CAPITAL ENGINEERING COLLEGE

AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA

Session: 2023-2024

Course Name: DIPLOMA
Theory/Practical: Theory
Section : A
Semester : 1

Branch Name: CIVIL
Subject Name: TH 3 : Engineering Mathematics-I
Teacher Name: SUCHITRA SRICHANDAN

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

Text Books:

Sl.No	Text Books
1	Elements of mathematics vol- 1&2

Reference books:

Sl.No	Reference books
1	Mathematics part-1 & part-2 text book for class-XII, NCERT publication

Course Outcomes:

Sl.No	Course Outcomes

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
1	1	2	TRIGONOMETRY RATIO	Cos 2	
2	2	2	CONCEPT OF RIGHT ANGLE TRIANGLE AND PHYTHAGORAS THEOREM	Cos 2	
3	3	2	TRIGONOMETRIC FUNCTIONS WITH STANDARD ANGEL	Cos 2	
4	4	2	PROBLEM ON TRIGONOMETRIC RATIO OF SOME SPECIFIC ANGLE	Cos 2	
5	5	2	SIGN OF T –RATIOS AND SOME EXAMPLES	Cos 2	
6	6	2	TRIGONOMETRY RATIO OF ? INTERMS OF (?)	Cos 2	
7	7	2	TRIGONOMETRIC RATIO OF COMPOUND ANGLE	Cos 2	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
8	8	2	SOME EXAMPLES OF TRIGONOMETRIC COMPOUND ANGLE	Cos 2	
9	9	2	TRIGONOMETRIC RATIO OF 2A IN TERMS OF A (ONLY FORMULLA) AND SOME EXAMPLES	Cos 2	
10	10	2	TRIGONOMETRIC RATIO OF 3A IN TERMS OF A (ONLY FORMULLA) AND SOME EXAMPLES	Cos 2	
11	11	2	TRIGONOMETRIC RATIO OF ANGLE A IN TERMS OF A/2 (ONLY FORMULLA) AND SOME EXAMPLES	Cos 2	
12	12	2	INVERSE CIRCULAR FUNCTION	Cos 2	
13	13	2	PROPERTY OF INVERSE CIRCULAR FUNCTION AND SOME EXAMPLE	Cos 2	
14	14	2	PROBLEM ON INVERSE CIRCULAR FUNCTION	Cos 2	
15	15	1	BASIC CONCEPT ,MATRICES, ORDER,TYPES	Cos 1	
16	16	1	MORE TYPES	Cos 1	
17	17	1	ADDITION OF MATRICES AND PRODUCT OF MATRIX OF A SCALAR	Cos 1	
18	18	1	PRODUCT OF TWO MATRICES	Cos 1	
19	19	1	THE MULTIPLICATIVE INVERSE OF A SQUARE MATRIX	Cos 1	
20	20	1	TRANSPOSE AND ORTHOGONAL MATRIX AND MINOR	Cos 1	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
21	21	1	COFACTOR AND ADJOINT OF A MATRIX	Cos 1	
22	22	1	INVERSE OF A MATRIX	Cos 1	
23	23	1	SOLUTION OF SIMULTANEOUS EQUATION (MATRIX METHOD)	Cos 1	
24	24	1	SOLUTION OF SIMULTANEOUS EQUATION (MATRIX METHOD)	Cos 1	
25	25	1	INTRODUCTION OF DETERMINANTS AND DETERMINANT OF SECOND ORDER AND THIRD ORDER	Cos 1	
26	26	1	MINOR AND COFACTOR OF DETERMINANTS	Cos 1	
27	27	1	PROPERTIES OF DETERMINANTS AND SOME PROBLEMS	Cos 1	
28	28	1	CRAMER'S RULE	Cos 1	
29	29	1	EXAMPLE OF CRAMER'S RULE	Cos 1	
30	30	1	PRODUCT OF TWO DETERMINANTS	Cos 1	
31	31	1	EXAMPLE OF PRODUCT OF TWO DETERMINANTS	Cos 1	
32	32	3	INTRODUCTON OF GEOMETRY IN TWO DIMENSION	Cos 3	
33	33	3	DISTANCE FORMULLA AND DIVISION FORMULLA AND SOME EXAMPLE	Cos 3	
34	34	3	AREA OF TRIANGLE (FORMULLA) AND SOME EXAMPLE	Cos 3	
35	35	3	SLOPE OF A LINE AND ANGLE BETWEEN TWO	Cos 3	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			LINES		
36	36	3	CONDITION OF PERENDICULARITY AND PARALLEISM	Cos 3	
37	37	3	DIFFERENT FORMS OF STRIGHT LINES	Cos 3	
38	38	3	ONE POINT FORMS AND TWO POINT FORMS	Cos 3	
39	39	3	SLOPE FORMS AND INTERCEPT FORMS	Cos 3	
40	40	3	PERPENDICULAR FORMS	Cos 3	
41	41	3	EQUATION OF LINE PASSING THROUGH THE INTERSECTION OF TWO LINES	Cos 3	
42	42	4	DISTANCE OF A POINT FROM A LINE	Cos 4	
43	43	4	INTRODUCTION OF A CIRCLE AND CENTER RADIUS FORM	Cos 4	
44	44	4	PROBLEM ON CENTER AND RADIUS OF CIRCLE	Cos 4	
45	45	4	GENERAL EQUATION OF A CIRCLE	Cos 4	
46	46	4	END POINT OF DIAMETER FORM	Cos 4	
47	47	5	INTRODUCTION OF SPACE AND THREE DIMENSIONS	Cos 5	
48	48	5	DISTANCE FORMULAE AND SECTION FORMULAE	Cos 5	
49	49	5	DIRECTION RATIO AND DIRECTION COSINE	Cos 5	
50	50	5	ANGLE BETWEEN TWO LINE (PARALLELISM)	Cos 5	
51	51	5	ANGLE BETWEEN TWO LINE (PERPEN DICULARITY)	Cos 5	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
52	52	5	INTRODUCTION OF A PLANE AND GENERAL FORM OF EQUATION OF PLANE	Cos 5	
53	53	5	ANGLE BETWEEN TWO PLANES	Cos 5	
54	54	5	PERPENDICULAR DISTANCE OF A POINT FROM PLANE	Cos 5	
55	55	6	EQUATION OF A PLANE PASSING THROUGH A POINT PARALLEL TO A PLANE	Cos 6	
56	56	6	EQUATION OF A PLANE PASSING THROUGH A POINT PERPENDICULAR TO A PLANE	Cos 6	
57	57	6	INTRODUCTION ON SPHERE AND EQUATION OF A SPHERE	Cos 6	
58	58	6	CENTER AND RADIUS FORM	Cos 6	
59	59	6	GENERAL FORM OF SPHERE	Cos 6	
60	60	6	SOME PROBLEM ON SPHERE	Cos 6	

