PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH

PROGRESS REGISTER
Session: 2022-23

3rd Semester, Electrical Engineering
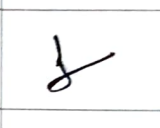
Engineering Mathematics-III (TH-1)

Mr. Shubhranshu Kumar Sahu
Sr. Lect. in Mathematics

Subject: **E. Math - III**   No. of Days/per week class allotted **4**

Semester From Date : **16.9.22**   To Date : **20.1.23**   No. of Weeks : **15**

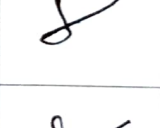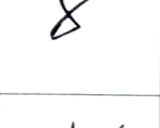| Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
16.9	Complex Numbers (Define Real and Imaginary numbers), Integral power of I	Complex Numbers (Define Real and Imaginary numbers), Integral power of I	Complex Numbers (Define Real and Imaginary numbers), Integral power of I	
19.9	Algebraic Operations with complex numbers (Additions, Subtractions, Multiplications & Divisions)	Algebraic Operations with complex numbers (Additions, Subtractions, Multiplications & Divisions)	Algebraic Operations with complex numbers (Additions, Subtractions, Multiplications & Divisions)	
20.9	Conjugate, Modulus and Amplitudes of a Complex numbers.	Conjugate, Modulus and Amplitudes of a Complex numbers.	Conjugate, Modulus and Amplitudes of a Complex numbers.	
21.9	Geometrical Representation of complex number and square roots of a complex number.	Geometrical Representation of complex number and square roots of a complex number.	Geometrical Representation of complex number and square roots of a complex number.	
23.9	Cube roots of unity and their properties.	Cube roots of unity and their properties.	Cube roots of unity and their properties.	
26.9	De Moivre's Theorem and solve problems.	De Moivre's Theorem and solve problems.	De Moivre's Theorem and solve problems.	
27.9	Basic concepts and Rank of matrix.	Basic concepts and Rank of matrix.	Basic concepts and Rank of matrix.	
28.9	Elementary row transformation to determine Rank of matrix	Elementary row transformation to determine Rank of matrix	Elementary row transformation to determine Rank of matrix	
30.9	State Rouche's Theorem for consistency of a system of linear equations in n unknowns.	State Rouche's Theorem for consistency of a system of linear equations in n unknowns.	State Rouche's Theorem for consistency of a system of linear equations in n unknowns.	
10.10	Linear equations in three unknowns testing consistency.	Linear equations in three unknowns testing consistency.	Linear equations in three unknowns testing consistency.	
11.10	Linear Differential Equation, Homogeneous and Non-homogeneous diff. equations with constant coefficients.	Linear Differential Equation, Homogeneous and Non-homogeneous diff. equations with constant coefficients.	Linear Differential Equation, Homogeneous and Non-homogeneous diff. equations with constant coefficients.	
12.10	General solution of linear diff. equations in terms of C.F. and P.I.	General solution of linear diff. equations in terms of C.F. and P.I.	General solution of linear diff. equations in terms of C.F. and P.I.	

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14.10	Rules of finding C.F. and P.I. in terms of operation D.	Rules of finding C.F. and P.I. in terms of operation D.	Rules of finding C.F. and P.I. in terms of operation D.	
17.10	Solve problems.	Solve problems.	Solve problems.	
18.10	Solve problems.	Solve problems.	Solve problems.	
19.10	Solve problems.	Solve problems.	Solve problems.	
21.10	Partial diff. equations by eliminating arbitrary constants and eliminating arbitrary function.	Partial diff. equations by eliminating arbitrary constants and eliminating arbitrary function.	Partial diff. equations by eliminating arbitrary constants and eliminating arbitrary function.	
26.10	Partial diff. equations of the form $Pp + Qq = R$	Partial diff. equations of the form $Pp + Qq = R$	Partial diff. equations of the form $Pp + Qq = R$	
28.10	Solve problems.	Solve problems.	Solve problems.	
31.10	Solve problems.	Solve problems.	Solve problems.	
1.11	Gamma function, $\Pi (n+1)$ and find $\Pi (1/2)$	Gamma function, $\Pi (n+1)$ and find $\Pi (1/2)$	Gamma function, $\Pi (n+1)$ and find $\Pi (1/2)$	
2.11	Laplace Transformation of a function f(t) and transforms of elementary function.	Laplace Transformation of a function f(t) and transforms of elementary function.	Laplace Transformation of a function f(t) and transforms of elementary function.	
4.11	Linearity, shifting and change of scale property of Laplace Transforms.	Linearity, shifting and change of scale property of Laplace Transforms.	Linearity, shifting and change of scale property of Laplace Transforms.	
7.11	Laplace transforms of derivatives.	Laplace transforms of derivatives.	Laplace transforms of derivatives.	

