

Chief Moderator Report

Engineering

Summer 2006

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Introduction

A team of nine moderators under the leadership of the Chief Moderator were involved in the moderation of portfolios from centres covering Foundation, Intermediate and A/VCE programmes.

There was a significantly smaller volume of portfolios submitted for moderation due to the programmes coming towards their final year. Seventy eight different programmes were submitted for moderation across the range of Foundation, Intermediate and VCE qualifications.

The majority of centres appeared to be resubmitting work for candidates wishing to improve achievement, since the majority of cohorts were very small and often candidates were withdrawn from some units after moderation was requested by the centre. Some centres submitted portfolios after the stated deadline. In these cases moderators made every effort to ensure that all portfolios were moderated and marks entered in order that deadlines were met. However some portfolios had not been received at the time of writing this report.

Most centres followed advice from the awarding body and annotated candidates' work to indicate where particular criteria had been met. However a significant number of assessors still did not provide any indication of how assessors had awarded points scores often resulting in inaccurate assessment. It was therefore difficult for the moderator to understand where achievement had been recognised. In these cases the moderator needed to assess the work in order to finally compare the moderator score with the assessor score.

The use of assessment front sheet is recommended since they can clearly indicate where specific evidence can be found in the portfolio, and also focus on the type of evidence required to meet selected criteria. This practice generally proved helpful to candidates.

Unfortunately some centres persisted in the practice of continuous assessment carried out during learning activities. The failure to differentiate between learning experiences and assessment opportunities caused candidates to include class notes in portfolios. Where candidates were provided with learning experiences that were separate from assessment activities there was generally more relevant evidence in the portfolios and specific criteria were more accurately met.

The majority of centres assessment was within National Standards, although in most cases the assessment was lenient and in some cases optimistic. It is still disconcerting to note that some centres did not make sufficient reference to the assessment grids provided in the specifications. The assessor should only consider the evidence provided against the stated assessment criteria. In all cases the banner should form the basis of the assessment process. It clearly defines the form that the assessment and the portfolio should take. During the moderation process the moderator judges the evidence available against the requirements of the banner and the criteria stated in the assessment grids.

Assignment design is important, and where assessment criteria were clearly targeted candidates generally achieved significantly better results.

The following characteristics distinguish between the different grades:

- Increasing depth and breadth of understanding
- Increasing coherence, evaluation and analysis
- Increasing independence and originality.

Unfortunately some assessors continue to recognise simple statement relating to the content of higher level assessment criteria as fully meeting these criteria. It is essential that in order to fully meet A grade criteria students must provide in depth statements that demonstrate appropriate understanding, coherence, evaluation and analysis. Where the higher grade assessment criteria are only partially met candidates should be awarded appropriately lower marks as explained in the specification and the Notice to Centres relating to Changes to the Assessment of portfolio units September 2003.

Witness Testimony

It remains a disappointment that some centres are still not providing students with appropriate witness testimony. This is particularly disappointing since this topic has formed a significant part of each Chief Moderators report.

Foundation programmes

Thirteen centres offering Foundation programmes submitted portfolios for moderation from units 102, 103, 106, 107, 108, 109 and 110.

It is not intended to provide detailed comment on all units. However those presenting significant areas of concern continue to be units E102 and E103. Unfortunately where problems occurred these were substantially similar to those reported in previous Chief Moderators Reports. The following relates to these two units.

Unit 2: Application of New Technology in engineering (Compulsory unit)

The banner provides the basis for the completion of a successful portfolio. It requires candidates to produce information about **one** new technology product. Moderators were instructed that it is difficult to find a product that does not include some form of 'new technology'. The information provided by the candidates should be derived in part from data from manufacturers and suppliers.

Many candidates continue to provided evidence of internet searches only.

Some candidates failed to identify the product and/or the technology under investigation and in many cases there was confusion between the product and the technology.

Candidates are required to undertake a practical investigation of the product. Many candidates did not provide evidence of the practical investigation and therefore did not fully meet the banner. The practical investigation should include examination of the product and simple investigations to determine properties such as weight, colour, scratch and wear resistance.

Many candidates did not record the source of their information and therefore did not fully meet the P1 criterion. It is not appropriate to simply provide a bibliography. Candidates should record the source of the information and how it was used in their research.

Although some candidates were able to provide an analysis of the advantages and limitations of the technology when using the product, few provided more detailed evidence of planning the investigation than a list of proposed activities.

Unit 3: Make Engineered Products (Compulsory unit)

It is disappointing to report that some candidates are still being disadvantaged by the centres failure to provide candidates with a product specification. It was therefore difficult for candidates to provide evidence that the product met the specification and therefore the banner was not fully met.

Many candidates did not provide sufficient evidence of the practical aspects of this unit. In many cases the only evidence to meet specific aspects of the assessment criteria was vague evidence of having made a product. It is important that specific evidence is produced to meet each aspect of the assessment criteria.

Intermediate programmes

Twenty nine centres submitted portfolios for moderation from units 202, 203, 205, 207, 208, 209, 210, 211 and 212.

