Mesleki Yabancı Dil 1 Dersi

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(Bu çalışma Marija Krznaric tarafından yazılmış ELECTRICITY AND ELECTRONICS isimli kitaptan alınan özet bilgilerle hazırlanmıştır.)

Hafta 9

RADIO COMMUNICATIONS

- Communicating by radio is a method of sending or receiving sounds, pictures and data through the air by means of EM (electromagnetic) waves.
- EM waves are used for many purposes: broadcasting of local and national radio and TV stations, in mobile radio and telephone services, and communicating on a global scale through distant satellites, which act as a kind of reflector in the sky, redirecting the information which is sent to them.
- Radio networks are cheaper to install but often have fewer circuits than cable links.
- The launching of the first satellite by the Russians in 1957 began what has become known as the “space race”, the first stage of which culminated with the American landing on the Moon twelve years later.
- A whole range of satellites now orbit the Earth and are used for a variety of purposes.

- Low orbit satellites, the typical height of which varies from 150 to 450 kilometres, are of little use for telecommunications for they are only in line of sight of each earth station for about 15 minutes.
- Their rotation period around the Earth is about one and a half hours and their main use is for remote sensing, a field in which digital processing techniques are proving especially valuable.
- A low orbit satellite can observe the Earth in great detail providing us with extremely accurate information about agriculture, forestry, water resources and pollution patterns.
- It also has a multitude of applications in such as weather forecasting, environmental monitoring, geology, oceanography and cartography.
- There are important defence implications too, since they can be used to “spy” on the activities of a potential enemy.
- Medium altitude satellites are used for telecommunications, especially in countries which cover a vast geographical area, like the former USSR.
- They fly at a typical height of 9000 to 18000 kilometres, orbiting the Earth in a period of five to twelve hours.

- They are in line of sight of the earth station for between two and four hours.
- The most important type of satellite for telecommunications is the geosynchronous or geostationary satellite positioned over the Equator at a height of 35800 kilometres.
- Its rotation period is 24 hours, the same as the Earth's, and consequently, seen from the Earth, this type of satellite appears to remain motionless in the sky.
- It is within line of sight of an earth station for its entire life.
- A communication satellite is, in essence, a microwave relay station which receives signals in a given frequency band and retransmits them at a different frequency to avoid problems of interference between the weak incoming signal and the powerful retransmitted signal.
- A satellite can handle large amounts of traffic which it can send over vast areas of the Earth.
- It therefore represents a relatively cheap way of transmitting information over long distances.