

Atiq Waliullah Siddiqui

Contact Details

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- Challenge is what drives me -

Career Objective

To acquire a PhD from a university of repute, in order to embark on a career path with the aim of becoming an eminent researcher and academician in the field of operations research/supply chain management.

Occupation Summary

Highlights

- Teaching and Academic service experience at Systems Engineering/KFUPM (King Fahd University of Petroleum and Minerals), Dhahran, Saudi Arabia (2001 – to date)
 - Received *Distinguished Teaching Award* in **2006** (KFUPM)
 - Received *Distinguished Performance Awards* in **2001, 2003, 2007** (KFUPM)
- Founded Member course development group at KFUPM for SAP® based ERP courses
- Extensive experience as a web application developer
- Worked as team leader in projects for developing simulation based e-learning products.
- Published research work in peer reviewed journals and conferences
- Worked in teams with senior professors, on various funded projects in the areas of plant layout, inventory management, process targeting and scheduling.
- Acquired CFP (Certified Professional Forecasting) certification from Institute of Business Forecasting (IBF: <http://www.ibf.org/>)

Research Interests

- Production Systems
- Supply Chain Management
- Quality Control
- Process Targeting
- Systems Thinking & System Dynamics
- Simulation Based e-Learning

Teaching Interests

- Engineering Economics
- Production Systems
- Probability & Statistics
- Industrial Information Systems/ERP

Awards and Recognitions

- **Award of Merit, Distinguished Services** Systems Engineering Department, College of Computer Sciences and Engineering, KFUPM, 2007.
- **Award of Merit, Distinguished Teaching**, College of Computer Sciences and Engineering, KFUPM, 2006.

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- **Certificate of Appreciation** for contribution as organizer “ERP workshop”, KFUPM, May 2004.
 - **Award of Merit, Distinguished Services** Systems Engineering Department, College of computer Sciences and Engineering, KFUPM, 2003.
 - **Certificate of Excellence** in distinguished support in departmental activities, College of computer Sciences and Engineering, KFUPM, 2001.
 - **Distinguished Research Assistant Award**, Systems Engineering Department, College of computer Sciences and Engineering, KFUPM 2000.

Qualification

Education

MASTER OF SCIENCE – Jan 2001

Systems Engineering (Major: Industrial Engineering & Operations Research), King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, Saudi Arabia.

MS Thesis Title: “Targeting in Multi-Class Screening under Error and Error-Free Measurement Systems”

Thesis Abstract: See Appendix-A.

Performance: GPA 3.5 out of 4.

Courses during M.S.

SE 502: Industrial Automation

SE 503: Linear Programming & Applications

SE 508: Advanced Production Systems

SE 534: Advanced Quality Control

SE 548: Sequencing & Scheduling

Math 560: Design of Experiments

MIS 590: E-commerce

SE 429: Maintenance planning & Control

Math 480: Linear & Nonlinear Programming

BACHELOR OF ENGINEERING – 1998

Mechanical Engineering, N.E.D. University of Engineering & Technology, Karachi, Pakistan.

Final Year Project: Finite element modeling of a die used in die-casting process, for the upper casing of the G4 gas meters designed for SSGC, ‘Sui Southern Gas Company, Pakistan’

Final Year Project Description: See Appendix-B

CFP (Certified Professional Forecaster) certification from **IBF (Institute of Business Forecasting)** (IBF: <http://www.ibf.org/>) (June, 2007)

Registered in Saudi Aramco/KFUPM **Graduate Certificate in Supply Chain Management**. Cohort Program with **Penn State University** (In Progress).

