Syllabus-2023-2024

(SOS)(BSc_ComputerScience)

Title of the Course	AEC3
Course Code	AEC0301[T]

Part A

Year	2nd	**Semester**	3rd	**Credits**	L	T	P	C
					2	0	0	2
Course Type	Theory only							
Course Category	Ability Enhancement Courses							
Pre-Requisite/s	The students have a basic knowledge and understanding of the English language and communication.			**Co-Requisite/s**	Basic Understanding of English Language.			
Course Outcomes & Bloom's Level	**CO1-** Determine interpersonal skills and be an effective goal-oriented team player.**(BL1-Remember)** **CO2-** Elaborate creativity and lateral thinking.**(BL2-Understand)** **CO3-** Examine attitudes, emotional intelligence and understand its influence on behavior. **(BL3-Apply)** **CO4-** Justify approaches to conflict resolution**(BL4-Analyze)** **CO5-** Evaluate goal setting, management, decision-making skills**(BL5-Evaluate)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✓ Environment ✕		**SDG (Goals)**	SDG4(Quality education)				

Part B

Modules	Contents	Pedagogy	Hours
Module 1	Communication : Definition, Process, Barriers in the Process of Communication Types, Principles of Effective Communication, Speech, , Debate, Telephonic Conversation, Extempore	Classroom Lecture, PPts, Videoes	6
Module 2	Language Know-how Common Errors Learning through examples Functional Grammar& Contemporary usage	Classroom Lecture, PPts, Videoeslassroom Lecture, PPts, Videoes	6
Module 3	Paragraph Development Techniques Principles &Methods Instruments for Cohesive Writing Creating Mind Maps/Info graphic	Classroom Lecture, PPts, Videoes	6
Module 4	Writing skills Introduction to writing skills. Tone ,Orientation, Attitude,Formal vs Informal,general writing,technical writing Letter/ Application/e-mail, Format, and content Indianian Email Writing Writing for the Web:Do's & Don'ts of Email Writing,Netiquette	Classroom Lecture, PPts, Videoes	8
Module 5	Resume Writing -Concept, types, and Application Curriculum Vitae:difference between Resume and CV Interview Skills Group Discussion and Debate	Classroom Lecture, PPts, Videoes	6

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
NA	NA	PBL		NA

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	60	18	40	22
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**

Part E

Books	Technical Communication – Principles and Practices by Meenakshi Raman & Sangeeta Sharma, Oxford Univ. Press, 2007, New Delhi.
Articles	Business Communication By Lesikar, Flatley, & Rentz (11th, Eleventh Edition), by Raymond Lesikar / Marie Flatley / Kathryn Rentz
References Books	C. Muralikrishna and S. Mishra (2011) Communication Skills for Engineers, Pearson education. ISBN: 9788131733844.
MOOC Courses	https://nptel.ac.in/courses/109103020
Videos	https://nptel.ac.in/courses/109103020

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2 - - - 2 2 - - - 2 - - 1 -	-	-	-	2	2	-	-	-	2	-	-	1	-	1
CO2	2	2	1	2	2	2	-	-	-	2	-	-	1	-	3
CO3	2	1	1	-	1	-	-	-	-	2	-	-	3	2	3
CO4	3	2	-	2	1	-	-	-	-	2	-	-	2	3	3
CO5	3	2	-	2	1	-	-	-	-	2	-	-	2	2	3
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

(SOS)(BSc_ComputerScience)

Title of the Course	Computer Networks
Course Code	BSCS0301[T]

