

9. Engineering Management

Engineering Management is a focused area of management dealing with the application of engineering principles to business practice. Whereas Operations Engineering and Management focuses on the design and analysis of production and service processes, Engineering Management deals with the technical business side of the organization.

9.1. Customer Focus

- 9.1.1. Needs identification and anticipation
- 9.1.2. Market product strategy
- 9.1.3. Fundamentals of customer relationship management
- 9.1.4. Quality function deployment

9.2. Leadership, Teamwork, and Organization

- 9.2.1. Leadership
- 9.2.2. Organizational structure, and development
- 9.2.3. Teamwork
- 9.2.4. Communication
- 9.2.5. Internal corporate culture and external global culture
- 9.2.6. Management

9.3. Shared Knowledge Systems

- 9.3.1. Systems planning, design, and justification
- 9.3.2. Systems development
- 9.3.3. Infrastructure of a shared knowledge system

9.4. Business Processes

- 9.4.1. Product/Process development
- 9.4.2. Process management and improvement (see Quality & Reliability knowledge area)
- 9.4.3. Research and Development
 - 9.4.3.1. Technology management
- 9.4.4. Manufacturing
- 9.4.5. Transactional business processes
- 9.4.6. Customer Support

9.5. Resource and Responsibility

- 9.5.1. Resources
- 9.5.2. Organizational responsibilities
- 9.5.3. Ethics in the practice of engineering management

9.6. Strategic Management

- 9.6.1. Vision and mission
- 9.6.2. Environmental scanning
- 9.6.3. Organizational assessment
- 9.6.4. The planning process
- 9.6.5. Goals, objectives, targets, and measures

- 9.6.6. Strategic planning
- 9.6.7. Plan implementation
- 9.6.8. Monitoring and evaluating progress

9.7. Human Resource Management

- 9.7.1. Human capital and technical competency management
- 9.7.2 Motivation theory and practice
- 9.7.3. Learning, education, training, and development
- 9.7.4. Performance management
- 9.7.5. Compensation Management
 - 9.7.5.1. Elements of compensation
 - 9.7.5.2. Job analysis
 - 9.7.5.3. Job evaluation
 - 9.7.5.4. Incentive systems
 - 9.7.5.5. Labor contracts

9.8. Project Management

- 9.8.1. Work breakdown structure of complex activities and form into an integrated plan
- 9.8.2. Project schedules / resource allocation
- 9.8.3. Cost estimating (see Engineering Economic Analysis)
- 9.8.4. Risk analysis of project plans and outcomes

9.9. Organizational Level Performance Measurement

- 9.9.1. Balanced scorecard
- 9.9.2. Productivity
- 9.9.3. Quality
- 9.9.4. Efficiency
- 9.9.5. Effectiveness
- 9.9.6. Safety
- 9.9.7. Customer satisfaction
- 9.9.8. Financial

REFERENCES:

Managing Engineering and Technology. Morse, Lucy C. and Babcock, Daniel L. Prentice Hall, 6 Edition. 2013.