The Technion Program for ME in Systems Engineering: A review after 20 years

Prof. Aviv Rosen ????' ???? ???? (Technion)

Abstract. More than twenty years ago Technion started a program offering an engineering Master's degree in SE (Systems Engineering). The trigger for this initiative was a request from senior engineers in industry to start such an activity. In many aspects the process of establishing this program was different from most other engineering Master's programs. Thus, for example, the establishment committee included more representatives from industry than from academia, and it was decided that the final project will be done by 2-3 students. Long debates were required to decide about the curricula. SE programs were quite new in most engineering schools around the world, thus there was not a worldwide experience to learn from. Most members of the committee agreed that the new program should be offered to students with a few years of experience (after finishing the first academic degree), but the debate how many years of experience should be required was not short. Based on the admittance requirements and the nature of the subject, it was clear that the students (with extremely small exception) will include people that work full time in industry.

On the other hand, the representatives from industry insisted that the students that will be sent to the program, whom they considered as important reserve of future leaders, will finish their studies as fast as possible. Despite difficult and sometimes conflicting requirements, the traditionally careful and time-consuming process of approving the new program in the Technion, went quite fast and the program opened its gates to students in 1999. Since the industrial organizations that were involved in the establishment of the program were spread from the north to the south of Israel, it was decided to open the program in both campuses of the Technion: Haifa and Tel-Aviv.

Twenty years after it started, the achievements of the program are beyond the brightest expectations of its initiators. With close to 1400 graduates, it became one of the largest Master programs in the Technion. These graduates have been a major element in implementing SE in the Israeli various industries and organizations. While like in the rest of the world, during the first years most of the students came from defense/aerospace organizations, the number of students from civil organizations has been increased steadily.

The presentation will describe the evolution of the program during the years, lessons learned and changes that were introduced as a result. It will also discuss future plans.

Biography

Prof. Aviv Rosen ????' ???? ???? (Technion)
B.Sc. in Aeronautical Engineering, Technion, 1967. M.Sc. in Aeronautical Engineering, Technion, 1972. D.Sc. in Aeronautical Engineering, Technion, 1975. UCLA, 1975-77. RPI, 1984-5, 1988-89. At Technion since 1970. Professor since 1990. Dean of the Faculty of Aerospace Engineering, 1995-1998. Senior Vice President of the Technion 2001-2007. Head of the ME program in Systems Engineering 1999-2001, 2008-present. Head of the Gordon Center for Systems Engineering, 2009-2017. Main Interests: Rotary wings (helicopters, wind turbines, propellers), wind energy, structural dynamics and stability, nonlinear dynamics.