Vocational Education and Training Reform in the Republic of Serbia

Manual 4

ASSESSMENT METHODS FOR VET PROGRAMMES LINKED TO NEW CURRICULA DEVELOPED

Vocational Education and Training Reform Programme – Phase II

May, 2008.

Authors Preface

This handbook is created as a revised version of a handbook developed under VET Reform I.

The revised version is developed as support materials for the training of VET teachers involved in implementation of new developed curricula within wood-processing, tourism and catering, and ICT.

The handbook consists of 4 parts:

1. A general introduction to assessment

2. An overview of assessment techniques

3. Final examination and Matura

An annex with an example of assessment items developed by teachers from pilot schools.

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I General Section

Assessment as a Learning Process

Testing and assessment are traditionally perceived by stakeholders as target activities in the instruction process. Vocational education and training (in further text: VET) development strategy, based on competences and determining of teaching effects as expected changes in student behaviour requires special role to be given to the assessment in relevant context – to serve as a basis for continuous learning process of individuals and whole community. All assessment methods and strategies, as well as facilitating modes of the learning process, need to be focused on obtaining this goal. Implementation of various testing and assessment methods and procedures has a significant impact on students' view of their role in education and instruction process.

Main idea is that assessment, teaching and learning are integrated processes that enable the direction of all processes towards learning outcomes. Assessment is not treated as the final product of teaching and learning process, but rather as continuous process providing feedback to students and teachers on the extents of realisation and possible realisation of teaching and learning.

Main purpose of this document is to analyse some of basic notions essential for assessment in outcomes-based VET. The goal is to initiate discussion on implementation of outcomes-based VET, particularly on assessment procedures characteristic for VET. Designing and development of the curricula is a process of integration where outcomes, assessment criteria, descriptions of levels, modularisation and handbooks are considered as interactive processes. The document has the following task:

- To facilitate harmonizing of practice and assessment procedures;
- To propose operational criteria and guidelines for assessment in the context of outcomes-based VET.

Key Terms – Terminological Explanations

A general explanation: An interesting point is that the original meaning of the word assessment goes back to the Latin ad sedere, which means 'to sit down beside' and this leads to the associated view that assessment also is concerned with providing feedback and guidance to the student.

Testing is the systematic data collection on how and to which extent students and teachers obtain achievements and educational objectives set. This activity can be conducted in various modes: verbally, in writing, through observation of psychomotor activities and so on. In principle, the results of testing are not assessed.

Assessment is the process of measuring the evidence of a student's attainment of knowledge, understanding, and skills, against defined criteria.
It is based on the classification of answers in qualitative categories, and then determining their quantitative value (the grades). Assessment is the process of testing and measuring learning achievements and making pedagogical decisions. It presents an integral part of both teaching and learning; it is not just the climax of the instruction process. The first step in effective school assessment is: recognition of the learning outcomes and defining the performance criteria related that particular learning outcome.

The term "assessment" is interpreted in different ways, and it is mostly interpreted as testing and ranking. Assessment is usually used to inform students on their progress and their results achieved in the instruction process.

Validation is the activity related to determining the extent of educational objectives' realisation, taking into account conditions under which the results are made.

Though the term "validation" is often equalized with the term "evaluation", these are not necessarily the terms with the same meaning. Sometimes "evaluation" means "validation" defined in aforementioned way, thus it is possible to avoid use of the term; and sometimes "evaluation" means wider process, so it is not possible to find another adequate term in Serbian language. Therefore the term "evaluation" is used in the case of wider meaning.

Evaluation [1] is the pedagogical process of monitoring, measuring and validation of educational outcomes and processes.

