# **BHAI GURDAS INSTITUTE OF ENGINEERING & TECHNOLOGY**

### DEPARTMENT OF APPLIED SCIENCES

#### LESSON PLAN

# Subject Name: - Mathematics-II

#### Year: - 2022-23

# Subject Code: - BTAM202-18

#### Semester: - 2ND

Lecture	Unit		Торіс	Teaching Aids	Reference
Lecture :1	UNIT-I	WEEK-1	Introduction to ordinary differential equation	Chalk Board	Differential equation by Dr.Jitender Rattan
Lecture :2			Linear differential equations	Presentation	
Lecture :3			Bernoulli's equation	Chalk Board	
Lecture :4			Numerical problems	Chalk Board	
Lecture :5			Euler's and exact differential equation	Presentation	
Lecture :6			Problem discussion	Chalk Board	
Lecture :7		WEEK2	Methods to find the solution of exact differential equations	Chalk Board	Differential equation by Dr.Jitender Rattan
Lecture :8			Numerical problems	Chalk Board	
Lecture :9			Homogeneous function and homogeneous equations	Chalk Board	_
Lecture :10	-		5 Rules for finding integrating factor	Chalk Board	-
Lecture :11	_		Differential equation of first and higher order	Presentation	_
Lecture :12			Problem discussion	Chalk Board	
Lecture :13		WEEK 3	Equation solvable for "p"	Chalk Board	Differential equation by
Lecture :14			Equation solvable for "x"	Chalk Board	Dr.Jitender Rattan
Lecture :15			Equation solvable for "y"	Chalk Board	
Lecture :16			Numerical problems	Chalk Board	
Lecture :17			Clariaut's equation	Chalk Board	
Lecture :18			Equation reducible to	Chalk Board	

			Clariaut's form		
Lecture :19		WEEK 4	Method of variation of	Chalk Board	
	-		parameter		
Lecture :20			Examples of method of	Presentation	Differential
			variation of parameter		Dr Jitender Rattan
Lecture :21	-		Cauchy Euler equation	Chalk Board	
Lecture :22				Challe Board	
	_		Numerical problems		
Lecture :23	-		Revision	Chalk Board	
Lecture :24			Power series solution	Chalk Board	Differential
Lecture :25	UNIT-II	WEEK 5	Partial Differential equations	Chalk Board	Dr.Jitender Rattan
Lecture :26	-		Formation of PDE	Chalk Board	
Lecture :27	-		Numerical making	Chalk Board	
Lastura 29	-		Numerical problems	Challe Doord	
Lecture .28			differential equation		
Lecture :29			Solution of first order linear PDE	Chalk Board	
Lecture :30			Duchland discussion	Chalk Board	
Lastura 21	-	WEEV6	Problem discussion	Challe Doord	Differential
Lecture .51		WEEKO	linear PDE		equation by
Lecture :32				Chalk Board	Dr.Jitender Rattan
			Homogeneous linear PDE		
	-		of second order		
Lecture :33	_		Problem discussion	Chalk Board	
Lecture :34				Chalk Board	
			Non Homogeneous linear		
Lecture :25	-		PDE of second order	Challe Board	
Lecture .55			Complementary function		
			of Homogeneous linear		
			PDE of second order		
Lecture :36	-		Numerical problems	Chalk Board	
Lecture :37		WEEK 7		Chalk Board	Differential
			Complementary function of non Homogeneous linear PDE of second order		equation by Dr.Jitender Rattan
Lecture :38	1		Particular integral of	Chalk Board	
			Homogeneous linear DDE		
			and non home		
Leature 20	+			Challe Deerd	_
Lecture :39			Classification of		
			lagendre's equation		
			ingenuite 5 equation		

