



A survey on the uptake of the N-programmes by the Mining and Minerals Sector



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PREFACE

This survey which seeks to investigate **the uptake of current N programmes and determine whether these programmes align with the needs of the Mining and Minerals Sector** is one of the products of a strategic partnership between the Mining Qualifications Authority, the Mining and Minerals sector and the FET Colleges facilitated by the National Business Initiative.

This College-Industry Partnership [CIP] is founded on the recognition that a successful FET system is an open system, responsive to the needs of its clients and stakeholders, and closely attuned to the social and economic contexts in which it operates. As such public FET Colleges have an important role in meeting government's goal of growing South Africa's pool of skilled and semi-skilled workers. The partnership has generated new insights about the alignment of education and training and the needs of society and the economy. This knowledge impacts upon the policy discourse and the policy and planning environments of the Mining and Minerals sector and government. It seeks at the same time to promote practical working relationships between colleges and industry that will build the capacity of colleges to respond to industry and national further education and training demands, yet also promote the continuous engagement of business leadership with the FET colleges sector.

The survey is underpinned by a rigorous research methodology that was systematically developed in association with key players in the Mining and Minerals sector. It involved the design and distribution of a questionnaire as well as stakeholder and focus group interaction at every stage of the analysis and reporting processes. Consequently the partnership with the Mining and Minerals sector has already provided key engagement opportunities between the relevant companies and colleges. This interactive process has produced valuable research information on the views of industry on programme and curriculum development at colleges.

The research reflects:

- strong endorsement for the importance of FET colleges as essential training providers in South Africa;
- the real need for improving the relevance and quality of current programmes to the Mining and Minerals sector;
- the view that delivery modes and mechanisms are not responsive to the sector;
- a lack of educator knowledge and understanding of the industry;
- little to no support for the retention of the current N programmes offered by the FET Colleges in their present form.

These signals of critique and support have implications for continued dialogue and close engagement between industry and colleges. Experience of the colleges and research findings point to many existing partnership agreements and linkages through various channels with specific companies. However, the collective voice of stakeholders in the industry indicates that these are not adequate to support a systemic approach where quality and relevant education and training will be the outcome across the sector.

Such findings are timely in that they have provided input to support the Department of Education in the work they are undertaking in devising a more flexible approach to the development of college programmes. Inputs deriving from such strategic research and the practical engagement between colleges and industry will impact positively on the development of the DoE recapitalisation plan and strategy over the next three years and on the new FET sector plan.

EXECUTIVE SUMMARY

Report on *A survey on the uptake of the current N programmes by the Mining and Minerals Sector, on the alignment of these programmes to the needs of this sector and on whether the delivery of the programmes by FET colleges meet the expectations of the sector*

1. Purpose and context

In an attempt to assess whether there is support for a role for Further Education Training (FET) colleges in providing education and training as part of the skills development of the current as well as the potential workforce to the Mining and Minerals Sector in South Africa, research was conducted during January to March 2005 by the National Business Initiative (NBI). This was funded by the Mining Qualifications Authority (MQA) and it forms part of a 3-year partnership between the Mining and Minerals Sector and the 14 FET colleges that service this sector.

The survey focused on the uptake of the current N programmes by the Mining and Minerals Sector, on the alignment of these programmes to the needs of this sector and on whether the delivery of programmes by FET colleges meet the expectations of the sector. It relies on a well-established research methodology involving inter alia an extensive environmental scan, a questionnaire to more than 50 respondents from companies in coal, diamond, gold, platinum group metals, other (copper and titanium) mining, a technical reference group to interrogate the results, as well as a stakeholder (employers, organised labour, departments of education, accredited workplace training providers, industry bodies, MQA, FET colleges) workshop for detailed commentary and feedback.

2. Significance of the research findings

The results show that, while there are serious weaknesses in current provision which require the attention of industry, the Department of Education and the FET colleges, there is nonetheless overwhelming support for the role of a responsive public FET colleges sector delivering relevant programmes to the Mining and Minerals Sector.

This information will prove useful to planners, policy makers, curriculum developers and implementers representing:

- employers, industry bodies, organised labour in business;
- departments of education, education advisory boards, organised labour in education;
- FET colleges;
- the Department of Labour, Sector Education and Training Authorities (SETA's),
- the Department of Finance, and Treasury

to support the development of:

- a FET colleges curriculum framework;
- FET colleges staff capacity building;
- governance of the FET colleges sector and institutions;

- financing of the FET colleges sector;
- partnerships.

The analysis reveals the importance of the current N-programmes, especially in the Engineering Studies, in providing at least in part, the theoretical underpinning or education component to the skills development provided by the workplace accredited providers. However, the results also indicate that these programmes are not aligned to the new and registered qualifications or the training needs of the sector, and 77% of the respondents say that these programmes are only used because there is no viable alternative. There is clearly a mismatch between what is currently available as instructional offerings in the FET colleges and what is expected if the requirements of the registered qualifications are to be met. To further illustrate the gap, no company could cite a single example of an instructional offering in a current N-programme that addresses the highly important environmental and occupational safety and hygiene development issues.

It is important to note that while the Mining and Minerals Sector is very critical of the contents of the current curriculum that it believes is inadequate and out-of-date, it nevertheless strongly supports the availability of national programmes with uniform standards, new content, new subjects and a new combination of subjects that are appropriate for the new multi-skilled work environment. 74% of the respondents agreed that one possibility for curriculum innovation could be based on the premise that a substantial part of the theoretical underpinning needed by the Mining and Minerals Sector is generic/common to more than one economic sector, and a much smaller part is specific to this sector.

Greater flexibility in delivery is favoured by the Mining and Minerals Sector. The 3 enrolment intakes of 12 weeks each per year as well as a combination of full time and/or part-time studies is welcomed, but more innovative ways need to be explored. One of the weaknesses of the trimester system indicated is the time-gap that exists in the teaching and learning between the underpinning theory/knowledge and practice.

General satisfaction with the education and training provided by institutions of Higher Education was recorded. A strong case was made for a new programme of 120 to 240 credits in the HE band to be presented at FET colleges, and to be recognized by Higher Education institutions towards a BSc and/or BTech degree. Although FET colleges, together with the accredited workplace providers, were identified as the primary providers for the skills development associated with engineering and mining learnerships, mine overseer training, artisan training and general mining and engineering courses, the level of satisfaction with FET colleges was rated as poor to very poor on average. Nearly 80% of the respondents believe the educators are not meeting the expectations of the Mining and Minerals Sector. The lack of understanding of the industry, lack of flexibility and adaptability, and the subject knowledge of the educators come under sharp criticism. Very few companies in this sector believe that the management of the N-programmes meets their expectations.

While considering the results of the survey at a workshop in March 2005, representatives from the Mining and Minerals Sector acknowledged that the lack of engagement from the sector in FET colleges has partly been responsible for the misalignment. It is clear that there is real interest in the sector to actively engage with the FET colleges. There are four factors that influence the expectations of the Mining and Minerals Sector: FET college management's responsiveness towards the curriculum needs of this sector, its flexibility with regards to the delivery of the programmes, the implementation of quality assurance procedures, and providing feedback to the sector.

Clearly the case for business and FET colleges to form partnerships as a vehicle towards the development of a responsive high-quality public FET sector is stronger than ever.

Survey to determine the uptake of current N programmes by the Mining and Minerals Sector

1. Context

The Mining and Minerals sector has played a crucial role in the economic welfare of South Africa and it is important for the future development of the country that this sector is well served by the FET Colleges. The Mining sector and the old Technical Colleges have an association that goes back to the early part of the previous century and the Sector always relied on the Technical Colleges to provide the necessary theory that underpinned the earlier apprentice training. There has recently been a complete transformation of the technical colleges: they have been consolidated into large FET Colleges with greater responsibilities and a greater degree of autonomy. The Mining and Minerals sector has undergone substantial changes itself: new technologies have revolutionized the way in which ore is mined and processed, the old apprenticeships have been replaced by learnerships and the Mining Qualification Authority (MQA) has registered a number of new qualifications that reflect the multi-skilled nature of many of the activities that the industry now requires of its workforce.

2. Purpose

FET policy is directed towards the development of a differentiated and co-ordinated education and training system, and has as its central features a new governance framework, a new framework for programmes and qualifications, new quality assurance mechanisms and a new funding mechanism¹. This survey attempts, at least in part, to investigate the uptake of current N (national DOE) programmes and to determine whether these programmes align with the needs of the Mining and Minerals sector, and it attempts to ascertain whether the delivery of these programmes meets its expectations.

3. Research design

The survey relies on a well-established research methodology that has the following key features:

- ♣ an extensive environmental scan that informs the researchers of the key elements associated with the Mining and Minerals sector and the FET Colleges,
- ♣ initial meetings with experts from the Mining and Minerals sector to listen to what they have to say based on their extensive experience and training needs,
- ♣ the identification of the key issues and testing these issues against the Focus Group/technical reference group (TRG),
- ♣ the design of a questionnaire that covers the issues that the environmental scan revealed, the experts elaborated on, and the Focus Group/TRG confirmed as important,
- ♣ submission of the questionnaire to detailed criticism by the Focus Group/TRG,
- ♣ revision of the questionnaire,

¹ Fisher, G, Jaff, R, Powell, L, Hall, G (2003) Public Further Education and Training Colleges. Chapter 14 in Human Resources Development Review 2003. HSRC, Pretoria. <http://hrdreview.hsrc.ac.za>

- ♣ identification of the sub-sectors that constitute the Mining and Minerals sector,
- ♣ identification of companies/organizations that should be included in the survey,
- ♣ distribution and collection of questionnaires,
- ♣ data capture and analysis,
- ♣ submission of initial analysis to the Focus Group/TRG for detailed interrogation of draft results (employers, organized labour, colleges, accredited training providers, industry bodies, MQA, Departments of Education),
- ♣ presentation of findings to a stakeholder workshop for detailed criticism and feedback,
- ♣ redrafting of the report and submission of final report to MQA.