Part A

Year	2nd	**Semester**	3rd	**Credits**	L	T	P	C
					3	0	1	4
Course Type	Embedded theory and lab							
Course Category	Disciplinary Major							
Pre-Requisite/s	Study of computer networks provides basic knowledge of Computer system architecture and various techniques used in it, along with error detection techniques like parity bit etc			**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** Remembering the concepts of computer networks, their types.**(BL1-Remember)** **CO2-** Understand to the concept of Class full and Classless addressing Network address Translation, Mobile IP.**(BL2-Understand)** **CO3-** Apply to Unicast and Multicast Routing and Next Generation IP for networking.**(BL3-Apply)** **CO4-** Analyze the applications to address the issues of Networking Technologies.**(BL4-Analyze)** **CO5-** Evaluating to investigate routers, IP and Routing Algorithms in Network Layer**(BL5-Evaluate)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕		**SDG (Goals)**	SDG4(Quality education)				

Part B

Modules	Contents	Pedagogy	Hours
1	Data Communication System: Purpose, Components: Source, transmitter, transmission System, receiver, and destination. Line Configurations, Signal Representation, Parallel and Serial Data Transmission, Asynchronous and Synchronous Modes of Data Transmission. Digital Signal Encoding, Channel Coding	Lectures with whiteboard/PPT	8
2	Analog and digital data transmission. Data and signal. Analog and digital Signaling of analog and digital data. Modem, Modulation techniques, CODEC, Digital Transmitter etc. Introduction to Network, OSI reference model, TCP/IP reference model. Transmission Media: Magnetic Media, Twisted-Pair cables, Baseband & Broadband Coaxial cables, Fiber Optics. Wireless Transmission: Radio Transmission, Microwave Transmission..	Lectures with whiteboard/PPT	8
3	ISDN; ATM; Data Link Layer: Services, Framing, Error Control, Error-detecting & Correcting Codes. Data Link Protocols: Stop-and-Wait Protocol, Sliding Window Protocol. HDLC; Static & Dynamic Channel allocation in LANs & MANs. Multiple Access Protocols: ALOHA, CSMA/CD	Lectures with whiteboard/PPT	8
4	IEEE standards 102.3 and Ethernet, 102.4: Token Bus; 102.5: Token Ring. Bridges, Routers, Gateways, Routing Algorithm, Congestion control Algorithm, Internetworking, The TCP/IP Protocol ,IP Addressing, Subnets.	Lectures with whiteboard/PPT	8
5	Wide Area Network: Introduction, Network routing, Routing Tables, Types of routing, Dijkstra's Algorithm, Bellman-Ford Algorithm, Link state routing, Open shortest path first, Flooding, Broadcasting, Multicasting,Internet Protocols, Overview of TCP/IP, Transport protocols, Elements Recorded of Transport Protocol, Transmission control protocol (TCP), User data-gram protocol (UDP).	Lectures with whiteboard/PPT	8

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	Configure to DNS Server	Experiments	BL2-Understand	2
2	Configure to DHCP Server	Experiments	BL2-Understand	2
3	Configure IP routing with RIP using CISCO Packet Tracer	Experiments	BL2-Understand	2
4	Configure to router for one network	Experiments	BL2-Understand	2
5	Configure to two different router	Experiments	BL2-Understand	2

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	60	18	40	22
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	50	60	30	40	20

Part E

Books	Behrouz A. ; Data Communications and Networking. ForouzanMcGraw-Hill. Andrew S. Tanenbaum; Computer Networks; Pearson Prentice Hall
Articles	
References Books	William J. Beyda Data Communication Prentice Hall William Stallings Data and Computer Communications Pearson Prentice Hall
MOOC Courses	
Videos	

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
CO3	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
CO4	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

(SOS)(BSc_ComputerScience)

Title of the Course	Data Structure
Course Code	BSCS0302[T]

Part A

Year	2nd	**Semester**	3rd	**Credits**	L	T	P	C
					3	0	1	4
Course Type	Embedded theory and lab							
Course Category	Disciplinary Major							
Pre-Requisite/s	Basic understanding of computer fundamentals and programming in 'C'.			**Co-Requisite/s**				
Course Outcomes & Bloom's Level	**CO1-** To Remember Have a comprehensive knowledge of the data structures **(BL1-Remember)** **CO2-** To Understand the importance of data and be able to identify the data requirements for an application**(BL2-Understand)** **CO3-** To apply have a practical experience of algorithmic design and implementation**(BL3-Apply)** **CO4-** To analysis develop projects requiring the implementation of various data structures. **(BL4-Analyze)** **CO5-** To Evaluate Have practical experience of developing applications that utilize data structures;**(BL5-Evaluate)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕		**SDG (Goals)**	SDG4(Quality education)				

