**Lesson Plan (2nd Semester)**

**Mathematics**

Name of Faculty:- Department:- Applied Science

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| **Week** | **Theory/Practical** | |
| **Lecture Day** | **Topic Including(assignment/Test)** |
| **Ist** | **1** | Introduction to syllabus and evaluation scheme  **Unit1:- Differential Calculus**  **1.1 Definition of function:** Concept of limits (Introduction only) and problems related to four standard limits only. |
| **2** | **1.1 Definition of function:** Concept of limits (Introduction only) and problems related to four standard limits only. |
| **3** | **1.1 Definition of function:** Concept of limits (Introduction only) and problems related to four standard limits only. |
| **4** | **1.2** Differentiation of xn , Sin x, Cos x, ex by first principle. |
| **IInd** | **1** | **1.3** Differentiation of sum, product and quotient of functions. |
| **2** | **1.3** Differentiation of sum, product and quotient of functions. |
| **3** | **1.3** Differentiation of sum, product and quotient of functions. |
| **4** | **Unit 2 Differential Calculus and Its Application**  **2.1** Differentiation of trigonometric functions, inverse trigonometric function, Logarithmic differentiation, successive differentiation (upto 2nd order) |
| **IIIrd** | **1** | **2.1** Differentiation of trigonometric functions, inverse trigonometric function, Logarithmic differentiation, successive differentiation (upto 2nd order) |
| **2** | **2.1** Differentiation of trigonometric functions, inverse trigonometric function, Logarithmic differentiation, successive differentiation (upto 2nd order) |
| **3** | **2.1** Differentiation of trigonometric functions, inverse trigonometric function, Logarithmic differentiation, successive differentiation (upto 2nd order) |
| **4** | **2.2** Application of differential calculus in:  (a) Rate measure (b) Maxima and minima |
| **IVth** | **1** | **2.2** Application of differential calculus in:  (a) Rate measure (b) Maxima and minima |
| **2** | **2.2** Application of differential calculus in:  (a) Rate measure (b) Maxima and minima |
| **3** | Revision |
| **4** | **Unit 3 Integral Calculus**  **3.1** Integration as inverse operation of differentiation with simple examples. |
| **Vth** | **1** | First Sessional Test(Tentative) |
| **2** | First Sessional Test(Tentative) |
| **3** | First Sessional Test(Tentative) |
| **4** | **3.1** Integration as inverse operation of differentiation with simple examples. |
| **VIth** | **1** | **3.1** Integration as inverse operation of differentiation with simple examples. |
| **2** | **3.2** Simple standard integrals and related problems, Integration by Substitution method and integration by parts. |
| **3** | **3.2** Simple standard integrals and related problems, Integration by Substitution method and integration by parts. |
| **4** | **3.3** Evaluation of definite integrals with given limits.  Evaluation of x. dx, x dx, x . dx,  Using formula without proof (m and n being positive integers only) using pre-existing mathematical models. |
| **VIIth** | **1** | **3.3** Evaluation of definite integrals with given limits.  Evaluation of x. dx, x dx, x . dx,  Using formula without proof (m and n being positive integers only) using pre-existing mathematical models. |
| **2** | **Unit4:- Application of Integration, Numerical Integration and Differential Equations**  **4.1** Application of integration for evaluation of area under a curve and axes (Simple problems). |
| **3** | **4.1** Application of integration for evaluation of area under a curve and axes (Simple problems). |
| **4** | **4.2** Numerical of integration by Trapezoidal rule and Simpson’s 1/3rd Rule using pre-existing mathematical models. |
| **VIIIth** | **1** | **4.2** Numerical of integration by Trapezoidal rule and Simpson’s 1/3rd Rule using pre |
| **2** | **Deferential, Equations**  **4.3** Definition, order, degree, Type of differential Equation, Linearity, Formulation of ordinary differential equation (up to 1st order), solution of ODE (Ist order) by variable separation method. |
| **3** | **4.3** Definition, order, degree, Type of differential Equation, Linearity, Formulation of ordinary differential equation (up to 1st order), solution of ODE (Ist order) by variable separation method. |
| **4** | Revision |
| **IXth** | **1** | Second Sessional Test(Tentative) |
| **2** | Second Sessional Test(Tentative) |
| **3** | Second Sessional Test(Tentative)., |
| **4** | **4.3** Definition, order, degree, Type of differential Equation, Linearity, Formulation of ordinary differential equation (up to 1st order), solution of ODE (Ist order) by variable separation method. |
| **Xth** | **1** | **Unit 5 Statistics and Software:- Statistics**  **5.1 Measures of Central Tendency:** Mean, Median, Mode |
| **2** | **5.1 Measures of Central Tendency:** Mean, Median, Mode |
| **3** | **5.2 Measures of Dispersion:** Mean deviation, Standard deviation |
| **4** | **5.2 Measures of Dispersion:** Mean deviation,Standard Deviation |
| **XIth** | **1** | **5.2 Measures of Dispersion:** Mean deviation,Standard Deviation |
| **2** | **Software**  **5.3 Sci lab Software**- Theoretical Introduction. |
| **3** | **5.3 Sci lab Software**- Theoretical Introduction. |
| **4** | **5.4** Basic difference between MATLAB and Sci Lab Software, |
| **XIIth** | **1** | **5.4** Basic difference between MATLAB and Sci Lab Software, |
| **2** | **5.5 Calculations with MATLAB or Sci Lab –** (a) Representation of matrix (2\*2 order),  (b) Additional , Subtraction of matrices (2\*2 order) in MATLAB or Sci Lab |
| **3** | **5.5 Calculations with MATLAB or Sci Lab –** (a) Representation of matrix (2\*2 order),  (b) Additional , Subtraction of matrices (2\*2 order) in MATLAB or Sci Lab |
| **4** | Revision |
| **XIIIth** | **1** | Third Sessional Test (Tentative). |
| **2** | Third Sessional Test (Tentative). |
| **3** | Third Sessional Test (Tentative). |
| **4** | Revision |
| **XIVth** | **1** | Revision |
| **2** | Revision |
| **3** | Revision |
| **4** | Revision |
| **XVth** | **1** | Revision |
| **2** | Revision |
| **3** | Revision |
| **4** | Revision |