**Sauk Valley Community College**
**April 24, 2023**


<u>**Action Item 6.2**</u>

**Topic:**                   **Faculty Appointment – Electrical and Industrial Technology**

**College Health**       **Academics – The College provides quality, contemporary, and**
**Metric:**                 **relevant educational opportunities to the community.**

**Presented by:**        **Drs. David Hellmich and Jon Mandrell**


**Presentation:**
        The administration has been in the process of hiring an Electrical and Industrial Technology Faculty Instructor.  The position was advertised on-line on Sauk Valley Community College's website, *Glassdoor.com*, *Indeed.com, Higheredjobs.com,* Chronicle of Higher Education*,* and in Sauk Valley Media (the *Dixon Telegraph* and the *Daily Gazette*).  The College received five applications, and three candidates were invited to interview.  The committee was composed of Jeff Johnson, Scott Gillihan, and Jane Verbout. Sasha Logan, Dean of Business, Career, and Technical Education served as Chairperson.
        *Academic background:* Kurt Stuart is working on his Ph.D. from Southern Illinois University in Mechanical Engineering/Combustion, graduated from Western Illinois University with a Master's degree in Manufacturing Engineering, and earned a Bachelor's degree from Monmouth College in Physics.
        *Professional background:*  Kurt has owned and operated White Shed Motorsports since 2014, was a Materials Science Instructor for Southern Illinois University for four years, and worked at Caterpillar as a Motor Grader Product Support Engineer.


 **Recommendation:**
        The administration recommends the Board approve the appointment of Kurt Stuart as an Associate Professor II beginning August 11, 2023, at an annual base salary of $62,642.91.

Dear Sauk Valley CC Hiring Managers,

Unknowingly to me I have had a passion for teaching for my entire life – however it has not always been in the formal teaching sense.   In most of my prior experience I am tasked with accomplishing something that few others have done.  Along with doing the undoable comes the task of explaining and showing how it works.  Sharing my knowledge, and how I accomplished the task.  For me this is usually the most exciting part.  I think that my education, industrial experience, and excitement to teach makes me a great fit in the industrial and electrical technology department.

Sincerely,
Kurt Stuart

# Kurt Stuart

**Experience**

**White Shed Speed Motorsports –** Engineer/Fabricator/Tuner
La Moille,IL  June 2014 – Current

 - Develop, construct, calibrate motorsports common rail diesel engine control
 - Develop custom datalogging and engine control modules
 - Develop control strategies for high performance vehicles
 - Experiment with E85 fuel in a turbo-charged four cylinder drag racecar.
 - Assemble and Repair Engines and Transmissions
 - Assemble and Repair Turbo-Chargers
 - Write ECU calibrations to attain maximum performance
 - Experiment with Alternative fuels in carbureted motorcycle applications.
 - Design motorsports driveline components using CAE, FEA, CAM.
 - Program and CNC machine components for small production runs
 - Fabricate light structures in aluminum and steel.
 - Design fluid flow systems.
 - Repair industrial machinery
 - Build and repair electrical systems
 - Develop driveline control mechatronics and programmable logic controls.

**Southern Illinois University Edwardsville** - Instructor – Materials Science
Edwardsville, IL Jan 2015 – May 2019
Teach students the principles governing the properties of materials.  Conduct safe and productive laboratory experiments.

**Caterpillar Inc –** Motor Grader Product Support Engineer
Decatur, IL July 2014 – Dec 2016
Provide technical support for past and current product to the dealer support network.  Provide diagnostic and troubleshooting expertise to dealers for unusual issues.  Record and propose solutions to recurring issues.

**Southern Illinois University** - Instructor - Internal Combustion Engines
Carbondale, IL Jan 2013 – May 2014
Teach students the principles governing the design and operation of Internal Combustion Engines.  Conduct safe and productive laboratory experiments.

**Saluki Baja SAE –** Chassis, Suspension and Drivetrain Lead Engineer
Southern Illinois University Carbondale Mar 2013 – July 2014
 - Design Chassis
 - Design and set up suspension package
 - Calibrate clutch settings
 - Design/Build/Install data logging system
 - Fabricate chassis components

**Durty Deere Motorsports Truck Pulling**- Tuner/Consultant
Mendota, IL, May 2011 – Sep 2022
-Write Calibrations for 2000hp 6.6l Turbo-Charged diesel engine.
-Configure turbocharger and fuel system to attain maximum performance in a

turbocharger inducer limited class.
-Assist in chassis setup.
- Conduct performance reviews, and suggest modifications to improve performance.