In accordance with the mode and the extent of impact that the results of testing, assessment and validation have on teaching/learning process, there are different approaches: formative (process) approach and summative (final) approach.
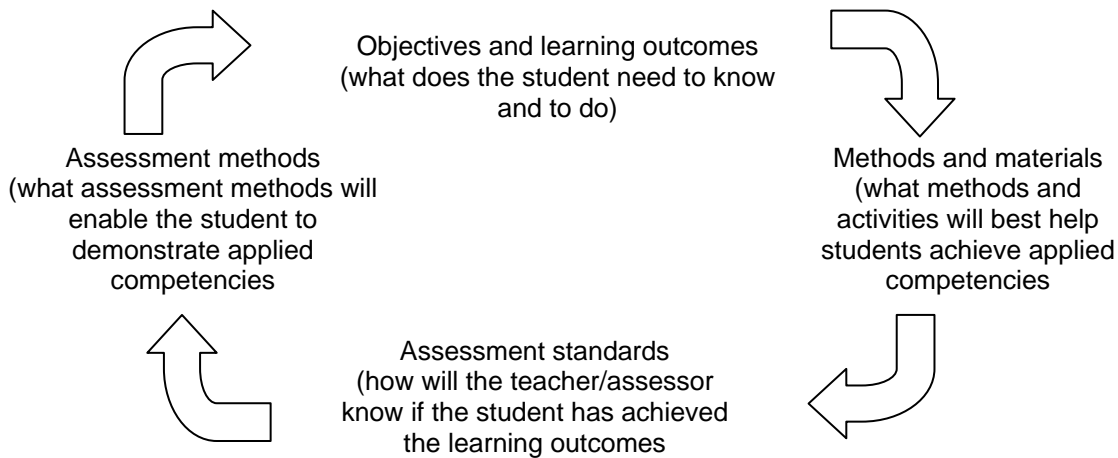
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[1] Evaluation is the pedagogical process with a wider meaning than other activities, encompassing all of them.

Objectives and Outcomes in Secondary VET

Development tendency of educational systems oriented on mastering and/or developing of learning skills and knowledge structure, requires explicitness of expected effects in each type of teaching and pedagogical procedure. **Traditional** organisation of the instruction highlights the role of school subjects and classes' objectives and outcomes, while the **new concept** is oriented on determining objectives and expected outcomes of teaching/learning process.

Module Objectives	Learning Outcomes
They refer to expectations and intentions They refer to the intended competencies to be obtained by the student	Referring to verifiable and measurable results that can be obtained at the class/cabinet/workshop. They are always formulated as starting with a 'verb' that indicates the expected knowledge or skills
Example 1: Enabling students to work independently in organisation of transport services	After completing module, the student is able to: • Fill contract with transport companies • Compile pre – reservation and reservation of transport service
Example 2: Enabling students to participate in event organisation	After completing module, the student is able to: • Participate in compiling programs for excursion and site seeing for participants of the events and their family members. • Respond on special request that client asks for, during event.

The main objective of the new curriculum concept (outcome based) is to ensure all learning opportunities that can make a difference in the student's achievement (the cyclic process):

Objectives and learning outcomes
(what does the student need to know and to do)

Assessment methods
(what assessment methods will enable the student to demonstrate applied competencies

Methods and materials
(what methods and activities will best help students achieve applied competencies

Assessment standards
(how will the teacher/assessor know if the student has achieved the learning outcomes

Overview of Assessment

One of the most important factors contributing to public confidence in educations is the quality of the assessment which students undertake to achieve the expected competencies. The assessment process must be both rigorous and fair.

When assessment is carried out at points throughout a learning programme to provide feedback on students' progress, it is known as **formative** assessment. Assessment carried out on completion of a module or learning programme also provides evidence for certification purposes, and this is known as **summative** assessment.

Good formative assessment is essential to effective learning. Students and teachers need to know what progress is being made toward achieving learning outcomes. Summative assessment is equally important. It provides evidence, for students, employers and educational institutions, of the achievements of individual students. There is good reason to ensure that summative assessment procedures are based on clear standards in which there is public confidence.

For an assessment system to achieve its objectives it should display all of the following characteristics:

- validity
- reliability

Validity

When length is to be measured, the appropriate instrument is a ruler or tape measure NOT a thermometer thus a ruler or tape is a valid instrument for the measurement of Length.

Validity, in terms of assessment, is how well the test measures what it is supposed to measure. A paper and pencil test, therefore, has low validity when assessing a student's ability to carry out a practical skill but can have a high validity in assessing if a student knows the theory. A valid test is one which assesses a representative sample of the programme content.