Although the project started in mid-December, it was only really possible to commence in early January because key personnel from the Mining & Minerals sector were not available in December; this meant that the entire process had to be completed in less than three months.

4. Design of the questionnaire

Based on the environmental scan, interaction with experts from the Mining and Minerals sector, and the interaction with the Focus Group it became apparent that the questionnaire should collect quantitative data as well as qualitative data that reflect the views, opinions and perceptions of the Mining and Minerals sector on certain key issues. The design of the questionnaire gives ample opportunity for respondents to freely express their views on most items.

The final questionnaire (a copy of which is found in the Appendix) consists of a number of sections designed specifically to provide the following information:

- ♣ background information on the respondents and their companies,
- ♣ relationships between the company and the FET Colleges,
- ♣ details of formal and non-formal partnerships,
- ♣ details of in-service training provided by the FET Colleges by occupational categories,
- ♣ current modes of delivery,
- ♣ identification of the skills requirements of the Mining and Minerals sector and how it rates each of the providers,
- ♣ the effectiveness of the current theoretical underpinning provided by FET Colleges for qualifications in Mining and Engineering,
- ♣ satisfaction with current N programmes in terms of the needs of the Mining and Minerals sector,
- ♣ the alignment, or otherwise, of the N programmes with the content needs of the Mining and Minerals sector,
- ♣ whether the lecturers/educators, as the primary delivery agents, are meeting the expectations of the Mining and Minerals sector,
- ♣ whether the management of the N programmes is meeting the expectations of the Mining and Minerals sector,
- ♣ alignment of the current N level instructional offerings with the new qualifications,
- ♣ the extent to which the current N level programmes contribute to the theoretical underpinning of the new qualifications,

- ♣ the extent to which the current N level offerings are able to provide for training for Environmental issues, Occupational Hygiene and Safety,
- ♣ identification of roles that FET Colleges and the Mining and Minerals sector play in the development of N level programmes.

In the initial meetings with the "experts" from the Mining and Minerals sector and at the meeting with the Focus Group/TRG it soon became obvious that there was a mismatch between the actual content of the N level programmes and the requirements of the new qualifications. It was for this reason that considerable attention has been given to this important issue.

5. Method of reporting the results of the survey

Detailed analysis of each item is to be found in the appendix. This analysis includes a division by sub-sector so that comparisons can be made. Such comparisons will not be made unless they are of significance. Where appropriate, comments will be found that highlight issues that are of significance. The main text will not duplicate the tables found in the appendix but will rather draw conclusions based on the supporting data found in the appendix. If the report draws on the respondent's opinion or views these will be placed in quotation marks and appear in italics.

6. Who completed the questionnaire?

The completion of any questionnaire, particularly the qualitative items, relies heavily on how well informed the respondent is, and whether he/she has the relevant experience. In almost all cases the questionnaires were completed by senior industry officials, with considerable experience of the sector, often supported by a group of experts in the company, and by virtue of the senior position that they hold, they are more likely than not to give a reliable and well-informed opinion. There was a willingness to complete the questionnaire and there is every indication to suggest that they took the task seriously.

7. Mining and Minerals sector response

There was considerable discussion during the initial stages of the project regarding the sub-sectors that comprise the Mining and Minerals sector and it was decided to include all sectors that currently fall under the Mining Qualifications Authority. Questionnaires were sent to over 50 companies/organizations including: Gold Mining; Coal Mining; Platinum Group Metals (PGM) Mining; other Mining including Copper, and Titanium; Diamond Mining and Gem processing; Cement, Lime, Aggregates and Sand (CLAS); and Jewellery manufacture.

Replies were received from the following Mining and Minerals sectors:

- Gold mining
- Coal mining
- PGM mining
- Other mining (Copper and Titanium)
- Diamond mining

In each of these sub-sectors a sufficient number of the key role players returned the completed questionnaires and hence the survey may be regarded as being

representative of these sub-sectors. Certain sub-sectors did not return the questionnaire and therefore conclusions that are drawn would need to exclude the following: the Cement Lime, Aggregates and Sand (CLAS), Gem and Jewellery manufacturing. However, if one compares the relatively large size of the sub-sectors that did take part, with the relatively small size of the missing sub-sectors, then there is some justification for generalizing across the whole of the Mining and Minerals sector.

8. Who are the providers of N programmes for the Mining and Minerals sector?

The Mining and Minerals sector is served by 14 FET Colleges with a total of 15 campus sites which are situated in nine provinces. The number of FET Colleges and campus sites that provide N programmes means that should any intervention be required, the actual number of FET Colleges involved forms 28% of the FET colleges sector.

In the case of N5 and N6 level programmes, the number of FET Colleges offering these HE Band programmes is very small.

9. In-service training at FET Colleges by occupational category

The MQA has identified seven occupational categories and the survey used this classification in determining the in-service training provided by the FET Colleges.

In-service training of Employees at FET Colleges	
Senior Officials	<1%
Technicians and Associated Professionals	<1%
Clerical	<1%
Service workers	<1%
Craft	62.5%
Operators	18,6%
Labourers	18.3%
	N=2020

There are small, but insignificant, differences between the various sub-sectors. The occupational category Craft consists of a number of sub-categories and the in-service training provided by FET colleges is given in Appendix C2 and summarized in the table below.

Diesel and Motor Mechanics	10%
Electricians including Auto	26%
Fitting and Turning	28%
Instrument Mechanician	6%
Millwright	6%
Welder	11%
Rigger	2%
Mining, Surveying and Metallurgy	7%
Other Engineering	4%
	N=1375

The analysis by sub-categories reveals the importance of the Engineering programmes, provided by FET Colleges, for the Mining and Minerals sector. A relatively small number (less than 10%) of the in-service training is provided in the sub-category Mining, Surveying and Metallurgy.

10. Requirement that N-level programmes be completed before acceptance into learnerships

Learnerships have now replaced the old apprentice schemes and the Mining and Minerals sector is currently introducing a number of these new learnerships. The survey investigated whether companies imposed any entry requirements for learnerships and if there was an N level requirement, was the requirement at N1, N2 or N3 level?

	N level entry requirement Yes	N level entry requirement No	N1 level requirement	N2 level requirement	N3 level requirement
All Mining and Minerals sectors	80%	20%	7%	86%	7%

Although a large majority of the Mining and Minerals sector now requires an N2 level entry, the situation is more complex than this. For example, a large Gold Mining company requires an N level entry for Engineering but not for Mining. If this practice were to become widespread it would have implications for the FET Colleges. One conclusion that may be drawn from this data is a tacit acknowledgement that, for Engineering, the current N programmes are providing, at least part of, the theoretical base for entry into learnerships.

11. Current mode of Delivery for Mining and Engineering N level programmes

The N level programmes in Mining and Engineering are trimester programmes lasting approximately 12 weeks and attendance may be on a full-time or part-time basis. The Mining and Minerals sector favours the trimester duration (80% believe the 12 twelve weeks to be optimum) and there is approximately an equal number of companies using part-time or full-time study. In many cases a company will use a combination of full-time and part-time study depending on the N level and whether it is for Engineering or Mining. There is some evidence that the 12-week duration of the trimester is not a sufficient length of time for the more advanced N5 and N6 level programmes. One of the reasons that companies prefer the trimester duration is that it affords them greater flexibility because the programmes are repeated three times during the year. One of the weaknesses of the trimester is the time-gap that exists between theory and practice. It is for this reason that one company favours an entirely different "hybrid model" in which the theory and practice are presented simultaneously.

12. Mining and Minerals sector-wide skills needs

There is now a general acknowledgement that the provision of skills, particularly critical skills, is of vital importance for future growth in South Africa. The first draft of the questionnaire limited the skills to those identified as critical skills by the MQA but the Focus Group believed that this would restrict companies from identifying their particular skills needs. Therefore, the draft questionnaire was changed to allow companies to identify their own skills need. For each skill, the respondent identified the provider that was primarily responsible for the training and rated each of the providers on their success in providing these skills.

The Universities (and former Technikons) were identified as the primary providers for the skills associated with Mechanical Engineers, Electrical Engineers, Mining Engineers, Chemists, Metallurgists, and Geologists. The FET Colleges, together with the company Training Centres, were identified as the primary providers for Engineering learnerships, Mining learnerships, Mine Overseer training, Artisan training and general Mining and Engineering courses.

There is general satisfaction with the skills training provided at Universities (and former Technikons). Also, the Mining and Minerals sector is generally satisfied with the skills training provided at their own Training Centres. This satisfaction does not extend to the skills training received at FET Colleges. De Beers in Kimberley reported a high degree of satisfaction with the skills training that the Diamond Mining sub-sector receives from the local FET College. Although a rating of 2.5 on the 5-point scale may not appear to be particularly poor, there are a number of companies that rated the provision of these critical skills by FET Colleges as very poor.

