
**Fall 2017**

Bowling Green State University
East Carolina University
Indiana State University
North Carolina A&T State University
University of Central Missouri

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# PhD in Technology Management Newsletter

**Introductory Article**

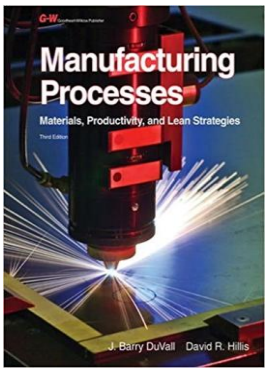
International Conference on Technology Management (ICTM 2017)

August 9-11 of 2017 about 20 scholars met in Chicago, Illinois for our second annual International Conference on Technology Management. ICTM 2017 provided an excellent international academic forum for sharing knowledge and results in theory, methodology and applications of Technology Management. Participants and presenters shared their lessons learned and contributions to major fields of Technology Management including Quality Systems, Manufacturing Systems, Digital Communication, Construction Management, and Human Resource Development & Industrial Training. Almost two decades after its inception, the PhD program with 150 graduates, 106 active students, and over 70 faculty members is offering a unique opportunity for professionals and technology leaders to advance their knowledge and contribution in the filed of technology management through research and practice. ICTM is our forum to share our lessons learned and the results of our research in this field with interested professionals and peers.

Our community is growing in a steady pace and the need for advanced leaders and researchers in the field of Technology Management is ever growing. I am inviting all PhD students and our alumni to activity participate in our next year conference and share their experience about our program with other interested professionals and practitioners in industry and academia. With your engagement, we will grow even stronger and thrive to achieve new milestones.

Dr. Mehran Shahhosseini,
Director, PhD in Technology Management Program - Consortium

## IN MEMORY OF DR. DUVALL



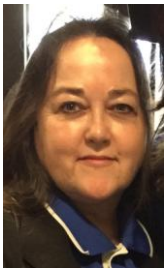

Dr. J. Barry DuVall, a faculty of East Carolina University (ECU) and PhD Consortium program, entered into eternal rest on the 20th of May 2017. Dr. DuVall, a graduate of Indiana State U and the University of Maryland, retired from ECU in December 2016 after 32 years as a professor in the Department of Technology Systems in the College of Engineering and Technology. He also taught and served as an administrator at Central Michigan University, West Virginia University, Iowa State University, and Indiana State University.

Dr. DuVall played a key role in putting the ECU in the consortium map for the PhD in Technology Management and was a key player in the development of the first internet programs for East Carolina University, and the first online graduate education program in Industrial Technology in the nation and authored/co-authored six textbooks, and several articles. In Dec 2016, ECU and Dr. DuVall's former student, Timothy Gomez, created the Dr. Barry DuVall/Timothy M. Gomez Teacher's Choice scholarship to help future ECU students realize their dreams. He was known for his student centric approach and dedication to support of the student through to degree attainment. May his soul rest in peace!

## AWARDS


Congratulations to Dr. Eli Kofi Aba, Dr. M. Affan Badar, and Dr. Michael Allen Hayden. Their paper "*Impact of ISO 9001 certification on firms financial operating performance*" published in *International Journal of Quality & Reliability Management* being selected by the journal's editorial team as a Highly Commended paper in the 2017 Emerald Literati Network Awards for Excellence. The purpose of this paper is to investigate the impact of ISO 9001 certification on US firms' financial operating performance for a period of five years including one-year prior to certification, year of certification, and three fiscal years after certification

## RECOGNITION



Mary (Mebby) Griffy, the Administrative/Program Assistant for the PhD in Technology Management Consortium program, has left the department to pursuit a new opportunity. Mebby joined the College of Technology back in Feb 2008 and was instrumental in supporting students and faculty of the PhD program. She was also perusing her PhD in Curriculum Instructions and Media Technology with Indiana State University and a part time lecturer for several courses including Digital Communication Tools and Career & Technical Education. Mebby's deep knowledge of the PhD consortium program, the College of Technology guidelines, and Indianan State University processes along with her commitment to students' success was exemplary and extremely valuable. We recognize Mebby for her service and wish her health, happiness, and success in her new endeavors.

