

HS-311 Logic and Critical Thinking

Introduction to the study of logic and the basic terminology: defining logic and the benefits of studying logic, concepts, propositions, inferences, arguments, structure of arguments, arguments in context, unstated propositions, premise and conclusion, thinking: definition, benefits of successful thinking, thinking process in three areas of life: working towards goals, making decisions and analyzing issues, relationship between thinking and goals, classification of goals, identifying appropriate goals, poor decisions, making good career decision, deciding on an appropriate career, creating career portrait, creating your dream job, discovering one's self by identifying one's interest, abilities and values, defining effective thinker, analyzing issues a symbol of effective thinker, considerations in analyzing issues, thinking tools and their applications (e.g. PMI, STAR method, Shewhart Cycle, Socratic Method, RW&D, etc.) thinking critically: differentiating between thinking, critical thinking and creative thinking, understanding critical thinking and its impact, critical thinking approach: thinking actively (influences on our thinking), exploring situation with five types of questions, thinking for ourselves evaluating our evidences and their types, viewing situations from different perspectives, discussing ideas in an organized way, problem solving: understanding what a problem is, general attitudes towards problems, desired attitudes towards problems, problem solving process, perceiving: defining perception, perceptions a prominent trait of successful people, critical thinking and perception, evaluating the differences in perception (through tests, optical illusions etc.), perception process, factors governing perception, difficulties/errors in perception process. Believing and knowing: from perceiving to believing and knowing, differentiating between believing and knowing, defining values and the 4m value system, identifying one's values in life, defining beliefs, belief as interpretation, evaluation, conclusion, prediction and endorsement, accuracy scale for evaluating beliefs, and formation of beliefs patterns and forms of reasoning and organizing thoughts, thinking patterns and organizing concepts, diagrammatic representation of the patterns for organizing thoughts, three ways to organize thoughts: chronological and process relationships, comparative and analogical relationships, and causal relationships. Types of causal relationships: causal chains, contributory causes and interactive causes. Reasoning: deductive and inductive reasoning. Deduction: syllogisms, linear ordering, tree diagrams. Forms of inductive reasoning: empirical generalizations, causal reasoning, evaluating deductive and inductive arguments, the scientific method, and problems to inductive reasoning. Fallacies: definition, purpose and classification, fallacies of false generalizations: hasty generalization, sweeping generalization and false dilemma, causal fallacies: questionable cause, misidentification of the cause, post hoc ergo propter hoc, and slippery slope.

Recommended Books:

1. "Thinking Critically", John Chaffee, Houghton Mifflin Company, 4th Edition, 1994
2. "Introduction to Logic", Irving M Copi and Carl Cohen, Prentice Hall, 12th Edition, 2005.
3. "Thought and Knowledge: An introduction to Critical Thinking", Diane F. Halpern, Lawrence Erlbaum associates, Publishers, New Jersey, 4th Edition, 2003.

4. "Good Reasoning Matters", Leo A Groarke, Christopher W Tindale and Linda Fisher, Oxford Press, 2nd Edition, 2008.
5. "Critical Thinking", Greg Bassham, William Irwin, Carl, Henry Nardone, James M. Wallace, McGraw Hill, Boston, Toronto, 2nd Edition, 2004.