	Universities	FET Colleges	Training Centres
All Mining and Minerals sectors	3.7	2.5	3.6

(Scale values 1=Very Poor 2=Poor 3= Satisfactory 4=Good 5=Very Good)

13. The role of FET Colleges

There is an assumption in the Mining and Minerals sector and in colleges, supported by the TRG, that FET Colleges should provide the theoretical underpinning of qualifications in Engineering and to a lesser extent in Mining: the survey tried to ascertain whether the Mining and Minerals sector supported this view or not. The FET and HE band were considered separately because there may well be different perceptions for these two bands.

Although some companies expressed reservations, the Mining and Minerals sector strongly supports the view that FET Colleges should provided the theoretical underpinning for Engineering and Mining. In the case of the HE band there are more reservations. A strong case is made for a new Certificate or Diploma in the HE band that should be presented at FET Colleges. This should be a 120/240 credit

qualification and it would need to be recognised by universities towards B. Sc. or B. Tech. degrees.

14. Are the current N programmes meeting the needs of the Mining and Minerals sector?

There are three main questions that need to be answered in this regard:

- ♣ Are the N programmes only used because there are no viable alternatives?
- ♣ Should the N programmes be retained, revised, or discarded?
- ♣ Is there any alignment of N programmes with the curriculum content needs of the Mining and Minerals sector?

There is strong support for the contention (54% strongly agree and 23% partially agree) that the N programmes are only used because there is no viable alternative. This has serious implications, particularly in the Mining sector where there is no statutory requirement for the new qualifications that require N programme attendance. One company observed, "*The current N programmes are suited to provide the theory requirement for the old apprentice system*" - by implication they are not suited for the new learnerships. This was the message that came through time and time again from the Mining and Minerals sector.

If there is a strongly held view that the N programmes are only used because there is no viable alternative, then the survey attempted to ascertain whether the current N programmes should be retained or discarded. The table below records the FET and HE bands separately because the responses are different.

FET Band	Retained	Retained but with reservations	Discarded
Coal mining	20%	80%	0%
Diamond Mining	0%	100%	0%
Gold Mining	0%	75%	25%
Other Mining	0%	100%	0%
PGM	0%	100%	0%
HE Band			
Coal mining	9%	91%	0%
Diamond Mining	0%	100%	0%
Gold Mining	0%	50%	50%
Other Mining	50%	50%	0%
PGM	17%	83%	0%
Overall	9%	80%	11%

The Mining and Minerals sector strongly supports the retention of the N programmes but with substantial revision of the curriculum content. It is important to note that while the Mining and Minerals sector is very critical of the content of the curriculum that it believes to be inadequate and out-of-date, it is nevertheless supportive of a National programme with uniform standards. The Mining and Minerals sector strongly believes that the new qualifications require new content,

new subjects, and a new combination of subjects that are appropriate for the new multi-skilled work environment.

In an attempt to answer whether there is an alignment of the N programmes with the curriculum content needs of the Mining and Minerals sector, the survey asked the direct question: Do the current N level programmes meet the curriculum needs for Mining, Engineering and Metallurgy? The table below illustrates the very negative response received from the Mining and Minerals sector.

	Yes	No
Mining	25%	75%
Engineering	33%	67%
Metallurgy	0%	100%

The comment from one company says it all, *"New multi-skilled qualifications are not catered for. Develop new curriculum and learning programmes around the new qualifications"*

When asked to identify the factors that may inhibit the alignment, one company replied: *"Colleges are unaware of the content requirements of learnerships."*

There are a number of possible curriculum innovations that could be considered: one possibility is to base curriculum innovation on the premise that a substantial part of the theoretical underpinning for the Mining and Minerals sector is "common" and a much smaller part is industry "specific". The survey asked whether the respondent agrees or disagrees with this point of view.

Strongly agree	Agree	Disagree	Strongly disagree
27%	47%	13%	13%

Clearly, there is considerable support for this view (74% agree with the proposition) and FET Colleges need to take note and respond appropriately.

To further illustrate the gap that exists between the needs of the Mining and Minerals sector and the availability of suitable instructional offerings, the participants were asked whether there were any instructional offerings that could be used to address specific Environmental, Occupational Hygiene and Safety issues. No company was able to cite a single example of an N level Instructional Offering that could be used to meet these requirements.

15. Are the lecturers/educators and the management of the N programmes meeting the expectations of the Mining and Minerals sector?

There are two factors that contribute hugely to the ultimate success of any programme –

- ♣ the teaching of the programmes, and
- ♣ the management of the actual learning programme.

Both are multifaceted and during discussions with the Focus Group a number of Mining and Minerals sector expectations were identified. In the case of lecturers/educators, these included: a lecturer/educator's subject knowledge, the lecturer/educator's understanding of the Mining and Minerals sector, and his or her flexibility and adaptability. The table below indicates whether, in the opinion of the Mining and Minerals sector, the lecturers/educators are meeting the expectations.

	Yes, fully	Yes, partially	No, not entirely	Falls far short
Subject knowledge	29%	29%	36%	7%
Understanding of Industry	0%	21%	29%	50%
Flexibility/adaptability	0%	21%	50%	29%

Lecturer/educator's lack of an understanding of the Industry, their lack of flexibility and their lack of adaptability come in for sharp criticism. Nearly 80% of the respondents believe the lecturers are not meeting the expectations of the Mining and Minerals sector. It must be of concern if 43% of the respondents believe that the lecturer/educator's subject knowledge does not meet expectations.

Comments from the companies highlight the issues:

"Lecturers in Mining and Metallurgy do not have any practical experience of the subjects...."

"Suggest lecturers get a short period of exposure to the relevant industry discipline"

"Subject knowledge must reflect technological advances"

One company even went so far as to suggest a possible explanation:

"Not able to attract the best because of poor pay at FET Colleges"

The Mining and Minerals sector believes that there are four factors that influence its expectations. The Focus Group/TRG identified these as: management's responsiveness towards the curriculum needs of the Mining and Minerals sector, management's flexibility with regard to the delivery of the programmes, the implementation of quality assurance procedures, and providing feedback. The Table below summarizes whether the management of the N programmes meets the expectations of the Mining and Minerals sector.

	Exceeds expectations	Meets expectations	Does not meet expectations	Ineffective
Responsive to curriculum needs	0%	21%	43%	36%
Flexibility w.r.t. delivery	0%	14%	43%	43%
Quality Assurance	0%	36%	29%	36%
Providing feedback	7%	21%	36%	36%

Very few of the companies believe that the management of the N programmes meets their expectations

Some of the comments from the companies are sharp:

"College has never met with us to discuss our needs"

"Look at client satisfaction get a feel for industry requirements."

"Colleges neglect industry liaison"

"There has never been a will to consider alternatives ... until recently there was no need to"

"Rewards and grants are not based on industry needs"

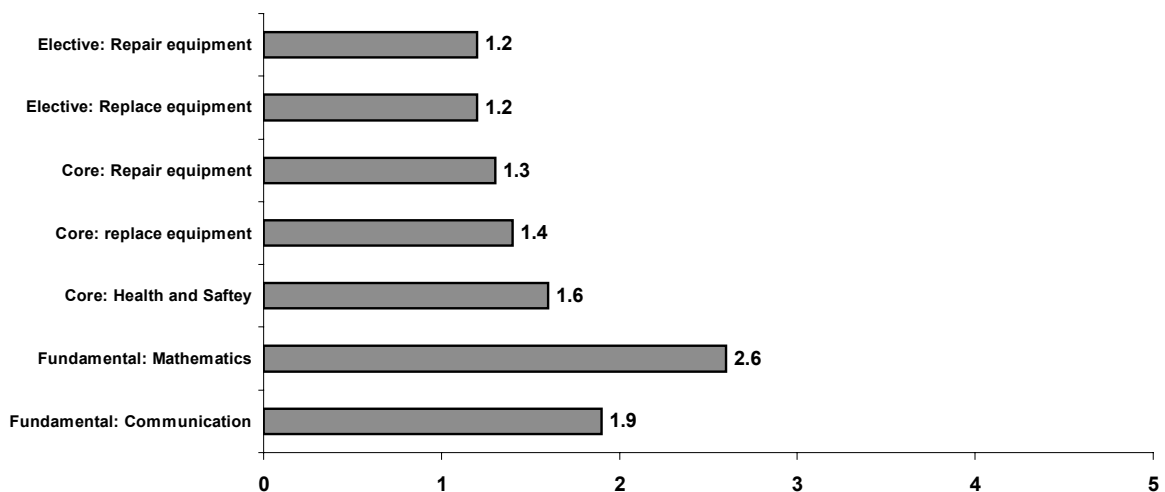
"No response from local college regarding theoretical content of new qualifications"

16. Alignment of currently available Instructional Offerings with New Qualifications

The MQA has registered a number of qualifications on the National Qualifications Framework and the survey tried to ascertain whether there was any alignment of the currently available instructional offerings with the exit outcomes of one of the new qualifications that is outcomes based. On the advice of the Focus Group/TRG, the National Certificate in Engineering Maintenance: Underground Hard Rock Mining Level 2 was selected. The qualification consists of Fundamental, Core, and Elective components and for each of these, the respondents were asked whether currently available Instructional Offerings meet the requirements. The Chart below illustrates that there is clearly a mismatch between what is currently available as Instructional Offerings and what is required by this qualification.

