Course Code	Course Name	Category	L	T	P	Credit
20MBA271	SUPPLY CHAIN MANAGEMENT	Elective	3	0	0	3

Preamble: The course on Supply Chain Management helps the students to comprehend the concepts of supply chain with reference to the recent trends. The course equips students to apply the concept of strategic fit, delineate the supply chain drivers and the supply chain metrics, appraise supply chain network decisions, analyse the impact of uncertainty in supply chain and decipher the importance of demand and supply planning in supply chain with reference to the global and Indian context.

Prerequisite: NIL

Course Outcomes: After the completion of the course the student will be able to:

CO 1	Evaluate the importance of Supply Chain Strategic Framework.
CO 2	Analyse the Supply Chain Network Decisions.
CO 3	Appraise the significance of planning demand and supply in Supply Chain.
CO 4	Explain the impact of uncertainty in a Supply Chain.
CO 5	Evaluate the impact of Transportation, Sourcing and Pricing Decisions in Supply Chain Success.

Mapping of course outcomes with program outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	3	3	2	2	2
CO 2	3	3	2	3	2
CO 3	3	3	3	3	3
CO 4	3	3	3	3	2
CO 5	3	3	2	3	2

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (in %)		End Semester Examination (in marks)
	1	2	
Remember	20	20	10
Understand	40	40	30
Apply	40	40	20
Analyze			
Evaluate	Can be done through Assignments/ Seminars/Mini Projects		
Create	Can be done through Assignments/ Seminars/Mini Projects		

Mark distribution

Total Marks	CIE	ESE	ESE Duration
100	40	60	3 hours

Continuous Internal Evaluation Pattern:

Attendance   : 4 marks

Continuous Assessment Test (2 numbers)   : 16 marks

Assignment/Quiz/Course project   : 10 marks

Seminar and Discussion   : 10 marks

End Semester Examination Pattern:

There will be three parts; Part A, Part B and part C. Part A contains 5 questions (one question each from each module) of 2 marks each (Students should answer all questions). Part B contains 5 questions (one question each from each module) of 10 marks each (Students have the choice of answering any three questions). Part C contains a compulsory question (can have sub-divisions) of 20 marks (from any of the modules or combination) may be in application-level or case study.

Model Question paper

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER MBA DEGREE EXAMINATION

20MBA271- SUPPLY CHAIN MANAGEMENT

Max. Marks: 60   Duration: 3 Hours

PART A
Answer *all* questions. Each question carries 2 marks.

1. List out the drivers of supply chain management

2. State the factors influencing decisions regarding network design.

3. Interpret the term 'Bull whip effect'.

4. State the role of cycle inventory in a supply chain.

5. State the relevance of fourth party logistics.

(5x2 marks = 10 marks)

PART B
Answer any *three* questions. Each question carries 10 marks

6. Discuss the goal of a supply chain and explain how supply chain decisions affect the success of a firm.

7. Interpret the term Global Supply Chain. Demonstrate how you will implement global supply chain decisions in the post Covid Indian Scenario.

8. Demonstrate the role forecasting plays in the supply chain of a build-to-order manufacturer like Dell.

9. Why is it important to consider uncertainty while evaluating supply chain design decision? Explain.

10. Compare the different transportation network design options in supply chain.

(3x10 marks = 30 marks)

PART C
Compulsory question. This question carries 20 marks

11. Critically examine how supply chain flows affect the success or failure of a firm like Flipkart? Recommend some supply chain decisions that have a significant impact on the supply chain Profitability.

(1x20 marks = 20 marks)

Syllabus	
Module 1	**Supply chain strategic framework**– Concept of Supply Chain, Objectives and Importance of Supply Chain, Supply Chain Process, Supply Chain Decisions, Competitive and Supply Chain Strategies, Achieving Strategic Fit, Expanding Strategic Scope, Obstacles to achieving strategic Fit, Achieving and Maintaining Strategic Fit in the current Indian Scenario, Supply Chain Drivers and Metrics.
Module 2	**Designing the supply chain network** - Role of Distribution in the Supply Chain, Factors influencing Distribution Network Design Decisions, Design Options for a Distribution Network, Distribution Decisions in Indian FMCG Sector. Network Design – Components of Network Design, Factors affecting Network Design Decisions, Impact of Uncertainty on Network Design, Global Supply Chain – Making Global Supply Chain Design Decisions with reference to Indian Scenario.
Module 3	**Planning demand and supply in a supply chain** – Role of Forecasting in a Supply Chain, Characteristics of a Forecast, Forecasting Methods, Role of Aggregate Planning in Supply Chain, Aggregate Planning Problem, Aggregate Planning Strategies, Managing Supply and Demand, Predictive Variability in Practice, Lack of Supply Chain Coordination and Bull Whip Effect, Obstacles to Supply Chain Coordination, Managerial levers to achieve coordination.
Module 4	**Planning and managing uncertainty in supply chain** – Role of Cycle Inventory in a Supply Chain, Cycle Inventory Optimisation with reference to Indian Distribution Channels, Role of safety Inventory in a Supply Chain, Impact of Supply Chain Uncertainty on Safety Inventory, Impact of Aggregation on Safety Inventory, Impact of Replenishment Policies on Safety Inventory, Managing Uncertainty in Supply Chain through Postponement, Role of IT in Inventory Management, Supply Chain IT Framework and Transaction Management Foundation.
Module 5	**Designing and planning transportation, sourcing and pricing decisions in a supply chain** - Role of Transportation in Supply Chain, Modes of Transportation and their performance characteristics, Transportation Network Design Options in Supply Chain, Transportation Decisions in Practice. Role of Sourcing in Supply Chain, In-house or Outsource, 3PL and 4PL, Pricing and Revenue Management in a Supply Chain.

Text Book

1. Sunil Chopra, Peter Meindl, Kalra D.V. (2018). Supply Chain Management: Strategy, Planning and Operation (7th edition). Pearson Education Ltd.
2. Donald J. Bowersox, David J Closs, Bixby Cooper M. (2014). Supply Chain Logistics Management. McGraw Hill Education.
3. Nada R. Sanders (2013). Supply Chain Management: A Global Perspective. John Wiley & Sons.

References and Suggested Readings

1. Sahay B.S. (2012). Supply Chain Management for Global Competitiveness. MacMillan India Ltd.
2. David N Burt, Donald W. Dobler, Stephen L Starling (2012). World Class Supply Chain Management: The Key to Supply Chain Management. McGraw Hill Education.
3. Sople V.V. (2013). Logistics Management: Supply Chain Imperative. Pearson Education.
4. Alan. E. Branch (2008). Global Supply Chain Management and International Logistics. Routledge.

Course Contents and Lecture Schedule

No	Topic	No. of Lectures
1	**Introduction to supply chain**	
1.1	Enumerate the objectives and concepts of Supply Chain	2 Hours
1.2	Interpret the fundamental concepts in Strategic fit	2 Hours
1.3	Compare Supply Chain Drivers and Impact on Supply Chain Performance	2 Hours
2	**Designing the supply chain network**	
2.1	Illustrate the Distribution Network Design Options	3 Hours
2.2	Factors affecting Network Design	2 Hours
2.3	Compare and contrast the Domestic and Global Supply Chain	2 Hours
3	**Planning demand and supply in a supply chain**	
3.1	Enumerate the forecasting methods	3 Hours
3.2	Describe the Aggregate Planning Problem and Strategies.	3 Hours
3.3	Demonstrate the effects of Lack of Supply chain coordination.	2 Hours
4	**Planning and managing uncertainty in supply chain**	
4.1	Relate the Cycle Inventory Optimisation in Indian Distribution Channels	3 Hours
4.2	Appraise the Impact of Uncertainty on Safety Inventory.	3 Hours
4.3	Appraise the IT Supply Chain framework and TMF	2 Hours
5	**Designing & planning transportation, sourcing and pricing decisions in a SC**	
5.1	List down the various Transportation Network Design Options	3 Hours

5.2	Describe the Sourcing Strategies	2Hours
5.3	Appraise the Pricing and Revenue Management in a Supply Chain.	2 Hours
	Total	36 Hours
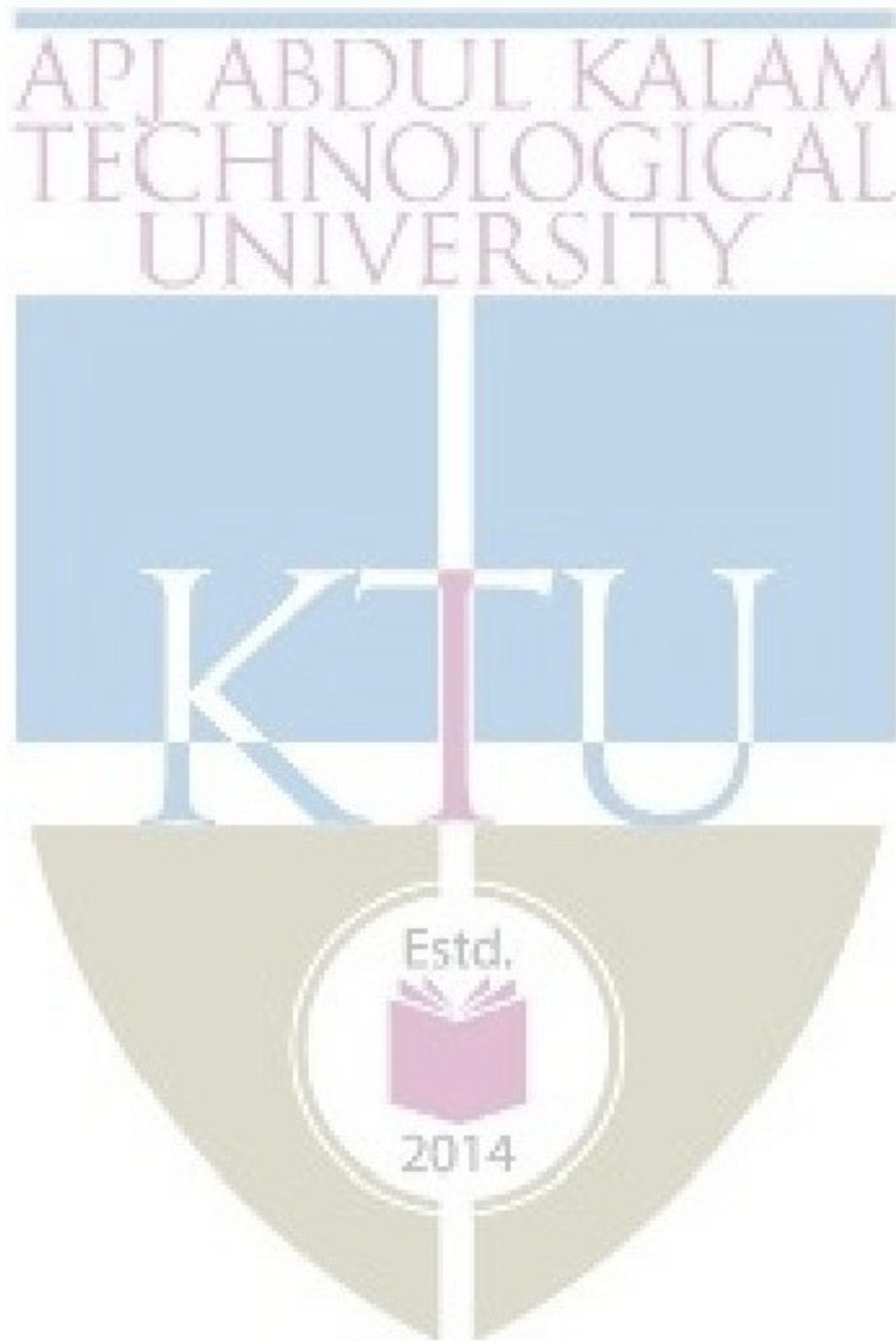
Course Code	Course Name	Category	L	T	P	Credit
20MBA273	**FACILITIES & LOCATION MANAGEMENT**	Elective	3	0	0	3