Suchitra Sricharan 16/02/24
Subject Teacher

HOD

Principal

CAPITAL ENGINEERING COLLEGE

AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA

Session: 2023-2024

Course Name: DIPLOMA
Branch Name: CIVIL
Subject Name: TH 2A : Engineering
Theory/Practical: Theory
Section: A
Teacher Name: NAYAN MEHER
Semester: 1

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

Text Books:

Sl.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:

Sl.No	Reference books
1	Optical fibre communications by GERD KEISER, MGH publication .
2	Electronic communication Systems, by George kennedy, Tata McGraw Hill
3	An Introduction to Fiber Optics. By Ajoy K. Ghatak, K. Thyagarajan, Cambridge

Course Outcomes:

Sl.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. D
3	Comprehend concept of Heat, Temperature and and their effects on Solids, Acquire knowledge on properties of light.
4	Apply Coulombâ€™s law to calculate electrostatics force, electric field and electric
5	Use basic principles of light, X-rays, Laser and Fibre optics in related engineering

SL No.	Lecture	Module/Unit No.	Topic To Be Taught	Cos	Reference Material
1	1	I	Definition of fundamental and derived units, systems of units (FPS, CGS, MKS and SI units)	Cos 1	
2	2	I	Definition of dimension and Dimensional formulae of physical quantities	Cos 1	

3	3	I	Dimensional equations and Principle of homogeneity	Cos 1	
4	4	II	Scalar and Vector quantities	Cos 1	
5	5	II	Resolution of Vectors	Cos 1	
6	6	III	Vector multiplication	Cos 2	
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 &	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	
13	13	IV	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	Cos 2	
18	18	V	Useful Methods to reduce friction	Cos 2	
19	19	V	Newtonâ€™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	Cos 2	
23	23	V	Keplerâ€™s Laws of Planetary	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	Cos 3	
33	33	VII	Coefficient of linear, superficial and cubical expansions of Solids â€“ Definition & Units.	Cos 3	
34	34	VII	Relation between Î±, Î² & Ï'	Cos 3	
35	35	VII	Work and Heat - Concept &	Cos 3	
36	36	VII	Jouleâ€™s Mechanical Equivalent of Heat , First Law of Thermodynamics	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 â€“ 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 (Îµ), 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 magnet.	Cos 4	
45	45	IX	Series and Parallel combination of Capacitors, Magnet, Properties of a magnet	Cos 4	
46	46	IX	Magnetic lines of force	Cos 4	
47	47	IX	Magnetic Flux (Î¦) & Magnetic Flux Density (B)	Cos 4	
48	48	X	Electric Current , Ohmâ€™s law and its applications	Cos 4	
49	49	X	Series and Parallel combination of resistors	Cos 4	
50	50	X	Kirchhoffâ€™s laws (Statement & Explanation with diagram).	Cos 4	
51	51	X	Application of Kirchhoffâ€™s laws to Wheatstone bridge	Cos 4	

52	52	X	Balanced condition of Wheatstoneâ€™s Bridge â€“ Condition of Balance (Equation).	Cos 4	
53	53	XI	Electromagnetism, Force acting on a current carrying conductor placed in a uniform magnetic field	Cos 4	
54	54	XI	Flemingâ€™s Left Hand Rule,Flemingâ€™s Right Hand Rule	Cos 4	
55	55	XI	Faradayâ€™s Laws of Electromagnetic Induction	Cos 4	
56	56	XI	Lenzâ€™s Law	Cos 4	
57	57	XI	Comparison between Flemingâ€™s Right Hand Rule and Flemingâ€™s Left Hand Rule.	Cos 5	
58	58	XII	LASER & laser beam, Principle of	Cos 5	
59	59	XII	Properties & Applications of LASER	Cos 5	
60	60	XII	Wireless Transmission â€“ Ground Waves, Sky Waves, Space Waves	Cos 5	

Subject Teacher

HOD

Principal

CAPITAL ENGINEERING COLLEGE

AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA

Session: 2023-2024

Course Name: DIPLOMA
Theory/Practical: Theory
Section : A
Semester : 1

Branch Name: CIVIL
Subject Name: TH 1A : Communicative English
Teacher Name: SUBHALAXMI SAMANTARA

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

Course Outcomes:

Sl.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

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
1	1	1	Skimming the gist	Cos 1	
2	2	1	Skimming the gist	Cos 1	
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	

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 meaning of un-familiar words	Cos 1	
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	
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	
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	4	Subject-verb Agreement	Cos 4	
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 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	
46	46	4	Letter of Enquiry, Placing an Order, Execution of an Order, Complaint, Cancellation of an order	Cos 4	
47	47	4	Letter of Enquiry, Placing an Order, Execution of an Order, Complaint, Cancellation of an order	Cos 4	
48	48	4	Job application and C.V.	Cos 4	
49	49	5	Job application and C.V.	Cos 5	
50	50	5	Meaning, Definition and concept of communication	Cos 5	
51	51	5	Good Communication and Bad Communication	Cos 5	
52	52	5	Communication model	Cos 5	
53	53	5	Process of communication and	Cos 5	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			factors responsible for it		
54	54	5	Meaning of professional communication	Cos 5	
55	55	5	Types of professional communication	Cos 5	
56	56	5	Formal or Systematic Communication 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	

Subject Teacher **HOD** **Principal**

CAPITAL ENGINEERING COLLEGE

AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA

Session: 2023-2024

Course Name: DIPLOMA
Subject Name: TH 3 : Engineering
Section: B
Semester: 1

Branch Name: ELECTRICAL
Theory/Practical: Theory
Teacher Name: SUCHITRA SRICHANDAN

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

Text Books:

Sl.No	Text Books
1	Elements of mathematics vol- 1&2

Reference books:

Sl.No	Reference books
1	Mathematics part-1 & part-2 text book for class-XII, NCERT publication

Course Outcomes:

Sl.No	Course Outcomes

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference
1	1	2	TRIGONOMETRY RATIO	Cos 2	
2	2	2	CONCEPT OF RIGHT ANGLE TRIANGLE AND PHYTHAGORAS THEOREM	Cos 2	
3	3	2	TRIGONOMETRIC FUNCTIONS WITH STANDARD ANGEL	Cos 2	
4	4	2	PROBLEM ON TRIGONOMETRIC RATIO OF SOME SPECIFIC ANGLE	Cos 2	
5	5	2	SIGN OF T â€“RATIOS AND SOME EXAMPLES	Cos 2	
6	6	2	TRIGONOMETRY RATIO OF Î¸ INTERMS OF (Î¸)	Cos 2	
7	7	2	TRIGONOMETRIC RATIO OF COMPOUND ANGLE	Cos 2	
8	8	2	SOME EXAMPLES OF TRIGONOMETRIC COMPOUND ANGLE	Cos 2	
9	9	2	TRIGONOMETRIC RATIO OF 2A IN TERMS OF A (ONLY FORMULLA) AND SOME EXAMPLES	Cos 2	

