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EVALUATION OF THE INDUSTRIAL ENGINEERING CURRICULUM RELEVANCE IN THE 4TH INDUSTRIAL REVOLUTION: A CASE STUDY OF GRADUATES FROM A UNIVERSITY OF TECHNOLOGY

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ABSTRACT

With the advent of the 4th Industrial Revolution of artificial intelligence, robotics and internet, South African universities are experiencing a growing demand for Industrial Engineering (IE) graduates capable of fulfilling those expectations. Industrial engineers are trained to assist organizations in productivity optimisation and modernization of manufacturing processes. This research investigates gaps between IE subjects offered in the previous IE bachelor of technology programme at a university of technology and its impacts on the current industry market. A questionnaire was sent to IE graduates and data were collected from consented participants with at least one-year industry experience. A qualitative and quantitative analysis outcome from the 83 IE graduates revealed that 60% of the respondents felt IE subjects and topics included in the curriculum were relevant to their regular duties as work as Industrial Engineers. With the graduates from the new bachelor of engineering technology curriculum already at work, evaluation of the impacts of the new curriculum in comparison with the previous were discussed in this study. The research results revealed an increase in relevance of the industrial engineers in the new curriculum and these students are now better equipped in in information technology, problem solving, data analysis in addition to their already strong industry centredness. However, it was noted that there is more room for improvement in the new BET curriculum in terms of artificial intelligence issues such as data science and big data analysis, which are critical for the 4th and 5th industrial revolutions.

Keywords: Industrial Engineering, Artificial intelligence, Curriculum.