Optimizing the process conditions in science and engineering for improvement of product engineering

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Finding the novelty in and developing new science and engineering applications in the world is very important and interesting. Overall, process and product engineering aims to improve and increase the effectiveness of the engineering process in order to achieve the optimum conditions. However, engineering and environmental applications still contain various limitations such as high energy demand, catalyst costs, and less reuse or regeneration of adsorbents and catalysts. These challenges have led to the exploration of cheaper precursors, the regeneration of adsorbents or catalysts, mechanisms reactions, and overall optimization of the engineering process. Moreover, multifunctional and advanced materials could be promising as materials for further applications. To the best of our knowledge, investigation and exploration of the precursors, methods, design, instruments, product, and/or manufacturing is required for the future as they facilitate and integrate with each other. The adsorption process is a simple and important method for many applications within the environment and industries to deal with the removal of heavy metals, pollutants, and odor from wastewater, and to tackle polluted air. Clean energy sources and global warming have been major issues and challenges for many years, including a reduction of co2. Much attention has been paid to the key issue of developing alternative uses for by-products (waste) in addressing the sustainability of this resource. In particular, the utilization of any by-product (waste) as a useful product should be considered as a source of economic, eco-friendly, high-efficiency, and renewable materials, and should follow at least one rule, such as the “polluter pays” principle. This is expected to pave the way for the attainment of advanced applications. All of the findings of this research are effective and may be used to enable the further development of environmental applications for the removal of a diverse range of pollutants, diminish hazardous pollutants, and facilitate the minimization method for the management of waste. On the other hand, to improve the production of renewable energy and further applications, the overall process also needs to be considered, including the temperature, time, feedstock composition, catalyst, and arrangement of the design.to address the above problems, the 2nd international tropical renewable energy conference (i-trec) 2017 was held on october 3–4, 2017 at the courtyard by marriott bali nusa dua resort, bali, indonesia. The 2nd i-trec 2017 was proudly organized by the tropical renewable energy center, faculty of engineering, universitas indonesia. The main theme of the 2nd i-trec 2017 was “towards tropical renewable energy innovation and technology integration.” The 168 presented papers came from various countries, such as australia, brunei darussalam, brazil, france, indonesia, japan, and malaysia. The 2nd i-trec 2017 covered three symposia, namely renewable energy system and regulation, biomass and biotechnology, and multifunctional and advanced materials for renewable energy applications. From a total of 168 papers from the three symposia, we selected 22 for publication in ijtech. The papers are from a range of fields, as follows: architecture (1), chemical engineering (9), civil engineering (1), electrical engineering (1), mechanical engineering (7), and metallurgical and materials engineering (3). All of the 22 selected papers from the three symposia are summarized below.