10	10	2	TRIGONOMETRIC RATIO OF 3A IN TERMS OF A (ONLY FORMULLA) AND SOME EXAMPLES	Cos 2	
11	11	2	TRIGONOMETRIC RATIO OF ANGLE A IN TERMS OF A/2 (ONLY FORMULLA) AND SOME EXAMPLES	Cos 2	
12	12	2	INVERSE CIRCULAR FUNCTION	Cos 2	
13	13	2	PROPERTY OF INVERSE CIRCULAR FUNCTION AND SOME EXAMPLE	Cos 2	
14	14	2	PROBLEM ON INVERSE CIRCULAR FUNCTION	Cos 2	
15	15	1	BASIC CONCEPT ,MATRICES, ORDER,TYPES	Cos 1	
16	16	1	MORE TYPES â€¦.	Cos 1	
17	17	1	ADDITION OF MATRICES AND PRODUCT OF MATRIX OF A SCALAR	Cos 1	
18	18	1	PRODUCT OF TWO MATRICES	Cos 1	
19	19	1	THE MULTIPLICATIVE INVERSE OF A SQUARE MATRIX	Cos 1	
20	20	1	TRANSPOSE AND ORTHOGONAL MATRIX AND MINOR	Cos 1	
21	21	1	COFACTOR AND ADJOINT OF A	Cos 1	
22	22	1	INVERSE OF A MATRIX	Cos 1	
23	23	1	SOLUTION OF SIMULTANEOUS EQUATION (MATRIX METHOD)	Cos 1	
24	24	1	SOLUTION OF SIMULTANEOUS EQUATION (MATRIX METHOD)	Cos 1	
25	25	1	INTRODUCTION OF DETERMINANTS AND DETERMINANT OF SECOND ORDER AND THIRD ORDER	Cos 1	
26	26	1	MINOR AND COFACTOR OF DETERMINANTS	Cos 1	
27	27	1	PROPERTIES OF DETERMINANTS AND SOME PROBLEMS	Cos 1	
28	28	1	CRAMERâ€™S RULE	Cos 1	
29	29	1	EXAMPLE OF CRAMERâ€™S RULE	Cos 1	
30	30	1	PRODUCT OF TWO DETERMINANTS	Cos 1	
31	31	1	EXAMPLE OF PRODUCT OF TWO DETERMINANTS	Cos 1	
32	32	3	INTRODUCTON OF GEOMETRY IN TWO DIMENSION	Cos 3	
33	33	3	DISTANCE FORMULLA AND DIVISION FORMULLA AND SOME EXAMPLE	Cos 3	
34	34	3	AREA OF TRIANGLE (FORMULLA) AND SOME EXAMPLE	Cos 3	
35	35	3	SLOPE OF A LINE AND ANGLE BETWEEN TWO LINES	Cos 3	

36	36	3	CONDITION OF PERENDICULARITY AND PARALLEISM	Cos 3	
37	37	3	DIFFERENT FORMS OF STRIGHT LINES	Cos 3	
38	38	3	ONE POINT FORMS AND TWO POINT FORMS	Cos 3	
39	39	3	SLOPE FORMS AND INTERCEPT FORMS	Cos 3	
40	40	3	PERPENDICULAR FORMS	Cos 3	
41	41	3	EQUATION OF LINE PASSING THROUGH THE INTERSECTION OF	Cos 3	
42	42	4	DISTANCE OF A POINT FROM A LINE	Cos 4	
43	43	4	INTRODUCTION OF A CIRCLE AND CENTER RADIUS FORM	Cos 4	
44	44	4	PROBLEM ON CENTER AND RADIUS OF CIRCLE	Cos 4	
45	45	4	GENERAL EQUATION OF A CIRCLE	Cos 4	
46	46	4	END POINT OF DIAMETER FORM	Cos 4	
47	47	5	INTRODUCTION OF SPACE AND THREE DIMENSIONS	Cos 5	
48	48	5	DISTANCE FORMULAE AND SECTION FORMULAE	Cos 5	
49	49	5	DIRECTION RATIO AND DIRECTION COSINE	Cos 5	
50	50	5	ANGLE BETWEEN TWO LINE (PARALLELISM)	Cos 5	
51	51	5	ANGLE BETWEEN TWO LINE (PERPENDICULARITY)	Cos 5	
52	52	5	INTRODUCTION OF A PLANE AND GENERAL FORM OF EQUATION OF PLANE	Cos 5	
53	53	5	ANGLE BETWEEN TWO PLANES	Cos 5	
54	54	5	PERPENDICULAR DISTANCE OF A POINT FROM PLANE	Cos 5	
55	55	6	EQUATION OF A PLANE PASSING THROUGH A POINT PARALLEL TO A PLANE	Cos 6	
56	56	6	EQUATION OF A PLANE PASSING THROUGH A POINT PERPENDICULAR TO A PLANE	Cos 6	
57	57	6	INTRODUCTION ON SPHERE AND EQUATION OF A SPHERE	Cos 6	
58	58	6	CENTER AND RADIUS FORM	Cos 6	
59	59	6	GENERAL FORM OF SPHERE	Cos 6	
60	60	6	SOME PROBLEM ON SPHERE	Cos 6	

Suchitra Srichandan
ect Teacher 16/02/24

HOD

Principal

CAPITAL ENGINEERING COLLEGE

AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA

Session: 2023-2024

Course Name: DIPLOMA
Theory/Practical: Theory
Section : B
Semester : 1

Branch Name: ELECTRICAL
Subject Name: TH 2A : Engineering Physics
Teacher Name: NAYAN MEHER

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

Text Books:

Sl.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:

Sl.No	Reference books
1	Optical fibre communications by GERD KEISER, MGH publication .
2	Electronic communication Systems, by George kennedy, Tata McGraw Hill
3	An Introduction to Fiber Optics. By Ajoy K. Ghatak, K. Thyagarajan, Cambridge University Press.