## WELCOME

We wlecome Marti Mix as the new Administrative/Program Assistant for the PhD in Technology Management Consortium program. After spending almost 8 years in Admissions at ISU, Marti transferred to the Office of Information Technology, where she worked with the largest budget on campus, contract negotiations and procurement for 4 years. Marti is currently a junior in college and looking forward to graduation sometime in the next few years.


## OUR GRADUATES

**Dr. Bruce Bader** specialized in Quality Systems successfully defended his dissertation, "Incorporating Lean Non-value Added Variants into a Method of Determining Stakeholder Salience for First-line Manager Decision Making" in July 2017 under supervision of Dr. M. Affan Badar.

**Dr. John Selvadurai** specialized in Digital Communications Systems successfully defended his dissertation, "Distributed Computing in Internet of Things (IoT) using Mobile Ad hoc Network (MANET): A Swarm Intelligence Based Approach" in July 2017 under supervision of Drs. Patrick Appiah-Kubi and Mehran Shahhosseini.

**Dr. Kishore Erukulapati** specialized in Quality Systems successfully defended his dissertation, "Development of a Quality Management Assessment Tool to Evaluate Software Using Software Quality Management Best Practices" in October 2017 under supervision of Dr. M. Affan Badar.

**Dr. Larry Brown Jr.** specialized in Quality Systems successfully defended his dissertation, "A Study of the Material Inspection Record and Quality Systems: A Case in the United States Department of the Navy" in September 2017 under supervision of Dr. Suhansa Rodchua.

**Dr. Mark Alexander** specialized in Human Resource Development and Industrial Training successfully defended his dissertation, "Key Performance Indicators of Part-time Employees Teaching Online" in October 2017 under supervision of Dr. Cindy Crowder.

**Dr. Michael Ramage** specialized in Digital Communications Systems successfully defended his dissertation, "A Study of the Factors Influencing Last Mile Residential Fixed Broadband Pricing in Kentucky" in September 2017 under supervision of Dr. Charles Lesko.

**Dr. Perry Moler** specialized in Human Resource Development and Industrial Training successfully defended his dissertation, "The Perceptions of Change and Change Readiness in Junior and Senior Engineering & Technology Students" in October 2017 under supervision of Dr. Cindy Crowder.

**Dr. Randolph Robertson** specialized in Manufacturing Systems successfully defended his dissertation, "The Effectiveness of Concurrent Design on the Cost and Schedule Performance of Defense Weapons System Acquisitions" in October 2017 under supervision of Dr. Mehran Shahhosseini.

## UPDATES IN SPECIALIZATION

***Quality Systems***

*Quality in the age of disruptive technologies*

Quality similar to many other filed of knowledge, is vastly impacted by the rapid changes in technology advancements and the business paradigms. Disruptive technologies including Big Data Analytics, Intellectual Intelligence and Robotics, Autonomous Cars, Internet of Things (IoT), all and all introduce new challenges to business managers and quality practitioners. While many of such technologies have been around for decades, majority of them passed the threshold of economy-of-scale and became mainstream technologies in past decade.

On one hand, quality professionals, relying on their analytical and process practical knowledge, expected to be at the forefront of the fourth industrial revolution. On the other hand, the realm of quality has not experienced many major breakthroughs in past couple of decades. Many quality tools, techniques, and methodologies, from Six Sigma to lean, are mainly based on the traditional assumptions in business and rely on connectional approaches to quality. As an example, quality professionals are master of small data interpretations, but when it comes to leverage big data tools and techniques, they are not usually trained to leverage the state of the art technologies available for many subject matter experts.

In past couple of years, we have seen a surge in discussions about the impact of disruptive technologies on quality and how quality systems should be renovate to stay relevant in ever competing business environment.

