

On - CITE

Faculty Profile: Dr. Bill Pierson

We would like to provide you the opportunity to become more familiar with the faculty in the College of Information Technology and Engineering, and so occasionally we will provide personnel profiles to you. In this issue Dr. Bill Pierson, Division Chair of Engineering, is profiled in his own words.

I am a native of Charleston, West Virginia. I grew up in a place known locally as "Magazine Hollow" (my definition of a hollow: a rural ghetto) and attended schools on the West Side of Charleston. While in high school, I played in the band and avoided organized sports whenever possible.

After high school, I decided to attend West Virginia Tech because it was affordable and also it was close to my girlfriend, Barbara, who is now my wife and mother of our three children. Since I had once visited the telephone company on a high school field trip, I decide to be an electrical engineer.

I graduated from Tech in 1969, during the height of the Viet Nam conflict, married and with one son. Since military deferments were being offered to college professors in certain

"key" disciplines, I decided to accept a position at Tech as instructor of electrical engineering technology (EET) and, after a few years, get a real job. Thirty-plus years later, I am still looking for that real job, but I suspect that retirement will find me first.

I found that teaching is as much a calling as it is a profession, and in order to stay in the teaching profession, I completed my M.S. in Electrical Engineering at the WVU Kanawha Valley Graduate Center (later to become COGS and even later to become MUGC). While teaching at Tech, I had the good fortune to be accepted into two NSF-sponsored workshops on computing at the University of Missouri-Rolla (UMR). These workshops gave me the opportunity to acquire some sorely needed computing skills, skills not required of me as an undergraduate. In addition, I decided to attend UMR to complete a PhD in EE, which I completed in 1976. After returning to Tech from UMR, I held a number of positions including



Professor and Chair of Electrical Engineering. I had the very good fortune over the 28 years at Tech to become acquainted with many bright and hard working students, including my older son. When asked once what it was like having his dad as a professor, he responded rather eloquently, I think, "Well, it's not that different, except now when he lectures to me I have to take notes." (This is the same son who noted that "You cannot spell *geek* without *EE*.")

In addition to teaching at Tech from 1969 to 1999, I have done a fair amount of consulting with local companies, mainly working on computer-related applications.

In addition to the consulting mentioned above, in the early 1990's I worked with NASA at Marshall Space Flight Center in Huntsville, AL, on the SEDS project. SEDS stands for Small Expendable Deployer System and was a project designed to test tethered satellites launched as a secondary payload from a

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Note from the CITE Dean

Dr. Betsy Ennis Dulin, P.E.



The fall semester has been an especially busy one for CITE faculty and students! College enrollment continues to grow at both the graduate and undergraduate levels, and we are planning to implement new programs and courses during the next year. In addition, CITE faculty members are increasingly involved in research activities that benefit the region by providing wonderful experiences for students and the opportunity for business development and commercialization.

We are currently in the process of planning a new undergraduate computer science degree, which will be available to incoming freshman in the 2004 fall semester. Computer science students will be admitted into the College of Information Technology and Engineering and will pursue a curriculum developed by faculty from both CITE and the College of Science. We are taking advantage of this unique opportunity to develop a degree program that is new, innovative,

and relevant to current demands of the global information technology economy. I encourage anyone who may be interested in the development of this program to contact us and join the dialogue!

* * *

Congratulations to CITE faculty members Dr. Tony Szwilski, Professor of Engineering and Chair of Safety Technology/Environmental Science, and Richard Begley, Professor of Engineering and Associate Director of the Nick J. Rahall II Appalachian Transportation Institute. Drs. Szwilski and Begley have developed a new system that utilizes ground-penetrating radar and global positioning systems to evaluate railroad bed conditions and provide engineers with real-time information on track conditions. The project is funded by the Federal Rail Administration, supported by RTI, and made possible through close collaboration with Norfolk Southern and CSX. The project also provides great opportunities

for students to participate in a research project with immediate real-world applications.

