

societies to organize scientific events such as Symposia/ Seminars/ Conferences/ Workshops or any other similar scientific activity that provides platform/forum to professionals, scientists, research and educational institutions to share knowledge and experience in various fields of Science and Technology.

The Scheme provides partial support towards expenses related to organizing scientific events such as Travel support, Registration Fee Waiver, Promotion (web site, brochures, proceedings), Secretarial assistance, Local hospitality, Venue charges.

The organizers of GCETFT-2019 thank the authorities of CSIR-HRDG for their valuable support to this national conference for the Release of **Proceedings of GCETFT-2019 with ISBN number**. The manuscript will be peer reviewed and published in the conference proceedings. Authors are sole responsible for the plagiarism check. A copy of proceeding will be issued to one presenting author per paper. The electronic version of the full length of manuscript should be submitted through Email: [gcetft2019@gmail.com](mailto:gcetft2019@gmail.com)

#### IMPORTANT DATES

Submission of abstract (on or before) : **15.12.2019**  
 Confirmation of acceptance : **16.12.2019**  
 Submission of paper in complete form along with registration form and fees (with signed undertaking form) : **17.12.2019**

#### REGISTRATION FEE

Academicians and R&D Personnel's : Rs. **750**  
 Person from industry : Rs. **2000**  
 PG & Research Scholar : Rs. **200**  
 Only Participation : Rs. **100**

#### FOOD & ACCOMMODATION

Food will be arranged in the university guest house. Accommodation for delegates will be arranged in the University guest house/Hotels at Chidambaram on request basis by advance payment.

#### ORGANIZING COMMITTEE

**Chief Patron:** **Prof. V. Murugesan, Ph.D.,**  
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**Co-Patrons:** **Dr. K. Raghukandan**  
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**Dr. C. Karthikeyan**  
 Professor and Head  
 Department of Chemical Engineering  
**Organizer:** **Dr. P. Elavarasan**  
 Department of Chemical Engineering  
**Co-Organizers:** **Dr. S. Rengadurai & Dr. S. Dhanasekaran**  
 Department of Chemical Engineering

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**ANNAMALAI UNIVERSITY**

(Accredited with 'A' Grade by NAAC)



## NATIONAL CONFERENCE On **GREEN CHEMISTRY AND ENGINEERING : TOWARDS FUTURE TECHNOLOGY** **[GCETFT-2019]**

**26<sup>th</sup> & 27<sup>th</sup> December – 2019**



**Funded by**  
**Council of Scientific and Industrial Research**  
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**Coordinators**  
**Dr. P. Elavarasan**  
**Dr. S. Rengadurai**  
**Dr. S. Dhanasekaran**  
**Organized by**  
**Department of Chemical Engineering**  
**Faculty of Engineering and Technology**  
**Annamalai University**  
 Annamalai Nagar – 608 002, Tamil Nadu, India





## ABOUT THE UNIVERSITY

In the early 1920s Rajah Sir S. R. M. Annamalai Chettiar founded Sri Minakshi College, Sri Minakshi Tamil College and Sri Minakshi Sanskrit College at Chidambaram. In 1928, Rajah Sir S. R. M. Annamalai Chettiar agreed with the local Government to handover the above said institution for establishing a University. Thus, on 01.01.1929 Annamalai University was established as per Annamalai University Act 1928 (Tamil Nadu Act 1 of 1929). One of the most significant developments is the enactment of the Annamalai University Act, 2013 (Tamil Nadu Act 20 of 2013), which has come into force from September 25, 2013. Annamalai University is accredited with 'A' Grade by **NAAC** in 2014. "**The NIRF-2019**" by the Ministry of Human Resource Development (MHRD) has ranked the University in the band **101 - 150** in the overall category as well as the University Category. In the Pharmacy Category the ranking is **12<sup>th</sup>** in India. In the Medical Category the ranking is **25<sup>th</sup>**. "**The Times Higher Education World University Ranking - 2019**" has ranked Annamalai University in **1000+** for Overall category. In the Subject category Ranking, 2019, the University is ranked in the band of **501-600** for Life Sciences and Pre-clinical, clinical & Health Subjects. **800+** in the Physical Sciences subject. "**The QS World University Ranking - 2019**" has ranked Annamalai University in the band of **291 - 300** in Asia Ranking, **174** in the BRICS Ranking and **43** in India Ranking. "**The CWTS Leiden Ranking 2018**", on scientific impact of universities and on universities' involvement in scientific collaboration & scientific performance, has ranked the University at **20<sup>th</sup>** based on the number of publications and **4<sup>th</sup>** based on the proportion of publications that, compared with other publications in the same field and in the same year, belong to the top **10%** most frequently cited. "**The MDRA - India Today Ranking**" (2018) has ranked Annamalai University **13<sup>th</sup>** among the best Government Universities in India. Among the top **197** ranked institutions for Higher Education in India the "**SCImago Institutional Ranking (2018)**" has ranked Annamalai University as **7<sup>th</sup>** in Tamil Nadu and **32<sup>nd</sup>** in India. Annamalai University is one of the largest unitary, teaching, and residential Universities in Southern Asia comprising of 10 Faculties and 49 departments of study. This University has played a pivotal role in providing access to higher education to thousands of youth cutting across the social spectrum, especially from economically and socially disadvantaged classes. In this respect, this University's service to the nation is tremendous.