Course Outcomes:

Sl.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. D
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 No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
1	1	I	Definition of fundamental and derived units, systems of units (FPS, CGS, MKS and SI units)	Cos 1	
2	2	I	Definition of dimension and Dimensional formulae of physical quantities	Cos 1	
3	3	I	Dimensional equations and Principle of homogeneity	Cos 1	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
4	4	II	Scalar and Vector quantities	Cos 1	
5	5	II	Resolution of Vectors	Cos 1	
6	6	III	Vector multiplication	Cos 2	
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	
13	13	IV	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	V	Useful Methods to reduce friction	Cos 2	
19	19	V	Newton's Laws of Gravitation	Cos 2	
20	20	V	Universal	Cos 2	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			Gravitational Constant (G), Acceleration due to gravity (g)		
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	
33	33	VII	Coefficient of linear, superficial and cubical expansions of Solids – Definition & Units.	Cos 3	
34	34	VII	Relation between ?, ? & ?	Cos 3	
35	35	VII	Work and Heat -	Cos 3	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			Concept & Relation		
36	36	VII	Joule's Mechanical Equivalent of Heat , First Law of Thermodynamics	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 (?), 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 magnet.	Cos 4	
45	45	IX	Series and Parallel combination of Capacitors, Magnet, Properties of a magnet	Cos 4	
46	46	IX	Magnetic lines of force	Cos 4	
47	47	IX	Magnetic Flux (?) & Magnetic Flux Density (B)	Cos 4	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
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 (Statement & Explanation with diagram).	Cos 4	
51	51	X	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	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	Cos 4	
56	56	XI	Lenz's Law	Cos 4	
57	57	XI	Comparison between Fleming's Right Hand Rule and Fleming's Left Hand Rule.	Cos 5	
58	58	XII	LASER & laser beam, Principle of LASER	Cos 5	
59	59	XII	Properties & Applications of LASER	Cos 5	
60	60	XII	Wireless Transmission – Ground Waves, Sky Waves, Space Waves	Cos 5	

Subject Teacher

HOD

Principal

CAPITAL ENGINEERING COLLEGE

AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA

Session: 2023-2024

Course Name: DIPLOMA
Theory/Practical: Theory
Section : B
Semester : 1

Branch Name: ELECTRICAL
Subject Name: TH 1A : Communicative English
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

Course Outcomes:

Sl.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

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
1	1	1	Skimming the gist	Cos 1	
2	2	1	Skimming the gist	Cos 1	
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	

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 meaning of un-familiar words	Cos 1	
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	Supplying a suitable title	Cos 1	
16	16	1	Standing Up For Yourself By Yevgeny Yevtushenko	Cos 1	
17	17	1	The Magic Of Teamwork By Sam Pitroda	Cos 1	
18	18	1	The Magic Of Teamwork By Sam Pitroda	Cos 1	
19	19	1	Inchcape Rock By Robert Southey	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	
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	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 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	
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 communication and factors responsible for it	Cos 5	
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 Communication	Cos 5	
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	

Subject Teacher **HOD** **Principal**

CAPITAL ENGINEERING COLLEGE

AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA

Session: 2023-2024

Course Name: DIPLOMA
Theory/Practical: Theory
Section : C
Semester : 1

Branch Name: COMPUTER SCIENCE
Subject Name: TH 3 : Engineering Mathematics-I
Teacher Name: GYANA RANJAN RATH

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

Text Books:

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

Reference books:

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

Course Outcomes:

Sl.No	Course Outcomes
1	This subject helps the students to develop logical thinking which is useful in comprehending the principles of all to the subjec
2	Analytical and systematic approach towards any problem is developed through learning of this subject.
3	Mathematics being a versatile subject can be used at every stage of human life.

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
1	1	2	TRIGONOMETRY RATIO	Cos 2	
2	2	2	CONCEPT OF RIGHT ANGLE TRIANGLE AND PHYTHAGORAS THEOREM	Cos 2	
3	3	2	TRIGONOMETRIC FUNCTIONS WITH STANDARD ANGEL	Cos 2	
4	4	2	PROBLEM ON TRIGONOMETRIC RATIO OF SOME SPECIFIC ANGLE	Cos 2	
5	5	2	SIGN OF T –RATIOS AND SOME EXAMPLES	Cos 2	
6	6	2	TRIGONOMETRY RATIO OF ?	Cos 2	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			INTERMS OF (?)		
7	7	2	TRIGONOMETRIC RATIO OF COMPOUND ANGLE	Cos 2	
8	8	2	SOME EXAMPLES OF TRIGONOMETRIC COMPOUND ANGLE	Cos 2	
9	9	2	TRIGONOMETRIC RATIO OF 2A IN TERMS OF A (ONLY FORMULLA) AND SOME EXAMPLES	Cos 2	
10	10	2	TRIGONOMETRIC RATIO OF 3A IN TERMS OF A (ONLY FORMULLA) AND SOME EXAMPLES	Cos 2	
11	11	2	TRIGONOMETRIC RATIO OF ANGLE A IN TERMS OF A/2 (ONLY FORMULLA) AND SOME EXAMPLES	Cos 2	
12	12	2	INVERSE CIRCULAR FUNCTION	Cos 2	
13	13	2	PROPERTY OF INVERSE CIRCULAR FUNCTION AND SOME EXAMPLE	Cos 2	
14	14	2	PROBLEM ON INVERSE CIRCULAR FUNCTION	Cos 2	
15	15	1	BASIC CONCEPT ,MATRICES, ORDER,TYPES	Cos 1	
16	16	1	MORE TYPES MATRICES	Cos 1	
17	17	1	ADDITION OF MATRICES AND PRODUCT OF MATRIX OF A SCALAR	Cos 1	
18	18	1	PRODUCT OF TWO MATRICES	Cos 1	
19	19	1	THE MULTIPLICATIVE INVERSE OF A	Cos 1	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			SQUARE MATRIX		
20	20	1	TRANSPOSE AND ORTHOGONAL MATRIX AND MINOR	Cos 1	
21	21	1	COFACTOR AND ADJOINT OF A MATRIX	Cos 1	
22	22	1	INVERSE OF A MATRIX	Cos 1	
23	23	1	SOLUTION OF SIMULTANEOUS EQUATION (MATRIX METHOD	Cos 1	
24	24	1	SOLUTION OF SIMULTANEOUS EQUATION (MATRIX METHOD	Cos 1	
25	25	1	INTRODUCTION OF DETERMINANTS AND DETERMINANT OF SECOND ORDER AND THIRD ORDER	Cos 1	
26	26	1	MINOR AND COFACTOR OF DETERMINANTS	Cos 1	
27	27	1	PROPERTIES OF DETERMINANTS AND SOME PROBLEMS	Cos 1	
28	28	1	CRAMER'S RULE	Cos 1	
29	29	1	EXAMPLE OF CRAMER'S RULE	Cos 1	
30	30	1	PRODUCT OF TWO DETERMINANTS	Cos 1	
31	31	1	EXAMPLE OF PRODUCT OF TWO DETERMINANTS	Cos 1	
32	32	3	INTRODUCTON OF GEOMETRY IN TWO DIMENSION	Cos 3	
33	33	3	DISTANCE FORMULLA AND DIVISION FORMULLA AND SOME EXAMPLE	Cos 3	
34	34	3	AREA OF TRIANGLE (FORMULLA) AND	Cos 3	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			SOME EXAMPLE		
35	35	3	SLOPE OF A LINE AND ANGLE BETWEEN TWO LINES	Cos 3	
36	36	3	CONDITION OF PERENDICULARITY AND PARALLEISM	Cos 3	
37	37	3	DIFFERENT FORMS OF STRIGHT LINES ONE POINT FORMS AND TWO POINT FORMS	Cos 3	
38	38	3	SLOPE FORMS AND INTERCEPT FORMS	Cos 3	
39	39	3	PERPENDICULAR FORMS	Cos 3	
40	40	3	EQUATION OF LINE PASSING THROUGH THE INTERSECTION OF TWO LINES	Cos 3	
41	41	3	DISTANCE OF A POINT FROM A LINE	Cos 3	
42	42	4	INTRODUCTION OF A CIRCLE AND CENTER RADIUS FORM	Cos 4	
43	43	4	PROBLEM ON CENTER AND RADIUS OF CIRCLE	Cos 4	
44	44	4	GENERAL EQUATION OF A CIRCLE	Cos 4	
45	45	4	END POINT OF DIAMETER FORM	Cos 4	
46	46	5	INTRODUCTION OF SPACE AND THREE DIMENSIONS	Cos 5	
47	47	5	DISTANCE FORMULAE AND SECTION FORMULAE	Cos 5	
48	48	5	DIRECTION RATIO AND DIRECTION COSINE	Cos 5	
49	49	5	ANGLE BETWEEN TWO LINE	Cos 5	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			(PARALLELISM)		
50	50	5	ANGLE BETWEEN TWO LINE (PERPEN DICULARITY)	Cos 5	
51	51	5	INTRODUCTION OF A PLANE AND GENERAL FORM OF EQUATION OF PLANE	Cos 5	
52	52	5	ANGLE BETWEEN TWO PLANES	Cos 5	
53	53	5	PERPENDICULAR DISTANCE OF A POINT FROM PLANE	Cos 5	
54	54	6	EQUATION OF A PLANE PASSING THROUGH A POINT PARALLEL TO A PLANE	Cos 6	
55	55	6	EQUATION OF A PLANE PASSING THROUGH A POINT PERPENDICULAR TO A PLANE	Cos 6	
56	56	6	SOME EXAMPLE ON EQUATION OF A PLANE PASSING THROUGH A POINT	Cos 6	
57	57	6	INTRODUCTION ON SPHERE AND EQUATION OF A SPHERE	Cos 6	
58	58	6	CENTER AND RADIUS FORM	Cos 6	
59	59	6	GENERAL FORM OF SPHERE	Cos 6	
60	60	6	SOME PROBLEM ON SPHERE	Cos 6	