Preamble: The objective of this course is to develop an in-depth understanding of product, process and schedule design as well as facilities location, layout design and material handling. The course is expected to provide a balanced exposure in facility management, layout design and material handling. After successful completion of the course, the students will be able to define and analyse product, process and schedule design interactions by studying the functions involved in the product development cycle.

Prerequisite: NIL

Course Outcomes: After the completion of the course the student will be able to:

CO 1	Identify the elements of facility management and various transformation processes
CO 2	Design and improve existing and new layouts
CO 3	Understand techniques of location and facility planning
CO 4	Explore technology enabled designs and facility layouts
CO 5	Understand basics of maintenance and safety measures in industry

Mapping of course outcomes with program outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	3	2	2	1	1
CO 2	3	2	2	2	1
CO 3	3	2	2	1	1
CO 4	3	2	2	1	2
CO 5	3	2	2	1	1

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (in %)		End Semester Examination (in marks)
	1	**2**	
Remember	20	20	10
Understand	40	40	30
Apply	40	40	20
Analyze			
Evaluate	Can be done through Assignments/ Seminars/Mini Projects		
Create	Can be done through Assignments/ Seminars/Mini Projects		

Mark distribution

Total Marks	CIE	ESE	ESE Duration
100	40	60	3 hours

Continuous Internal Evaluation Pattern:

Attendance : 4 marks

Continuous Assessment Test (2 numbers) : 16 marks

Assignment/Quiz/Course project : 10 marks

Seminar and Discussion : 10 marks

End Semester Examination Pattern:

There will be three parts; Part A, Part B and part C. Part A contains 5 questions (one question each from each module) of 2 marks each (Students should answer all questions). Part B contains 5 questions (one question each from each module) of 10 marks each (Students have the choice of answering any three questions). Part C contains a compulsory question (can have sub-divisions) of 20 marks (from any of the modules or combination) may be in application-level or case study.

Model Question paper

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER MBA DEGREE EXAMINATION

20MBA273 - FACILITIES & LOCATION MANAGEMENT

Max. Marks: 60   Duration: 3 Hours

PART A
Answer *all* questions. Each question carries 2 marks.

1. Interpret the term 'lifecycle analysis' with respect to facility management.

2. Define the term 'business transformation'.

3. Elucidate 'office 2.0'.

4. Define 'facility audit'.

5. What is an 'energy flow diagram'?

(5x2 marks = 10 marks)

PART B
Answer any *three* questions. Each question carries 10 marks

6. Evaluate the factors influencing the location of warehouses.

7. Why is designing a proper layout for a new or existing facility is important? Compare the different types of facility layout.

8. Explain the term 'facility condition assessment'. "FCAs are an important tool to help support sustainable decisions." Justify the statement.

9. "Smart buildings have increased the productivity of the facility staff, supported sustainability efforts and enhanced decision-making across the organization". Critically evaluate the statement.

10. What is energy audit? What are the different types of energy audit?

(3x10 marks = 30 marks)

PART C
Compulsory question. This question carries 20 marks

11. The hospitals in Maharashtra had been flooded with Covid patients in the second wave of the novel pandemic. To help contain the spread of COVID-19 and to treat the large number of patients, the Government of Maharashtra wanted to set up temporary facilities including trains to treat Covid patients. If you are appointed as a facility consultant, how will you help the government in setting up the facilities?

(1x20 marks = 20 marks)

Syllabus	
Module 1	**Facilities Management**: Principles and Theories, Organisational Models, Different Types of Facilities Layout– Product, Process, Benchmarking, Maturing, Survey Facilities and Asset Management, Facilities Asset Management, Life Cycle Analysis, different types of facilities–Product, Process, combination, fixed and cellular layouts. Production facilities location decisions factors; warehouse location decision methods.
Module 2	**Business Transformation and Facilities Management**: Changing Environment, Business Transformation process, Three Key Issues of Facilities Management Transformation, Three Obstacles of Facilities Management Transformation, comparison of layouts and the factors affecting the layout decisions.
Module 3	**Facilities Condition Assessment**: Facilities Audit, Technology for Capital Planning, Alternative Work Places, Rethinking Office 2.0, Business Centres, Changing Political and Economic Boundaries, Changing Technology, Changing Social and Environmental Awareness, Sustainable Designs-Occupant Health and Comfort, warehousing and employee services– office layout techniques and space requirements, environmental aspects like lighting, ventilation, dust control, humidity.
Module 4	**Smart and Intelligent Buildings**: Smart Building – Beyond Technology, Network and Central Management Systems, Smart Interior Systems, Smart HVAC Systems, Smart Lighting System, Lighting Ergonomics, Interior Lighting, Exterior Lighting, Lighting Analysis, Space Management, Energy in building design – Energy efficient and environment friendly building – Thermal phenomena – thermal comfort–Indoor Air quality–Climate, sun and Solar radiation, Psychometrics – passive heating and cooling systems.
Module 5	**Energy Management & Industrial Safety**: Energy management, Energy audit – Types of Energy audit – Analysis of results – Energy flow diagram – Energy Consumption, Unit Production – Identification of wastage Priority of conservative measures, Maintenance of energy management programme, Hazards and Health Standards, NIOSH Guidelines. Stress & Preventions, Pollution and Environmental Consideration, Occupational Safety.

Text Book
1. Tomkins J. A., White J. A., Bozer Y. A. and Tanchoco J., (2013). Facilities Planning, N J: John Wiley & Sons.
2. McGinnis F., Richard L. Francis and White, J.A., (2015). Facilities Layout and Location: An Analytical Approach, Pearson Education.
3. Agarwal G. K., (2008). Plant Layout and Material Handling, Jain Brothers.

References and Suggested Readings
1. Stevenson W. J., (2015). Operations Management, McGraw Hill Education India Private Limited.
2. Fred E. Meyers and Matthew P. Stephens, (2013). Manufacturing Facilities Design and Material Handling, Purdue University Press.
3. Eric Tiecholz, (2001). Facility Design and Management Handbook, McGraw-Hill Professional.

Course Contents and Lecture Schedule

No	Topic	No. of Lectures
1	**Facilities Management**	
1.1	Different Types of Facilities Layout	3 Hours
1.2	Different types of facilities	3 Hours
1.3	Location decisions factors	2 Hours
2	**Business Transformation and Facilities Management**	
2.1	Business Transformation process	3 Hours
2.2	Key Issues of Facilities Management	2 Hours
2.3	Obstacles of Facilities Management	2 Hours
3	**Facilities Condition Assessment**	
3.1	Facilities Audit	3 Hours
3.2	Rethinking Office2.0	2 Hours
3.3	Office layout techniques	2 Hours
4	**Smart and Intelligent Buildings**	
4.1	Smart Building	2Hours
4.2	Smart HVAC Systems	2 Hours
4.3	Thermal phenomena	3 Hours
5	**Energy Management & Industrial Safety**	
5.1	Energy audit	3 Hours
5.2	Maintenance of energy management programme	2 Hours
5.3	Stress & Preventions	2 Hours
	Total	36 Hours

Course Code	Course Name	Category	L	T	P	Credit
20MBA275	**QUALITY MANAGEMENT**	Elective	3	0	0	3

Preamble: This course deals with primary tools and methods used to monitor and control quality in organizations and the ways in which quality can be improved. It comprises of historical development of quality management, the seven basic tools for quality improvement, and management strategies for implementing world class quality improvement strategies. Emphasis is also given to control chart analysis and process capability study. On successful completion of the course, the student should be able to identify concepts of quality management and improvement. It is aimed at developing abilities to apply tools and techniques of Total Quality Improvement including, statistical process control, control charts and quality function deployment techniques. It also builds the ability to utilize data gathering and analysis tools in process control and six sigma, benchmark organizations in Quality Management and helps understand the ethical issues in quality of services and products.

Prerequisite: NIL

Course Outcomes: After the completion of the course the student will be able to:

CO 1	Correlate various concepts of quality management and its improvement in organizations.
CO 2	Examine primary tools and methods used to monitor and control quality in organizations.
CO 3	Develop abilities to apply tools and techniques of Total Quality Management for data gathering and its analysis.
CO 4	Manage application of analysis tools in process control and six sigma in quality management.
CO 5	Appraise the ethical issues if quality in products and services.

