Latent Heat	2000 2000 2000 600 200 200 2	
	5 1 2		(concept, definition,	e v	
			unit, dimension and		. 4
			simple numerical)		
32	32	VII	Thermal Expansion,	Cos 3	, and the same resource of the control of the contr
	10 h		Expansion of Solids	AMI a to case and asset	and the state of t
33	33	VII	Coefficient of linear,	Cos 3	
			superficial and cubical		
			expansions of		
	1 1 1		Solids.Definition &	ille E	
	(W) (1)				

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			Units.		
34	34	VII	Relation between ?, ? & ?	Cos 3	
35	35	VII	Work and Heat - Concept & Relation	Cos 3	
36	36	VII	Joule's Mechanical Equivalent of Heat (Definition, Unit) ,First Law of Thermodynamics (Statement and concept only)	Cos 3	
37	37	VIII	Reflection & Refraction, Laws of reflection and refraction	Cos 3	
38	38	VIII	Refractive index, Critical Angle and Total internal reflection	Cos 3	
39	39	VIII	Refraction through Prism (Ray Diagram & Formula only)	Cos 3	
40	40	VIII	Fiber Optics :Definition, Properties & Applications.	Cos 3	
41	41	IX	Electrostatics, Statement & Explanation of Coulombs laws, Definition of Unit charge.	Cos 4	
42	42	IX	Absolute & Relative Permittivity (ε), Electric potential and Electric Potential difference	Cos 4	
43	43	IX	Electric field, Electric field intensity (E), Capacitance	Cos 4	
44	44	IX	Series and Parallel combination of	Cos 4	
angun dang T			Capacitors, Magnet, Properties of a magnet.	ALLES CONTRACTOR CONTRACTOR	
45	45	IX	Series and Parallel combination of Capacitors, Magnet,	Cos 4	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			Properties of a magnet		
46	46	IX	Magnetic lines of force	Cos 4	
47	47	IX	Magnetic Flux (?) & Magnetic Flux Density (B)	Cos 4	
48	48	X	Electric Current , Ohm's law and its applications	Cos 4	ing in the state of the state o
49	49	Х	Series and Parallel combination of resistors	Cos 4	
50	50	Х	Kirchhoff's laws (Statement & Explanation with diagram).	Cos 4	
51	51	Х	Application of Kirchhoff's laws to Wheatstone bridge	Cos 4	
52	52	X	Balanced condition of Wheatstone's Bridge "Condition of Balance (Equation).	Cos 4	
53	53	ΧI	Electromagnetism, Force acting on a current carrying conductor placed in a uniform magnetic field	Cos 4	
54	54	ΧI	Fleming's Left Hand Rule,Fleming's Right Hand Rule	Cos 4	
55	55	ΧI	Faraday's Laws of Electromagnetic Induction, Lenz's law	Cos 4	
56	56	ΧI	Comparison between Fleming's Right Hand Rule and Fleming's Left Hand Rule.	Cos 5	
57	57	XII	LASER & laser beam	Cos 5	
58	58	XII	Principle of LASER (Population Inversion & Optical Pumping)	Cos 5	
59	59	XII	Properties & Applications of LASER	Cos 5	er for encode not to the an all Americans and a series are a single a series and the series of the s
60	60	XII	Wireless	Cos 5	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			Transmission –		
			Ground Waves, Sky	-	
	i o no monimo	H - 30 F 10 0 - 1	Waves, Space Waves	er a samer i samer i sa	
			(Concept &		
	y design		Definition)	8.3	

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PLOT NO. 1293, MAHATAPALLA, BAJAPUR, KHURDA

Session: 2023-2024

Course Name: DIPLOMA

Subject Name: TH 3: Engineering Mathematics-II

Section: D
Semester: 2

Branch Name: MECHANICAL

Theory/Practical: Theory

Teacher Name: GYANA RANJAN RATH

Credit '3' External Evaluation(Marked) '80' Internal Evaluation(Marked) '20'

Text Books:

Sl.No	Text Books
	Elements of Mathematics _ Vol 1 & 2 (Odisha State Bureau of Text Book
1	preparation & Production

Reference books:

Sl.No	Reference books	
1	Mathematics Part- I & Part- II- Textbook for Class XII, NCERT Publication	٦

Sl.No	Course Outcomes
	Students will be able to know the meaning of vectors, and use them when
1	adding and subtracting They will be able to learn how
	Calculate the limit of a function of two variables. Learn how a function of two
2	variables can approach different values at a bou
	An openended task that is given to all children. The children then attempt this
3	task in their own way and at their own pace, thu
	Integration is a mathematical technique to calculate the area under a curve.
4	There are multiple methods for integration, of whic
	understand that physical systems can be described by differential equations.
5	understand the practical importance of solving diff

