NATIONAL DIPLOMA: ENGINEERING: ELECTRICAL
(Extended curriculum programme with foundation provision)
Qualification code: NDEEF2

Campus where offered: Pretoria and eMalahleni campuses

PURPOSE OF THE QUALIFICATION:
To train technicians in the field of electrical engineering to solve well-defined problems through the use of theoretical knowledge and the practical skills.

REMARKS

a. Admission requirement(s) and selection criteria:

• FOR APPLICANTS WHO OBTAINED A SENIOR CERTIFICATE BEFORE 2008:

  Admission requirement(s):
  A Senior Certificate or an equivalent qualification with D symbols (50 – 59%) at the Higher Grade or C symbols (60 – 69%) at the Standard Grade for English and Mathematics and an E symbol (40 – 49%) at the Higher Grade or a D symbol (50 – 59%) at the Standard Grade for Physical Science.

  Selection criteria:
  To be considered for the National Diploma, applicants must have an Admission Points Score (APS) of minimum 20 to 27 will be considered for the extended programme only.

  Assessment procedure:
  All applications received by the published due dates (as indicated on page 3) will be ranked according to the APS scores achieved. After consideration of the departmental Student Enrolment Plan (SEP), only the highest ranked applicants will be accepted to fill the available places. A waiting list consisting of the remainder of the applicants will provide an opportunity for applicants to fill places created by accepted students failing to meet enrolment dates.

• FOR APPLICANTS WHO OBTAINED A NATIONAL SENIOR CERTIFICATE IN OR AFTER 2008:

  Admission requirement(s):
  A National Senior Certificate with an endorsement of a bachelor’s degree or a diploma or an equivalent qualification, with English (4), Mathematics (4) and Physical Sciences (3).

  Applicants who do not meet the requirements for Mathematics and/or Physical Science may enrol for Mathematics N4 and/or Engineering Sciences N4 at any further education and training (FET) college, and if these are successfully passed at a performance level of at least 60%, they may reapply for admission to the University.

  Selection criteria:
  To be considered for the National Diploma, applicants must have an Admission Points Score (APS) of at least 28. Applicants with a score of 20 to 27 will be considered for the extended programme only.

  Assessment procedure:
  All applications received by the published due dates (as indicated on page 3) will be ranked according to the APS scores achieved. After consideration of the departmental Student Enrolment Plan (SEP), only the highest ranked applicants will be accepted to fill the available places. A waiting list consisting of the remainder of the applicants will provide an opportunity for applicants to fill places created by accepted students failing to meet enrolment dates.
• **FOR APPLICANTS WHO OBTAINED A QUALIFICATION FROM FURTHER EDUCATION AND TRAINING (FET) COLLEGES:**

**Applicants with a National Certificate (Vocational) at NQF Level 4:**

**Admission requirement(s):**
A National Certificate (Vocational) at NQF Level 4 with an endorsement of a bachelor’s degree or a diploma issued by the Council for General and Further Education and Training (Umalusi), with at least 50% (APS score of 4) for English and Mathematics, and at least 60% (APS score of 5) for Physical Sciences/Applied Engineering Technology and any two other vocational subjects.

**Selection criteria:**
To be considered for this qualification, applicants must have an Admission Points Score (APS) of at least 23.

**Applicants with a National N Certificate as published in Nated 191: N3 (NQF Level 4) and N4/N5/N6 (NQF Level 5):**
A National Senior Certificate or a National N Certificate as published in Nated 191: N3 (NQF Level 4) and N4/N5/N6 (NQF Level 5) issued by the Council for General and Further Education and Training (Umalusi), with at least 50% (APS score of 4) for English and 60% (APS score of 5) for Mathematics N3 and Engineering Sciences N3.

Applicants will be exempted from subjects at NQF Level 5 on the grounds of N4/N5/N6 subjects passed (a minimum of 50% of the qualification’s subjects). Exemption will be granted from equivalent engineering subjects (including Mathematics and Engineering Sciences) passed with at least 60% (APS score of 5).

