

Electronics and Communications Engineering Department

B.Sc. Project Proposal
First Semester, Fall 2012
Academic Year :2012/2013

Project Title : Mobile Satellite Communication Systems
Design and Implementation of Basic Blocks of a
Handheld Equipment

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Mobile satellite communication systems have been introduced to complement land mobile communication systems. In rural areas, deserts, oceans and forests, satellite communications are the only means of communications. Many systems have been developed to provide suitable mobile communication services. They depend upon satellites that are rotating around earth in either geostationary orbits (GEO) or medium earth orbits (MEO) or low earth orbit (LEO). These systems are either global (e.g. Inmarsat, Globalstar, Iridium and ICO) or regional (e.g. Thyraia).

The project will cover the following topics:

- Fundamentals of satellite communications.
- Mobile satellite communication considerations.
- Review of the mobile satellite communication systems in use (coverage, architecture, and technical specifications).
- Design, simulation and implementation of some of the building blocks of the handheld equipment of one (or more) of the reviewed systems.

The practical part of the project will depend upon the use of:

- software packages that can provide simulation of circuit designs.
- FPGA chip that can be downloaded with the successful simulated designs.

Each student in the group will be responsible for:

- Investigating the technical aspects of satellite communications in general and those of the mobile ones in particular
- Reviewing the one (or more) of the available mobile satellite systems.

- Designing and implementing one of the building blocks of the handheld equipment.