SL	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference
			(VECTORS) definition ,	Cos	
1	1	1	representation ,Types of vectors	1	
= (x) (i)	en e e erek kin ge ur kom	make and page of the page of the	(VECTORS) definition ,	Cos	
2	2	1	representation ,Types of vectors	1	
	5	s j e iga s	Component form of scalar product,	Cos	
3	3	1	Angle between two vectors	1	

			•		
		_	Scalar and vector projection of a	Cos	
4	4	1	vector on another vector	1	
			Vector or Cross product of vectors,		
_	_		properties of cross product Right	Cos	
5	- 5	1	hand screw rule	1	
			Component form of vector product,	Cos	1
6	6	1	Geometrical meaning of cross p	1	
7	7	1	Area of a triangle and parallelogram	Cos	
			(FUNCTION) Cartesian product of		
_			sets and relation on a set and from	Cos	
8	8	2	one set to another, Relation and	2	
			Types of function- constant fun.,		
			absolute value function , signum	Cos	
9	9	2	Function , etc.	2	
			Greatest integer function and		
			Graphs, logarithmic and exponential		
10	10	2	Functions etc.	2	
			Greatest integer function and		
	2		Graphs, logarithmic and exponential	Cos	
11	11	2	Functions etc.	2	
			(LIMIT) limit of a function, working	Cos	
12	12	2	rule to find limit , examples	2	
			Limit formulas for indeterminate	Cos	
13	13	2	forms 0/0 , â^ž-â^ž, â^ž/â^ž etc	2	
			Limit formulas for indeterminate	Cos	
14	14	2	forms 0/0 , â^ž/â^ž etc	2	
			Limit formulas for indeterminate	Cos	
15	15	2	forms 0/0 , â^ž-â^ž, â^ž/â^ž etc	2	
16	16	2	Existence of limits (LHL and RHL)	Cos	
			(CONTINUITY OF A FUNCTION)	Cos	
17	17	2	continuity at a point ,	2	
			Examples of pont of discontinuity , (Cos	
18	18	2	x , [x] etc.)	2	
			Problems on continuity and	Cos	
19	19	2	discontinuity	2	
			(DERIVATIVE) definition ,	Cos	
20	20	2	derivative at a point , examples	2	
			Algebra of derivative , Addition ,		
			Subtraction , quotient , product rule	Cos	
21	21	3	etc.	3	
22	22	3	Derivative of ex, log x, xn, a x etc.	Cos	
			Derivative of sin x, cos x,,,,,, sin	Cos	
23	23	3	– 1 x , cos – 1x , etc	3	2 8
		A 2 00-1 2 000 000 000 000	Derivative of composite function (Cos	
24	24	3	Chain Rule) , examplesvvv	3	
25	25	3	More examples on Chain rule	Cos	

		- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Mathada ar Tachnique s of		
			Methods or Technique s of	Cos	
36	26		derivative of Implicit function	Cos	,
26	26	3	derivative of Implicit function	3	
27	27	3	Derivative using log	Cos	
20			Derivative of inverse Trigonometric	Cos	
28	28	3	function	3	2
20			Derivative of a function w.r.t	Cos	
29	29	3	another function	3	
			(APPLICATION OF DERIVATIVE)	C	
			Successive differentiation, Higher	Cos	
30	30	3	dervatve related problems	3	
		,	Partial differential equation of f(x, y	Cos	
31	31	3) , f(x , y , z)etc.	3	
			Euler's theorem , L â€~ Hospital	Cos	
32	32	3	Rule	3	
33	33	3	More examples on partial	Cos	
		, '	(INTEGRATION) Integration as anti-		
			process of derivative - I (integration		
34	34	4	of sin x, cos x, 1/x, xn, e x etc.)	4	
			Standard integration formulas,	Cos	
35	35	4	Properties of Indefinite integration	4	
		, , , , , , , , , , , , , , , , , , , ,	Integration by substitution â€" (
	1		integration of tan x ,cot x sec x	Cos	v.
36	36	4	,cosec x Etc. â^« F' / F dx)	4	
	1,1,00		Integration by algebraic substitution	Cos	* 1
37	37	4	and examples	4	
			Integration by Trigonometric	Cos	
1 00	1				
38	38	4	substitution and examples	4	
38	38 39	4 4	Integration by partial fraction	Cos	
			Integration by partial fraction Integration by by-parts method	Cos	
39	39	4	Integration by partial fraction Integration by by-parts method More examples on integration by	Cos Cos	
39	39	4	Integration by partial fraction Integration by by-parts method More examples on integration by partial fraction	Cos Cos Cos 4	
39 40	39 40	4 4	Integration by partial fraction Integration by by-parts method More examples on integration by partial fraction Moe examples on integration by	Cos Cos 4 Cos	
39 40	39 40	4 4	Integration by partial fraction Integration by by-parts method More examples on integration by partial fraction Moe examples on integration by parts (integration of ln x , sin ^(-1)	Cos Cos Cos 4	
39 40 41	39 40 41	4 4	Integration by partial fraction Integration by by-parts method More examples on integration by partial fraction Moe examples on integration by	Cos Cos 4 Cos	
39 40 41 42	39 40 41	4 4	Integration by partial fraction Integration by by-parts method More examples on integration by partial fraction Moe examples on integration by parts (integration of ln x , sin ^(-1)	Cos Cos 4 Cos 4	
39 40 41	39 40 41 42	4 4 4	Integration by partial fraction Integration by by-parts method More examples on integration by partial fraction Moe examples on integration by parts (integration of ln x , sin ^(-1) (DEFINITE INTEGRATION)	Cos Cos 4 Cos 4 Cos	
39 40 41 42 43	39 40 41 42	4 4 4	Integration by partial fraction Integration by by-parts method More examples on integration by partial fraction Moe examples on integration by parts (integration of ln x , sin ^(-1) (DEFINITE INTEGRATION) Properties I , II , II	Cos Cos 4 Cos 4 Cos 4	
39 40 41 42	39 40 41 42 43	4 4 4	Integration by partial fraction Integration by by-parts method More examples on integration by partial fraction Moe examples on integration by parts (integration of ln x, sin ^(-1) (DEFINITE INTEGRATION) Properties I, II, II Properties of Definite Integration	Cos Cos 4 Cos 4 Cos 4 Cos 4	
39 40 41 42 43	39 40 41 42 43	4 4 4	Integration by partial fraction Integration by by-parts method More examples on integration by partial fraction Moe examples on integration by parts (integration of ln x, sin ^(-1) (DEFINITE INTEGRATION) Properties I, II, II Properties of Definite Integration â€" IV, V, VI and applications	Cos Cos 4 Cos 4 Cos 4 Cos 4	
39 40 41 42 43	39 40 41 42 43 44	4 4 4 4 4	Integration by partial fraction Integration by by-parts method More examples on integration by partial fraction Moe examples on integration by parts (integration of ln x, sin ^(-1) (DEFINITE INTEGRATION) Properties I, II, II Properties of Definite Integration â€" IV, V, VI and applications Properties of definite integration VII	Cos Cos 4 Cos 4 Cos 4 Cos 4 Cos 4	
39 40 41 42 43	39 40 41 42 43 44 45	4 4 4 4 4	Integration by partial fraction Integration by by-parts method More examples on integration by partial fraction Moe examples on integration by parts (integration of ln x, sin ^(-1) (DEFINITE INTEGRATION) Properties I, II, II Properties of Definite Integration â€" IV, V, VI and applications Properties of definite integration VII , VII and applications	Cos Cos 4 Cos 4 Cos 4 Cos 4 Cos 4	
39 40 41 42 43 44	39 40 41 42 43 44	4 4 4 4 4 4	Integration by partial fraction Integration by by-parts method More examples on integration by partial fraction Moe examples on integration by parts (integration of ln x, sin ^(-1) (DEFINITE INTEGRATION) Properties I, II, II Properties of Definite Integration â€" IV, V, VI and applications Properties of definite integration VII , VII and applications (APPLICATION OF INTEGRATION)	Cos Cos 4 Cos 4 Cos 4 Cos 4 Cos 4 Cos 4 Cos 6 Cos 7 Cos	
39 40 41 42 43 44 45	39 40 41 42 43 44 45	4 4 4 4 4 4	Integration by partial fraction Integration by by-parts method More examples on integration by partial fraction Moe examples on integration by parts (integration of ln x , sin ^(-1) (DEFINITE INTEGRATION) Properties I , II , II Properties of Definite Integration â€" IV , V , VI and applications Properties of definite integration VII , VII and applications (APPLICATION OF INTEGRATION) Area under a curve	Cos Cos 4	
39 40 41 42 43 44 45 46	39 40 41 42 43 44 45	4 4 4 4 4 4 4	Integration by partial fraction Integration by by-parts method More examples on integration by partial fraction Moe examples on integration by parts (integration of In x, sin ^(-1) (DEFINITE INTEGRATION) Properties I, II, II Properties of Definite Integration â€" IV, V, VI and applications Properties of definite integration VII , VII and applications (APPLICATION OF INTEGRATION) Area under a curve Area between curve , Area of Circle	Cos Cos 4 Cos 6 Cos 7 Cos	
39 40 41 42 43 44 45	39 40 41 42 43 44 45 46	4 4 4 4 4 4 4	Integration by partial fraction Integration by by-parts method More examples on integration by partial fraction Moe examples on integration by parts (integration of ln x , sin ^(-1) (DEFINITE INTEGRATION) Properties I , II , II Properties of Definite Integration â€" IV , V , VI and applications Properties of definite integration VII , VII and applications (APPLICATION OF INTEGRATION) Area under a curve Area between curve , Area of Circle , Right angled triangle etc.	Cos Cos 4	