Generally the assessment was within National Standards although there was a tendency for assessors to be slightly generous, particularly when differentiating between bare and comfortable pass achievement.

Unit 2: Application of New Technology in Engineering

Candidates should produce a case study of the 'new' technology used in making **two** chosen products from different fields.

Some candidates failed to identify the product and/or the technology under investigation and in many cases there was confusion between the product and the technology.

Centres should recognise that it is important to consider what information might be available to candidates when selecting products to be investigated. It is extremely difficult to obtain any relevant information about the new technologies that are used in the manufacture or operation of

products such as mobile telephones. Therefore centres are advised, once again, to direct candidates towards products for which manufacturers data is readily available.

Candidates are required to investigate new technology products. This investigation must include both a library type research and a **practical investigation** of the product. Many candidates did not provide evidence of the practical investigation and therefore did not fully meet the banner or criterion P2. Candidates should be familiar with suitable techniques for recording the process and outcome of practical examinations as identified in the 'What you need to Learn' section of the specification.

Many candidates did not record the source of their information and therefore did not fully meet the P1 criterion. It is not appropriate to simply provide a bibliography. Candidates should record the source of the information, how it was used in their research and conclusions drawn from the analysis of this information..

Although some candidates were able to provide an analysis of the advantages and limitations of the technology when using the product, few provided more detailed evidence of planning the investigation than a list of proposed activities.

Unit 3: Make Engineered Products

In many cases the evidence produced to meet the requirements of this unit lacked detailed information relating to individual candidates achievement in the engineering processes. Witness statements, signed and dated, annotated photographs and detailed student logs needed to be included to illustrate the use of appropriate processes and skills to make and finish the products.

Candidates frequently only listed some of the safety procedures safety equipment to be used in the processes undertaken. The production of detailed risk assessments is often helpful however this type of information needs to be developed sufficiently to confirm that the candidates had actually used these procedures and equipment in order to meet the requirements of the assessment criteria..

Production planning is still found difficult by many candidates, many of whom were not able to produce realistic production plans. This evidence often consisted simply of a list of the main stages of manufacture. There was evidence that some students produced the 'plans' after having made the product.

A production plan should demonstrate an understanding of: materials and component to be used, the processes to be used, the tools and equipment to be used, the sequence of production, production scheduling, how quality will be checked and inspected and health and safety factors. The provision of 'pro-formas' to be completed by students is highly recommended. However often candidates left these were blank, even though the assessor recognised achievement.

Advanced Vocational Certificate of Education in Engineering

Thirty six centres submitted portfolios for moderation covering units 301, 302, 304, 305, 309, 311, 312, 314, 315, 317, 318, 319, 320, 321, 322, 323 and 324.

The majority of cohorts were particularly small, there often being one, two or three candidates per centre and therefore the assessment tended to be to National Standards. However some centres assessed at least one unit with excessive leniency.

The main areas of shortfall remain as in previous years and this report is significantly similar to all previous reports. Specific shortfalls are developed below:

Unit 1: Engineering in Business & the Environment

In order to meet the requirements of this unit, candidates need to produce a case study of an organisation involved in a significant engineering activity. Some centres undertook investigations of the general business activities of large organisations without considering the engineering function.

It is important that candidates research organisations that are willing to provide the necessary data and information. Many candidates produced evidence of either generic theory relating to hypothetical organisations probably obtained from text books or undertook library type investigations from publicity materials. All evidence produced should relate to the chosen organisation and ideally would be collected by visiting and working with a specific organisation. It is inappropriate to include generic information relating to general engineering or business organisations such as typical organisational structures taken from text books and notes.

Many candidates used copies of commercially provided documents. Where downloads and photocopies are used, these should be explained in the students own words.

The schematic layout of one interface between engineering and commercial functions must reflect a wide awareness of the essential key interfaces, **accompanied by** an accurate description of the types of information that flows along these interfaces.

Candidates must provide evidence of a financial decision taken by the organisation **and** explain how such decisions were made.

Candidates must present evidence of having successfully made a presentation to an audience on:

- (a) how one aspect of the organisation's operations are, or can be, designed or adapted to minimise negative effects of the social and physical environment, **and**
- (b) those aspects of the organisation's work which are affected by environmental legislation.

Unit E302P: Application of New Technology in Engineering

Candidates must conduct a thorough **practical** investigation of the chosen product or service, and the outcomes of this investigation must be recorded. This record must include records of adhering to appropriate health and safety practices. The practical investigation should include activities such as dismantling and testing in order to establish system arrangement, operating features and underpinning scientific principles.

When ever candidates undertake library and product literature and internet searches they must provide their own interpretation of the information obtained.

Many candidates still failed to demonstrate an understanding of how the needs of **both** the end user and the manufacturer or provider of the service have shaped the use of the new technology.

It is inappropriate to rely entirely on copies of illustrations and other graphical methods obtained from text books and internet searches. Candidates must produce and use their own system diagrams and other graphical methods obtained as part of the practical investigation to help explanations.

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