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IDA DOCUMENT D-666

CATALOG OF TRAINING AND EDUCATION SOURCES  
IN CONCURRENT ENGINEERING

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Sarah H. Nash

November 1989

*Prepared for*  
Office of the Assistant Secretary of Defense,  
for Production and Logistics (OASD(P&L))

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13. ABSTRACT (Maximum 200 words) IDA Document D-666 contains information on training and education programs and their courses in concurrent engineering or in methods supporting concurrent engineering. Concurrent engineering is a systematic approach to the integrated, concurrent design of products and their related processes, including manufacture and support. This approach is intended to cause the developers, from the outset, to consider all elements of the product life cycle from conception through disposal, including quality, cost, schedule, and user requirements.  This catalog contains 75 entries describing 119 programs with some entries having multiple programs. Of these, 6 are Associate Degree programs, 17 are Bachelor Degree Programs, 33 Master Degree programs, and 22 are Ph.D. programs. Three Certification programs are listed as well as 37 Continuing Education Programs and one post-graduate program.				
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CATALOG OF TRAINING AND EDUCATION SOURCES  
IN CONCURRENT ENGINEERING

Sarah H. Nash

November 1989

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## PREFACE

The purpose of IDA Document D-666 *Catalog of Training and Education Sources in Concurrent Engineering*, is to forward information on training and education sources in concurrent engineering that is essentially unanalyzed and unevaluated, but that the DoD could use to develop its own training and education program. Additionally, it provides information to individuals interested in pursuing education in this emerging discipline. Because of time and financial limitations, no attempt was made to evaluate the courses or programs listed in this catalog.

This document was reviewed on November 1, 1989 by members of the CSED Peer review: Dr. Karen Gordon, Ms. Audrey A. Hook, Ms. Catherine W. McDonald, Ms. Katydean Price, Dr. Karen Richter, and Dr. Richard Wexelblat.

## INTRODUCTION

This catalog lists training and education programs (and their courses) in concurrent engineering or in methods supporting concurrent engineering. Concurrent engineering is a systematic approach to the integrated, concurrent design of products and their related processes, including manufacture and support. This approach is intended to cause the developers, from the outset, to consider all elements of the product life cycle from conception through disposal, including quality, cost, schedule, and user requirements [Winner 88, p. v].<sup>1</sup> Related terms for concurrent engineering include systems engineering, simultaneous engineering, life-cycle engineering or producibility engineering. Its methods include statistical process control, design of experiments, design-for-assembly, value engineering, and quality function deployment.

One of the recommendations of a recent report to the Department of Defense (DoD) on concurrent engineering [Winner 88] was that in parallel with taking positive steps to encourage the use of concurrent engineering in weapons system acquisitions, the DoD should take steps to support the cultural and management changes necessary to gain the full potential benefits of concurrent engineering. These steps should include implementing an education and training program that starts with senior Office of the Secretary of Defense (OSD) acquisition managers and progresses to all levels of DoD's acquisition organization. This training and education catalog provides pointers to existing sources for education and training that the DoD could survey in creating its own program. Additionally, it provides information to individuals interested in pursuing education in this emerging discipline.

### Data Collection Methodology

Several sources were consulted in compiling this catalog. An on-line search of the *Encyclopedia of Associations* revealed 19 organizations whose area of interest is quality, manufacturing, or other engineering disciplines related to concurrent engineering. Of these, eight contributed entries to the catalog. A total of 17 companies doing training in the area of concurrent engineering were identified from various sources (predominantly journals and newsletters). Of these, 12 contributed entries to the catalog. *Peterson's Graduate Programs in Engineering and Applied Sciences 1989* identified 126 universities with Industrial Engineering programs. Of these, 37 responded with entries. The American Society for Quality Control supplied a list of 77 degree programs in the Quality Sciences (one-year certificate programs, two-year associate degree programs, and four-year bachelor degree programs). Of these, 14 institutions provided entries. Finally, notices in the *Commerce Business Daily* and *Communications of the ACM* generated several additional entries.

### Organization of Catalog

This catalog contains 75 entries describing 119 programs (some entries describe multiple programs). Of these, six are Associate Degree programs, 17 are Bachelor Degree programs, 33 are Master Degree programs, and 22 are Ph.D. programs. Three Certification programs are listed as well as 37 Continuing Education programs and one post-graduate program. Entries appear in alphabetical order by offeror name and are formatted as follows:

1. [Winner 88] *The Role of Concurrent Engineering in Weapons System Acquisition*, by Robert I. Winner, et al., Institute for Defense Analyses Report R-338, December 1988.

**OFFEROR NAME:** Name of offering institution

**OFFEROR ADDRESS:** Address of offering institution

**OFFEROR TYPE:** Type of institution offering the program (College, Consultant, Film and Video Distributor, Government, Non-Profit Educational Association, Not-for-Profit R&D Organization, Professional Society, Private Institute, or University)

**PROGRAM TYPE:** Associate Degree, Bachelor Degree, Master Degree, PhD Degree, Certificate Program, Continuing Education, or Post-Graduate Program.

**PROGRAM TITLE:** Formal or descriptive title of the program or course, if only one course is offered

**ORIENTATION:** Keywords that best describe the subject matter of the program and its emphases

**POINT OF CONTACT:** Name of person to contact for additional information

**OFFEROR PHONE:** Phone number of the point of contact including area code

**AUDIENCE:** Intended audience for the program

**PREREQUISITES:** Prerequisites or entrance requirements

**COMMENTS:** Any additional information not covered above

**COURSES:** Titles of specific courses offered

Four indexes conclude the catalog and offer access to the entries by (1) Type of Offeror, (2) Type of Program, (3) Geographic Area, and (4) Course Titles.

### Additions/Updates Form

Since this IDA Document will be updated periodically, the author is interested in receiving additions, corrections, and updates to the entries contained in it. Please use this form to submit such information and mail it to

Sarah H. Nash  
Institute for Defense Analyses  
1801 N. Beauregard St.  
Alexandria, VA 22311  
(703) 824 5521.

OFFEROR NAME: Name of offering institution

OFFEROR ADDRESS: Address of offering institution

OFFEROR TYPE: Type of institution offering the program (College, Consultant, Film and Video Distributor, Government, Non-Profit Educational Association, Not-for-Profit R&D Organization, Professional Society, Private Institute, or University)

PROGRAM TYPE: Associate Degree, Bachelor Degree, Master Degree, PhD Degree, Certificate Program, Continuing Education, or Post-Graduate Program.

PROGRAM TITLE: Formal or descriptive title of the program or course, if only one course is offered

ORIENTATION: Keywords that best describe the subject matter of the program and its emphases

POINT OF CONTACT: Name of person to contact for additional information

OFFEROR PHONE: Phone number of the point of contact including area code

AUDIENCE: Intended audience for the program

PREREQUISITES: Prerequisites or entrance requirements

COMMENTS: Any additional information not covered above

COURSES: Titles of specific courses offered

**1. Offeror Name: Air Force Institute of Technology (AFIT) Continuing Education Program**

**Offeror Address:** School of Systems and Logistics  
Wright-Patterson AFB, OH 45433-6583

**Offeror Type:** Government

**Program Type:** Continuing Education

**Program Title:** Quality and Reliability; Value Engineering

**Orientation:** Value Engineering; Quality Improvement; Reliability; Maintainability; Statistical Process Control (SPC)

**Point of Contact:** Virgil Rehg; Jean S. Jines

**Offeror Phone:** (513) 255-7776; 3944

**Audience:** Individuals involved in design engineering, manufacturing, supply, human resource development, administration, and acquisition. Contracting Officers, Negotiators, Administrators, and Managers and others involved in contractual arrangements

**Prerequisites:** Knowledge of basic concepts of contract administration is presumed for Value Engineering Course. Prerequisites for other courses are on a course by course basis.

**Comments:** None.

**Courses Offered:**  
Advanced Statistical Process Control  
Contractual Aspects of Value Engineering  
Quality Improvement Seminar  
Quality and Productivity Improvement Team Process  
Reliability  
Reliability and Maintainability Design in System Acquisition  
Reliability and Maintainability Research and Applications  
Statistical Process Control  
Total Quality

**2. Offeror Name: Air Force Institute of Technology (AFIT) Master Degree Program**

**Offeror Address:** School of Systems and Logistics  
Wright-Patterson AFB, OH 45433-6583

**Offeror Type:** Government

**Program Type:** MS; Post-Graduate

**Program Title:** Graduate Logistics Management; Graduate Engineering Management

**Orientation:** Reliability; Maintenance; Quality Control Management; Reliability and Maintainability Management; Total Quality Management (TQM)

**Point of Contact:** Lt Col Phillip E. Miller; Lt Col Robert Materna; Dr. Ben Williams

**Offeror Phone:** (513) 255-4149; 5023

**Audience:** AFIT graduate and post-graduate students

**Prerequisites:** Knowledge of statistics (probability) and basic calculus skills required.

**Comments:** None.

**Courses Offered:**  
Quality Control Management  
Reliability and Maintainability Management  
Reliability and Maintenance  
Total Quality Management (TQM) Workshop (1-day)

### 3. Offeror Name: Alfred University

**Offeror Address:** Division of Industrial Engineering  
P. O. Box 576  
Alfred, NY 14802

**Offeror Type:** University

**Program Type:** BS; MS

**Program Title:** Industrial Engineering

**Orientation:** Industrial Engineering; Quality Control; Manufacturing; Operations Research; Simulation; Statistics; Human Factors; Solid Waste Disposal; Concurrent Engineering

**Point of Contact:** William O. Winchell, Chair

**Offeror Phone:** (607) 871-2129

**Audience:** Persons interested in integrating people, materials, and equipment, as well as the design and improvement of systems concurrently.

**Prerequisites:** For undergraduate program: see catalog. For graduate program: BS in engineering or science.

**Comments:** Also offered are short courses (one day to two weeks in duration) to meet needs of groups such as statistical process control, ergonomics, and computer integrated manufacturing. Unique courses for groups can be designed.

