

## Education and Training

QCML has both contractual and informal relationships with the following academic institutions in both Illinois and Iowa:

**Western Illinois University**  
**Northern Illinois University**  
**University of Illinois**  
**Black Hawk College**  
**Eastern Iowa Community College**  
**University of Northern Iowa**  
**Iowa State University**  
**University of Iowa**

Along with these institutions, engineers and technicians from area companies develop, educate, and implement new manufacturing systems, procedures and technologies. QCML will enhance opportunities with the Joint Manufacturing & Technology Center and promote collaborative initiatives for regional businesses with the public sector.

## Examples of Business Partners

**Joint Manufacturing & Technology Center**  
**UI Labs**  
**Illinois Manufacturing Lab**  
**Lockheed Martin**  
**GE Global Research**  
**Caterpillar**  
**Sulzer Metco**  
**Cristal Metals**  
**Alphabet Energy**  
**Kondex**  
**United Technologies Research Center**  
**Army Corps of Engineers (CERL)**  
**New Tech Ceramics**  
**J. M. Waller Associates, Inc.**  
**EOS**  
**Innovative Design & Research Inc.**  
**Lewis Machine & Tool**

## QCML Focus

- Research, development, and fabrication of lightweight metals, metal matrix composites, and other advanced materials
- Offer training and apprenticeship/mentoring programs
- Provide high-tech lab space and machinery for product development
- Introduce cutting-edge technology to local manufacturing base
- Offer localized training through area colleges and universities dealing with manufacturing technology
- Maintain vibrant manufacturing climate to stimulate transfer of knowledge and creativity
- Serve as an anchor facility for entrepreneurs



UAV engine component produced using 3D metal printing technology under a NAVSEA STTR with WIU and IDRC



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***A National Resource and  
Center of Excellence for  
Research, Development,  
and Technology Transfer in  
Advanced Materials and  
Manufacturing***



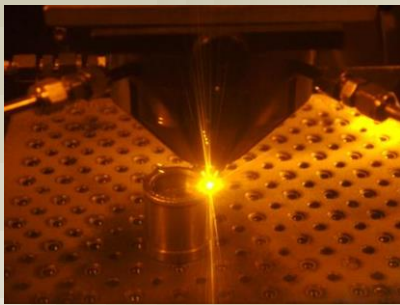
QCML Laboratory Facility  
Located on Rock Island Arsenal

***QCML is a member of the  
Digital Lab for Manufacturing***

QCML is a not-for-profit 501 (c) (3) corporation focused on job retention and creation through the introduction of new materials and manufacturing technologies. QCML has over 10,000 square feet of lab space in Bldg. 299 at the Rock Island Arsenal.

Our mission is to:

- provide a national resource for research and development of advanced materials and manufacturing technology for military and commercial applications
- demonstrate and transition new cutting edge manufacturing technologies to partner organizations in order that they may be responsive to emerging opportunities
- encourage and facilitate collaboration between research, manufacturing, and educational institutions within the Illinois/Iowa Quad City region
- conduct pilot production of parts made from titanium, lightweight composites and other advanced materials, to aid in application qualification



Fabrication using Direct Energy Deposition processing, a type of Laser Additive Manufacturing technology

### QCML Equipment and Services

QCML has extensive capabilities in both 3D metal printing and laser cladding technology. Laser cladding is often used to add wear-resistant material to a wear surface on a part. It can also be used to repair parts. In addition, QCML has the following equipment and services available:

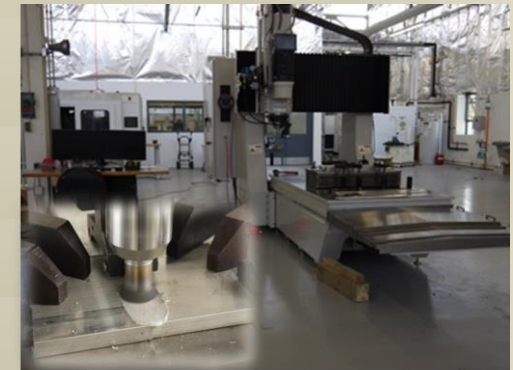
- Laser Additive Manufacturing
  - Powder Bed Fusion
  - Direct Energy Deposition
- Spark Plasma Sintering
- Friction Stir Welding & Processing
- Hot Isostatic Press Consolidation
- Wire Electric Discharge Machining
- Planetary Ball Milling
- Density Measurement
  - Gas Pycnometry
  - Densimetry
- Solid Modeling and Design Services



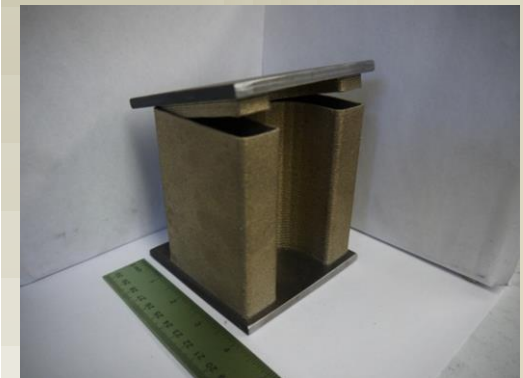
EOSINT M270 Powder Bed Fusion system for 3D metal printing



25 Ton Spark Plasma Sintering System



Friction Stir Welding System



Hot Isostatic Press containment vessel produced from stainless steel powder using Direct Energy Deposition technology