It is evident that a valid assessment must also assess a sample of the abilities that are required in the curriculum. The questions must not only test the knowledge levels but also the comprehension, application and practical skills; a cross section of all of the abilities that are required. So, a test, having high content validity should:

- be based on a sample of the learning outcomes in a curriculum; and

- have all of the questions relevant to the learning outcomes which have been chosen from the sample.

What has been described above is 'content' validity. However, validity is also affected by the appropriateness of the method of testing e.g. using paper and pencil to practical test skills, which is obviously not appropriate. This latter type of validity is termed 'construct' validity. The construct validity of an assessment is the extent to which it is appropriate to the course, subject or vocational area concerned. If methods of assessment are chosen purely because they are easy to administer or because they are easy to mark, the construct validity of the assessment may be questioned.

Validity is very important to the student because if it is felt that the test is partially irrelevant or unfair, then the motivation of the student will suffer. The teacher needs to ensure valid testing so that any conclusions drawn about the teaching of the subject matter are fair. Employers/ higher education institutions need valid testing so that they have the right information regarding potential employees/students. Finally, where regulatory testing is used (example: electrical installation) validity is crucial to the safety of the public at large.

Reliability

The reliability of a test refers to the extent to which it consistently measures what is supposed to measure. A perfectly reliable test will give identical results in all conditions. If a test is reliable then the following things should happen:

(i) different people assessing the same work should award the same scores;

(ii) assessors award the same score to the same test if they score it again on a subsequent occasion;

(iii) students should get the same score on the test when it is re-given at a later date assuming no further learning has taken place.

The reliability of a test is influenced by the objectivity of the scoring. If markers are looking for the same aspects there is more likelihood of them awarding the same marks. Hence an effective marking scheme influences the reliability of a test. Also, the length of a test influences its reliability. Increasing the length of the test paper can reduce the effects of chance factors on students' scores.

The following chart gives an indication of the possible relative merits of different forms of assessment in terms of the three constructs outlined above.

Assessment form	Objectivity of scoring	Validity	Reliability
Essay	Low	Low	Low
Objective test	High	Medium	High
Structured answer	Medium	Medium	Medium
Project	Low	High	Medium
Assignment	Low	High	Medium
Practical test	Medium	High	Medium

Several other factors must also be taken into account:

- students should all be assessed on the same work

- assessment tasks should be capable of being marked consistently

- level of difficulty remains the same from year to year

- marking must be consistent regardless of whether there is one marker or a team.

Student performance is unlikely to be consistent and therefore this can introduce another element of unreliability into tests taken on different occasions. However it may be as well to point out a few external reasons that have been identified as causing unreliability in a test:

- subjectivity of marking

- inadequate sampling of the content areas from the training specification

- insufficient number of test items

- inadequate instructions for practical tasks

- ambiguous and poorly constructed questions

Finally, it should be noted that an assessment cannot be valid unless it is also reliable (inconsistent results between tests are unlikely to be valid) but on the other hand, a test can be reliable without being valid (it may not be measuring the desired behavioural changes). So, good assessment must be both valid and reliable.

Norm Referenced compared with Criterion Referenced Assessment

Norm referenced testing

Standard forms of tests are used together with special standard scores to compare groups of students with their peers. This is Norm Referenced Testing and is used to compare the performance of an individual with that of a representative group which has been deemed to be the accepted norm. This will work well perhaps where the sample of tests is large, but with typical training group, this is difficult to do reliably. Also what really matters is the progression of the student from the last known assessment result, and not how well that student has done compared with the rest of the group. Clearly norm referenced testing is not aimed at the student but for external influences on the education system.

Criterion referenced testing

This system places the student's needs first and is one in which the student is assessed against some predetermined criteria, on an individual basis. Criterion referenced assessments can actually indicate the level of performance of an individual, and hence close the feedback loop in terms of the student achievement and teacher or programme evaluation. The criteria for the assessments are derived from competence statements in the curriculum and hence the link to validity. The same learning outcomes that helped to detail the learning experiences for the students can now be revisited with a view to structuring suitable practical/theory tests to measure their learning. The idea is that every student should achieve the desired outcomes. In this system the natural ability range of students can be catered as progress is not determined by time.