**Courses Offered:**  
Engineering Economy  
Engineering Statistics (includes design of experiments)  
Industrial Statistical Decisions (includes quality function deployment)  
Manufacturing I (includes value engineering)  
Manufacturing II (includes simultaneous engineering, producibility engineering and design for assembly)  
Statistical Process Control

**4. Offeror Name: American Society for Quality Control (ASQC)**

**Offeror Address:** 310 West Wisconsin Ave.  
Milwaukee, WI 53203

**Offeror Type:** Professional Society

**Program Type:** Continuing Education

**Program Title:** Professional and Technical Development

**Orientation:** Quality Assurance; Statistical Process Quality Control; Taguchi;  
Quality Function Deployment (QFD)

**Point of Contact:** Lisa Draeger

**Offeror Phone:** (414) 272-8575

**Audience:** Quality and reliability professionals; top and middle managers;  
engineers. Contact Society directly.

**Prerequisites:** Varies by course. Contact Society directly.

**Comments:** Contact ASQC directly for course dates, location, etc.

**Courses Offered:**

- Customer-Driven Quality
- Design of Industrial Experiments
- Hoshin Planning
- Managing for Quality
- Procurement Quality
- Quality Audit
- Quality Costs
- Quality Engineering
- Quality Function Deployment
- Reliability Engineering
- Software Quality Assurance
- Statistical Process Quality Control

**5. Offeror Name: American Society of Mechanical Engineers (ASME)**

**Offeror Address:** Professional Development  
345 East 47th St.  
New York, NY 10017

**Offeror Type:** Professional Society

**Program Type:** Continuing Education

**Program Title:** Professional Development Program

**Orientation:** Flexible Manufacturing; Quality Control; Quality Engineering by Design; Taguchi; Statistical Design of Experiments; Value Engineering; Simultaneous Engineering

**Point of Contact:** Continuing Education Specialist

**Offeror Phone:** (212) 705-7121

**Audience:** Engineers; Project Managers; Team Members

**Prerequisites:** None stated.

**Comments:** None.

**Courses Offered:**  
Measurement Uncertainty  
Product Liability for Engineers  
Project Management for Engineers  
Quality Engineering by Design: The Taguchi Approach  
Simultaneous Engineering Methodology  
Statistical Design of Experiments  
Value Engineering in Manufacturing

**6. Offeror Name: American Supplier Institute (ASI)**

**Offeror Address:** Center for Taguchi Methods  
6 Parklane Blvd., Suite 411  
Dearborn, MI 48126

**Offeror Type:** Private Institute

**Program Type:** Continuing Education

**Program Title:** Center for Taguchi Methods

**Orientation:** Statistical Process Control (SPC); Taguchi Methods; Quality Function Deployment (QFD); Standard Methods; Flexible Manufacturing; Computer-Wide Quality Control

**Point of Contact:** Cliff Carroll

**Offeror Phone:** (313) 336-8877

**Audience:** Supervisors; Managers; Engineers

**Prerequisites:** Vary by course. Consult course offerings and schedule for specific course requirements.

**Comments:** None.

**Courses Offered:**

Advanced Quality Engineering  
Basic Statistical Concepts  
Design for Assembly  
Introduction to Quality Engineering  
On-line Quality Control  
Quality Function Deployment  
Quality Loss Function  
Reliability in Product Design and Testing  
Statistical Thinking for Manufacturing Process Control  
Taguchi Methods Executive Awareness  
Taguchi Methods Introduction to Measurement Engineering  
Taguchi Methods Problem Solving Workshop

**7. Offeror Name: Arizona State University Continuing Education Program**

**Offeror Address:** Center for Professional Development  
College of Engineering and Applied Sciences  
Tempe, AZ 85287-7506

**Offeror Type:** University

**Program Type:** Continuing Education

**Program Title:** Professional Development

**Orientation:** Design of Experiments; Optimization Responses; Taguchi; Statistical Process Control (SPC)

**Point of Contact:** Susan E. Alexander

**Offeror Phone:** (602) 965-1740

**Audience:** Varies by course. Contact University for additional information.

**Prerequisites:** None.

**Comments:** Videotaped segments from the 3rd Annual National Symposium: Statistics in Design and Process Control also available.

**Courses Offered:**  
Basics of SPC  
Design of Experiments, Optimization Responses, Surface Methodologies, and Taguchi Methodology  
Managing the Quality Function  
SPC and Design of Experiments for Managers  
Statistics in Design and Process Control  
Train the Trainer in Statistical Design of Experiments (DOX)

**8. Offeror Name: Arizona State University Graduate Programs**

**Offeror Address:** College of Engineering and Applied Sciences  
Dept. of Industrial and Management Systems Engineering  
Tempe, AZ 85287-5906

**Offeror Type:** University

**Program Type:** MS; PhD

**Program Title:** Industrial and Management Systems Engineering

**Orientation:** Quality Control; Reliability; Computer-Aided Processes

**Point of Contact:** James E. Bailey

**Offeror Phone:** (602)965-3185

**Audience:** Qualified students interested in pursuing a MS or PhD.

**Prerequisites:** Request specific information from Department directly.

**Comments:** None.

**Courses Offered:**

Advanced Quality Control  
Computer-Aided Manufacturing and Control  
Computer-Integrated Design Applications  
Engineering Economy  
Engineering Statistics  
Integrated Production Control  
Quality Management  
Reliability, Availability, and Serviceability  
Reliability Evaluation Techniques

**9. Offeror Name: Arthur Beard Engineers, Inc.**

**Offeror Address:** 144 Church Street, N.W.  
Vienna, VA 22180

**Offeror Type:** Private Institute

**Program Type:** Continuing Education

**Program Title:** Value Engineering in Construction

**Orientation:** The application of value analysis (value engineering) methodology to planning, design and construction of buildings, highways, water and sewage treatment plants, and military construction.

**Point of Contact:** David C. Wohlscheid, PE, CVS

**Offeror Phone:** (703) 255-2470

**Audience:** Engineers; Architects; Project Managers; Construction Managers; Owners; Operators; and Government Officials

**Prerequisites:** (Desired by not required) - College Degree or Equivalent plus 3 years construction/design experience

**Comments:** By using "Live" Projects - cost savings ideas resulting from the workshops often offset the training costs by more than 20 to 1.

**Courses Offered:**  
2 1/2 day workshop - Value Engineering During Design of Mass Transit Facilities  
40-Hour Value Engineering Workshop  
40-Hour Value Engineering Workshop for Highway Engineers  
One day Executive Seminar on Value Engineering

**10. Offeror Name: Association for Quality and Participation (AQP)**

**Offeror Address:** 801-B West 8th St.  
Cincinnati, OH 45203

**Offeror Type:** Professional Society

**Program Type:** Continuing Education

**Program Title:** Professional Education Series

**Orientation:** Kaizen; Continuous Improvement; Total Quality Management;  
Employee Participation; Quality Circles

**Point of Contact:** Sara Olberding

**Offeror Phone:** (513) 381-1959

**Audience:** Varies by course.

**Prerequisites:** None stated.

**Comments:** None.

**Courses Offered:**  
Activating Management Support  
Basic Facilitator Development Course  
Group Process Consultation: Applications for Participative Managers  
Kaizen: The Process of Continuous Improvement  
Self-Managing Teams: *Their Design and Implementation*  
Total Quality Management Systems

**11. Offeror Name: Clemson University**

**Offeror Address:** Dept. of Industrial Engineering  
102 Freeman Hall  
Clemson, SC 29634-0920

**Offeror Type:** University

**Program Type:** BS; MS; PhD; Continuing Education

**Program Title:** Industrial Engineering

**Orientation:** Simulation; Human Factors; Quality Function Deployment (QFD);  
Process Control; Design of Experiments; Modeling; Reliability

**Point of Contact:** Dr. D. L. Kimbler, PE

**Offeror Phone:** (803) 656-4716

**Audience:** Industrial and manufacturing engineers.

**Prerequisites:** Contact offeror for degree programs; prerequisites vary with  
continuing education programs.

**Comments:** Continuing education emphasizes presently in quality.

**Courses Offered:**

Advanced Manufacturing Systems  
Design of Human-Computer Systems  
Discrete Systems Simulation  
Human Factors Engineering  
Industrial Quality Control  
Quality Engineering  
Reliability Engineering  
Systems Modeling

**12. Offeror Name: Cornell University Master Degree Program**

**Offeror Address:** Master of Engineering Program  
113 Hollister Hall  
Ithaca, NY 14853

**Offeror Type:** University

**Program Type:** M. Eng

**Program Title:** Operations Research and Industrial Engineering (OR&IE)

**Orientation:** Manufacturing Systems Engineering; Production System Modeling and Scheduling; Manufacturing Processes

**Point of Contact:** Prof. Peter L. Jackson

**Offeror Phone:** (607) 255-4856

**Audience:** Matriculated students with undergraduate degree in engineering, math.

**Prerequisites:** Academic course requirements depending on field.

**Comments:** None.

**Courses Offered:** Design of Experiments  
Statistical Process Control

**13. Offeror Name: Cornell University Continuing Education Program**

**Offeror Address:** Short Course Program on Manufacturing  
304 Kimball Hall  
Ithaca, NY 14853-1502

**Offeror Type:** University

**Program Type:** Continuing Education

**Program Title:** Cornell Manufacturing Engineering and Productivity Program  
(COMEPP)

**Orientation:** Manufacturing Systems Engineering; Product Modeling and Design

**Point of Contact:** Margaret Dermott

**Offeror Phone:** (607) 255-7757

**Audience:** Engineers or engineering managers wishing to learn more of current research and techniques in a given topic.