Lecture :40			Numerical problems	Chalk Board	
Lecture :41				Chalk Board	
	_		Charpit method		
Lecture :42				Presentation	
			Examples of Charpit's		
	-		method		
Lecture :43		WEEK 8		Chalk Board	Differential
			Rules for finding		Dr litender Rattan
			particular integral of		Distender Ruttum
T / / / /	-		non-homogeneous PDE		-
Lecture :44			Equation reducible to	Chalk Board	
			PDE with constant		
T 4 45	-		coefficients		-
Lecture :45				Chalk Board	
L poturo : 16			Numerical problems	Challs Doord	-
Lecture .40			Separation of variable		
			method to simple		
			nrohloms		
Lecture ·47	_		problems	Chalk Board	-
Leeture			Examples on Separation	Chunk Bourd	
			of variable method to		
	_		simple problems		
Lecture :48			simple problems Problem discussion	Chalk Board	_
Lecture :48 Lecture :49	UNIT-III	WEEK 9	simple problems Problem discussion Introduction to	Chalk Board Chalk Board	S.Chand Numerical
Lecture :48 Lecture :49	UNIT-III	WEEK 9	simple problems Problem discussion Introduction to numerical method	Chalk Board Chalk Board	S.Chand Numerical methods
Lecture :48 Lecture :49 Lecture :50	UNIT-III	WEEK 9	simple problems Problem discussion Introduction to numerical method Bisection method	Chalk Board Chalk Board Chalk Board	S.Chand Numerical methods
Lecture :48 Lecture :49 Lecture :50 Lecture :51	UNIT-III	WEEK 9	simple problems Problem discussion Introduction to numerical method Bisection method	Chalk Board Chalk Board Chalk Board Chalk Board	S.Chand Numerical methods
Lecture :48 Lecture :49 Lecture :50 Lecture :51	UNIT-III	WEEK 9	simple problems Problem discussion Introduction to numerical method Bisection method Regula Falsi method	Chalk Board Chalk Board Chalk Board Chalk Board	S.Chand Numerical methods
Lecture :48 Lecture :49 Lecture :50 Lecture :51 Lecture :52	UNIT-III	WEEK 9	simple problems Problem discussion Introduction to numerical method Bisection method Regula Falsi method	Chalk Board Chalk Board Chalk Board Chalk Board Chalk Board	S.Chand Numerical methods
Lecture :48 Lecture :49 Lecture :50 Lecture :51 Lecture :52	UNIT-III	WEEK 9	simple problems Problem discussion Introduction to numerical method Bisection method Regula Falsi method Numerical problems	Chalk Board Chalk Board Chalk Board Chalk Board Chalk Board	S.Chand Numerical methods
Lecture :48 Lecture :49 Lecture :50 Lecture :51 Lecture :52 Lecture :53	UNIT-III	WEEK 9	simple problems Problem discussion Introduction to numerical method Bisection method Regula Falsi method Numerical problems	Chalk Board Chalk Board Chalk Board Chalk Board Chalk Board Chalk Board Class Test	S.Chand Numerical methods
Lecture :48 Lecture :49 Lecture :50 Lecture :51 Lecture :52 Lecture :53		WEEK 9	simple problems Problem discussion Introduction to numerical method Bisection method Regula Falsi method Numerical problems Newton Raphson	Chalk Board Chalk Board Chalk Board Chalk Board Chalk Board Class Test	S.Chand Numerical methods
Lecture :48 Lecture :49 Lecture :50 Lecture :51 Lecture :52 Lecture :53	UNIT-III	WEEK 9	simple problems Problem discussion Introduction to numerical method Bisection method Regula Falsi method Numerical problems Newton Raphson method	Chalk Board Chalk Board Chalk Board Chalk Board Chalk Board Class Test	S.Chand Numerical methods
Lecture :48 Lecture :49 Lecture :50 Lecture :51 Lecture :52 Lecture :53		WEEK 9	simple problems Problem discussion Introduction to numerical method Bisection method Regula Falsi method Numerical problems Newton Raphson method	Chalk Board Chalk Board Chalk Board Chalk Board Chalk Board Class Test Chalk Board	S.Chand Numerical methods
Lecture :48 Lecture :49 Lecture :50 Lecture :51 Lecture :52 Lecture :53		WEEK 9	simple problems Problem discussion Introduction to numerical method Bisection method Regula Falsi method Numerical problems Newton Raphson method Interpolation and finite	Chalk Board Chalk Board Chalk Board Chalk Board Chalk Board Class Test Chalk Board	S.Chand Numerical methods
Lecture :48 Lecture :49 Lecture :50 Lecture :51 Lecture :52 Lecture :53		WEEK 9	simple problems Problem discussion Introduction to numerical method Bisection method Regula Falsi method Numerical problems Newton Raphson method Interpolation and finite differences operators	Chalk Board Chalk Board Chalk Board Chalk Board Chalk Board Class Test Chalk Board	S.Chand Numerical methods
Lecture :48 Lecture :49 Lecture :50 Lecture :51 Lecture :52 Lecture :53 Lecture :54 Lecture :55		WEEK 9 WEEK 10	simple problems Problem discussion Introduction to numerical method Bisection method Regula Falsi method Numerical problems Newton Raphson method Interpolation and finite differences operators	Chalk Board Chalk Board Chalk Board Chalk Board Chalk Board Class Test Chalk Board Chalk Board	S.Chand Numerical methods S.Chand Numerical methods
Lecture :48 Lecture :49 Lecture :50 Lecture :51 Lecture :52 Lecture :53 Lecture :54		WEEK 9 WEEK 10	simple problems Problem discussion Introduction to numerical method Bisection method Regula Falsi method Numerical problems Newton Raphson method Interpolation and finite differences operators Newton's forward and	Chalk Board Chalk Board Chalk Board Chalk Board Chalk Board Class Test Chalk Board Chalk Board	S.Chand Numerical methods S.Chand Numerical methods
Lecture :48 Lecture :49 Lecture :50 Lecture :51 Lecture :52 Lecture :53 Lecture :54 Lecture :55		WEEK 9 WEEK 10	simple problems Problem discussion Introduction to numerical method Bisection method Regula Falsi method Numerical problems Newton Raphson method Interpolation and finite differences operators Newton's forward and backward difference	Chalk Board Chalk Board Chalk Board Chalk Board Chalk Board Class Test Chalk Board Chalk Board	S.Chand Numerical methods S.Chand Numerical methods

