

Institute for sustainable mechanical designs

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Design and production practices for the manufacture of mechanical systems are constantly evolving. New versions of successful products appear on the market each year with greater utility, improved performance and reduced price. Economic and social drivers linked to renewable resources and sustainability are beginning to appear on the product development horizon. New design challenges will accompany a move towards more sustainable systems. In an emerging area such as this one, it is difficult to identify the associated research issues and which ones of these can be addressed as university research topics. The overall goal of this institute is the exploration of possible research issues that will accompany a move towards more sustainable mechanical systems. Through a series of topical studies, which will incorporate fact-gathering workshops and will produce a white paper, we will outline research opportunities for enabling technologies. Further, we will proactively disseminate the findings to appropriate policy and funding agencies.

General topic areas include;

- Material selection considering sustainability. (Most existing products employ nearly 100% non-renewable materials.)
- Product life cycle: cradle to grave design (cradle to cradle)
- Energy usage: production, service and disposal
- Cost considerations: sustainable designs must be affordable and profitable
- Development of new performance metrics for sustainability