**Prerequisites:** None.

**Comments:** None.

**Courses Offered:** Integrated Product Design  
Managing the Next Generation of Manufacturing Technology  
U.S. International Competitiveness

**14. Offeror Name: Cornell University Dean's Certificate Program**

**Offeror Address:** Cornell Manufacturing Engineering & Productivity Program  
(COMEPP)  
304 Kimball Hall  
Ithaca, NY 14853-1502

**Offeror Type:** University

**Program Type:** Dean's Certificate

**Program Title:** Dean's Certificate in Manufacturing Engineering

**Orientation:** For Master of Engineering Students with a required core in manufacturing.

**Point of Contact:** Margaret Dermott

**Offeror Phone:** (607) 255-7757

**Audience:** Master of Engineering Students with a required core in manufacturing.

**Prerequisites:** Contact COMEPP for entrance requirements.

**Comments:** None.

**Courses Offered:**  
Statistical Methods in Quality and Reliability Control  
Statistics for Manufacturing

**15. Offeror Name: Erie Community College**

**Offeror Address:** Main and Youngs Roads  
Williamsville, NY 14221

**Offeror Type:** College

**Program Type:** Associate Degree

**Program Title:** Management Engineering Technology

**Orientation:** Provides training in conducting capability studies and implementation of various control charts.

**Point of Contact:** Samuel J. Kassab

**Offeror Phone:** (716) 634-0800

**Audience:** Managers, Engineers, Production Personnel

**Prerequisites:** None.

**Comments:** Degree program in statistical process control currently under development.

**Courses Offered:**

Basic Statistics and Statistical Process Control - 30 hours  
Statistical Process Control - 40 hours

**16. Offeror Name: Films Incorporated**

**Offeror Address:** 5547 N. Ravenswood Avenue  
Chicago, IL 60640-9979

**Offeror Type:** Film and Video Distributor

**Program Type:** Continuing Education

**Program Title:** Quality/Productivity; The Deming Library; Create a Quality Training Program

**Orientation:** Quality/Productivity; Deming; Quality Training

**Point of Contact:** Business and Government Division

**Offeror Phone:** (800) 323-4222 x44

**Audience:** Organizational audiences interested in quality products and services; senior management and others concerned with competitive strategy.

**Prerequisites:** None.

**Comments:** None.

**Courses Offered:**  
I Know It When I See It  
If Japan Can...Why Can't We?  
Juran on Quality Leadership  
Manufacturing Strategy  
The Deming Library  
The Journey to Excellence  
The Quality Connection  
The Quality Man  
Why Quality

**17. Offeror Name: GOAL/QPC**

**Offeror Address:** 13 Branch St.  
Methuen, MA 01844

**Offeror Type:** Private Institute

**Program Type:** Continuing Education

**Program Title:** Total Quality Management

**Orientation:** Quality Function Deployment (QFD); Hoshin Planning; Continuous Improvement; Taguchi; Quality Engineering; Statistical Analysis

**Point of Contact:** Bob King

**Offeror Phone:** (508) 685-3900

**Audience:** Engineers; Managers; Quality Professionals; Technicians, etc. Refer to course catalog for target audiences of individual courses.

**Prerequisites:** None stated.

**Comments:** None.

**Courses Offered:**

Advanced Quality Function Deployment  
Developing a Company-Wide Continuous Improvement Master Plan  
Hoshin Planning  
Hoshin Planning: Executive Overview  
Improving Quality and Productivity During Manufacturing Using  
Statistical Analysis  
Integrating Taguchi into Quality Engineering  
Methods for Management of Productivity and Quality  
Quality Function Deployment: Executive Overview  
Quality Function Deployment: Practitioner/Facilitator Course  
Seven Tools for Management and Planning  
Understanding Industrial Experimentation

**18. Offeror Name: George Washington University**

**Offeror Address:** School of Engineering and Applied Science  
Continuing Engineering Education  
Washington, D.C. 20052

**Offeror Type:** University

**Program Type:** Continuing Education

**Program Title:** Continuing Engineering Education

**Orientation:** Total Quality Management (TQM); Quality Function Deployment (QFD); Deming; Taguchi

**Point of Contact:** Merrill Ferber

**Offeror Phone:** (202) 994-8522

**Audience:** Managers and Engineers from manufacturing and service industries.

**Prerequisites:** None.

**Comments:** None.

**Courses Offered:**  
Implementing Continuous Quality Improvement  
Implementing Dr. Deming's Methods for Management of Productivity and Quality  
Implementing Statistical Process Improvement  
Quality Function Deployment (QFD) and Taguchi Methods  
Quality by Design  
Reliability  
Supplier Quality Management  
Total Quality Management

**19. Offeror Name: Glendale Community College**

**Offeror Address:** 6000 West Olive Ave.  
Glendale, AZ 85302

**Offeror Type:** College

**Program Type:** Associate in Applied Science (AAS)

**Program Title:** Quality Control Technology

**Orientation:** The Quality Control Technology Program provides instruction in state-of-the-art control and related technologies.

**Point of Contact:** Renault Catalano

**Offeror Phone:** (602) 435-3000

**Audience:** For entry-level skills in the quality control field or advancement to professional levels of employment as quality planners, analysts, engineers, etc.

**Prerequisites:** College level reading and writing skills; Math skills equivalent to two years of high school algebra.

**Comments:** Accredited by the American Society for Quality Control and North Central Association of Colleges and Secondary Schools. A unit of the Maricopa County Community Colleges.

**Courses Offered:** Contact College directly.

**20. Offeror Name: Harnischfeger Institute**

**Offeror Address:** 2712 S. 163 St.  
New Berlin, WI 53151

**Offeror Type:** Private Institute

**Program Type:** Continuing Education

**Program Title:** Total Quality Assurance

**Orientation:** Product and Process Quality and Reliability; Supplier Quality Development; Taguchi; Statistical Process Control (SPC); Quality Function Deployment (QFD)

**Point of Contact:** None given.

**Offeror Phone:** (414) 797-6804

**Audience:** Manufacturing and marketing managers and design engineers.

**Prerequisites:** None stated.

**Comments:** Harnischfeger is a licensed provider of GOAL/QPC courses and materials.

**Courses Offered:**  
Company Wide Quality Deployment  
Concurrent Product Process Development  
Quality Function Deployment  
Short Cycle Manufacturing  
Statistical Process and Controls  
Taguchi Methods

**21. Offeror Name: Hobbs Engineering Corporation**

**Offeror Address:** Hobbs Engineering Corporation  
10218 Osceola Court  
Westminister, CO 80030

**Offeror Type:** Private Institute

**Program Type:** Continuing Education

**Program Title:** Cost Reduction and Reliability Improvements via Screening Technology

**Orientation:** Enhanced Environmental Stress Screening (ESS); Quality Improvement; Cost Reduction

**Point of Contact:** Virginia Hobbs

**Offeror Phone:** (303) 465-5988

**Audience:** Design; Manufacturing; Quality; and Reliability Personnel

**Prerequisites:** None.

**Comments:** The course offered presents techniques not generally known to the industry.

**Courses Offered:** Cost Reduction and Reliability Improvement via Screening Technology

**22. Offeror Name: Institute for Competitive Design (ICD)**

**Offeror Address:** 134 University Drive  
Rochester, MI 48063

**Offeror Type:** Private Institute

**Program Type:** Continuing Education

**Program Title:** Design for Competitiveness

**Orientation:** Quality by Design; Design for Assembly/Manufacture; Total Life Cycle Costing; Simultaneous Engineering; Cost Reduction

**Point of Contact:** Bart Huthwaite

**Offeror Phone:** (313) 656-2195

**Audience:** Engineers

**Prerequisites:** None stated.

**Comments:** None.

**Courses Offered:**  
On-going training/retraining in methodologies, materials, and processes  
One-day overviews (on-site) for 1-30 people  
Two-day hands-on workshop

**23. Offeror Name: Institute of Industrial Engineers (IIE)**

**Offeror Address:** 25 Technology Park/Atlanta  
P.O. Box 6150  
Norcross, GA 30091-0460

**Offeror Type:** Professional Society

**Program Type:** Continuing Education

**Program Title:** Industrial Engineering Seminars, In-House Training, and Conferences

**Orientation:** Quality Control; Total Quality Management (TQM); Reliability-Centered Maintenance (RCM); Competitive Manufacturing; Total Productive Maintenance (TPM); Service Quality; Life Cycle and Concurrent Engineering Methodologies; Value Engineering

**Point of Contact:** Special Projects Coordinator

**Offeror Phone:** (404) 449-0460

**Audience:** Varies by course. Consult individual course brochures.

**Prerequisites:** None stated.

**Comments:** Also offers several conferences including Inside America: Making Service Quality Work, Integrated Systems Conference, and International Industrial Engineering Conference.

**Courses Offered:**

Applying Just-in-Time in the American Environment  
Improving Systems in the Service Industry  
Improving the Bottom Line: Success Through Service Quality  
Increasing White Collar Productivity: Lessons in Lifelong Quality Improvement  
Introduction to Industrial Engineering  
Maintenance Management for Productivity  
Simulation: Improving Your Manufacturing Productivity  
Time & Motion Study Fundamentals  
Total Productive Maintenance  
Total Quality and Productivity Management  
Winning Manufacturing  
Work Measurement Techniques

**24. Offeror Name: International Defense Electronics Association (IDEA)**

**Offeror Address:** Dept. CE  
P.O. Box 3608 (3420 Kashiwa St.)  
Torrance, CA 90510-3608

**Offeror Type:** Private Institute

**Program Type:** Conference

**Program Title:** Concurrent Engineering Conference

**Orientation:** Quality Management; Reliability Management; Manufacturing Management; Logistics Management; Integrated Product and Process Design; Taguchi; Quality Function Deployment (QFD); Design of Experiments; Design for Assembly; Computer-Aided Acquisition and Logistics Systems (CALs)

**Point of Contact:** None given.

**Offeror Phone:** (213) 534-3922

**Audience:** Quality, logistics, R&M, and manufacturing engineers, as well as project managers, executive management, and other professionals concerned with cost/schedule performance.

