

Biomass – Sustainable Energy Source of the Future

Overview

Sustainability is a holistic approach that encompasses the social, economic and ecological dimensions, and believes in the conception of their coexistence to ensure everlasting prosperity. It establishes that our present needs are met without jeopardizing the ability of the future generations to meet their own needs. The unmanaged resource utilization and waste disposal has misconstrued the image of chemistry leading to the formation of dirty, polluting and toxic 'Brown Chemistry'. This needs to be reversed to the chemistry of our future i.e. clean, efficient, congenial and resourceful- known as 'Green and Sustainable Chemistry'. In 1998, 12 principles of Green Chemistry were established for a convalescent way of directing the future needs, adopting circular thinking and leading to responsible innovation. It ensures sustainable consumption and production patterns; promotes resource and energy efficiency, sustainable infrastructure, and provides access to basic services and a better quality of life for all.

The bifold problem faced by the modern society (i.e. increasing dependent on non-renewable fossil resources, escalating waste problems) could be solved by employing certain unavoidable biomass wastes, such as food supply chain wastes that arise as a result of processing, agricultural residues, forestry wastes, etc as valuable raw materials for biorefineries for the generation of high-value products. Processes using renewable feedstocks are often closer to being carbon neutral compared with those of the conventional petrochemical routes. Both established and emerging global economies view biomass as a bioresource for our next generation energy, chemicals or platform molecules and materials, lessening the burden on crude oil. In summary, the adoption of green and sustainable practices and principles across the chemical and allied industries is prerequisite for a sustainable 21st Century. We have the opportunity to re-educate and transform all our stakeholders in responsible chemistry, manufacturing and innovation such that chemistry is no longer viewed as an environmental culprit.

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| Schedule | November 2 – November 6, 2020 Number of participants for the course will be limited to fifty. |
| You Should Attend If... | <ul style="list-style-type: none">• This course is important and intended for executives and industrial researchers including R&D laboratories.• Students at all levels (B.Sc./BTech/M.Sc./MTech/PhD/PDF) and faculty from reputed academic and technical institutions. |
| Fees | The participation fees for taking the course is as follows: Participants from abroad: US \$300 Industry/ Research Organizations: ₹ 2500 Academic Institutions: ₹ 1000 The above fee includes all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis. |

The Faculty



Dr Avtar Singh Matharu, BSc, PhD, CChem, FRSC, is Senior Lecturer and Acting Director of the Green Chemistry Centre of Excellence (GCCE). The GCCE is an internationally-leading academic facility for the provision of excellence in green and sustainable chemical technologies, processes and products. He co-oversees a team of nearly 90 researchers spread across four technology platforms: renewable materials; clean synthesis and platform molecules; microwave processing, and; alternative solvents all focussed on developing green and sustainable industrial process and technologies. As Deputy Director, he has forged national and international collaborations both with academia and industry. In 2012, Dr Matharu and Prof James Clark set up a Global Green Chemistry Centres (G2C2) network which extends our research collaborations to India, Brazil, Australia, South Africa, Europe, Mexico, USA, Canada, S Korea and China. As Scientific Lead for Renewable Materials Technology Platform, has managed several major projects totalling £10M+ funded from UK and European initiatives, and direct industrial support. He is Editor-in-Chief for Current Research in Green and Sustainable Chemistry (Elsevier).



Dr. S. K. Mehta (FRSC) is the Senior most Professor in the Department of Chemistry, Panjab University, Chandigarh. He is highly active in the significant areas of research like metallo-surfactant chemistry, nano electrochemical sensors, synthesis and application of semiconducting nanoparticles and colloidal chemistry that includes novel formulations for drug delivery applications. He is also Coordinator, Chandigarh Region Innovation Knowledge Cluster (CRIKC), Local coordinator MHRD initiative GIAN and Coordinator UGC CAS. He is receipt of renowned DAAD and JSPS fellowships several times, Bronze medal from *Chemical Research Society of India (CRSI)*, authors award by Royal Society of Chemistry (UK), Haryana Vigyan Ratna award and Prof. W.U. Malik Memorial Award of Indian Council of Chemists (ICC) for the year 2015 for his outstanding contribution in research. He has been a visiting scientist to several countries including UK, Germany, Japan, USA and France.

Course Co-ordinator

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