



MINING ENGINEERING

HAINER DELIVERS

2017 WILLIAM N. POUNDSTONE LECTURE

On September 21, Keith Hainer, executive vice president and chief operating officer for Contura Energy, presented the annual William N. Poundstone Lecture entitled, "A Career of Opportunities."

Hainer began his career in mining at Marrowbone Development in 1989 and has since been employed at Shell Mining, Massey Energy, Alpha Natural Resources and Contura Energy. He has worked at numerous underground and surface coal mines in a variety of positions, from hourly laborer, foreman project manager, to maintenance and operations manager. In his current role, he oversees mining and processing operations for three mining complexes in four states, which produce approximately 44 million tons annually.

Raised in Chapmanville, Hainer holds a BS in physics, an MS in engineering and an MBA from Marshall University. He also holds a BS in electrical engineering from WVU Tech and is a member of Tau Beta Pi. Hainer is a registered professional engineer

in West Virginia, Virginia, Pennsylvania, Kentucky and North Carolina. He serves on the executive board of the West Virginia Coal Mining Institute and is a member of the WVU Department of Mining Engineering's visiting committee. He also serves on the engineering advisory board for Marshall University.

Hainer shared some lessons and experiences with the students. He encouraged them to never lose sight of the ultimate goal and focus their energy on short-term objectives. He also reminded them to reinforce the team message realizing, "We are one—we live or die together."

"Find something to celebrate and something to laugh about," Hainer added. "An never give up; there's always another move."

The 2017 William N. Poundstone Lecturer, Keith Hainer (l) receives a gift from Vlad Kecojevic in recognition of his lecture.

BLACK DIAMONDS WV

FALL 2017

BENJAMIN M. STATLER COLLEGE OF ENGINEERING AND MINERAL RESOURCES
DEPARTMENT OF MINING ENGINEERING

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RECENT WILLIAM N. POUNDSTONE LECTURERS



2014
CALVIN KIDD

Lecture: Career and Life Changing Decisions

Attended Marshall and Mountain State Universities

Began career with Long-Airbox Co. in 1967 and was vice president of sales from 1986-

1997; joined Continental Conveyor in 1997, was named manager of field sales and service in 2008 and then Joy's Strategic Alliance Manager-Cline Resources in 2009; served on boards of directors of many coal mining institutes; active member of the Old Timers Club, King Coal Club and Careers in Coal; established the Calvin Kidd Fellowship Award for the SME WVU Student Chapter in 2006; was inducted into the Kanawha Valley Coal Mining Institute Hall of Fame in 2011.



2015
RYAN MURRAY

Vice President of Operations, Murray Energy Corporation

Lecture: Murray Energy Corporation and the Coal Industry in America

BS '02, mining engineering

Joined Murray Energy Corp. in 1994; worked at numerous surface and underground coal mines in various positions from hourly laborer and foreman, to superintendent and general manager; presently oversees mining and processing operations for 17 mining complexes in five states; recipient of Calvin Kidd Fellowship Award and John T. Boyd Memorial Young Engineer Award; serves on executive committees for SME.



2016
HARRY M. (RED) CONGER

President and COO, Freeport-McMoRan Americas and Africa Mining

Lecture: Proving Our Mettle

Responsible for managing nine mining

operations in North America, two in South America, one in Africa and the associated downstream processing facilities with more than 18,000 employees and annual production of 3.6 billion pounds copper and 70 million pounds molybdenum; almost 40 years of mining industry experience with Freeport-McMoRan and its predecessors.

CONGRATULATIONS CLASS OF 2017



Class of 2017 (top row, l-r): Christopher Cameron, Eddie Nicaj, Curtis Smelley, Mark Shaughnessy, Cory Savin, Jacob Smith, David Corder, Joseph Schultz; William Hoag, Michael White, Rachel Boothby, Mohamed Affach, Chris Smelley, Jaeger Keeney, Cory Krall, Jennifer Smith, Zachary Minton, Sergio Real, Gregory Parker, Jeff Fetty, Brandon Butrick, Cassidy O'Connell, William Talbott.