## DEPARTMENT OF CHEMICAL ENGINEERING

The Department of Chemical Engineering, Annamalai University is a DST-FIST sponsored Department. The Department offers B.E. (Chemical Engineering),

M.E.(Chemical Engineering) M. Tech (Industrial Biotechnology), M.Tech (Food Processing Technology), M.Tech (Industrial Safety Engineering) and Ph.D. (Chemical Engineering) programs. The department has received research grants to the tune of 2.5 crores from various funding agencies like DST, DBT, UGC, Ministry of Food Processing and Ministry of Environment & Forests.

## THEME OF THE CONFERENCE - GCETFT-2019

Green Chemistry and Engineering is the design of chemical products and processes that reduce or eliminate the use and/or generation of hazardous substances. Green chemistry also defined as the practice of chemical science and manufacturing in a manner that is sustainable, safe, and non-polluting and that consumes minimum amounts of materials and energy while producing little or no waste material.

The principles of green chemistry and engineering conference is mainly aimed to Prevention, Atom economy, Less hazardous chemical synthesis, Designing safer chemicals, Safer solvents and auxiliaries, Design for energy efficiency, Use of renewable feedstock's, Reduce derivatives, Catalysis, Design for degradation, Real-time analysis for pollution prevention, Inherently safer chemistry for accident prevention. Green chemistry and engineering towards future technology conference is correlating interdisciplinary topics of chemistry and engineering used for the betterment of eco-friendly and sustainable systems.

The future of Green chemistry and engineering is to problem solving approaches on environment and indeed essential to control, regulate and reduce the pollution and emission. The conference will provide a unique opportunity for researchers to gain valuable advice and discuss broader knowledge on cleaner and sustainable environment for living. This conference will also enlighten the participants with the latest innovations in Catalysis, Sustainable process and renewable energy through plenary lectures.

## CALL FOR PAPERS - GCETFT-2019

Research papers related to the major theme of the conference are invited for Oral and Poster presentation, the thrust areas research articles Include on the following sub-themes:

- ❖ Agrochemical and Agro Industries
- ❖ Alternative Fuel
- ❖ Analytical Techniques
- ❖ Biomass and utilization
- ❖ Catalysis & Bio catalysis

- ❖ Chemical Engineering
- ❖ Chemistry and Technology
- ❖ Corrosion Chemistry and Engineering
- ❖ Eco-friendly systems
- ❖ Electrochemical Engineering
- ❖ Energy and renewable resource
- ❖ Environmental Impact assessment
- ❖ Environmental Science and Engineering
- ❖ Food Production and Processing
- ❖ Functional Materials
- ❖ Global Environmental Issues
- ❖ Green Economy and Marketing
- ❖ Industrial Safety and Loss Prevention
- ❖ Manufacturing and Industrial Process
- ❖ Marine Science
- ❖ Nano Technology
- ❖ Nuclear Waste Management and Disposal
- ❖ Pollution Control Technologies
- ❖ Surface Science and Technology
- ❖ Waste Utilization and Management
- ❖ Water and Wastewater Treatment
- ❖ Zero Liquid Discharge

Authors are requested to submit their paper in MS-word format to the guidelines: Times New Roman, font size of 12 on A-4 paper size. The paper should contain a brief abstract (maximum of 200 words, 5 key words, and complete mailing address of the authors).

## CSIR-HRDG

Council of Scientific & Industrial Research (CSIR), New Delhi, India a premier national R&D organization, is among the world's largest publicly funded R&D organization. CSIR's pioneering sustained contribution to S&T human resource development is acclaimed nationally. Human Resource Development Group (HRDG), a division of CSIR realizes this objective through various grants, fellowship schemes etc. Human Resource Development Group has been contributing significantly towards producing an inquiring society and fast-growing knowledge economy. These numerous schemes cover a wide range of scientists. Under the Symposia Grant Scheme, financial assistance is provided to Universities, Academic institutions, Colleges, Government Departments, registered