Introducing Amateur Radio

Gateway to Fun Through Technology
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VK3DAC

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Amateur radio is a technology based hobby.
Radio Amateurs require a licence to operate and maintain a radio station.
There are three licence levels in Australia:
- Foundation
- Standard
- Advanced
The foundation licence has been introduced as an entry point for young persons into amateur radio.

The study for the foundation licence involves radio theory and practice.

This study is usually completed over a weekend.

The content for the training is defined by the foundation licence syllabus and explained in the Foundation Manual.
The syllabus has 9 sections that are covered by the Foundation Manual. These are:

- Nature of Amateur Radio
- Licence Conditions
- Technical Basics
- Transmitters and Receivers
- Transmission Lines and Antennas
- Propagation
- Interference
- Safety
- Operating Practices and Procedures (Practical)
There are many parts to amateur radio. One is where a transmitter is hidden and groups try to find the transmitter using directional finding techniques. This is called fox hunting.
The primary function of an Amateur Licence is to authorise a person to:

- Self train in radio communications
- Communicate with other amateur radio operators
- Conduct technical investigations into radio communications and electronics
Radio amateurs have been involved in emergency and disaster communications all over the world
Field days and radio contests are great fun and help keep radio amateurs prepared for emergencies. Jamboree on the air is a field day that involves Scouting world wide.
Some amateurs are involved in building their own equipment.
Spider coil on 3.5 inch form with 1 inch hub. 40/44 litz wire, 53 turns, tapped at 35 turns. 150 uH inductance.

Crystal Radio Schematic (c) 2003, D. Schmarder
Radio Amateurs Understand Technical Basics
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Set up Radio Transmitters to Talk and Listen to the World

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Build Antennas to Bounce Signals off the Moon and Back to Earth

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Radio Amateurs world wide have designed and developed satellites.

These have been launched and are free for all amateurs to use.
Many amateurs are involved with optical and radio astronomy.
Propagation is the way signals travel from the transmitter to the receiver.

The ionosphere is important to worldwide high frequency radio propagation.

There are links between radio, and astronomy.
Many radio amateurs are interested in photography and mix hobbies, taking photos of natural events.

Some amateurs are involved in restoration of old machinery and equipment, aircraft and cars.
A group of radio amateurs restore to working order, old radio equipment
Locate and Resolve Interference Problems

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A Simple IRLP Block Diagram

IRLP links repeaters together over the internet.
Have Networks of Repeaters

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Diagram:
- Hill-top Repeater
- Duplexer
- Rx → Tx
- Control
- Mobiles: 147.9 MHz transmit
- 147.3 MHz receive
- A → B
- 147.9 MHz receive
- 147.3 MHz transmit
For Foundation Licence there is a theory and a practical examination.

- The theory exam duration is 30 minutes and includes both regulations and theory.
- The theory exam consists of 25 multiple choice questions.
- You must answer 18 of the 25 questions correctly to be assessed as competent for the theory ie 70%.
The practical section is “hands on”
What is required for the practical is in section 8 of the Foundation Licence Syllabus
The duration of the practical exam is 30 to 40 minutes
Safety

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Being involved in technology based activities can lead to rewarding careers in exciting electrotechnology activities. Such as:

- Telecommunications
- Computer hardware development
- Broadcast radio and television
- Industrial electronics
- Electrical and power industry
- Electronics technician

For further information contact EE-OZ at www.ee-oz.com.au
The Wireless Institute of Australia represents all Australians on all Amateur Radio matters world wide.

Contact the Wireless Institute of Australia via their web site www.wia.org.au and they will put you in touch with your local radio club who will arrange for you to complete your licence.