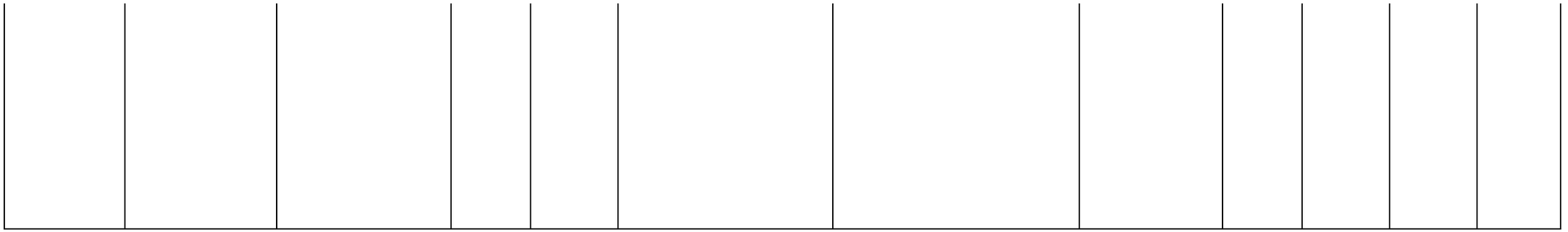
ANNUAL PEDAGOGICAL PLAN (GRADE XII APPLIED MATHEMATICS - 241)											
KPI NAME	**KPI DEFINITION**	**WHERE ARE WE NOW? (scale & description)**	**KPI GOAL**	**KPI LIMIT**	**WHAT WE NEED TO DO?**	**HOW WILL IT BE ACHIEVED**	**KPI MEASUREMENT**	**REVIEW**	**KPI REPORTING**	**KPI ACHIEVEMENT**	**KPI IMPROVEMENT**
Computation skill Mathematics by Grade XII students	KPI 1 Enhance Students ability to learn effective verbal and written communication techniques and develop ability to analyze evaluate and solve problems by examining information and	54 % of the students are able to find immediate relevance of certain problems in LPP. Students face conceptual challenges in analyzing complex situations and determining the course of action.	55%	± 3%	a) The concept of inequality will be cleared through graph representation. b) Consistency, active engagement and application in real life situations will be strengthening conceptual knowledge.	1) By providing some practice question based on the same. Students will be encouraged to brush up on concepts of chain rule. 2) To repeat the same conceptual question in the practice sheet.	After completion of chapter	After showing PT1 Answer sheets.		-----	------

	situational skills.										
Analyzing skill Mathematics by Grade XII students	KPI 2 a) To Enhance Students ability to analyze time series data, visualize using graphs and time based data. b)To gain knowledge of forecasting techniques to predict future values of a time series. c) Understating in choosing appropriate	75 % of the students are able to draw the graphs and able to apply least square and moving average method.	90%	± 3%	a) Providing with time series datasets and guiding them through process of exploring and analyzing data. b)Group activity : by dividing students in small groups and assigning them time series analysis projects. c) Case study of various field such as finance, health care, marketing an deconomices can be given to help them the practical relevance of the concept.	Regular assessment of concept through extra practice questions, quizzes, assignment and tests to cover the concept. Common errors will be discussed through extra questions.	After completion of chapter.	After showing 1st term Answer sheets.		------	-------

	model for different time series.										
Student Performance in Chain rule by Grade XII students	KPI 3 To analyze the given information identifying the relevant concepts or operation needed and approach to the problem step by step.	50 % of the students are able to apply the correct operations to find inverse of a matrix.	70%	± 3%	a) Reviewing with basics, revisited the fundamental concepts . b) More practice on application based problems that require the use of mathematics and determinant in real world scenarios.	a) By developing mental math techniques to simplifying calculations involving matrices and determinants. b) Using other resources such as reference books, related videos and practice sheets will be provided.	After completion of chapter.	at the end of 1st term		--	--
Student Performance in learning Mathem	KPI 4 To overcome the Confusion in applying	45 % of the students understand the topic well remaining	62%	± 2%	Will refer the reference book for the practice questions in the class room.	1. Students will be encouraged to put more emphasis on concept of Poisson distribution.	After completion of chapter.	at the end of 1st term		----	----