**Prerequisites:** None stated.

**Comments:** Co-sponsored by Technology Training Corp. and featuring Guest Expert Kenneth A. Crow.

**Courses Offered:**  
Concurrent Engineering (CE)  
Concurrent Engineering as a Cornerstone for TQM  
Design for Maintainability and Life Cycle Costs  
Design for Manufacturability/Assembly  
Enabling Computer-Based Technologies  
Getting Started - Minimizing and Risk  
Government Initiatives  
Organization and Re-Orientation - the Team Approach  
Planning and Integration of CE

**25. Offeror Name: Juran Institute, Inc.**

**Offeror Address:** 11 River Road  
P. O. Box 811  
Wilton, CT 06897-0811

**Offeror Type:** Private Institute

**Program Type:** Continuing Education

**Program Title:** Quality Management

**Orientation:**

**Point of Contact:** Sales and Services Department

**Offeror Phone:** (203) 834-1700

**Audience:** Managers; Upper Managers; Supervisors; Technical Specialists

**Prerequisites:** None.

**Comments:** None.

**Courses Offered:**  
Making Quality Happen: Upper Management's Role  
Management of Quality  
Planning for Quality

**26. Offeror Name: Kansas State University**

**Offeror Address:** Dept. of Industrial Engineering  
Durland Hall  
Manhattan, KS 66506-5101

**Offeror Type:** University

**Program Type:** BS; MS; PhD

**Program Title:** Industrial Engineering

**Orientation:** Manufacturing Systems Engineering; Engineering Management;  
Operations Research; Ergonomics

**Point of Contact:** R. Michael Harnett

**Offeror Phone:** (913) 532-5606

**Audience:** Persons interested in pursuing the above degrees.

**Prerequisites:** Varies by program. Consult University catalog.

**Comments:** None.

**Courses Offered:** Contact University directly for course offerings.

**27. Offeror Name: Louisiana State University**

**Offeror Address:** Industrial Engineering Dept.  
Room 3128, CEBA Building  
Baton Rouge, LA 70803

**Offeror Type:** University

**Program Type:** BS; MS; PhD

**Program Title:** Industrial Engineering

**Orientation:** Program Management and Systems Analysis; Concurrent Engineering  
Methodology/Process; Integrated Systems, Manufacturing Systems

**Point of Contact:** L. Ken Keyes

**Offeror Phone:** (504) 388-5112

**Audience:** Undergraduate and graduate students.

**Prerequisites:** Usual ones for state institution.

**Comments:** The Department of Industrial Engineering at LSU is moving in the new  
direction of Integrated and Manufacturing Systems Engineering both  
by new faculty recruitment and curriculum additions and modification.

**Courses Offered:**

AI/Expert Systems and Manufacturing  
Manufacturing and Automation  
Product Design for Manufacture  
Program Management

**28. Offeror Name: New Jersey Institute of Technology**

**Offeror Address:** Center for Reliability Research  
323 Martin Luther King Blvd.  
Newark, NJ 07102

**Offeror Type:** University

**Program Type:** MS; PhD

**Program Title:** Reliability and Failure Mechanisms

**Orientation:** Quality; Reliability; Electrical Components; Stress Analysis;  
Production Analysis; Packaging Analysis

**Point of Contact:** Dr. R. P. Misra

**Offeror Phone:** (201) 596-3511

**Audience:** Refer to Graduate catalog.

**Prerequisites:** Refer to Graduate catalog.

**Comments:** The Center also provides evaluation services and seminars to help New Jersey manufacturers develop more reliable and better quality products.

**Courses Offered:**

Advanced Microprocessor Systems  
Electrochemistry: Principles and Applications  
Electromagnetic Field Theory  
Feedback Amplifiers I & II  
Independent Research  
Integrated Circuits I  
Linear Systems  
Master's Project  
Master's Thesis  
Noise in Electrical Circuits  
Power System Dynamics and Stability  
Protection of Power Systems  
Random Signal Analysis I  
Reliability in Electronics  
Semiconductor Circuits  
Semiconductor Devices  
Seminar on Reliability Problems  
Statistical Theory of Reliability and Applications

**29. Offeror Name: New Mexico State University**

**Offeror Address:** P.O. Box 30001  
Department 4230  
Los Cruces, NM 88003

**Offeror Type:** University

**Program Type:** BS; MS; PhD

**Program Title:** Industrial Engineering

**Orientation:** Industrial Engineering; Operations Research; Applied Statistics;  
Engineering Management; Computer Modeling; Manufacturing  
Engineering

**Point of Contact:** Dr. Satish J. Kamat

**Offeror Phone:** (505) 646-4923

**Audience:** Degree-seeking individuals.

**Prerequisites:** For MS I.E.: BS in engineering or science; For PhD: MS in  
engineering or sciences.

**Comments:** None.

**Courses Offered:**  
Advanced Quality Control  
Introduction to Manufacturing  
Methods Engineering  
Production Systems Control  
Production Systems Synthesis  
Quality Control  
Reliability  
Systems Synthesis and Design

**30. Offeror Name: North Carolina State University**

**Offeror Address:** Industrial Engineering  
Box 7906  
Raleigh, NC 27695-7906

**Offeror Type:** University

**Program Type:** MS; PhD

**Program Title:** Industrial Engineering

**Orientation:** Manufacturing Systems; Production Systems; Facilities Design;  
Economic Decision Analysis

**Point of Contact:** Dr. Richard G. Pearson

**Offeror Phone:** (919) 737-2362

**Audience:** Graduate students – MS and PhD

**Prerequisites:** Undergraduate majors in behavioral, physical, and mathematical sciences with preparation in mathematics, computer science, and statistics. GRE (Graduate Record Examination) (Verbal + Quantitative) of 1100; GPA (Grade Point Average) of 3.0

**Comments:** Contact offeror for more complete list of courses.

**Courses Offered:**  
Advanced Manufacturing Processes  
Computer Integration in Manufacturing Systems  
Design of Production Systems  
Quality Engineering  
Reliability Engineering

**31. Offeror Name: Northeast Wisconsin Technical College**

**Offeror Address:** 2740 W. Mason St.  
P.O. Box 19042  
Green Bay, WI 54307-9042

**Offeror Type:** College

**Program Type:** Associate Degree

**Program Title:** Quality Assurance Technician

**Orientation:** Quality Technician who uses codes, specifications, and procedures to ensure quality parts by process control, inspection, and vendor relations; auditing; reliability; inspection and report writing.

**Point of Contact:** John Pogorelc

**Offeror Phone:** (414) 498-5663

**Audience:** Post high school students and individuals employed in inspection or quality functions in industry.

**Prerequisites:** High school diploma.

**Comments:** None.

**Courses Offered:**  
Inspection Standards  
Practical Problems in Quality Assurance  
Quality Concepts  
Quality Control Theory and Planning  
Statistical Process Control

**32. Offeror Name: Oakland University**

**Offeror Address:** School of Engineering and Computer Science  
Dept. of Electrical and Systems Engineering  
Rochester, MI 48309

**Offeror Type:** University

**Program Type:** BS; MS; PhD

**Program Title:** Systems Engineering

**Orientation:** Dynamic Systems and Control; Robotics and Manufacturing Systems;  
Statistical Quality Control

**Point of Contact:** Naim A. Kheir

**Offeror Phone:** (313) 370-2177

**Audience:** Qualified applicants interested in pursuing the above degrees.

**Prerequisites:** Varies by degree. Consult University.

**Comments:** For graduate offerings, consult mini-graduate catalog.

**Courses Offered:**  
Automatic Control Systems  
Engineering Probability and Statistics  
Foundations of Computer-Aided Design  
Modern Control Design  
Production Systems  
Statistical Quality Control  
Systems Design and Optimization

**33. Offeror Name: Pennsylvania State University**

**Offeror Address:** Industrial and Management Systems Engineering  
207 Hammond Building  
University Park, PA 16802

**Offeror Type:** University

**Program Type:** MS; M.Eng; PhD

**Program Title:** Manufacturing Systems Engineering

**Orientation:** Engineering Design; Industrial Production; Flexible Manufacturing

**Point of Contact:** Dr. Matthew Rosenshine

**Offeror Phone:** (814) 863-2356

**Audience:** MS and PhD candidates

**Prerequisites:** BS degree from an accredited institution. Admission requirements vary.

**Comments:** Contact offeror for admission requirements, additional courses, and degree requirements.

**Courses Offered:**

Advanced Quality Control  
Computer-Aided Design for Manufacturing  
Engineering for Production  
Experimental Design in Engineering  
Quality Control and Reliability  
Reliability Engineering

**34. Offeror Name: Research Triangle Institute (RTI)**

**Offeror Address:** Center for Digital Systems Research  
P.O. Box 12194  
Research Triangle Park, NC 27709

**Offeror Type:** Not-for-Profit R&D Organization

**Program Type:** Continuing Education

**Program Title:** Training courses in the use of Architecture Design and Assessment System (ADAS)

**Orientation:** Training courses in the use of ADAS, an integrated set of computer-aided engineering tools which support the synthesis and analysis of electronic systems.

**Point of Contact:** Barbara Huss

**Offeror Phone:** (919) 541-7436

**Audience:** Engineers and computer scientists who design and analyze advanced computer systems for signal processing and general computing applications.

**Prerequisites:** None.

**Comments:** Courses offered continuously. Contact RTI for dates and registration information.

**Courses Offered:**  
ADAS Management Overview Course  
ADAS User Training Course

**35. Offeror Name: STAT-A-MATRIX Institute Master Degree Program**

**Offeror Address:** 2124 Oak Tree Rd.  
Edison, NJ 08820

**Offeror Type:** Private Institute

**Program Type:** MS

**Program Title:** Quality Management

**Orientation:** Quality Management

**Point of Contact:** Judith Marash

**Offeror Phone:** (201) 548-0600

**Audience:** Qualified applicants interested in pursuing a MS in Quality Management.

**Prerequisites:** BS degree with satisfactory GPA (Grade Point Average). Three years of full-time work experience by the beginning of the semester in which the student begins graduate studies.