In general, any form of assessment should have the following attributes:

- criterion referenced

- formative

- process based (observing performance over longer periods)

- focused on the individual (in order to give feedback)

- internally set and marked (for flexibility and to inform evaluation   processes)

- externally verified (for reasons of standardisation)

Process compared to Product

The process involved in learning may be closely linked to the product or result, of that learning. Obviously it is much easier to assess the product of learning than the process and this is where continuous assessment techniques have the advantage over end testing.

When designing an assessment it is important to make sure which of these aspects is the more important, and then devise an assessment which is relevant. An essay on the theory of electricity would not be relevant if it was desired to assess the student's ability to find a fault in an electricity supply. In such a case the process is more important, since mastery of the techniques will arrive with practice if the student can show that she [he] has a grasp of the basic techniques. Therefore product based assessments which involve the measurement of process is ideal.

Assessment Structure

Assessment structure is determined by fundamental **assessment dimensions**:

1. The first dimension of this structure is - **WHAT is assessed**: knowledge, skills, application, and attitudes.
2. The second dimension of assessment structure is - the **PURPOSE of assessment**: why the information is collected and how it is used (for instance, informing students on strengths and weaknesses of learning, or informing teachers on ways of modifying the information).
3. The third dimension is - **WHO is to carry out assessment**: student, other students - members of working group, a teacher, or a representative from the social partners. It is important to underline that students' engagement in *self-assessment* is critical and early segment of assessment process, and that the self-criticism shall be involved in each important segment of this process. Students need to know how to form critical attitude towards their knowledge, skills, as well as their implementation. The students should be given the opportunity to look back to their prior work and to see what they have done and learnt. Doing in so, students are enabled to implement assessment criteria to their work, as well as on the work of other students, to learn how their ranking can be compared with the teacher's ranking.
4. The forth dimension of assessment structure is the **METHOD** of assessment**:** the quiz, the report, team and individual projects, written assignments, practical assignments, drawings.
5. The fifth dimension consists of: performed **ACTIVITY AND FEEDBACK** provided for students. This is a crucial component of assessment process, providing connection between assessment and students' learning progress.

Outcome-based Assessment

In order to be efficient, assessment should be based on various methods, procedures and instruments that the teachers find the most adequate in respect of the learning outcomes, students' characteristics, school program and the conditions in which the teaching process is realized.

Traditional assessment procedures are mainly aimed towards the intellectual outcomes (such as correct reproduction of the memorized knowledge) and consist of oral examination methods (based on questions and answers, etc.) and a written exam that includes the tests.

Along with the **traditional methods** of assessment (oral examination, written tasks, tests), teachers should use variety of **complementary or so called alternative** assessment methods, such as: project work assessment, assessment of student's contribution during group work, student's portfolio, essays assessment, assessment of the specific communication and working skills, assessment of student's attitudes.

Complementary or so-called alternative assessment procedures emphasize the **learning outcomes**, which express student's achievements and personal development, comprehensively.

Traditional and alternative assessment procedures, based on learning outcomes are described in the following practice section, assessment procedures.

Assessment in secondary VET

II Practice Section

Assessment Procedures

Assessment in outcome-based VET should integrate several evaluative approaches (formative, diagnostic and summative assessment)

The outcome-based curricula are made up of several modules. Each module contains outcomes and each outcome or group of outcomes has to be supported by assessment criteria and the requirements related to the knowledge, skills and attitudes of the outcome. Students must demonstrate that they can meet all the criteria associated with all the outcomes to be awarded the module. The judgement as to whether or not the student has been successful is made by an assessor (teacher and /or social partner representative) during the final examination.

The assessment process is divided into the key steps that have to be followed:

1. **getting to know the learning outcomes**
   ↓
2. **selecting learning outcomes to be assessed**
   ↓
3. **developing performance criteria for each of learning outcome or if they are grouped, then performance criteria for the selected group of outcomes**
   ↓
4. **selecting and developing assessment instruments**
   ↓
5. **checking the instruments of assessment**
   ↓
6. **planning assessment opportunities with students**
   ↓
7. **generating and collecting evidence**
   ↓
8. **judging the evidence against the criteria and make assessment decisions**
   ↓
9. **recording assessment decisions**

This is in general the guideline to be followed for all types of assessment.