The MQA has registered a number of qualifications on the NQF and for each of these the respondents were asked whether the current N level programmes provided the theoretical underpinning required for the new qualification.

Alignment of Instructional Offerings with exit outcomes of the National Certificate in Engineering Maintenance



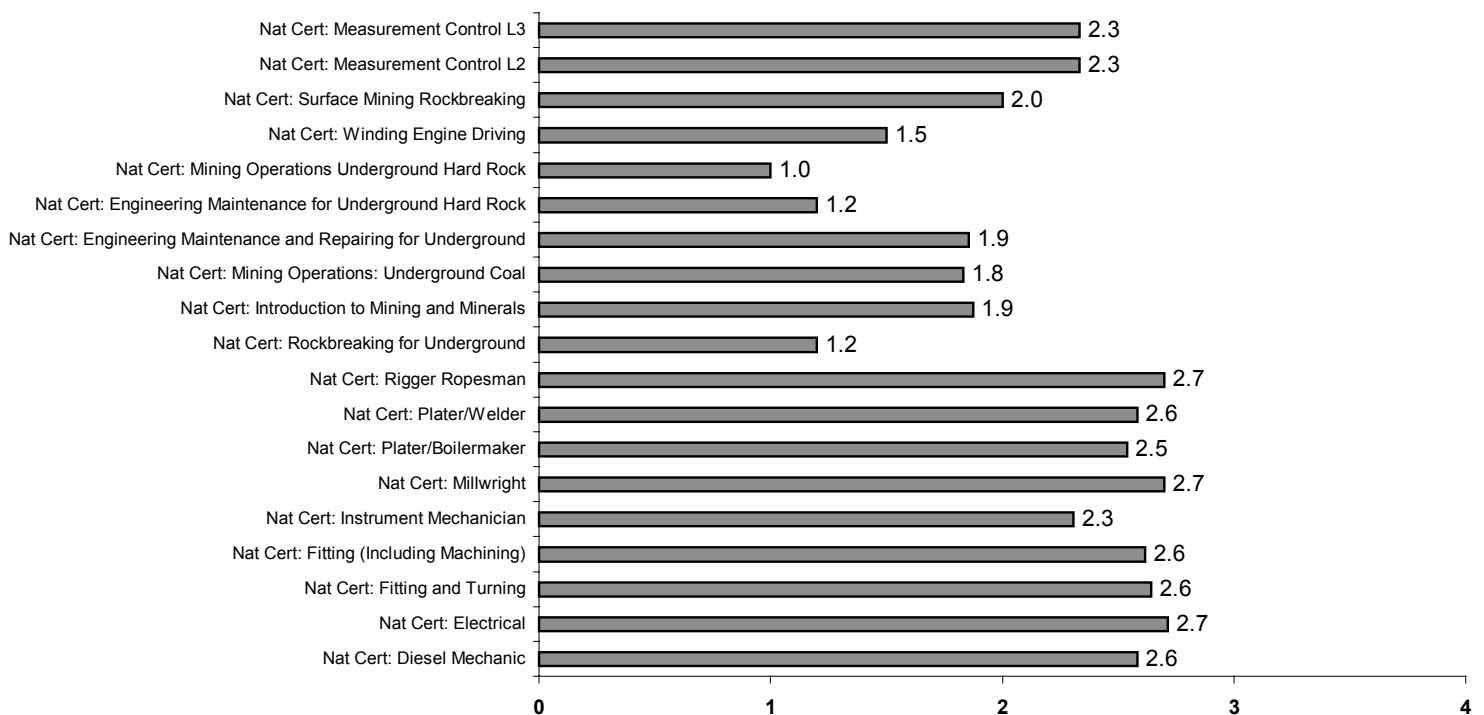
Scale values: 1=Not at all, 2=Only partially, 3=Just meets requirements, 4= Meets requirements, 5= Exceeds requirements

As the Chart below illustrates that there are a number of the new qualifications where the current N level programmes are unable to make any significant contribution. This analysis, across all the new qualifications confirms the view that there is a mismatch between what is currently available and what is expected if the requirements of the new qualifications are to be met.

Contribution made by current N-level Instructional programmes to the theoretical underpinning of the new National certificates

(1 = No significant contribution; 2 = Small but inadequate; 3 = Adequate contribution; 4 = More than meets requirements)

17. Conclusions



A number of important conclusions, based on the perceptions of companies in the Mining and Minerals sector, can be drawn for this survey:

- ♣ the Mining and Minerals sector acknowledges that FET Colleges have an important role to play,
- ♣ the Mining and Minerals sector wishes to actively engage with the FET Colleges,
- ♣ there is a serious mismatch between the curriculum content requirements of the new qualifications and the N level offerings that are currently available,
- ♣ the new multi-skilled qualifications require different content and different subjects from the old qualifications and there needs to be a major initiative to

address these shortcomings. If this does not happen, then there is a possibility that the Mining sector could abandon the FET Colleges as a provider,

- ♣ the management of N programmes at FET Colleges needs, with a few exceptions, to considerably improve their relationships with the Mining and Minerals sector. They need to be more flexible and more adaptable,
- ♣ the Mining and Minerals sector needs to be more supportive of the FET Colleges by extending to them an invitation to visit the companies (Mines) in a similar way to the invitations extended to Universities,
- ♣ the Mining and Minerals sector needs to formalize a number of the existing informal partnership agreements and schemes of association in order to cement the relationships that already exist,
- ♣ innovative and creative ways need to be found for greater flexibility in the delivery mode of N programmes,
- ♣ the Mining and Minerals sector believes that many lecturers do not have sufficient experience of the Industry. The Mining and Minerals sector also believes that lecturers should engage more with the Mining and Minerals sector and with the MQA. The Mining and Minerals sector is critical of the lecturers' knowledge of learnerships and the new qualifications,
- ♣ the Mining and Minerals sector believes that, with few exceptions, the management of N programmes does not meet their expectations regarding delivery flexibility, the implementation of quality assurance procedures and the provision of adequate feedback.

APPENDICES

A1: Survey Response - Company Details

<i>Company</i>	<i>Surname</i>	<i>Initials</i>	<i>Position</i>	<i>Relevant experience in the Sector</i>
Anglo Platinum	Saffy	S	HRD Manager Education	11
AngloGold Ashanti Ltd	Brokenshire	GJ	Manager - Training	25
Chamber of Mines	Carthy	S	Assistant Skills Development Adviser	15
Colliery Training College	Oelofsen	P	Market and Support Services Manager	29
De Beers	Ross	N	Training Superintendent	25
Goedehoop Colliery	Rautenbach	DC	Training Superintendent	25
Gold Fields Academy	French, Brian & Deon Heyneke		Senior ETD Practitioner	25
Harmony	van Niekerk	L	Training Manager	15
Harmony (Talent Pool)	Botes	W	HR leader	19
Impala Platinum Ltd	van Heerden	JA	Training manager	22
Ingwe Collieries Ltd	Engelbrecht	D	Manager Technical Development	24
Kriel Colliery	Olivier	H	Training Superintendent	20
LONMIN Platinum	De Klerk	L	Group ETD Manager	25
New Vaal Colliery	Kemp	FW	Training Superintendent	21
Palabora Mining Company	Holmes	J	Training and Development	30
Richards Bay Minerals	Clifton	N	Superintendent Operations Training	19

Comment:

The survey was completed by experienced senior managers, often supported by a group of experts in the various companies.

¹ Fisher, G, Jaff, R, Powell, L, Hall, G (2003) Public Further Education and Training Colleges. Chapter 14 in Human Resources Development Review 2003. HSRC, Pretoria. <http://hrdreview.hsrc.ac.za>

B1: Sector Representation

	<i>Coal</i>	<i>Gold</i>	<i>Platinum</i>	<i>Diamond</i>	<i>Other Mining</i>	<i>CLAS</i>	<i>Gem Polishing</i>	<i>Jewellery</i>
	<i>Group</i>							
<i>Coal</i>								
New Vaal Colliery	Yes	No	No	No	No	No	No	No
Colliery Training College	Yes	No	No	No	Yes	No	No	No
Chamber of Mines	Yes	Yes	Yes	No	No	No	No	No
Goedehoop Colliery	Yes	No	No	No	No	No	No	No
Ingwe Collieries Ltd	Yes	No	No	No	No	No	No	No
Kriel Colliery	Yes	No	No	No	No	No	No	No
<i>Diamond</i>								
De Beers	No	No	No	Yes	No	No	No	No
<i>Gold</i>								
Harmony	No	Yes	No	No	No	No	No	No
AngloGold Ashanti Ltd	No	Yes	No	No	No	No	No	No
Harmony (Talent Pool)	No	Yes	No	No	No	No	No	No
Gold Fields Academy	No	Yes	No	No	No	No	No	No
<i>Other Mining</i>								
Palabora Mining Company	No	No	No	No	Yes	No	No	No
Richards Bay Minerals	No	No	No	No	Yes	No	No	No
<i>PGM</i>								
Impala Platinum Ltd	No	No	Yes	No	No	No	No	No
Anglo Platinum	No	No	Yes	No	No	No	No	No
LONMIN Platinum	No	No	Yes	No	No	No	No	No

Comment:

Cement, Lime, Aggregates and Sand, Gem and Jewellery Industries did not respond to the survey

B2: Partnership Agreements - Formal and Non-Formal

	<i>Formal Agreement</i>	<i>Non-formal</i>	<i>Formal or Non-formal agreements in place with:</i>
<i>Coal</i>			
Colliery Training College	No	No	
Goedehoop Colliery	No	No	
Ingwe Collieries Ltd	No	Yes	Nkangala College for FET
Kriel Colliery	No	No	
New Vaal Colliery	No	No	
<i>Diamond</i>			
De Beers	Yes	No	Northern Cape Urban College for FET
<i>Gold</i>			
AngloGold Ashanti Ltd	No	No	
Gold Fields Academy	No	No	
Harmony	No	No	
Harmony (Talent Pool)	Yes	No	Goldfields College for FET Vuselela College for FET Western College for FET South West Gauteng College for FET
<i>Other Mining</i>			
Palabora Mining Company	No	Yes	Mopani East College for FET
Richards Bay Minerals	No	Yes	Umfolozi College for FET
<i>PGM</i>			
Anglo Platinum	Yes	No	Western College for FET
Impala Platinum Ltd	No	Yes	Western College for FET Orbit College for FET
LONMIN Platinum	No	No	

Comments:

Limited number of Agreements in place (either Formal or Non-formal)

However, there are a number of non-written "schemes of association" with colleges

B3: Providers of N programmes for the Mining and Minerals Sector

FET Colleges/Campus sites

Coal

Colliery Training College	Nkangala College for FET
Goedehoop Colliery	Nkangala College for FET
Ingwe Collieries Ltd	Nkangala College for FET
Kriel Colliery	Nkangala College for FET
New Vaal Colliery	Western College for FET Sedibeng College for FET Nkangala College for FET

Diamond

De Beers	Northern Cape Urban College for FET
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Gold

AngloGold Ashanti Ltd	Vuselela College for FET Western College for FET
Gold Fields Academy	Western College for FET South West Gauteng College for FET
Harmony	Western College for FET
Harmony (Talent Pool)	Goldfields College for FET Vuselela College for FET Western College for FET South West Gauteng College for FET

Other Mining

Palabora Mining Company	Central Johannesburg College for FET Mopani East College for FET
Richards Bay Minerals	Umfoloji College for FET

PGM

Anglo Platinum	Western College for FET
Impala Platinum Ltd	Western College for FET Orbit College for FET
LONMIN Platinum	Western College for FET

Comment:

The above was recorded in response to the questionnaire. The actual number of colleges servicing the Mining and Minerals sector represent 28% of FET Colleges.

C1: In-service training at FET Colleges by occupational category

	<i>Senior Officials</i>	<i>Technicians & associated professional</i>	<i>Clerical</i>	<i>Service Workers</i>	<i>Craft</i>	<i>Operators</i>	<i>Labourers</i>
<hr/>							
<i>Coal</i>							
<i>Sub-total:</i>	0	0	3	0	564	15	0
<i>Gold</i>							
<i>Sub-total:</i>	0	0	1	0	104	0	360
<i>Other Mining</i>							
<i>Sub-total:</i>	0	0	0	2	146	45	0
<i>PGM</i>							
<i>Sub-total:</i>	0	0	6	0	449	314	6
<hr/>							
<i>Total for Sector:</i>	0	10	2	5	1263	374	366
<i>Percentage for Sector:</i>	0.0%	0.5%	0.0%	0.1%	62.5%	18.6%	18.2%

Comment:

In the category Labourers, a significant number are attending ABET programmes

C2: Details of Occupational sub-category Craft

	<i>Diesel mechanic</i>	<i>Electrician</i>	<i>Fitter Machining</i>	<i>Fitter Turner</i>	<i>Instrument</i>	<i>Milwright</i>	<i>Welder</i>	<i>Rigger</i>
<hr/>								
<i>Coal</i>								
<i>Sub-total</i>	100	189	126	25	7	60	59	4
<i>Gold</i>								
<i>Sub-total</i>	0	19	3	12	4	3	9	7
<i>Other Mining</i>								
<i>Sub-total</i>	3	39	0	107	15	0	21	0
<i>PGM</i>								
<i>Sub-total</i>	17	106	77	38	55	20	56	18
<hr/>								
<i>Total for Sector</i>	120	353	206	182	81	83	145	29

C2 (continued): Details of Occupational sub-category Craft

	<i>Auto Electrician</i>	<i>Motor Mechanic</i>	<i>Mining</i>	<i>Surveying</i>	<i>Metallurgy</i>	<i>Other Engineering</i>	<i>ABET</i>	<i>Bridging</i>
<hr/>								
<i>Coal</i>								
<i>Sub-total</i>	6	7	0	0	0	10	6	10
<i>Gold</i>								
<i>Sub-total</i>	0	0	35	0	0	47	175	150
<i>Other Mining</i>								
<i>Sub-total</i>	0	0	42	0	5	0	0	0
<i>PGM</i>								
<i>Sub-total</i>	0	11	0	5	6	0	85	11
<hr/>								
<i>Total for Sector</i>	6	18	77	5	11	57	266	171

Comment:

Significant ABET and Bridging programmes at Gold Fields, Anglo Platinum and Anglogold: these programmes are presented by the companies.

C3: N-level programme entry requirement for learnerships

	<i>N level requirement Yes</i>	<i>N level requirement No</i>	<i>N1 requirement</i>	<i>N2 requirement</i>	<i>N3 requirement</i>
<i>Coal</i>	100%	0%		100%	0%
<i>Diamond</i>	100%	0%		100%	0%
<i>Gold</i>	75%	25%		100%	0%
<i>Other Mining</i>	100%	0%		50%	50%
<i>PGM</i>	66%	33%	33%		
<i>All sectors</i>	80%	20%			

*Comment:
AngloGold has an N-Level requirement for Engineering but not for Mining.
Missing N-level data missing from certain companies*

C4: Full-time or Part-time training

	<i>Training Full- Time</i>	<i>Training Part- Time</i>
<i>Coal</i>	60%	20%
<i>Diamond</i>	100%	100%
<i>Gold</i>	75%	100%
<i>Other Mining</i>	50%	100%
<i>PGM</i>	100%	100%
<i>All sectors</i>	73%	73%

Comment:

Combination of FT and PT

Some Companies use both Full-time and Part Time depending on level and whether it is Engineering or Mining

D1: Trimester duration of N-level programmes

	<i>Trimester is the optimum duration Yes</i>	<i>Trimester is the optimum duration No</i>
<i>Coal</i>	80%	20%
<i>Diamond</i>	100%	0%
<i>Gold</i>	75%	25%
<i>Other Mining</i>	100%	0%
<i>PGM</i>	67%	33%
<i>All sectors</i>	80%	20%

Comment:

General support for Trimester duration of 12 weeks for the FET.

However, there is a view that trimester is too short for Higher Education Band.

One company would prefer trimester to be 16 weeks not 12 weeks

E1: Rating of Skills provided by Universities and Technikons, FET Colleges and Training Centres

Rating scale

1= Very Poor, 2= Poor 3= Satisfactory 4= Good, 5= Very Good

	<i>Universities Technikons</i>	<i>FET Colleges</i>	<i>Training Centres</i>
<i>Coal</i>	3.3	2.3	3.5
<i>Diamond</i>		4.3	
<i>Gold</i>	3.7	3.3	4.2
<i>Other Mining</i>	3.8	1.5	3.3
<i>PGM</i>	5.0	1.5	4.0
<i>All Sectors</i>	3.7	2.5	3.6

Comment:

From the sector perspective there is general satisfaction with skills training provided at Universities and Technikons. Also, the sector is generally satisfied with the skills training provided at their own Training Centres. However, this satisfaction does not extend, with the exception of De Beers, to the skills training received at the FET Colleges.

E2: Theoretical Underpinning provided by FET Colleges by FET Band and HE Band

Should the theoretical underpinning be provided by FET Colleges?

	<i>FET Band</i>			<i>HE Band</i>		
	<i>Yes</i>	<i>Yes, but with reservations</i>	<i>No</i>	<i>Yes</i>	<i>Yes, but with reservations</i>	<i>No</i>
<i>Coal</i>	75%	25%	0%	75%	25%	0%
<i>Diamond</i>	100%	0%	0%	100%	0%	0%
<i>Gold</i>	50%	0%	50%	0%	50%	50%
<i>Other Mining</i>	50%	50%	0%	50%	50%	0%
<i>PGM</i>	67%	33%	0%	50%	50%	0%
<i>All sectors</i>	64%	21%	14%	46%	38%	15%

Comment:

There is general support, perhaps with some reservations, that FET colleges should provide the theoretical underpinning of the qualifications.