American Society for Quality (ASQ), as the major authority in advancing the quality body of knowledge, has included discussion about innovation and disruptive technologies to its major conferences and gathering. The 2017 ASQ World Conference in Quality added a new focus area, Quality as a Competitive Advantage, to focus on topics like data-driven decision making and predictive analytics. ASQ Quality 4.0 Summit is a new attempt to give quality professionals a crash course of disruptive technologies like artificial intelligence, big data, robotics, and more. ASQ first European Conference in Berlin, probably took the most ambitious step and chose its major theme as "The Next Generation of Quality: The Future Is Now" to invite the quality community to this how are quality philosophy and methods evolving to keep pace with this rapidly changing reality?

PhD student, especially Quality Systems specializations, should pay a specific attention to the new trends in this field resulting from disruptive technologies. This is an interesting time for quality practitioners and researchers.

***Manufacturing Systems***

*Biomimicry in Manufacturing Systems*

Japan's high-speed bullet train flies at speeds up to 200 miles per hour. This is a great technological breakthrough. However there is a problem with the excessively high speed and the tunnels they fly through. When it exits a tunnel at full speed it creates a sonic boom that disrupts houses and businesses for miles around. Their only solution was to slow down when coming out of the tunnels, but this defeated the very purpose of the high-speed train.

Eiji Nakatsu, chief engineer of the train is an avid bird watcher, and was inspired by the kingfisher's ability to transition seamlessly between air and water with hardly a splash. The bird dives completely underwater to catch fish and flies out with hardly a ripple to the water. He discovered that the shape of the bird's bill is what gave it this special ability. So Nakatsu decided to modify the train's front engine shape to resemble the kingfisher's bill. The result was profound.

This design eliminated the sonic boom, and as an added bonus it increased the train's speed by 15 percent, and decreased fuel consumption by 15 percent. This is just one successful example of biomimicry.

Biomimicry, (also called, biomimetics, or bio-inspiration) is the use of ideas from nature to develop new products and solve problems. The word biomimicry comes from two Greek words meaning life (bios) and imitation (mimesis). In the above example, the kingfisher's bill was the inspiration for the more efficient redesign of Japan's bullet train.

An Italian cement maker was having issues with the steel pipe it used to transport their abrasive cement material throughout the factory. It was so coarse that the company had to replace the steel pipes every two weeks. They wanted a new pipe that was as flexible as a rubber hose and yet many times stronger than steel.

Their supplier decided to look to nature to find a solution, asking "what's out there in the world already that's flexible and yet armor plated?" They looked at worms, fish, and snakes; snakeskin won out.

The design they came up with was a hose lined with a series of interlocking ceramic hexagrams separated by thin barriers of rubber. The resulting prototype hose was installed in the factory and has remained in operation for 6 years without any visual signs of wear. Innovations like these are making their way into company's R&D efforts all over the world.

Another application of biomimicry led to the development of self-cleaning exterior paint. The company StoCoat developed a paint called Lotusan derived from the design of the lotus leaf. The lotus leaf has tiny nanostructures on the face of each leaf that provides a microscopically thin layer of air between it and whatever dirt, particles, or water that falls upon it.

This causes water droplets to beat up on the surface of the leaf and the slightest wind or tilt of the leaf causes those beads to roll off, taking all the accumulated dirt particles with it.

StoCoat used the lotus plant as their inspiration for their exterior paint which mimics the air cushion effect to block dirt, mold, mildew and other dingy culprits from adhering to the paint. Exterior walls painted with Lotusan are washed clean with every new rainstorm, no scrubbing required.

As seen in the bullet train example, biomimicry has the potential to help us solve problems, and design products that are more effective, and more efficient, which equals more income and savings. Biomimetics is an inspiration for a project. It still takes a lot of engineering calculations and designing in order to build the real engineering project.

It isn't creating a new way of design or a new way of engineering; biomimicry is a new way of thinking that is interjected into an engineer's design process. Mike Henrey (a graduate of Simon Fraser University who works in the field of biomimicry) says, "when you're designing a new project, you have to get ideas from somewhere, and biomimicry is just another source for ideas, it's another tool in the engineer's toolbox."

