

Ahmednagar Jilha Maratha Vidya Prasarak Samaj's
New Arts, Commerce and Science College, Ahmednagar
(Autonomous)

Title of the Course: Critical Thinking								
Year: I				Semester: I				
Course Type	Course Code	Credit Distribution		Credits	Allotted Hours	Allotted Marks		
		Theory	Practical			CIE	ESE	Total
VEC	VEC-02 (C)	02	00	02	30	15	35	100

Learning Objectives: The objectives of this course are 1. To enable students to understand the importance of critical thinking 2. To help them to identify, construct and evaluate arguments 3. To equip them to detect inconsistencies and common mistakes in reasoning.

Course Outcomes (Cos)

1. Students will be able to differentiate between the characteristics of critical and usual thinking.
2. Students will be able to identify and analyze the structure and components of arguments.
3. Students will be able to employ critical thinking approach.
4. Students will understand concept and importance of creativity.

Unit I: Introduction to Critical Thinking, definition, usual vs critical thinking, Process of critical thinking, skill set required, importance of critical thinking in academics, workplace and daily life, Inspiring Critical Thinking in Teams and Organizations, Barriers to critical thinking, fallacies and biases in critical thinking, learning to think critically in the field of science, developing critical thinking skills in the areas of reading, writing, speaking and listening (7)

Unit II: Reasoning and Decision making: Types of Reasoning, Evaluation of explanations and reasoning, Process of Elimination, reasoning in science. Argument: Principles of Good Argument, Building an Argument, Types of Arguments, Reductio Ad Absurdum. Persuasion: Definition, Principles, components. Decision making models (rational model, bounded rationality model, Vroom-yetton model, intuitive model, recognition primed model). Management of time and attention: techniques of time management and four quadrants of attention management. (11)

Unit III: Creativity (Definition, stages of creative thinking, characteristics of creativity, techniques for enhancing creativity, obstacles in creativity and measures to overcome them, barriers to creativity, importance of creativity, organizational environment for creativity)

Theories of Intelligence, creativity vs intelligence. Problem solving: Defining Problems, Problem solving cycle, techniques and obstacles, Decisions making vs Problem solving Techniques for Sparking Ideas. (12)

Suggested Readings

1. Lilia Halim, Lilia Ellany Mokhtar, Critical Thinking Process in Science Learning Prosiding Seminar Nasional Pendidikan Sains (Snps) 2015 ISSN: 2407-4 659.
2. Rogovaya, O.; Larchenkova, L.; Gavronskaya Critical Thinking in Stem (Science, Technology, Engineering, And Mathematics), Utopía Y Praxis Latinoamericana, Vol. 24, Núm. Esp.6, 2019 Universidad Del Zulia.
3. Jonathan Osborne Teaching Critical Thinking? New Directions in Science Education, March 2014, 95(352)
4. Michael S. Byrne & Alex H. Johnstone (1987) Critical Thinking and Science Education, Studies in Higher Education, 12:3, 325-339,
5. Daniel T. Willingham Critical Thinking, why is it so hard to teach? American Educator Summer 2007.
6. Steven D. Schafersman, An Introduction to Critical Thinking January, 1991.
7. Fernando Santos, The role of critical thinking in science education, Luis journal of education and practice, ISSN 2222-1735 (Paper) ISSN 2222-288x (Online) Vol.8, No.20, 2017 159.
8. Facione, Pa, "Critical Thinking: What It Is and Why It counts" 2020 Update ISBN 13: 978-1-891557-07-1. Measured Reasons llc and Distributed by Insight Assessment
9. Caleb W. Lack Phd Critical Thinking, Science, And Pseudoscience: Why We Can't Trust Our Brains Springer Publishing Company; 1st Edition Asin Isbn 13- 978-0826194190.
10. Finlay Macritchie, The need for critical thinking and the scientific method, ISBN 9780815367758,2018 By CRC Press 1st Edition.

Links

1. <https://egyankosh.ac.in/bitstream/123456789/67217/1/Block-2.pdf>
2. <https://egyankosh.ac.in/bitstream/123456789/20700/1/Unit-4.pdf>
3. <https://egyankosh.ac.in/bitstream/123456789/20702/1/Unit-2.pdf>
4. <https://egyankosh.ac.in/bitstream/123456789/20701/1/Unit-3.pdf>
5. <https://www.nios.ac.in/media/documents/secpsycour/English/Chapter-7.pdf>
6. <https://egyankosh.ac.in/bitstream/123456789/77174/1/Unit-2.pdf>
7. http://www.pathways.cu.edu.eg/subpages/downloads/Communication_Chapter_2.pdf