

Center Of Excellence In Advanced Materials And Green Technologies

Our college have established the Center of Excellence in Advanced Materials and Green Technologies in May 2013, based on a grant awarded by the Ministry of Human Resource Development (MHRD). The Centre of Excellence (COE) is engaged in research and development activities in the broad areas encompassing the individual developments in, or an integration of, advanced materials and green technologies based on material synthesis, material characterization, material modification, and innovative methodologies of application.

The Center has 18 faculty with diverse backgrounds including Chemical Engineering, Aerospace Engineering, Mechanical Engineering, Materials Science and Chemistry who work collaboratively on major research thrust areas including energy materials and devices, fuel production from biowaste, process intensification, real-time monitoring and mitigation of water and soil pollution, biomimetic and biomolecular chemistry and polymer nanocomposites and blends for strategic applications. Our research activities reflect both our strengths in discovering new physics, chemistry and material behavior as well as our commitment to applying them to solve India's and global problems pertaining to sustainable development. Industries across the globe such as Lam Research, Australian Mines Ltd., HPCL, V-Guard, Pricol, Roots India, Cheenu Saltern, Gharda Chemicals and Acsen Electric have funded our research, as have government funding agencies including DST, SERB, DRDO, BARC and ISRO.

With funding of over ₹16 crores (\$2.2 million) from the government and industries in India, the Center houses world-class research facilities for developing advanced materials for sustainable development. The Center also hosts the Major Analytical Instrumentation Facility of the Coimbatore Campus of Amrita Vishwa Vidyapeetham. The facility is being utilized extensively by researchers of Amrita and other educational institutions, research organizations and industries across India.

The Center has a global footprint through its research funding (funds from Australia, Norway), collaborations (Australia, South Korea, Singapore, Europe, United Kingdom, Switzerland, United States and Canada) and a fantastic network of alumni in various parts of the world. Some of our PhD scholars are jointly supervised by faculty from leading academic and research institutions in India and abroad.

Administered through the Department of Chemical Engineering and Materials Science, the Center also jointly offers a Master's Program (M. Tech) in Materials Science and

Engineering and an Interdisciplinary Ph.D. Program. In addition, the Center offers workshops, training and certification programs and webinars on materials characterization, sustainable energy technologies, sustainable water quality monitoring and management, polymer nanocomposites, design of experiments and many more areas of research interest.

Thus, our strengths and efforts are fourfold: developing advanced materials for green technologies, cross-disciplinary collaborations, strong focus on device, product & technology development, and academic training – human resource development to impact multiple areas.

I invite you to visit us both virtually and in person and look forward to expanding our collaborative research endeavours!

We have established the Center of Excellence in Advanced Materials and Green Technologies in May 2013, based on a grant awarded by the Ministry of Human Resource Development (MHRD). It is housed in the Amritanagar, Coimbatore (Tamil Nadu) campus.

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The cross-disciplinary nature of the effort has brought together researchers in the departments of Chemical Engineering and Materials Science, Chemistry, Physics, Computational Engineering, Aerospace Engineering, Biomedical Engineering, and Center for Environmental Sciences.

Under the auspices of the centre, researchers are working on the development of novel materials in a number of applications that include, but are not limited to, bio-sensors, new & renewable energy, biological entities for low cost detoxification and treatment of drinking water and industrial effluents, optimization of waste water treatment, synthesis and applications of bio-surfactants, development of novel porphyrins for optoelectronic

materials, drugs for cancer, development of lead-free solder materials and their electro-deposition in integrated circuits, electro-deposition of alloy coatings to replace hexavalent chromium, synthesis of carbon nano tubes, nano composite solar cells, and artificial photosynthesis.

Additionally, they are engaged in fundamental experimental and theoretical research aimed at gaining an in-depth understanding of the complex interactions between materials and their environments of application. Future plans include development of bio-nano-materials for mitigation of toxicity of novel nano-materials, bio-nano-encapsulation for enhanced delivery of actives (cleansing agents, antimicrobials, fragrances, etc.) and extraction of toxics and odours.