**References:**

DeYoung, D., & Hobbs, D. (2009). Discovery of Design. Green Forest: Master Books.

Hessman, T. (2014, December 3). Industry Week/Biomimicry. Retrieved November 17, 2016, from Industry Week: http://www.industryweek.com/biomimicry

INDUSTRYWEEK.COM. (2014, December). Biomimicry: What Would Nature Do? Industry Week, 12-14.

***Human Resource Development & Industrial Training***

HR 2016 Trends

In the rise of technological advancements, the role of HR is constantly changing requiring considerable changes to be made in order to best address the needs of the workforce and organizations. A study was conducted worldwide involving over 60 international HR professionals, the outcome of the study revealed what 2016 holds when it comes to the opportunities and challenges facing global HR. First and foremost, recruitment will become more data driven; in fact, HR will have a much easier access to potential employable profiles thanks to new technologies. The variety of professional network platforms such as LinkedIn, provide a faster and cheaper access to new recruits and talents. Second, in the light of all the changes affecting the business world, it seems pivotal that organizations keep the skills of their workforce up to date. In that regard, companies tend to spend a lot of money on training their employees while they can benefit from their own internal knowledge capital; therefore, organizations should encourage and harness peer-to-peer learning, which is not only cost effective but can also result in increasing the workforce skills especially that it is done by people who understand the organization and its culture. Another aspect to focus on is the development of the human side of the business, where the future requires organizations to move away from processes and structures to encouraging employees to develop the mindset geared towards exploring new ways of performing their job duties with the appropriate autonomy; this has proven over the year to improve performance and increase retention and loyalty among the workforce.

On another note, moving forward, the next years hold other generational challenges for business that have to ensure they remain attractive to Generation Y as the future workforce, therefore, businesses have to take a proactive approach in understanding the needs of the upcoming workforce, and prepare their integration accordingly. Last but not least, performance reviews have to be reinvented, making sure that the standard performance ratings are dropped and newer adaptable methods of performance management are put in place that match the needs of the organization.

**Reference:**

http://www.thepworld.com/ghtr2016

***Digital Communication***

Forensics in the Cloud

Privacy and cloud computing continue to be of significant interest in the digital communications arena. Digital Forensics investigators are often asked, how does law enforcement get data from cloud providers and what safeguards are in place for to protect user's privacy? In this case the user may be a suspect or an unrelated person with data on a shared storage media. Not long ago it would not have been unusual for the whole server to have been seized regardless of the co-mingled data. However, with cloud computing and the associated redundancy, geographical separation and significant co-mingling of data this is no longer common practice.

Today, most cloud providers have a process in place that protects users from excessive requests while also allowing the provider to follow the law. Suppose that the FBI wishes to obtain information on a particular user from a cloud provider. The FBI would first need to show probable cause to a court or magistrate and receive a search warrant. The warrant is then served on the cloud provider. The cloud provider has a screening function that then sorts and prioritizes the warrants. Child safety for instance would receive a higher priority than low level financial fraud. The warrant then goes to the proofer. This person examines the warrant for errors, misidentification or procedural flaws. If there are issues this person sends them back to the originating agency. From here the warrant will go the separator. The person will ensure the warrant is not too broad to capture data that will be comingled with other users. This person works with the agency to narrow the warrant to prevent 4th amendment issues. From here it goes to the producer, typically an experienced forensics examiner, who generates the data set. This person may also act as a narrower. It is not unusual to ask for "Everything". Everything often generates data sets far too large to be useful and the narrower works to help the agency get what is actually needed. From here the data is sent to the agency with a certificate of authenticity. If necessary a custodian will travel from the provider to testify to authenticity in court proceedings. This is a typical example. Variations of course do occur and the law is ever changing in this arena. From a digital communications technical managers perspective this is easily something that could be dealt with during a student's career.