Lecture :56			Numerical problems	Chalk Board	
Lecture :57			·	Chalk Board	
			Gauss's forward and		
	_		backward formulae		_
Lecture :58			Trapezoidal rule	Presentation	_
Lecture :59				Chalk Board	
	-		Problem discussion		
Lecture :60		WEEK II	Simpson's 1/2 <sup>rd</sup> rule	Chalk Board	S.Chand Numerical methods
Lecture :61				Chalk Board	
			Simpson's 3/8 rule		_
Lecture :62	Unit –		Numerical problems	Chalk Board	
	IV		Taylor's series		
Lecture :63				Chalk Board	
			Numerical problems		
Lecture :64	_			Chalk Board	_
			Euler's and modified		
			Euler's method		
Lecture :65			Runge-Kutta method of	Chalk Board	-
			4 <sup>th</sup> order		
Lecture :66		WEEK 12	Bisection method	Chalk Board	N.P. Bali and
Lecture :67				Chalk Board	M. Goyal, "A
			Milne's and Adam's		Text book of
	_		method		Mathematics"
Lecture :68			Finite difference	Chalk Board	Mathematioo
			solution of 2D Laplace		
			and poission equation		
Lecture :69	_			Class Test	-
			Implicit and Explicit		
			method for 1D		
Lecture :70			Numerical problems	Chalk Board	1
Lecture :71			Bender-Schmidt and	Chalk Board	
			Crank-Nicholson		
Lecture 72	-	WEEK 12	methods	Challe Doord	N.D. Dolland
		WEEN 13	Raabes test	Chaik Doard	M Goval "A
Lecture :73	-			Chalk Board	text book of
			Bender-Schmidt and		Engineering
			Crank-Nicholson		Mathematics"
			methods		
Lecture :74	-			Chalk Board	
			Finite difference for		
			wave equation		