Mapping of course outcomes with program outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	3	2	2	2	2
CO 2	3	3	2	2	2
CO 3	3	3	2	2	3
CO 4	3	3	2	2	3
CO 5	1	1	3	3	2

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (in %)		End Semester Examination (in marks)
	1	**2**	
Remember	20	20	10
Understand	40	40	30
Apply	40	40	20
Analyze			
Evaluate	Can be done through Assignments/ Seminars/Mini Projects		
Create	Can be done through Assignments/ Seminars/Mini Projects		

Mark distribution

Total Marks	CIE	ESE	ESE Duration
100	40	60	3 hours

Continuous Internal Evaluation Pattern:

Attendance : 4 marks

Continuous Assessment Test (2 numbers) : 16 marks

Assignment/Quiz/Course project : 10 marks

Seminar and Discussion : 10 marks

End Semester Examination Pattern:

There will be three parts; Part A, Part B and part C. Part A contains 5 questions (one question each from each module) of 2 marks each (Students should answer all questions). Part B contains 5 questions (one question each from each module) of 10 marks each (Students have the choice of answering any three questions). Part C contains a compulsory question (can have sub-divisions) of 20 marks (from any of the modules or combination) may be in application-level or case study.

Model Question paper

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER MBA DEGREE EXAMINATION

20MBA275 - QUALITY MANAGEMENT

Max. Marks: 60   Duration: 3 Hours

PART A
Answer *all* questions. Each question carries 2 marks.

1. Elucidate the term 'FMEA'.

2. State the functional significance of Cause-and-Effect diagram.

3. Define acceptance sampling.

4. Interpret the term 'root cause analysis'.

5. Define ISO 9001. State the current version of the ISO 9001 standard.

(5x2 marks = 10 marks)

PART B
Answer any *three* questions. Each question carries 10 marks

6. Distinguish between customer satisfaction and customer perception of quality.

7. Discuss about 'Process Decision Program Chart'. Bring out when an organisation will use a PDPC and also describe the procedure of PDPC.

8. Identify the role of Benchmarking in Quality Management? Explain various approaches used for Benchmarking?

9. Justify how six sigma can be used for continuous quality improvement in service sector.

10. Develop a process for conducting quality audit in a hospital.

(3x10 marks = 30 marks)

PART C
Compulsory question. This question carries 20 marks

11. You are appointed as the new manager for Quality Development in a premier PC and Laptop manufacturing Co at Chennai. Your CEO has recently Instructed you to submit a report on enabling, establishing and conducting innovative Quality Circle (QC) programs in your firm. As required, submit a comprehensive Action Plan Report on QC suggesting at least two ideal QC programs for your firm, duly highlighting the nature of the problems, QC Teams design, scouting for right solutions and implementation steps. Relevant data, if necessary, can be assumed.

(1x20 marks = 20 marks)

	Syllabus
Module 1	**Quality:** Total quality, Rationale for total quality, key elements of total quality, quality circles, quality gurus. Concept of Costs of Quality, TQM strategies, Customer satisfaction, Employees participation- Quality function deployment, Failure mode Effect Analysis.
Module 2	**Quality Tools:** Check Sheet, Histogram, Pareto Chart, Cause and Effect diagram, Scatter diagram, Control chart, Graph, Affinity diagram, Tree diagram, Matrix diagram, Process decision program chart, Arrow diagram, Kaizen practice.
Module 3	**Acceptance Sampling and Bench Marking:** Single sampling, double sampling plans, Process capability studies, Benchmarking, Rationale of benchmarking, Approach and process, Prerequisites of benchmarking, Benefits of benchmarking, Obstacles to successful benchmarking, perpetual benchmarking.
Module 4	**Six Sigma**: Origin, Goals of six Sigma, Root cause Analysis, need for six sigma, levels of sigma, Role of Six Sigma green belts, Black belts, Master black belts, Champions in Six sigma implementation ,cost of quality at various levels of sigma, Competitive level- concept of world class, Six Sigma Methodology- DMAIC Approach, SIPOC concept, Voice of Customer, Calculation of DPMO and sigma, concept of sigma rating, Six sigma in Service sector- Successful implementation of six sigma in global companies
Module 5	**Quality Systems**: Quality management principles, ISO 9001, ISO 14000, Future of quality system audit, Audit objectives, types of quality audit, Quality Auditor, Audit performance

Text Book

1. David L. Goetsch and Stanley B. Davis. (2015). *Quality Management for Organizational Excellence: Introduction to Total Quality*, (7th Edn.) Pearson Education, Inc.
2. Eugene Grant, (2005). *Statistical Quality Control*, McGraw-Hill.
3. Juran, J. M. & Gryna, F.M., (1993). *Quality Planning and Analysis*, McGraw-Hill.
4. Joel E. Ross, Susan Perry (1999). *Total Quality Management: Text, Cases, and Readings*, Third Edition, CRC Press.
5. Charantimath, P.M., (2011). *Total Quality Management*, Pearson Education.

References and Suggested Readings

1. Crosby Philip B., (1979) *Quality Is Free*, (4th edn.) McGraw-Hill Books, NY.
2. Subburaj Rama Swamy, (2011). *Total Quality Management*, Tata McGraw-Hill, New Delhi.
3. Juran Joseph M., (1995), *A History of Managing for Quality: The Evolution, Trends, And Future Directions of Managing for Quality*, ASQC/Quality Press.
4. Gupta N. S. & Velamathi B., (2007). *Total Quality Management*, McGraw-Hill Publications.

Course Contents and Lecture Schedule

No	Topic	No. of Lectures
1	**Quality**	
1.1	TQM	3 Hours
1.2	Costs of Quality	2 Hours
1.3	QFD, FMEA	3 Hours
2	**Quality Tools**	
2.1	7 old tools	3 Hours
2.2	7 new tools	3 Hours
2.3	Kaizen	2 Hours
3	**Acceptance Sampling and Bench Marking**	
3.1	Acceptance Sampling	3 Hours
3.2	Process capability studies	2 Hours
3.3	Bench Marking	2 Hours
4	**Six Sigma**	
4.1	Root cause Analysis, Belts	2 Hours
4.2	Six Sigma Methodology	2 Hours
4.3	Cost of quality at various levels of sigma, Problems	3 Hours
5	**Quality Systems**	
5.1	ISO 9001, ISO14000	2 Hours
5.2	Quality audit	2 Hours
5.3	Audit performance	2 Hours
	Total	36 hours

Course Code	Course Name	Category	L	T	P	Credit
20MBA277	SIX SIGMA & TQM	Elective	3	0	0	3

Preamble: The objective of this course is to understand the concept and culture of total quality management and to develop skills to use Statistical Quality Control techniques and other quality tools in solving quality-related problems. Approaches to achieve customer satisfaction at a competitive price are the core of lean concept. After successful completion of the course, the students will be able to understand the Total Quality Management and Six Sigma practices, able to prepare and analyse quality control techniques for better decision making.

Prerequisite: NIL

Course Outcomes: After the completion of the course the student will be able to:

CO 1	To understand the concept of six sigma quality.
CO 2	To understand the implication of quality on business.
CO 3	Identify the requirements of quality improvement programs.
CO 4	To implement quality implementation programs.
CO 5	To manage quality improvement teams.

Mapping of course outcomes with program outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	3	3	3	2	2
CO 2	3	3	3	2	1
CO 3	3	3	2	2	2
CO 4	3	2	2	1	2
CO 5	3	2	2	1	1

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (in %)		End Semester Examination (in marks)
	1	2	
Remember	20	20	10
Understand	40	40	30
Apply	40	40	20
Analyze			
Evaluate	Can be done through Assignments/ Seminars/Mini Projects		
Create	Can be done through Assignments/ Seminars/Mini Projects		

Mark distribution

Total Marks	CIE	ESE	ESE Duration
100	40	60	3 hours

Continuous Internal Evaluation Pattern:

Attendance   : 4 marks

Continuous Assessment Test (2 numbers)   : 16 marks

Assignment/Quiz/Course project   : 10 marks

Seminar and Discussion   : 10 marks

End Semester Examination Pattern:

There will be three parts; Part A, Part B and part C. Part A contains 5 questions (one question each from each module) of 2 marks each (Students should answer all questions). Part B contains 5 questions (one question each from each module) of 10 marks each (Students have the choice of answering any three questions). Part C contains a compulsory question (can have sub-divisions) of 20 marks (from any of the modules or combination) may be in application-level or case study.

Model Question paper

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER MBA DEGREE EXAMINATION

20MBA277 - SIX SIGMA & TQM

Max. Marks: 60   Duration: 3 Hours

PART A
Answer *all* questions. Each question carries 2 marks.

1. What are the fundamental factors that affect quality?

2. List the applications of a Paretto chart.

3. Illustrate Taguchi's Quality Loss Function.

4. Define benchmarking process.

5. What is Kano analysis?

(5x2 marks = 10 marks)

PART B
Answer any *three* questions. Each question carries 10 marks

6. Describe the principles of six sigma. Explain its application in a small organisation.

7. With the help of a diagram discuss the SIPOC process map for a car service centre.

8. Explain the building blocks of TQM.

9. Show all the seven basic tools for enabling Quality in Firms and explain any three of them with relevant charts or diagrams.

10. Discuss the various quality-documentation requirements for ISO 9000 certification.

(3x10 marks = 30 marks)

PART C
Compulsory question. This question carries 20 marks

11. a) Distinguish between DMAIC and DMADV.

b) A carpet manufacturer wants to set up a control chart for irregularities (Example, oil strains, shop soil, loose threads and tears) per 100 square meters of carpet. The following data were collected from a sample of fifteen 100 square meter pieces of carpet.

Sample	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No of defects	16	14	24	10	12	17	16	15	12	13	11	14	16	17	10

Using the data, set up a C-chart and comment.