The school management is responsible for ensuring that assessment systems and instruments of assessment are applied correctly, in accordance with the rule book on assessment.

Ad 3 Developing performance criteria

Performance criteria (sometimes called "assessment criteria") set out standards against which students must be assessed. They must always be derived from the outcome and explain the essential qualities of performance. (The number of criteria will vary from module to module, but as a guide, there should be between 4 and 8 criteria for each outcome.) It should be possible to assess the whole outcome using one assessment, with a check that each criterion is being met: separate assessment instruments should **not** be required for each criterion. The criteria should enable the assessor to judge

either an aspect of the way the student carries out an activity described in the outcome or a quality of something produced by the activity.   The criteria should provide a clear guide to the student and the assessor; they must be clearly stated and not open to interpretation.

Examples:

Outcome: Demonstrate knowledge of metal-cutting machines and   tolerances
Performance criteria/
assessment criteria: a)   describe the main types and distinctions of metal-cutter machines
                                              clearly and in sufficient detail
                            b)   calculate tolerances accurately
                            c)   classify tools and equipment used in fitting works correctly
                            d)   use the appropriate tools and equipment following technical safety and
                                 environment protection rules

Outcome: Drill holes in metal
Performance criteria/
assessment criteria: a)   select the appropriate tools for drilling holes
                            b)   drill holes in metal with exact sizes using an electric hand drill
                            c)   drill holes in metal with exact sizes using a table drill
                            d)   follow technical safety and environment protection rules at all times

Ad 4. Selecting assessment instruments

A selection of assessment instruments are listed below and explained in detail in the following paragraphs.

Useful instruments for assessing knowledge

- completion questions
- reasoning questions
- restricted response questions / short-answer questions
- multiple choice questions
- question paper

Useful instruments for assessing practical skills (and attitudes)

- assignment
- case study
- role play
- practical exercise
- project

The collection of performance evidence should ideally be undertaken in conditions as close to the realities of the work place as possible. However practical reality dictates that evidence of practical performance in school based programmes can often only be collected through tests in school workshops and through simulated work activities. Students should normally know when they are being assessed and what is being judged.

If work placements with local businesses can be arranged for students, as much observational evidence as possible should be gathered by an assessor during the course of the placement. Observational evidence is particularly valuable, as it testifies to students' performance in the workplace in real working situations. These may be carried out by staff in the workplace or a customer whose judgement in relation to the assessment criteria can be relied upon.

In general when applying an instrument of assessment, assessors should be aware that there are certain conditions which need to be created at the time in order for the assessment to be valid and reliable – e.g. quiet environment; provision of reference books, calculators, tools, etc, - or restrictions on the use of these; requirements for work to be unaided; supervision. There are many different types of assessment conditions, but what they all have in common is that they must be applied consistently and effectively to all students if standards are to be maintained.

Ad 5. Checking assessment instruments

All assessment instruments should be subject to some form of checking and agreeing – e.g. within a branch or department – to ensure that they will generate the right kind of evidence and the right amount of evidence and that they can be used consistently by all the relevant assessors.

Ad 6. Planning assessment

Assessment should be planned to ensure that students have as much opportunities as possible to produce evidence that they can meet all the assessment criteria and knowledge requirements. The planning will include deciding

- what is to be assessed
- what methods are to be used
- when the assessment will happen
- how and when requirements for record keeping will be met

Students should be fully aware of the plans.

Ad 7. Generating and collecting evidence

Generating evidence for assessment will involve

- observing the student in the process of undertaking a real or simulated activity - this may give evidence of both practical skills and of knowledge (e.g. where observation is combined with on-the-spot questioning)

- examining the result of the student's work - this may provide evidence of the quality of the product and also of the quality of the process by which the work was carried out

- questioning the student directly/orally or indirectly/in writing - this may relate to the activities described in the learning outcome, or they could test the students' ability to work within the other contexts (transfer of skills).

Assessment methods should be designed to produce evidence for more than one performance (assessment) criterion wherever possible. This may relate to one outcome or a number of outcomes. This approach is clearly cost-effective and can be very practicable. For this kind of assessment to be successful, however, evidence must be clearly cross-referenced to outcomes and criteria.