* * *

We at CITE extend our warmest thanks to everyone who has helped support our students and programs during some difficult budgetary times. Most recently, we were able to purchase additional supplies and equipment for our new engineering lab/classroom with a generous donation from Ron and Laura Gilkerson. Ron is a graduate of Marshall's undergraduate engineering program and President of GRW Engineers, Inc. based in Lexington, Kentucky, with offices throughout Kentucky, Indiana, Ohio, Tennessee, and Texas. In addition, Rich Mitchell, a longtime friend of engineering at Marshall, has established the Richard C. Mitchell III Memorial Engineering Fund. We salute them and the other contributors listed herein, as well as all of you who continue to support our summer engineering academy every year.

You are welcome to contact Dr. Dulin at 746-2087; email: bdulin@marshall.edu

Graduate Courses offered in Portsmouth, OH

Following approval from the Ohio Board of Regents and West Virginia Higher Education Policy Commission, the Division of Environmental Science and Safety Technology is offering courses in Portsmouth, Ohio which lead toward either the M.S. in Environmental Science or the M.S. in Safety.

Spring 2004 offerings at Shawnee State University will be:

- ES 630 Environmental Site Assessment
- ES 660 Environmental Law (required for both ES & SFT)
- SFT 630 Current Literature and Research in Occupational Safety and Health

For more information about these courses please contact Dr. Tony Szwilski, Environmental Science and Safety Technology Division Chair. He can be reached at 696-5457; szwilski@marshall.edu.



CITE Benefactors

We want to take this opportunity to thank the individuals and organizations who have provided designated contributions to the College of Information Technology and Engineering. As a growing college we are very fortunate to have such strong and ongoing support by Alumni and friends of CITE.

On behalf of the current and future students of CITE we thank you!

Michael S. Adkins
Richard and Peggy Adkins
Ashland, Inc.
Lance Atkins
Bank One Matching Gifts Program
Carl and Virginia Bechdolt
Matthew Christian
James and Patricia Coffman
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Arthur and Joan Weisberg Charitable Trust
Angela and Jeffrey Withrow

Marshall researchers use radar to check track conditions

The story below appeared in the Charleston (WV) Daily Mail on Friday, October 17, 2003

CHARLESTON, W.Va. (AP) -- Marshall University researchers have developed new techniques for using ground-penetrating radar and global positioning satellites to evaluate railroad bed conditions, giving engineers instant information about tracks.

Professor Anthony Szwilski in the university's College of Information Technology and Engineering and Richard Begley with the Nick Rahall Appalachian Transportation Institute have applied for patents on the techniques.

Derailments are a \$6.7 billion problem for the railroad industry, and 40 percent of all derailments are caused by bed failure, The State Journal reported this week.

Railroad track beds have been inspected the same way for 100 years -- visually, said Cal Kent, the university's vice president for technology commercialization.

The new technique uses radar to shoot electromagnetic waves into the ground to get an image of the rocks and soil underneath a track and their characteristics. That information is then fed into a computer, where it is combined with track location

information from global positioning satellites. The information can then be sent to a computer on a train.

Precise information on the condition of an entire set of railroad tracks can be almost instantly available to the railroad and its engineers.

Ground penetrating radar has been used for decades, but Marshall researchers are using it in a different way so engineers can identify anomalies in the track in real time.

The technology can help companies determine whether water is improperly draining from the track, if the bed is eroding or if a bed is shifting.

The technology should be able to identify problem areas down to a few centimeters.

The four-year research project was funded in part by a grant from the Federal Railroad Administration. Researchers also received help from Norfolk Southern and CSX railroad companies.

The group also worked closely with Marshall University's new Institute for the Development of Entrepreneurial Advances, which was created to help professors, researchers and students at the university turn innovative ideas into new business opportunities.

Corrections to the 2003-05 B.S. in Safety Technology Curriculum

The web-based version of the 2003-05 Undergraduate Catalog (<http://www.marshall.edu/www/ugradcat/>) contains corrections to the printed catalog for the B.S. in Safety Technology Curriculum. Copies of the corrections listed below have been mailed to all students admitted under the current catalog.

Page 12 – Applied Science Accreditation Commission of the Accrediting Board for Engineering and Technology (111 Market Place, Suite 1050, Baltimore, MD 21202; telephone 410-347-7700) accredits the Safety Technology undergraduate program. This replaces the Related Accreditation Commission listing.