E3: Retention of N Programmes by FET and HE Bands

	<i>Retained</i>	<i>Retained but substantially revised</i>	<i>Discarded</i>
All Sectors			
Total	9.1%	80.3%	10.6%
Coal			
Engineering FET	20.0%	80.0%	0.0%
Metallurgy FET	0.0%	100.0%	0.0%
Mining FET	0.0%	100.0%	0.0%
Sub-total	9.1%	90.9%	0.0%
Engineering HE	20.0%	80.0%	0.0%
Metallurgy HE	0.0%	100.0%	0.0%
Mining HE	0.0%	100.0%	0.0%
Sub-total	9.1%	90.9%	0.0%
Diamond			
Engineering FET	0.0%	100.0%	0.0%
Metallurgy FET			
Mining FET			
Sub-total	0.0%	100.0%	0.0%
Engineering HE	0.0%	100.0%	0.0%
Metallurgy HE			
Mining HE			
Sub-total	0.0%	100.0%	0.0%
Gold			
Engineering FET	0.0%	75.0%	25.0%
Metallurgy FET	0.0%	50.0%	50.0%
Mining FET	0.0%	75.0%	25.0%
Sub-total	0.0%	66.7%	33.3%
Engineering HE	0.0%	66.7%	33.3%
Metallurgy HE	0.0%	50.0%	50.0%
Mining HE	0.0%	0.0%	100.0%
Sub-total	0.0%	50.0%	50.0%
Other Mining			
Engineering FET	0.0%	100.0%	0.0%
Metallurgy FET	0.0%	100.0%	0.0%
Mining FET	0.0%	100.0%	0.0%
Sub-total	0.0%	100.0%	0.0%
Engineering HE	50.0%	50.0%	0.0%
Metallurgy HE	50.0%	50.0%	0.0%
Mining HE	50.0%	50.0%	0.0%
Sub-total	50.0%	50.0%	0.0%

E3 (continued): Retention of N Programmes by FET and HE Bands

	<i>Retained</i>	<i>Retained but Substantially revised</i>	<i>Discarded</i>
<i>PGM</i>			
Engineering FET	0.0%	100.0%	0.0%
Metallurgy FET	0.0%	100.0%	0.0%
Mining FET	0.0%	100.0%	0.0%
Sub-total	0.0%	100.0%	0.0%
Engineering HE	0.0%	100.0%	0.0%
Metallurgy HE	0.0%	100.0%	0.0%
Mining HE	50.0%	50.0%	0.0%
Sub-total	16.7%	83.3%	0.0%

Comment:

There is hardly any support for the retention of the current N programmes in their present form.

Equally, there is little support for discarding the concept of National programmes.

E4: N programmes used because there is no Viable Alternative

Reaction to the statement that N programmes used because there is no Viable Alternative

	<i>Strongly Agree</i>	<i>Partially Agree</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
<i>Coal</i>	67%			33%
<i>Diamond</i>		100%		
<i>Gold</i>	75%		25%	
<i>Other Mining</i>	50%	50%		
<i>PGM</i>	33%	33%	33%	
<i>All Sectors</i>	54%	23%	15%	8%

Comment:

There is strong support for the contention that the current N programmes are only used because there is no viable alternative

E5: Curriculum Needs of Engineering in the Mining and Minerals Sector

Do the current N-level programmes meet the curriculum content needs of the sector?

	<i>Yes</i>	<i>No</i>
<i>Coal</i>	60%	40%
<i>Diamond</i>		100%
<i>Gold</i>	25%	75%
<i>Other Mining</i>		100%
<i>PGM</i>	33%	67%
<i>All sectors</i>	33%	67%

Comments:

There is some evidence that the curriculum needs of the Coal Mining Sector are partially being met by the N1 and N2 programmes in Engineering. The remainder (Mining and Minerals) do not believe that the current N programmes meet the curriculum content needs of the sector.

E6: Curriculum Needs of Metallurgy in the Mining Sector

Do the current N-level programmes meet the curriculum content needs of the sector?

	<i>Yes</i>	<i>No</i>
<hr/>		
<i>Coal</i>	0%	100%
<i>Gold</i>	0%	100%
<i>Other Mining</i>	0%	100%
<i>PGM</i>	0%	100%
<hr/>		
<i>All sectors</i>	0%	100%

Comments:

In Metallurgy the curriculum needs of the Mining and Minerals Sector are not being met by the current N programme.

E7: Curriculum needs of Mining

Do the current N-level programmes meet the curriculum content needs of the sector?

	<i>Yes</i>	<i>No</i>
<hr/>		
<i>Coal</i>	50%	50%
<i>Gold</i>		100%
<i>Other Mining</i>		100%
<i>PGM</i>	33%	67%
<hr/>		
<i>All sectors</i>	25%	75%

Comments:

There is some evidence that the curriculum needs of the Coal Mining Sector are partially being met by the N1 and N2 programmes. Gold, Other Mining and PGM do not believe that the current N programmes meet their needs.

E8: Common and Specific components

Agree or disagree (in broad terms) with the view that a substantial part of the theoretical underpinning for Mining, Metallurgy and Engineering is "common" to all industries in the Mining and Minerals Sector and that a much smaller part is "specific" to a particular industry?

	<i>Strongly Agree</i>	<i>Agree</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
<i>Coal</i>	20%	60%		20%
<i>Diamond</i>	100%			
<i>Gold</i>	25%	25%	50%	
<i>Other Mining</i>		100%		
<i>PGM</i>	33%	33%		33%
<i>All sectors</i>	27%	47%	13%	13%

Comments:

The majority of the Sector (74%) support the view that, for Mining, Metallurgy and Engineering, there are "common" and "specific" curriculum components.

E9: Lecturers' Subject Knowledge

Lecturers' subject knowledge meeting expectations

	<i>Fully meets expectations</i>	<i>Partially meets expectations</i>	<i>Not entirely meeting expectations</i>	<i>Falls far short of expectations</i>
<i>Coal</i>		60%	40%	
<i>Diamond</i>	100%			
<i>Gold</i>	50%		25%	25%
<i>Other Mining</i>	50%		50%	
<i>PGM</i>		50%	50%	
<i>All sectors</i>	29%	29%	36%	7%

Comment:

There are negative perceptions about lecturers' subject knowledge.

Less than 30% of the companies believe that the lecturers' subject knowledge fully meets expectations. Almost half (43%) believe that the lecturers' subject knowledge is not meeting expectations.

It is implied that lecturers are not familiar ("not being exposed") to new qualifications.

Coming from CTC: "Lecturers have no genuine knowledge of Trade Theory that they are presenting."

Negative comment about lecturers' teaching skills.

E10: Lecturers' Flexibility and Adaptability

Lecturers' flexibility and adaptability meeting expectations

	<i>Fully meets expectations</i>	<i>Partially meeting expectations</i>	<i>Not entirely meeting expectations</i>	<i>Falls far short of expectations</i>
<i>Coal</i>	0%	20%	80%	
<i>Diamond</i>	0%	100%		
<i>Gold</i>	0%	25%	25%	50%
<i>Other Mining</i>	0%		50%	50%
<i>PGM</i>	0%		50%	50%
<i>All sectors</i>	0%	21%	50%	29%

Comment:

There are some very negative perceptions about lecturers' flexibility and adaptability - nearly 30% of respondents believe that lecturers fall far short of their expectations in this regard.

E11: Lecturers' Understanding of the Mining and Minerals Industry

Does lecturers' understanding of the Industry meet expectations?

	<i>Fully meets expectations</i>	<i>Partially meets expectations</i>	<i>Not entirely meeting expectations</i>	<i>Falls far short of expectations</i>
<i>Coal</i>	0%	20%	40%	40%
<i>Diamond</i>	0%	100%		
<i>Gold</i>	0%	25%	25%	50%
<i>Other Mining</i>	0%		50%	50%
<i>PGM</i>	0%			100%
<i>All sectors</i>	0%	21%	29%	50%

Comment:

There are a number of negative perceptions about lecturers' understanding of the Mining and Minerals Sector. Almost 80% of respondents believe that the lecturers' understanding of Industry does not meet expectations. Coming from CTC "Lecturers have no genuine knowledge of Trade Theory that they are presenting".

E12: Management's Responsiveness to the Sector's needs

How responsive is the management of the N programmes to the needs of the sector?

	<i>Very effective</i>	<i>Effective</i>	<i>Reasonable but not meeting expectations</i>	<i>Ineffective</i>
<i>Coal</i>	0%	20%	60%	20%
<i>Diamond</i>	0%	100%		
<i>Gold</i>	0%		67%	33%
<i>Other Mining</i>	0%	50%		50%
<i>PGM</i>	0%		33%	67%
<i>All sectors</i>	0%	21%	43%	36%

Comments:

There is a perception that management of the N programmes are not in touch with the sector and that management are not responsive to the needs of industry - nearly 80% support this view.

A lack of communication between management and industry is reported - "Colleges neglect Industry Liaison"

E13: Management's Responsiveness to the Sector's needs

How effective is the management of the N programmes in meeting expectations regarding flexibility in the mode of delivery?

	<i>Very effective in meeting expectations</i>	<i>Effective</i>	<i>Reasonable but not meeting expectations</i>	<i>Ineffective</i>
<i>Coal</i>	0%		60%	40%
<i>Diamond</i>	0%	100%		
<i>Gold</i>	0%		67%	33%
<i>Other Mining</i>	0%	50%		50%
<i>PGM</i>	0%		33%	67%
<i>All sectors</i>	0%	14%	43%	43%

Comments:

There is a perception that the management of the N programmes do not consider the need for greater flexibility in the delivery of N programmes - over 85% support this view. The sector believes that there is a lack of willingness on the part of Colleges to consider its needs - "There has never been a will to consider alternate options"
Appendix 15b

E14: Management's Responsiveness to the Sector's needs

How effective is the management of N programmes in meeting expectations regarding Quality Assurance of the N programmes?

