

**Citrus College**

**MTRK Advisory Council**

**Thursday February 15<sup>th</sup>, 2018**

**Attendees: Mariano Rubio – Citrus College, Paul Beye – Adjunct Professor, Tom Yeaglin – Quinn Group Training Manager, Jon Kramer – Quinn Caterpillar Trainer, Joe Estioko – Penske Truck Technician, Greg Lipp – Citrus College, Emilio Rodriguez – Snap-on Tools Rep, Gale Banks – Banks Power Owner, Martin Gundersen – USC Professor, Glenn Burford – GLC Millworks Maintenance Manager, Dave Rowcliffe – Montclair High School Instructor, Armando Cardenas – Caltrans Fleet Technician, Gerardo Zarate – Cummins Engineer, Jeremy Clark – Citrus College, Tim Abbott – KKW Trucking Manager, Coco McWade – Quinn Caterpillar Manager, Jordon Ton – FWDB, Evan Wiese – Quinn Caterpillar Technician**

**Start Time – 6:00pm**

**Introductions** – Mariano Rubio welcomed everybody and proceeded with introductions.

**Program intro and update** – Mariano Rubio summarized the current state of the program including the general timeline of the program's history. Curriculum changes were highlighted with a power point presentation. The presentation showed the changes made from previous courses as well as new courses that were developed.

Tom interjected by stating that both in the on-highway and off-highway applications, general knowledge of failure causes must be implemented into the curriculum.

Armando stated that he sees electrical diagnostics as being important. Most work he sees has some relation to electrical diagnostics from systems such as engine computer and aftertreatment systems

Mariano Rubio agreed to look into implementing and integrating both areas into the different areas of training.

NC3 certification kits were described and industry participation and benefits were outlined.

Quinn Caterpillar partnership was discussed with outlining of power generation certificate being developed. Specific equipment needs were discussed by Paul Beye concerning testing equipment for generators and advanced diesel controls. Items such as generators used for paralleling and test equipment such as Volt and Amp meters were recommended. Evan Wiese added that there are no other schools that offer power generation training and that curriculum will need to be developed for the program.

**Curriculum** – Mariano Rubio presented the council with an outline of the course sequence and a brief description of the curriculum within each course. Prerequisites were outlined with the course sequence.

**NATEF Accreditation** – Mariano Rubio discussed the future prospect of developing the program to meet the requirements for NATEF accreditation. An overview of the requirements was summarized using the ASE website. An outline of the course changes needed to fulfill the NATEF requirements was discussed. ASE certification for students was presented and the question of whether ASE should be emphasized in the program was asked.

Paul Beye noted that Quinn doesn't require ASE certification but has seen many independent shops that deal with on-highway trucks do require them.

Tim stated that ASEs are required to promote technicians in his facility and that students should be prepared to take them especially if they will be working at truck repair shops. Joe supported the statement by saying that they are required by manufacturer dealerships.

Tom Yeaglin stated that preparing for ASE exams is a good way to prepare for Caterpillar's Think Big entrance exam and that instruction should be given to help students pass their ASEs.

**Internships** – Paul Beye introduced the successful internships taken by Quinn. Jon Kramer talked about Matt Hamamoto and his success in the internship during the fall and being hired by Quinn as a power generator and diesel technician.

**Hiring of Additional Faculty** – Mariano Rubio discussed the fulltime diesel position opening. With the addition of a new faculty member core certificate courses can be offered year-round with the introductory course being offered every semester and intersession.

**Exhaust Gas Remediation Project with USC** – Mariano Rubio discussed the involvement by Citrus College MTRK program with USCs exhaust remediation research. Discussed was a research team from USC obtaining data from a diesel engine in the shop at Citrus. Mariano discussed the possibility of utilizing students in the diesel program to work along side the research team to obtain engine data using scan tools.

**Diesel Engine Design Project with CPP** – Mariano Rubio discussed the participation of the diesel program in designing and testing a diesel engine and assist in acquiring data for engineering analysis for a paper being written for the American Society of Mechanical Engineers.