atics by Grade XII students	concept binomial and Poisson Distribution	students gets confuse in mean and variance of binomial andPoisson distribution.			To repeat the same conceptual question in the practice sheet.	2. To repeat the same conceptual question in the practice sheet. 3) Revision worksheets will be given.					
Student Performance in Chain rule by Grade XII students	KPI 3 Enhancing Computation skills while Performing the correct operations while doing the derivatives with chain rule.	50 % of the students are able to do calculations Correctly but some of them get confused while doing the derivative of the functions by using chain rule.	60%	± 3%	1. To discuss with the students common error committed by them. 2. We will make students to apply inequality rule. 3. We will make Students to apply the concept of chain rule.	1) By providing some practice question based on the same. Students will be encouraged to brush up on concepts of chain rule. 2) To repeat the same conceptual question in the practice sheet.	After completion of chapter.	at the end of 1st term		---	---



PT 1 PEDAGOGICAL PLAN (GRADE XI CORE MATHEMATICS)

Topics: Measurement of angles, Complex Numbers, Permutations and Combinations, Binomial Theorem , straight lines, Sequence and series

KPI NAME	KPI DEFINITION	WHERE ARE WE NOW? (scale & description)	KPI GOAL	KPI LIMIT	WHAT WE NEED TO DO?	HOW WILL IT BE ACHIEVED	KPI MEASUREMENT	REVIEW	KPI REPORTING	KPI ACHIEVEMENT	KPI IMPROVEMENT
Student Performance in learning and applying Trigonometry by Grade XI students	**KPI1** Understanding Trigonometric Ratios, Solving problems involving functions, graphing, Trigonometric identities and equations.	45% of the students are able to do find trigonometric ratios Correctly but some of them get confused while applying the identities, and drawing the graphs of the functions and understanding domain and range	60%	± 3%	Reinforce their understanding of trigonometric ratios, Breakdown the definition and properties of trigonometric functions. Understanding the significance of unit circle in drawing the graphs, solving equations step by step.	By providing a variety of practice problems in which students can differentiate the application of permutation and combination.	After completion of chapter	After showing Term1 Answer sheets.	at the end of term 1	----	------

Student Performance in s by Grade XI students	**KPI2** Enhance Students ability to understand and manipulate complex number effectively. To navigate the world of complex number and perform operations, conversion and interpretations with ease.	60 % of the students are able to explore the geometric interpretation and relationship between the real and complex plane. They explore the relationship between modulus, argument and the rectangular form of complex numbers.	70%	± 3%	Break down complex concepts into smaller more manageable parts. Introduce the definition, complex part and real parts and operations on complex number. Adding visual aids like diagram, graphs and complex plane, connect complex numbers to real world applications.	Reinforcement of concept through extra practice questions. Common errors will be discussed through extra questions.	After completion of chapter.	After showing Term1 answer sheets.	at the end of term 1	----- -	------ -

Computational skills in mathematics by grade 11 students	**KPI 3** a)Enhancing Computation skills while learning permutation an combinations. b) To overcome the Confusion in applying permutation and combination.	58 % of the students are able to do calculations Correctly but some of them get confused while applying permutation and combinations.	70%	± 3%	a)To discuss with the students common error committed by them. 2. We highlight real life applications where these concepts are applicable. 3. We encourage to think critically about the problems.	a) Practice sheets will be provided By providing some practice question based on the same. Students will be encouraged to brush up on concepts of chain rule.	After completion of chapter.	After showing Term1 answer sheets.	at the end of term 1	--	--
Student Performance in learning Mathematics by Grade XI	**KPI 4** Enhancing Computation skills while expanding a binomial and identification of the terms in a given binomial.	60 % of the students understand the topic well remaining students gets confuse in mean and variance of Poisson distribution.	75 %	± 2%	a) Will refer the reference book for the practice questions in the class room. b) To repeat the same conceptual question in the practice sheet.	1. Students will be encouraged to practice of exponents. 2. They will be given practice sheet based on combination. 3) they will understand the concept of Pascal's	After completion of chapter.	After showing Term1 answer sheets.	at the end of term 1	----	----