	<i>Very effective in meeting expectations</i>	<i>Effective</i>	<i>Reasonable but not meeting expectations</i>	<i>Ineffective</i>
<i>Coal</i>	0%	40%	20%	40%
<i>Diamond</i>	0%	100%		
<i>Gold</i>	0%	33%	33%	33%
<i>Other Mining</i>	0%	50%		50%
<i>PGM</i>	0%		67%	33%
<i>All sectors</i>	0%	36%	29%	36%

Comments:

The management of the N programmes do not meet the expectations of the sector regarding Quality Assurance - 65% support this view - "Quality Assurance processes (need) to be instituted"

E15: Management's Responsiveness to the Sector's needs

How effective is the management in meeting your expectations in providing necessary feedback regarding N programmes?

	<i>Very effective in meeting expectations</i>	<i>Effective</i>	<i>Reasonable but not meeting expectations</i>	<i>Ineffective</i>
<i>Coal</i>		20%	60%	20%
<i>Diamond</i>	100%			
<i>Gold</i>		33%	33%	33%
<i>Other Mining</i>		50%		50%
<i>PGM</i>			33%	67%
<i>All sectors</i>	7%	21%	36%	36%

Comments:

The management of the N programmes do not meet the expectations of sector regarding the provision of adequate feedback - almost 75% support this view. De Beers (Kimberley) report complete satisfaction regarding their interaction with the management of the N programmes at the local FET College

F1: National Certificate in Engineering Maintenance (alignment of Instructional Offerings with exit outcomes)

<i>Fundamentals</i>			<i>Core</i>		<i>Electives:</i>	
<i>Communicate</i>	<i>Mathematics</i>	<i>Health</i>	<i>Replace equipment</i>	<i>Repair equipment</i>	<i>Replace equipment</i>	<i>Repair equipment</i>

Scale values:

1= Not at all, 2 = Only partially, 3 = Just meets requirements, 4 = meets the requirements, 5 = Exceeds requirements

<i>Coal</i>	2.7	2.7	1.7	1.7	1.3	1.3	1.3
<i>Gold</i>	1.3	2.7	1.3	1.0	1.0	1.0	1.0
<i>PGM</i>	1.7	2.3	1.7	1.7	1.7	1.3	1.3

<i>All sectors</i>	1.9	2.6	1.6	1.4	1.3	1.2	1.2
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Comments:

There is some evidence that in terms of the Fundamentals (Communication and Mathematics) the current Instructional Offerings partially align with the exit outcomes of this qualification.

However, this is not the case for the Core or Elective components. The sector believes that there is little, or no, alignment between the currently available Instructional Offerings and the exit outcomes of this qualification.

G1: Use of N level offerings to provide for Environmental, Occupational Hygiene and/or Safety Issues

Environmental, Occupational Hygiene and Safety issues are important priorities for the Mining and Minerals Sector. Are you able to make use of any of the currently available N-level instructional offerings to provide suitable training in these areas?

	<i>Environmental issues</i>		<i>Occupational Hygiene</i>		<i>Safety</i>	
	<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>No</i>
<i>Coal</i>	0%	100%	0%	100%	0%	100%
<i>Diamond</i>	0%	100%	0%	100%	0%	100%
<i>Gold</i>	0%	100%	0%	100%	0%	100%
<i>Other Mining</i>	0%	100%	0%	100%	0%	100%
<i>PGM</i>	0%	100%	0%	100%	0%	100%
<i>All sectors</i>	0%	100%	0%	100%	0%	100%

Comments:

No company or organization indicated that they were able to use currently available N-level offerings to provide suitable training for Environmental, Occupational Hygiene or Safety issues.

SURVEY QUESTIONNAIRE

Survey to determine the uptake of current N programmes by the Mining and Minerals Sector

Instructions for completing this questionnaire:

1. Your company may decide to submit a single return that reflects the combined view of the various entities (such as the Training Centres) in your group of companies. This is acceptable provided you make it very clear in Part A that this is a combined return and you list the entities whose combined views this single return represents. Otherwise, you may choose to submit multiple returns with individual returns coming from each Training Centre or entity in the Group.
2. Make an extra copy of this document so that you have a copy in case you mistakenly erase this one.
3. You are required to complete the questionnaire by entering the information in the space provided. The size of the block will automatically increase to accommodate your response.
4. You are advised to print the document so that you have a printed version next to you. You may find it easier to first complete parts of the questionnaire on the printed copy before entering your response into the space provided.
5. Place the cursor in the block and enter your response. The document will capture what you type in bold red. In some cases the document will capture what you type in capital letters. Neither the colour nor the case is important.
6. You are advised to save your document regularly.
7. On the completion of the document, print a copy for your records and make an electronic security copy somewhere on your computer.
8. Return the Survey Document to the following e-mail: hallg@languages.wits.ac.za
9. On receipt of your completed survey you will receive acknowledgement that your document has arrived and that everything is in order.
10. Should you have any difficulty completing the questionnaire you are invited to contact me at any one of the following telephone numbers 011 717 4215 or cell 072 4379285.
11. The final report has to be submitted by end March and therefore this completed survey must be sent by e-mail to reach me at the latest by 17h00 on Friday 4th March 2005.

Thank you for your co-operation

Graham Hall

**Survey to determine the uptake of current N programmes by
the Mining and Minerals Sector**

Part A

Name of person completing questionnaire:	
Company or Organization:	
Position held in company or organisation:	
Contact details: Phone number: Cell number: e-mail:	
Experience in Mining and Minerals Sector:	(Yrs)
If the completed document reflects the combined view of a number of entities (e.g. Training Centres), please give the names of these entities.	

Part B

B1. In which of the following sector(s) is your organisation or company currently engaged.

Mining and Minerals Sector	Place X in the selected block(s) You may respond to more than one.
Mining Coal	
Mining Gold	
Mining Platinum group metals (PGM)	
Mining Diamonds	
Other mining	
Metallurgy	
General Engineering (within the Mining and Minerals sector)	
Cement Lime Aggregate and Sand (CLAS)	
Gemstone Polishing	
Jewellery Manufacturing	

B2. Partnerships exist between the Mining and Minerals Sector and various FET Colleges.

Has your company/organisation entered into any partnership agreement(s) with an FET College(s)?

Note: Formal, in this context, means written contract that has been signed by both parties.

	Respond with X
Yes, formal agreement in place	
Yes, non-formal agreement in place	
No	

B3. If you answered **Yes** to Item B2, please list the name(s) of the FET College(s)

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B4. Various FET Colleges are major providers of N programmes for the Mining and Minerals Sector. Please list the FET Colleges that provide this training for your organisation. If relevant, give the name(s) of the Campus Site.

FET College	Particular Campus site

Part C

C1. In-service training in calendar year 2004

Number of employees who received, in 2004, part of their theoretical training at FET Colleges.

Occupational category	Number of employees receiving part of their training <u>at FET Colleges</u> in 2004
Senior officials and professionals	
Technicians and associated professionals	
Clerical/ administrative	
Service workers, shop & market sales workers	
Craft and related workers (Read notes 1 and 2 below)	
Plant and machine operators & assemblers	
Labourers and related workers	
Total	

Note:

1. The occupational category Craft and related workers includes the following:
Mining, Surveying, Metallurgy
Diesel and Motor mechanic, Electrician, Fitter and Turner, Instrument Mechanician, Millwright, Boilermaker, Welder, Auto Electrician, Carpenter and Joiner.
2. This total must agree with the Total block at the bottom of the next Table

C2. Further sub-division of Occupational categories

Number of learners who received, in 2004, part of their theoretical training at FET Colleges in occupational sub-category of Craft and related workers.

Sub-category	Number of learners receiving part of their training at FET Colleges
Diesel mechanic	
Electrician	
Fitter Machining	
Fitter/Turner	
Instrument mechanic	
Millwright	
Boilermaker/Welder	
Rigger	
Auto electrician	
Motor mechanic	
Mining	
Surveying	
Metallurgy	
Other Engineering (e.g. Level 2 learnerships)	
ABET	
Bridging	
Total	

C3. Does your organisation have a requirement that an N-level programme must have been completed before acceptance into a learnership?

	Respond with X
Yes	
No	

C4. If **Yes** to the previous item, indicate the N-level requirement.

N-level requirement:	Respond with X
N1-level	
N2-level	

C5. If your employees attend an FET College as part of their training, which of the following applies:

	Respond with X
Full-time attendance	
Part-time attendance	
Other: Please specify:	

C6. Any additional comments or observations you wish to make regarding this section of the questionnaire?

Part E

E1. Sector-wide Skills need

It is generally acknowledged that the Mining and Minerals Sector requires the development of a number of important skills. From the perspective of your organisation, list the most important skills, and identify the institution that is currently providing the training that underpins the development of the skill.

These skills may be developed at Higher Education Institutions (such as a University or Technikon), at FET Colleges, at accredited Training Centres or they may not be developed at all. For each skill, identify which type of Institution your organization primarily relies on, to provide these skills.

Rate how successful you think they are in providing these skills. You should duplicate the entry if the skill requires training in the Further Education and Training Band (i.e. N1 to N3) for one category of employment, but for another category it requires training in the Higher Education Band (i.e. N4 to N6). You should also duplicate the entry if the skills development is taking place at more than one type of Institution.

