

Tutorial title

Amateur Radio Computer Networks and Communication Technologies at Home and School

Abstract

In this session you will learn how to establish computer communications in local neighborhoods, other cities, countries & continents - without using commercial and governmental infrastructure; How to take advantage of amateur radio satellites; How to exchange urgent e-mails without the Internet or telephone connections; How to use amateur radio in a school to save human lives and properties; How to create a local AMUNET (AMateur radio University NETwork) and expand visibility of your academic institution; How to choose most proper hardware & software for all the above, and how to win over potential radio 'pirates' (hackers).

The tutorial begins with introductory information about the amateur radio communications and continues with studying one of the simplest computer-related radio communication mode: the VHF/UHF and HF "packet-radio" and APRS (Automatic Packet/Position Reporting System). The tutorial discusses (with examples) on how to choose inexpensive hardware and software needed for establishing the amateur radio links from home and work. The tutorial explains step-by-step how to build an AMUNET – the Amateur Radio University Network – a grid of radio stations within or between universities' campuses and surrounding schools, including an opportunity to become a low-cost solution for experimenting in educational institutions and communicating in rural areas.

Practical part of this session is devoted to experiments with modern portable radio transmitters and GPS receivers from Taiwan, computer interfaces from USA, radio modems from Germany, and more! If the atmospheric conditions allow, real-time communications with Polish and/or foreign radio amateurs will be performed.

Learning objectives

What will the participants learn?

- What is the amateur radio, who are the radio amateurs, how to find and join them;
- What is needed to establish a simplest computer communication between two users;
- How to solve the problem of natural or artificial obstacle between two (or more) users of that information system;
- What are the advantages of communication with the amateur radio satellites;
- How to exchange an e-mail without an ISP connection, or without a telephone, or in a case of an emergency;
- How to announce next meetings of your radio club, or any other type of events by implementing APRS;
- How to choose the proper computer, modem, radio, and antenna;
- How to fight against potential amateur radio 'pirates' (hackers);
- How to make the local AMUNET and how to link it to a neighboring one;
- How to simulate a real radio network by using a computer LAN;