

## **“Graduate Diploma in Quality and Operations Management”**

- Total Credit Hours for Certificate in Quality and Operation Management = 09
- Total Credit hours for Diploma in Quality and Operation Management = 18
- Eligibility:
  - 14 years of formal education

<b><u>Course Code</u></b>	<b><u>Name</u></b>	<b><u>Credit Hours</u></b>
1. QOM-314	Total Quality Management	3
2. QOM- 403	Managing Quality in Services	3
3. QOM -404	Managing Quality in Manufacturing	3
4. QOM -405	Managing Productivity in Organization	3
5. QOM -406	Lean Six Sigma	3
6. QOM -407	Survey of Management System Standards	3

## **Broad Course Contents & Brief Description**

### **1. OOM-314 Total Quality Management**

This subject provides the in depth Knowledge of the Total Quality Management (TQM) and its effectiveness in Pakistani organizations to improve productivity and efficiency. This course work includes areas like, introduction to Total Quality Management, overview of major topics related to TQM including managerial and engineering aspects, relationship between TQM and corporate strategy, gurus of TQM and their ideas, implementation of TQM, role of management tiers in TQM implementation, Business Process Re-engineering (BPR), service industry and quality, quality circles, use of quality tools and techniques for continuous quality improvement.

Pre-requisite: None

#### **Course Contents:**

- Evolution of TQM: Historical evolution - quality leaders, Common teachings of quality "gurus"; Definitions of quality - from abstract to value-based; Evolution of marketing concepts of quality; Quality costs; Customer-supplier value chains; Total quality management concept and system
- TQM Principles and Strategies: Customer focus; Process improvement; Total involvement; Quality management strategies
- TQM tools and techniques: Seven tools of quality; The house of quality; Taguchi methods; Quality function deployment; Statistical quality control
- Organizing for TQM; Leadership for TQM; Education and training; TQM organization structure; Communication; Measurements; Reward and recognition; Team-building for TQM
- Implementing TQM: Managing key processes; Steps in process improvement; measuring process improvements; Benchmarking for TQM; Quality management systems - ISO 9000 series; Quality awards - Baldrige, Ford, and others
- Functional analysis; Purpose; Method; Benefits; Applications
- Human side of quality: Empowerment; Teamwork; Stages of team development; Stages of application; Manager's responsibility
- Process improvement: Managing key processes; Six steps to process improvement
- Problem solving: Methodology; Cause-Effect Diagram; Data gathering and analysis & implementation
- KAIZEN- Continuous improvements: KAIZEN and management; The KAIZEN umbrella; KAIZEN and TQM; Suggestion systems
- TQM in service organizations; measuring service quality; Cost of service quality

#### **Text Books:**

- The Managing for Quality and Performance Excellence: Evans, James R.
- Management and Control of Quality and Excellence: Evans, James R.

### **2. OOM-403 Managing Quality in Services**

The service economy has emerged as the most dominant force in most Western economies and is likely to play a key role in emerging markets of Asian countries as well. To be able to succeed in the service dominating economies, companies need to enhance their service orientation and employees need to sharpen their skills to think differently when it comes to Quality of Services.

This course will introduce the core principles, concepts and TQM strategies specific to the services sector. It will explore service processes and delivery, customer loyalty, quality, communications and capacity by studying businesses in a variety of service industries.

This course Quality of Services is intended to broaden student's view on TQM, to give you an understanding of how TQM is practiced in service organizations, and how it will be managed in the future.

### **Course Contents:**

- Introduction to Quality of Service
- The Building Blocks of Quality of Service
- Introduction to Modular Quality of Service
- Classification and Quality of Service
- Congestion Management
- Link Efficiency Mechanisms
- Quality of Service Best Practices
- Cost of Quality in Services

### **Text Books:**

- Zeithaml, A Valarie: Delivering Quality Service
- Wang, Zheng: Internet QoS: Architectures and Mechanisms for Quality of Service

### **3. QOM-404 Managing Quality in Manufacturing**

This course exposes the students to Quality in Production and Manufacturing of commercial products. Students will also be exposed to production processes, and current techniques employed in quality control as well as statistical aspect of Quality in Production and Manufacturing.

The role of the Production Manager has changed radically over recent decades to take on a new importance. Instead of being concerned solely with the factory production of a company's products, many of today's Production Managers are often responsible for all physical aspects of the production, quality control and physical distribution of a company's goods or services, so this course will make the Production and Operations Manager's work more exciting, rewarding and will provide them knowledge and skills necessary for the efficient completion of such work and provides the opportunity for the most ambitious to rise to managerial or production director level.