Research

**Publications
&
Conferences**

JOURNALS:

- Duffuaa S.O. & **Siddiqui A.W.**, "Process Targeting with Multi-Class Screening and Measurement Error", International Journal of Production Research, Volume 41, Number 7, 10 May 2003.
- Duffuaa S.O. & **Siddiqui A.W.**, "Integrated Process targeting and Product uniformity model for three-class screening", special issue of Journal of Quality reliability and Safety Engineering, Vol. 9, No. 3 (2002) 261-274.
- **Siddiqui A.W.**, Akhtar S., & Khan M., "Supply chain Simulator: A simulation game to enhance student learning and motivation" *accepted* COMPUTERS & EDUCATION.
- **Siddiqui A.W.**, "Behavior and Maintenance Strategies of a Non-Repairable Production System: A System-Dynamics Study" *Submitted* to International Journal of Operations and Production Management June 2007.
- Khan A. M., **Siddiqui A.W.**, Abdul-Majid M., "DC Power Supply Simulator: A Scenario-Based Educational Tool to Enhance Student's Learning" *submitted* to International Journal of Engineering Education, May 2007.

CONFERENCES:

- Elshafei M., **Siddiqui A.W.**, & Duffuaa S.O. "Optimal Process Targeting of Multi-Components Multi-Characteristics Products", 4th International Conference on manufacturing Research (ICMR 2006), 5th-7th **September 2006**, Liverpool, England.
- Al-Turki U. M., **Siddiqui A. W.**, & Andijani A. A., "ERP implementations in Saudi Arabia: A survey with Saudi companies", The 36th International Conference on Computers and Industrial Engineering, Challenges for Advanced Technology Industries, **June 20-23, 2006**, Howard Hotel, Taipei, Taiwan, R.O.C.
- **Siddiqui A.W.**, & Duffuaa S.O., "E-publishing: opportunities & threats", workshop on e-publishing Riyadh, **April 2003**.
- Duffuaa S.O. & **Siddiqui A.W.** "Integrated Process targeting and Product uniformity model for three-class screening", The Seventh ISSAT International Conference on Reliability And Quality In Design, 11-13 **August, 2001**, Miami, Florida, USA.

BOOK (Co-Authored, in Progress):

- "Technological systems" in *Technology for Business Students* (unpublished, on-going)
- "Manufacturing Systems" in *Technology for Business Students* (unpublished, on-going)
- "Environmental Systems & Industrial Ecology" in *Technology for Business Students* (unpublished, on-going)

CURRENT RESEARCH AREAS:

- Process targeting
- Time value of money/inventory models
- System Dynamics application in production/inventory and supply chain problems
- Simulation based e-learning

Teaching Experience

Lecturer:
Jan 2001 –
to date

SE 100: Introduction to Technology

Audience: A core course for 1st and 2nd year at undergrad **Industrial Management**

Class Size: ~ 50 (Taught 8 times)

Course Details: See Appendix C

SE 205: Probability & Statistics

Audience: A core course for 1st and 2nd year undergrad **Systems Engineering**

Class Size: ~ 30 (Taught twice)

Course Details: See Appendix C

SE303: Operations Research I

Audience: A core course for 1st and 2nd year undergrad **Systems Engineering**

Class Size: ~ 30 (Taught twice)

Course Details: See Appendix C

SE307: Engineering Economics

Audience: A core course for 3rd and 4th year undergrad **Engineering**

Class Size: ~ 40 (Taught twice)

Course Details: See Appendix C

SE 405: Stochastic Systems Simulation

Audience: A core course for 3rd and 4th year undergrad **Systems Engineering**

Class Size: ~ 40 (Taught twice)

Course Details: See Appendix C

SE 464: Industrial Information Systems

Audience: An elective course for 3rd and 4th year undergrad **Systems Engineering**

Class Size: ~ 40 (Taught twice)

Course Details: See Appendix C

**Continuing
Education
Program****SHORT COURSES:**

- Participated twice as SAP® Instructor (among three instructors), in a short course titled “Forecasting in SAP” offered to **SAUDI ARAMCO** by KFUPM, December 2005. ~ 30 participants; mostly mid level management ~ 40 participants.

- Offered twice, one week course on “Introduction to SAP” offered to KFUPM students. ~ 40 participants.