**Comments:** Each student is expected to follow a course of study in six semesters over a two- to three-year period.

**Courses Offered:**

Philosophies of Quality Management  
Quality Assurance in Regulated and Non-Regulated Industries  
Quality Auditing as a Management Function  
Quality Engineering Management  
Statistical Analysis for Quality Management  
Strategies for Quality Management

**36. Offeror Name: STAT-A-MATRIX Institute Continuing Education Program**

**Offeror Address:** 2124 Oak Tree Rd.  
Edison, NJ 08820

**Offeror Type:** Private Institute

**Program Type:** Continuing Education

**Program Title:** Quality Management

**Orientation:** Vendor Quality Improvement; Supplier Evaluation; Taguchi; Deming; Juran; Crosby; Total Quality Management (TQM); Sampling; Statistical Process Control(SPC); Auditing; Reliability Engineering; Maintainability; Software Quality

**Point of Contact:** Judith Marash

**Offeror Phone:** (201) 548-0600

**Audience:** Varies by course. Contact Institute for specific course information.

**Prerequisites:** Vary by course. Contact Institute for specific course information.

**Comments:** None.

**Courses Offered:**

Advanced Auditor Training Effective Communication and Auditing Techniques  
Auditing Nuclear Quality Assurance Programs/Lead Auditor Training  
Effective Supplier Evaluation and Auditing  
Implementing Statistical Process Control  
Implementing a Vendor Quality Improvement System  
Intermediate SPC  
Overview of Quality Engineering Techniques  
Practical Experiment Design Beyond Taguchi Techniques  
Practical Reliability Engineering Methods  
Practical Sampling Techniques  
Process Improvement by Acceptance Sampling  
Quality Assurance Systems Requirements, 1989 and Beyond  
Quality Assurance for Computer Software  
Quality Assurance for the Operating Phase of Nuclear Power Plants  
Quality Program Preparation and Audit  
Refresher for CQE Examination  
Refresher for CRE Examination Reliability Engineering  
Refresher for Certified Auditor Examination  
SPC for Continuous Process  
SPC for Job Shops and Short Runs  
Systems Reliability and Maintainability  
Teachings of the Gurus: Deming, Juran and Crosby  
Total Quality Management Through STAT-A-MATRIX

**37. Offeror Name: Society for Computer-Aided Engineering**

**Offeror Address:** 5411 East State Street  
Rockford IL 61108-2378

**Offeror Type:** Non-Profit Educational Association

**Program Type:** Continuing Education

**Program Title:** CALS (Computer-Aided Acquisitions and Logistics System)  
Concurrent Engineering

**Orientation:** Concurrent engineering requirements defined by CALS and DoD initiatives.

**Point of Contact:** Leah Pitterle

**Offeror Phone:** (815) 399-8700

**Audience:** Engineers, logisticians, software and hardware vendors, senior level contractors, subcontractors, and DoD administrators involved in contracts requiring concurrent engineering.

**Prerequisites:** None.

**Comments:** None.

**Courses Offered:** None listed.

**38. Offeror Name: Society of American Value Engineers (SAVE)**

**Offeror Address:** 60 Revere Dr.  
Suite 500  
Northbrook, IL 60062

**Offeror Type:** Professional Society

**Program Type:** Continuing Education

**Program Title:** Value Engineering

**Orientation:** Value Engineering; Cost Reduction; Cost Improvement; Manufacturing; Value Analysis; Video Tapes; Training Films; Correspondence Courses; Independent Study Courses

**Point of Contact:** None given.

**Offeror Phone:** (312) 480-1730

**Audience:** None stated.

**Prerequisites:** None stated.

**Comments:** Also publishes several books and *Value World: The Journal of Value Technology for the Society of American Value Engineers*.

**Courses Offered:**

Basic Value Analysis (Independent Study Course administered by the Miles Foundation)

Contractual Aspects of Value Engineering (Video Tape)

Evaluation of Function, Cost & Worth (Training Film)

Introduction to Value Analysis & Value Engineering

Introduction to Value Analysis and Value Engineering for Architects, Engineers, and Builders (Independent Study Course)

Keeping the Competitive Edge with Value Analysis (Video Tape)

Manufacturing: A Competitive Weapon (Video Tape)

Value: The Success Criterion (Video Tape)

Value Engineering - A Course for Educational and Professional Development (Video Tape)

Value-Oriented Creative Thinking (Training Film)

Value-Oriented Paperwork Management (Training Film)

**39. Offeror Name: Society of Manufacturing Engineers (SME)**

**Offeror Address:** One SME Dr.  
P.O. Box 930  
Dearborn, MI 48121-0930

**Offeror Type:** Professional Society

**Program Type:** Continuing Education

**Program Title:** Product Design for Manufacturing

**Orientation:** Simultaneous Engineering; Design for Assembly; Design for Manufacturing; Design for Manufacturability; Inspection; Quality Control; Statistical Process Control (SPC); Design of Experiments

**Point of Contact:** Market Planning and Communications

**Offeror Phone:** (313) 271-1500

**Audience:** Varies by course.

**Prerequisites:** None stated.

**Comments:** None.

**Courses Offered:**  
Automated Quality  
Automatic Testing and Inspection  
Computer-Aided Engineering for Product Design  
Design for Manufacturability  
Product Design for Assembly  
Product Design for Manufacturing  
Quality Control in Automation  
Simultaneous Engineering  
Statistical Design of Experiments  
Statistical Process Control (SPC)  
Statistical Process Planning

**40. Offeror Name: South Suburban College**

**Offeror Address:** 15800 South State St.  
South Holland, IL 60473

**Offeror Type:** College

**Program Type:** Associate of Applied Science (AAS)

**Program Title:** Materials Production Control

**Orientation:** Statistical Process Controls; Purchasing; Materials Handling and Packaging; Materials Management, Scheduling, and Planning

**Point of Contact:** Daniel Segebarth

**Offeror Phone:** (312) 596-2000, x287

**Audience:** Community college students (high school graduates and adult learners).

**Prerequisites:** High school diploma.

**Comments:** Formerly Thornton Community College.

**Courses Offered:** Statistical Process Control I

**41. Offeror Name: Southern College of Technology**

**Offeror Address:** South Marietta Parkway  
Marietta, GA 30060

**Offeror Type:** College

**Program Type:** BS

**Program Title:** Industrial Engineering Technology; Quality Assurance

**Orientation:** Total Quality Management (TQM); Statistical Management;  
Statistical Process Control (SPC)

**Point of Contact:** Lawrence S. Aft

**Offeror Phone:** (404) 424-7243

**Audience:** The College offers both day and evening degree programs. The programs seek to introduce students to research that is industrially, technically, or applications focused.

**Prerequisites:** Consult college catalog for admissions information.

**Comments:** Southern College of Technology is a senior college in the university system of Georgia.

**Courses Offered:**

Analysis of Technical Data  
Metrology  
Modern Trends in QA  
Probability and Statistics I  
Quality Assurance Applications  
Quality Assurance Concepts  
Quality Assurance Management  
Statistical Quality Control  
Testing and Quality Control

**42. Offeror Name: Tennessee Associates**

**Offeror Address:** P.O. Box 710  
Alcoa, TN 37701

**Offeror Type :** Private Institute

**Program Type:** Continuing Education

**Program Title:** Continuous Improvement of Quality and Productivity

**Orientaton:** Continuous Improvement of Products and Services; Statistical Tools;  
Designing for Quality

**Point of Contact:** J. Mark Douglas

**Offeror Phone:** (800) 426-4121

**Audience:** Companies interested in becoming more world competitive in quality  
and productivity.

**Prerequisites:** None stated.

**Comments:** None.

**Courses Offered:**  
Creating the Quality System  
Designing for Quality  
Executive Course in Managing for Consistency  
Managing for Consistency  
Quality Management for Marketing and Sales  
Team Facilitator Training

**43. Offeror Name: Texas Tech University**

**Offeror Address:** Dept. of Industrial Engineering  
P.O. Box 4130  
Lubbock, TX 79409

**Offeror Type :** University

**Program Type:** BS; MS; PhD

**Program Title:** Industrial Engineering

**Orientaton:** Manufacturing; Process and Quality Control; Human Factors;  
Management Science

**Point of Contact:** Tom B. Leamon

**Offeror Phone:** (806) 742-3543

**Audience:** Engineers and Scientific Personnel.

**Prerequisites:** Varies by course. Consult University catalog.

**Comments:** None.

**Courses Offered:**

Engineering Statistics  
Manufacturing Processes I  
Manufacturing Processes II  
Quality Assurance and Engineering Statistics II  
Reliability Assurance and Engineering Statistics III

**44. Offeror Name: Tulsa Junior College**

**Offeror Address:** Northeast Campus  
3727 E. Apache  
Tulsa, OK 74115

**Offeror Type :** College

**Program Type:** Associate in Applied Science; Certificate in Achievement in Quality Control

**Program Title:** Quality Control Technology

**Orientaton:** This program prepares the student without previous experience in quality control for an entry level position as a quality control technician. A student with previous experience will be able to upgrade his skills and knowledge in order to qualify for advancement in the field.

**Point of Contact:** Sam Redding; John Kahre

**Offeror Phone:** (918) 834-5071

**Audience:** This program is designed for both individuals without experience in the field as well as those needing to upgrade training for career advancement.

**Prerequisites:** High school diploma or equivalent; ACT or SAT.

**Comments:** None.

**Courses Offered:**

Blueprint Reading  
Fundamentals of Dimensional Measurements  
Inspection Principals  
Introduction to Quality Control  
Non-Destructive Examination Principles  
Quality Costs, Surveys, and Audits  
Quality Standards and Specifications  
Statistical Quality Control

**45. Offeror Name: Tustin Technical Institute, Inc.**

**Offeror Address:** 22 East Los Olivos Street  
Santa Barbara, CA 93105

**Offeror Type :** Private Institute

**Program Type:** Continuing Education

**Program Title:** Environmental Engineering

**Oriention:** To further the education of environmental, quality, and reliability engineers employed by government and industry, such that they can contribute to increasing the reliability of equipment.

**Point of Contact:** Brian Slattery

**Offeror Phone:** (805) 682-7171

**Audience:** Environmental, quality and reliability engineers employed by government and industry.

**Prerequisites:** While most attendees have BS or MS degrees in some field of engineering, some of their courses benefit non-degreed people.

**Comments:** None.

**Courses Offered:**

Automobile Safety (Crash) Testing  
Automotive Vibration and Shock Testing and Measurement  
Avoiding Thermal Overdesign  
Climatic Environmental Test Methods  
High-Level Acoustic Testing  
Mechanical Dynamic Measurements  
Protective Packaging  
Reducing Noise and Vibration  
Thermal Climatic Testing  
Vibration and Shock Test Fixture Design  
Vibration and Shock Testing, Measurement, Analysis and Calibration

**46. Offeror Name: University of Alabama in Huntsville**

**Offeror Address:** College of Engineering  
Dept. of Industrial and Systems Engineering  
Huntsville, AL 35899

**Offeror Type :** University

**Program Type:** MS; PhD

**Program Title:** Industrial and Systems Engineering

**Orientaton:** Applied Statistics; Engineering Management; Manufacturing Systems;  
Operations Research; Product Assurance Engineering; System  
Engineering

**Point of Contact:** Dr. Thomas P. Tytula

**Offeror Phone:** (205) 895-6637

**Audience:** Practitioners in industry and government.

**Prerequisites:** Master's - 3.0 GPA (Grade Point Average); GRE (Graduate Record  
Examination) of 1000 (Verbal + Quantitative) with a minimum of 500  
on Quantitative; Mathematics through calculus; six hours of applied or  
mathematical statistics; graduate of an engineering program  
accredited by the Accreditation Board for Engineering and  
Technology.