Part B

Modules	Contents	Pedagogy	Hours
1	Concept of data structure and analysis of algorithm, abstract data structure, introduction to stack and primitive operations on stack, stack as an abstract data type, stack application: infix, prefix, postfix and recursion, introduction to queues, primitive operation on queues, circular queue, de queue, priority queue and applications of queue.	White Board, Group Discussion	8
2	Introduction to linked list, basic operations on linked list, stacks and queues using linked list, doubly linked list, circular linked list, applications of linked list.	White Board, Group Discussion	8
3	Trees-basic terminology, binary trees, tree representations as array and linked list, basic operations on binary tree, traversal of binary trees:- inorder, preorder, postorder. Applications of binary tree, threaded binary tree, AVL tree, binary tree representations of trees	White Board, Group Discussion	8
4	Sequential search, binary search, insertion sort, selection sort, quick sort, bubble sort, heap sort, comparison of sorting methods.	White Board, Group Discussion	8
5	Hash Table, Collision resolution technique, Introduction to graphs, Definition, Terminology, Directed, Undirected and Weighted Graph, Representation of Graph, Graph Traversal-Depth first, Breadth first search, spanning tree, minimum spanning tree, shortest path algorithm.	White Board, Group Discussion	8

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	Write a program to find the factorial of a given no using recursion.	Experiments	BL2-Understand	2
2	Write a program for bubble sorting.	Experiments	BL2-Understand	2
3	Write a program for linear search.	Experiments	BL2-Understand	2
4	Write a program for binary search.	Experiments	BL2-Understand	2
5	Write a program for selection sorting	Experiments	BL2-Understand	2

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	60	18	40	12
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	40	20	60	30

Part E

Books	Data Structure: By Lipschultz (Schaums Outline Series) Data Structure through C (A Practical Approach) by G.S. Baluja
Articles	
References Books	Fundamental of Data Structure by S. Sawhney & E. Horowitz
MOOC Courses	
Videos	

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-
CO4	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

(SOS)(BSc_ComputerScience)

Title of the Course	Vector Analysis & Linear Algebra
Course Code	BSMA0301[T]

Part A

Year	2nd	**Semester**	3rd	**Credits**	L	T	P	C
					4	0	0	4
Course Type	Theory only							
Course Category	Disciplinary Minor							
Pre-Requisite/s	Basic knowledge of Matrix & vectors			**Co-Requisite/s**	Basic knowledge of LI, LD, dot and cross product			
Course Outcomes & Bloom's Level	**CO1-** CO1: To get insight of fundamental knowledge of matrix, group theory and transformations.and basic concept of vector analysis **(BL1-Remember)** **CO2-** CO2: To understand various techniques to solve real life problems through examples. **(BL2-Understand)** **CO3-** CO3: To apply the concepts of matrix, vector space, linear transformation and Gauss theorem , stock theorem , green theorem and other concept of vector analysis on many branches of Physics, Engineering, Social sciences and Mathematics **(BL3-Apply)** **CO4-** CO4To analyze the concept of Gauss theorem , stock theorem , green theorem and other concept of vector analysis .**(BL4-Analyze)** **CO5-** CO5: To evaluate gradient ,divergence ,curl andInverse, Eigen value and Eigen vector of matrix **(BL5-Evaluate)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕		**SDG (Goals)**	SDG4(Quality education)				