Important skills needed by your organisation	Type of Institution your organisation primarily relies on to provide this skill: Enter: H = University or Technikon, FET = FET College TC = Training Centre, NA = Not provided for at all	If a University or Technikon is the primary provider of this skill, how successful are they? 1 = very poor 2 = poor 3 = satisfactory 4 = good 5 = very good	If a FET College is the primary provider of this skill how successful are they? 1 = very poor 2 = poor 3 = satisfactory 4 = good 5 = very good	If a Training Centre is the primary provider of this skill how successful are they? 1 = very poor 2 = poor 3 = satisfactory 4 = good 5 = very good
Hypothetical examples: 1. Technical Electrical 2. Profession Engineering Chemical	TC H	5		4

- E4.** Do you believe that the current N programmes should be
- a) retained in their present form,
 - b) retained but substantially revised to meet industry requirements, or
 - c) discarded?

The Mining and Minerals Sector consists of sub-sectors and therefore you are asked to respond separately to each of these sub-sectors. If the sub-sector does not apply to your industry enter NA.

FET Band (N1-N4)

Respond with X or NA in the appropriate block

Sub-sector	Retained in their present form	Retained, but substantially revised to meet industry specific needs	Discarded
Mining			
Metallurgy			
Engineering			
Gem polishing			
Jewellery manufacture			

Note: It is possible that you may respond differently for each of the sub-sectors.

FET Band (N1-N4)

Sub-sector	Retained in their present form	Retained, but substantially revised to meet industry specific needs	Discarded
Mining			
Metallurgy			
Engineering			
Gem polishing			
Jewellery manufacture			

Note: It is possible that you may respond differently for each of the sub-sectors.

If your response to Item E4 was that the N programmes should be discarded, what would you replace them with and why?

Replacement for N programmes and the reason:

E5. It has been suggested that the only reason N programmes are presently being used in the Mining and Minerals Sector is because there is no viable alternative.

Do you agree with this assertion?

	Respond with X
Strong agreement	
Partial agreement with the statement	
Disagree with statement	
Strong disagreement	

Comment should you wish:

E6. If your organisation believes that FET Colleges are not currently providing this theoretical base, then you are invited to make suggestions that your organisation believes would be the optimum way of providing for this theoretical underpinning. In your response it may be helpful to consider each of the following issues: curriculum content, mode of delivery, location of delivery, duration and/or any other relevant issue(s).

Issue (e.g. Curriculum)	Comment

E7. The alignment of N programmes with the curriculum content needs of the Mining and Minerals Sector.

Do the current N-level programmes meet the curriculum content needs of your organisation?

Enter NA if not applicable to your organization; if applicable, respond with an X in the appropriate Yes or No block.

	Yes	No
Mining		
Engineering		
Metallurgy		
Gem polishing		
Jewellery manufacturing		

E8. If YES, identify the N-level programmes that are in alignment:

--

E9. List any other factor(s), which you regard as inhibiting the alignment N programmes with the particular curriculum content needs of your organisation.

Factors that inhibit the alignment of N programmes with your organisation's curriculum content needs
1.
2.
3.
4.
5.

E10. Should you wish to elaborate on any of the factors listed above please use the space below.

--

E11. There is a view that a substantial part of the theoretical underpinning for Mining, Metallurgy and Engineering is "common" to all industries in the Mining and Minerals Sector and that a much smaller part is "specific" to a particular industry.

Do you agree (in broad terms) with this view?

	Respond with X
Strong agreement	
Agreement	
Disagreement	
Strong disagreement	

E12. Lecturers at FET Colleges are key to the successful delivery of instructional offerings. In general, are lecturers meeting your expectations with respect to their subject knowledge, their understanding of your industry, their flexibility and/or adaptability?

Respond with X in appropriate block

	Yes, fully meeting expectations	Yes, partially meeting expectations	No, not entirely meeting expectations	No, lecturers fall far short of expectations
Subject knowledge				
Understanding of your industry				
Flexibility and/or adaptability				
Other: Specify				

E14. If, in your opinion, the lecturers are not meeting the expectations of your organisation, please identify the reasons why they are not meeting these expectations and offer any constructive suggestion(s) that would enable them to meet these expectations?

--

E15. Apart from the content of N programmes and the lecturers' ability to deliver the instructional offerings, an important factor is the management of N programmes by the College Management.

In your opinion, how effective is the management of N programmes with respect to their responsiveness to your curriculum content needs, their flexibility to alternate modes of delivery, their implementation of Quality Assurance mechanisms, and their provision of effective feedback?

Respond with X in appropriate block

	Very effective, exceeds our requirements	Effective, what we expect	Reasonable, but does not meet our expectations	Ineffective, not meeting our expectations
Responsiveness to your curriculum content needs				
Flexibility with respect to mode of delivery				
Effective implementation of Quality Assurance mechanisms				
Providing effective feedback				
Other: Please specify				

E16. If, in your opinion, the College Management is not meeting your organisation's expectations, please identify the main reason(s) for **not meeting** your expectations.

E17. Please identify any change to the FET College's management of the N programmes that, in your opinion, would significantly improve the current situation.

Part F

National Certificate in Engineering Maintenance: Underground Hard Rock Mining (Metalliferous) - Level 2

This qualification consists of three components: a Fundamental, a Core and an Elective component. Each of these components consists of a number of Unit Standards that have been clustered together.

F1. In your opinion do the various Instructional offerings currently presented by the FET Colleges align with the exit outcomes of the unit standards?

	1 = No, not at all 2 = Only partially 3 = Just meets the requirement 4 = Meets the requirement 5 = Exceeds the requirement NA = Qualification does not apply to your particular sector
Fundamentals: Communicate in a variety of ways	
Use mathematics in real life situations	
Core: Sustain health and safety in the workplace	
Replace mining related equipment and components	
Repair mining related equipment and components	
Electives: Replace mining related equipment and components	
Repair mining related equipment and components	

F2. Qualifications in the Mining and Minerals Sector

To what extent do you believe the current N-level Instructional programmes offered by the FET Colleges contribute to the theoretical underpinning of the new qualifications that have already been registered on the NQF? If the qualification does not apply to your particular sector enter NA.

Qualification National Certificate:	Extent to which you believe the current N-level programmes contribute to the theoretical underpinning of the qualification 1 = no significant contribution 2 = small but inadequate contribution 3 = adequate contribution 4 = more than meets the requirement NA = qualification does not apply to your particular sector
Diesel Mechanic - Level 3	
Electrical - Level 4	
Fitting and Turning - Level 3	
Fitting (Including Machining) - Level 3	
Instrumentation Mechanician - Level 4	
Millwright - Level 4	
Plater/Boilermaker - Level 3	
Plater/Welder - Level 3	
Rigger Ropesman - Level 3	
Rockbreaking for Underground Hard Rock Tabular - Level 3	
Introduction to Mining and Minerals - Level 1	
Mining Operations: Underground Coal - Level 3	
Engineering Maintenance and Repairing for Underground Coal Mining - Level 2	
Engineering Maintenance for Underground Hard Rock (Metalliferous) - Level 2	
Mining Operations Underground Hard Rock Narrow Tabular - Level 2	
Winding Engine Driving - Level 3	
Surface Mining Rockbreaking - Level 2	
Jewellery Manufacture in a Production Environment - Level 3	
Diamond Processing: Polisher - Crossworker - Level 4	
Diamond Processing: Polisher - Brillianteer - Level 3	
Diamond Processing Operator - Level 2	
Payroll Administration Services - Level 4	
Measurement Control and Instrumentation -	

Level 2	
Measurement Control and Instrumentation - Level 2	
Measurement Control and Instrumentation - Level 3	
Other 1: Specify	
Other 2: Specify	

Part G

G1. Environmental issues

Environmental issues play an increasingly important role in the Mining and Minerals Sector. Conservation and rehabilitation requirements translate into training needs for the personnel involved in Environmental and Conservation in your organisation. Are you currently able to make use of any N-level offering to provide for this need?

	Respond with an X in the appropriate block
Yes	
No	

G2. If you answered **Yes** to above, indicate, in the space provided, the name of the N-level Instructional offering(s) that meet(s) your requirements.

G3. Occupational Hygiene and Safety

Occupational Hygiene and Safety issues are acknowledged as important priorities for the Mining and Minerals Sector. Are you able to make use of any of the currently available N-level instructional offerings?

Respond with X in appropriate

	Yes	No
Hygiene		
Safety		

G4. If your response to the above is **Yes**, please indicate, in the space below, the name of the N-level Instructional Offering that meets your requirements.

For Hygiene:

For Safety:

Part H

The role of FET Colleges and the Mining and Minerals Sector in the development of appropriate N-level programmes

H1. What, in your opinion, is the role that FET Colleges should play in the development of appropriate N-level programmes?

H2. In what way, do you believe, the respective roles of FET Colleges and the Mining and Minerals Sector could be enhanced in the development of N-level programmes? Identify the part that the Mining and Minerals Sector could play, and the part that the FET Colleges could play in the development of appropriate N-level programmes.

On the part of the M & M Sector

On the part of the FET Colleges

Part I

11. General Comment

The FET Colleges are major providers of the Instructional programmes that underpin qualifications in Mining and Minerals Sector. In the space below you are invited to comment on any aspect of FET College's contribution that has not already been covered.

Positive supportive comments:

Constructive critical comments:

On completion of the questionnaire save the document and print a hard copy for your records.

Send the completed document to hallg@languages.wits.ac.za