

# Student Project

Project title: Electromagnetic propagation analysis in complex dielectric media.

Project type: Bachelor / Master thesis project

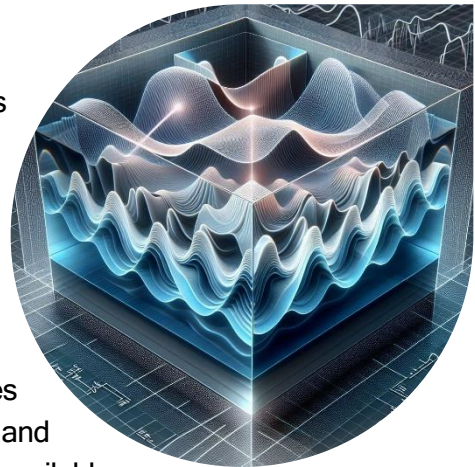
Faculty and Research group: EEMCS, RadioSystems Group

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## Project description

The project aims to study the interaction of microwaves with various dielectric mediums and understanding its propagation mechanism. The project can be a combination of analytical, simulation and experimental studies or any combination of them.

The applications scenario of such a system varies from biomedical to agricultural systems. The analytical studies will be done from the prior knowledge of EM theory and simulations will be performed using commercially available electromagnetic simulation software's (Ansys High Frequency Structure Simulator). Experimental analysis of the developed system will be done in the RS laboratory depending on the progress and application of the project.



Type of work: Theory 30%, Design 30%, Experimental 30%, Documentation & Reporting 10%

## Student tasks

- Analyse and derive mathematically the propagation of EM waves in the defined material media as per the predetermined application.
- Simulate a radiating environment on Ansys HFSS software with material media and analyse the propagation and radiation properties. Parametric analysis and optimization of system
- Extension of the simulated design to laboratory environment and validate the results.