Principles of Production Economics

1. Definition of Production process
2. Resources, Inputs and outputs
3. Types of resources: Natural, Financial, Human, Economic
4. Nature of resources and Economic decisions
5. The circular flow of resources between the household and firm
• The production theory/laws
  – The production function
  – The law of variable proportion
  – Assumption of production function
  – Geometric and graphical illustration of production models
  – Types of production function: limitations and advantages
  – The stages of production and production ratios
  – Elasticity of production
• Production and Efficiency Measure
  – Returns to scale
  – Technical efficiency in resources use
  – Allocative efficiency
  – Economic efficiency in resources use
  – Production frontiers
  – Production objectives

Functions and extremum
  – Concavity and convexity of functions

Increasing and decreasing function

Relative extremums
Factor-factor and Product-Product Relationship

• Iso-quant, Iso-cost, Iso-cline, ridgeline and expansion paths
• Inputs relationship and substitution
• Least-cost criterion
• Equi-marginal returns and allocation of limited inputs
• Revenue maximization and output combination
Optimization subject to constraints

• The langragian multiplier
• Budgetary analysis
• The Linear Programming
  – The graphical approach
  – The simplex algorithm