

CAPABILITIES STATEMENT

College of Technology

1. CORE COMPETENCIES – COATINGS RESEARCH INSTITUTE (CRI)

- Antibacterial Coatings
- Automotive; Industrial Coatings
- Bio-Based / Environmentally Friendly Coatings
- UV-Curable Wood Coatings Based on UV-PUD derived from soybean oil materials. One important aspect of this technology is that all the raw materials used are available commercially (so not based on lab synthesized soy-polymers). Our unique approach and formulation has allowed us to develop a UV-PUD platform where we can vary properties and cost as per the needs for the product.

2. EQUIPMENT

- Coatings Research Institute Specialized Equipment: Reference URL**
<http://www.emich.edu/cri/equipment.html>

3. DIFFERENTIATORS (KEY PERSONNEL; EXPERTISE, TECHNICAL EXPERIENCE)

- Dr. Jamil Baghdachi has over 22 years of industrial/academic research and R & D experience in coatings, polymers, adhesives, composites and plastics. He holds over 46 U.S. and International patents. In 2015 he received the ACS PMSE Roy W. Tess Award in Coatings.
- Dr. Vijay Mannair received the 2012 Michigan Green Chemistry Governor's Award. His research includes polymer synthesis, coatings based on bio-based materials, Sol-Gel technology, water-borne coatings and novel crosslinking chemistry. **See faculty website noted in section 5.**
- Dr. John Texter has more than 24 years of R & D experience in industry and holds over 41 U.S. patents. His research includes polymeric thin films and composites, fire and heat resistant polymeric materials, colloidal crystal coating and manufacturing, templating photonic crystals from polymeric arrays and nanoencapsulating of pigments.
- Dr. Weidian Shen – Expert in Surface Science, Material Science, Micro and Nano Tribology. Projects include understanding of corrosion mechanisms operative in top-coated, pretreated magnesium alloys. Scratch and mar resistance and mechanism of materials and polymeric coatings.
- Faculty are recognized experts in Polymeric materials, coatings and related fields.
- Technology evolution and enhancement through graduate level courses; Industry Focus
- Short Courses Offered: Reference URL**
<http://www.emich.edu/cri/shortcourses.html>

4. PARTNERSHIPS; CLIENTS

- Industry; Toyota Motor Engineering & Manufacturing North America, Inc.
- University Collaboration: North Dakota State University, University of Southern Mississippi

5. ADDITIONAL SOURCES OF INFORMATION

- [2015 ACS PMSE Roy W. Tess Award in Coatings: Dr. Jamil Baghdachi](#)
- Grants; 3 grants for the development of low emissivity coatings (Dept. of Energy) , development of UV cure primer for coil coating and the development of low VOC coatings for concrete.
- EMU Patent Library (URL):**
<http://www.emich.edu/techtransfer/patents.php>
- University and Faculty website (URL):**
<http://www.emich.edu/cri/index.html>
<http://mannaricoatings.wix.com/vijaymannari>