### **Course Contents:**

- Basic concepts of improving production systems
- Problem identifications techniques
- Basic approaches for improvement
- Understanding the status quo, and peruse for improvement
- Making plans for improved production
- Translating improvement plans into reality
- Understanding and conviction

- Zero quality control inspection: poka yoke
- Approaching zero quality control method
- More on inspection systems
- Use of poka yoke systems
- Statistical process control (SPC)

**Text Books:**

- Zeithaml, A Valarie: Delivering Quality Service
- Wang, Zheng: Internet QoS: Architectures and Mechanisms for Quality of Service

**4. QOM-405 Managing Productivity in Organizations**

The course is meant to provide a conceptual introduction to productivity management & is designed to enable students to understand productivity and quality management worldview. Besides discussing the concepts of productivity management, focus will also be given to the implementation of productivity as the basic sources for the organizational growth. The specific objectives are: to provide a forum for discussion on productivity, and to provide an exposure and discussion on productivity issues.

At the end of the course the students shall be able to discuss issues on productivity, understand the productivity concepts from different aspects of management, understand productivity role in profit enhancement and methods of measurements, understand the methods, tools and techniques to improve productivity and indicators used to measure the productivity, issues on organizational productivity audit & improvement plan.

**Course Contents:**

- Productivity Management & its Basic Concept
- Importance of productivity management & its types
- Basic concepts and management philosophy of total productivity management
- Systematic process for total productivity management
- Unique features of total productivity management
- Productivity Improvement Plan
- Universality of total productivity management
- Productivity measurement
- Service productivity

**Text Books:**

- Sumanth, J David: Total Productivity Management: A Systemic and Quantitative Approach to Compete in Quality
- Gott, J. Keith: A Productivity Practicum

## **5. QOM-406      Lean Six Sigma**

Six Sigma course will develop the advanced skills to lead Six Sigma process improvement projects. The Six Sigma is an advanced course, it shall enable students to understand how to use the various tools in the Six Sigma toolbox and when and where to use them specifically within their work environment.

This course begins with a mastery of the tools, principles, and behavior required for a successful Six Sigma implementation that is complemented by the ability to use the DMAIC (Define, Measure, Analyze, Improve, and Control) methodology in key value streams and achieve best-in-class performance.

At the end of this course, students will be able to, use techniques in applying the integrated Lean and Six Sigma DMAIC methodology for process improvement, Differentiate Strategic vs. Operational Improvements – linking project objectives to strategic objectives, Manage the Six Sigma project – Chartering the team, building a project management plan, and managing the resources of a project, Define and scope Six Sigma projects from an enterprise-wide context, Develop data collection plans, Use detailed analysis techniques to analyze process models and maps, product flows, value streams, and activity based costing data, Apply advanced statistical analysis tools to problem solving, Interpret Six Sigma project statistical data, and when more extensive Six Sigma techniques are needed.

### **Course Contents:**

- Introduction to Six Sigma
- Building the prospective six sigma organization
- Getting faster to better by Six Sigma
- Seeing service through your customer's eyes
- Executing corporate strategy through lean six sigma
- The value in conquering complexity
- Recognizing opportunity
- Six Sigma tools and techniques
- Measurement system evaluation
- Analyzing Six Sigma

### **Text Books:**

- Brussee Warren: Statistics for Six Sigma Made Easy
- Pyzdek Thomas: The Six Sigma Handbook
- George L. Michael: Lean Six Sigma for Service : How to Use Lean Speed and Six Sigma Quality to Improve Services and Transactions

## **6. QOM-407      Survey of Management System Standards**

Aim of this course is to share applied management standards in modern industry. Application of total quality management is on a large scale depended on mental and physical background of the students. It is necessary to give a glimpse of current issues which these students may face while working in any organization, this course will make students familiar with the current management standards.