**Applicants with a National N Diploma (NQF Level 6):**
Applicants with a National N Diploma (Nated 191: N6 with a Trade Certificate) issued by the Council for General and Further Education and Training (Umalusi), who obtained at least 60% for all subjects completed for N4/N5/N6 certificates at NQF Level 5 (including Mathematics and Engineering Sciences), will be –
- exempted from S1/S2 subjects at NQF Level 5 on the grounds of N4/N5/N6 subjects passed (a maximum of 50% of the qualification’s subjects); and

**b. Minimum duration:**
Three and a half years.

**c. Presentation:**
Day classes. Classes and assessments may take place on Friday afternoons and/or Saturdays.

**d. Intake for the qualification:**
January only.

**e. Optional subjects:**
To orientate to a specific field in Electrical Engineering, students should consult the subject selection guide at the end of the previous qualification.

**f. Extended subjects:**
Should a student fail any of the subjects, the Faculty reserves the right to refer the student to Student Development Support (SDS) for an evaluation and career guidance. A student will only be allowed to repeat extended subjects based on a favourable recommendation by Student Development Support and the consideration of relevant mitigating factors meriting for re-submission.

**g. Class attendance/assessments: exclusion and readmission, additional costs, Experiential Learning I and II, practicals and waiving of prerequisite subjects:**
See National Diploma: Engineering: Electrical (NDEE12).
Prospectus 2014

**SUBJECTS PRINTED IN BOLD ARE NOT FOR REGISTRATION PURPOSES.**

**FIRST YEAR**

<table>
<thead>
<tr>
<th>CODE</th>
<th>SUBJECT</th>
<th>CREDIT</th>
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<tbody>
<tr>
<td>FPCOS03</td>
<td>Communication Skills (Extended) I</td>
<td>(0,050)</td>
</tr>
<tr>
<td>FPCSK02</td>
<td>Computer Skills (Extended) I</td>
<td>(0,050)</td>
</tr>
<tr>
<td>FPEEN01</td>
<td>Electrical Engineering (Extended) I</td>
<td>(0,100)</td>
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<tr>
<td>FPELC01</td>
<td>Electronics (Extended) I</td>
<td>(0,100)</td>
</tr>
<tr>
<td>FPESL01</td>
<td>Engineering Science (Extended) I</td>
<td>(0,100)</td>
</tr>
<tr>
<td>FPMAT04</td>
<td>Mathematics (Extended) I</td>
<td>(0,100)</td>
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**TOTAL CREDITS FOR THE FIRST YEAR:** 0,500

**SECOND YEAR**

**FIRST SEMESTER**

After completion of all the extended subjects (see paragraph f in the remarks).

<table>
<thead>
<tr>
<th>CODE</th>
<th>SUBJECT</th>
<th>CREDIT</th>
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<tbody>
<tr>
<td>DSY131T</td>
<td>Digital Systems I</td>
<td>(0,100)</td>
</tr>
<tr>
<td>EEN211T</td>
<td>Electrical Engineering II</td>
<td>(0,100)</td>
</tr>
<tr>
<td>ELC211T</td>
<td>Electronics II</td>
<td>(0,100)</td>
</tr>
<tr>
<td>MAT271B</td>
<td>Mathematics II</td>
<td>(0,100)</td>
</tr>
<tr>
<td>SFD201T</td>
<td>Software Design II</td>
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**SECOND SEMESTER**

<table>
<thead>
<tr>
<th>CODE</th>
<th>SUBJECT</th>
<th>CREDIT</th>
<th>PREREQUISITE SUBJECT(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSY231T</td>
<td>Digital Systems II*</td>
<td>(0,100)</td>
<td>Digital Systems I</td>
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<tr>
<td>EXP1EEH</td>
<td>Experiential Learning I</td>
<td></td>
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<tr>
<td>EXP1EWT</td>
<td>Experiential Learning: Workshop I*</td>
<td>(0,050)</td>
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<tr>
<td>MAT351T</td>
<td>Mathematics III</td>
<td>(0,100)</td>
<td>Mathematics II</td>
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</table>

**plus one of the following subjects**

<table>
<thead>
<tr>
<th>CODE</th>
<th>SUBJECT</th>
<th>CREDIT</th>
<th>PREREQUISITE SUBJECT(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEN311T</td>
<td>Electrical Engineering III</td>
<td>(0,100)</td>
<td>Electrical Engineering II</td>
</tr>
<tr>
<td>ELC331T</td>
<td>Electronics III</td>
<td>(0,100)</td>
<td>Electronics II</td>
</tr>
</tbody>
</table>