Subject Teacher

HOD

Principal

CAPITAL ENGINEERING COLLEGE

AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA

Session: 2023-2024

Course Name: DIPLOMA
Theory/Practical: Theory
Section : C
Semester : 1

Branch Name: COMPUTER SCIENCE
Subject Name: TH 2B : Engineering Chemistry
Teacher Name: SANGITA PANI

Credit '3' External Evaluation(Marked) '100' Internal Evaluation(Marked) '20'

Text Books:

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

Reference books:

Sl.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.

Course Outcomes:

Sl.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 No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
1	1	1	INTRODUCTION TO 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	1	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, MOLECULARWEIGHT, 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 ELECTROCHEMISTRY	Cos 1	
19	19	1	ELECTROLYSIS WITH EXAMPLE OF NaCl	Cos 1	
20	20	1	FARADAY'S LAW, ELECTROPLATING	Cos 1	
21	21	1	DEFINITION OF CORROSION, TYPES OF CORROSION,PROTECTION OF CORROSION	Cos 1	
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,BRONZE,ALNICO,DURALUMIN	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 EXAMPLES OF BIO FERTILIZERS	Cos 4	

Sangita Pani

Subject Teacher

HOD

Principal

CAPITAL ENGINEERING COLLEGE

AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA

Session: 2022-2023

Course Name: DIPLOMA
Theory/Practical: Theory
Section : D
Semester : 1

Branch Name: MECHANICAL
Subject Name: TH 3 : Engineering Mathematics-I
Teacher Name: GYANA RANJAN RATH

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

Text Books:

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

Reference books:

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

Course Outcomes:

Sl.No	Course Outcomes
1	This subject helps the students to develop logical thinking which is useful in comprehending the principles of all to the subjec
2	Analytical and systematic approach towards any problem is developed through learning of this subject.
3	Mathematics being a versatile subject can be used at every stage of human life.

