

MCG-235: Logic and Critical Thinking

Credit Hours: 3-0

Pre-requisites: None

Course Objective

- This course explores the relationship of communications and critical thinking with a focus on good reasoning and the impediments to its mastery.
- This course emphasizes the development of skills in logical processes including familiarity with the more common fallacies.
- This course is designed for students learning to apply principles of critical thinking to the practical problems of everyday life.

Course Contents

- a. Basic Concepts
 - i. Arguments, Premises, and Conclusions
 - ii. Recognizing Arguments
 - iii. Deduction and Induction
 - iv. Validity, Truth, Soundness, Strength, Cogency
 - v. Arguments Forms: Proving Invalidity
- b. Language: Meaning and Definition
 - i. Varieties of Meaning
 - ii. The Intension and Extension of Terms
 - iii. Definitions and Their Purposes
- c. Propositional Logic
 - i. Symbols and Translation
 - ii. Truth: Functions
 - iii. Truth Tables for Propositions
 - iv. Truth Tables for Arguments
- d. Natural Deduction in Propositional Logic
 - i. Rules of Implication
 - ii. Rules of Replacement
- e. Conditional Proof
- f. Induction
 - i. Causality and Mill's Methods
- g. Probability

- i. Statistical Reasoning
- ii. Hypothetical / Scientific Reasoning

Course Outcomes

After completion of course, students shall be able to:

- Understand the basics of logical thinking
- Understand the role of language and thinking processes in one's life.
- Analyze ones thinking processes logically and learn to think logically

Recommended Books

- Hodges, Wilfrid. . *Logic: An Introduction to Elementary Logic*. 2nd ed. (2002)
- Hurley, Patrick J. *Concise Introduction to Logic* W/CD, 9 ed. Wadsworth Publishing Co., Belmont, CA., (2005).
- Jason, Gary. *Critical Thinking: Developing an Effective World View*. 1 ed. Wadsworth Publishing Co., Belmont, CA. . (2001)
- Moore, Brooke N. & Parker, Richard.. *Critical Thinking*, 8 ed. McGraw-Hill. (2005)
- Vaughn Lewis, *The power of critical thinking*, Oxford University Press, (2005)