Appendix A: Comprehensive Resume for William Church
December 2018
FACULTY MEMBER

I. General

A. Name: **William Church**

B. Present rank and department: Assistant Professor, Mechanical Engineering

C. Degrees held, dates, institutions

- Ph.D. (Mechanical Engineering), 2007, University of Wisconsin-Madison, Madison WI
- M.S. (Mechanical Engineering), 1997, University of Wisconsin-Madison, Madison WI
- B.S. (Mechanical Engineering), 1995, West Virginia University, Morgantown WV

D. Date first employed at WVU Tech: August 2016

E. Dates of promotion and rank: N/A

F. Date of tenure or eligibility for tenure: August 2022

G. Total years of college teaching & professional experience: 19 years

H. Teaching experience record – where, when, etc.

- **Assistant Professor** 2017-present
  Department of Mechanical Engineering
  West Virginia University Institute of Technology

I. Non-teaching work experience – include a brief description of job title.

- **Principal Design Engineer** 2016-2017
  Arctic Cat
  St. Cloud MN
  In this senior level position, I used computer simulation to analyze performance characteristics such as flow, combustion, and power output levels of potential engine designs.
- **Senior Design Engineer** 2014-2016
  Polaris Industries
  Wyoming MN
  Performed transient 3D flow and combustion simulation for Polaris' off-road ATV and Indian motorcycle engine lines.
- **Research Engineer** 2010-2014
  Argonne National Laboratory
  Argonne IL
  Performed the combustion research on a dual fuel prototype engine project that was a joint venture between DOE and Chrysler.
- **Performance Development Engineer** 2003-2009
  Penske Racing
  Concord NC
  Designed the intake manifold and cylinder head porting for Roger Penske's NASCAR race teams.

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II. Teaching

A. Teaching responsibilities

1. Courses/Labs taught with enrollments:

Fall 2017: MAE 321: Applied Thermodynamics – 24
MAE 405: Senior Mechanical Lab – 6
MAE 425: Internal Combustion Engines – 9

Spring 2018: MAE 201: Applied Engineering Analysis – 29
MAE 320: Thermodynamics – 26
MAE 405: Senior Mechanical Lab – 16

Fall 2018: DRET 120 T02: Drafting 1 – 19
DRET 120 T04: Drafting 1 – 22
MAE 321: Applied Thermodynamics – 25
MAE 405: Senior Mechanical Lab – 20

2. Graduate students supervised: N/A
Clinical assignments: N/A

B. Counseling and academic advising

- Performed academic graduate checks for all mechanical engineering students who are preparing for a 2018 graduation.
- Performed academic graduate checks for all mechanical engineering students who are preparing for a 2019 graduation.

C. Collateral course responsibilities, library acquisitions, etc.: N/A

D. Laboratory and/or course development

1. Development of new course/lab: N/A
2. Updating course/lab content
   - MAE 425 – Internal Combustion Engines (2017)
     a. Trained students in commercial engine design software (Ricardo Wave).
     b. Integrated this software into the curriculum via design projects with concrete objectives and design considerations.
   - MAE 405 – Senior Mechanical Lab (2018)
     a. Integrated new lab equipment into course and updated experimental materials/procedures.
        i. Fluid Dynamics/Fan Experiment
        ii. Rankine Cycle Turbine Experiment
        iii. Refrigeration/AC Experiment

E. Teaching aids or methods employed
1. Use of computer technology
   - Use email regularly to correspond with students.
2. Distance learning methods: None
3. Web applications: None
4. Other: N/A

III. Scholarship

A. Extension of training: Short courses, seminars, institutes, reading in current literature, etc.: None

B. Professional societies: N/A

C. Consulting work: None

D. Publications

1. William Church, Steve Ciatti, Stephen McConnell, et al. Chrysler Multi Air Multi Fuel Project – Final Report. Lead author on the proprietary ANL final report which is included as the experimental portion of the Doe final report: Reese, Ronald. 2015. "A Multi-Air®/MultiFuel Approach to Enhancing Engine System Efficiency." United States doi:10.2172/1228747 http://www.osti.gov/scitech/servlets/purl/1228747

2. Kyeong Lee, William Church, Stephen McConnell. "Examination of Particulate Emissions from Alcohol Blended Fuel Combustion in a Gasoline Direct Injection Engine. 8th International Modeling and Diagnostics for Advanced Engine Systems (COMODIA 2012).

3. Debbie Rosenblatt, Stephen McConnell, Jukka Nuottimaki. "Particulate Measurements: Ethanol and Isobutanol in Direct Injection Spark Ignited Engines". (Listed in acknowledgements for running the US portion of the experiment at ANL and writing the prelim report for this work) Report From IEA Advanced Motor Fuels Implementing Agreement 2012.

4. Church, William, and P.V. Farrell. 1998. "Effects of Intake Port Geometry on Large Scale In-cylinder Flows". In *SAE Technical Paper Series*. SAE International.

E. Research
1. Projects: None
2. Grant proposals
- W. Scott Wayne, Nigel N. Clark, Cosmin E. Dumitrescu, Derek Johnson, William Church, David L. McKain Jr., Daniel K. Carder, "Review of Low-Speed Pre-Ignition (LSPI) aka Stochastic Pre-Ignition (SPI) Including the Superknock Portion of the Events, and Fuel Effects on LSPI and Superknock in Light Duty Vehicle Engines". Submitted to Coordinating Research Council, $165,000, 2017.
- Lalit Chiordia, Marc Portnoff, Vahid Vahdat, Andrew Gellman, Nigel Clark, Parviz Famouri, Derek Johnson, Will Church, "Highly Efficient Portable Generation System". Submitted to Thar Energy LLC, $2.5M, 2018.
- Derek Johnson, Nigel Clark, Andrew Nix, Gerald Bacza, Jeffrey Carver, William Church, Reagan Curtis, Cosmin Dumitrescu, Fahad Gill, Fabien Goulay, Tarek Masaud, Catherine Mezera, Melissa Morris, Paul Rakes, Michelle Richards-Babb, Jennifer Robertson-Honecker, Asad Salem, Natalia Schmid, Jignesh Solanki, Sarika Solanki, Lydotta Taylor, and James Van Nostrand, "Consortium for Researching Energy and Appalachian Technologies for Economic Development in West Virginia (CREATED in WV)". Submitted to NSF-EPSCOR, $20M, 2018.

F. Licensing: None
G. Short courses, seminars, etc., which you conducted: None
H. Inventions, copyrights, etc.: None

IV. Service

A. Committee assignments
1. Committees on which you presently serve: None
2. Summary of activity level: N/A
3. Meeting attendance/time spent (estimated): N/A
B. Offices held in professional societies: N/A
C. Student recruitment: None
D. Special assignments: None
E. Sponsorship of student organizations
- Advisor to WVU Tech student chapter of Pi Tau Sigma: 2017
- Advisor to WVU Tech student chapter of Pi Tau Sigma: 2018

F. Administrative duties:
- Accreditation: N/A
- Mechanical Engineering Department improvement and promotion: N/A

G. Community service: None

V. Faculty Self Evaluation

A. Completion of Workplan objectives
1. Teaching – Please see work plan with self-assessment
2. Scholarship – Please see work plan with self-assessment
3. Service – Please see work plan with self-assessment

B. Additional Accomplishments - None