**Master of Engineering in Electrical and Electronic Engineering** (702108C / 702108C)

**Question 1 comment:**

It is not clear whether this qualification submitted falls within the Master’s Degree (General by coursework) or Master’s Degree (Professional). Hence it is difficult to determine if the submission meets the HEQSF requirements. The submission does indicate on the first page “non-professional”. However, the coursework included is done and prepares students for advanced and specialised knowledge in the profession of Electrical and Electronic Engineering specifically and is done in the context of the Electrical and Electronic Engineering profession which aligns with the Professional Masters qualification and not the General Master's qualification.

**NWU Feedback:**

The Institution decided not to alter the master’s (General by coursework) to a Master’s Degree (Professional), based on the understanding of an ECSA requirement for the doctoral qualification. The NWU Engineering programmes at master’s level are intended to lead to a doctorate in which a high level of research with a significant and original contribution at the frontier of the discipline is expected.

**Question 2 comment:**

The total electives are 12 and not 13 as indicated in the submission total. Pg 1 Section 2 indicates total credits of 180. However, under the programme design section 3 the credits allocated are 92 for the dissertation together with 12 elective modules of 16 credits each (192 credits) resulting in a total credits of 284 credits. The submission shows 12 elective modules but it is not clear how many of these electives must be completed in order to complete the qualification. How many of the 12 elective modules should be completed to make up the total of 180 credits? Please verify the total credits for the qualification once the number of elective modules have been finalised. Not having an Electrical Engineering background makes it difficult to determine the vertical progression of subjects at lower levels to the elective modules included at this level. A second opinion is required.

**NWU Feedback:**

The module ELEI872 which is the dissertation has been modified and the credits adjusted from 92 to 100. Please adjust the research component accordingly. From the remaining 13 electives, the students must elect 5 modules of 16 credits each. This gives a total of 80 credits for the electives. The total credits for the qualification therefore is 180 credits.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Module reference** | **Year** | **Compulsory** | **Elective** | **Action** | **Module name** | **Module NQF Level** | **Module credits** |
| ELEI872 | 1 | 1 |  | Modified | DISSERTATION | 9 | 100 |
| EEII882 | 1 |  | 1 | Unchanged | ELECTRICAL POWER QUALITY | 9 | 16 |
| EEII883 | 1 |  | 1 | Unchanged | ADVANCED PROTECTING SYSTEMS | 9 | 16 |
| EEII884 | 1 |  | 1 | Unchanged | ADVANCED SIGNAL PROCESSING | 9 | 16 |
| EEII887 | 1 |  | 1 | Unchanged | KALMAN FILTERS | 9 | 16 |
| EEII888 | 1 |  | 1 | Unchanged | POWER SYSTEMS DYNAMICS | 9 | 16 |
| EEII889 | 1 |  | 1 | Unchanged | COMPENSATION OF DISTORTION IN POWER SYSTEMS | 9 | 16 |
| EEII891 | 1 |  | 1 | Unchanged | ADVANCED ELECTRONIC DEVELOPMENT AND DESIGN | 9 | 16 |
| EEII892 | 1 |  | 1 | Unchanged | ADVANCED POWER ELECTRONICS | 9 | 16 |
| EEII893 | 1 |  | 1 | Unchanged | ADVANCED ELECTRICAL MACHINES | 9 | 16 |
| EERI877 | 1 |  | 1 | Unchanged | DIGITAL CONTROL SYSTEMS | 9 | 16 |
| ERIE874 | 1 |  | 1 | Unchanged | NEURAL NETWORKS | 9 | 16 |
| ERIE875 | 1 |  | 1 | Unchanged | FUZZY LOGIC SYSTEMS | 9 | 16 |
| ERIE876 | 1 |  | 1 | Unchanged | PROCESS MODELLING & PATTERN-RECOGNITION | 9 | 16 |

**Question 3 comment:**

No information is provided on the Teaching and Learning strategy of the 12 elective modules listed. The assessment methods are aligned to what is required at level 9. However, more information should be provided on the assessment methods for the 12 elective coursework modules. Since all of the coursework modules are electives, the assessment methods for the individual coursework modules are required to determine whether all students will meet all the exit level outcomes.

**NWU Feedback:**

Please note that assessment methods are applicable to all the elective modules. Formative assessment: Class tests, homework, written assignments, report writing, practicals, class discussions, semester tests. Summative assessment: Written exam papers and oral presentations. (Originally the assessment methods for individual modules were not required.)

For the examination of the dissertation at least two examiners, of which at least one must be an external examiner, must be appointed by the dean in accordance with the provisions of the applicable faculty rules and in consultation with the research director or research entity leader concerned. An examiner may recommend that a dissertation be accepted unconditionally; or be accepted on condition that specified corrections be made; or referred back to the candidate for revision and/or elaboration and resubmission for re-examination; or not be accepted, in which case the candidate fails.