**plus one of the following subjects:**

<table>
<thead>
<tr>
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<th>SUBJECT</th>
<th>CREDIT</th>
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<tbody>
<tr>
<td>BIS101T</td>
<td>Bio-Systems I</td>
<td>(0,100)</td>
</tr>
<tr>
<td>EMA241T</td>
<td>Electrical Machines II</td>
<td>(0,100)</td>
</tr>
<tr>
<td>ETC221T</td>
<td>Electronic Communication II</td>
<td>(0,100)</td>
</tr>
<tr>
<td>PCM221T</td>
<td>Process Instrumentation II</td>
<td>(0,100)</td>
</tr>
</tbody>
</table>

**plus one of the following subjects:**

<table>
<thead>
<tr>
<th>CODE</th>
<th>SUBJECT</th>
<th>CREDIT</th>
</tr>
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<tbody>
<tr>
<td>ELD331T</td>
<td>Electrical Distribution III</td>
<td>(0,100)</td>
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</tbody>
</table>
MEQ211T Medical Equipment II (0,100)  
SFD301T Software Design III (0,100)  

TOTAL CREDITS FOR THE SECOND YEAR: 1,050

THIRD YEAR

<table>
<thead>
<tr>
<th>CODE</th>
<th>SUBJECT</th>
<th>CREDIT</th>
<th>PREREQUISITE SUBJECT(S)</th>
</tr>
</thead>
</table>

FIRST SEMESTER

One of the following modules:

- **DPJ301T** Design Project III
- **DPJ30YT** Design Project: Light Current III* (0,100)  
  - Digital Systems II  
  - Electronics III
- **DPJ30ZT** Design Project: Heavy Current III* (0,100)  
  - Electrical Engineering III  
  - Electronics II

plus one of the following subjects:

- **CSY321T** Control Systems III (0,100)  
  - Mathematics III
- **MWC301T** Microwave Communication III (0,100)  
  - Electronic Communication II

plus one of the following subjects:

- **DSY341T** Digital Systems III (0,100)  
  - Digital Systems II
- **EMA341T** Electrical Machines III (0,100)  
  - Electrical Machines II
- **RAE311T** Radio Engineering III (0,100)  
  - Electronic Communication II

plus one of the following subjects:

- **EPC321T** Electrical Protection III (0,100)  
  - Electrical Engineering II
- **ETC301T** Electronic Communication III (0,100)  
  - Electronic Communication II
- **MEQ331T** Medical Equipment III  
  - Bio-Systems I  
  - Digital Systems II  
  - Medical Equipment II
- **MEQ33XT** Medical Equipment: Equipment III** (0,100)  
  - Bio-Systems I  
  - Digital Systems II  
  - Medical Equipment II
- **PCM321T** Process Instrumentation III (0,100)  
  - Process Instrumentation II

plus one of the following subjects:

- **LOD311T** Logic Design III (0,100)  
  - Digital Systems II
- **MEQ331T** Medical Equipment III  
  - Bio-Systems I  
  - Digital Systems II  
  - Medical Equipment II
- **MEQ33YT** Medical Equipment: Systems III** (0,100)  
  - Bio-Systems I  
  - Digital Systems II  
  - Medical Equipment II
- **PWE311T** Power Electronics III (0,100)  
  - Electronics II
- **TLV311T** Television III (0,100)  
  - Electronic Communication II

TOTAL CREDITS FOR THE SEMESTER: 0,500

SECOND SEMESTER

- **EXP1EEH** Experiential Learning I
- **EXP1EYT** Experiential Learning: Practice I* (0,450)

TOTAL CREDITS FOR THE THIRD YEAR: 0,950
<table>
<thead>
<tr>
<th>CODE</th>
<th>SUBJECT</th>
<th>CREDIT</th>
<th>PREREQUISITE SUBJECT(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP2EEH</td>
<td>Experiential Learning II</td>
<td>(0,500)</td>
<td>Experiential Learning I</td>
</tr>
</tbody>
</table>

TOTAL CREDITS FOR THE SEMESTER: 0,500
TOTAL CREDITS FOR THE FOURTH YEAR: 0,500
TOTAL CREDITS FOR THE QUALIFICATION: 3,000