John Wilson Education Society's
Wilson College (Autonomous)

Chowpatty, Mumbai-400007
RE-ACCREDITED 'A' grade by NAAC

Affiliated to the
UNIVERSITY OF MUMBAI

Syllabus for F.Y
(Under NEP)

OPEN ELECTIVE

Programme Code: WSMATOE (Mathematics)

Choice Based Credit System (CBCS) with effect from Academic year 2023–2024

PROGRAMME OUTLINE 2023-2024

YEAR	SEM	COURSE CODE	UNIT	NAME OF THE UNIT/UNIT TITLE	CREDITS
FY	I	WSMATOE111		**ELEMENTARY ARITHMETIC**	2
			I	**Quantitative Ability**	
			II	**Commercial Arithmetic**	
	II	WSMATOE121		**MATHEMATICAL LOGIC AND REASONING**	2
			I	**Sets and Logical Reasoning**	
			II	**Data Interpretation**	

OPEN ELECTIVE		SEMESTER I	
COURSE: Elementary Arithmetic		COURSE CODE: WSMATOE111	
Teaching Scheme		Evaluation Scheme	
Lectures (hours/week)	Credits	Class Assignment	Quiz
2 lectures (2 hours)	2	30 marks	30 marks

Course Objectives:
1. To develop the skill of reasoning applied to numerical problems.
2. To acquaint the students with frequently asked patterns in quantitative aptitude and logical reasoning during various examinations and campus interviews.
3. To introduce concepts of mathematics with emphasis on analytical ability and computational skill.
4. To improve the analytical and problem solving skills and strengthen the ability to draw logical conclusions

Course Outcome:
The learner will be able to
1. Recall the definition and formula for topics like percentage, gcd, lcm, area, volume etc.
2. Recall the definition and formula for topics like simple interest, compound interest, shares, emi, etc.
3. Convert verbal information into mathematical problems.
4. Solve aptitude and reasoning based problems.

DETAILED SYLLABUS

Course Code	Unit	Sub-Unit	Course/ Unit Title	Credits/ Lectures: 2 Credits/ 30 Lectures
WSMATOE111	I		**Quantitative Ability**	**15 Lectures**
		1.1	Number Systems, LCM and GCD, Decimal Fractions, Simplification, Square Roots and Cube Roots, Average, Problems on Ages, Surds & Indices, Percentages, Progressions, Mensuration	
		1.2	Time, Speed and Distance, Time & Work, Ratio and Proportion, Area and Volume, Mixtures and Allegation, Logarithm, Permutation and Combinations, Probability	
	II		**Commercial Arithmetic**	**15 Lectures**
		2.1	Discount, Commission and Brokerage, Profit and Loss, Simple and Compound Interest, Annuity, present value, future value, EMI using reducing balance method.	
		2.2	Shares, face value, market value, dividend, equity shares, bonus shares, Mutual Fund, Net Asset Value (NAV), SIP, Partnership problems.	

References:
1. A Modern Approach To Verbal & Non Verbal Reasoning by R S Agarwal, S. Chand Publications.
2. Quantitative Aptitude for Competitive Examination by R S Agarwal, S. Chand Publications.
3. Analytical and Logical Reasoning for CAT and other Management Entrance Test by Sijwali B S.
4. Quantitative Aptitude by Competitive Examinations by Abhijit Guha 4th edition.
5. Business Mathematics by D C Sancheti, S. Chand
6. Mathematics for Business Economics by J D Gupta, Tata McGraw Hill Publishing.

OPEN ELECTIVE			SEMESTER II	
COURSE: Mathematical Logic and Reasoning			**COURSE CODE: WSMATOE121**	
Teaching Scheme			**Evaluation Scheme**	
Lectures (hours/week)	**Credits**		**Class Assignment**	**Quiz**
2 lectures (2 hours)	**2**		**30 marks**	**30 marks**

Course Objectives:
1. To develop the skill of reasoning applied to numerical problems.
2. To acquaint the students with frequently asked patterns in quantitative aptitude and logical reasoning during various examinations and campus interviews.
3. To introduce concepts of mathematics with emphasis on analytical ability and computational skill.
4. To improve the analytical and problem solving skills and strengthen the ability to draw logical conclusions

Course Outcome:
The learner will be able to
1. Draw logical conclusions for a given statement.
2. Convert verbal information into mathematical problems.
3. Interpret the given data and draw conclusions.
4. Solve aptitude and reasoning based problems.

DETAILED SYLLABUS

Course Code	Unit	Sub-Unit	Course/ Unit Title	Credits/ Lectures: 2 Credits/ 30 Lectures
WSMATOE111	I		**Sets and Logical Reasoning**	
		1.1	Sets and their representations, empty set, finite and infinite sets, subsets, power sets, universal set, Venn Diagram, union and Intersection of sets, De-Morgan's Law, Complement of a set, difference of sets, properties of complement of a sets.	**15 Lectures**
		1.2	Analogy, Blood Relation, Directional Sense, Number and Letter Series, Coding – Decoding, Seating Arrangement, Syllogism, Mathematical Operations	
	II		**Data Interpretation**	
		2.1	Tabulation, Data Interpretation, Column Graphs, Bar Graphs, Line Charts, Pie Chart.	**15 Lectures**
		2.2	Combined data sets, caselets, data sufficiency, missing data interpretation, correlation and regression	

References:

1. A Book of Set Theory by Charles C. Pinter, Dover Publications, Mineola, New York.
2. A Modern Approach To Verbal & Non Verbal Reasoning by R S Agarwal, S. Chand Publications.

3. Quantitative Aptitude for Competitive Examination by R S Agarwal, S. Chand Publications.
4. Analytical and Logical Reasoning for CAT and other Management Entrance Test by Sijwali B S.

Modality of Assessment
(for both semester I and II)

A. **Class Assignment- 30 Marks:**

Two assignments of 15 marks each based on unit I and unit II will be given.

B. **Quiz- 30 Marks:**
A multiple choice questions based quiz on unit I and II of 30 marks will be given. The duration of the quiz will be 30 minutes.