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
1	1	2	TRIGONOMETRY RATIO	Cos 2	
2	2	2	CONCEPT OF RIGHT ANGLE TRIANGLE AND PHYTHAGORAS THEOREM	Cos 2	
3	3	2	TRIGONOMETRIC FUNCTIONS WITH STANDARD ANGEL	Cos 2	
4	4	2	PROBLEM ON TRIGONOMETRIC RATIO OF SOME SPECIFIC ANGLE	Cos 2	
5	5	2	SIGN OF T –RATIOS AND SOME EXAMPLES	Cos 2	
6	6	2	TRIGONOMETRY RATIO OF ?	Cos 2	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
			INTERMS OF (?)		
7	7	2	TRIGONOMETRIC RATIO OF COMPOUND ANGLE	Cos 2	
8	8	2	SOME EXAMPLES OF TRIGONOMETRIC COMPOUND ANGLE	Cos 2	
9	9	2	TRIGONOMETRIC RATIO OF 2A IN TERMS OF A (ONLY FORMULLA) AND SOME EXAMPLES	Cos 2	
10	10	2	TRIGONOMETRIC RATIO OF 3A IN TERMS OF A (ONLY FORMULLA) AND SOME EXAMPLES	Cos 2	
11	11	2	TRIGONOMETRIC RATIO OF ANGLE A IN TERMS OF A/2 (ONLY FORMULLA) AND SOME EXAMPLES	Cos 2	
12	12	2	INVERSE CIRCULAR FUNCTION	Cos 2	
13	13	2	PROPERTY OF INVERSE CIRCULAR FUNCTION AND SOME EXAMPLE	Cos 2	
14	14	2	PROBLEM ON INVERSE CIRCULAR FUNCTION	Cos 2	
15	15	1	BASIC CONCEPT ,MATRICES, ORDER,TYPES	Cos 1	
16	16	1	MORE TYPES	Cos 1	
17	17	1	ADDITION OF MATRICES AND PRODUCT OF MATRIX OF A SCALAR	Cos 1	
18	18	1	PRODUCT OF TWO MATRICES	Cos 1	
19	19	1	THE MULTIPLICATIVE INVERSE OF A SQUARE MATRIX	Cos 1	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
20	20	1	TRANSPOSE AND ORTHOGONAL MATRIX AND MINOR	Cos 1	
21	21	1	COFACTOR AND ADJOINT OF A MATRIX	Cos 1	
22	22	1	INVERSE OF A MATRIX	Cos 1	
23	23	1	SOLUTION OF SIMULTANEOUS EQUATION (MATRIX METHOD)	Cos 1	
24	24	1	SOLUTION OF SIMULTANEOUS EQUATION (MATRIX METHOD)	Cos 1	
25	25	1	INTRODUCTION OF DETERMINANTS AND DETERMINANT OF SECOND ORDER AND THIRD ORDER	Cos 1	
26	26	1	MINOR AND COFACTOR OF DETERMINANTS	Cos 1	
27	27	1	PROPERTIES OF DETERMINANTS AND SOME PROBLEMS	Cos 1	
28	28	1	CRAMER'S RULE	Cos 1	
29	29	1	EXAMPLE OF CRAMER'S RULE	Cos 1	
30	30	1	PRODUCT OF TWO DETERMINANTS	Cos 1	
31	31	1	EXAMPLE OF PRODUCT OF TWO DETERMINANTS	Cos 1	
32	32	3	INTRODUCTON OF GEOMETRY IN TWO DIMENSION	Cos 3	
33	33	3	DISTANCE FORMULLA AND DIVISION FORMULLA AND SOME EXAMPLE	Cos 3	
34	34	3	AREA OF TRIANGLE (FORMULLA) AND SOME EXAMPLE	Cos 3	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
35	35	3	SLOPE OF A LINE AND ANGLE BETWEEN TWO LINES	Cos 3	
36	36	3	CONDITION OF PERENDICULARITY AND PARALLEISM	Cos 3	
37	37	3	DIFFERENT FORMS OF STRIGHT LINES	Cos 3	
38	38	3	ONE POINT FORMS AND TWO POINT FORMS	Cos 3	
39	39	3	SLOPE FORMS AND INTERCEPT FORMS	Cos 3	
40	40	3	PERPENDICULAR FORMS	Cos 3	
41	41	3	EQUATION OF LINE PASSING THROUGH THE INTERSECTION OF TWO LINES	Cos 3	
42	42	3	DISTANCE OF A POINT FROM A LINE	Cos 3	
43	43	4	INTRODUCTION OF A CIRCLE AND CENTER RADIUS FORM	Cos 4	
44	44	4	PROBLEM ON CENTER AND RADIUS OF CIRCLE	Cos 4	
45	45	4	GENERAL EQUATION OF A CIRCLE	Cos 4	
46	46	4	END POINT OF DIAMETER FORM	Cos 4	
47	47	5	INTRODUCTION OF SPACE AND THREE DIMENSIONS	Cos 5	
48	48	5	DISTANCE FORMULAE AND SECTION FORMULAE	Cos 5	
49	49	5	DIRECTION RATIO AND DIRECTION COSINE	Cos 5	
50	50	5	ANGLE BETWEEN TWO LINE (PARALLELISM)	Cos 5	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
51	51	5	ANGLE BETWEEN TWO LINE (PERPEN DICULARITY)	Cos 5	
52	52	5	INTRODUCTION OF A PLANE AND GENERAL FORM OF EQUATION OF PLANE	Cos 5	
53	53	5	ANGLE BETWEEN TWO PLANES	Cos 5	
54	54	5	PERPENDICULAR DISTANCE OF A POINT FROM PLANE	Cos 5	
55	55	6	EQUATION OF A PLANE PASSING THROUGH A POINT PARALLEL TO A PLANE	Cos 6	
56	56	6	EQUATION OF A PLANE PASSING THROUGH A POINT PERPENDICULAR TO A PLANE	Cos 6	
57	57	6	INTRODUCTION ON SPHERE AND EQUATION OF A SPHERE	Cos 6	
58	58	6	CENTER AND RADIUS FORM	Cos 6	
59	59	6	GENERAL FORM OF SPHERE	Cos 6	
60	60	6	SOME PROBLEM ON SPHERE	Cos 6	

Gyana Ranjan Rath
Subject Teacher

HOD

Principal

CAPITAL ENGINEERING COLLEGE

AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA

Session: 2023-2024

Course Name: DIPLOMA
Subject Name: TH 2B : Engineering
Section: D
Semester: 1

Branch Name: MECHANICAL
Theory/Practical: Theory
Teacher Name: SUMAN JENA

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

Text Books:

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

Reference books:

Sl.No	Reference books
1	Engineering Chemistry-Jain & Jain,Dhanpat Roy & Sons

Course Outcomes:

Sl.No	Course Outcomes
1	After Completion of the course the students will be able to Apply the basic concepts of electrochemistry ,Acid base salt
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
1	1	A	Atomic Structure	Cos 1	
2	2	A	Atomic Mass,Isotopes	Cos 1	
3	3	A	Electronic configuration	Cos 1	
4	4	A	Bohr,Aufbau's principle,Hund's rule	Cos 1	
5	5	A	Chemical Bonding	Cos 1	
6	6	A	Acid Base Theory	Cos 1	
7	7	A	Salt	Cos 1	
8	8	A	Solutions	Cos 1	
9	9	A	pH Solution	Cos 1	
10	10	A	Electrochemistry	Cos 1	