				,	
			(DIFFERENTIAL EQUATION)	Cos	
50	50	5	definition , order and degree	5	
			Solution of differential equation ,	Cos	
51	51	5	General and Particular sol.	5	2
e 11 h	1000 g 1 20 ² 10	. 7. 10	Differential equation of 1st order		
	5 1 0 m		and 1st degree , Variable separation	Cos	18 A A
52	52	5 , 4 , 2	method,	5	
53	53	5	Homogeneous form and solution	Cos	
		1.879	Linear differential equation (linear	Cos	
54	54	5	in y , dy/dx)	5	
			Linear differential equation (linear	Cos	
55	55	5	in x and dx/dy)	5	
			Sample previous year questions and	Cos	
56	56	5	solutions	1	
		H	Sample previous year questions and	Cos	
57	57	5	solutions	2	
		N .	Sample previous year questions and	Cos	
58	58	5	solutions	3	
		3 0 3 2 6 48	Sample previous year questions and	Cos	,
59	59	5	solutions	4	
		6	Sample previous year questions and	Cos	
60	60	5	solutions	5	

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PLOT NO. 1293, MAHATAPALLA, BAJAPUR, KHURDA

Session: 2023-2024

Course Name: DIPLOMA

Subject Name: TH 1A: Communicative English

Section: E Semester: 2

Branch Name: MECHANICAL Theory/Practical: Theory

Teacher Name: SUPRAVA RATH

Credit "External Evaluation(Marked) '80' Internal Evaluation(Marked) '20'

Text Books:

SI.No	Text Books
1	Invitation to English, Book-1, (for +2 students), CSHE (2016 reprint), Odisha
2	Invitation to English, Book-2, (for +2 students), CSHE (2016 reprint), Odisha
3	Invitation to English, Book-3, (for +2 students), CSHE (2016 reprint), Odisha
4	Invitation to English, Book-4, (for +2 students), CSHE (2016 reprint), Odisha
5	Communication Skills, Sanjay Kumar and Puspalata, Oxford University Press

Reference books:

SI.No	Reference books			
1	Invitation to English, Book-2, (for +2 students), CSHE (2016 reprint), Odisha			
2	Communication Skills, Sanjay Kumar and Puspalata, Oxford University Press			

Sl.No	Course Outcomes
	KNOWLEDGE ABOUT WHOLE LITERURE APPRECIATION SUCH AS NOTE MAKING
1	,SUMMERIZING ETC AND STORY AND POEM
2	USES OF SYNONYMS, ANTONYMS & SINGLE WORD SUBSTITUTE
-	TENSES, COUNTABLE AND UNCOUNTABLE NOUN, MODELS, VOICE CHANGE, ARTICLES
3	& DETERMINERS, SUBJECT - VERB AGREEMENT
4	PARAGRAPH WRITING, NOTICE , AGENDA, REPORT WRITING , LETTER, APPLICATION
5	INTRODUCTION TO COMMUNICATION , PROFFESIONAL COMMUNICATION
	, WELL ESTAINE CONTINUENTED IN

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference
1	1	1	Skimming the gist	Cos 1	Reference
2	2	1	Skimming the gist	Cos 1	
3	3	1	Skimming the gist	Cos 1	
4	4	1	Scanning for necessary	Cos 1	The second second
_	2 3, X		Close reading for inference		2
5	5	1	and evaluation	Cos 1	

