

## **ABSTRACT**

The thesis examines the voice over internet protocol (VOIP) technology by theoretically studying the basic components, basic architecture, and call establishment of the VOIP system standard protocols (H.323, SIP). VOIP system vulnerabilities and threats are found out, then recommended security strategies and solutions are produced.

The second part of the thesis is that a VOIP system is designed, implemented using software IP-PBX called asterisk, D-LINK TS120S IP-PHONES and extreme switch (ALPINE 3804). Finally, three basic VOIP system services (Call services, Voicemail and Voice conferencing) are tested and then the quality of services was evaluated.