

Mathematics Research, Teaching and Community Outreach in University of Karachi: Challenges and Opportunities

Syed Arif Kamal 

Professor and Chairman, Department of Mathematics, University of Karachi, Karachi 75270, Pakistan; profdrakamal@gmail.com

This paper explored the challenges involved and the opportunities available for mathematics research, teaching and community outreach at University of Karachi, the largest university in public sector (Fig. 1). The research philosophy consists of capitalizing on the strengths of mathematics (the power of generalization and the power of application) to propose smart solutions, which improve man's quality of life. The pedagogical philosophy is based on nurturing habits of creative thinking and critical analysis in students. An efficient (coverage in allocated time) and an effective (SLOs achieved) curriculum (the contents and the pedagogical techniques) must be supplemented with a comprehensive system of evaluation. The philosophy of community outreach is formulated on the notion of taking into confidence the community (where work is being done), through involvement in decision-making process, planning and implementing various programs as well as educating society about the importance of mathematics as a tool of the tools, having predictive power and as a branch of knowledge, which appreciates and cultivates beauty of nature through the use of numbers*.



Fig. 1. Department of Mathematics, University of Karachi

Keywords: Concept building • Creative thinking • Critical analysis • Logical proofs • Problem solving

Web address of this document: <https://www.ngds-ku.org/Presentations/Matheamtics.pdf>

*Related works of interest are listed below:

- Kamal, S. A. (2005). *Mathematics — Revised Curriculum (BS, MS and PhD Schemes of Studies)*. Convener, National Curriculum Revision Committee in Mathematics, Higher Education Commission, Islamabad, Pakistan — Editor, full text: <https://www.ngds-ku.org/hec/math-booklet-final-2005.pdf>
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