NEW FACULTY PROFILES



Qingqing Huang

I joined the WVU Department of Mining Engineering as an assistant professor in the fall of 2017. Prior to my current position, I was employed by the Department as a postdoctoral researcher in June 2016 and later was promoted to the position of research assistant professor in March 2017.

I received my BS degree in mineral processing from the Central South University in China and my PhD degree in mining engineering from the University of Kentucky in 2016.

During my undergraduate and graduate study, I participated in a number of research projects in the general area of flotation reagents (collector, frother, depressant, etc.) evaluation, coal preparation, iron ore, phosphate and chalcopryrite processing and the investigation of using hydrometallurgical methods to extract cobalt and copper from laterite ore. My doctoral dissertation focused on using innovative surface chemistry fundamentals to process rock dusts for underground coal mine explosion mitigation applications, which uniquely represents the combination of mineral processing and mine safety disciplines.

In addition to my academic experience, I also received the opportunity to work with industrial companies such as SNF FloMin and FGX SepTech on mineral processing-related projects during my doctoral study, from which I was able to apply theoretical knowledge in resolving real engineering problems.

My research interests are surface chemistry aspects pertinent to mineral processing, froth flotation and hydrometallurgy for metal recovery from ores. I am currently working with the National University of Colombia on a project to study rare earth elements from Colombian coals and will partner on a research grant from the United States Department of Energy's National Energy Technology Laboratory on the pilot-scale testing of an integrated circuit for the extraction of REEs from U.S. coal and coal byproducts.

I currently serve as an external reviewer for a number of professional journals including *Powder Technology*, *Minerals*, *International Journal of Coal Preparation and Utilization*, *Minerals and Metallurgical Processing* and *Journal of Sustainable Mining*. I am a member of the SME Young Leaders Committee and was a technical session chair for the 2018 SME Annual Conference in Minnesota. I was named a 2015-2016 SME Henry Krumb Lecturer and the recipient of 2017 SME Rong Yu Wan PhD Dissertation Award on the basis of my doctoral dissertation research.

At WVU, I am currently teaching MINE 461—Applied Mineral Computer Methods and MINE 425—Mineral Processing during the fall semester. I look forward to improving myself by being a great help to students and by making significant contributions to the Department.



Ihsan Berk Tulu

I joined WVU's Department of Mining Engineering as an assistant professor in August 2017. I received my BS in mining engineering from the Middle East Technical University in Turkey, and my MS and PhD degrees in mining engineering from WVU.

As a graduate student at WVU, I was fortunate to meet numerous engineers from industry, academia and government at the International Conference on Ground Control in Mining and at the U.S. Rock Mechanics

conferences. After my graduation from WVU in 2012, I joined the ground control branch of the Pittsburgh Mining Research Division of the National Institute of Occupational Safety and Health. I was responsible for the development of improved design procedures for the global and local stability of underground coal mines. As an associate service fellow at NIOSH, I had a chance to meet and work with coal miners and mine engineers from many different coal regions of the U.S.

My primary research interests are in rock mechanics and ground control. In this field, my theoretical and applied research work addresses problems in geomechanical modeling, pillar stability and support design. I am committed to work with our stakeholders from industry and government on enhancing current design practices in surface and underground mining in West Virginia.

At WVU, I am currently teaching MINE 201—Mine Surveying and MINE 261—Engineering Computer Aided Design during the fall semester. I look forward to helping educate the next generation of mining engineers at WVU.

ALUMNI UPDATE

PLEASE WRITE TO US!! We want to know where life has taken you since you left West Virginia University. Also, pass this newsletter on, or let us know any alumni who are not receiving *Black Diamonds WV*.
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FACULTY NEWS



Brijes Mishra

Brijes Mishra joined the Department in 2009 and was promoted to the rank of associate professor in 2015. He has been active in research and recently received a \$1.2 million project from CDC-NIOSH, "Building Capacity and Improving Mine Safety Through Experimental Rock Mechanics." He currently works with six graduate students, two of whom (Yuting Xue and Prasoon Garg) won the Syd S. Peng Ground Control Scholarship and Neel Gupta, winner of the WAIME-SME Scholarship. Mishra

is also hosting two scholars from the Indian Institute of Science, Resmi Sebastian and Bharadwaj Pandit, and was recently appointed advisor to the WVU SME student chapter.