11	11	A	Faraday's 1st and 2nd	Cos 1	
12	12	A	Electrolysis	Cos 1	
13	13	A	Corrosion	Cos 1	
14	14	A	Protection from Corriosion	Cos 1	
15	15	A	Physical Chemistry Revision	Cos 1	
16	16	B	Metallurgy	Cos 2	
17	17	B	Ores and Minerals	Cos 2	
18	18	B	Extraction of Metals	Cos 2	
19	19	B	Extraction of Metals	Cos 2	
20	20	B	Oxidation,Reduction	Cos 2	
21	21	B	Alloys	Cos 2	
22	22	B	Alloys	Cos 2	
23	23	B	Inorganic Chemistry Revision	Cos 2	
24	24	C	Organic chemistry	Cos 3	
25	25	C	Hydrocarbons	Cos 3	
26	26	C	Aliphatic & Aromatic hydrocarbons	Cos 3	
27	27	C	Huckle's rule	Cos 3	
28	28	C	IUPAC Nomenclature	Cos 3	
29	29	C	IUPAC Nomenclature	Cos 3	
30	30	C	IUPAC Nomenclature	Cos 3	
31	31	C	Bond line notation	Cos 3	
32	32	C	Bond line notation	Cos 3	
33	33	C	Aromatic compounds	Cos 3	
34	34	C	Uses	Cos 3	
35	35	C	Hydrocarbons Revision	Cos 3	
36	36	C	Benzene,Tolaene,BHC,Phenol,Naphtalene,Benzpic acid	Cos 3	
37	37	C	organic chemistry	Cos 3	
38	38	D	Industrial Chemistry	Cos 4	
39	39	D	Water treatment	Cos 4	
40	40	D	Soft water, hard water	Cos 4	
41	41	D	Hardness and its removal	Cos 4	
42	42	D	Hot lime over cold lime	Cos 4	
43	43	D	organic ion exchange method	Cos 4	
44	44	D	Lubricants	Cos 4	
45	45	D	uses of lubricants and purpose of lubrication	Cos 4	
46	46	D	Fuel	Cos 4	
47	47	D	liquid fuel	Cos 4	
48	48	D	gaseous fuel	Cos 4	
49	49	D	Polymer,monomer	Cos 4	
50	50	D	homo polymer,co polymer	Cos 4	
51	51	D	thermosetting,thermoplastic	Cos 4	
52	52	D	Polythene,poly-vinyl	Cos 4	
53	53	D	Elastomer,natural rubber	Cos 4	
54	54	D	vulcanisation of rubber	Cos 4	
55	55	D	chemicals in agriculture	Cos 4	

56	56	D	pesticides and uses	Cos 4	
57	57	D	Bio fertilizers	Cos 4	
58	58	D	Examples and uses of bio fertilizers	Cos 4	
59	59	D	industrial and agricultural uses of chemistry	Cos 4	
60	60	D	Water treatment & fuel revision	Cos 4	

Subject Teacher

HOD

Principal

CAPITAL ENGINEERING COLLEGE

AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA

Session: 2023-2024

Course Name: DIPLOMA
Branch Name: MECHANICAL
Subject Name: TH 3 : Engineering
Theory/Practical: Theory
Section: E
Teacher Name: RANJAN KUMAR SATAPATHY
Semester: 1

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

Text Books:

Sl.No	Text Books
1	Elements of mathematics vol- 1&2

Reference books:

Sl.No	Reference books
1	Mathematics part-1 & part-2 text book for class-XII, NCERT publication

Course Outcomes:

Sl.No	Course Outcomes

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference
1	1	2	TRIGONOMETRY RATIO	Cos 2	
2	2	2	CONCEPT OF RIGHT ANGLE TRIANGLE AND PHYTHAGORAS THEOREM	Cos 2	
3	3	2	TRIGONOMETRIC FUNCTIONS WITH STANDARD ANGEL	Cos 2	
4	4	2	PROBLEM ON TRIGONOMETRIC RATIO OF SOME SPECIFIC ANGLE	Cos 2	
5	5	2	SIGN OF T â€“RATIOS AND SOME EXAMPLES	Cos 2	
6	6	2	TRIGONOMETRY RATIO OF Î¸ INTERMS OF (Î¸)	Cos 2	
7	7	2	TRIGONOMETRIC RATIO OF COMPOUND ANGLE	Cos 2	
8	8	2	SOME EXAMPLES OF TRIGONOMETRIC COMPOUND ANGLE	Cos 2	
9	9	2	TRIGONOMETRIC RATIO OF 2A IN TERMS OF A (ONLY FORMULLA) AND SOME EXAMPLES	Cos 2	

10	10	2	TRIGONOMETRIC RATIO OF 3A IN TERMS OF A (ONLY FORMULLA) AND SOME EXAMPLES	Cos 2	
11	11	2	TRIGONOMETRIC RATIO OF ANGLE A IN TERMS OF A/2 (ONLY FORMULLA) AND SOME EXAMPLES	Cos 2	
12	12	2	INVERSE CIRCULAR FUNCTION	Cos 2	
13	13	2	PROPERTY OF INVERSE CIRCULAR FUNCTION AND SOME EXAMPLE	Cos 2	
14	14	2	PROBLEM ON INVERSE CIRCULAR FUNCTION	Cos 2	
15	15	1	BASIC CONCEPT ,MATRICES, ORDER,TYPES	Cos 1	
16	16	1	MORE TYPES â€¦.	Cos 1	
17	17	1	ADDITION OF MATRICES AND PRODUCT OF MATRIX OF A SCALAR	Cos 1	
18	18	1	PRODUCT OF TWO MATRICES	Cos 1	
19	19	1	THE MULTIPLICATIVE INVERSE OF A SQUARE MATRIX	Cos 1	
20	20	1	TRANSPOSE AND ORTHOGONAL MATRIX AND MINOR	Cos 1	
21	21	1	COFACTOR AND ADJOINT OF A	Cos 1	
22	22	1	INVERSE OF A MATRIX	Cos 1	
23	23	1	SOLUTION OF SIMULTANEOUS EQUATION (MATRIX METHOD)	Cos 1	
24	24	1	SOLUTION OF SIMULTANEOUS EQUATION (MATRIX METHOD)	Cos 1	
25	25	1	INTRODUCTION OF DETERMINANTS AND DETERMINANT OF SECOND ORDER AND THIRD ORDER	Cos 1	
26	26	1	MINOR AND COFACTOR OF DETERMINANTS	Cos 1	
27	27	1	PROPERTIES OF DETERMINANTS AND SOME PROBLEMS	Cos 1	
28	28	1	CRAMERâ€™S RULE	Cos 1	
29	29	1	EXAMPLE OF CRAMERâ€™S RULE	Cos 1	
30	30	1	PRODUCT OF TWO DETERMINANTS	Cos 1	
31	31	1	EXAMPLE OF PRODUCT OF TWO DETERMINANTS	Cos 1	
32	32	3	INTRODUCTON OF GEOMETRY IN TWO DIMENSION	Cos 3	
33	33	3	DISTANCE FORMULLA AND DIVISION FORMULLA AND SOME EXAMPLE	Cos 3	
34	34	3	AREA OF TRIANGLE (FORMULLA) AND SOME EXAMPLE	Cos 3	
35	35	3	SLOPE OF A LINE AND ANGLE BETWEEN TWO LINES	Cos 3	