Page 231 - III. Communication Studies: Eng 302 should be listed on the previous line with ENG 102 and 201H. It is not a substitute for ENG 354

Page 233 - Professional Safety Core: After the SFT 373L listing it should read SFT 375 Construction Safety I (there is no SFT 275)

Page 233 – C. Occupational Safety Electives:

Delete SFT 375 Construction Safety I

Delete SFT 465 Accident Investigation

These two courses are already listed in the required course section.





Faculty Research and Activities

Dr. Betsy Dulin, CITE Dean; **Dr. Richard McCormick**, Professor of Engineering ; **Dr. Bill Pierson** Division of Engineering Chair, were awarded a grant from the Nick J. Rahall Transportation Institute to support the 2003 Exploring Engineering Academy of Excellence, which was held this summer. The EEAE is for High School students interested in learning more about engineering.

Dr. Betsy Dulin, CITE Dean, was named a 2004 "Young Gun" by *West Virginia Executive Magazine*, and was recently appointed to the Board of Directors for the Mid-Atlantic Technology Research and Innovation Institute and will also be serving on the Technical Advisory Council for this organization.

Dr. Venkat Gudivada, Associate Professor, had a paper published in IEEE " V. Gudivada, The Computing Profession at a Crossroads, *IEEE Computer*, beginning at page 92, May 2003."

Dr. James Hooper, Weisberg Professor, has two papers accepted for publication:

"Innovation in the former Shaker Communities: Principles for Present Day Application" , presented, and published in the Proceedings, The 12th International Conference on Management of Technology, IAMOT 2003, Nancy, France, May, 13-15, 2003.

"Two Hundred Years of Innovation and Change: Lessons From the Former Shaker Communities", accepted for presentation and publication in the proceedings, 2003 IEEE International Engineering Management Conference, Albany, NY, November 2-4, 2003

Dr. Eldon Larsen, Professor, is serving on the Board of the West Virginia/Ohio Valley Chapter of the Project Management Institute. Dr. Larsen has also been elected to serve as the national level 2nd Vice Chair, Management Division, American Institute of Chemical Engineers (AIChE). In 2005 he will automatically become the 1st Vice Chair.

Dr. Patricia Logan, Associate Professor, had an article published, "Bitten by a Bug: A Case Study in Malware" was accepted for publication in the *Journal of Information Systems Education*.

Dr. Bill Pierson, Division Chair of Engineering, continues to serve as Vice-Chair of the NCEES Fundamentals of Engineering Exam Committee, which works to develop FE (Fundamentals of Engineering) exam specifications and test questions.

Dr. Herbert Tesser, Interim Chair of Information Technology and Technology Management and Weisberg Professor, had a paper (with T. Trout) "A Note on Evaluation of Image Recognition Systems" published in **Lecture Notes in Computer Science, Springer-Verlag**, 2003, p60-67. The paper also was accepted for the SCIA 2003 Image Analysis conference.

Faculty Profile: Bill Pierson continued from page 1

Delta II rocket (the primary payload was a GPS satellite). My responsibility in the SEDS project was to develop and perform testing of the SEDS system software. Since SEDS was designed to deploy a satellite on the end of a 20 km tether in the vacuum of space, figuring out how to realistically simulate and test this process on earth was quite a challenge.

In addition to my teaching and consulting activities, I have been an active member of the National Council of Examiners for Engineering and Surveying (NCEES) Fundamentals of Engineering (FE) Exam Committee

for about the past 15 years. My primary responsibilities have been on the electrical engineering subcommittee. I served as the Chair of that subcommittee and I am currently serving as Vice-Chairman of the FE Exam Committee. Participating with NCEES activities gives me an opportunity to interact with some of the most capable and dedicated engineers from all over the United States.

Beginning in January, 2000, I accepted the position of Coordinator of the Marshall University Pre-engineering program, and am currently interim Engineering Division

Chair. The move to Marshall has been even better than I could have anticipated or hoped. I enjoy working with the students and sincerely appreciate the friendly and cooperative atmosphere that I have found at Marshall University, especially in the College of Information Technology and Engineering.

My goals at MU are to increase the amount of interest in engineering education among high school students and to continue to improve and expand undergraduate engineering at the university.