Mark Sindelar

Mark Sindelar completed the 2016 West Virginia Mining Injuries Analysis and Summary, an annual compliance requirement of West Virginia Code 22A-6-4(8)(3). He also offered a special topics course in Mine Equipment Maintenance in response to industry and students that was very well received. Sindelar currently teaches Mine Power Systems, Mine Health and Safety Management and an elective in Mine Control Systems Engineering.

FACULTY TEACHING ASSIGNMENTS

Dan Alexander

Adjunct Professor

MINE 306—Mineral Property Evaluation

Keith A. Heasley

Charles T. Holland Professor

MINE 483—Mine Design—Exploration Mapping

MINE 484—Mine Design Report—Capstone

John A. Herbst

Professor

MINE 796—Graduate Seminar

Qingqing Huang

Assistant Professor

MINE 427—Coal Preparation

MINE 461—Applied Mineral Computer Methods

MINE 425—Mineral Processing

Vlad Kecojevic

Massey Foundation Professor

MINE 206—Surface Mining Systems

MINE 304—Aggregates Production

Yi Luo

Associate Professor

MINE 201—Underground Mining Systems

MINE 331—Mine Ventilation

MINE 480—Multidisciplinary Team Project

Brijes Mishra

Associate Professor

MINE 411—Rock Mechanics/Ground Control

MINE 407—Longwall Mining

Mark Sindelar

Research Assistant Professor

MINE 382—Mine Power Systems

MINE 471—Mine and Safety Management

MINE 488—Mine Control Systems Engineering

Auditing MINE 483 & 484

Ihsan Berk Tulu

Assistant Professor

MINE 201—Mine Surveying

MINE 261—Engineering Computer Aided Design

VLAD KECOJEVIC AWARDED ERSKINE RAMSAY MEDAL



Vlad Kecojevic, Interim Chair and Massey Foundation Professor of Mining Engineering, was awarded the 2017 Erskine Ramsay Medal from the American Institute of Mining, Metallurgical and Petroleum Engineers. The award was established in 1948 to recognize distinguished achievements in the coal mining industry.

Kecojevic earned this award "for his outstanding contributions to the research, education and service in surface coal mining and for his international recognition as a researcher, teacher and academic leader," said David L. Kanagy, executive director of SME.

ANNUAL RECOGNITION BANQUET

Students, faculty, alumni and friends of the Department were recognized for their distinct achievements at this year's Recognition Banquet, held at Lakeview Resort in April. The following awards were presented:

The Charles T. Holland Award: presented to Cassidy O'Connell

MRAC Award: presented to Rachel "Boz" Boothby

The Old Timers Award: presented to Edon Nicaj

SME Student Chapter Award for an Outstanding Faculty Member in Mining Engineering: presented to Vladislav Kecojevic

SME Student Chapter Award to a Mining Engineering Student Who Has Demonstrated Sincere Interest in the Mining Discipline and Exceptional Service to His Fellow Students: presented to Cory Krall

SME Student Chapter Officer Award: presented to Keith Heasley

The Calvin Kidd Fellowship Award: presented to Kevin Hatfield

The West Virginia Coal Mining Institute Award: presented to Grant Talbot

The Careers in Coal Award: presented to Cory Krall

Joy Mining Machinery Scholarship Award: presented to Samuel Chmelik

Mining Engineering Faculty Awards: presented to undergraduates Brandon Butrick, Jeff Fetty, and Jennifer Smith, and graduate students Hassan Amini and Wan Wang-Geissler

The Collegiate Mine Rescue Awards: presented to Chris Cameron, Jeff Fetty, Cory Krall, Zachery Minton, Mark Shaughnessy and Jennifer Smith

Raymond Salvati Memorial Scholarship: presented to Andre L. Pereira, Jr. and Jennifer M. Smith

Jack White Memorial Scholarship: presented to Joshua Wilt

R. Larry Grayson Scholarship: presented to Chad W. Martin

Syd S. and Felicia F. Peng Scholarship: presented to Chad W. Martin

Peter's Creek Coal Association Scholarship: presented to Elizabeth A. Barnhart and William G. Talbot

West Virginia Mining & Reclamation Association Scholarship: presented to David D. Corder



Rachel "Boz" Boothby (l) receives the MRAC award from Kevin Rakes.



