LESSON PLAN
JHARSUGUDA ENGINEERING SCHOOL,JHARSUGUDA

Name of the Faculty: **Satyananda Gadtia &** **Bhubaneswari Mishra**	Academic Year: **2024-25**
	Dept.: **Math & Sc.**
Course No.: **TH-3**	Course Name: **MATHEMATICS-I**
Program: **Diploma**	Branch: **Civil, Mechanical, Electrical, Etc and IT,Mechatronics, Comp.sc & IOT**
Year/Sem: **1ˢᵗ sem(1ˢᵗ Year)** Session: **Winter**	Section: **C,M(A).M(B),E(A),E(B),IT/ETC,COMP/MCT**

WEEK	Chapter	PERIOD	Topic to be Covered
1	Chapter-1	1	**TRIGONOMETRY-:** Introduction to trigonometry, measurement of angles in degrees, grades and radians and their conversions.
		2	Determine T-ratios of allied angles and solving problems based on it.
		3	State sum and difference formula. Apply these formula to solve problems.
		4	State product formula and transformation to sum, difference formula. apply them to solve problems.
2	Chapter-1	5	Application of product formula to solve problems.
		6	Discussion of problems on the topics discussed earlier and doubt clearing.
		7	T-ratio of multiple of angles(2A,3A), sub multiple of angles(A/2). Apply these formulas to solve problems.
		8	Solve problems on mutiple and submultiple of angels.
3	Chapter-1	9	Solve problems of trigonometry.
		10	Solve problems of trigonometry.
		11	Solve problems of trigonometry.
		12	Plot graphs of trigonometric functions.
4	Chapter-1	13	Revision and explanation of real life application of trigonometry.
		14	Assignment checking and doubt clearing.
		15	Class test on trigonometry.

	Chapter-02	16	**DIFFERENTIAL CALCULUS:-** Define function. types of function. domain and range of a function.
5	chapter-02	17	Introduction of some special function constant, identity, modulus, greatest interger function, exponential, logarithm, signum. introduction of different type of intervals (open ,close)
		18	Introduction of limit. existence of limits.
		19	Algebra of limits and evaluation of limits of some algebraic functions
		20	Evaluation of limits of some algebraic functions
6	chapter-02	21	State formulas on limits. problems on it.
		22	Apply formulas of limit to solve different problems.
		23	Apply formulas of limit to solve different problems.
		24	Solving problems of limit by taking L.H.L and R.H.L.
7	chapter-02	25	Solving problems of limit by taking L.H.L and R.H.L
		26	Revision of limit, doubt clearing and explanation of real life application of limit.
		27	Class test on limit.
		28	Define derivative. apply definition of derivative to find derivative of some standard functions.
8	chapter-02	29	State formulas of derivatives and sum, product and division rule of derivative. simple problems on these rules.
		30	State chain rule for differenting composite functions. problems on chain rule.
		31	Solve problems on chain rule.
		32	Differentiation of function of a function.
9	chapter-02	33	Differentiation of trigonometric and inverse trigonometric function. use of substitution methos to solve problems.
		34	Solve problems of inverse trigonometric functions using substitution method.
		35	Use logarithm to differentiate some functions.
		36	Differentiation of exponential functions.
10	chapter-02	37	Solve some problems of exponential functions.
		38	Solve miscellaneous problems on derivative. doubt clearing.
		39	Assignment checking and doubt clearing.
		40	Class test on derivative.
11	Chapter-03	41	**COMPLEX NUMBER:-** Define imaginary number, complex number, conjugate, modulus & amplitude of a complex number. represent complex number in cartesian and polar form
		42	Convert cartesian form of complex number to polar form.
		43	State addition, subtraction, multiplication and division of complex number.

		44	Find square root of a complex number.
12	Chapter-03	45	State De'movire's theorem. Apply it solve problems of complex number.
		46	Solve problems of complex number by De Movire's theorem.
		47	Assignment checking and doubt clearing.
	Chapter-04	48	**PARTIAL FRACTIONS:-** Define proper and improper fractions of polynomials. define partial fractions. -
13	Chapter-04	49	Resolve proper fraction in partial fractions (denomination containing linear non repeated factors)
		50	Resolve proper fraction in partial fractions (denomination containing linear repeated factors & non repeated irreducible quadratic factors).
		51	Resolve improper fraction into partial fractions. doubt clearing and assignment checking and discuss real life application of complex number and partial fractions.
		52	Class test on complex number and partial fractions.
14	Chapter-05	53	**PERMUTATIONS AND COMBINATIONS:** State fundamental principle of counting. state factorial notation. define permutation with examples.
		54	Explain combination. discuss examples on permutation and combination
		55	State binomial theorem. apply it to find expansion of expressions containing nth power. apply it to find nth term in an expansion
		56	Discussion of problems on above. doubt clearing
15	Chapter-05	57	Explain binomial theorem to find 1st and 2nd binomial approximation with application to engineering problems
		58	Binomial theorem for any index (expansion without proof).
		59	Class test on permutation, combination and binomial theorem.
		60	Revision of whole topic and probable question discussion

Satyananda Gadtia 16/8/24

Bhubaneswari Mishra.

Signature of faculty member 16.08.24.

16/8/24

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