One of the interesting observations in this field is that the study of needs has basically concentrated on the analysis of learners' needs. The needs of the teachers themselves seem to have been neglected in much of the research in the area of EAP syllabus design. The main aim of the present research was to investigate Iranian university teachers' language skills training needs in English for Academic Purposes (EAP) and to explore their own self-assessment of their EAP skills across disciplines. The study focused on a carefully chosen sample of EAP teachers and used mixed-method techniques including a survey of needs through research-made questionnaires and interviews with a sub-sample of the participants. In other words, this survey of needs and perceptions of Iranian university teachers used both qualitative and quantitative information. Data were collected from about 200 university teachers in institutions of higher education in the central part of Iran. The researcher used both quantitatively-scored questionnaires and qualitatively evaluated interviews for collecting data. The result of data analysis indicated that Iranian university staff members perceive their abilities in reading and writing as strong and their abilities in listening and speaking as very weak. About 90 believed there should be in-service training courses in which they can increase their language knowledge. They also believed that they could learn better if their training was arranged for group learning. In all sub-components of the four major language skills, the participants expressed needs for improvement and there were no significant differences between teachers from different faculties. The gap between where they are and where they want to be in terms of language skills was very wide except in the case of reading skills