Part B

Modules	Contents	Pedagogy	Hours
Unit 1	Rank and Nullity of matrix, Solution of simultaneous equation by elementary transformation, consistency of equations, Eigen value and Eigen vectors, Calley Hamilton theorem, Inverse matrix, Digonlization.	Audio/Video clips, group discussion, lecture with PPTs, quiz	8
Unit 2	Definition and examples of vector spaces, subspaces, sum and direct sum of subspaces, Linear span, Linear dependence, Independence and their basic properties, Basis, Existence Theorem for basis, Extension theorem, Invariance of the number of elements of a basis, Dimension, Finite dimensional vector spaces, Existence of complementary subspaces of a subspace of a finite dimensional vector space, Dimension of sum of subspaces, Quotient space and its dimension.	Audio/Video clips, group discussion, lecture with PPTs, quiz	8
Unit 3	Linear transformations, Properties of linear transformation, Range and Kernel, The rank and nullity of linear transformations, Rank-Nullity theorem and its consequence, The matrix representation of a linear transformation, change of basic, dual space, bi-dual space and natural isomorphism, adjoint of a linear transformation.	Audio/Video clips, group discussion, lecture with PPTs, classroom presentations, Analysis	8
Unit 4	Scalar and vector product of three vectors, product of four vectors, Reciprocal vectors, vector differentiation, Gradient, Divergence and curl	Audio/Video clips, group discussion, lecture with PPTs, Quiz	8
Unit 5	Vector Integration, Greens Theorem, Stokes Theorems and Gauss divergence Theorem and problems based on them	Audio/Video clips, group discussion, lecture with PPTs, Quiz	8

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	60	18	40	22
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
0	0	0	0	0	0

Part E

Books	1. K.B. Datta, Matrix and Linear Algebra, Pratice Hall of India Pvt. Ltd. New Delhi, 2000 2. K. Haffiman and R. Kunze, Linear Algebra, 2nd Edition. Prentice Hall Englewood Cliffs. New Jersey,1971 N. Saran and S. N. Nigam,Introduction to Vector Analysis,Pothishala Pvt. Ltd. Allahabad
Articles	
References Books	1. Marc Lipson and Seymour Lipschutz, Schaum'S Outline Of Linear Algebra, Key College Publishing (Springer – Verlag) 2001 2. S, Kumarsaran, Linear Algebra, A Bermetric Approach Prentice Hall of India, 2000 Shanti Narayan,A Text Book of Vector Calculus,S. Chand & Co. New Delhi
MOOC Courses	https://onlinecourses.nptel.ac.in/noc24_ma13/preview
Videos	https://onlinecourses.nptel.ac.in/noc24_ma04/preview https://onlinecourses.nptel.ac.in/noc24_ee48/preview https://onlinecourses.nptel.ac.in/noc24_ma11/preview

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	-	-	2	2	-	1	-	-	-	-	-	-	-
CO2	3	3	1	3	3	2	-	-	-	-	-	-	-	-	-
CO3	3	2	-	1	3	-	-	-	-	-	-	-	-	-	-
CO4	3	2	-	2	-	-	-	-	-	-	-	-	-	-	-
CO5	2	2	-	1	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

(SOS)(BSc_ComputerScience)

Title of the Course	Optics
Course Code	BSPH0301[T]

Part A

Year	2nd	**Semester**	3rd	**Credits**	L	T	P	C
					3	0	1	4
Course Type	Embedded theory and lab							
Course Category	Disciplinary Major							
Pre-Requisite/s	Knowledge of Physics upto BSc first Year(Second semester)			**Co-Requisite/s**	Knowledge of Mathematics upto BSc first Year(Second semester)			
Course Outcomes & Bloom's Level	**CO1-** To remember the basic laws of Optics**(BL1-Remember)** **CO2-** Understand the basic concepts of Optics**(BL2-Understand)** **CO3-** To apply the concepts of Optics to different system. **(BL3-Apply)** **CO4-** To Analyze the laws of Optics**(BL4-Analyze)** **CO5-** To evaluate the laws of Optics**(BL5-Evaluate)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕		**SDG (Goals)**	SDG4(Quality education)				

