SNS College of Engineering
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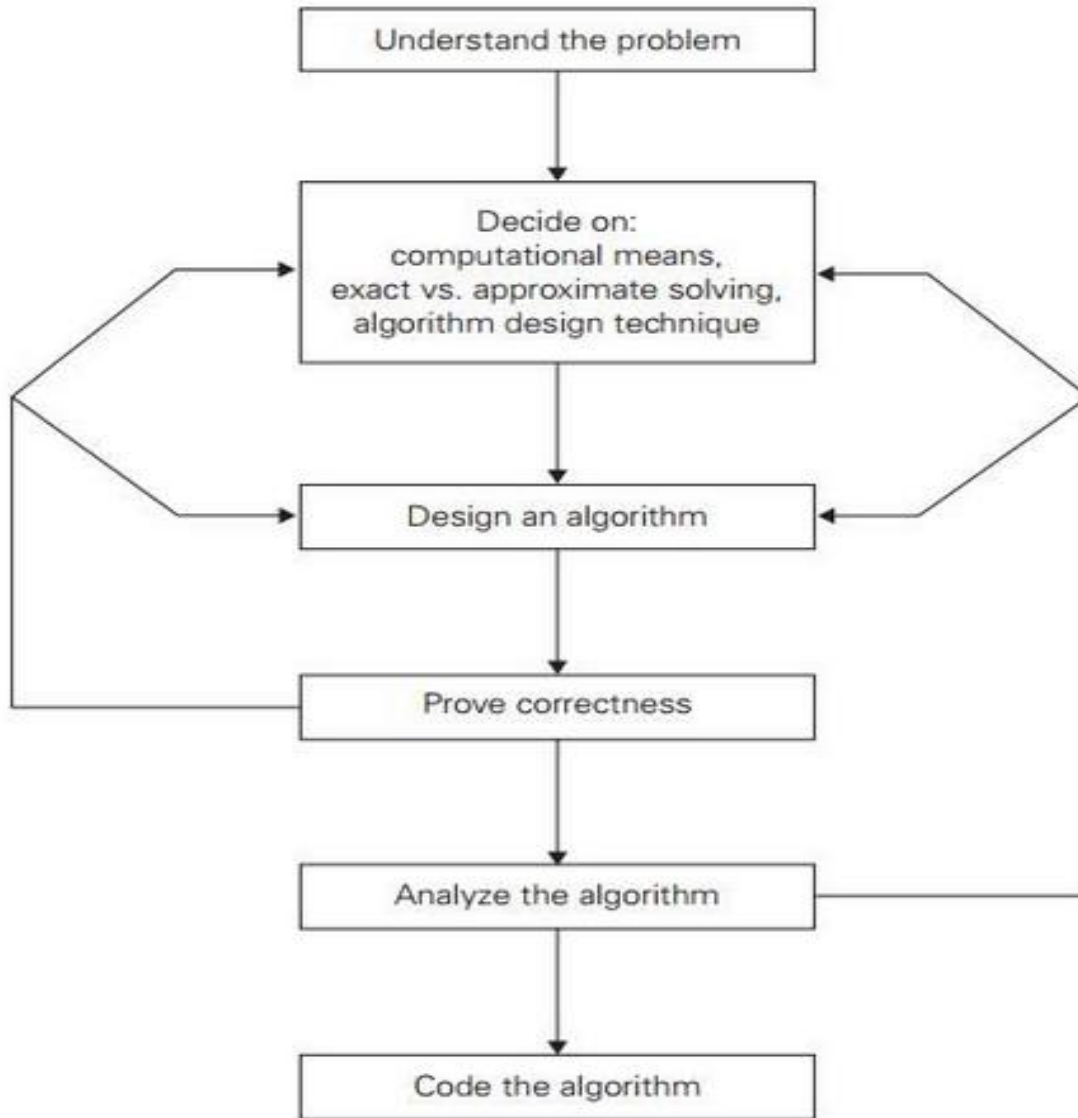# Fundamentals of Algorithmic Problem Solving

AP/IT

FIGURE 1.2 Algorithm design and analysis process.

Understanding the Problem

- What are problem objects?

- What are operations to the objects?

Decide on Computation

- How object would be represented?

- How operation would be implemented?

Design an algorithm

- Build computational model of solution process

Prove Correctness

Correct output of every legitimate

- ✓ Input in finite time

- ○ Based on correct math formula

- ○ By induction method

- ✓ Tracing can prove correctness

Analyze the Algorithm

- Efficiency-time and space

- Simplicity-clear and sequence

- Generality-range of input

- Optimality-optimal algorithm

Code the algorithm

- How objects and operations in algorithm are represented in chosen programming language?

- Can every problem be solved by algorithm?

Assessment

1) What are the three properties of algorithm?

2) Enlist the procedure of algorithm?

3) Draw Framework

Solution

1)
- Correctness
- Termination
- Efficiency

2)
- Finite
- Complete
- Unique
- Effective