

## LESSON PLAN

Name of Faculty : Pooja Rani  
 Discipline : Applied Science  
 Semester : 1<sup>st</sup>  
 Subject : Applied Mathematics  
 Lesson Plan Duration : October 2022 to January 2023  
 Work load (Lecture) per week (in hours): Lectures—04

| APPLIED MATHEMATICS (180012) |             |   |
|------------------------------|-------------|---|
| week                         | Lecture day | Theory  |
| 1 <sup>st</sup>              | 1           | Complex numbers: definition of complex number, real and imaginary parts of a complex number |
|                              | 2           | Polar and Cartesian Form and their inter conversion   |
|                              | 3           | Conjugate of a complex number, modulus and amplitude  |
|                              | 4           | Students will discuss mutually last three days class work                                   |
| 2 <sup>nd</sup>              | 5           | Addition, subtraction of complex number   |
|                              | 6           | Multiplication and division of complex number   |
|                              | 7           | Logarithms and its basic properties   |
|                              | 8           | Students will discuss mutually last three days class work                                   |
| 3 <sup>rd</sup>              | 9           | Assignment 1  |
|                              | 10          | Logarithms and its related questions.   |
|                              | 11          | Permutation, combination formula and definition   |
|                              | 12          | Students will discuss mutually last three days class work                                   |
| 4 <sup>th</sup>              | 13          | Meaning and values of ${}^n P_r$ and ${}^n C_r$ and simple problems                         |
|                              | 14          | Binomial theorem for positive integral index , General terms, simple problems               |
|                              | 15          | Binomial theorem for positive integral index , General terms, simple problems               |
|                              | 16          | Students will discuss mutually last three days class work                                   |

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| 5 <sup>th</sup>  | 17 | <b>Sessional test 1</b>  |
|                  | 18 | <b>Determinants and Matrices – Evaluation of determinants (up to 3 order)</b>  |
|                  | 19 | <b>Solution of equations (up to 2 unknowns) by Cramer’s Rule</b>   |
|                  | 20 | <b>Students will discuss mutually last three days class work</b>   |
| 6 <sup>th</sup>  | 21 | <b>Definition of Matrices and its types</b>  |
|                  | 22 | <b>Addition and subtraction of Matrices (up to 2 order)</b>  |
|                  | 23 | <b>Multiplication of matrices (up to 2 order)</b>  |
|                  | 24 | <b>Students will discuss mutually last three days class work</b>   |
| 7 <sup>th</sup>  | 25 | <b>Assignment 2</b>  |
|                  | 26 | <b>Concept of angle: measurement of angle in degrees, grades, radians and their conversions</b>                                |
|                  | 27 | <b>Concept of angle: measurement of angle in degrees, grades, radians and their conversions</b>                                |
|                  | 28 | <b>Students will discuss mutually last three days class work)</b>  |
| 8 <sup>th</sup>  | 29 | <b>T-Ratios of standard angle and fundamental Identities, Allied angles (without proof)</b>                                    |
|                  | 30 | <b>Sum, Difference formulae and their applications (without proof).</b>  |
|                  | 31 | <b>Product formulae (Transformation of product to sum, difference and vice versa)</b>  |
|                  | 32 | <b>Students will discuss mutually last three days class workApplications of</b>  |
| 9 <sup>th</sup>  | 33 | <b>Application of Trigonometric terms in engineering problems such as to find an angle of elevation, height, distance etc.</b> |
|                  | 34 | <b>Sessional test 2</b>  |
|                  | 35 | <b>Point: Distance Formula, Mid-Point Formula</b>  |
|                  | 36 | <b>Students will discuss mutually last three days class work</b>   |
| 10 <sup>th</sup> | 37 | <b>Centroid of triangle</b>  |
|                  | 38 | <b>Straight line: Slope of a line, equation of straight line in various standards forms (without proof)</b>                    |

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|                  | 39 | <b>Straight line: Slope of a line, equation of straight line in various standards forms (without proof)</b>                      |
|                  | 40 | <b>Students will discuss mutually last three days class work</b>   |
| 11 <sup>th</sup> | 41 | <b>Intersection of two straight lines, concurrency of lines</b>  |
|                  | 42 | <b>Angle between two straight lines, parallel and perpendicular distance formula</b>   |
|                  | 43 | <b>Conversion of general form of equation to the various forms.</b>  |
|                  | 44 | <b>Students will discuss mutually last three days class work</b>   |
| 12 <sup>th</sup> | 45 | <b>Circle: General equation of a circle and identification of centre and radius of circle.</b>                                   |
|                  | 46 | <b>To find the equation of a circle: given Centre and radius,<br/>To find the equation of a circle: three points lying on it</b> |
|                  | 47 | <b>Coordinates of end points of a diameter.</b>  |
|                  | 48 | <b>Students will discuss mutually last three days class work</b>   |
| 13 <sup>th</sup> | 49 | <b>Introduction to Sci Lab, what is SciLab, how to install and what we do with SciLab</b>  |
|                  | 50 | <b>SciLab as a simple calculator</b>   |
|                  | 51 | <b>Basic Mathematics functions and logical operators in SciLab</b>   |
|                  | 52 | <b>Trigonometric functions (sin, cos, tan, cot functions)</b>  |