						triangle					
Student Performance in framing the equation of a straight line in different situation. learning Mathematics by Grade XI	**KPI 4 To improve the performance of students in framing linear equation of different forms.**	40 % of students are cable to understand and find the equation of line in different forms.	60%	± 2%	a) a solid understanding of 3 D geometry will be given to students using graph papers. b) Concept of slope and all the forms will be recommended through visualization.	a) Recapitulation of concept of different forms of straight line. b) More practice question will be given to make them understand the difference among all the forms.	After completion of chapter	After showing Term1 answer sheets.	at the end of term 1		
Student Performance in identifying and applying concept of AM , GM and GP of	**KPI 4 Understanding General term, common ratio, sum of terms, funding missing terms and relation**	40% of students are a) able to differentiate between the common ratio >1 and <1and students struggle when to use	50%	± 3%	a) A clear understanding on recognizing patterns in sequence and focus on how each term relate to the previous term. b) More practice in identifying	a) Practice solving a wide range of problems. b) using visual aids such as diagram or video lessons c) Regular practice will be given to become comfortable with		After showing Term1 answer sheets.	at the end of term 1		

Grade XI students	**between AM and GM will provide a solid foundation for solving problems related to GP and its applications.**	appropriate formula. b) Finding the general term of a GP is confusing. c) Students			problems.	the concepts and problem solving techniques related to GP.					

Class – XII

Lesson Plan

Topic: Linear Programming

Brief Description of the lesson:

To minimize the mistake done by the student d in framing the linear inequations from the application problem

The topic will start with by explaining the concept of optimization problems giving a real life examples like max. Profit and minimization of cost etc. Techniques of to solve LPP will be represented by linear equations and inequality. Concept of optimization function, decision variables, constrains and formulation of simple LPP will be explain through examples.

Objectives:

I - Specific Objectives:

To enable the students to:

S1 Recall the terms related to linear equations and inequations studied in previous classes **(Knowledge/Recalling)**

S2 Understand different terminologies related to LPP **(Understand/Classifying)**

S3 Understand the meaning of mathematical formulation of LPP **(Understand/Interpret)**

S4 Formulate LPP **(Synthesis/Producing)**

S5 Understand different types of LPP **(Understand/Interpret)**

S6 Visualize feasible and infeasible regions **(Analyze/Differentiate)**

S7 Understand graphical method **(Understand/Inferring)**

S8 Construct graph for given question **(Synthesis/Producing)**

S9 Find feasible and infeasible solutions and optimal feasible solutions **(Analyze/Differentiate)**

II - Behavioral Objectives:

By understanding and solving variety of problems, students will attain following behavioral objectives:

1) B1 Formulate LPP based on real life situations like manufacturing of cakes, transportation Problems etc.
   Students can use and extend the knowledge of linear programming and their applications in real life situations (in projects and model making for bal vigyan) **(Synthesis/Producing)**

2) B2 Develop the **practical approach** to convert the real life situation in the form of linear inequations **(Apply/Implementation)**

Process / Activities:

1) ACT1 students will be identify the open and bounded region by plotting graph. **(Understand/Classifying)**

2) ACT2 Students will formulate word problem by their own and will try to find feasible/infeasible region and solutions for the same **(Synthesis/Planning/Producing)**

Skills:

1) Analysis
2) Problem solving
3) Application

Assessment:

Assessment of activity will be done on the basis of decided rubrics:

A1 Assessment of activity will be done based on the following questions

Solve the linear programming problems graphically:

(a) Maximize z $= 2x + 3y$ subject to constrains $x + y \leq 10$, $2x + 3y \leq 20$, $x \geq 0$, y ≥ 0

