Operations Directorate

Assignment Guidelines:

This task evaluates the fundamental principles, tools, and strategic importance of operations management across manufacturing and service organisations. Students are expected to solve real-world operational problems, perform quantitative calculations using process tools and spreadsheets, and interpret computational results regarding capacity, supply chain coordination, inventory management, and quality control to enhance organisational competitiveness.

Submission Format:

- Type: Practical Analytical Report (Operations Analysis Project)
- Font/Spacing: Times New Roman, Size 12, Double Spaced
- Word Count: 1500 – 2500 words (excluding diagrams, operational tables, and computational appendices)
- Submission Deadline: To be announced by the respective professors

Assessment Criteria:

- Application of operations management concepts and process planning principles – 20%
- Accuracy of quantitative modelling, inventory/scheduling formulas, and spreadsheet usage – 25%
- Critical interpretation of operational calculation results in business contexts – 20%
- Strategic operational insight, risk evaluation, and quality of recommendations – 25%
- Structure, technical reporting clarity, presentation, and APA referencing – 10%

Mandatory Sections:

- Title Page
- Table of Contents
- Executive Summary
- Introduction | Theoretical Framework & Operational Models
- Practical Calculations & Scenario Analysis
- Discussion & Managerial Implications
- Conclusion & Recommendations
- References
- Appendices (Spreadsheet Models, Process Maps & Gantt Charts)

Assignment Task – Choose ONE of the following practical projects:

Option 1: Process Design, Capacity Planning, and Lean Operations

Evaluate process design, bottleneck management, and capacity utilisation for an enterprise manufacturing or service operational workflow. Your paper should:

- Develop and compare flow process diagrams to study cycle time, throughput time, and bottleneck detection for a case study organisation.
- Compute the overall equipment effectiveness (OEE), capacity utilisation rates, and assess the impact on operating cost due to process inefficiencies.

- Review case studies of actual lean implementation (e.g., Toyota Production System or the application of lean in services) that achieved significant reductions in operational waste.
- Detail a spreadsheet-based process improvement proposal and an executable lean implementation plan for the company.

Option 2: Inventory Optimisation, Dynamic Demand Forecasting, and Supply Chain Coordination

Investigate inventory management models, safety stock calculations, and demand forecasting techniques to balance operational responsiveness with holding costs. Your paper should:

- Calculate EOQ, ROP, and safety inventory under different scenarios of demand uncertainty and lead time.
- Evaluate conventional time-series forecasting methods against real-time strategies in managing supply chain inventory.
- Study actual case studies of retail or manufacturing companies that suffered from disrupted supply chains or excessive inventory.
- Suggest a holistic inventory management mechanism and a supply chain optimisation model to achieve high fulfilment reliability.

Option 3: Quality Control, Project Scheduling, and Operational Performance Management

Analyse quality management principles, statistical process control (SPC), and project scheduling methodologies to optimise operational performance. Your paper should:

- Use the SPC charting technique and Critical Path Method (CPM)/PERT scheduling tools to control project schedule and operational drift.
- Analyse TQM versus Six Sigma standards and speed-to-market performance metrics trade-offs.
- Review quality and project management techniques in large corporations working under severe lead time or variable market demand.
- Design an operational control scheme and a performance dashboard with important operational KPIs for governing managerial decision-making.