

CENTRE OF EXCELLENCE IN ADVANCED MATERIALS AND APPLICATIONS

The Centre of Excellence in “Advanced Materials and Applications” (AMA) established in Utkal University, under the RUSA 2.0 program, envisages developing a state-of-the-art infrastructure for interdisciplinary research in the field of materials science involving faculty of different department of Utkal University and also to establish inter institutional research collaboration with various Institutes. The CoE is presently function in the Department of Chemistry, Utkal University.

VISION

To be a global leader in research and develop expertise in the synthesis, characterization, modification of materials and development of green materials and technology solutions

MISSION

- To develop state-of-art facility staffed with a competent interdisciplinary resource pool for cutting-edge research in materials synthesis, characterization, modification and applications
- To provide green/environment friendly solutions for some of the emerging environmental problems in the state
- To develop strong industry interaction for technology oriented research as well as teaching
- To train and develop manpower for research in the area of Material Science & Applications
- To offer a two years programme in nanoscience and technology

PROPOSED KEY OBJECTIVES AND DELIVERABLE (As per original proposal)

The proposed research activities of CoE-AMA are as follows:

Module-I: Carbon dioxide capture, Catalytic conversion and molecular level understanding by computational studies

- Sequestration of atmospheric CO₂ by chemical method.
- Conversion of CO₂ to valuable chemicals like methanol, formic acid, carbohydrates and other fuels.
- Theoretical studies of probable mechanism, molecular dynamics.

Module-II: Nanomaterials for wastewaters treatment and sustainable energy

- Development of nano-adsorbents (mesoporous oxide/phosphate, nanoporous silica, Polymer/Polymer nanocomposites etc.) with high capacity and selectivity for treatment of wastewaters.
- Visible/Solar light driven hybrid materials for treatment of wastewaters and their suitability in hybrid treatment method.
- Hybrid materials for design of catalyst modified anode and cathode towards water splitting study (HER and OER).