(b) Minimize z $= x + y$ subject to constrains $5x + 2y \geq 60$, $x + y \geq 30$, $x \geq 0$, y ≥ 0

Expected Learning Outcomes:

The students would be able to:

1) Recall the terms related to linear equations and inequations learnt in previous classes **(Knowledge/Recalling)**
2) Understand different terminologies related to LPP **(Understand/Classifying)**
3) Understand the meaning of mathematical formulation of LPP **(Understand/Interpret)**
4) Formulate LPP **(Synthesis/Producing)**
5) Understand different types of LPP **(Understand/Interpret)**
6) Understand graphical method **(Understand/Inferring)**
7) Construct graph for given question **(Synthesis/Producing)**
8) Visualize feasible and infeasible regions **(Analyze/Differentiate)**
9) Find feasible and infeasible solutions and optimal feasible solutions **(Apply/Implementation)**

Placements of Objectives, Instructional Activities and Assessment:

Topic/Start Date/Assessment					
Knowledge	**Understanding**	**Application**	**Analysis**	**Synthesis**	**Evaluation**
S1	S2	S9			
	S3			S4	
	S5			S7	
	S6		S8	B1	
	ACT1			ACT2	
	A1			A2	

Class – XI
Lesson Plan
TOPIC: Straight Lines

BRIEF DESCRIPTION - In this chapter, students will be taught equation of straight lines in one point slope form, two point form, intercept form and normal form. They will learn to find distance of line from a point and condition of perpendicularity and parallelism.

Objectives: (Bloom's level)

I - Specific Objectives

To enable the Students to
S1. Recall the Slope of a Line (K)
S2. Illustrate Conditions for parallelism and perpendicularity of lines in terms of their slopes. (U/Exemplify)
S3. Categorize various forms of the equation of a line (U/Classify)
S4. Calculate Angle between two lines. (A/Execution)
S5. Develop General equation of a line. (Sy/Generating)
S6. Calculate Distance of a point from a line. (A/Execution)
S7. Calculate Distance between two parallel lines. (A/Execution)

II - Behavioral Objectives

1. Develop Presentation skills (Interpret/U)
2. Develop Visualization (Differentiating/An)

Process / Activities

Activity (to introduce the lesson)

Students will be asked to draw of the equation $x - y = 1$ and to find its slope (K/Recall)

Activity 2 (to support learning)

Find equation of a line when coordinate of two points are (0,-1) and (3,-1) are given.

Expected Learning Outcomes

Students would be able to
1. Calculate the Slope of a Line. (A/Execution)
2. Explain General equation of a line (U)
3. Calculate Distance between two parallel lines. (A/Execution)
4. Verify Conditions for parallelism and perpendicularity of lines.(U/Interpret)
5. Categorize different Forms of the equation of a line. (U/Classify)
6Calculate Angle between two lines (A/Execution)
7. Calculate the Distance of a point from a line (A/Execution)
8. Develop Presentation &Visualization skill

Assessment: (put Bloom's level)

A1 Write the equations of the lines parallel to the *x*-and *y*-axes. (K)
A2. Write the equation of line passing through (1, 2) with slope -1. (Interpret/U)
A3. The vertices of triangle PQR are P (2, 1), Q (–2, 3) and R (4, 5). Find equation of the median through the vertex R. (A/Execution)
A4. The owner of a milk store finds that, he can sell 980 liters of milk each week at Rs 14/liter and 1220 liters of milk each week at Rs 16/litre. Assuming a linear relationship between selling price and demand, how many litres could he sell weekly at Rs 17/litre? (Planning/Sy)

Placement of Objectives, Instructional Activities and Assessment

TOPIC/START DATE/ASSESSMENT					
KNOELEDGE	UNDERSTANDING	APPLICATION	ANALYSIS	SYNTHESIS	EVALUATION
S1	S2	S4		S5	
	S3	S6			
		S7			
ACT1					
A1	A2	A3		A4	