**Significant
Contributions****CONTRIBUTION IN COURSE DEVELOPMENT**

- Developed four **simulation based e-learning products** used in 2 different courses. Three products already in use since last six semesters at undergrad Systems Engineering and Business schools in Canada and Saudi Arabia, while the fourth in use since last two semesters at undergrad Electrical Engineering, KFUPM. (2003 – 2006)

- Two **authored chapters**, included in a course SE 100: Introduction to technology, titled technological systems and manufacturing systems (on-going book projects).

- Member, SAP® lab development group, Systems Engineering Department. Responsibilities include, **SAP® implementation & lab content development** for the Senior level course; SE 464: Industrial Information Systems. (2005 – 2007)

Career Development

Lecturer:
Jan 2001 –
to date

CAREER DEVELOPMENT IN TEACHING:

Following courses were attended as part of career development program at KFUPM:

- **Graduate Certificate in Supply Chain Management. Cohort Program with Penn State University (In Progress):** Possible courses that can be taken are: 1. SCM 800: Supply Chain Management (4 Credits) 2. SCM 810: Transportation And Distribution (4 Credits) 3. SCM 820: Strategic Procurement (4 Credits)

- **Business Forecasting Training Workshop (May 26-30, 2007):** Topics covered were: Basics, forecasting process, sales and operations planning, collaborative planning, forecasting models (Averages, exponential smoothing, decomposition, sales ratio, family member forecasting), forecasting error, presenting forecasting results.
- **Critical Thinking (September 07 – 10, 2003):** Topic covered was: Introduction to the various methods of infusing critical and creative thinking into content instruction.
- **Increasing Effectiveness as a University Teacher (September 09 – 11, 2002):** Topics covered were: Making effective use of student centered learning, assessing different types of outcomes, basic principles of curriculum development, making effective use of student centered learning, using games and simulation in teaching, learning styles.
- **How to be an Effective University Teacher (September 07 – 08, 2002):** Topics covered were: Learning outcomes, selecting appropriate teaching and learning methods, planning and delivering lectures, assessing student performance.
- **Introduction to ORACLE: SQL and PL/SQL (March 10-21, 2002):** Offered under Oracle academic initiative program
- **Introduction to WebCT (October-November, 2001):** Detailed hands on training program for the web-based course delivery platform, WebCT. Issues related to the effective online were also covered.
- **Striving for Excellence in University and Teaching and Learning II (August 27 – 29, 2001):** Topics covered were: Feedback strategies in teaching and learning, integrating technology into teaching, the teaching dossier, managing difficult situations.

Work Experience

Lecturer:

Jan 2001 – to date

PROJECTS & DEPARTMENTAL WORK:

- Member, **SAP® lab development group**, Systems Engineering Department. Responsibilities include SAP® implementation & Maintenance. (2005-2007)
- Developed various web applications, listed as follows:
 1. **‘SCHEDULER’ a term planning web application**, Systems Engineering, KFUPM (2006-2007). **Key features:** Term planning, course assignment, filter application in course assignment (based on teaching eligibility, time conflicts, course loads), Web-based/Excel exportable reports in official required formats. The foremost feature is a one window course assignment module (displaying, all required information, assignment etc.) in an intuitive and simplistic single window, single click based interface. Key contribution: work load reduced from weeks to hours.
 2. **‘KFUPM SCM’**, a web application used as **short courses management system**, KFUPM (2005-2006). These short courses are mostly offered by KFUPM faculty for local industries. Used so far to manage more than 200 short courses. **Key features:** Administrator’s Module: Manage short courses; track course coordinator requests, participants’ requests and information; Participants Module: registration (both corporate and individual).
 3. **‘MAQS survey’**, a web application for creating, conducting & reporting surveys online, KFUPM (2004-2005). More than 20 surveys have been conducted and reported. Conducted survey submissions were in range from few hundreds to over one thousand. **Key features:** Three survey types, six question types, and survey reports as: tables/pie charts, categories/classifications etc.
 4. Developed and administered **online conference management system** used for **IEEE sponsored ICICS’ 2004** (International Conference on Information and Computer Science) (2003-2004).