Information Systems Course Highlights

IS 630 Computer

Architecture and Assembly Language - An introduction to the composition and operation of electronic digital computers and to assembly language programming. The course is being offered on Tuesdays, from 6:30-9:00 pm in Huntington. (PR: IS 510 or equivalent)

IS 645 Geographic Information Systems (GIS) -

The course will provide an overview of the field of GIS, related technologies, and their usage. The steps in designing, implementing, using, and maintaining a GIS will be covered. These steps include: data collection and validation, basic cartography and digital mapping, database development, integration of maps and databases, and analysis. Course will discuss the resources required for implementing GIS, and the strategic implications of using GIS for an organization. The GIS course can potentially be



used as an elective in the IS, ENGR, ES or TM programs; please consult your advisor for permission. Course will be offered on Mondays from 4:00 – 6:20 pm in South Charleston. Mr. Jamie Wolfe is the instructor, and he can be reached at 696-6042; jawolfe@marshall.edu.

IS 651 Computer Security (Special Topics)

The course covers the elements of computer and network security, including computer attacks, preventive methods, risk management, legal/ethical issues, computer crime and forensics. Case studies and hands-on exercises will be used. The course is offered on Tuesdays from 6:30-9:00 pm in South Charleston. Dr. Patricia Logan is teaching the course and she can be reached at 746-1951; loganp@marshall.edu.

IS 653 Cybercrime (Special Topics)

This is a course that investigates the application of technology to computer crime. Topics covered include: the methods of attack, issues in search and seizure of evidence, the

personality of a cybercriminal, and case histories of recent investigations. The course is offered in Huntington. Dr. Patricia Logan is teaching the course and she can be reached at 746-1951; loganp@marshall.edu.



IS 680: Social Issues in Information Systems -

Participants in this class will examine the influences of information technology on life today and potential impacts in the future. Topics for investigation include ethical, cultural, human interaction, and security issues. In addition to readings we will review several films to observe how media portrays these impacts. Students will share their research in class presentations, papers and, optionally, multimedia and web pages. The course will be offered on Thursdays from 4:00—6: 20 pm in South Charleston. Dr. Tom Hankins is teaching the course and he can be reached at 746-2044; thankins@marshall.edu.

Application Deadline For May 2004 Graduation

The Application Deadline for May 2004 graduation for undergraduate and graduate students is **Friday, January 23, 2004.**

Undergraduate

To apply for graduation you must pay the \$30.00 graduation fee and bring the receipt to the CITE Dean's Office (112 GH) no later than Friday, January 23, 2004.

Graduate

To apply for graduation you need to go to your home campus and complete all needed paperwork no later than Friday, January 23, 2004. (Huntington - you must pay the \$30.00 graduation fee at the Bursar's payment window and bring the receipt to your Graduate Dean's Office, 113 Old Main to complete an application for graduation; South Charleston - pay the \$30.00 registration fee at the First Floor of the Administration Building, and complete an application for graduation).

Register early to ensure you get the needed courses!

ASP/CSP Workshop for Undergraduates and Graduates

The Safety Technology Program will be offering to upper level undergraduates or recent graduates the opportunity to study for the Associate Safety Professional (ASP) designation in a workshop being offered Spring 2004. One advantage to having an accredited program by ABET is that the Board of Certified Safety Professionals allows students graduating from that program to sit for the ASP certification right after graduation.

The best time to sit for the ASP examination is right after graduation when your knowledge about Chemistry, Mathematics and Physics and safety is still very fresh in your mind.

The board exempts the students from paying the ASP \$100 application fee, by providing the graduates with a fee waiver form. Also, the Division is currently willing to pay for the cost of the ASP or CSP exam for

students or recent graduates, which waives the \$250 per person fee. Students and recent graduates wishing to take the exam should contact the Division office at 696-4664 for details.

The workshop will also cover the Certified Safety Professional (CSP) topics for those who are already ASP certified and are interested in taking the CSP exam.

Mr. Murray Tate, who is a graduate of the MS in Safety program at Marshall has just passed the ASP/CSP examination, and will be the teacher/coordinator of this course. During the semester, several professionals will also guest lecture in areas of their expertise to help students master the information.

Graduate students are also encouraged to attend this workshop to help them prepare for the exam. For further information contact Dr. Allan Stern at 696-3069.

Biological Waste Treatment

ENVE 616 Principles of Biological Waste Treatment - Principles and practices of the process design of biological systems employed in wastewater treatment, including such topics as microbial metabolism, oxygen transfer, and biomass-separation. The course is offered Mondays from 4:00-6:20 pm in South Charleston. Dr. Richard McCormick is teaching the course and can be contacted at 696-6049; mccormickr@marshall.edu.