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9.11	Solve problems.	Solve problems.	Solve problems.	
11.11	Laplace Transforms of Integrals.	Laplace Transforms of Integrals.	Laplace Transforms of Integrals.	
14.11	Multiplication by t^n	Multiplication by t^n	Multiplication by t^n	
15.11	Division by t	Division by t	Division by t	
16.11	Evaluation of Integrals by Laplace Transforms.	Evaluation of Integrals by Laplace Transforms.	Evaluation of Integrals by Laplace Transforms.	
21.11	Solve problems.	Solve problems.	Solve problems.	
22.11	Formulae of inverse Laplace Transforms. (Method of partial fraction)	Formulae of inverse Laplace Transforms. (Method of partial fraction)	Formulae of inverse Laplace Transforms. (Method of partial fraction)	
23.11	Solve problems.	Solve problems.	Solve problems.	
25.11	Appraise limitation of analytical methods of solution of Algebraic Equations.	Appraise limitation of analytical methods of solution of Algebraic Equations.	Appraise limitation of analytical methods of solution of Algebraic Equations.	
26.11	Derive Iterative formulae for finding the solutions of Algebraic Equations by	Derive Iterative formulae for finding the solutions of Algebraic Equations by	Derive Iterative formulae for finding the solutions of Algebraic Equations by	
29.11	a) Bisection Method and Solve problems.	a) Bisection Method and Solve problems.	a) Bisection Method and Solve problems.	
30.11	b) Newton-Raphson Method and Solve problems.	b) Newton-Raphson Method and Solve problems.	b) Newton-Raphson Method and Solve problems.	

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2.12	Finite differences and form table of forward with example.	Finite differences and form table of forward with example.	Finite differences and form table of forward with example.	
5.12	And backward difference with examples.	And backward difference with examples.	And backward difference with examples.	
6.12	Factorial Notation and Solve problems.	Factorial Notation and Solve problems.	Factorial Notation and Solve problems.	
7.12	Define shift operation (E) and establish relation between E and difference operator(s).	Define shift operation (E) and establish relation between E and difference operator(s).	Define shift operation (E) and establish relation between E and difference operator(s).	
8.12	Derive Newton's forward and backward interpolation formula for equal intervals.	Derive Newton's forward and backward interpolation formula for equal intervals.	Derive Newton's forward and backward interpolation formula for equal intervals.	
12.12	Solve problems.	Solve problems.	Solve problems.	
13.12	Solve problems.	Solve problems.	Solve problems.	
14.12	Solve problems.	Solve problems.	Solve problems.	
15.12	Inverse interpolation(Lagrange's interpolation formulae for unequal intervals)	Inverse interpolation(Lagrange's interpolation formulae for unequal intervals)	Inverse interpolation(Lagrange's interpolation formulae for unequal intervals)	
19.12	Solve problems.	Solve problems.	Solve problems.	
20.12	Numerical Integration a) Newton's Cote's formulae.	Numerical Integration a) Newton's Cote's formulae.	Numerical Integration a) Newton's Cote's formulae.	
21.12	b) Trapezoidal Rule and c) Simpson's 1/3 Rule and Solve problems.	b) Trapezoidal Rule and c) Simpson's 1/3 Rule and Solve problems.	b) Trapezoidal Rule and c) Simpson's 1/3 Rule and Solve problems.	

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23.12	Define periodic functions.	Define periodic functions.	Define periodic functions.	
26.12	Euler's formulae (state and solve problems)	Euler's formulae (state and solve problems)	Euler's formulae (state and solve problems)	
27.12	Solve problems.	Solve problems.	Solve problems.	
26.12	Solve problems.	Solve problems.	Solve problems.	
30.12	Dirishlet's conditions for a Fourier expansion.	Dirishlet's conditions for a Fourier expansion.	Dirishlet's conditions for a Fourier expansion.	
2.1	Obtain Fourier Series of continuous functions and functions having points of discontinuity and solve problems.	Obtain Fourier Series of continuous functions and functions having points of discontinuity and solve problems.	Obtain Fourier Series of continuous functions and functions having points of discontinuity and solve problems.	
3.1	Solve problems.	Solve problems.	Solve problems.	
4.1	Change of Intervals and Solve problems.	Change of Intervals and Solve problems.	Change of Intervals and Solve problems.	
9.1	Solve problems.	Solve problems.	Solve problems.	
10.1	Define odd and even functions with examples.	Define odd and even functions with examples.	Define odd and even functions with examples.	
11.1	Solve problems.	Solve problems.	Solve problems.	
13.1	Solve problems.	Solve problems.	Solve problems.	