(1x20 marks = 20 marks)

	Syllabus
Module 1	**Introduction**: Quality definitions and dimensions; Reliability and maintenance; Quality costs; Quality and productivity; Quality policies and goals, Six Sigma – Definition, Key Concepts of Six Sigma –Critical to Quality, Defect, Process Capability, Variation, Origin of Six Sigma, Myths about Six Sigma, Benefits of Six Sigma.
Module 2	**Six Sigma and Quality:** Key Elements in Six Sigma- Customers, processes, employees, Organisation- Leadership, Sponsors, Team Leaders, Methodology - DMADV Methodology, DFSS Methodology, Project Team Formation, SIPOC Process Map, Measure Phase, Analyse Phase, Improve Phase, Control Phase – Quality Control, Standardisation, Control Methods and Alternatives, Technical tools- Critical-to-quality tree, Process Map, Histogram, Pareto Chart.
Module 3	**Quality Philosophies and Practices**: Quality gurus and their contributions; Three major philosophies of quality management, Strategic QM; TQM and its building blocks; TQM vs. traditional organizations; Benefits and obstacles in TQM. Practices leading to TQM-QCs, QTs, TPM, 5S, ZDc, Poka-yoke, QFD, Taguchi's QF. Causes of variation in quality; Acceptance sampling; Inspection vs. acceptance sampling; Quality indices and operating characteristic curves; Single and double sampling plans; Control charts for attributes; Control charts for variables; Interpretation of control charts.
Module 4	**Basic Quality Tools and Techniques:** Seven tools- flow charts, check sheets, histograms, Pareto chart, scatter diagram, control chart, cause-and-effect diagram; Continuous improvement techniques; benchmarking process; Six-sigma approach.
Module 5	**Quality Awards and Certification**: Malcolm Baldrige award and its criteria, ISO-9000 principles, ISO-9000 series and certification., e-Six Sigma, Division Six Sigma Council, Global Six Sigma Council, KANO Analysis, Leading Six Sigma Training (LSS), Leading Teams Training (LT).

Text Book

1. Mikel Harry and Richard Schroeder, (2006). *Six Sigma: The Breakthrough Management Strategy Revolutionizing the World's Top Corporations*, RHUS.
2. Dale H. Besterfield, Carol Besterfield-Michna, Glen H. Besterfield , Mary Besterfield-Sacre., (2018) Total Quality Management, Pearson Education.
3. Juran J.M. and Gryna F.M, (1993). *Quality Planning and Analysis*, McGraw-Hill Higher Education.
4. Schroeder R.G., (1999). *Operations Management: Contemporary Concepts and Cases,* McGraw- Hill Education (ISE Editions).

References and Suggested Readings

1. William J. Stevenson (2010). *Operations Management*, McGraw Hill Education (India) Private Limited.
2. Thomas Pyzdek (2015). *Six Sigma Handbook*, McGraw Hill Education India Pvt Ltd.
3. Kubiak T.M., (2009). *The Certified Six Sigma Black Belt Handbook*, Pearson Education.
4. Panneerselvam R. and Sivasankaran P. (2014). *Quality Management (Kindle Edition)*, PHI Learning.

Course Contents and Lecture Schedule

No	Topic	No. of Lectures
1	**Introduction**	
1.1	Quality and productivity	3 Hours
1.2	Key Concepts of Six Sigma	2 Hours
1.3	Process Capability, Variation	2 Hours
2	**Six Sigma and Quality**	
2.1	Elements in Six Sigma	3 Hours
2.2	Methodology	2 Hours
2.3	Tools	3 Hours
3	**Quality Philosophies and Practices**	
3.1	Quality gurus and their contributions	3 Hours
3.2	TQM and its building blocks	3 Hours
3.3	Acceptance sampling	2 Hours
4	**Non-statistical Quality Tools and Techniques**	
4.1	Seven tools	2 Hours
4.2	Benchmarking process	2 Hours
4.3	Six-sigma approach.	2 Hours
5	**Quality Awards and Certification**	
5.1	ISO-9000	3 Hours
5.2	e-Six Sigma	2 Hours
5.3	KANO Analysis	2 Hours
	Total	36 Hours

Course Code	Course Name	Category	L	T	P	Credit
20MBA279	**BUSINESS PROCESS REENGINEERING**	**Elective**	**3**	**0**	**0**	**3**

Preamble: The objective of this course is to make the students understand the role of Business Process Reengineering technique in an organisation and to gain insight on BPR tools and techniques. Students who successfully complete this course will be able to get insight on Business Process Reengineering tools and techniques to focus on customer, innovation and quality management, to speed up the processes and improve the productivity of an organisation.

Prerequisite: NIL

Course Outcomes: After the completion of the course the student will be able to:

CO 1	Understand the importance of processes and BPR in bridging the business operations and engineering of system
CO 2	Integrate technology-based information processing into business workflows
CO 3	To model current business processes and diagnose problems
CO 4	To model and develop improved business processes that require IT and organizational redesign
CO 5	To develop compelling business-value driven business cases for change

Mapping of course outcomes with program outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	3	3	2	2	2
CO 2	3	3	2	2	1
CO 3	3	3	2	2	1
CO 4	3	3	2	1	1
CO 5	3	3	2	1	-

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (in %)		End Semester Examination (in marks)
	1	**2**	
Remember	20	20	10
Understand	40	40	30
Apply	40	40	20
Analyze			
Evaluate	Can be done through Assignments/ Seminars/Mini Projects		
Create	Can be done through Assignments/ Seminars/Mini Projects		

Mark distribution

Total Marks	CIE	ESE	ESE Duration
100	40	60	3 hours

Continuous Internal Evaluation Pattern:

Attendance : 4 marks

Continuous Assessment Test (2 numbers) : 16 marks

Assignment/Quiz/Course project : 10 marks

Seminar and Discussion : 10 marks

End Semester Examination Pattern:

There will be three parts; Part A, Part B and part C. Part A contains 5 questions (one question each from each module) of 2 marks each (Students should answer all questions). Part B contains 5 questions (one question each from each module) of 10 marks each (Students have the choice of answering any three questions). Part C contains a compulsory question (can have sub-divisions) of 20 marks (from any of the modules or combination) may be in application-level or case study.

Model Question paper

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER MBA DEGREE EXAMINATION

20MBA279 - BUSINESS PROCESS REENGINEERING

Max. Marks: 60   Duration: 3 Hours

PART A
Answer *all* questions. Each question carries 2 marks.

1. Express the benefits of business process reengineering.

2. State the three pillars of BPR.

3. Name the critical success factors of BPR.

4. Illustrate the term 'value chain analysis'.

5. What is AS-IS analysis?

(5x2 marks = 10 marks)

PART B
Answer any *three* questions. Each question carries 10 marks

6. Discuss the pitfalls of BPR and how they can be overcome?

7. Explain how Business Process Reengineering can be integrated to Enterprise Resources Planning.

8. Discuss the strategies adopted to manage BPR success.

9. "Information Technology works as the soul of BPR". Describe the role of IT in BPR.

10. Discuss the change management tools which are used in BPR.

(3x10 marks = 30 marks)

PART C
Compulsory question. This question carries 20 marks

11. What aspects would you keep in mind while reengineering a service organisation? How does it differ from reengineering a manufacturing organisation? Discuss various metrics that must be used for establishing the benefits of such a reengineering.

(1x20 marks = 20 marks)

Syllabus	
Module 1	**Business Process Reengineering**- Need for reengineering, Benefits of BPR, Guiding Principles, BPR and Performance Improvement, Pitfalls in BPR and Myths of BPR, Business Process Redesigning.
Module 2	**BPR and Other techniques:** Total Quality Management, Kaizen, Just – in-Time, Six Sigma, Quality Function Deployment, ISO Standards and Certifications, Enterprise Resource Planning
Module 3	**BPR Implementation Methodology**: BPR Strategies, BPR Success and Failures, Factors Relating to BPR Success, Change Management, Culture, Leadership, Organisation Structure, Factors related to Business Process Failure – Communication and Organisational Resistance
Module 4	**BPR, TQM & IT:** Information Technology and Value Chain, IT Value and Business Alignment, IT Infrastructure, IT Networking Infrastructure, Key Elements of BPR, Establishing a Responsible Team, Redesigning the Business Process, BPR Methodologies – Implementation Phases.
Module 5	**Process Change Management**: Nature, Process of Change, Management of Change in BPR, Planning for Reengineering, Analyse AS-IS Process, Case studies.

Text Book

1. Radhakrishnan R. and Balasubramanian S., (2008). *Business Process Reengineering: Text & Cases,* PHI Learning Private Limited.
2. Dey B. R., (2004). *Business Process Reengineering and Change Management,* Dreamtech Press.
3. Vikram Sethi and William King, (1998). *Organisational Transformation through Business Process Reengineering*: *Applying the Lessons Learned*, Pearson Education.

References and Suggested Readings

1. Henry J. Johansson, Patrick McHugh, A. John Pendlebury and William A. Wheeler, (2007). *Business Process Reengineering: Break Point Strategies for Market Dominance*, Wiley Wiley.
2. John Jeston and Johan Nelis, (2008). *Business Process Management: Practical Guidelines to Successful Implementations*, Butterworth-Heinemann.
3. Joe P. and Philip R., (1995). *Essence of Business Process Reengineering*, Financial Times/ Prentice Hall.

Course Contents and Lecture Schedule

No	Topic	No. of Lectures
1	**Business Process Reengineering**	
1.1	Benefits of BPR	3 Hours
1.2	BPR and Performance Improvement	2 Hours
1.3	Business Process Redesigning	2 Hours
2	**BPR and Other techniques**	
2.1	Total Quality Management	2 Hours
2.2	Quality Function Deployment	3 Hours
2.3	Enterprise, Resource Planning	2 Hours
3	**BPR Implementation Methodology**	
3.1	BPR Strategies	3 Hours
3.2	Change Management	2 Hours
3.3	Communication and Organisational Resistance	2 Hours
4	**BPR, TQM & IT**	
4.1	Information Technology and Value Chain	3Hours
4.2	Key Elements of BPR	2 Hours
4.3	BPR Methodologies	3 Hours
5	**Process Change Management**	
5.1	Process of Change	2 Hours
5.2	Planning for Reengineering	2 Hours
5.3	Case studies.	3 Hours
	Total	36 Hours

Course Code	Course Name	Category	L	T	P	Credit
20MBA281	SERVICES & OPERATIONS MANAGEMENT	Elective	3	0	0	3

Preamble: This course enlightens the concepts, principles, problems, and practices of successful service operations management. Emphasis is on preparing students to identify and apply appropriate management processes to ensure efficient, effective, and quality oriented service operations, while achieving operational excellence. Upon completion of this course, the students will be able to obtain an overview of the successful Service Operations Management (SOM) function through the introduction of the topics traditionally associated with the study of Service Operations Management and to formulate and describe the function of the Service Operations Management discipline in various sectors.

Prerequisite: NIL

Course Outcomes: After the completion of the course the student will be able to:

CO 1	Understand the critical perspectives on the nature of service.
CO 2	Understand the demand and capacity issues in service systems.
CO 3	Explain and apply the principles, tools and techniques of service design.
CO 4	Implement statistical methods and management techniques to monitor, control and improve service processes of an organisation.
CO 5	Propose solutions with which a service organisation can improve its operations and achieve sustainable competitive advantage.