**Course Contents:**

- Introduction to Management Systems, Standards & Accreditations
- Importance of Management Standards
- ISO 9000, 14000, ISO 18000, SA 8000, ISO 28000
- Applied case studies from industry
- Performance measurement framework
- Quality Awards
- Self assessment, quality audits and reviews
- Quality management systems and their role in process reengineering

**Text Books:**

- Merchant Kenneth and Stede Wim Van der: Management Control Systems: Performance Measurement, Evaluation and Incentives
- S. Oakland, John: TQM: Text with Cases
- Mauch D. Peter: Quality Management: Theory and Application
- Rose E. Joel: Total Quality Management: Text, Cases, and Readings

## **“Graduate Diploma in Project Management”**

- Total Credit Hours Required for Certificate in Project Management = 09
- Total Credit Hours required for Diploma in Project Management = 18
- Eligibility:
  - 14 years of formal education

<u>Course Code</u>	<u>Name</u>	<u>Credit Hours</u>
1. PMG -319	Project Management	3
2. PMG-366	Project Feasibility and Appraisal	3
3. PMG -365	Computer Applications in Project Management	3
4. PMG -363	Project Risk Management	3
5. PMG -361	Project Monitoring & Evaluation	3
6. PMG -362	Project Constraint Management	3

## **Broad Course Contents & Brief Description**

### **1. PMG-319 Project Management**

Project Management course is a comprehensive introduction to project management theory and application including but not limited the knowledge areas and processes identified in the Project Management Institute's (PMI) Guide to the Project Management Body of Knowledge (PMBOK). Using a combination of theory based lectures, case studies, and practical exercises, students are introduced to project management best practices and problem solving techniques associated with project planning, charter, scope, feasibility, risk, financial analysis, close up, HR, Quality Management, resource requirements management, executing and controlling the projects, etc.

#### **Course Contents:**

- Introduction to project management
- Definition of a project
- Importance of project management
- Project life cycle; Types of projects
- Project management and related industries
- Project initiation and selection
- Project manager
- Project organization
- Project planning
- Conflicts and negotiation
- Project implementation.
- Budgeting and cost estimation
- Scheduling; Resource allocation
- Monitoring and information systems
- Project control.
- Project feasibility study
- How to prepare project feasibility study
- Format of feasibility study
- Contents of feasibility study
- Making accurate estimates.
- Project networking & scheduling (PERT/CPM)

#### **Text Books:**

- Jack R. Meredith & Samuel J. Mantel, Jr.: Project Management – A Managerial Approach
- Harold Kerzner Project Management – A Systems Approach to Planning, Scheduling and Controlling

## **2. PMG-361 Project Monitoring and Evaluation**

This course is aimed to acquaint students with applied tools and techniques to gauge and measure both performance and health of a project at a given time and to ensure attainment of intended objectives and planned results. Another aim of this course is to enhance understanding of the concepts and approaches involved in the project monitoring and evaluation. The course is designed from the perspective of assessment & monitoring with a view to increase effective control in real time industry projects. With the use of case studies, course contents will help the students to capture the basic principles of project monitoring and evaluation including process of tracing, reviewing, regulating the progress through collection, measurement, and distribution of performance information.

The course will focus on use of latest techniques and tools for the assessment, measurements and monitoring mechanisms and trends which could ultimately effect process improvements and better project management.

**Pre requisite:** Project Management

### **Course Contents:**

- General Management Principles and Practices
- Overview of Project Management; Overview of Monitoring and evaluation (M & E)
- The need and importance of M & E; M&E as a Component of the Project Planning & Implementation Process; Models of evaluation; planning an evaluation
- Tools for project control; designing a Monitoring System
- Preparing for Evaluations; Selecting Indicators; Deciding Data Collection Strategies
- Developing Data Collection Instruments; Monitoring Tools; Methods and Procedures
- Evaluation Types (process evaluation; impact evaluation)
- Evaluation Models (pre and post evaluation; case control etc.)
- Evaluation Planning; Design and Implementation; Planning the Flow of Information
- Designs for Evaluation; Dealing with multiple projects
- Stakeholder Analysis; Key Success Areas and Logic Models
- Key Performance Indicators; Responding to Monitoring Results
- M&E Challenges; Critical Success Factors
- Action Planning

### **Text Books:**

- Clifford F Gray, Erik W Larson (2004) Project Management: The Management Process. London: McGraw-Hill
- Clifford F Gray, Erik W Larson (2007) Project Management: the complete Guide for every managers. London: McGraw-Hill
- Nokes, Sebastian et al. (2003). The definitive guide Project Management: the fast track to getting the job done on time and on budget. London: Prentice Hall
- Meredith & Mantel, (995) Project Management: A Managerial Approach, 3rd edition, John Wiley & Sons, Inc.

## **3. PMG-362 Project Constraint Management**

This course focuses on the process of making and implementing key management decisions with reference to the fundamental project constraints (Cost, Quality and Time). The course is designed to prepare students to understand the importance of Quality, Cost and Time while working in any project to avert any possibility of failure.