36	36	3	CONDITION OF PERENDICULARITY AND PARALLEISM	Cos 3	
37	37	3	DIFFERENT FORMS OF STRIGHT LINES	Cos 3	
38	38	3	ONE POINT FORMS AND TWO POINT FORMS	Cos 3	
39	39	3	SLOPE FORMS AND INTERCEPT FORMS	Cos 3	
40	40	3	PERPENDICULAR FORMS	Cos 3	
41	41	3	EQUATION OF LINE PASSING THROUGH THE INTERSECTION OF	Cos 3	
42	42	4	DISTANCE OF A POINT FROM A LINE	Cos 4	
43	43	4	INTRODUCTION OF A CIRCLE AND CENTER RADIUS FORM	Cos 4	
44	44	4	PROBLEM ON CENTER AND RADIUS OF CIRCLE	Cos 4	
45	45	4	GENERAL EQUATION OF A CIRCLE	Cos 4	
46	46	4	END POINT OF DIAMETER FORM	Cos 4	
47	47	5	INTRODUCTION OF SPACE AND THREE DIMENSIONS	Cos 5	
48	48	5	DISTANCE FORMULAE AND SECTION FORMULAE	Cos 5	
49	49	5	DIRECTION RATIO AND DIRECTION COSINE	Cos 5	
50	50	5	ANGLE BETWEEN TWO LINE (PARALLELISM)	Cos 5	
51	51	5	ANGLE BETWEEN TWO LINE (PERPENDICULARITY)	Cos 5	
52	52	5	INTRODUCTION OF A PLANE AND GENERAL FORM OF EQUATION OF PLANE	Cos 5	
53	53	5	ANGLE BETWEEN TWO PLANES	Cos 5	
54	54	5	PERPENDICULAR DISTANCE OF A POINT FROM PLANE	Cos 5	
55	55	6	EQUATION OF A PLANE PASSING THROUGH A POINT PARALLEL TO A PLANE	Cos 6	
56	56	6	EQUATION OF A PLANE PASSING THROUGH A POINT PERPENDICULAR TO A PLANE	Cos 6	
57	57	6	INTRODUCTION ON SPHERE AND EQUATION OF A SPHERE	Cos 6	
58	58	6	CENTER AND RADIUS FORM	Cos 6	
59	59	6	GENERAL FORM OF SPHERE	Cos 6	
60	60	6	SOME PROBLEM ON SPHERE	Cos 6	

Subject Teacher

HOD

Principal

CAPITAL ENGINEERING COLLEGE

AICTE

PLOT NO. 1293, MAHATAPALLA, BAJAPUR,KHURDA

Session: 2023-2024

Course Name: DIPLOMA
Theory/Practical: Theory
Section : E
Semester : 1

Branch Name: MECHANICAL
Subject Name: TH 2B : Engineering Chemistry
Teacher Name: SUMAN JENA

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

Text Books:

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

Reference books:

Sl.No	Reference books
1	Engineering Chemistry-Jain & Jain,Dhanpat Roy & Sons

Course Outcomes:

Sl.No	Course Outcomes
1	After Completion of the course the students will be able to Apply the basic concepts of electrochemistry ,Acid base salt
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	A	Atomic Structure	Cos 1	
2	2	A	Atomic Mass,Isotopes	Cos 1	
3	3	A	Electronic configuration	Cos 1	
4	4	A	Bohr,Aufbau's principle,Hund's rule	Cos 1	
5	5	A	Chemical Bonding	Cos 1	
6	6	A	Acid Base Theory	Cos 1	
7	7	A	Salt	Cos 1	
8	8	A	Solutions	Cos 1	
9	9	A	pH Solution	Cos 1	
10	10	A	Electrochemistry	Cos 1	
11	11	A	Faraday's 1st and 2nd	Cos 1	
12	12	A	Electrolysis	Cos 1	
13	13	A	Corrosion	Cos 1	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
14	14	A	Protection from Corriosion	Cos 1	
15	15	A	Physical Chemistry Revision	Cos 1	
16	16	B	Metallurgy	Cos 2	
17	17	B	Ores and Minerals	Cos 2	
18	18	B	Extraction of Metals	Cos 2	
19	19	B	Extraction of Metals	Cos 2	
20	20	B	Oxidation,Reduction	Cos 2	
21	21	B	Alloys	Cos 2	
22	22	B	Alloys	Cos 2	
23	23	B	Inorganic Chemistry Revision	Cos 2	
24	24	C	Organic chemistry	Cos 3	
25	25	C	Hydrocarbons	Cos 3	
26	26	C	Aliphatic & Aromatic hydrocarbons	Cos 3	
27	27	C	Huckle's rule	Cos 3	
28	28	C	IUPAC Nomenclature	Cos 3	
29	29	C	IUPAC Nomenclature	Cos 3	
30	30	C	IUPAC Nomenclature	Cos 3	
31	31	C	Bond line notation	Cos 3	
32	32	C	Bond line notation	Cos 3	
33	33	C	Aromatic compounds	Cos 3	
34	34	C	Uses	Cos 3	
35	35	C	Hydrocarbons Revision	Cos 3	
36	36	C	Benzene,Tolaene,BHC,Phenol,Napthalene, Benzpic acid	Cos 3	
37	37	C	organic chemistry	Cos 3	
38	38	D	Industrial Chemistry	Cos 4	
39	39	D	Water treatment	Cos 4	
40	40	D	Soft water, hard water	Cos 4	
41	41	D	Hardness and its removal	Cos 4	
42	42	D	Hot lime over cold lime	Cos 4	
43	43	D	organic ion exchange method	Cos 4	
44	44	D	Lubricants	Cos 4	
45	45	D	uses of lubricants and purpose of lubrication	Cos 4	
46	46	D	Fuel	Cos 4	
47	47	D	liquid fuel	Cos 4	

SL No.	Lecture No.	Module/Unit No.	Topic To Be Taught	Cos	Reference Material Links
48	48	D	gaseous fuel	Cos 4	
49	49	D	Polymer,monomer	Cos 4	
50	50	D	homo polymer,co polymer	Cos 4	
51	51	D	thermosetting,thermo plastic	Cos 4	
52	52	D	Polythene,poly-vinyl chloride,bakelite	Cos 4	
53	53	D	Elastomer,natural rubber	Cos 4	
54	54	D	vulcanisation of rubber	Cos 4	
55	55	D	chemicals in agriculture	Cos 4	
56	56	D	pesticides and uses	Cos 4	
57	57	D	Bio fertilizers	Cos 4	
58	58	D	Examples and uses of bio fertilizers	Cos 4	
59	59	D	industrial and agricultural uses of chemistry	Cos 4	
60	60	D	Water treatment & fuel revision	Cos 4	

Subject Teacher **HOD** **Principal**