Mapping of course outcomes with program outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	3	3	2	2	2
CO 2	3	3	2	2	1
CO 3	3	2	2	2	2
CO 4	3	3	2	2	1
CO 5	3	3	2	1	1

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (in %)		End Semester Examination (in marks)
	1	2	
Remember	20	20	10
Understand	40	40	30
Apply	40	40	20
Analyze			
Evaluate	Can be done through Assignments/ Seminars/Mini Projects		
Create	Can be done through Assignments/ Seminars/Mini Projects		

Mark distribution

Total Marks	CIE	ESE	ESE Duration
100	40	60	3 hours

Continuous Internal Evaluation Pattern:

Attendance : 4 marks

Continuous Assessment Test (2 numbers) : 16 marks

Assignment/Quiz/Course project : 10 marks

Seminar and Discussion : 10 marks

End Semester Examination Pattern:

There will be three parts; Part A, Part B and part C. Part A contains 5 questions (one question each from each module) of 2 marks each (Students should answer all questions). Part B contains 5 questions (one question each from each module) of 10 marks each (Students have the choice of answering any three questions). Part C contains a compulsory question (can have sub-divisions) of 20 marks (from any of the modules or combination) may be in application-level or case study.

Model Question paper
APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
THIRD SEMESTER MBA DEGREE EXAMINATION
20MBA281 - SERVICES & OPERATIONS MANAGEMENT

Max. Marks: 60   Duration: 3 Hours

PART A
Answer *all* questions. Each question carries 2 marks.

1. Define 'Service Positioning'.
2. Infer the meaning of 'Yield Management' in the context of service operations?
3. Interpret the term 'Data Envelope Analysis'.
4. Illustrate the term 'service guarantee'.
5. Summarize the meaning of the term 'Performance based logistics'.

(5x2 marks = 10 marks)

PART B
Answer any *three* questions. Each question carries 10 marks

6. Design a service blueprint map for a hospital, mapping all the transactions constituting the service delivery process.

7. a. Identify few characteristics of service organizations that make forecast accuracy important?

   b. The first-week demand for a new mobile dealership agency at Kochi on daily basis is as follows:

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Demand	22	27	38	32	34

   What is the demand forecast for next Monday using a smoothing constant $\alpha= 0.3$?

8. Evaluate the application of simulation in any two service scenarios of your choice.

9. Compare customer expectation and customer perception as in the SERVQUAL instrument.

10. A company wants to open a warehouse. The company distributes its products to 4 markets A, B, C & D. The coordinates of the markets are as follows:

Warehouse	A	B	C	D
Coordinates	(58,96)	(80, 70)	(30,120)	(90,110)

   Plot the markets. Use centre of gravity method to identify the location of the warehouse.

(3x10 marks = 30 marks)

PART C
Compulsory question. This question carries 20 marks

11. a. Illustrate the use of walk-through audit as a diagnostic instrument to evaluate the gaps in the service delivery system.

    b. Elaborate the different methods of managing capacity with the example of any industry you are familiar with.

(1x20 marks = 20 marks)

	Syllabus
Module 1	**Understanding Services Economy:** Overview and imperatives of Services; Global trends in Services Sector; Changing paradigms in Competitiveness of services; Services – Manufacturing Continuum; Recent trends in manufacturing, increased role of services in manufacturing; Developing an overall vision for the service system; Developing a service strategy; Service Positioning & Implications for Service Delivery - Design Degree of customer contact, divergence, customization; Service blue printing; Service Enhancement using Internet; Pricing strategies in Services; Performance issues in service systems; value of self-service in an economy; roles of front-line employees, customers, operations, and marketing in the service innovation process.
Module 2	**Demand and Capacity issues in service systems:** Forecasting Capacity demand in services; - Smoothing Customer Demand In Services; Service Capacity Management; Yield management; Resource and Workforce Scheduling in Services; Capacity, Capacity build up strategies Capacity Vs System Performance; Introduction to Queuing System; Queuing Theory Applications in Service Systems; Characteristics of Queuing system; Queuing Models; Demand and capacity issues related to growth, expansion strategies, franchising. Offshore operations; Services Management in IT/ITES Sectors Capacity Management Issues.
Module 3	**Service Inventory and Supply Chain Management:** Service inventory management; Service supply chains; Processes in Service Supply Chain; Data Envelopment Analysis; Simulation as a tool for design of services; Use of simulation software for modeling; Nature of design issues addressed using simulation; Simulation Applications in Service System Design; Vehicle Routing and Scheduling; Inventory Pooling.
Module 4	**Dimensions in Quality**: Service Quality Five Gap Model; Kano's Model; Measuring Service Quality – SERVQUAL, Walk-through Audit; Service Recovery – Service Guarantees, Service encounter – triad, service culture, Service profit chain – Service consolidation; Critical Fractiles: The Newsvendor Model (Optimal Service Levels).
Module 5	**Process behaviour** – environmental dimensions – framework; Facility design – nature, objectives, process analysis – process flow diagram, process steps, simulation; Service facility layout; Service Facility Location – considerations, facility location techniques – metropolitan metric, Euclidean, centre of gravity, retail outlet location, location set covering problem; Ford's Auto collection concept; Product Support – Customer Centric strategy, repairable parts inventory management, Performance based logistics. **Service Improvement** – a mini-consulting project. It involves use of the methodologies introduced in class to analyze a real-life service operations system, diagnose its problems, identify opportunities for improvement and quantify potential costs, benefits, risks and service impacts (at a nearby service station or Car dealership or automobile workshop or the like).

Text Book

|	
1.	Fitzsimmons B., James A. and Mona J. Fitzsimmons, (2014). *Service Management: Operations, Strategy, and Information Technology*, McGraw Hill Education (India) Private Limited.
2.	Robert Johnston, (2007). *Service Operations Management*, Pearson Education.
3.	Haksever C. and Render B., (2013). *Service Management, Student Workbook: An Integrated Approach to Supply Chain Management and Operations*, Financial Times/Prentice Hall.
4.	Richard D Metters, (2012). *Successful Service Operations Management*, Cengage.
5.	Earl Sasser W. Jr., Leonard A. Schlesinger and James L. Heskett, (1997). *The Service Profit Chain*, Free Press.

References and Suggested Readings

1.	Silei Shan, (2012). *Analysis of Hospital Pharmacy Inventory Consolidation Decision Using Multi- Echelon News vendor Inventory Model*, ProQuest, Umi Dissertation Publishing.
2.	William J. Hollins, (2006). *Managing Service Operations: Design and Implementation*, Kindle Edition, SAGE Publications Ltd.
3.	Nevan Wright J. and Peter Race (2003). *The Management of Service Operations*, Engage Learning EMEA.
4.	Bitran G. and Lojo M. (1993). *A framework for analyzing service operations*, European Management Journal, 11(3),271 – 282.
5.	Nambisan S. (2001). *Why service e-businesses are not product businesses*, MITS Sloan Management Review, Summer 2001, 72–80.
6.	Sawhney M., Balasubramanian S. and Krishnan V.V. (2004). *Creating growth with services*, MIT Sloan Management Review, Winter 2004, 34–43.
7.	Heskett J. L. (1991). *Lessons in the service sector in The Service Management Course: Cases & Reading*, Free Press, 47–64.

Course Contents and Lecture Schedule

No	Topic	No. of Lectures
1	**Understanding Services Economy**	
1.1	Overview and imperatives of Services	3 Hours
1.2	Service Positioning & Implications for Service Delivery	2 Hours
1.3	Performance issues in service systems	3 Hours
2	**Demand and Capacity issues in service systems**	
2.1	Forecasting Capacity demand in services;	3 Hours
2.2	Queuing System	2 Hours
2.3	Demand and capacity issues	3 Hours
3	**Service Inventory and Supply Chain Management**	
3.1	Service inventory management;	2 Hours
3.2	Use of simulation software for modelling	2 Hours
3.3	Vehicle Routing and Scheduling;	2 Hours
4	**Dimensions in Quality**	
4.1	Service Quality Five Gap Model	2 Hours
4.2	Service Recovery	2 Hours
4.3	The Newsvendor Model	2 Hours
5	**Process behaviour** – **Service Improvement**	
5.1	Service Facility Location	3 Hours

5.2	Product Support	2 Hours
5.3	Project	3 Hours
	Total	36 Hours
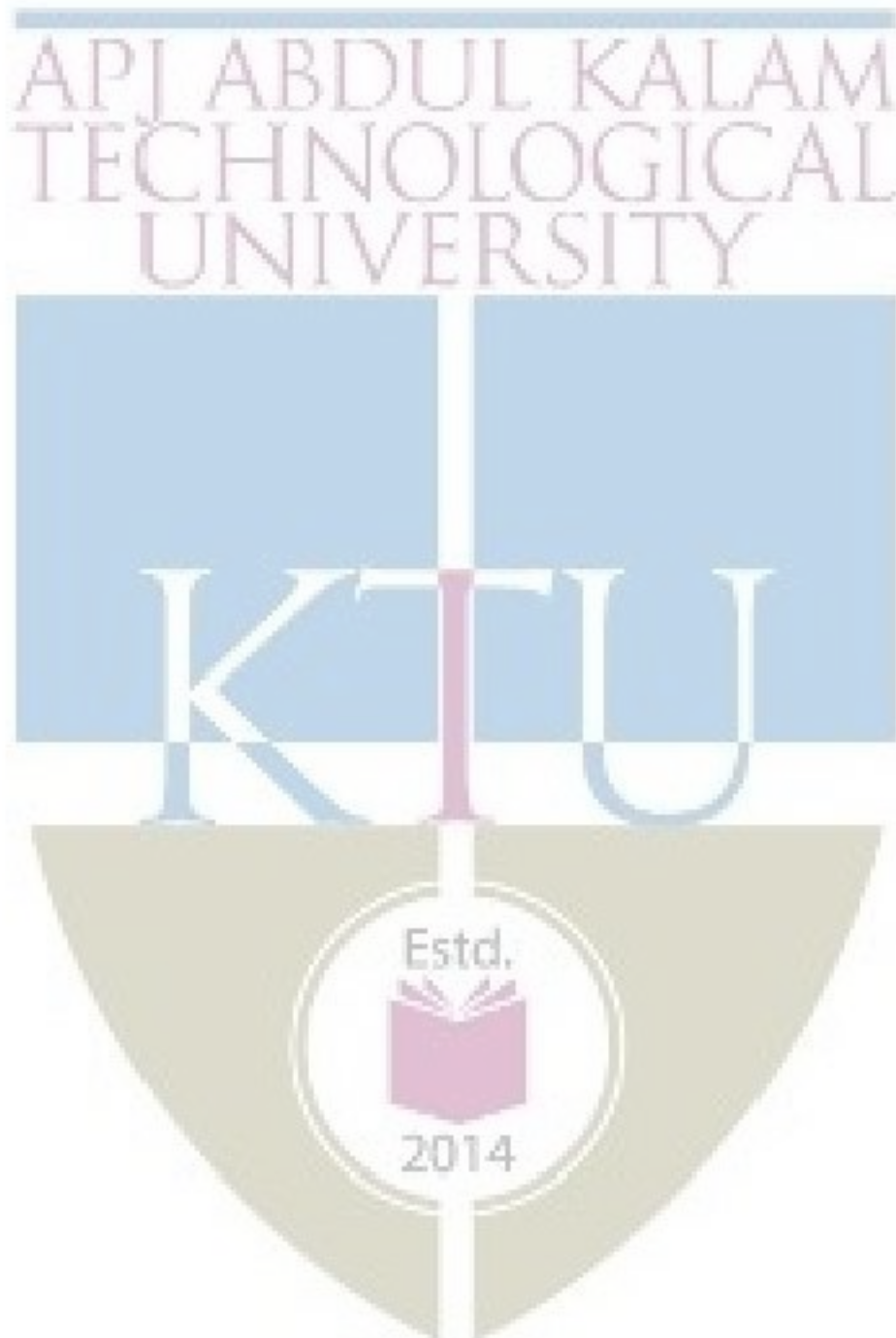
Course Code	Course Name	Category	L	T	P	Credit
20MBA283	**HEALTHCARE MANAGEMENT**	Elective	3	0	0	3