Part B

Modules	Contents	Pedagogy	Hours
1	Unit-I Geometric Optics and its applications: Ray optics, Plane and spherical Mirrors, Lens, image formation, Lens formula, combination of thin lenses and equivalent focal length. Dispersion and dispersive power, chromatic and achromatic aberration, need of multiple lenses in eyepieces, Ramsdens and Huygens eye-piece	Audio/Video clips, group discussion, lecture with ppt, on white board, quiz	8
2	Unit-II Interference: Principle of Superposition, Conditions for sustained interference, Theory of interference, Lloyd's mirror, Achromatic fringes. Interference in parallel and wedge shaped films, Colour of thin films. Newton's rings and Michelson interferometer and their applications. Multiple beam interference in parallel film and Fabry-Perot interferometer.	Audio/Video clips, group discussion, lecture with ppt, on white board, quiz	8
3	Unit-III Diffraction: Frenel's diffraction, Zone plate, diffraction due to straight edge. Fraunhoffer diffraction due to single and double slits, plane transmission grating, Resolving power of grating, telescope and Microscope Diffraction Grating: Diffraction at N-parallel slits Intensity distribution, Plane diffraction grating, Concave grating and its mountings. Resolving power of a grating and comparison with resolving power of prism and of a Fabry Parot etalon.	Audio/Video clips, group discussion, lecture with ppt, on white board, quiz	8
4	Unit-IV Polarization: Transverse nature of light waves, Polarization of electromagnetic waves, Plane polarized light – production and analysis, Description of Linear, circular and elliptical polarization. Propagation of em waves in anisotropic media, uniaxial and biaxial crystals, symmetric nature of dielectric tensor, Double refraction, Hygen's principle, Ordinary and extraordinary refractive indices, Fresnel's formula, light propagation in uniaxial crystal, Nicol prism, Production of circularly and elliptically polarized light, Babinet compensator and applications, Optical rotation, Optical rotation in liquids and its measurement through Polari meter.	Audio/Video clips, group discussion, lecture with ppt, on white board, quiz	8
5	Unit-V Lasers and Photo Sensors A brief history of lasers, characteristics of laser light, Einstein prediction, Relationship between Einstein's coefficients (qualitative discussion only), Pumping schemes, Resonators, Ruby laser, He-Ne laser, Applications of lasers, Principle of Holography	Audio/Video clips, group discussion, lecture with ppt, on white board, quiz	8

Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
1	To find out the Focal length of combination of lenses with Nodal slide experiments	Experiments	BL3-Apply	3
2	To determine the wavelength of Sodium light by using Newtons ring experiments	Experiments	BL4-Analyze	3
3	To determine the wavelength of Laser light by using diffraction grating	Experiments	BL3-Apply	3
4	To determine the specific rotation of Sugar solution by using polarimeter	Experiments	BL3-Apply	3
5	To find the numerical aperture of given fiber	Experiments	BL3-Apply	3

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	60	18	40	
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	50	60	30	40	

Part E

Books	Fundamental of Optics by N Subramanyam and Brijlal.
Articles	
References Books	(i) Principles of Optics by BK Mathur, (ii) Optics by Ajay Ghatak
MOOC Courses	(i) https://nptel.ac.in/courses/115107131 (ii)https://nptel.ac.in/courses/115107131 (iii) https://nptel.ac.in/courses/115107095
Videos	(i) https://nptel.ac.in/courses/115107131 (ii)https://nptel.ac.in/courses/115107131 (iii) https://nptel.ac.in/courses/115107095

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	3	2	1	-	-	-	-	-	-	-	-	-	-
CO2	2	1	3	2	-	-	-	-	-	-	-	-	-	-	-
CO3	2	1	3	2	2	-	-	-	-	-	-	-	-	-	-
CO4	1	2	3	2	2	-	-	-	-	-	-	-	-	-	-
CO5	2	1	3	2	2	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Syllabus-2023-2024