***Construction Management***

Role-switch: Challenges of construction project manager

There are notable changes and transformation going on in different industries and in the construction industry in particular. These changes are as a result of changes from traditional project delivery system to more integrated project delivery system occasioned by changes in world economy, regulatory/environmental requirements, changes in construction industry landscape, and changes in customer demand. These changes are unseen centripetal force that determine and control the role that a construction project manager plays in project delivery processes.

Traditionally, the construction project manager is project management task-oriented; to lead the project team (focusing solely on the team responsible for a project, acquisition of resources needed to execute a project, monitoring and control project constraints, and etc.). But with the prevailing changes, the construction project manager's role is breaking known project role boundaries.

According to the Director of Information Systems and Technology Advisory, at Conture Business, "Leaders will need to transform their PMOs [project management offices] or project management teams to focus all efforts around reaching business goals" (Alexander, 2016). What this means is that the role of a project manager changes depending on the compelling circumstances in the time and location for the overall good of the organization.

It is becoming common practice for construction companies to merge the position of construction project manager and project engineer into one title/position. Sometimes the role of regulatory compliant officer is also merged together with project management role or combination of the three into one single position with a new title or an appendage to the construction project manager title.

It is not surprising to hear titles like Project Management Engineer or such that requires the project manager to wear different hats culminating into role-switch from time to time.

The role-switch required of construction project manager to meet the project and corporate goals placed on the project manager the task of being versatile in different areas. Some of these burdens require the construction project manager to be versatile not only in cost-benefit analysis, but also to take the role and task of conducting risk-benefit analysis of a project—traditional role of project engineer (Robinson & Dixon, 2007). What this means is that with the current trend and changes, construction industry is concurrently redefining the role of construction project manager. Therefore, institutions and organizations that train and nurture graduates in the construction project management field need to take into account these market changes to get the graduates ready for the challenges ahead.

References:

Alexander, M., (2016). 5 Trends that will transform project management. Retrieved from http://www.cio.com/article/3019927/project-management/5-trends-that-will-transform-project-management.html

Robinson, S. & Dixon, R., (2007). Engineering, Business and Professional Ethics. Butterworth-Heinemann, Burlington, MA.

# CAMPUS NEWS

## *All Campuses*

### *Spring 2018 Registration*

Below are a few dates to keep in mind for Spring 2018 Registration:

- ***BGSU Registration Calendar***

https://www.bgsu.edu/content/dam/BGSU/registration/documents/register/registration-calendar.pdf

- ***East Carolina University Calendar***

http://www.ecu.edu/cs-acad/fsonline/customcf/calendar/spring2018.pdf

- ***Indiana State University Registration Calendar:***

PRIORITY REGISTRATION: Nov 13-Dec 3: available for graduate students and seniors who have at least 90 earned hours of credit
OPEN REGISTRATION: Dec 4
https://www.indstate.edu/registrar/student-resources/registrationscheduling/priority-registration-dates-information

- ***North Carolina A&T State University***

http://www.ncat.edu/registrar/academic-calendar/Spring 2018 Academic Calendar_26.pdf

- ***University of Central Missouri***

https://www.ucmo.edu/calendar/summary.cfm

### *New Contact Information*

- ***BGSU (Bowling Green State University)***
  - Academic Calendars: http://www.bgsu.edu/registration-records/academic-calendars.html
  - Course Search: https://webapp.bgsu.edu/ClassSearch/search.htm
  - Contact:
    - Pamela Keppler
      - Phone: 419-372-5439
      - Email: pamelak@bgsu.edu

- ***ECU (East Carolina University)***
  - Academic Calendars: http://www.ecu.edu/cs-acad/fsonline/senate/fscalend.cfm?RenderForPrint=1%27A=0
  - Office of the Registrar: http://www.ecu.edu/cs-acad/registrar/RegSched.cfm
  - Course Search: https://pirateport.ecu.edu/portal/
  - Contact:
    - Admission: Amy Frank FRANKA@ecu.edu
    - CMGT Registrations: TaylorA@ecu.edu
    - All other Registrations: MSTECHSYSTEMS@ecu.edu

