Teaching a Technical Writing and Research Course to Engineering Students:
Recommendations for Curriculum Reform

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EXECUTIVE SUMMARY

Training in communication skills is considered extremely important in the engineering profession. However, educational organisations and most specifically engineering programs and departments have often been criticised for failing to adequately prepare engineering students for the situations they will face in the workplace. This chapter describes a technical writing and research course that is offered as a required course to engineering students and analyses the advantages and limitations of the course pointing to changes in the course development that will enable students to perform successfully as communicators in the workplace.

INTRODUCTION

In today's changing technology landscape and information, new modes of communication and global interconnectedness, engineering education has a very important role to play in equipping students with professional skills and competencies which are considered imperative in the workforce. Engineering graduates should

possess not only deep technical and broad professional skills and be problem solvers, but also a number of professional skills (i.e., "soft skills") important for the profession such as effective communication and persuasion, teamwork, and understanding the business realities within a global and societal context, ethics and professionalism. According to Johansen and Johansen (2007), among the attributes that technology leaders of the future should have are the ability to collaborate with people in large groups, use different persuasive techniques depending on the social context and media space they work in, design content for public consumption and modification, and filter meaningful information, patterns and commonalities from ever-growing streams of data.

Thus, the workplace demands new engineers to be technically qualified, flexible, and dynamic thinkers because economic progress and achievements are dependent on their science and engineering talent. Professional and non-technical skills (e.g., communication, team, design, ethics, leadership, organization) are undoubtedly highly prized. Nevertheless, engineering students continue to experience problems of speaking and writing for engineering purposes notwithstanding the importance of the afore mentioned non-technical skills and competencies that engineering graduates should possess, or the need to engage more efficiently in instruction related to these skills.

This chapter begins by highlighting the importance that engineering graduates themselves place on oral and written technical communication for successful practice on the workplace and lays out various reasons which account for this gap, including curricular slotting and time constraints which do not allow room for new nontechnical requirements or collaboration between engineering and technical communication faculty, and competency gaps related to speaking and writing.

The sections that follow describe the technical communication and research course as it is integrated in the engineering program at the University of Nicosia and analyse its advantages and limitations for preparing engineering graduates for their future communication activity. Then some recommendations for changes are offered that could contribute in improving technical communication for engineers in light of workplace and alumni survey results which show that both students and the industry, one of the primary customers of the university, ask to hire graduates with deep technical and broad professional skills.

BACKGROUND

The importance of communication skills for the engineering profession has been acknowledged and affirmed in employer and alumni surveys that aim to identify the role that communication skills play in professional life. For example, results from a