Edon Nicaj (l) accepts Old Timers Award from Ronald Stovash.



William G. Talbot (l) receives West Virginia Coal Mining Institute Award from James (Jay) Johnson.



Cory Krall (r) accepts the Careers in Coal Award from Ronald Stovash.

Perry H. Gillie & William H. Gillie Scholarship: presented to Robert J. Harless

John L. Schroder, Jr. & Bette J. Schroder Scholarship: presented to Selena W. Lewis

Raymond H. Bowers, Jr. Scholarship: presented to Joseph M. Schultz

Ralph & Geraldine F. Dado Mining Engineering Endowed Scholarship: presented to Jared J. Urcheck

Mineral Resources Alumni Chapter Scholarship: presented to Mohamed A. Affah, William A. Hoag and Gregory J. Parker

Warren D. & Grace W. Sharpenberg Scholarship: presented to Selena J. Lewis

A. Wahab & Judy B. Khair Scholarship: presented to Jared J. Urcheck

International Coal Group Scholarship: presented to Thomas G. Hohenwart and Jeffrey J. Jacoby

The North Carolina Coal Mining Institute, Inc. Scholarship: presented to Edon Nicaj

The Gimme Foundation Scholarship: presented to Jared J. Urcheck

Martin Marietta Materials Scholarship: presented to Ryan C. Barton and Cassidy R. O'Connell

James Sterling Farinash Scholarship: presented to Brandon M. Butrick

Robert L. Raines Mining Scholarship: presented to Rachel "Boz" Boothby and Cory M. Krall

Distinguished Engineering of Mines Scholarship: presented to Jeff Fetty

Alpha Natural Resources Scholarship: presented to Samuel Chmelik and Joshua Wilt

Department of Mining Engineering Scholarship: presented to Ornella Kayiranga, Line-Audrey Nkule Songkeng, Benito Umuseke and Jared Urcheck

Joseph W. Leonard, IV Scholarship: presented to Elizabeth A. Barnhart, Selena J. Lewis and Jennifer M. Smith

West Virginia Coal Preparation & Engineering Society Scholarship: presented to Brandon M. Butrick, William A. Hoag, Cory M. Krall and William G. Talbot

STUDENT NEWS

THE 36TH INTERNATIONAL CONFERENCE ON GROUND CONTROL IN MINING

The 36th International Conference on Ground Control in Mining was held on July 25-27, at Lakeview Resort in Morgantown. This conference has a long history of advancing the latest ground control techniques and knowledge, and for providing a colloquial platform for researchers, regulators and industry to present and discuss practical solutions, and this year was no different. The 2017 conference was managed by SME and was attended by many Department professors, graduate students and alumni. During the three day conference, 45 technical papers on the latest research and products were presented to the 170 attendees. Social activities included an opening authors' reception, a barbecue, sponsored lunches and breaks and the annual golf outing and lake tour.

WVU FINISHES FIRST, THIRD IN NATIONAL MINE RESCUE CONTEST



Team Members (front row, l-r) Jim Dean, Greg Parker, Erin Brooker, Cavan Rooney, Cory Krall, Erica McCauley, (middle row, l-r) Ed Rannenber, Amber Adkins, Jeremy Diehlmann, Brenna Cole, Shannon Seitz. (back row, l-r) Matthew Green, Thomas Hohenwarter, Jack Pappano, Keegan Patrick, Aaron Malecki, Chase Reel, Daniel Nash, and John Sabo.

West Virginia University sent two teams to the Society for Mining, Metallurgy and Exploration—Eastern Collegiate Mine Rescue Organization National Mine Rescue Contest in Beckley October 27-28. Both ended up on the winner's platform.