Conditional admission possible after department review.

**Comments:** The Department has a contract with the U.S. Air Force to train  
Product Assurance Engineering Interns. Consult University catalog  
for additional details.

**Courses Offered:**  
Design and Analysis of Experiments  
Engineering Reliability  
Modern Manufacturing/Production Systems  
Product Assurance  
Quality Assurance  
Reliability, Availability, and Maintainability  
Statistical Quality Control

**47. Offeror Name: University of Arizona Continuing Education Program**

**Offeror Address:** Aerospace and Mechanical Engineering Dept.  
Bldg. 16, Room 200-B  
Tucson, AZ 85721-0663

**Offeror Type :** University

**Program Type:** Continuing Education

**Program Title:** Reliability Engineering

**Orientaton:** Reliability Engineering; Maintainability Engineering; Probabilistic Design for Reliability

**Point of Contact:** Dr. Dimitri Kececioglu

**Offeror Phone:** (602) 621-2495

**Audience:** Scientists; Engineers; Managers.

**Prerequisites:** Knowledge of statistics; probability and undergraduate college mathematics is desirable but not required.

**Comments:** None.

**Courses Offered:**  
Annual Reliability Engineering and Management Institute  
Annual Reliability Testing Institute

**48. Offeror Name: University of Arizona Master Degree Program**

**Offeror Address:** Reliability Engineering  
Bldg. 16, Room 200B  
Tucson, AZ 85721-0663

**Offeror Type :** University

**Program Type:** MS

**Program Title:** Reliability Engineering

**Orientaton:** Reliability Engineering; Quality Control; Probabilistic Design;  
Maintainability Engineering; Product Assurance

**Point of Contact:** Dr. Dimitri Kececioglu

**Offeror Phone:** (602) 621-2495

**Audience:** Holders of Bachelor's Degree in Engineering, Mathematics, or Physics  
interested in pursuing MS degree.

**Prerequisites:** Bachelor's Degree in Engineering, Mathematics, or Physics.

**Comments:** Courses in Reliability Engineering are videotaped on request and  
rights to them are sold at nominal cost. Studies toward a PhD may  
also be pursued in Engineering with Reliability Engineering minor by  
those who qualify.

**Courses Offered:**

Advanced Engineering Quality Control  
Advanced Reliability Engineering (Maintainability Engineering)  
Engineering Quality Control  
Reliability Engineering  
Reliability Testing

**49. Offeror Name: University of Arkansas**

**Offeror Address:** Dept. of Industrial Engineering  
University of Arkansas  
Fayetteville, AR 72701

**Offeror Type :** University

**Program Type:** BS; MS; PhD

**Program Title:** Industrial Engineering and Operations Research

**Orientaton:** Computer-Integrated Manufacturing; Simulation; Human Factors/Ergonomics; Manufacturing Automation; Material Handling; Artificial Intelligence; Methods Engineering; Quality Control/Reliability; Production Planning and Control; Computer-Assisted Processes

**Point of Contact:** Eric M. Malstrom, Professor and Head

**Offeror Phone:** (501) 575-6029

**Audience:** Prospective graduate and undergraduate students.

**Prerequisites:** Entry in graduate program requires a Bachelor of Science in Engineering.

**Comments:** None.

**Courses Offered:**

Artificial Intelligence  
Computer-Assisted Processes  
Computer-Integrated Manufacturing  
Human Factors/Ergonomics  
Manufacturing Automation  
Material Handling  
Methods Engineering  
Production Planning and Control  
Quality Control/Reliability  
Simulation

**50. Offeror Name: University of Bridgeport**

**Offeror Address:** Dept. of Manufacturing, Industrial and Management Engineering  
College of Science and Engineering  
Bridgeport, CT 06601

**Offeror Type :** University

**Program Type:** MS

**Program Title:** Management Engineering

**Orientaton:** Contemporary problems of the engineering manager. Curriculum provides for six required courses and four electives to suit career objectives.

**Point of Contact:** Prof. Phylipp Dilloway, PE

**Offeror Phone:** (203) 576-4153

**Audience:** Practicing engineers who are seeking management responsibility, intend to remain in engineering, and wish to prepare for a more specialized technology management responsibility by academic means other than the MBA degree.

**Prerequisites:** Undergraduate degree in engineering or hard science. TOEFL (Test of English as a Foreign Language) of 550 or better for international students and GMAT (Graduate Management Aptitude Test) for all. Undergraduate GPA (Grade Point Average) of 2.5 or better.

**Comments:** None.

**Courses Offered:** Contact Department directly.

**51. Offeror Name: University of California at Los Angeles**

**Offeror Address:** Dept. of Business, Engineering, and Management  
10995 Le Conte Avenue, Room 515  
Los Angeles, CA 90024-2883

**Offeror Type :** University

**Program Type:** Continuing Education

**Program Title:** UCLA Extension Short Courses

**Orientaton:** Total Quality Management (TQM); Concurrent Engineering

**Point of Contact:** Marcus A. Hennessy, Marketing Assistant

**Offeror Phone:** (213) 825-1047

**Audience:** Scientists; Engineers; Managers

**Prerequisites:** BS in Engineering or Science; or equivalent experience in or relating to the course topic unless otherwise stated.

**Comments:** Contact Offeror for specific information on dates courses offered and possibility of on-site courses tailored to organization needs.

**Courses Offered:**

Advanced Robotics: Analysis and Simulation  
Applied Maintainability, Availability and Operational Readiness  
Engineering  
Applied Reliability Engineering and Testing  
Computer-Aided Acquisition and Logistic Support (CALs):  
Elements and Applications  
Concurrent Engineering and Factory Automation  
Integrated Logistic Support (ILS): Elements and Application  
Manufacturing Systems Design and Evaluation  
Program and Project Management: Principles and Practice  
System Safety Principles and Practice  
Systems Engineering and Integration (SE&I)  
Total Quality Management (TQM): Principles, Tools and  
Applications

**52. Offeror Name: University of Dayton**

**Offeror Address:** Division of Special Programs and Continuing Education  
Kettering Laboratories, KL-105, 300 College Park  
Dayton, OH 45469-0001

**Offeror Type :** University

**Program Type:** Continuing Education

**Program Title:** Special Programs

**Orientaton:** Reliability Engineering; Product Assurance

**Point of Contact:** Earl Iselin

**Offeror Phone:** (513) 229-4632

**Audience:** Vice Presidents; directors; managers; supervisors; and engineers who are responsible for product reliability, maintainability, quality assurance, design and testing.

**Prerequisites:** Bachelor's Degree in Engineering; Mathematics; Physics; or their equivalent. Some familiarity with probability and statistics is desired but not required.

**Comments:** None.

**Courses Offered:** Applied Maintainability and Availability Engineering  
Applied Reliability Engineering

**53. Offeror Name: University of Florida**

**Offeror Address:** Dept. of Industrial & Systems Engineering  
University of Florida  
Gainesville, FL 32611

**Offeror Type :** University

**Program Type:** BS; MS; PhD

**Program Title:** Options in Systems Engineering at the Bachelor's; Master's, and PhD level

**Orientaton:** Systems Engineering; Systems Design; Manufacturing Systems Engineering

**Point of Contact:** D. Jack Elzinga

**Offeror Phone:** (904) 392-1464

**Audience:** Prospective students with interest in education in quantitative techniques that address the formulation and solution of systems analysis and design problems.

**Prerequisites:** Undergraduate - completion of two years pre-engineering with 2.5/4 GPA (Grade Point Average) and 2.5/4 GPA (Grade Point Average) in calculus and physics; Master's - College degree with 3.0/4 GPA (Grade Point Average) and 1000 GRE (Graduate Record Examination).; PhD - Masters degree and 1200 GRE (Graduate Record Examination).

**Comments:** None.

**Courses Offered:** Digital Simulation Techniques  
Reliability Engineering  
Stochastic Systems Analysis

**54. Offeror Name: University of Idaho**

**Offeror Address:** 1776 Science Center Drive  
P.O. Box 50778  
Idaho Falls, ID 83405

**Offeror Type :** University

**Program Type:** BS and Certificate Program

**Program Title:** Quality Assurance

**Orientaton:** Quality Assurance

**Point of Contact:** Marvin E. Eld

**Offeror Phone:** (208) 526-1388

**Audience:** Programs supply personnel for the eastern Idaho industrial community.

**Prerequisites:** College Algebra and College Statistics.

**Comments:** None.

**Courses Offered:**  
Contact University directly.

**55. Offeror Name: University of Iowa**

**Offeror Address:** Dept. of Industrial and Management Engineering  
Room 4131 EB  
Iowa City, IA 52242

**Offeror Type :** University

**Program Type:** BSc; MSc; PhD; Continuing Education

**Program Title:** Industrial and Management Engineering

**Orientaton:** Manufacturing; Design; Artificial Intelligence; Quality Control

**Point of Contact:** Dr. Andrew Kusiak

**Offeror Phone:** (319) 335-5934

**Audience:** Undergraduate and graduate students.

**Prerequisites:** GPA (Grade Point Average) of 3.0 and GRE (Graduate Record Examination) (Quantitative + Verbal) of 1100 for graduate students.