Preamble: The course is designed to understand management of key activities in a hospital like front desk operation and to understand Health care systems and its features. It also helps in knowing more about different lab certifications and waste management. It is focused on how to establish and sustain global competitiveness in healthcare services. By completing the course, student should be able to understand and handle the functions at the front desk in an automated environment. It sheds light on lab certifications to go global for wider acceptance and standardization. Green Hospital Concept is stressed to save energy and proper waste management while designing new hospital layouts. Features of Hospital Information Systems and its benefits also form part of this course.

Prerequisite: NIL

Course Outcomes: After the completion of the course the student will be able to:

CO 1	Provide an environment to learn the principles of Hospital Management.
CO 2	Demonstrate a clear understanding of concepts, information and techniques at the forefront of the hospital management.
CO 3	Recognize how operational problems and situations are handled in practice.
CO 4	Formulate ideas, and develop and participate in implementation of plans.
CO 5	Critically analyze the various components of health care delivery system.

Mapping of course outcomes with program outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	2	2	2	3	3
CO 2	3	3	2	3	3
CO 3	3	3	3	3	3
CO 4	2	2	3	3	3
CO 5	2	2	2	2	2

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (in %)		End Semester Examination (in marks)
	1	**2**	
Remember	20	20	10
Understand	40	40	30
Apply	40	40	20
Analyze			
Evaluate	Can be done through Assignments/ Seminars/Mini Projects		
Create	Can be done through Assignments/ Seminars/Mini Projects		

Mark distribution

Total Marks	CIE	ESE	ESE Duration
100	40	60	3 hours

Continuous Internal Evaluation Pattern:

Attendance   : 4 marks

Continuous Assessment Test (2 numbers)   : 16 marks

Assignment/Quiz/Course project   : 10 marks

Seminar and Discussion   : 10 marks

End Semester Examination Pattern:

There will be three parts; Part A, Part B and part C. Part A contains 5 questions (one question each from each module) of 2 marks each (Students should answer all questions). Part B contains 5 questions (one question each from each module) of 10 marks each (Students have the choice of answering any three questions). Part C contains a compulsory question (can have sub-divisions) of 20 marks (from any of the modules or combination) may be in application-level or case study.

Model Question paper

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER MBA DEGREE EXAMINATION

20MBA283 - HEALTHCARE MANAGEMENT

Max. Marks: 60   Duration: 3 Hours

PART A
Answer *all* questions. Each question carries 2 marks.

1. Interpret the term 'tertiary hospital'.

2. Identify the qualities required for receptionist in hospitals.

3. Interpret 'EHR'.

4. Illustrate the need for hygiene in hospitals.

5. What is meant by a 'green hospital'?   (5x2 marks = 10 marks)

PART B
Answer any *three* questions. Each question carries 10 marks

6. Explain the functional areas in hospital service management.

7. Discuss duties and responsibilities of a Front Office in a Corporate Multi-specialty Hospital.

8. Develop a Hospital Information System (HIS) that automates clinical, electronic medical records (EMR), administrative and inventory functions.

9. Examine the procedure for obtaining ISO certification for medical laboratories.

10. Discuss the various automated patient handling and equipment handling systems used in modern hospitals.

(3x10 marks = 30 marks)

PART C
Compulsory question. This question carries 20 marks

11. A leading corporate want to start a world class super speciality hospital in Kerala. As a consultant suggest suitable location, facilities needed with action plan for the construction of the hospital.

(1x20 marks = 20 marks)

Syllabus	
Module 1	**Introduction:** Hospital types such as Government, Private, Corporate and public. Functional areas in hospital services management, services offered in hospitals, skills needed in Human capital in hospitals, Characteristic features of hospital services and Principles of hospital planning and execution.
Module 2	**Front office management**- outpatient and inpatient admissions and discharge – Admission and discharge procedures -Emergency services
Module 3	**Classification of medical records:** significance, their automation using EHR, its maintenance for Medical statistics, materials records, management of patient records and personnel records electronically, functionality of computerized hospital information systems (HIS), merits and demerits of CHIS, trends in HIS, Legal and other operational records including Discharge summaries.
Module 4	**Lab classification**: managing laboratories, their functions and management, accreditation of labs NABL, ISO certification of laboratory procedure and process. Maintaining hygiene in hospital environment. Basic and special cleaning, Odour control- solid, liquid waste disposal, Safety, Pest control, Interior decoration, outsourcing hospital housekeeping services.
Module 5	**Location decision and layout decision of hospitals**: Green hospital concept and designing for low energy consumption, Department allocation criteria in the building for improved productivity, Designing easy scale-up, Automated patient handling and equipment handling systems-e-alert systems with e-checking and e-checkout facility.

Text Books

1. Kunders G.D., *Designing for Total Quality in Healthcare* Prism Books Pvt. Ltd., Bangalore.

2. Goel S.L and Kumar R. (2004). *Hospital supportive services* Deep and Deep Publications, New Delhi.

3. NHS Guide to good *Practices in Hospital Administration* National Health Services, London.

4. Syed Amin Tabish, *Hospital and Health Services Administration*, Jaypee Brothers Medical Publishers, New Delhi.

References and Suggested Readings

1. Goel S.L., (2004). *Healthcare Management and Administration*, Deep & Deep Publications Pvt. Ltd. New Delhi.

2. Srinivasan, A.V. (2008). *Managing a Modern Hospital*, Response Books, New Delhi.

3. Liewellyne Davis and Macacaulay H.M., (2001). *Hospital Administration and Planning*, JP Brothers, New Delhi.

4. Arun Kumar (2002) *Encyclopaedia of Hospital Administration and Development*, Anmol Publications, Delhi.

Course Contents and Lecture Schedule

No	Topic	No. of Lectures
1	**Introduction**	
1.1	Hospital types	3 Hours
1.2	Functional areas in hospital services management	2 Hours
1.3	Principles of hospital planning and execution	2 Hours
2	**Front office management**	
2.1	Outpatient and inpatient admissions	2 Hours
2.2	Admission and discharge procedures	2 Hours
2.3	Emergency services	2 Hours
3	**Classification of medical records**	
3.1	Medical statistics	3 Hours
3.2	Computerized hospital information systems (HIS)	3 Hours
3.3	Legal and other operational records	2 Hours
4	**Lab classification**	
4.1	Accreditation of labs	3Hours
4.2	ISO certification of laboratory procedure	3 Hours
4.3	Maintaining hygiene in hospital environment.	2 Hours
5	**Location decision and layout decision of hospitals**	
5.1	Green hospital concept	3 Hours
5.2	Automated patient handling and equipment handling systems	2 Hours
5.3	e-checking and e-checkout facility	2 Hours
	Total	36 Hours

Course Code	Course Name	Category	L	T	P	Credit
20MBA285	**DECISION ANALYSIS FOR MANAGEMENT**	**Elective**	3	0	0	3

Preamble: The course on Decision Analysis for Management helps the students to comprehend the concept of decision analysis to aid managerial decision making. The course imparts knowledge about framing problems and performing logical analyses, and provides a foundation for ethical decision making. The course helps students to perform decision tree analysis, sensitivity analysis, risk analysis, comparative investment decision analyses through NPV and IRR concepts, determine optimal order quantities under uncertain demand and make or buy decisions.

Prerequisite: NIL

Course Outcomes: After the completion of the course the student will be able to:

CO 1	Assess the styles and stages of business decision making.
CO 2	Evaluate the systems for decision support in varying business conditions.
CO 3	Analyse the decision-making environments and decision trees in practical situations.
CO 4	Examine break even, sensitivity, Monte Carlo and inventory analyses for managerial decisions.
CO 5	Evaluate the impact of decision making and analysis in various functional areas of management.

Mapping of course outcomes with program outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	2	2	1	3	2
CO 2	3	3	1	2	3
CO 3	3	3	1	3	3
CO 4	3	3	2	3	3
CO 5	3	3	2	3	3

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (in %)		End Semester Examination (in marks)
	1	**2**	
Remember	20	20	10
Understand	40	40	30
Apply	40	40	20
Analyze			
Evaluate	Can be done through Assignments/ Seminars/Mini Projects		
Create	Can be done through Assignments/ Seminars/Mini Projects		

Mark distribution

Total Marks	CIE	ESE	ESE Duration
100	40	60	3 hours

Continuous Internal Evaluation Pattern:

Attendance   : 4 marks

Continuous Assessment Test (2 numbers)   : 16 marks

Assignment/Quiz/Course project   : 10 marks

Seminar and Discussion   : 10 marks

End Semester Examination Pattern:

There will be three parts; Part A, Part B and part C. Part A contains 5 questions (one question each from each module) of 2 marks each (Students should answer all questions). Part B contains 5 questions (one question each from each module) of 10 marks each (Students have the choice of answering any three questions). Part C contains a compulsory question (can have sub-divisions) of 20 marks (from any of the modules or combination) may be in application-level or case study.