**Pre requisite:** Project Management

**Course Contents:**

- Importance of Project Time Management
- Project Cost Management with Emphasis on Project
- Financial Analysis including Project Selection Method
- Economic Analysis of Projects and Performance of the project in the context of budgetary constraints
- Schedule and the tasks defined in the approved project plan
- Project Quality Management with seven Quality Improvement Tools
- Measurement uncertainty
- Decision programming
- Expected & earned Value and utility criteria
- Subjective probability assessment
- Simulation; Value of information

**Text Books:**

- Kim Heldman. “Project Management Professional, Study Guide” BPB Publications New Delhi

**4. PMG-363 Project Risk Management**

Better planning and configuration helps to mitigate risks. This course defines the aspects of Project Risk Management that are recognized as good practice on most projects most of the time in modern world.

Project risk and configuration management is the collective body of processes, activities, tools and methods which project management practitioners can use to manage items during the project life cycle, including the composition of a project, the documentation defining it and other data supporting it. It is a baseline- and requirements-management process that provides managed control to all phases of a project life cycle. Hence it will help students / project management practitioners to validate the risk management process being employed in a specific situation, project or organization.

**Course Contents:**

- Setting the scene; Uncertainty; Risk; and their management; Implications of project life cycle
- Motives for formal risk management process; a generic process; elaborating the generic process
- Focus phase; focus the risk management process; Identify phase; identify the risk and responses
- Develop the analysis structure; develop the ownership; evaluate the estimates and their implications; Plan the project and its risk

**Text Books:**

Chapman, Chriss & Ward, Stephen Project Risk Management: Processes, Techniques and Insights

## **5. PMG-365 Computer Applications in Project Management (3 Credits)**

Use of various softwares is becoming extremely popular in Project Management Environment day by day. The main purpose is to gain more accuracy, better speed and reliability in any project with the help of these softwares. This course is designed to study the application of various PC based software in large and mega projects. Complete working knowledge of a few popular software like Primavera and MS Project (from Microsoft) will be ensured after giving a brief overview of Project Networking and Scheduling (PERT/CPM) in planning phase. Course will also address practical use of this important computer software in any large scale project both in public and private sectors. The course will be mainly taught in PC lab with extensive hands on work using real life example.

### **Course Contents:**

- Overview of time management principles
- Overview of Bar charts
- Computerized network techniques and schedules
- Learning to use a major computer software package
- Creating project schedules
- Adding Resources
- Learning to extract information
- Introduction to CPM and PERT
- Introduction to Microsoft Project Management Package (MSPM)
- Scheduling with the MSPM
- Networking with MSPM
- Reports and Returns with MSPM
- Planning & Controlling Projects Using Primavera P3® Course Outline
- Creating reports and charts

### **Text Books:**

Jack R. Meredith and Samuel J. Mantel Jr.: Project Management, A Managerial Approach, Fourth Edition

## **6. PMG-366 Project Feasibility and Appraisal**

This course aims to objectively and rationally uncover the strengths and weaknesses of the existing business or proposed venture, opportunities and threats as presented by the environment, the resources required to carry through, and ultimately the prospects for success. In its simplest term, the two criteria to judge feasibility are cost required and value to be attained. As such, a well-designed feasibility study should provide a historical background of the business or project, description of the product or service, accounting statements, details of the operations and management, marketing research and policies, financial data, legal requirements and tax obligations. Generally, feasibility studies precede technical development and project implementation. The appraisal is done by the authority responsible for financing the project. Techniques like IRR, NPV, Payback period etc are used to appraise project feasibility.

### **Course Contents:**

- Detailed technical and socio-economic investigations

- More precise definition of project objectives, targets, and design criteria
- Design of individual project components
- Design of project organization, structure, and management arrangements, and
- Project cost and revenues estimation, and first financing proposal
- Analysis of expected results
- Project documentation and submission
- Project appraisal and negotiation
- Evaluate the financial, economic, and social objectives of the project
- Verify the procedures of the project formulation team
- Recommend the conditions which will ensure that the project objectives are met
- Ensure that the proposed grant/loan/expenditure is in accordance with the policy of the financing institution

**Text Books:**

- Sundarasan Srinivasan: Long-Term Investments: Project Planning and Appraisal
- Mirrlees, James: Project Appraisal and Planning for Developing Countries
- Bridger G. A: Planning Development Projects: A Practical Guide to Choice and Appraisal of Public Sector Investments