



Welcome to Effective Problem-Solving and Mathematics skills! We hope you will have a valuable learning experience as you make your way through the materials in this course.

Happy learning!

Level Beginners

Commitment Four weeks, 3-5 hours per week

About this Course

Problem-solving is not only a goal of learning mathematics but also a major means of doing so.”(NCTM, 2000, p. 52)

- Every student has the right to access effective mathematics education.
- Every student can become a successful learner of mathematics.

The importance of problem-solving in learning mathematics comes from the belief that mathematics is primarily about reasoning, not memorization. Problem-solving allows students to develop understanding and explain the processes used to arrive at solutions, rather than remembering and applying a set of procedures. It is through problem-solving that students develop a deeper understanding of mathematical concepts, become more engaged, and appreciate the relevance and usefulness of mathematics.

This course contain math—no avoiding that! This course is designed to teach learners the basic math you will need in order to solve problems in a more realistic way and was created for learners who have basic math skills. ‘Effective Problem-Solving and Mathematics skills’ introduces the core math with no extra complexity, introducing unfamiliar ideas and math symbols one-at-a-time. Learners who complete this course will master the vocabulary, notation, concepts, and algebra rules that all learners must know before moving on to more advanced material of Mathematics.

Critical thinking – the application of scientific methods and logical reasoning to problems and decisions – is the foundation of effective problem solving and decision making. Critical thinking enables us to avoid common obstacles, test our beliefs and assumptions, and correct distortions in our thought processes. Gain confidence in assessing problems accurately, evaluating alternative solutions, and anticipating likely risks. Learn how to use analysis, synthesis, and positive inquiry to address individual and organizational problems and develop the critical thinking skills needed in today’s turbulent times.

Problem-solving in mathematics supports the development of:

- The ability to think creatively, critically, and logically
- The ability to structure and organize
- The ability to process information
- Enjoyment of an intellectual challenge
- The skills to solve problems that help them to investigate and understand the world

Course Objectives

Upon completing this course, you will be able to:

1. Choose and apply appropriate problem solving processes and methods
2. Identify common obstacles to effective problem solving
3. Assess major conceptual blocks and significant situational challenges
4. Apply concepts to enhancing personal development
5. Explain the key elements of problem solving

Topics include:

- Problem Solving Skills
- Set theory, including Venn diagrams
- Properties of the real number line
- Interval notation and algebra with inequalities
- Uses for summation and Sigma notation

- Math on the Cartesian (x,y) plane, slope and distance formulas
- Graphing and describing functions
- Exponents
- Probability theory
- Statistics

While this course is intended as an introduction to the problem solving skills and general maths needed for, it can be considered a prerequisite for learners interested in the course. Good luck and we hope you enjoy the course!

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