			1	
6	6	1	Main idea and supporting	Cos 1
7	7	1	Main idea and supporting	Cos 1
			Guessing the meaning of un-	
8	8	1	familiar words	Cos 1
	1 3000 100	10 No. 10	Guessing the meaning of un-	
9	9	1	familiar words	Cos 1
10	10	1	Note- making	Cos 1
11	11	1	Note- making	Cos 1
12	12	1	Summarizing	Cos 1
13	13	1	Summarizing	Cos 1
14	14	1	Supplying a suitable title	Cos 1
15	15	1	Supplying a suitable title	Cos 1
			Standing Up For Yourself By	
16	16	1	Yevgeny Yevtushenko	Cos 1
17	17	1	The Magic Of Teamwork By	Cos 1
18	18	1	The Magic Of Teamwork By	Cos 1
19	19	1	Inchcape Rock By Robert	Cos 1
20	20	1	To My True Friend By	Cos 1
21	21	2	synonyms	Cos 2
22	22	2	antonyms	Cos 2
		-	Same word used in different	
23	23	2	situations in different meaning	Cos 2
			Same word used in different	
24	24	2	situations in different meaning	Cos 2
25	25	2	Single word substitute	Cos 2
26	26	3	Countable an Uncountable	Cos 3
27	27	3	Articles and Determiners C	
28	28	3	Modal Verbs Co	
29	29	3	Tenses	Cos 3
30	30	3	Tenses	Cos 3
31	31	3	Tenses	Cos 3
32	32	3	Voice-change	Cos 3
33	33	3	Subject-verb Agreement	Cos 3
34	34	4	Paragraph writing	Cos 4
35	35	4	Meaning	Cos 4
36	36	4	Features of Paragraph Writing	Cos 4
37	37	4	Developing Ideas into	Cos 4
38	38	4	Notice	Cos 4
39	39	4	Agenda	Cos 4
40	40	4		
41	41	4	Writing personal letter	Cos 4
42	42	4	Letter to the Principal,	Cos 4
		1 par 1 294 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Letter to Head of the Deptt,	
43	43	4	and Hostel Superintenden	Cos 4
44	44	4	Writing Business letters	Cos 4
45	45	4	Layout of a Business Letter	Cos 4

			Letter of Enquiry, Placing an		0.00
			Order, Execution of an Order,		
46	46	4	Complaint, Cancellation of an	Cos 4	7.008 6
47	47	4	Job application and C.V.	Cos 4	58 **
48	48	4	Job application and C.V.	Cos 4	2 10 440 4104 62
	χ.		Meaning, Definition and		
49	49	5	concept of communication	Cos 5	
		50° - 0	Good Communication and Bad		200
50	50	5	Communication	Cos 5	
51	51	5	Communication model	Cos 5	
			Process of communication and		
52	52	5	factors responsible for it	Cos 5	
			Meaning of professional		
53	53	5	communication Co		
54	54	5	Types of professional Cos 5		
55	55	5	Formal or Systematic Cos 5		
56	56	5	Informal communication	Cos 5	
57	57	5	Meaning of nonverbal		
		_	Different areas of Non-verbal		
58	58	5	Communication		
			Kinesics or Body Language &		
59	59	5	Proxemics or Spatial Language	Cos 5	
60	60	5	Language of Signs and Symbols	Cos 5	

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AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA Session: 2023-2024

Course Name: DIPLOMA Theory/Practical: Theory

Section : E Semester : 2 Branch Name: MECHANICAL

Subject Name: TH 2A: Engineering Physics Teacher Name: RADHASHYAM MOHANTA

Credit '2' External Evaluation(Marked) '80' Internal Evaluation(Marked)

'20'

Text Books:

SI.No	Text Books
1	Engineering Physics for Diploma by Ranjan Kumar Bhuyan, PHI Private Ltd. New Delhi
	Text book of physics for XI (part -I, Part-II), N.C.E.R.T
3	Text book of physics for XII (part -I, Part-II), N.C.E.R.T

Reference books:

SI.No	Reference books				
1	Applied Physics-I (English) Author Name-Prof. Vinod Kumar Yadav				
	Optical fibre communications by GERD KEISER, MGH publication .				
	Electronic communication Systems, by George kennedy, Tata McGraw Hill				
	An Introduction to Fiber Optics. By Ajoy K. Ghatak, K. Thyagarajan, Cambridge University Press.				

SI.No	Course Outcomes
1	Estimate errors in measurement of physical quantities.
2	Students will be able to Apply laws of motion in various applications and Calculate effects of gravitational force on planets.
3	Comprehend concept of Heat, Temperature and and their effects on Solids, Acquire knowledge on properties of light.
4	Apply Coulomb's law to calculate electrostatics force, electric field and electric potential.
5	Use basic principles of light, X-rays, Laser and Fibre optics in related engineering problems.