**Comments:** None.

**Courses Offered:**

Artificial Intelligence in Manufacturing  
Computer-Integrated Manufacturing  
Design of Work Methods  
Manufacturing Systems  
Production Systems  
Quality Control  
Reliability Theory and Practice

**56. Offeror Name: University of Maryland Master and PhD Programs**

**Offeror Address:** Center for Reliability Engineering  
College of Engineering  
College Park, MD 20742-2111

**Offeror Type :** University

**Program Type:** MS; PhD

**Program Title:** Reliability Engineering

**Orientaton:** Designing for reliability and maintainability; Producibility; Statistical Process Control (SPC);

**Point of Contact:** Marvin L. Roush

**Offeror Phone:** (301) 454-1951

**Audience:** Qualified students holding a BS degree in any of the engineering and science areas from accredited programs.

**Prerequisites:** Bachelor's degree in science, mathematics, or engineering from a regionally accredited college or university with a minimum GPA (Grade Point Average) of 3.0; 3 letters of recommendation; statement of career objectives; and an official transcript of previous college courses.

**Comments:** None.

**Courses Offered:**

- Advanced Decision Theory
- Advanced Product Assurance
- Advanced Reliability Engineering
- Applied Probability and Statistics
- Basic Reliability Analysis
- Basic Reliability Engineering
- Bayesian Reliability Analysis
- Failure Analysis Lab.
- Failure Mechanisms and Effects Lab.
- Human Reliability Analysis
- Methods of Engineering Analysis
- Physics of Failure of Solid State Devices
- Quantitative Approach to Software Management and Engineering
- Reliability Engineering Seminar
- Reliability and Maintainability Engineering
- Reliable Design of Electronic Packages
- Risk Assessment for Engineers
- Special Problems in Reliability Engineering
- Structural Reliability
- System Safety Engineering

**57. Offeror Name: University of Maryland - University College Continuing Education Programs**

**Offeror Address:** University College  
University Blvd. at Adelphi Road  
College Park MD 20742-1668

**Offeror Type :** University

**Program Type:** Continuing Education

**Program Title:** Professional Development

**Orientaton:** Reliability Engineering; Taguchi Methods

**Point of Contact:** Richard Jaffeson

**Offeror Phone:** (301) 985-7206

**Audience:** Managers and Engineers.

**Prerequisites:** None stated.

**Comments:** Center for Professional Development can conduct most course offerings at your organization.

**Courses Offered:**

Applied Reliability, Life, and Accelerated Testing  
Mechanical Reliability and Probabilistic Design for Reliability  
Microprocessor Programs and Methods for Integrated Logistics  
Systems  
Reliability of Repairable Systems: Analysis and Applications

**58. Offeror Name: University of Massachusetts at Amherst Industrial Engineering and Operations Research Programs**

**Offeror Address:** Dept. of IE/OR  
Room 114, Marston Hall  
Amherst, MA 01003

**Offeror Type :** University

**Program Type:** BS, MS; PhD

**Program Title:** Industrial Engineering and Operations Research

**Orientaton:** Operations Research; Applied Probability; Engineering Management; Production Systems; Manufacturing Engineering; Human Factors

**Point of Contact:** Graduate Program Director

**Offeror Phone:** (413) 545-2851

**Audience:** Qualified applicants.

**Prerequisites:** Vary by program. Consult catalog directly.

**Comments:** None.

**Courses Offered:**  
Advanced Biometry  
Advanced Quality Control  
Basic Probability for Engineers  
Design for Production  
Design of Experiments  
Design of Production Systems  
Experimental Design  
Intermediate Biometry  
Probability and Statistics  
Queuing and Quality Control  
Statistical Quality Control

**59. Offeror Name: University of Massachusetts at Amherst Mechanical Engineering Programs**

**Offeror Address:** Dept. of Mechanical Engineering  
Mechanical Design Automation (MDA) Lab  
Amherst, MA 01003

**Offeror Type :** University

**Program Type:** MS; PhD

**Program Title:** Mechanical Engineering

**Orientaton:** Mechanical Design Automation; Computer-Aided Design (CAD);  
Engineering Design Features

**Point of Contact:** John R. Dixon

**Offeror Phone:** (413) 545-4242

**Audience:** Students who qualify for entry in a graduate-level program in mechanical engineering with special interest and aptitude in design, manufacturing, and computer-related topics.

**Prerequisites:** Entrance requirements as defined by the Department of Mechanical Engineering and the Graduate School at the University. Participation in MDA Lab research for graduate students is by arrangement with Lab director.

**Comments:** Highly competitive graduate research program in engineering design theory and methodology. Two main research areas: (1) feature-based representations for designed objects and (2) computer-based models of the mechanical design process.

**Courses Offered:** Advanced Mechanical Engineering Design I & II  
Wide variety of courses in materials, manufacturing, mechanics, computer science, and other topics.

**60. Offeror Name: University of Pittsburgh**

**Offeror Address:** Dept. of Industrial Engineering  
1046 Benedum Hall  
Pittsburgh, PA 15261

**Offeror Type :** University

**Program Type:** MS; PhD

**Program Title:** Industrial Engineering

**Orientaton:** Operations Research; Engineering Management; Manufacturing Systems

**Point of Contact:** Dr. Mainak Mazumdar

**Offeror Phone:** (412) 624-9857

**Audience:** Individuals with BS in engineering or hard sciences (physics, mathematics, chemistry, or computer science).

**Prerequisites:** Undergraduate or graduate degree in engineering or hard sciences; GPA (Grade Point Average) of 3.0; Knowledge of probability and statistics, calculus, differential equations, linear algebra, and computer programming.

**Comments:** None.

**Courses Offered:** Contact University directly.

**61. Offeror Name: University of Rhode Island**

**Offeror Address:** Industrial and Manufacturing Engineering Dept.  
103 Gilbreth Hall  
Kingston, RI 02881-0805

**Offeror Type :** University

**Program Type:** MS

**Program Title:** Manufacturing Engineering

**Orientaton:** Design for Manufacture and Assembly (DFMA); Manufacturing Systems

**Point of Contact:** Dr. Geoffrey Boothroyd

**Offeror Phone:** (401) 792-2455

**Audience:** Undergraduates in Mechanical, Industrial or Electrical Engineering; Mathematics; Physics; or Business.

**Prerequisites:** Undergraduate degree in Mechanical, Industrial or Electrical Engineering; Mathematics; Physics; or Business. Contact Department for additional requirements.

**Comments:** None.

**Courses Offered:**  
Advanced Statistical Methods for Research and Industry  
Assembly and Handling Automation  
Computer-Aided Manufacturing  
Manufacturing Systems: Design Analysis and Simulation  
Metal Deformation Processes  
Network Application in Industrial Engineering  
Product Design for Manufacturability  
Production Control and Inventory Systems  
Simulation  
Statistical Quality Assurance  
Theory of Machining and Machine Tools

**62. Offeror Name: University of Southern California**

**Offeror Address:** Industrial and Systems Engineering Dept.  
OHE 400  
Los Angeles, CA 90089-1452

**Offeror Type :** University

**Program Type:** MS

**Program Title:** Manufacturing Engineering Program

**Orientaton:** Manufacturing Engineering; Computer-Aided Manufacturing;  
Computer-Aided Design; Design Engineering

**Point of Contact:** Dr. Behrokh Khoshnevis

**Offeror Phone:** None given.

**Audience:** Full or part-time students interested in pursuing a MS degree.

**Prerequisites:** GPA (Grade Point Average) of 3.0; BS or B.Eng. from an accredited school; Minimum GRE (Graduate Record Examination) of 1000 (Verbal + Quantitative); TOEFL (Test of English as a Foreign Language) of 550 for students whose first language is not English; 3 semesters of calculus; 3 semesters of science; introductory courses in computer programming, materials science, manufacturing processes, and engineering economy.

**Comments:** None.

**Courses Offered:**  
Advanced Quality Control  
Advanced Statistical Aspects of Engineering Reliability  
Computer-Aided Manufacturing  
Engineering Analysis of Manufacturing Enterprise  
Statistical Quality Control

**63. Offeror Name: University of Utah**

**Offeror Address:** 3209 MEB  
Salt Lake City, UT 84112-0000

**Offeror Type :** University

**Program Type:** BS; MS; PhD; Continuing Education

**Program Title:** Mechanical Engineering

**Orientaton:** Reliability in Design; Manufacturing Engineering; Safety; Design Methods

**Point of Contact:** James K. Strozier

**Offeror Phone:** (801) 581-6947

**Audience:** Undergraduate and graduate students.

**Prerequisites:** Undergraduate minimum GPA (Grade Point Average) - 2.7; graduate minimum GPA (Grade Point Average) - 3.0

**Comments:** None.

**Courses Offered:**

Advanced Computer-Aided Manufacturing  
Computer-Aided Manufacturing  
Reliability Engineering  
Statistical Quality Control and Assurance  
Statistics and Metrology

**64. Offeror Name: University of Wichita**

**Offeror Address:** Dept. of Industrial Engineering  
Wichita, KS 67208

**Offeror Type:** University

**Program Type:** BS; MS; PhD

**Program Title:** Industrial Engineering

**Orientaton:** Human Factors; Operations Research; Manufacturing Engineering;  
Systems

**Point of Contact:** Dr. Brian K. Lambert

**Offeror Phone:** (316) 689-3425

**Audience:** None stated.

**Prerequisites:** None stated.

**Comments:** None.

**Courses Offered:**  
Computer-Integrated Manufacturing  
Engineering Management  
Human Factors  
Production Engineering  
Queuing and Inventory Systems  
Reliability and Maintainability  
Statistical Quality Control

**65. Offeror Name: University of Wisconsin - Madison Master Degree Program**

**Offeror Address:** College of Engineering  
1513 University Avenue  
Madison, WI 53706-1572

**Offeror Type :** University

**Program Type:** MS

**Program Title:** Manufacturing Systems Engineering

**Oriantaton:** Manufacturing Systems; Engineering Management; Factory Automation; Computer-Integrated Manufacturing (CIM)

**Point of Contact:** Marvin F. DeVries; Sue A. Helmich

**Offeror Phone:** (608) 262-0921

**Audience:** Individuals seeking MS degree in engineering in area of Manufacturing Systems.

**Prerequisites:** Undergraduate degree in engineering or its physical science equivalent; Undergraduate grade point average (GPA) of 3.00 (on a 4.00 scale) or above; Students with a BS Degree from a non-U.S. college or university must have high GRE (Graduate Record Examination) and TOEFL (Test of English as a Foreign Language) scores.