**Equipment and Tooling Needs** – Mariano Rubio proceeded to run through a list of technical areas and allowing for discussion of needs of each area:

**Engine and Engine Controls** – Advisory agreed that engine rebuilding and engine machining is still vital for technicians. Gale Banks suggested continuing to provide students instruction on engine rebuilding techniques due to the importance of understanding the operations and design aspects of an engine. Evan Wiese stated the importance of electrical diagnostics with scan tools and DVOMs on engine control systems. Joe Estioko stated the importance of training for exhaust aftertreatment including scan tool diagnosis, diesel exhaust fluid inspection and oxidation and selective reduction catalyst inspections and operations.

**Automatic/Manual Drivetrain** – Advisory agreed that students should learn how an automatic and manual transmissions operate. Tim Abbott expressed the increase number of automatic transmissions in use in the trucking industry today and that students should be trained in the operation and servicing of automatic transmissions. Recommended transmissions would include

Allison series transmissions for instruction on rebuilding. Solenoid testing was also recommended as a tool for instruction. Disassembly and reassembly tooling was recommended. Advisory agrees that on vehicle transmission inspections and diagnostics are equally as important as stated by Armando Cardenas and Joe Estioko.

**Chassis Suspension and Brakes** – Advisory agreed that instruction in brake inspection adjustment techniques are important to train on. Industry standard measurement tools are needed. Tire replacement was also brought up as necessary to instruct on since most entry level technicians perform tire replacements. Electronic diagnostics for systems such as leveling systems was mentioned by Joe Estioko.

**Electrical** – Electrical training using DVOM and schematics were suggested by Evan Wiese. A recommendation to seek manufacturer specific wiring schematics was also brought up. Armando Cardenas suggested using tools such as amp-clamps when performing amperage measurements. Gerardo Zarate brought up other systems that require electrical diagnostics as well and the use of Picoscope for more advanced diagnostics. Suggested was finding more trucks with more advanced technologies for students to perform inspections on. Advisory agreed.

**HVAC** – Training on refrigeration units on trailers was suggested by Joe Estioko. Carrier Transicold or Thermoking was suggested. HVAC auxiliary unit inspection and servicing was also suggested by Joe. Jon Kramer suggested focusing more on electrical diagnostics of A/C systems.

**Hydraulics/PTO** – Advisory unanimously suggests training on hydraulic systems for both on and off highway applications. Armando Cardenas suggested finding vocational trucks with hydraulic subsystems such as boom lift and tail gates. Jon and Evan suggested utilizing small off highway equipment for instruction of hydraulics applications. Testing equipment for hydraulics such as digital gauges and flow meters were also suggested by Jon.

**Preventative Maintenance Inspection** – Armando Cardenas suggested using a PMI software such as is being used by truck shops to train students in the latest PMI procedures. Tim Abbott recommended utilizing TMC approved versions of coding when identifying failures on components.

**Trailer Repair** – Joe Estioko recommended instructing students on the welding procedures typically used in trailer repair including MIG, TIG and oxyacetylene welding. Jon Kramer also stated the need for students to know the basics in welding due to field repairs of other components. Advisory recommendation is to add welding in the context of the curriculum. Trailer box repair was also brought up by Joe Estioko including knowing how to weld aluminum pieces.

**Possible Future Courses** – Mariano Rubio asked the advisory on their input for future course development in alternative fuels, hybrid and electric vehicles. Gerardo Zarate expressed the need to train students in alternative fuels due to their use in the bus industry. Evan Wiese also suggested that looking into alternative fuels is a good idea due to stationary power plant diesel engines running on fuels such as methane.

Gerardo also suggested looking into electric power plant training due to Cummins developing an all-electric powerplant for truck applications. Training in high voltage system servicing and safety was also suggested. Items such as Megohmmeters and amp clamps were mentioned as necessary.

**Closing** – Mariano Rubio thanked everybody, meeting was adjourned.

**Meeting Closed – 8:30pm**