Key features: Administrator’s Module: paper tracking, reviewer assignment and tracking, other statistics; Authors Module: Paper submission and tracking, presentation upload; Reviewers’ Module: Assigned paper download, review submission; Participants’ Module: registration, information etc.

- **Co-investigator**, Project titled “DC Power Supply Simulator”, College of Engineering Sciences, Innovation Grants Scheme (2005-2006), KFUPM.
- **Co-investigator**, Project titled “Simulation Games for Enhancing Student Learning”, DAD Grant (2003-2004), KFUPM. Developed three scenario based e-learning products in the areas of **supply chain (Modified Beer Game)**, **Electrical power distribution & Manufacturing**.
- **Contributions in other projects in Plant layout, inventory planning and scheduling**
- **Hajj Transportation Project:** Worked as part of the simulation programming group (ProModel 4.2 used). In this project a detailed simulation model was prepared for Hajj transportation system, ministry of Hajj, Saudi Arabia (1999-2000).
- **Teaching Assistance:** Teaching assistance for four semesters during MS program (1999-2000).

Assistance-ship

During MS program
Jan 1999 – Jan 2001

Skill in Computer and Information Technology

Computer Skills

Mathematic and Applications:

- a. Matlab, Mathematica, ILOG CPLEX

Stochastic Simulation:

- a. ARENA, ProModel

Programming:

- a. Java, Visual Basic

Database:

- a. MySQL Version 5 (SQLyog - interface), MS Access
- b. Oracle 8i, Microsoft SQL server 2000
- c. Scripting: SQL, PL/SQL(Oracle)

Web Application Development:

- a. Apache Tomcat – JSP (Java server pages)
- b. Microsoft Windows ISS – ASP (Active server pages)
- c. Macromedia Dreamweaver MX

Graphics:

- a. Macromedia Flash MX, Adobe Photoshop CS

Personal Details

Language Skills:

Excellent communication skills in English & Urdu (Native)

Excellent reading and writing skills in Arabic. Fair in speaking in Arabic

- Basic and advanced Arabic language courses (3 months each)
- Member Arabic learning group (an informal expatriate based group that meets regularly to increase Arabic proficiency) (2006-2007)

Personal Interests:

- Reading: Fiction/Suspense Novels
 - Playing Cricket
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- Playing Squash: Have represented college of computer science in university's rectors cup (twice as captain). Won 1 Gold & 2 Silver medals. Participated in local level squash tournaments.

References

References

Prof. **Salih O. Duffuaa**
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King Fahd University, Dhahran, Saudi Arabia
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Appendix – A

MS Thesis Abstract: Recently, the economics of Quality Control has received a lot of interest from researchers. The Economics of Quality Control can be divided into three areas. These areas are "Economics of Control Charts", "Economic Design of Inspection Plans" and "Economic Selection of Process Parameters", where the last area is also known as "Process Targeting". The objectives of the thesis were to develop three Process Targeting models. The first model was developed for the case of multi-class screening situation when the measurement system is considered error prone. The results showed nullifying effect of measurement error by optimally adjusting the process mean and the cut off points. In the second model, product uniformity was introduced via Taguchi type quadratic loss function when the measurement system is considered error free. The results showed gains in profit in most of the cases if the new model is used. In the third model, a generalized model was presented in which both the product uniformity and the measurement error were incorporated. Results showed great deal of benefits over all other models if this integrated model is used. Sensitivity analysis has been performed to study the effect of measurement error and other parameters like production cost etc. Moreover, an analytic comparison of the models was performed and relationships between the models have been investigated. A numerical comparison has also been conducted to study the profit gain if a more realistic model is used. The thesis concluded by suggesting a number of extensions to be considered in future research.