SL No.	Lecture	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
	No.				
1	1	İ	Definition of	Cos 1	
			fundamental and		
			derived units, systems		
x + x +x	8 Y 2 6	et 6 e	of units (FPS, CGS,		
			MKS and SI units)		
2	2	1	Definition of	Cos 1	
gue se celebra con como di	er rom modificati	to the state of th	dimension and	e escent e e per a Varie de la c	The Mark to Mark 1980 at Market and the company of
	8 w ,		Dimensional formulae		
			of physical quantities		
3	3	1	Dimensional	Cos 1	
			equations and	The second secon	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			Principle of homogeneity		
4	4		Scalar and Vector quantities	Cos 1	
5	5		Resolution of Vectors	Cos 1	
6	6	II	Vector multiplication	Cos 1	
7	7	III	Concept of Rest and Motion, Displacement, Speed, Velocity, Acceleration & Force	Cos 2	
8	8	III	Equations of Motion under GravityCircular motion: Angular displacement, Angular velocity and Angular acceleration	Cos 2	
9		III	Circular motion: Angular displacement, Angular velocity and Angular accelerationLinear & Angular velocity	Cos 2	
10	10	III	Relation between Linear & Angular acceleration	Cos 2	
11	11	Ш	Projectile, Expression for Equation of Trajectory	Cos 2	
12	12	Ш	Time of Flight, Maximum Height	Cos 2	
13	13	III	Horizontal Range for a projectile fired at an angle, Condition for maximum Horizontal Range	Cos 2	
14	14	IV	Definition, Formula & SI units of WORK AND FORCE	Cos 2	
15	15	IV	Static, dynamic & Limiting Friction	Cos 2	
16	16		Laws of Limiting Friction	Cos 2	2
17	17	IV	Coefficient of Friction with problems	Cos 2	
18	18	IV	Useful Methods to reduce friction	Cos 2	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
19	19	V	Newton's Laws of Gravitation	Cos 2	
20	20 ~	V	Universal Gravitational Constant (G), Acceleration due to gravity (g)	Cos 2	
21	21	V	Definition of mass and weight& Relation between g and G.	Cos 2	
22	22	V	Variation of g with altitude and depth	Cos 2	
23	23	V	Kepler's Laws of Planetary Motion	Cos 2	
24	24	VI	Simple Harmonic Motion	Cos 3	
25	25	VI	Expression (Formula/Equation) for displacement, velocity, acceleration of a body/ particle in SHM	Cos 3	
26	26	VI	Wave motion Introduction	Cos 3	
27	27	VI	Amplitude, Wavelength, Frequency, Time Period	Cos 3	
28	28	VI	Derivation of Relation between Velocity, Frequency and Wavelength of a wave	Cos 3	
29	29	VI	Introduction to Ultrasonic	Cos 3	
30	30	VII	Heat and Temperature, Units of Heat,Specific heat	Cos 3	
31.	31	VII	Change of state (concept), Latent Heat (concept, definition, unit, dimension and simple numerical)	Cos 3	
32	32	VII	Thermal Expansion, Expansion of Solids	Cos 3	The state of the s
33	33	VII	Coefficient of linear, superficial and cubical expansions of Solids.Definition &	Cos 3	
			Solius, Delinition &	2 00	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			Units.		
34	34	VII	Relation between ?, ? & ?	Cos 3	v
35	35	VII	Work and Heat - Concept & Relation	Cos 3	
36	36	VII	Joule's Mechanical Equivalent of Heat (Definition, Unit) ,First Law of Thermodynamics (Statement and concept only)	Cos 3	
37	37	VIII	Reflection & Refraction, Laws of reflection and refraction	Cos 3	
38	38	VIII	Refractive index, Critical Angle and Total internal reflection	Cos 3	
39	39	VIII	Refraction through Prism (Ray Diagram & Formula only)	Cos 3	
40	40	VIII	Fiber Optics :Definition, Properties & Applications.	Cos 3	
41	41	IX	Electrostatics, Statement & Explanation of Coulombs laws, Definition of Unit charge.	Cos 4	
42	42	IX	Absolute & Relative Permittivity (ĂŽÂμ), Electric potential and Electric Potential difference	Cos 4	
43	43	IX	Electric field, Electric field intensity (E), Capacitance		
44	44	IX	Series and Parallel combination of	Cos 4	
	a verification of the second	The second secon	Capacitors, Magnet, Properties of a magnet.	0 = 1	the same of the sa
45	45	IX	Series and Parallel combination of Capacitors, Magnet,	Cos 4	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			Properties of a magnet		
46	46	1 X	Magnetic lines of force	Cos 4	the same and same and same and
47	47	IX	Magnetic Flux (?) & Magnetic Flux Density (B)	Cos 4	
48	48	X	Electric Current , Ohm's law and its applications	Cos 4	and the second of the second o
49	49	X	Series and Parallel combination of resistors	Cos 4	
50	50	X	Kirchhoff's laws (Statement & Explanation with diagram).	Cos 4	
51	51	Х	Application of Kirchhoff's laws to Wheatstone bridge	Cos 4	
52	52	X	Balanced condition of Wheatstone's Bridge "Condition of Balance (Equation).	Cos 4	
53	53 53 XI		Electromagnetism, Force acting on a current carrying conductor placed in a uniform magnetic field	Cos 4	
54	54	XI	Fleming's Left Hand Rule,Fleming's Right Hand Rule	Cos 4	
55	55	XI	Faraday's Laws of Electromagnetic Induction, Lenz's law	Cos 4	
56	56	ΧI	Comparison between Fleming's Right Hand Rule and Fleming's Left Hand Rule.	Cos 5	
57	57	XII	LASER & laser beam	Cos 5	
58	58	XII	Principle of LASER (Population Inversion & Optical Pumping)	Cos 5	
59	59	XII	Properties & Applications of LASER	Cos 5	
60	60	XII	Wireless	Cos 5	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			Transmission – Ground Waves, Sky		
		to the first conduction in the second	Waves, Space Waves	****	
	-	Mari Will III II II II	(Concept &		
			Definition)		re le

