

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

X Transfer Course X A.A. Degree applicable course
(check all that apply)

COURSE NUMBER AND TITLE: QAT 121 Planning and Analysis – Techniques and Applications

UNIT VALUE: 3

MINIMUM NUMBER OF SEMESTER HOURS: 48

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills.

ENTRANCE REQUIREMENTS

PREREQUISITE: None.

COREQUISITE: None.

RECOMMENDED PREPARATION: None.

SCOPE OF COURSE:

An introduction to basic concepts of quality planning and analysis, designing for quality and using statistical aids, supplier relations, manufacturing planning and using statistical aids, manufacture process control concepts and techniques; inspection and test; measurement; customer relations; field use and quality; consumer relations, product safety and liability; policies and objectives, developing the Quality organization and Quality information systems. Application of TQM, Deming, and ISO 9000 concepts.

SPECIFIC COURSE OBJECTIVES:

Successful students will be able to:

1. Analyze manufacturing process control concepts, identify causes of variability, and utilize statistical analysis to recommend changes and reduce variation.
2. Evaluate supplier capabilities, survey suppliers, and evaluate supplier quality data.
3. Set up quality control charts for variables or attributes.
4. Address assignable causes of variation and recommend corrective and preventive action.
5. Classify product and process characteristics and identify an acceptable inspection plan.
6. Identify accuracy and precision of measurement and inspection, measuring and test equipment.
7. Explain various methods of dimensional measurement and non-destructive testing techniques.

8. Explain life-cycle costing techniques.
9. Collect and analyze field use data and recommend appropriate remedial action.
10. Analyze current requirements for product safety, consumer relations, and liability.
11. Apply quality assurance concepts in writing quality policies and procedures, and how to organize product assurance departments and procedures.
12. Apply ISO 9000 concepts in development of a quality management system to support customer requirements.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

- I. Understanding Customer Needs
 - A. Quality and competitive advantage
 - B. Sources of market quality information
 - C. Marketing research in quality
- II. Designing for Quality
 - A. Opportunities for improvement in product design
 - B. Designing for basic functional requirements
 - C. Designing for safety
 - D. Designing for manufacturability
 - E. Concurrent engineering
- III. Designing for Quality/Statistical Tools
 - A. Failure patterns for complex products
 - B. Exponential formula for reliability
 - C. Predicting reliability during design
 - D. Predicting reliability based on the exponential distribution
- IV. Supplier Relations
 - A. Scope of activities for supplier quality
 - B. Supplier selection
 - C. Assessment of supplier capability
 - D. Supplier certification
- V. Supplier Relations/Statistical Tools
 - A. Quality measurement in supplier relations
 - B. Quantification of supplier surveys
 - C. Lot plot plan
 - D. Pareto analysis of suppliers
- VI. Manufacture
 - A. Concept of controllability; self-control
 - B. Self-inspection
 - C. Process quality audits

- VII. Statistical Process Control
 - A. Statistical control charts (general)
 - B. Application of statistical process control concepts
 - C. Variable control charts
 - D. Process capability
 - E. Attributes control charts

- VIII. Inspection, Test, and Measurement
 - A. Conformance to specification and fitness for use
 - B. Inspection planning
 - C. Inspection accuracy

- IX. Marketing, Field Performance, and Customer Service
 - A. Customer perception of quality
 - B. Quality concepts in a marketing function
 - C. Warranty of quality
 - D. Safety and product liability

- X. Marketing, Field Performance, Customer Service, and Statistical Tools
 - A. Significance of field complaints
 - B. Estimating lost profit due to product problems
 - C. Analyzing field data

- XI. Administrative and Support Operations
 - A. Quality planning
 - B. Quality control
 - C. Quality improvement

- XII. Quality Information Systems
 - A. Planning a computer based quality information system
 - B. Creating new software
 - C. Creating the computer software program
 - D. Controlling the quality of computer software

- XIII. Quality Assurance
 - A. Concept of quality assurance
 - B. Structuring the audit program
 - C. Essential ingredients of a quality audit program
 - D. Product audit

REQUIRED READING:

Juran, J.M. Quality Planning and Analysis. New York: McGraw-Hill Publishing Company, 1993.
Chapters 11-18 and 20-24.

SUGGESTED READING:

Dovich, Robert A. Reliability Statistics. Milwaukee: ASQC Quality Press, 1990.

Grant, Eugene L. and Richard S. Leavenworth. Statistical Quality Control. New York: McGraw-Hill, 1988.

Griffith, Gary K. Quality Technician's Handbook. Tucson: Quality America, Inc., 1986.

Gryna, Frank and J.M. Juran. Juran's Quality Control Handbook. New York: McGraw-Hill, 1988.

Halpern, Siegmund. The Assurance Sciences: An Introduction to Quality Control and Reliability. Englewood Cliffs: Prentice Hall, 1978.

Hayes, Glenn E. Quality Assurance: Management and Technology. Capistrano Beach: Charger Productions, Inc., 1990.

Pyzdek, Thomas. An SPC Primer. Tucson: Quality America, Inc., 1984.

REQUIRED WRITING:

Complete mathematical problems and case problems at the end of each assigned chapter and explain the results. Each response will be at least one paragraph in length.

OUTSIDE ASSIGNMENTS:

Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short-term classes.

Read textbook, current industrial brochures, ASQC Quality Progress, and handouts assigned by the instructor. Preparation and presentation of mathematical solutions to various quality problems based on case studies.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:

- lecture
- laboratory
- lecture-laboratory combination
- directed study

DISTANCE LEARNING:

This course may be offered as a distance learning course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.

Yes No

If yes, check all that apply:

- Television Course (Video one-way, e.g. ITV, video cassette, etc.)
- Online Course (Text one-way, e.g. newspaper, correspondence, electronic file, etc.)
- Two-Way Video Conferencing (Two-way interactive video and audio)
- One-Way Video Conferencing (One-way interactive video and two-way interactive audio)
- Computer Assisted Instruction (A specialized form of mediated instruction relying primarily on student access to information and prepared lessons or teaching materials through a computer terminal, but not under immediate supervision of a qualified instructor.)

GRADING POLICY AND STANDARDS (include methods of determining whether the stated objectives have been met by students):

The course grading policy will be determined by individual instructors and may include the following:

- Exams
- Quizzes
- Research projects
- Writing assignments
- Classroom presentations
- Research papers
- Lab assignments
- Journal writing
- Classroom participation & discussion
- Homework

IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?

Yes ____ No X Number of times course may be taken for credit: 1

If yes, identify specific provision of Title 5 Division 2 section(s), 55761-55763 and 58161 which qualifies course as repeatable:

CONTACT PERSON: Director, Vocational Programs, Ext. 2286

SIGNATURES ON FILE