Appendix – B

**Final Year Project
Description:**

SSGC (Sui Southern Gas Company) is the only direct gas provider in the southern region of Pakistan. SSGC uses various gas meters. G4 is one of the meters used for home applications. G4 meter is manufactured by the PMTF (Pakistan Machine Tool Factory) the largest government manufacturing facility in the south of Pakistan. The G4 meters are made up of an Aluminum Alloy and are manufactured using the die-casting process. In this project, the die used in the manufacturing is analyzed. A parametric 3-D model using Solidworks was developed. The model was used to develop a finite element model using ANSYS. The simulation is used to identify and rectify the problems in the die design.

Appendix – C

Taught Courses Details

SE307: Engineering Economics (3 Credit)

Course Objectives: To develop students' awareness of the concepts in cash flow analysis, time value of money, product/project costing and rate of return. To introduce students to the process of integrating engineering proposals with economic analysis in order to select among several viable alternative projects; and to understand and appreciate the models and measures used in decision making in the area of engineering economics.

SE 100: Introduction to Technology (2 Credit)

Course Objectives: The objective of this course is to present the role of technology in various industries such as manufacturing, construction, communication etc. Emphasis will be on terminologies, uses and systematic representation on the role of different resources in the organization

SE 464: Industrial Information Systems (4 Credit)

Course Objectives: Design of Industrial Information Systems in both operational and decision-making modes, special attention to the planning and control activities, engineering and production data control, systems requirements, analysis, design and implementation of typical computerized industrial information systems, including: Manufacturing activity planning, Plant monitoring and control, Inventory management, Plant maintenance system. Case studies involving available packages. Students are required to complete a major project.

Lab Objectives: This lab is to present and practice basic ERP concepts with hands on training using an ERP software (SAP)

Lab Features: Hands on training on:

- a. SAP including 1. SAP® Basics 2. Procurement 3. Plant Maintenance 4. Master Data (Material Master, Vendor Master) 5. Forecasting
- b. SQL review
- c. Lab Exercises, Group Discussion Board Activity, Exams
- d. Visit to Saudi Aramco's (Saudi petroleum company) SAP facility; one of the largest SAP implementation in the world.

SE 405: Stochastic Systems Simulation (3 Credit)

Course Objectives: Basic discrete-event simulation modeling, review of basic probability and statistics, selecting input probability distributions, random-number generators, generating random variables, output data analysis for a single system, validation of simulation models. A simulation language is used to stimulate selected industrial and computer models.

Lab Objectives: This lab is to grasp an industry standard Discrete Event Simulation software package and to practice basic stochastic simulation concepts learned in the lecture portion of the SE 405 course with the help of hands on training.

Lab Features: ARENA is used during the lab, key coverage includes:

- a. Introduction, manual simulation, ARENA basics, single server model with a number of variants.
- b. Animations and plotting
- c. Schedules, resource states and failures
- d. Queue ranking and balking
- e. Batching and ranking
- f. Routing
- g. Input analysis
- g. Job shop case study

SE303: Operations Research I

Course Objective: Modeling in Operations Research. Linear Programming: Simplex Method, Duality, Sensitivity Analysis. Network Models: Shortest Path, PERT/CPM, Maximum Flow Problems, Transportation and Assignment Problems. Elements of Queuing Models. Case Studies.

Lab Objectives: This lab is to provide supplement course lecture by solving additional problems. Topics covered are: Linear Programming: Simplex Method, Duality, and Sensitivity Analysis. Network Models: Shortest Path, PERT/CPM, Maximum Flow Problems, Transportation and Assignment Problems. Elements of Queuing Models. Case Studies.

SE 205: Probability & Statistics

Course Objectives: Sample space, events, random variables, conditional probability, some discrete and continuous distributions, functions of random variables, sampling distributions, estimation and test of hypotheses.

Lab Objectives: This lab is to provide supplement course lecture by solving additional problems. Topics covered are: Sample space, events, random variables, conditional probability, some discrete and continuous distributions, functions of random variables, sampling distributions, estimation and test of hypotheses.