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PLOT NO. 1293, MAHATAPALLA, BAJAPUR, KHURDA

Session: 2023-2024

Course Name: DIPLOMA

Subject Name: TH 3: Engineering Mathematics-II

Section: E

Semester: 2

Branch Name: MECHANICAL Theory/Practical: Theory

Teacher Name: GYANA RANJAN RATH

Credit '3' External Evaluation(Marked) '80' Internal Evaluation(Marked) '20'

Text Books:

Sl.No	Text Books
	Elements of Mathematics _ Vol 1 & 2 (Odisha State Bureau of Text Book
1	preparation & Production

Reference books:

Sl.No	Reference books			
1	Mathematics Part- I & Part- II- Textbook for Class XII, NCERT Publication			

Sl.No	Course Outcomes		
	Students will be able to know the meaning of vectors, and use them when		
1	adding and subtracting They will be able to learn how		
	Calculate the limit of a function of two variables. Learn how a function of two		
2	variables can approach different values at a bou		
	An openended task that is given to all children. The children then attempt this		
3	task in their own way and at their own pace, thu		
	Integration is a mathematical technique to calculate the area under a curve.		
4	There are multiple methods for integration, of whic		
	understand that physical systems can be described by differential equations.		
5	understand the practical importance of solving diff		

SL	Lecture No.	Module/Unit No.	Topic To Be Taught		Reference
			(VECTORS) definition ,	Cos	
1	1	1	representation ,Types of vectors	1	
			(VECTORS) definition ,	Cos	an anna Mari
2	2	1	representation ,Types of vectors	1	
			Component form of scalar product,	Cos	, , ,
3	3	1	Angle between two vectors	1	

			Scalar and voctor projection of a	Cos	
4	4	1	Scalar and vector projection of a vector on another vector	Cos 1	
-	4		Vector or Cross product of vectors ,		
			properties of cross product Right	Cos	
5	5	1	hand screw rule	1	
	J	т		Cos	
6	6	1	Component form of vector product,	1	
7	7	1	Geometrical meaning of cross p		
-		<u>.</u>	Area of a triangle and parallelogram	Cos	
			(FUNCTION) Cartesian product of sets and relation on a set and from	Cas	
8	8	2	A 199 CHARLES AND A CARLES AND	Cos	
	0	2	one set to another, Relation and	2	
			Types of function- constant fun.,	Cara	
9	0	2	absolute value function , signum	Cos	
9	9	2	Function , etc.	2	
			Greatest integer function and		
10	10	2	Graphs, logarithmic and exponential	Cos	
10	10	2	Functions etc.	2	
			Greatest integer function and		
11	11	•	Graphs, logarithmic and exponential	Cos	
11	11	2	Functions etc.	2	
12	12		(LIMIT) limit of a function , working	Cos	
12	12	2	rule to find limit , examples	2	
12	42		Limit formulas for indeterminate	Cos	
13	13	2	forms 0/0 , â^ž-â^ž, â^ž/â^ž etc	2	
	4.4		Limit formulas for indeterminate	Cos	
14	14	2	forms 0/0 , â^ž/â^ž etc	2	
4.5	45		Limit formulas for indeterminate	Cos	
15	15	2	forms 0/0 , â^ž-â^ž, â^ž/â^ž etc	2	
16	16	2	Existence of limits (LHL and RHL)	Cos	
47	47	2	(CONTINUITY OF A FUNCTION)	Cos	
17	17	2	continuity at a point ,	2	
40	10	2	Examples of pont of discontinuity , (Cos	
18	18	2	x ,[x] etc.)	2	
	10		Problems on continuity and	Cos	
19	19	2	discontinuity	2	
	20		(DERIVATIVE) definition ,	Cos	
20	20	2	derivative at a point , examples	2	
			Algebra of derivative , Addition ,		
	24	2	Subtraction , quotient , product rule	Cos	
21	21	3	etc.	3	
22	22	3	Derivative of ex, log x, xn, a x etc.	Cos	
	22	3	Derivative of sin x , cos x ,,,,, , sin	Cos	
23	23	3	– 1 x , cos – 1x , etc	3	
	2.2	an and to decide the second constant second	Derivative of composite function (Cos	
24	24	3	Chain Rule) , examplesvvv	3	
25	25	3	More examples on Chain rule	Cos	