(SOS)(BSc_ComputerScience)

Title of the Course	SEC-III
Course Code	SEC0301[T]

Part A

Year	2nd	**Semester**	3rd	**Credits**	L	T	P	C
					2	0	0	2
Course Type	Theory only							
Course Category	Skill Enhancement Courses							
Pre-Requisite/s	Basic knowledge of mathematical operations.			**Co-Requisite/s**	Basic knowledge of logic, diagrams ans their interpretations.			
Course Outcomes & Bloom's Level	**CO1-** To get insight the basic concepts of quantitative ability and logical reasoning Skills. **(BL1-Remember)** **CO2-** To understand various techniques to solve real life problems through concepts of logical reasoning**(BL2-Understand)** **CO3-** To analyze and solve campus placements aptitude papers covering Quantitative Ability and Logical Reasoning Ability.**(BL3-Apply)** **CO4-** To evaluate many short tricks for helping to compete in various competitive exams like CAT, CMAT, GATE, GRE, GATE, UPSC, GPSC etc**(BL4-Analyze)** **CO5-** To evaluate many short tricks for helping to compete in various competitive exams like CAT, CMAT, GATE, GRE, GATE, UPSC, GPSC etc.**(BL5-Evaluate)**							
Coures Elements	Skill Development ✓ Entrepreneurship ✕ Employability ✓ Professional Ethics ✕ Gender ✕ Human Values ✕ Environment ✕		**SDG (Goals)**	SDG4(Quality education)				

Part B

Modules	Contents	Pedagogy	Hours
Unit 1	Problems on Trains, Height and Distance, Calendar, Average, Numbers, Problems on H.C.F and L.C.M, Simplification.	Audio/Video clips, group discussion, lecture with PPTs, quiz	4
Unit 2	Surds and Indices, Chain Rule, Boats and Streams, Time and Distance, Time and Work, Problems on Ages.	Audio/Video clips, group discussion, lecture with PPTs, quiz	4
Unit 3	• Permutation and Combination, Problems on Numbers, Decimal Fraction, Square Root and Cube Root, Ratio and Proportion. • Data Interpretation: Table Charts, Pie Charts, Bar Charts, Line Charts.	Audio/Video clips, group discussion, lecture with PPTs, classroom presentations, Analysis	4
Unit 4	• Verbal Reasoning: Logical Sequence of Words, Syllogism, Cause and Effect, Venn Diagrams, Analogy, Character Puzzles, Classification, Arithmetic Reasoning, Blood Relation Test, Series Completion, Dice, Cube and Cuboids, • • Seating Arrangement, Direction Sense Test, Data Sufficiency, Verification of Truth	Audio/Video clips, group discussion, lecture with PPTs, Quiz	4
Unit 5	Puzzles: Sudoku, Number puzzles, Missing letters puzzles, Logical puzzles, Clock puzzles.	Audio/Video clips, group discussion, lecture with PPTs, Quiz	4

Part D(Marks Distribution)

Theory					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
100	40	60	18	40	22
Practical					
Total Marks	**Minimum Passing Marks**	**External Evaluation**	**Min. External Evaluation**	**Internal Evaluation**	**Min. Internal Evaluation**
0	0	0	0	0	0

Part E

Books	1. Dr. R. S. Aggarwal, Quantitative Aptitude, S. Chand Publication. 2. Abhijit Guha, Quantitative Aptitude for Competitive Examinations, McGraw Hill Publications.
Articles	
References Books	
MOOC Courses	
Videos	

Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	-	-	2	2	-	1	-	-	-	-	-	-	-
CO2	3	3	1	3	3	2	-	-	-	-	-	-	-	-	-
CO3	3	2	-	1	3	-	-	-	-	-	-	-	-	-	-
CO4	3	2	-	2	-	-	-	-	-	-	-	-	-	-	-
CO5	2	2	-	1	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-