Model Question paper

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER MBA DEGREE EXAMINATION

20MBA285 - DECISION ANALYSIS FOR MANAGEMENT

Max. Marks: 60   Duration: 3 Hours

PART A
Answer *all* questions. Each question carries 2 marks.

1. Interpret 'rational decision making'.

2. What is a web based DSS?

3. List the different decision-making environments.

4. Differentiate between NPV and IRR.

5. Outline the barriers to effective decision making.   (5x2 marks = 10 marks)

PART B
Answer any *three* questions. Each question carries 10 marks

6. Evaluate the different factors that influence a decision model.

7. Examine the application of DSS in decision making.

8. A confectionery shop in a hypermarket is faced with the problem of how many cakes to make in order to meet the day's demand. The bakery prefers not to sell day-old cakes; leftover cakes are therefore a complete loss. The past sales for a 100-day period are as shown in the table below:

Sales per day	250	260	270	280
No of days	10	30	50	10

Construct the payoff table and the opportunity loss table. What is the optimal number of cakes that should be bought each day? Apply both EMV and EOL criteria. Also find and interpret EVPI. A cake cost ₹. 80 and sells for ₹. 100.

9. A local distributor for a National Tyre company expects to sell approx. 9600 steel belted radial tyres of a certain size and tread design next year. Annual carrying cost is $16 per tyre, and ordering cost is $75. The distributor operates 288 days a year. a. What is EOQ? b. How many times per year does the store reorder? c. What is the length of an order cycle? d. What is the total annual cost if the EOQ quantity is ordered?

10. Evaluate the product mix decisions with reference to product width, length, depth and consistency

(3x10 marks = 30 marks)

PART C

Compulsory question. This question carries 20 marks

11. a. A property owner is faced with a choice of:

   i. A large-scale investment A to improve her flats. This could produce a substantial pay-off in terms of increased revenue net of costs but will require an investment of ₹ 1,400,000. After extensive market research it is considered that there is a 40% chance that a pay-off of ₹2,500,000 will be obtained, but there is a 60% chance that it will be only ₹800,000.

   ii. A smaller scale project B to re-decorate her premises. At ₹500,000 this is less costly but will produce a lower pay-off. Research data suggests a 30% chance of a gain of ₹1,000,000 but a 70% chance of it being only ₹500,000.

   iii. Continuing the present operation without change C. It will cost nothing, but neither will it produce any pay-off. Clients will be unhappy and it will become harder and harder to rent the flats out when they become free.

   How will a decision tree help in the taking of decision?   (12 marks)

   b. List the main advantages of group decision making.   (8 marks)

	Syllabus
Module 1	**Decision making concepts:** Introduction to decision making- decision making styles-Stages of Decision making – decision making skills –Process of decision making – Types of managerial decisions – Models of decision making- Rational decision making-assumptions-decision making factors.
Module 2	**Systems for decision support:** MIS and decision making – Decision making styles at different levels of management- -decision support system (DSS)-purpose-components-types of DSS-advantages and disadvantages of DSS-Application of DSS in decision making-data driven decision making-decision support system examples-GDSS-EDSS
Module 3	**Decision theory and decision tree analysis:** Decision making environments-Decision making under certainty- Decision making under uncertainty – Decision making under risk- develop and evaluate risk profiles-risk preferences and biases--value of information-expected monetary value-expected value of perfect information- translating verbal description into a decision tree - decision tree analysis-influence diagram.
Module 4	**Managerial decision analysis:** Concept of decision analysis - Make or buy decisions — Breakeven analysis - pricing decisions – comparative investment decision analyses through NPV and IRR concepts - Monte Carlo analysis for estimating risk-Sensitivity Analysis-Determination of optimal order quantities under certain and uncertain demand.
Module 5	**Decision making applications:** Decision Making in the context of Human Resources-barriers to effective decision making-Understanding marketing decision making - product-mix decisions - market expansion decisions-divesting decisions - financial decision making –investment decisions-financing decisions - decision making areas in operations.

Text Book
1. Peter Macnamee and John Selona (2001). *Decision Analysis for the Professional,* Smartorg.Inc
2. Render Barry, Stair Ralph M., Hanna Michael E. (2011). *Quantitative Analysis for Management*– Prentice-Hall. Inc
3. Sharma J.K., (2009). *Operations Research*, Macmillan India Ltd.
References and Suggested Readings
1. Pratt John, Raiffa H., & Schlaifer R., (2008). *Introduction to Statistical Decision Theory,* MIT Press.
2. Charlesworth, David - *Decision Analysis for Managers: A Guide for Making Better Personal and Business Decisions* -Business Expert Press
3. Raiffa Howard- *Decision Analysis: Introductory Lectures on Choices Under Uncertainty*- McGraw Hill.

Course Contents and Lecture Schedule

No	Topic	No. of Lectures
1	**Decision making concepts**	
1.1	Introduction to decision making, decision making styles, Stages of Decision making.	3 Hours
1.2	Decision making skills, Process of decision making, Types of managerial decisions	2 Hours
1.3	Models of decision making, Rational decision making, decision making factors.	2 Hours
2	**Systems for decision support**	
2.1	MIS and decision making, Decision making styles at different levels of management, decision support system.	3 Hours
2.2	Types of DSS, advantages and disadvantages of DSS, Application of DSS in decision making, data driven decision making.	3 Hours
2.3	Decision support system examples, GDSS, EDSS.	2 Hours
3	**Decision theory and decision tree analysis**	
3.1	Decision making environments, Decision making under certainty, Decision making under uncertainty, Decision making under risk.	3 Hours
3.2	Develop and evaluate risk profiles, risk preferences and biases, value of information, expected monetary value, expected value of perfect information.	2 Hours
3.3	Translating verbal description into a decision tree, decision tree analysis, influence diagram.	2 Hours
4	**Managerial decision analysis**	
4.1	Concept of decision analysis, Make or buy decisions, Breakeven analysis.	3 Hours
4.2	Pricing decisions, comparative investment decision analyses through NPV and IRR concepts.	2 Hours
4.3	Monte Carlo analysis for estimating risk, Sensitivity Analysis, Determination of optimal order quantities under certain and uncertain demand.	2 Hours
5	**Decision making applications**	
5.1	Decision Making in the context of Human Resources, barriers to effective decision making.	3 Hours
5.2	Understanding marketing decision making, product-mix decisions, market expansion decisions, divesting decisions	2 Hours
5.3	Financial decision making, investment decisions, financing decisions, decision making areas in operations.	2 Hours
	Total	36 Hours

Course Code	Course Name	Category	L	T	P	Credit
20MBA287	ADVANCED MAINTENANCE MANAGEMENT	Elective	3	0	0	3

Preamble: Reducing down time of machines by applying proper maintenance management tools and techniques forms the major objective of this course. Later developments like Reliability Centered Maintenance, Expert Systems applications in maintenance, Maintenance Management Information system, Predictive maintenance and signature analysis are included to make the student aware of the latest practices in Maintenance Management. The student should be able to suggest a suitable maintenance management technique to reduce cost arising out of machine down time for practical situation in an organization. Also, the student will be aware of computer-based maintenance management systems and contemporary techniques in maintenance management

Prerequisite: NIL

Course Outcomes: After the completion of the course the student will be able to:

CO 1	Analyse the significance of maintenance on equipment's down time by applying proper maintenance management tools and techniques.
CO 2	Plan for assessing the reliability of an equipment.
CO 3	Arrive at better replacement decision.
CO 4	Decide on maintenance policies.
CO 5	Design the recent techniques in maintenance management.

Mapping of course outcomes with program outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	3	2	3	3	3
CO 2	3	2	3	3	3
CO 3	3	2	3	3	3
CO 4	2	2	3	3	3
CO 5	2	2	3	3	3

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (in %)		End Semester Examination (in marks)
	1	**2**	
Remember	20	20	10
Understand	40	40	30
Apply	40	40	20
Analyze			
Evaluate	Can be done through Assignments/ Seminars/Mini Projects		
Create	Can be done through Assignments/ Seminars/Mini Projects		

Mark distribution

Total Marks	CIE	ESE	ESE Duration
100	40	60	3 hours

Continuous Internal Evaluation Pattern:

Attendance   : 4 marks

Continuous Assessment Test (2 numbers)   : 16 marks

Assignment/Quiz/Course project   : 10 marks

Seminar and Discussion   : 10 marks

End Semester Examination Pattern:

There will be three parts; Part A, Part B and part C. Part A contains 5 questions (one question each from each module) of 2 marks each (Students should answer all questions). Part B contains 5 questions (one question each from each module) of 10 marks each (Students have the choice of answering any three questions). Part C contains a compulsory question (can have sub-divisions) of 20 marks (from any of the modules or combination) may be in application-level or case study.

Model Question paper

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER MBA DEGREE EXAMINATION

20MBA287- ADVANCED MAINTENANCE MANAGEMENT

Max. Marks: 60   Duration: 3 Hours

PART A
Answer *all* questions. Each question carries 2 marks.

1. Interpret the meaning of Five zero concept.

2. Define MTBF.

3. What do you understand by the term optimal overhaul?

4. Explain the concept of opportunity maintenance.

5. List the features of terotechnology.   (5x2 marks = 10marks)

PART B
Answer any *three* questions. Each question carries 10 marks

6. Discuss the key issues affecting maintenance organisation structure.

7. Illustrate the failure time distributions using Poisson, Exponential and Normal distributions.

8. Explain in detail the concept of group replacement with an example. In what circumstances group replacement is advised?

