

Short Title	Automotive tool to analyze pressure changes inside a running engine cylinder
1. Name	Rick Lockwood
2. Email	rickl@clackamas.edu
3. Department	Automotive/Welding
4. Please briefly describe your idea	Every year, new model vehicle technology changes. This requires new skill sets for the students we train to repair these vehicles. Several years ago, through grant funding, I was able to purchase a tool that allows an automotive technician the ability to analyze pressure changes inside a running engine cylinder to help diagnose internal engine problems. This new technique is becoming widely accepted in shops throughout the world as best practices. What used to take several hours to do, can now be performed in less the 15 minutes with the correct training. Our department has one copy of this tool. I am able to demonstrate how this tool works as a group for the students but very few have the opportunity to practice on it. This is not a technique that is required by our accreditation group ASEEF. However, it is something that our industry is asking for. I have taught this technique to many industry technicians in the field today. I would like this to become a part of my regular curriculum and have enough units to allow all my students the opportunity to practice and develop this skill.
5. Indicate the strategic priority that this project supports. (check all that apply)	Excellence in Teaching and Learning Diversity, Equity & Inclusion Community Connections
6. How does your idea support the College's strategic priorities?	To me, this proposal supports the ongoing mission of the college, that is, teaching high quality relevant training and skills development needed for current industry standards.
7. What contribution would this project make to the Diversity, Equity and Inclusion Strategic Plan? How does it contribute?	I think every student deserve the opportunity to improve their personal skill set in the automotive program. Unfortunately, not all students have that opportunity. The amount of individual time a student is allotted to practice and master this technique is very limited. Not every student learns at the same pace nor are most of them able to grasp understanding through a demonstration. The opportunity for an individual student to spend adequate time, for their learning pace without the pressure of time constraint for another student to use the tool, would enhance the possibility of mastery of a new skill. Currently, some students are afraid to even attempt using this tool on their own with the fear of failure and the pressure to learn it quickly because the next person is ready to use it.
8. What problem, need or gap in service will be addressed? What evidence is readily available to illustrate the need or support the goal(s) of the project? Please include links to data sources if known.	Very few automotive technicians in the industry are able to learn and understand this technique. In fact, we only have one member in our department that is skilled in this area and able to teach it. We have the opportunity to bridge the gap and bring a new skill into the workplace to help others that are already in the industry. I can tell you by first-hand experience. We had a student in our program that graduated last spring. He completed his CWE in an independent Oregon City shop. The student was able to demonstrate the skills he had learned using this tool. Now the shop owns that tool and he is teaching others how to master it. He was hired as a fulltime employee. His name is Arturo and he works at Auto Pros.
9. What is the benefit of this project (e.g. revenue potential, impact on student enrollment, retention, completion, etc.)?	This project is a small part of a much bigger picture. The value it brings may not be monetary. What it does bring is credibility to the college and the program. To have a student step into the work place with skills that very few automotive technicians possess is amazing. That is the reputation I would like to have for the CCC Automotive program.
10. What activities will be proposed in the project?	Honestly, I love teaching technicians in the industry. I do this regularly. I use the one piece of equipment we have to visit shops that do not have this skill or equipment. I would much rather have them come to our facilities and learn vs me going to them.

	The problem is, we have one copy of the tool so, hands on would not be possible when offering this type of training to industry.
11. Identify stakeholders who will likely be involved in the project planning or delivery.	Rick Lockwood, Nick Roberts. This tool and training will be used in two of our program courses. I will use them in my AM-242, Engine Performance II and Nick Roberts will use them in AM-245, Automatic Transmissions. I am hoping this will get adopted into our AM-133, Engines class.
12. How do you think success could be measured for this project?	I believe it already has through my example student, Arturo. Currently, this is a student learning outcome in one of my courses, AM-242. However, assessment is only through written test. I know that proficiency is not possible in our current situation. I do know that students get very excited when I introduce this tool and its possibilities.
13. Describe the investment (time, funds, etc.) that would probably be needed to get this project off the ground.	The investment would be \$1,197.00 per copy. The instructor training has been completed. The laptops to use the tools are already in place. I would like to get 10 copies of this tool. I will be happy with whatever decision is made.
14. Have you identified a grant or other funding source to help cover related expenses?	No
15. If yes to 14, please provide more information about the grant or other funding source.	
16. Beyond the start-up costs, is additional or ongoing funding required to maintain this project in the future? If so, please describe the costs (amounts, frequency, etc.) as well as if you have identified sources for ongoing funding.	There would be no ongoing cost. This is a one-time investment. Software updates are free to anyone that owns the tool.
17. What level of urgency best fits your idea?	Short-term, needs to be explored within next 4-12 months
18. If you answered "other" in question 17, please describe.	
19. Please include additional information you would like to share:	I will be teaching my Advanced fuel and emissions course Winter term. If at all possible, it would be wonderful to have this in place.
20. Please share any questions you have for the Innovation Team:	Just a comment, I appreciate this funding source our college offers and have benefited from it in the past. Thank you!

Survey for this Innovation Fund request: <https://forms.gle/HeKxYjC3TfCUAGEX8>