Engineering Course Highlights

ENGR 610 Applied Statistics - An applications-oriented approach to basic statistical concepts and techniques. The objective is to provide students with a foundational understanding that can be used to enhance the decision making process associated with engineering applications. Emphasis is placed on data interpretation and presentation using commonly available computer software such as MS Excel. The course is being offered through the videolink on Thursdays from 4:00-6:20 pm. Dr. Bill Pierson is the instructor and he can be reached at 696-2695; pierson@marshall.edu.

Please contact Dr. Bill Crockett, Distinguished Professor of Engineering, regarding the four courses described below. He can be reached at 304/746-2040; bcrockett@marshall.edu.

ENGR 620 Computer Applications - The course emphasizes the use of Excel and Matlab to solve numerical engineering problems. The topics include the use of tables, curve fitting, systems of equations, solving nonlinear equations, and

differential equations as applied to engineering problems. Web Access is required for this course. The instructor will meet with the students on an arranged basis.

CSE 611-STATE SPACE CONTROL - State space representation of dynamic systems; dynamics of linear systems; frequency domain analysis; controllability and observability; shaping the dynamic response; linear observers and compensator design; linear, quadratic optimal control.

CSE 630—OPTIMAL CONTROL - General theory of optimal control; calculus of variations; Pontryagin's maximum principle; Hamilton-Jacobi theory; application of optimal control theory to design of feedback systems, using several performance criteria; other topics that may arise.

CHE 645 -Chemical Engineering Kinetics - A review of homogeneous kinetics, including kinetics of homogeneous reactions and interpretation of reactor data; reactor design for single and for multiple reactions. Nonideal flow and models.



College of Information Technology and Engineering

CITE - Huntington Campus
112 Gullickson Hall
Marshall University
Huntington, WV 25755-2586
304/696-5453

CITE - South Charleston Campus
325 Administration Building
MU Graduate College
100 Angus E. Peyton Drive
South Charleston, WV 25303-1600
1-800-642-9842, ext. 2041
Or
304/746-2041

www.marshall.edu/cite

On-CITE is edited by Elizabeth Hanrahan
Suggestions for future articles are
encouraged and can be emailed to
Hanrahan@marshall.edu

REGISTRATION DATES

Advance Registration*
(currently enrolled)

11/10-12/5/03

Advance Registration*
(all admitted students)

11/24-12/5/02

*Payment must be received by
due date on statement. Students
registering 12/1-12/5 will not
receive a statement and payment
must be made by 12/12/02.

Undergraduate students consult
the MU Schedule for specific
dates of registration.

Regular Registration:

12/29-31/03 MyMU only.

1/2-1/9/04 MyMU and walk up
registration.

No statement of fees will be sent
and payment is due by close of
business on 1/9/04.

Late Registration:

Consult MU schedule

REGISTER SOON!

Classes begin 1/12/04

NonProfit
Organization
U.S. Postage
PAID
Charleston, WV
Permit No. 1093

MILO has been replaced with MyMU

MyMU provides an integrated web site where
you can register for classes, check your MU
email, and update your contact information.
You can also forward your Marshall email
account to another user account. Since MU
email is an official means of communication,
it is very important that you have a process in
place to check your MU email.

Visit <http://mymu.marshall.edu>. Your log in
should be the same as your log in for MILO.

If you have any difficulty in accessing your
account, or are not sure of the status of your
email account you can contact the following
individuals:

Huntington:
Help Desk 696-3200

South Charleston:
Karen Haney 746-1976
Paul Page 746-2056

Email: helpdesk@marshall.edu

The following identification is required to
access the WWW registration systems:

Student Identification Number: This is
usually your Social Security Number, or a
nine-digit identification number assigned by
Marshall University.

Personal Identification Number (PIN): A six-
digit number consisting of your date of birth
(i.e., student born on March 23, 1973 would
have PIN # 032373). For added security,
students are encouraged to change their PIN
number as soon as they access their personal
account.

Please note that on the dates that
registration is suspended, you will not be able
to register by WWW.

You can pay your tuition on-line by credit
card or check. No need to wait in line to
register - use the web!

