SWARNIM STARTUP & INNOVATION UNIVERSITY

SCHOOL OF ENGINEERING

DEPARTMENT OF CE/EC/EE/EEE/IT/MECH/AUTO/CL/CHEM

BASIC MATHS

CODE : _____

D.E. 1st Year

Teaching & Evaluation Scheme:-

Teaching Scheme				Credits	Evaluation Scheme				
					Internal		External		Total
Th	Tu	P	Total		Th	Pr	Th	Pr	
3	2	-	5	5	30	50	70	-	150

Objectives:-

The entrance qualifications for a Diploma technician is 10th pass. They have gained sufficient knowledge of the course Mathematics in the standard 10th to qualify for further studies in diploma programmes. A technician engineer needs to study relevant theories and principles of Mathematics to enable them to understand & grasp the concepts of the advance courses of diploma programme and their various Engineering applications.

With this view, the necessary content for the course Mathematics is designed and developed in consultations with the senior technical teachers to make students capable to understand the technology related courses at higher levels. It is presumed that this course-content will provide a suitable foundation for all the engineering applications which technician is supposed to come across in his field and will be able to use it in understanding them during his diploma study.

Prerequisites:- logarithm, basic concept,simple examples, definations, examples, nth term progression, working rules, find middle term, matrices, Determinant,types of matrices, elementary transformation, Trigonometric function, related examples.Graphs.

Course outline:-

Sr. No.	Course Contents	Number of Hours
1	LOGARITHAM • Definition and concept • Logaritham ruls • Examples based on ruls.(Without using Logarithmic Tables)	6

2	**DETERMINANTS AND MATRICES** • Introduction of determinants of order 2 and 3. • 1 Expansion of determinants and its examples\ • 2 Concepts of Matrix of order m×n. • Types of Matrices.(Null matrix , Square matrix , Unit matrix , Diagonal matrix , Symmetric matrix , Skew symmetric matrix) • Scalar multiplication and addition of Matrices. • Product of matrices. • Transpose and Adjoint of a matrix. • Inverse of a matrix. • Solution of simultaneous linear equations upto three variables.	7
3	**MULTIPLE AND SUB-MULTIPLE ANGLES** • Formulas of multiples(2A and 3A) of an angle(A) • Formulas of sub-multiples(A/2) of an angle(A).	6
4	**GRAPHS** • Graphs of sine and cosine .	3
5	**PROPERTIES OF TRIANGLE** • 1 sine and cosine formulas. • Projection formula • Napiar's formula. • formulas of area of a triangle(Δ=(1/2)ab sinc..etc.)Relations R,r and s. • Solutions of a triangle.	6
6	**INVERSE TRIGONOMETRIC FUNCTIONS** • Concept and definition .Formulas and simples examples	5

Learning Outcomes:-

1. in this maths student understand concept of logarithm and its rules which help them to solve the examples where logarithm can be useful like differential equations examples
2. Concept of trigonometric is very useful in future subject of engineering and also helpful to solve the application examples.

Teaching & Learning Methodology:- Use teaching formats such as discussion groups that encourage the participation of all students and help identify areas where students are having difficulties.

- Provide learning materials in different formats (written, online, audio, video podcast etc) to support key concepts/knowledge. Particularly at the start of a programme/module or for key areas, providing online or hard copy notes before classes can aid comprehension and accessibility.

- Include inquiry based learning exercises in international or intercultural contexts.
- Include group work, with groups representing diverse cultures and nationalities.

REFERENCES :-		
(1)	Engg. Mathematics	I. B. Prasad
(2)	Mathematics for Polytechnic Technical Ganitshashtra(Part I,II in Gujarati	S.P.Deshpane R.D.Desai
(3)	Polytechnic Mathematics	Dr.N.R.Pandya
(4)	Polytechnic Mathematics	Manjeet Singh

E-Resources:-

- https://en.wikipedia.org/wiki/Trigonometric_functions
- http://ncert.nic.in/ncerts/l/lemh102.pdf
- http://www.purplemath.com/modules/binomial.htm
- https://en.wikipedia.org/wiki/Geometric_progression