The competition tests the teams' ability to locate and rescue three missing miners.

"The scenario simulated a mine fire/explosion on a longwall section," said Joshua Brady, associate director of mining extension at WVU and an advisor/trainer with the team. "They had to re-ventilate the contest area to provide fresh air to the location where the miners were found alive so they could be rescued safely."

The second component of the competition featured a smoke exercise.

"The teams worked in a simulated mine lab that was filled with water-based theatrical smoke," Brady said. "This smoke is used to simulate a mine fire and greatly reduced visibility."

The Gold Team, which featured mining engineering majors Cavan Rooney (Doylestown, Pennsylvania), Jeremy Diehlmann (Crofton, Maryland) and Jack Pappano (Burke, Virginia), mining/civil engineering dual majors Greg Parker (St. Clairsville, Ohio), Erin Brooker (Wilmington, Ohio) and Amber Adkins (Sherrodsville, Ohio), and geology major Brenna Cole (Ellicottville, New York), finished first in the event, which also included teams from Virginia Tech, University of Kentucky and Penn State University.

The Blue Team—Dan Nash (Mount Airy, Maryland/mining engineering/WVU Honors College), Aaron Malecki (Sarver, Pennsylvania/geology), Matt Green (Jefferson, Maryland/civil engineering), Chase Reel (Richwood/civil engineering), Keegan Patrick (Winfield, mining/civil engineering dual major), Thomas Hohenwarter (Lancaster, Pennsylvania/mining engineering) and Erica McCauley (Minerva, Ohio, mining/geology dual major)—finished third.

"I am very pleased with the efforts of both teams," Brady said. "They have done everything we have asked of them both professionally and for this contest. The staff in Mining Extension has been training the team for the past two years and have tried to show them that hard work, dedication and passion will deliver positive results in life.

"We have a very unique situation here at WVU to have an experimental mine to train them in and the results are now showing," Brady continued. "Because of our outstanding training facility at the Academy for Mine Safety and Energy Technologies, our teams are able to practice under these conditions on a regular basis."

Joining Brady as trainers are Mark Gouzd, Ed Rannenber and John Sabo, who was recently inducted into the National Coal Mine Rescue Hall of Fame.



Syd Peng, Keith Heasley, Steve Tadolini and Christopher Mark (from right to left) were recognized by SME for years of dedicated service to the quality and sustainability of the International Conference on Ground Control in Mining.

WVU SME STUDENT CHAPTER ACTIVITIES

The WVU Student Chapter of the Society for Mining, Metallurgy and Exploration has had an active schedule of monthly meetings, complemented by a number of professional events and outreach activities. The pace continues to accelerate moving into the spring 2018, building on the activities of 2017.

The spring 2017 chapter meetings included Richard Lewis, who described the evolution of his career since graduation and how a person with a mining engineering degree became a lawyer for a major corporation. We were also able to have a joint meeting with the student chapter for the International Society of Explosive Engineers, which featured a presentation on how mining companies are extracting the natural gas in coal mines.

On April 30, members were able to take a much-needed break from the classroom before finals while connecting with alumni in a friendly softball game against the WVU Society of Petroleum Engineers and their alumni. After the game, members were invited to attend a picnic that was supported by both student chapters.

The fall 2017 kickoff meeting introduced new professors in the Department and included Jim Dean, the director of WVU's mining and industrial extension program, who described their mission and facility. Interim Chair Vlad Kecojec also gave a presentation to Chapter members.

Every year the chapter looks forward to the SME Annual Conference, which takes place in a different location each year. In spring 2017, 12 students from the chapter attended the conference in Denver, Colorado, giving them the opportunity to attend professional presentations and meet industry leaders. These connections assisted a number of students in securing summer internships and full-time jobs. The 2018 conference will take place in Minneapolis, Minnesota.

A six-member team competed in the SME/NSSGA Student Design Competition in conjunction with the conference. This second round of the competition includes only the six finalist teams from around the world. The WVU team finished fourth and hopes to again compete as one of the finalists in 2018.