- ***ISU (Indianan State University)***
  - Academic Calendar: https://www.indstate.edu/academic-affairs/calendar
  - ISU: Office of Registration and Records Dates and Other: http://www.indstate.edu/registrar
  - Schedule of Classes: https://prodinteract.indstate.edu/pls/prod/bwckschd.p_disp_dyn_sched
  - Contact:
    - Administrative Assistant PhD in Technology Management (Consortium)
      - Marti Mix marti.mix@indstate.edu
      - Phone: 812-237-3977

- ***NCAT (North Carolina A&T State University)***
  - Academic Calendar 1: http://www.ncat.edu/registrar/academic-calendar/
  - Academic Calendar 2: http://www.ncat.edu/registrar/academic-calendar/Spring%202017%20Academic%20Calendar_2-.pdf
  - Dynamic Schedule: https://ssbprod-ncat.uncecs.edu/pls/NCATPROD/bwckschd.p_disp_dyn_sched
  - Contact:
    - Admission: Angelica Gathings agathing@ncat.edu
    - Registration: Trevor Taylor taylort@ncat.edu
    - Phone: 336-285-2379 (Admission) and 336-256-0355

- ***UCMO (University of Central Missouri)***
  - Dates & Enrollment: https://www.ucmo.edu/registrar/dates/enroll.cfm
  - Deadlines: https://www.ucmo.edu/registrar/dates/enroll_deadlines.cfm
  - Dynamic Schedule: https://banner.ucmo.edu:4443/BANP/bwckschd.p_disp_dyn_sched
  - Contact:
    - Ms. Ashley Caldwell acaldwell@ucmo.edu
    - Phone: 660-543-4621

### *Bowling Green State University*

BGSU Accounting Professor Pascal Bizarro has adopted new techniques to enhance the learning experience for his students by "flipping" his traditional classroom into a web-based learning environment. He uses video, photography and green screens to record pre-lectures for his students. His class will watch the lectures and take a quiz before attending the in-person class. This allows the students to come to class well-versed in the material in order to have in-depth discussions about the material. He also uses the technology to project the screen of his mobile tablet device in the classroom. Bizarro learned of the video-recording application (Camtasia Studio by Techsmith) when he attended the College of William and Mary's Technology in Business School Roundtable as a representative for BGSU. In 2015, Bizarro was awarded the Leadership Council Award from the BGSU College of Business for his new approach to classroom teaching, and he recently presented his ideas at a College of Business workshop with a presentation entitled 'Demystifying the Flipped Classroom." Dr. Bizarro finds that using the "flipped" classroom approach may require more upfront work when designing the course, but it provides a unique and interactive lecture experience that allows the student to be more prepared during classroom discussions.

**Reference**

Greenwald, D. (2015, Dec 1). Accounting Professor "Flips" His Classroom with Technology. BGSU News. Retrieved from https://www.bgsu.edu/news/2015/12/accounting-professor-flips-his-classroom-with-technology.html

### *East Carolina University*

**Research grant by the North Carolina Department of Transportation (NCDOT)**

The Construction Management Department Research Team, led by Dr. George Wang, has been awarded a research grant by the North Carolina Department of Transportation (NCDOT). This $185,000 project (8/2016 – 7/2018) is to conduct an applied research on the use of recycled concrete in non-structural concrete in Eastern North Carolina in the bridge and road construction projects specified in the Strategic Transportation Improvement Plan (STIP) for 2016-2025. The team includes Dr. Donna Hollar, Dr. Kamalesh Panthi, and two graduate research assistants.