			North advantage of		
			Methods or Technique s of		
26	26	2	derivative- parametric form ,	Cos	
27		3	derivative of Implicit function	3	
21	27	3	Derivative using log	Cos	
20	20	_	Derivative of inverse Trigonometric	Cos	
28	28	3	function	3	
20	2 22 22 23 24		Derivative of a function w.r.t	Cos	
29	29	3	another function	3	
			(APPLICATION OF DERIVATIVE)		
			Successive differentiation, Higher	Cos	
30	30	3	dervatve related problems	3	
			Partial differential equation of f(x , y	Cos	
31	31	3) , f(x , y , z)etc.	3	
			Euler's theorem , L â€~ Hospital	Cos	
32	32	3	Rule	3	
33	33	3	More examples on partial	Cos	
			(INTEGRATION) Integration as anti-		
			process of derivative - I (integration	Cos	
34	34	4	of $\sin x$, $\cos x$, $1/x$, xn , $e x$ etc.)	4	
			Standard integration formulas,	Cos	
35	35	4	Properties of Indefinite integration	4	
			Integration by substitution â€" (
			integration of tan x ,cot x sec x	Cos	
36	36	4	,cosec x Etc. â^« F' / F dx)	4	
			Integration by algebraic substitution	Cos	
37	37	4	and examples	4	#
			Integration by Trigonometric	Cos	
38	38	4	substitution and examples	4	
39	39	4	Integration by partial fraction	Cos	
40	40	4	Integration by by-parts method	Cos	
			More examples on integration by	Cos	
41	41	4	partial fraction	4	
			Moe examples on integration by	Cos	
42	42	4	parts (integration of ln x, sin ^(-1)	4	
			(DEFINITE INTEGRATION)	Cos	gol i Sig. is so
43	43	4	Properties I , II , II	4	
			Properties of Definite Integration	Cos	
44	44	4	– IV , V , VI and applications	4	
			Properties of definite integration VII	Cos	
45	45	4	, VII and applications	4	
		to be the second of the second	(APPLICATION OF INTEGRATION)	Cos	
46	46	4	Area under a curve	4	
			Area between curve , Area of Circle	Cos	
47	47	4	, Right angled triangle etc.	4	
48	48	4	Area under two curves	Cos	
49	49	4	Area of curves that changes sign	Cos	

			/ DIFFEDENTIAL FOLIATION!	Car	11.00
		_	(DIFFERENTIAL EQUATION)	Cos	
50	50	5	definition , order and degree	5	
			Solution of differential equation ,	Cos	
51	51	5	General and Particular sol.	5	
	. 100	-24	Differential equation of 1st order		2.00
			and 1st degree , Variable separation	Cos	
52	52	5	method,	5	
53	53	5	Homogeneous form and solution	Cos	
		N. 1	Linear differential equation (linear	Cos	8 18 18
54	54	5	in y , dy/dx)	5	
			Linear differential equation (linear	Cos	
55	55	5	in x and dx/dy)	5	
			Sample previous year questions and	Cos	
56	56	5	solutions	1	
	1		Sample previous year questions and	Cos	
57	57	5	solutions	2	
			Sample previous year questions and	Cos	
58	58	5	solutions	3	
			Sample previous year questions and	Cos	
59	59	5	solutions	4	
			Sample previous year questions and	Cos	
60	60	5	solutions	5	

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