University of Kerala

Discipline	Mathematics				
Course Code	UK2MDCMAT100				
Course Title	Numerical Ability - II				
Type of Course	MDC				
Semester	II				
Academic Level	100-199				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours per week
	3	3			3
Pre-requisites	Basic Arithmetic Operations				
Course Summary	This course is primarily meant for students who have not undergone a Mathematics course beyond their secondary school. The course is expected to equip the student tackle basic arithmetic problems. The student is further expected to form linear and quadratic equations from simple real world problems on their own and solve the same.				

Detailed Syllabus

Module	Unit	Contents	Hrs
I	**Series and Progression**		**12**
	1	Arithmetic Series, Geometric series, Arithmetic Series of different orders, Arithmetico-Geometric series, Geometrico-Arithmetic Series. Problems involving the above concepts *(Chapter 23 of Text [1])*	
II	**Interest Calculation**		**9**
	2	Simple Interest, Problems involving Simple Interest *(Chapter 17 of Text [1])*	
	3	Compound Interest, Problems involving Compound Interest *(Chapter 18 of Text [1])*	

Module	Unit	Contents	Hrs
III	**Equations**		**6**
	4	Linear Equation in one variable, Linear equation in two variables, Solving two simultatneous linear equations. Consistent and inconsistent equations. *(Chapter 27 of Text [1])*	
	5	Quadratic Equation, Solution of a quadratic equation. *(Chapter 28 of Text [1])*	
IV	**Permutations, Combinations**		**9**
	6	Fundamental principle of counting, Permutations, Permutations under restrictions, Combinations. *(Chapter 31 of Text [1])*	
V	**Suggestions for the teacher designed module**		**9**
	For internal assessment examinations only		
	7	Harmonic progression Consistent and inconsistent equations Nature of roots Relation between roots and coefficients Formation of a quadratic equation with given roots.	
	These topics can be found on Chapters 29, 27 and 28 of Text [1]		

Textbook

1. Dinesh Khattar, *Quantitative Aptitude for Competitive Examinations*, Fourth Edition, Pearson, 2016.

References

1. H Kruglak, JT Moore, RA Mata-Toledo, *Schaum's outline of theorey and problems of Basic Mathematics, with Applications to Science and Technology*, Second Edition, McGraw-Hill, 1998.

2. Rajesh Verma, *Fast Track Objective Arithmetic*, Arihant, 2018.

3. Steven T Karris, *Mathematics for Business, Science and Technology*, Third Edition, Orchard Publications, 2007.

Course Outcomes

CO No.	Upon completion of the course the graduate will be able to	PO/PSO	Cognitive Level	Knowledge Category	Lecture(L) Tutorial (T)	Practical (P)
CO 1	Understand basic level mathematics used in real life situations	PSO1, PSO2, PSO3, PO1, PO2, PO5	U, An, E	C, P	L	
CO 2	Do maths problems quickly using ready to use formulae	PSO3, PO2	R, Ap	P	L	
CO 3	Converting real world problems to mathematical problems	PSO1, PSO2, PSO3, PSO5, PO1, PO2, PO5, PO6	U, An, E	C, P	L	
CO 3	Understand the concepts of probability and compute it	PSO1, PSO2, PSO3, PO1, PO2	U, An, E	P	L	

(R-Remember, U-Understand, Ap-Apply, An-Analyse, E-Evaluate, C-Create)
(F-Factual, C-Conceptual, P-Procedural, M-Metacognitive)

Mapping of CO with PSOs and POs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	3	-	-	-	3	2	-	-	2	-	-	-
CO2	-	-	3	-	-	-	-	2	-	-	-	-	-	-
CO3	2	3	2	-	2	-	3	2	-	-	2	2	-	-
CO4	2	3	2	-	-	-	3	2	-	-	-	-	-	-

(- -Nil, 1-Slightly/Low, 2-Moderate/Medium, 3-Substantial/High)

Assessment Rubrics

- Quiz/Assignment/Discussion/Seminar
- Midterm Exam
- Programming Assignments
- Final Exam

Mapping of COs to Assessment Rubrics

	Internal Examination	Assignment	Project Evaluation	End Semester Exam
CO1	✓	✓		
CO2	✓			✓
CO3	✓	✓		✓
CO4	✓	✓		✓