**Question 4 comment:**

Direct contact time allocated is 630 hours vs the 270 hours of independent self-study. At this level the students should spend less time on contact and more time on independent self-study. WIL - no time is allocated for experimental/laboratory work. At this level for this type of qualification the students should spend some time on experimental/laboratory activities.

**NWU Feedback:**

The learning activities were adjusted as follows:

Please see table below.

|  |  |  |
| --- | --- | --- |
| **Type of learning activity** | **Hours** | **% of Learning time** |
| Direct contact time (Lectures, face to face, limited interaction or technology-assisted, tutorials, Syndicate groups) | 360 | 20% |
| WIL (Practical experiential learning, simulated learning, laboratory work , practicals etc excluding workplace-based learning) | 180 | 10% |
| Independent self-study of standard texts and references and specially prepared materials (study guides, books, journal articles, case studies, multi-media) | 630 | 35% |
| Assessment | 360 | 20% |
| Other (specify) | 270 | 15% |
| Total | 1 800 | 100% |
| If you selected "Other" as a type of learning activity please give a detailed explanation below: Guided and partially supervised research activities: literature overview, research design and implementation, analysis of results, conclusions and recommendations. | | |

**Recommended Evaluation Outcome comment:**

**1) Qualification type:** It is not clear whether this qualification submitted falls within the Master’s Degree (General by coursework) or Master’s Degree (Professional). Hence it is difficult to determine if the submission meets the HEQSF requirements. The submission does indicate on the first page “non-professional”. However, the coursework included is done and prepares students for advanced and specialised knowledge in the profession of Electrical and Electronic Engineering specifically and is done in the context of the Electrical and Electronic Engineering profession which aligns with the Professional Masters qualification and not the General Master's qualification.

**NWU Feedback:**

Please refer to the NWU Feedback given on Question 1.

**2) SAQA ID:** No SAQA ID was supplied in the submission. I have checked the SAQA website. A qualification entitled Master of Engineering (SAQA ID: 72803) is currently registered with SAQA. No qualification titled Master of Engineering in Electrical Engineering is currently registered with SAQA. The HEQC committee needs to decide if this should be a Category C submission instead of Category B.

**NWU Feedback:**

At this Institution, the qualification on the PQM was listed as Master of Engineering. Against this qualification, various programmes were approved by the DHET. One of these programmes was Electrical and Electronic Engineering.

With the HEQSF-process, these individual programmes were tested against the prescriptions of the HEQSF. This programme meet the prescriptions for a new alone standing qualification. During consultation with various role players, the NWU was advised that this was the recommended route to take in these instances.

**3) Admission requirements.** The admission requirements submitted only make provision for applicants with a 4 year Bachelor’s Degree. What about articulation for applicants with other level 8 qualifications such as Bachelors (Honours) or Postgraduate Diploma?

**NWU Feedback:**

The Institution decided not to alter the admission requirements as student with other level 8 qualifications may be admitted via the RPL route.

**4) Programme design details.** Pg 1 Section 2 indicates total credits of 180. However, under the programme design section 3 the credits allocated are 92 for the dissertation together with 12 elective modules of 16 credits each (192 credits) resulting in a total credits of 284 credits. The submission shows 12 elective modules but it is not clear how many of these electives must be completed in order to complete the qualification. How many of the 12 elective modules should be completed to make up the total of 180 credits? Please verify the total credits for the qualification once the number of elective modules have been finalised. Not having an Electrical Engineering background makes it difficult to determine the vertical progression of subjects to those at this level. A second opinion is required.

**NWU Feedback:**

Please refer to the NWU Feedback given on Question 2.

**5) Teaching and Learning and Assessment.** No information is provided on the Teaching and Learning strategy of the 12 elective modules listed. The assessment methods are aligned to what is required at level 9. However, more information should be provided on the assessment methods for the 12 elective coursework modules. Since all of the coursework modules are electives, the assessment methods for the individual coursework modules are required to determine whether all students will meet all the exit level outcomes.

**NWU Feedback:**

Please refer to the NWU Feedback given on Question 3.

**6) The learning activities.** The learning activities is not aligned to what is required at this level Direct contact time allocated is 630 hours vs the 270 hours of independent self-study. At this level the students should spend less time on contact and more time on independent self-study. WIL - no time is allocated for experimental/laboratory work. At this level for this type of qualification the students should spend some time on experimental/laboratory activities.

**NWU Feedback:**

Please refer to the NWU Feedback given on Question 4.

**7) International comparability.** The information provided does not give any indication of the qualifications International Comparability. Has the proposed qualification and coursework modules been bench marked against national and international HE institutions?

**NWU Feedback:**

The SAQA level descriptors for HEQF level 9 were used to design the qualification standard. The faculty maintains close relationships with national and international higher education institutions, and staff members regularly participate in scientific exchanges, conferences and partnerships. Many external examiners are from international institutions.

Similar degrees are presented at the following institutions:

University of Glasgow

Swinburne University of Technology

Eindhoven University of Technology