



PIABC LEVEL 7 DIPLOMA IN MINERAL PROCESSING

Qualification Number: 610/3437/X

Qualification Specification

Created: 13 November 2023

INTRODUCTION

PIABC Level 7 Diploma in Mineral Processing (QN: 610/3437/X) is a nationally recognised mineral processing qualification. This first version of the PIABC Limited (PIABC) qualification.

PURPOSE

PIABC Level 7 Diploma in Mineral Processing provides candidates with the knowledge and skills to effectively manage mineral processing and extractive metallurgy processes, to assess risk, and to identify opportunities to enhance value.

The qualification is designed to develop the future leaders in mineral processing and allow candidates to create and increase value within their organisation. It forms a bridge between academic knowledge and the practical skills and expertise that are needed in the industry.

GENERAL OUTCOMES

The general objectives of the PIABC Level 7 Diploma in Mineral Processing (QN: 610/3437/X) are to:

1. Provide those employed, or who wish to be employed in mineral processing, extractive metallurgy and related industries with the skills, knowledge and understanding to underpin and enhance job experience.
2. Provide candidates with a portable qualification to enable job movement throughout the industry.
3. Provide employers operating in mineral processing and extractive metallurgy with a firm basis for judging suitability of candidates.
4. Raise the status of those employed in mineral processing, extractive metallurgy, and related industries.

TARGET GROUP

This Level 7 qualification is appropriate for those wanting to enhance their employment and progression opportunities in the mining, mineral processing, and extractive metallurgy industries.

The target audience for the qualification is recent graduates and those in the early stages of their career working in mineral processing plants, including metallurgists, mining, chemical, mechanical, and electrical engineers, and geologists.

ENTRY REQUIREMENTS

As a guide for entry onto programmes, candidates will normally be expected to have a minimum attainment of:

- Level 6 qualification in a relevant discipline. For example, a relevant engineering or applied science degree.

Alternatively, candidates should be able to clearly demonstrate competency, for example through experience in mineral processing, mining engineering or another related industry, which will allow them to succeed in the programme of study.

For candidates where English is not the candidate's first language, PIABC requests that a candidate provides evidence of their command of English before commencing the PIABC Level 7 Diploma in Mineral Processing (QN: 610/3437/X). PIABC's experience has shown that Candidates who are fully proficient in English are best placed to successfully complete their programme.

The most common qualification is the IELTS test. Other tests may be acceptable if a candidate has already taken them. Please note that test scores must be achieved from one sitting of the relevant qualification. PIABC will not accept individual component scores from multiple tests. The following qualifications are acceptable to show PIABC's minimum English language requirements:

- GCSE English Language/IGCSE (first language): Grade C minimum
- International English Language Testing System (IELTS) Academic module (not General Training): overall score 6.0; no sub-test less than 5.5
- ibTOEFL: 92; no sub-test less than 20
- CAE (Cambridge Certificate of Advanced English): C minimum
- CPE (Cambridge Certificate of Proficiency in English): C minimum
- PTE Academic (Person Test of English, Academic test): 55; no sub-test less than 51
- Assessment by a third party, for example the candidate's current employer, indicating an appropriate command of spoken and written English.

For English Language qualifications not listed here, then please email details of the qualification to PIABC (piabc@iom3.org) for approval.

PROGRESSION

Success in this qualification prepares candidates for progression in the mineral processing, extractive metallurgy, and mining industries to a position where they can assume responsibility for independent process supervision.

This qualification would enable a candidate to go on to doctorate level research on completion.

STAFFING

It is expected that staff involved with the delivery of the course will be appropriately qualified and/or experienced in mineral processing, extraction metallurgy, mining engineering and related topics. The PIABC approval process requires prospective centres to provide details of the staff involved in delivery and assessment including their qualifications and relevant training/employment experience, plus staff development arrangements. Whilst these details are passed on to the external moderator appointed by PIABC, it is the Centre's responsibility to ensure course leaders/tutors' qualifications are both bona fide and appropriate to the level of the qualification.

QUALITY ASSURANCE

PIABC requires that each centre has a quality assurance and enhancement procedure in respect of the programme, and a means of monitoring its implementation.

There should be a team that is responsible for preparing an annual self-assessment of the programme and for monitoring the improvement measures resulting from this.

This self-assessment process should use evidence from different sources including:

- Candidate self-evaluation
- Formal feedback via one-on-one interviews with selected candidates
- The views of external individuals and organisations, for example those companies sending candidates
- Formal interactions with instructional staff

In addition, it is also expected that there will be an internal moderation procedure to ensure standardisation of unit delivery. This will include the following elements:

- Review of assignments and submissions
- Peer review of award materials
- Moderation of any internally assessed elements

There should be a named and appropriately qualified individual (Centre co-ordinator) who has the necessary authority, with whom PIABC can liaise directly on all matters of management, administration, and quality assurance.

EXTERNAL MODERATION

PIABC will appoint appropriately qualified external centre monitors to undertake external quality assurance activities with the centres to ensure the maintenance of standards of quality.

The scope and frequency of monitoring activities will be in part determined by the centre assessment standard strategy for this qualification. PIABC's monitoring strategy will ensure that all centre marked assessments remain fit for purpose and that criteria against which candidates' performance is differentiated are being accurately and consistently applied for this qualification regardless on assessor, candidate, or centre.

