

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

Postgraduate Diploma in Engineering (Smart Grid Technology): 2023

ADMINISTRATIVE/ACADEMIC REQUIREMENTS

GENERAL:

This is a programme offered by the Dept. of E&E Eng. in response to worldwide evolutionary processes in the electrical energy domain. These are seen to be technologically very exciting, but will also have considerable impact on conventional networks, in the near to medium future.

ADMISSION:

Prerequisite: To qualify for admission to our PG Dip (Eng.) programme in Smart Grid Technology, the applicant must hold at least a BTech or a BSc degree.

DURATION AND TEACHING LOAD:

Typically, two years on a full-time or part-time basis, although on a full-time basis the programme can potentially be completed within one year. The curriculum consists of eight one-week block modules with 40 hours of contact time, and an additional 110 hours work via distance education per module at NQF8 level is required.

COURSE MODULE DESCRIPTIONS

COMMON MODULES (2):

The Faculty of Engineering has identified some modules that cover aspects considered to be common to all branches of Engineering. Students following PG Dip (Eng.) programmes must include the following **two** modules in their curricula. The modules are listed below, and content descriptions are provided in Appendix A.

| Module Title | Code | Host Department | Credits |
|-----------------------------------|-------|----------------------|---------|
| Project Management 713 | 51993 | Industry Engineering | 15 |
| Project Economics and Finance 712 | 58157 | Civil Engineering | 15 |

COMPULSORY MODULES (5):

The core modules of the PG Dip (Eng.) in Smart Grid Technology are listed below. Students are required to complete all these **five** modules. For detailed module descriptions, please refer to <https://www.crses.sun.ac.za/coursework-masters-diploma/>

| Module Title | Code | Host Department | Credits |
|------------------------------------|-------|------------------------|---------|
| Smart Grid Technology Overview 774 | 13808 | E&E Engineering | 15 |
| Power System Operations 774 | 14481 | E&E Engineering | 15 |
| Smart Grid Communications 774 | 13807 | E&E Engineering | 15 |
| Distribution Customer Concepts 774 | 14480 | E&E Engineering | 15 |
| Power System Data Analytics 774 | 14479 | Industrial Engineering | 15 |

ELECTIVE MODULES (1):

In addition, students are also required to select **one** additional elective module from the list below:

| Module Title | Code | Host Department | Credits |
|--|-------|---|---------|
| Advanced PV Systems 744 | 13364 | E&E Engineering | 15 |
| Energy Storage Systems 774 | 13810 | E&E Engineering | 15 |
| Wind Energy 744 | 13185 | M&M Engineering | 15 |
| Long-term Power System Planning 774 | 14477 | E&E Engineering | 15 |
| Distribution Network Planning and Operations | n.a. | NWU Electrical, Electronic and Computer Engineering | 15 |
| Power System Flexible Operations | n.a. | UCT Mechanical Engineering | 15 |
| Hydrogen in the Energy System | TBA | M&M Engineering | 15 |
| Green Hydrogen Technology | TBA | Chemical Engineering | 15 |

Students may apply to the Postgraduate Coordinator for recognition of modules done at other departments or institutions. However, no recognition can be granted for modules done as part of another qualification. Note that for modules presented at other institutions, students interested taking these modules will need to register for it themselves at the relevant institution, and then present the credits obtained to Stellenbosch University for recognition.

COURSE SCHEDULES AND DESCRIPTIONS:

A full calendar of the courses hosted by the E&E and M&M departments for this program as well as description of their content can be found here: <https://www.crses.sun.ac.za/coursework-masters-diploma/>

Information regarding the scheduling of the rest of the courses hosted by Industrial Engineering, Civil Engineering and Applied Mathematics can be found here: <https://ie.pages.cs.sun.ac.za/ds/> A description of their content may be found here: <https://ie.pages.cs.sun.ac.za/ds/meng/>