9. Compare condition-based maintenance and total productive maintenance.

10. Elaborate the process of signature analysis in maintenance management.

                                                                 (3x10 marks = 30 marks)

PART C
Compulsory question. This question carries 20 marks

11. a) A firm is considering replacement of a machine whose cost price is ₹. 180,000 and the scrap value is ₹. 10,000. The maintenance costs (in ₹.) are found from experience to be as follows:

Year	1	2	3	4	5	6	7	8
Maintenance cost	2000	3000	3500	12000	18000	24000	33000	45000

When should the machine be replaced?   (10 marks)

b) "100% reliability of all the components of a machine or equipment is not always aimed to achieve". Elucidate. Explain reliability centred maintenance with example.   (10 marks)

Syllabus	
Module 1	**Maintenance**: Need/purpose, basic and composite functions of maintenance - Principles, objectives and benefits of maintenance – Preventive, Breakdown - Predictive Maintenance Strategies – Five Zero Concept - Organization for Maintenance
Module 2	**Reliability of equipment**: Time to Failure Analysis - Bath Tub Curve, MTBF, MTTF, Useful Life – Survival Curves – Failure Time distributions (Poisson, Exponential, and Normal) - Repair Time Distribution – Maintainability Prediction – Design for Maintainability – Availability.
Module 3	**Replacement Decision**: Overhaul and repair – meaning and difference – Optimal overhaul – Repair policies for equipment subject to break down – Group replacement. Optimal interval between preventive replacement of equipment subject to break down.
Module 4	**Maintenance Policies**: Fixed Time Maintenance – Condition based Maintenance -Operate to failure – Opportunity Maintenance – Design out maintenance – Total Productive Maintenance.
Module 5	**Recent Techniques**: Reliability Centered Maintenance (RCM) – Philosophy and implementation – Signature Analysis – CMMS – Concept of Terotechnology –Expert Systems-Maintenance Management Information Systems-Reengineering Maintenance process.

Text Book
1. Mishtra R.C. and Pathak K., (2012). *Maintenance Engineering and Management*, PHI.
2. Sushil Kumar Srivatsava (2005). *Industrial Maintenance Management*, S. Chand and Company.
3. Gopalakrishnan P. and Banerji, A. K., (1991). *Maintenance and Spare Parts Management*, Prentice Hall of India.
References and Suggested Readings
1. Jardine A.K.S., (2002) *Maintenance Replacement and Reliability*, Pitman Publishing.
2. Kelly A. and Harris M. J., (1978) *Management of Industrial Maintenance*, Butterworth and Company Limited.

Course Contents and Lecture Schedule

No	Topic	No. of Lectures
1	**Maintenance**	
1.1	Objectives and functions	3 Hours
1.2	Predictive Maintenance Strategies	2 Hours
1.3	Five Zero Concept	2 Hours
2	**Reliability of an equipment**	
2.1	Time to Failure Analysis	3 Hours
2.2	Bath Tub Curve	2 Hours
2.3	Design for Maintainability	2 Hours
3	**Replacement Decision**	
3.1	Overhaul and repair	3 Hours
3.2	Repair policies	2 Hours
3.3	Group replacement	2 Hours
4	**Maintenance Policies**	
4.1	Fixed Time Maintenance	3Hours
4.2	Condition based Maintenance	2 Hours
4.3	Total Productive Maintenance	3 Hours
5	**Recent Techniques**	
5.1	Reliability Centered Maintenance	3 Hours
5.2	Concept of Terotechnology	2 Hours
5.3	Reengineering Maintenance process.	2 Hours
	Total	36 Hours

Course Code	Course Name	Category	L	T	P	Credit
20MBA289	ADVANCED PROJECT MANAGEMENT	Elective	3	0	0	3

Preamble: The objective of this course is to sensitize the students to apply the latest principles of advanced project management to explore problems, solutions, and best practices in diverse industrial settings. After successful completion of the course, the students will be able to focus on projects to create a learning organisation which foster excellence in project management by developing and justifying project management strategies.

Prerequisite: NIL

Course Outcomes: After the completion of the course the student will be able to:

CO 1	Examine the various project management concepts.
CO 2	Compare and contrast the various roles of project managers, clients and project organisations.
CO 3	Justify the various project appraisals and budgeting methods.
CO 4	Estimate project scheduling through network models and importance of managing time, cost and quality in projects.
CO 5	Devise the best practices in project management and value the application of project management software.

Mapping of course outcomes with program outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	2	2	2	1	1
CO 2	2	1	3	1	3
CO 3	3	2	2	1	1
CO 4	3	3	2	1	1
CO 5	3	2	2	2	3

Assessment Pattern

Bloom's Category	Continuous Assessment Tests (in %)		End Semester Examination (in marks)
	1	2	
Remember	20	20	10
Understand	40	40	30
Apply	40	40	20
Analyze			
Evaluate	Can be done through Assignments/ Seminars/Mini Projects		
Create	Can be done through Assignments/ Seminars/Mini Projects		

Mark distribution

Total Marks	CIE	ESE	ESE Duration
100	40	60	3 hours

Continuous Internal Evaluation Pattern:

Attendance   : 4 marks

Continuous Assessment Test (2 numbers)   : 16 marks

Assignment/Quiz/Course project   : 10 marks

Seminar and Discussion   : 10 marks

End Semester Examination Pattern:

There will be three parts; Part A, Part B and part C. Part A contains 5 questions (one question each from each module) of 2 marks each (Students should answer all questions). Part B contains 5 questions (one question each from each module) of 10 marks each (Students have the choice of answering any three questions). Part C contains a compulsory question (can have sub-divisions) of 20 marks (from any of the modules or combination) may be in application-level or case study.

Model Question paper

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER MBA DEGREE EXAMINATION

20MBA289- ADVANCED PROJECT MANAGEMENT

Max. Marks: 60   Duration: 3 Hours

PART A

Answer *all* questions. Each question carries 2 marks.

1. Define project lifecycle.

2. List out the various types of project organizations.

3. Identify the four categories of attributes on which DPCI is built.

4. Interpret the meaning of Goldratt's Critical Chain.

5. Illustrate the term 'Virtual team'.

(5x2 marks = 10 marks)

PART B

Answer any *three* questions. Each question carries 10 marks

6. Explain the process of project portfolio and project formulation.

7. "In addition to the relevant technical skills, a project manager needs a combination of business management and leadership skills to ensure a project's success". Analyse the role and responsibilities of a project manager. Explain how a project manager is selected.

8. Discuss the concept of cost estimating and cost improvement in project budgeting.

9. The time and cost estimates and precedence relationship of the different activities constituting a project are given below:

Activity	Predecessor Activities	Time (in weeks)		Cost (in Rupees)	
		Normal	Crash	Normal	Crash
A	-	3	2	8000	19000
B	-	8	6	600	1000
C	B	6	4	10000	12000
D	B	5	2	4000	10000
E	A	13	10	3000	9000
F	A	4	4	15000	15000
G	F	2	1	1200	1400
H	C, E, G	6	4	3500	4500
I	F	2	1	7000	8000

(a) Draw a project network diagram and find the critical path. (5 marks)

(b) If a dead line of 17 weeks is imposed for completion of the project, what activities will be crashed, what would be the additional cost and what would be the critical activities of the network after crashing? (5 marks)

10. "Being good at managing projects is usually a matter of following project management best practices". Discuss some of the best practices in project management.

PART C

Compulsory question. This question carries 20 marks

11. A company wishes to start 'e -commerce' during the Covid time, so that their customers can buy their products online. Considering this as a project, answer the following questions:

a) Define the scope of the project. Conduct a feasibility study. (5 marks)

b) What are the problems expected? If you are the project manager, how will you solve them? (5 marks)

c) What are the risk factors in the project? (5 marks)

d) Which organization structure should be followed and why? (5 marks)

	Syllabus
Module 1	**Introduction**: Project and Project Management, Categories, Project Management – Definition – Goal, Lifecycles. Project Selection Methods. Project Development Cycle, Project Selection Methods, Project Portfolio, Project Teams.
Module 2	**Project Organization:** Project Organization, Project Manager- Roles and Responsibilities, Selecting Project Manager, Project formulation, Types of Project Organizations, Conflict management, Resolving Conflicts, Client-Values & Expectations, - Application of Project Management software.
Module 3	**Project Planning and Budgeting**: Planning, Project Identification, Project Appraisal, - Technical, financial, Legal, Social Appraisal, Project Profiling Models, Darnall- Preston Complex Index, Project Budgeting Methods - Cost Estimating and Improvement - Budget uncertainty andrisk management.
Module 4	**Project Scheduling & Allocation:** Scheduling and Resource Allocation- PERT& CPM Networks- Crashing– Goldratt's Critical Chain, Time Management, Estimate Cost, Budget & Budgetary Control, Managing Project Risk, Project Management & Closure, Procurement Plan, Project Closure.
Module 5	**Emerging Issues**: Best Practices in Project Management, Fostering Excellence in PM, Project Management Office, Project Portfolio Management, Team Organisation and People Management, Complex Issues in Communication and Virtual Teams.

Text Book

1. Harold Kerzner (2015). *Project Management Best Practices*: *Achieving Global Excellence*, Wiley India Private Limited.

2. Cliffor G. and Larson E., (2014). *Project Management*, McGraw Hill Education (India) Private Limited.

3. Venkataraman K., (2007). *Maintenance Engineering and Management*, PHI Learning Private Limited.

4. Jack Gido and James Clements (2002). *Successful Project Management*, South-Western.

References and Suggested Readings

1. Meri Williams, (2008). *Principles of Project Management*, Site Point.

2. Subba Rao K. V., (2009). *Project Management*, Adhyayan Publishers & Distributors.

Course Contents and Lecture Schedule

No	Topic	No. of Lectures
1	**Introduction**	
1.1	Project and Project Management	3 Hours
1.2	Project Selection Methods	2 Hours
1.3	Project Portfolio, Project Teams	2 Hours
2	**Project Organisation**	
2.1	Project Organisation	3 Hours
2.2	Types of Project Organisations	2 Hours
2.3	Application of Project Management software.	2 Hours
3	**Project Planning and Budgeting**	
3.1	Planning	3 Hours
3.2	Project Profiling Models	2 Hours
3.3	Cost Estimating and Budget uncertainty	2 Hours
4	**Project Scheduling & Allocation**	
4.1	PERT& CPM	3Hours
4.2	Crashing– Goldratt's Critical Chain	2 Hours
4.3	Project Management & Closure	3 Hours
5	**Emerging Issues**	
5.1	Best Practices in Project Management	3 Hours
5.2	Best Practices in Project Management	2 Hours
5.3	Complex Issues in Communication and Virtual Teams	2 Hours
	Total	36 Hours