**Comments:** Recipient of the CASA/SME 1988 University LEAD Award for excellence in a CIM education program; Designation as a University of Wisconsin Center of Excellence, 1988-1993.

**Courses Offered:**  
Computer-Integrated Manufacturing Systems: Design/Control  
Inspection, Quality Control, and Reliability  
Operations Management  
Production Planning and Control  
Simulation Modeling and Analysis of Industrial Engineering Systems  
Tactical Decisions in Operations Management

**66. Offeror Name: University of Wisconsin - Madison Center for Quality and Productivity Improvement**

**Offeror Address:** Center for Quality and Productivity Improvement  
610 Walnut St.  
Madison, WI 53705

**Offeror Type :** University

**Program Type:** Continuing Education

**Program Title:** Engineering Professional Development

**Orientaton:** Design of Experiments; Taguchi; Quality; Productivity; Statistical Process Control (SPC)

**Point of Contact:** Thomas J. Snodgrass

**Offeror Phone:** (608) 263-2520

**Audience:** Varies by course. Contact Center directly.

**Prerequisites:** Vary by course. Contact Center directly.

**Comments:** None.

**Courses Offered:**

Designing Industrial Experiments: The Engineer's Key to Quality  
Dynamic Statistical Process Control: Going Beyond Shewart  
Explanation of Taguchi's Contributions to Quality Improvement  
Management Overview of Modern Quality Methods  
Statistical Design of Experiments for Engineers

**67. Offeror Name: University of Wisconsin - Madison Center for Value Engineering Research**

**Offeror Address:** Center for Value Engineering Research  
432 North Lake St.  
Madison, WI 53706

**Offeror Type :** University

**Program Type:** Continuing Education

**Program Title:** Value Engineering

**Orientaton:** Value Information; Team Participation; Five-Step Job Plan; Three-Phase Product Critical Path; Analytical Language

**Point of Contact:** Thomas J. Snodgrass

**Offeror Phone:** (608) 263-3371

**Audience:** Product Managers; Design Engineers; Marketing Specialists; Manufacturing Engineers; Cost Specialists.

**Prerequisites:** Value Engineering I or Customer-Oriented Product Development (VE II-Module I) for Cost-Oriented Product Development (VE II-Module II).

**Comments:** None.

**Courses Offered:**  
Cost-Oriented Product Development (VE II-Module II) - 3.5 days  
Customer Oriented Product Development (VE II-Module I) - 3 days  
Designing Industrial Experiments - 4.5 days  
Reducing Product Costs and Improving Customer Acceptance with the VITAL System - 2 days  
Value Engineering I - 5 days

**68. Offeror Name: University of Wisconsin - Milwaukee Continuing Education Program**

**Offeror Address:** Center for Continuing Engineering Education  
929 North 6th Street  
Milwaukee, WI 53203

**Offeror Type :** University

**Program Type:** Continuing Education

**Program Title:** Continuing Engineering Education

**Orientaton:** Simultaneous Engineering; Quality by Design; Statistical Process Control (SPC); Competitiveness

**Point of Contact:** Rick Albers

**Offeror Phone:** (414) 227-3125

**Audience:** Design Engineers; Manufacturing Engineers; Process Engineers; Quality Assurance Managers.

**Prerequisites:** None stated.

**Comments:** None.

**Courses Offered:**  
Manufacturing Competitiveness and Quality by Design  
Simultaneous Engineering Methodology  
Statistical Process Control  
Strategic Justification  
Total Quality Assurance

**69. Offeror Name: Value Analysis, Inc.**

**Offeror Address:** 4029 Westerly Place, Suite 116  
Newport Beach, CA 92660

**Offeror Type :** Consultant

**Program Type:** Continuing Education Workshops

**Program Title:** Value Analysis/Value Engineering (Value Management) Workshop

**Orientaton:** Value Management; Cost Management; Change Management;  
Quality

**Point of Contact:** John D. Groothuis

**Offeror Phone:** (714) 548-8018

**Audience:** Employees from engineering, manufacturing, purchasing, marketing,  
and finance.

**Prerequisites:** None.

**Comments:** None.

**Courses Offered:**  
Value Analysis/Value Engineering Workshop

**70. Offeror Name: Virginia Polytechnic Institute and State University Master Degree Program**

**Offeror Address:** College of Engineering  
Blacksburg, VA 24061

**Offeror Type :** University

**Program Type:** MS

**Program Title:** Systems Engineering

**Orientaton:** Interdisciplinary program structured to include courses from engineering, computer science, business, etc., departments. Systems Engineering; Life-cycle Engineering; Systems Integration; System Effectiveness

**Point of Contact:** Prof. Benjamin S. Blanchard

**Offeror Phone:** (703) 231-5458

**Audience:** Full-time and/or part-time students interested in pursuing course work toward a master's degree.

**Prerequisites:** BS in some field of engineering or equivalent technical area. Refer to Graduate catalog for specific grade point and GRE (Graduate Record Examination) requirements.

**Comments:** Concurrent engineering is specifically addressed in the course "The Systems Engineering Process".

**Courses Offered:**

Applied Systems Engineering  
Engineering Economy  
Management of Quality and Reliability  
Manufacturing Systems Engineering  
Operations Research  
Production Planning and Control  
Reliability Theory  
Statistical Theory of Quality Control  
Systems Engineering Process

**71. Offeror Name: Virginia Polytechnic Institute and State University Continuing Education Program**

**Offeror Address:** College of Engineering  
Blacksburg, VA 24061

**Offeror Type :** University

**Program Type:** Continuing Education

**Program Title:** Engineering Extension

**Orientaton:** Systems Engineering; The Systems Engineering Process; Life-Cycle Engineering; Systems Integration; Systems Effectiveness

**Point of Contact:** Prof. Benjamin S. Blanchard

**Offeror Phone:** (703) 231-5458

**Audience:** Managers; Practicing Engineers; Technicians; Others from government/industrial sectors interested in subject matter.

**Prerequisites:** None.

**Comments:** None.

**Courses Offered:**  
Engineering Economy  
Logistics Engineering  
Quality Control  
Reliability and Maintainability  
Statistics  
Systems Engineering  
Value Engineering

**72. Offeror Name: Waterbury State Technical College**

**Offeror Address:** 750 Chase Parkway  
Waterbury, CT 06708

**Offeror Type :** College

**Program Type:** Associate Degree

**Program Title:** Quality Assurance Technology

**Orientaton:** Quality Assurance; Statistical Process Control (SPC); Reliability

**Point of Contact:** Stephen M. Colwell

**Offeror Phone:** (203) 575-8084

**Audience:** Industrial personnel employed in the quality field.

**Prerequisites:** Must be high school graduate.

**Comments:** None.

**Courses Offered:**  
Design of Experiments  
Manufacturing Processes  
Quality Assurance Organization and Management  
Reliability  
Statistical Process Control  
Statistical Process Improvement

**73. Offeror Name: West Virginia University**

**Offeror Address:** Dept. of Industrial Engineering  
Morgantown, WV 26506

**Offeror Type :** University

**Program Type:** MS; PhD

**Program Title:** Manufacturing Systems Engineering

**Orientaton:** Manufacturing; Quality; Cost; Design

**Point of Contact:** Ralph W. Plummer, Chairman

**Offeror Phone:** (304) 293-5131

**Audience:** Engineers

**Prerequisites:** BS in Engineering, Math or Science.

**Comments:** None.

**Courses Offered:**

Advanced Engineering Economy  
Advanced Manufacturing Processes  
Advanced Problems in Manufacturing Engineering  
Advanced Production Control  
Applied Linear Programming  
Computational Methods for Manufacturing Engineers  
Computer-Integrated Manufacturing  
Design of Industrial Experiments  
Dynamic Programming  
Industrial Quality Control  
Inventory Theory  
Materials and Processing Systems Design  
Queuing Theory  
Robotics and Flexible Automation  
Special Topics in Manufacturing Processes and Automation

**74. Offeror Name: Western Illinois University**

**Offeror Address:** Dept. of Industrial Technology

**Offeror Type :** University

**Program Type:** BS; MS; Continuing Education

**Program Title:** Industrial Technology Program with emphasis in Manufacturing

**Orientaton:** Automation; Computer-Aided Design (CAD); Computer-Aided Manufacturing (CAM); Computer-Integrated Manufacturing (CIM); CNC; Electronics; Manufacturing; Robotics; Quality Control

**Point of Contact:** T. G. Bridge

**Offeror Phone:** (309) 298-1091

**Audience:** Undergraduate and graduate students primarily with additional services for manufacturing engineers.

**Prerequisites:** Prerequisites and entrance requirements depend upon individual program or course selected. Most continuing education courses have no prerequisites.

**Comments:** The program prepares students to begin careers that lead to manufacturing management positions in engineering, sales, design, estimating, planning, quality control, production or other manufacturing positions.

**Courses Offered:**

Advanced Computer-Integrated Manufacturing  
Automated Controls and Computers  
Automated Industrial Production  
Computer-Aided Design  
Essentials of Computer-Integrated Manufacturing  
Fundamentals of Computer-Aided Manufacturing  
Industrial Robotics  
Manufacturing Process Control  
Production Systems

**75. Offeror Name: Worcester Polytechnic Institute**

**Offeror Address:** 100 Institute Rd.  
Worcester, MA 01609-2280

**Offeror Type :** College

**Program Type:** BS; MS; PhD (concurrent engineering, etc.); Continuing Education

**Program Title:** Advanced Manufacturing Engineering

**Orientaton:** Control and Monitoring of Manufacturing Processes; Engineering Analysis of Manufacturing Processes; Design for Manufacturability; Computer-Integrated Manufacturing (CIM)

**Point of Contact:** Richard D. Sisson, Jr.

**Offeror Phone:** (508) 831-5335

**Audience:** BS engineers, computer scientists, scientists, and engineers, full-time graduate students, and continuing education students.

**Prerequisites:** BS in Engineering, Computer Science, Science, or Management.

**Comments:** WPI's Manufacturing Engineering Applications Center conducts contract work for industry in several related areas, including concurrent engineering.

**Courses Offered:**  
Computer-Integrated Manufacturing  
Flexible Manufacturing Systems

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