

# University of Pretoria Yearbook 2022

## Power system components 320 (EKK 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 (Electrical Engineering)</a> <a href="#">BEng (Electrical Engineering) ENGAGE</a>
<b>Prerequisites</b>	EIR 211, 221 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 first module on power systems introduces the components which make up a power system. Single and three-phase basic concepts introduce popular analytical techniques for power system studies. Transformers are prominent components of the power system, and all their variants are studied, i.e. auto-transformers and tap changing transformers. At the heart of the generating units of most power stations are synchronous machines. Their equivalent circuit, real and reactive power control and two-axis machine model are considered. The components, modelling, voltage regulation, compensation, and transient behaviour of transmission lines are covered. Loads are also modelled for various components found in a typical power system.

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