PROGRAMME ORGANISATION

It is anticipated that the qualification will require a minimum of 192 guided learning hours, and it is expected a total qualification time of 378 hours for an average learner to satisfactory complete.

The organisation of the qualification is at the discretion of the Centre and will consider the aims, aspirations, and experience of the candidates.

Centres are encouraged to choose the most suitable curriculum model for their candidates. Whilst the sequential delivery of units is a possibility and may provide the most straightforward way of determining completion of individual units, it may be that some degree of integration of units will occur, or that other methods of delivery are more appropriate to meet the needs of candidates. It should be noted however that each unit will be individually assessed.

Centres must ensure that adequate arrangements are in place for supporting candidates. This could be either through separate tutorial sessions or through using time within structured study sessions. Centres using on-line or other forms of open learning must ensure that appropriate tutorial support is provided for candidates.

In relevant circumstances, centres are recommended to provide information and guidance to their candidates on the availability and type of employment the programme may lead to and on the progression routes available for further education and training in packaging.

GUIDANCE ON LEARNING AND TEACHING STRATEGY, METHODS, AND ASSESSMENT

Mineral processing is a practical subject, based on theoretical principles. As far as possible, it is important that the course is taught by relating the underlying theory to practical examples and applications.

Whilst all units are designed to be "stand alone" some topics appear as common themes across more than one unit. This should be recognised by course leaders/tutors and links made in those cases where candidates are working across more than a single unit.

Candidates will come to the course with varying levels of existing knowledge and/or practical experience of some parts of the syllabus. Course leaders/tutors should utilise this, through group work and other structured interactive activities, thus encouraging the sharing of knowledge which has the potential to lead to a high level of understanding.

The relation of theory and practice is a theme that will be reflected in the assessments for each unit and for the programme as a whole. Therefore, in structured learning and individual work, candidates should be aware of the requirement to develop a practical dimension to their understanding.

REASONABLE ADJUSTMENTS

Please refer to “*Access to Assessment – Arrangements for Candidates Needing Reasonable Adjustments, Special Consideration and/or Extenuating Circumstances in the Assessment Process*” document for more information. A copy is available from the PIABC team at piabc@iom3.org.

In carrying out assessments, PIABC’s policy is to give all candidates equal opportunity to demonstrate attainment and to provide candidates with disabilities, learning difficulties and other problems the same access to assessment as other candidates.

Assessment arrangements may be varied however, where the standards permit, for candidates with particular requirements. These requirements may take the form of special condition/extenuating circumstances for candidates whose needs are covered by the Equality Act 2010 or extenuating circumstances for those whose needs result from temporary disability or indisposition such as short-term illness.

In general, variation in assessment arrangements may be needed for physical disability, visual impairment, hearing impairment, specific learning difficulty, medical conditions, and use of English as a second language.

The nature of any special arrangements depends largely upon the qualification being followed and the assessment strategy employed. For scheduled fixed date examinations, then arrangements must be agreed directly with PIABC. For assessments at Level 3 and above, centres must write to PIABC to request concessions at least two months before the assessment. Concessions will be limited by specification and assessment requirements and supporting evidence will be required.

QUALIFICATION LEVEL

PIABC Level 7 Diploma in Mineral Processing (QN: 610/3437/X) is a Level 7 qualification.

Candidates require the skills, knowledge and understanding to show competence in applying technical, and commercial principles to a range of complex and varying tasks.

Candidates are required to analyse problems, determine their root cause, and recommend and implement effective solutions, with a substantial degree of personal responsibility and accountability.

Candidates may have direct responsibility for others or may have responsibilities within a team.

This qualification requires the candidate to understand complex elements from within the natural resource supply chain. It will prepare the candidate to operate as a future leader in mineral processing, extraction metallurgy and mining engineering where they will be expected to be able to deal with new and novel problems. The qualification also prepares candidates to advise others about alternative appropriate solutions to problems, and to identify the critical factors associated with the advice that is given.

When work for this qualification is assessed, it is important to realise that evidence will be sought which demonstrates these features.

QUALIFICATION STRUCTURE

To achieve this qualification the candidates will need to complete the six mandatory units (Units A to F) and then choose one optional unit (Unit G or H).

Mandatory Units

Ofqual Unit No.	Title	
H/650/9127	Unit 7A	Mineral Processing in the Mining Value Chain
J/650/9128	Unit 7B	Mineralogy for Mineral Processing
K/650/9129	Unit 7C	Comminution
R/650/9130	Unit 7D	Flotation
T/650/9131	Unit 7E	Statistical Methods
Y/650/9132	Unit 7F	Individual Project

Optional Units

Ofqual Unit No.	Title	
A/650/9133	Unit 7G	Physical Separation
D/650/9134	Unit 7H	Hydrometallurgy

ASSESSMENT

Each unit A to H is assessed through a centre-devised and managed assignment covering all learning outcomes. The assignments will be internally assessed, and internally quality assured by the centre.

Each unit is graded either *Pass* or *Fail*.

The grading structure for each unit assessment is not subject to change.

QUALIFICATION CERTIFICATION

Candidates successfully completing the qualification will be awarded a *Pass*.

The overall grading structure for the qualification is not subject to change.

REGULATORY INFORMATION

Subject/sector area:	4.2 Manufacturing Technologies
Qualification operational start date:	13/11/2023
Qualification review date:	13/11/2025
Applicable age ranges (years):	19+

FURTHER INFORMATION

Please contact PIABC Limited directly at:
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