**Reference**

ECU Department of Construction Management. (2017). Retrieved from: file:///C:/Users/cyrus.hoseini/Downloads/Newsletter-Fall-2016-Spring-2017-Final.pdf

### *Indiana State University*

**Indiana State honored for women-in-STEM efforts**

Million Women Mentors-Indiana recently honored Indiana State University for its contributions to advancing women in STEM careers. The Indiana MWM Stand Up for STEM Award recognizes and celebrates the work of companies, individuals and organizations in Indiana that have contributed significantly to advancing women in STEM careers through MWM and mentoring. Indiana's Honorary Chair of Million Women Mentors and Ivy Tech President Sue Ellsperman presented the award to Indiana State's College of Technology at the organization's Nov. 7 conference in Indianapolis. Bev Bitzegaio, director of outreach and student career support in the College of Technology, accepted the award on behalf of the university

**Reference**

Indiana State University Newsroom. Retrieved from: http://www2.indstate.edu/news/news.php?newsid=5027

***North Carolina A&T State University***

**N.C. A&T Professor Part of Team Using Big Data & Artificial Intelligence to Advance Disease Prevention**

Through a new $2 million National Science Foundation grant, North Carolina Agricultural and Technical State University mathematics professor, Dr. Suzanne O'Regan, is part of a team of scientists from the Cary institute of Ecosystem Studies and the University of Georgia harvesting the power of machine learning to forecast outbreaks of zoonotic disease. O'Regan explains, "By using data that is global in scale, we are seeking to reveal generalizable features of 'good' disease carriers. Over 50 life history features are being incorporated into models for most mammal groups." This includes data on animals' physical characteristics, metabolic and reproductive rates, range of diet, and timing of daily activity – whether the animal is primarily active during the day, at night, or at dawn and dusk. Funding will enable the team to bring together information on pathogens, potential animal hosts, and environmental factors known to facilitate disease transmission, with the goal of developing innovative methods of mapping when and where the next major zoonotic disease outbreak might occur.

**Reference:**

NCAT News. (2017). N.C. A&T Professor Part of Team Using Big Data & Artificial Intelligence to Advance Disease Prevention. Retrieved from: http://www.ncat.edu/news/2017/11/big-data-oregan.html

***University of Central Missouri***

**UCM starts a new Bachelor of Science in Business Administration degree in Big Data and Business Analytics**

The University of Central Missouri has responded to the urgent corporate need for professionals to analyze the rapidly increasing volume of technology-generated data with the Bachelor of Science in Business Administration degree in Big Data and Business Analytics.Courses in the new degree program are open for enrollment for fall semester 2018. The new program is a collaborative effort between the Computer Information Systems program and the Economics and Finance programs in UCM's Harmon College of Business and Professional Studies. UCM students in the Big Data and Business Analytics program will learn how to design, develop and manage big data and analytics systems. They will also learn how to use software tools that employ machine learning, data mining, and analytics to assist organizations in visualizing information and make strategic business decisions, preparing them for successful careers in Big Data and Analytics.

**Reference:**

UCM News (Mike Greife). (2017). UCM Meets Demand for Big Data and Business Analytics Professionals. Retrieved from: https://www.ucmo.edu/news/bigdata.cfm

## GENERAL INFORMATION

The consortium program is offered in cooperation with Bowling Green State University, East Carolina University, Indiana State University, North Carolina A&T State University, and the University of Central Missouri. The doctoral program meets the needs of today's technical professionals. An academically rigorous program of study, the Doctor of Philosophy Program in Technology Management offers research and scholarship experiences and in-depth study in a specialization selected from the areas of:

- Construction Management
- Digital Communication System
- Human Resource Development and Industrial Training
- Manufacturing Systems
- Quality Systems

For Additional information about the PhD in Technology Management, visit our website at http://technology.indstate.edu/consortphd/
You may also contact Dr. Shahhosseini:
Phone: (812) 237-3368.
Email: mehran.shahhosseini@indstate.edu

**The Newsletter Staff**
Editor: Dr. A. Mehran Shahhosseini
Co-editor/Writer: Cyrus Hoseini, PhD Fellow
Writer: Joe Long, PhD Student
Writer: Siham Lekchiri, PhD Student
Writer: Todd Koonts, PhD Student
Writer: Ignatius Chukwu, PhD Student

**Profiles**
***Dr. A. Mehran Shahhosseini*** is the Director of the PhD Program - Consortium.
***Cyrus Hoseini*** was admitted to the PhD program in Fall 2012. He specializes in Quality Systems.

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