



# UNDERGRADUATE RESEARCH SYMPOSIUM-2019



University of Moratuwa - Sri Lanka  
Department of Chemical and Process Engineering

Department of Chemical and Process Engineering  
University of Moratuwa



## Message from the Vice-Chancellor

Nationally relevant, world class research carried out with a view to contribute to national development is one of the broader objectives of organizing research symposia by the University of Moratuwa.



As part of this effort, the first 'Undergraduate Research Symposium CPE 2018' is organized by the Department of Chemical and Process Engineering of the Faculty of Engineering. The opportunity of participation by the students for conducting research projects and presenting research outcomes and outputs at this research symposium provides proper training for them. This training and the skills developed will help them in their future professional careers. Providing opportunities for promoting multi-disciplinary research is also another objective of organizing this research symposium.

While greatly appreciating and acknowledging the guidance given by research supervisors in carrying out the research projects and organizing this research symposium, felicitations are extended for a successful symposium.

**Prof. K. Kapila C. K. Perera**  
**Vice-Chancellor**  
**University of Moratuwa**

## **Message from the Dean, Faculty of Engineering**



I am pleased to write these few words of felicitation on the occasion of inaugural undergraduate research symposium organized by the Department of Chemical and Process Engineering. Launching an annual undergraduate research symposium is a welcome initiative by the Department as it provides a unique opportunity for undergraduates to present their research findings to a larger audience consisting of both academia and industry. The Symposium also enables final year students to present their research topics and get feedback from staff members and experts from industry.

The Chemical and Process Engineering Department has selected the most sensible and relevant themes along which to organise the symposium, namely, safety, environment & biotechnology, sustainable energy and polymer processing & nanomaterials. Students will get a valuable opportunity to hone their abilities in presenting research outcomes including scientific paper writing.

Inculcating research culture among its students is one of the objectives of the undergraduate course of the Faculty of Engineering. The Faculty recognizes that research skills, rather than being limited to postgraduate students, serve to enhance critical thinking and innovativeness of its undergraduates too. This symposium will hence add value to the already highly acclaimed degree of engineering earned by the undergraduate students of the Faculty.

I have no doubt that this initiative of the Chemical and Process Engineering Department will be a long-lasting success for many years to come, eventually contributing to the nation building process in earnest. I wish all the very best for the success of their efforts and do hope that its benefits will be the catalyst for developing the nation by the next generation of Chemical and Process Engineers.

**Prof. N. Wickramarachchi**

**Dean, Faculty of Engineering,**

**University of Moratuwa**

**Message from the HOD, Department of Chemical & Process Engineering, Faculty of Engineering**

It is a great pleasure to send this message to the first ever undergraduate research symposium organized by the Department of Chemical & Process Engineering, University of Moratuwa. At this symposium 32 undergraduate research projects carried out by the 2014 batch of students covering all branches of Chemical and Process Engineering will be presented.



I am sure symposium will serve two main objectives; a platform for the students to showcase their research findings to a larger audience comprising of academics and industry personnel and to learn from each other about a broad range of exciting research topics.

I earnestly hope that active participation at the symposium can significantly motivate the next generation of young researchers and encourage them to continue advancing in their research careers. Further, constructive feedback from participants would definitely help the committees to select the best project from each parallel session.

I would like to thank the members of the organizing committee headed by Prof. P.G. Rathnasiri for all the efforts in making this event a reality. I extend my best wishes to continue this undergraduate research symposium as an annual event of the department.

**Dr. (Mrs.) S.H.P. Gunawardena**

**Head of the Department,**

**Department of Chemical and Process Engineering**

**University of Moratuwa**

## Message from the Program Chair

I am privileged to write a message for the symposium proceeding published under the first ever undergraduate research symposium (URsymCPE2019) organized by the Department of Chemical and Process engineering. Main theme for the event is the research



for professional development. With excellence in research, recently Department of chemical and process engineering was able to increase its global visibility via increased number of research publications which produced via postgraduate route. In line with these developments, department has set goals and is striving to improve and inculcate research culture among undergraduate students. Developing undergraduate research benefits, not only enhance publications and preparation for students to subsequent postgraduate studies, but it is a catalyst for professional development.

The main objective of this event is to set a platform for final year students to present their research findings to wider audience and receive feedback while creating awareness and passion among rest of the undergraduate students. Research project offers under undergraduate curriculum fulfills the two attributes of engineering graduate as dictated by governing accreditation body and this module differs from conventional model due to nature of self-learning engagement. Present challenge is to align students with self-learning and come up with research-based solution for the open-ended problem. Research topics presented at this symposium are broadly classified into three parallel sessions i.e. safety, environment and biotechnology, sustainable energy and polymer processing and nano materials. As research coordinator and conference chair, I believe that this would be an annual event of the department with more new features. To make this event reality, team of undergraduate students worked so hard and their effort is commendable. I take this opportunity to thank our junior staff members for proof reading of extended

abstracts submitted by the students. This is a team effort and without support of head of the department, research supervisors this would not have been a reality. With the short notice, eminent academics of the fields and industrial expertise agreed to serve as members of evaluation panels and it strengthen the quality of the outcome of the event. Finally, industries those who willingly supported us with sponsorship are highly appreciated and specially our former students played a vital role in this regard.

Prof. P.G. Rathnasiri

Programme Chair

UG<sub>sym</sub>CPE2019



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