**Mundy Maintenance and Services LLC**, - Electrical / Instrumentation Technician , Meredosia, IL, Nov 2008-Apr 2010
-Troubleshoot and repair electrical and instrumentation beak-downs.
- Add new instrumentation to existing systems.
-Assist in editing PM procedures for Instrumentation.
-Assist plant engineer in keeping Blue-Print's current.
-Assist plant reliability engineer in correcting electrical and mechanical reliability issues.
 -Worked with TI-505 PLC's, Rosemount Smart Transmitters, Endress and Hauser Smart Transmitters, HART 375 Communicator, and Micro-Motion Flow-Meters.


**Volt Technical Resources** - Caterpillar Medium Wheel Loaders Maintenance, Engineering Liaison , Aurora, IL, Feb 2008 – Aug 2008
Engineering Liaison to Shop Floor
-Preformed entry level engineering duties.
-Researched assembly issues and take proper corrective action
-Followed engineering changes to ensure correct implementation
-Responsible for several engineering changes, that increased quality, velocity and assembler satisfaction, while not increasing cost.
 -Preformed on call tech support to the assembly line.
 -100 Hrs of Pro - E training
-Initiated an engineering change that solved a difficult assembly issue, and possible safety issue.

**Argonne National Laboratory**, Energy Systems Division, 12 Week Intern
 Argonne , IL, Jun 2007 – Aug 2007
-Plumb various fluid and pressure systems using: PVC, Copper - Pipe, Swagelok, AN type fittings, NPT fittings
-Worked with gas sensors, thermocouples, chillers, pumps, furnaces, flow meters, pressure sensors, and smart transmitters.
-Designed, built, tested a safety interlock system for a project in the ES division.-          -Worked with 4-20ma loop systems.

**Monmouth Implement, Mechanic** , Monmouth, IL, 08/2003-10/2006
-Repaired diesel agricultural equipment
-Repaired diesel fuel systems
-Repaired gasoline fuel systems-Repaired turbocharger systems.

**Education**          **PhD, Southern Illinois University**, Carbondale, Illinois, 8/25/11 - Current
Mechanical Engineering/Combustion – Dissertation in progress.
-3D Multiphysics CFD Engine Simulations
-Fluid Mechanics
-Thermodynamics
-Mechanics of Materials
-Data Acquisition Systems
-Combustion
-Experimental Design
-Alternative Fuels
-Wind and Solar Power Science
-Numerical Methods
-Chemical Reaction Engineering
- Controls
- Matlab
- Fortran
Current GPA: 3.57

**M.S, Western Illinois University**, Macomb, Illinois, 8/25/08-11/10/10
Major: Manufacturing Engineering
-Programmable Logic Controllers
-Industrial Electronics
-Work-Cell Integration
-Automated Industrial Production
-Computer Aided Decision Making
-SME Certified Manufacturing Engineering Technologist
-Cumulative GPA: 3.33

**B.A., Monmouth College**, Monmouth, Illinois, 8/25/03-12/1/2007
Major: Physics
-Circuit Analysis
-Dynamics
-Statics
-Electricity and Magnetism
-Problem Solving with Computers
-Digital Electronics
-Computational Physics
-Mathematical Physics
-Numerical Analysis
-Calculus
-Differential Equations.

**Skills**

Internal Combustion Engines:
-Expert in internal combustion engine design/simulation/construction
-Designed, built, tested, and successfully using a dynamometer facility

Electrical Systems:
- Construct experimental vacuum tube amplifiers
- Constructed an instrumentation system for a dynamometer featuring hall-effect sensors, inductive clamps for rpm sensing, and wideband exhaust gas oxygen sensors.
-Design and implement custom internal combustion engine controllers

Shop work:
-CNC machining
-Lathe and milling machine operations
-Welding: GMAW, SMAW and GTAW
-Sheet fabrication
-Machine maintenance and repair.
-Aluminum foundry
-Composite design and fabrication

Computer Programming:
- Embedded processors
- Motorola MCU assembly language.
-Coding in FORTRAN, C, Perl, MATLAB, and Visual Basic