Our chapter is looking forward to participating in a number of outreach opportunities including the GEM show, Trunk or Treat and other events that can show off what our organization has to offer both the community and the students at WVU. So far this semester we were able to exhibit at WVU's EngineerFest, which gave incoming freshmen and transfer students the opportunity to see what organizations the College has to offer.



Surface Mining Class visited a Republic Energy mine in spring 2017.



Longwall Mining Class visited the Bailey Mine in spring 2017.



WVU SME students at 2017 SME Annual Meeting in Denver, Colorado.



The SME/NSSGA student design competition team included (second from left) Jennifer Smith, Erin Broker, William Talbott, Cory Krall, Jeff Fetty and Brandon Butrick. Aaron Noble and Vlad Kecojec are also pictured.

STUDENTS RECEIVE AWARDS IN THE NATIONAL SENIOR DESIGN AWARD CONTESTS

Students continue to garner awards for their design work from two national contests.

In 2017, Abid Affach, Jeff Fetty and Grant Talbott finished third in the Carlson Senior Design Award competition. In 2016, Laura Nugent and Ethan Watson won top honors in the competition and in 2015 James

Bradshaw, Max Colton and Christopher Sowers finished second.

In 2015 and 2016, students won top honors at the SME/PCMA Senior Design Award competition. James Bradshaw, Max Colton and Christopher Sowers won in 2015 and Aaron Beam, Zachary Saylor and Smith Shrestha won in 2016.



CHAIR'S MESSAGE

Dear Alumni and Friends:

It is my privilege to write this short note as the new interim chair of the Department of Mining Engineering at WVU. I am proud and humbled to serve our many constituents as we move the Department into the future. I joined the Department in January 2010, after serving nine years as a faculty member at Penn State. I was employed with Krupp Canada from 2000-2001, and was responsible for the design

of mining equipment. I was also involved in the planning and design of coal, bauxite and limestone mines in Serbia and Montenegro from 1992 through 2000.

Throughout my tenure at WVU, I have been overwhelmed by the amazing dedication and work ethic of our students, faculty and staff, as well as the unmatched generosity to the Department by our alumni, friends and industry. Because of these contributions, the Department is positioned to continue educating students who will address the societal needs for more mineral resources and the management, health and safety, and environmental impacts associated with the production and processing of these resources in a sustainable and responsible way. As a student-centered department, we will continue to inspire students to become proficient and adaptable learners by developing skills in problem-solving, team-building and communication, and we will promote active learning and discovery to motivate our students to become lifelong learners.

Mining is a global industry; therefore, the Department will promote the international experiences of our undergraduate students. I am amazed by the inspiring journeys of our former and current mining engineering students. Over the past three years, Michael Sustar (BS '15; former WVU SME student chapter president) has worked

for Freeport-McMoRan in Colorado, Arizona and Indonesia, and is currently working for BHP Billiton in Australia. Senior Jack Prommel worked this past summer in South Africa and taught sustainability and environmental practices to locals while aided the community in building a soup kitchen and redesigning and building a safe playground, as well as designing a rainwater collection system. I can assure you that the Department is committed to be a community that inspires students to high levels of achievement in industry, academia, government and the broader society, both at home and abroad.

This newsletter contains several articles that highlight the achievements of our students, faculty and alumni. I would like to call your attention to the articles written by two new faculty members: Qingqing Huang and Berk Tulu. We look forward to their future contributions to the Department. I am also happy to report that we have Dan Alexander back at WVU as an adjunct professor, and I am grateful to him for stepping up the teach Mineral Property Evaluation this fall semester. Dan has also been gracious in helping with editing this issue of *Black Diamonds*. You may have noticed that no issues were published in 2015 and 2016; we have summarized some the major activities from that time in this issue.

As the interim chair, and on the behalf of the faculty, staff and students, we thank you very much for your support and commitment to the Department of Mining Engineering at WVU.

My heartfelt thanks goes to Karen Centofanti, our office administrator, for her exceptional contribution and service to our Department.

Vlad Kecojevic, *Interim Chair*
Department of Mining Engineering