Program Educational Objectives - List the program educational objectives that have been established for the program and show how they are consistent with the mission of the institution.

The Vehicle Design program at Western Washington University will prepare graduates with the skills to enter careers in the vehicle, manufacturing and composites industries in the areas of: product development, product design, manufacturing, manufacturing process design, sales, technical management and business owner or technical consultant. Graduates will:

- Maintain a working knowledge of mathematics, physics, chemistry, and materials science for the development of a broad range of vehicle, machined and/or composite manufacturing components.
- Have extensive knowledge of current vehicle related metallic and composite materials and processing methods, and are able to adapt to emerging technologies.
- Have breadth to be capable of understanding areas of manufacturing and business outside their primary discipline.
- Have the creativity to design and develop new systems, components or processes and to use the appropriate tools to solve problems.
- Demonstrate strong organizational skills and oral, written, and graphical communication skills, be able to work as an individual, leader, or as a member of a team, and show the ability to work in an efficient, timely manner to meet technical and business goals.
- Have a well rounded education in order to understand their professional and ethical responsibility and the impact of engineering solutions in a global and societal context.

Program Outcomes - List the outcomes that have been established for the program.

a. an appropriate mastery of the knowledge, techniques, skills and modern tools of their disciplines,
   1. Materials: material science concepts, test methods, design of material formulations, material selection based on application requirements
   2. Tooling to Support Manufacturing Processes: design, construction, materials, economics
   3. Processing: ability to safely perform primary and secondary manufacturing operations, understand relationship between material, product, and processing, adapt processing to different materials and product designs, ability to troubleshoot and optimize
   4. Develop particular expertise in one of the following areas: machining, casting, composites, engine and emissions testing
5. Design: design process, economics, knowledge of the tools of design including CAD, CAM, statics, strengths

6. Quality: ability to quantify and interpret performance in relationship to objectives

7. Management: ability to successfully manage projects and operations to meet objectives and milestones

b. an ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering and technology

c. an ability to design, conduct, analyze and interpret experiments and apply experimental results to improve processes,

   1. ability to determine appropriate processing and analytical techniques to solve problems

d. an ability to apply creativity in the design of systems, components or processes appropriate to program objectives,

   1. ability to develop innovative ideas and use appropriate tools to solve problems

e. an ability to function effectively on teams,

f. an ability to identify, analyze and solve technical problems,

   1. ability to quantify performance in relationship to objectives

g. an ability to communicate effectively,

   1. ability to communicate technical information to supervisors and peers

h. a recognition of the need for, and an ability to engage in lifelong learning,

   1. ability to find technical information needed to solve problems

i. an ability to understand professional, ethical and social responsibilities,

j. a respect for diversity and a knowledge of contemporary professional, societal and global issues, and

k. a commitment to quality, timeliness, and continuous improvement.

ecl rev. 5/18/10