

# University of Pretoria Yearbook 2022

## Microwaves and antennas 320 (EMZ 320)

<b>Qualification</b>	Undergraduate
<b>Faculty</b>	<a href="#">Faculty of Engineering, Built Environment and Information Technology</a>
<b>Module credits</b>	16.00
<b>NQF Level</b>	07
<b>Programmes</b>	<a href="#">BEng (Electronic Engineering)</a> <a href="#">BEng (Electronic Engineering) ENGAGE</a>
<b>Prerequisites</b>	EMZ 310 GS, ENE 310 GS
<b>Contact time</b>	1 practical per week, 1 tutorial per week, 3 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Electrical, Electronic and Computer Engineering
<b>Period of presentation</b>	Semester 2

### Module content

This module covers waveguides and transmission lines (parallel plate, TE and TM waveguide modes, propagation velocity, resonant cavities, coaxial line, stripline, microstrip line, dispersion, transients), network analysis (S-parameters, signal flow diagrams, filter implementation, Richard's transformation, Kuroda's identities, Smith charts, matching networks, power divider), antenna fundamentals (port and radiation characteristics, Hertzian dipole, dipole antennas, patch antennas), antenna systems (effective area, Friis transmission formula, radar range equation), uniform linear arrays, and antenna applications.

The regulations and rules for the degrees published here are subject to change and may be amended after the publication of this information.

The [General Academic Regulations \(G Regulations\)](#) and [General Student Rules](#) apply to all faculties and registered students of the University, as well as all prospective students who have accepted an offer of a place at the University of Pretoria. On registering for a programme, the student bears the responsibility of ensuring that they familiarise themselves with the General Academic Regulations applicable to their registration, as well as the relevant faculty-specific and programme-specific regulations and information as stipulated in the relevant yearbook. Ignorance concerning these regulations will not be accepted as an excuse for any transgression, or basis for an exception to any of the aforementioned regulations.