Generating evidence is usually a continuing process, in which items of evidence are identified and collected as the learning progresses. Assessment in a vocational context always involves using a combination of different kinds and sources of evidence, covering knowledge, skills and attitudes, and assessors need to judge the best mix of knowledge and skill, and attitude evidence according to students' circumstances and the requirements of the occupational standards. Assessors should always check, e.g. by questioning, to ensure that evidence is authentic. If there is any doubt, students have to collect further evidence.

Ad 8. Making assessment judgements

The school providing the assessment is responsible for ensuring that all persons involved in assessing students for qualifications are competent – whether these are teachers or instructors or persons who are not their employees (e.g. social partner representatives involved in the assessment process).

Competent assessors must know the current requirements for the qualification(s) with which they work and the kinds of assessment instruments which are available to them.

The intention of vocational assessment is to provide as accurate a predictor as possible of the competence of the student and it is important, therefore, to ensure that the assessment methods or instruments selected provide the best available means of collecting the evidence required for achievement of the qualification.

In selecting the most appropriate assessment methods to use to assess students against the criteria of the module, teachers and managers must ensure that the assessment will be:

- **valid** – *i.e. it must measure what it is supposed to measure and produce sufficient evidence for a confident assessment decision to be made*

- **reliable** – *i.e. it must be applied consistently by different assessors and in different contexts*

- **non-discriminatory** – *i.e. all students must have access to fair assessment whatever their background*

- **practicable and cost effective** – *i.e. it must not be too onerous either for schools or for students and it should be geared to available resources, facilities and time*

Decisions about interpreting assessment evidence should be taken on a school basis and not left to individual assessors.

Where students are judged not to have produced the right evidence, or sufficient evidence, they can be re-assessed. Assessors will need to consider whether students have to re-take the whole assessment or only part of it. Decisions about the nature of the re-assessment will depend upon the type of assessment that has been undertaken and the purpose of the assessment.

Ad 9. Recording assessment decisions

Two key factors contribute to successful assessment recording:

- *Verifiability:* Once assessors have reached their decision, records are filed. Records need to be easily accessible and readable, with all relevant information clearly presented.

- *Consistency:* A consistent and coherent recording process will ensure that all national standards of recording are maintained.

Assessment Techniques and Instruments in secondary VET

Instruments for verbal and written (formative or summative) assessment of knowledge

The examination of students can be conducted verbally or in written format.

A. Verbal examination forms:

- Individual;
- Group discussions.

Verbal examination is performed through direct, personal contact between the teacher and student. In their immediate interaction, the teacher is able to direct the student's answer, ask further questions and in doing so determine what the student knows, and vice versa; it is expected from the student to present the facts autonomously and clearly, give arguments, explain and provide arguments. Verbal examination has an unquestionable advantage, due to the fact that the student's knowledge is fully expressed, but its measuring value is very low. There is a series of factors that diminish the objectivity of the assessment.

The weaknesses of verbal examination are the following:

- A small number of students can be examined
- A fair relationship with all students is hindered;

- There may be a significant difference between question samples;
- Teachers' subjectivity leads to wrong estimation of student's knowledge.

Despite the above mentioned weaknesses verbal examination is still necessary and constitutes an integral part of the complex assessment and validation process.

Individual verbal examination is a form of knowledge testing, highly present in our educational system. It can be performed formally during a certain period of time by a single or several teachers or at intervals during one module/theme. This kind of examination underlines the student's ability to formulate thoughts, provide answers, opinions, views and information. Through the implementation of this technique the teacher is able to determine the student's capacities or weaknesses in his work activities. If the teacher is not objective, it will lead to unfair assessment of the student's knowledge.

Group discussions – it is possible to organise oral group examinations. They can be held in the form of a discussion where personal contribution is of great significance. They can be organised in a rather formal manner so that a student should start with an answer, another would comment on it, and the others are allowed to comment in the end. Through this approach the same chance is provided for all students; naturally, the same questions are not asked.

Question types

There are two basic types of questions that an assessor can ask. These are:

- closed questions
- open-ended questions.

Closed questions

Closed questions require a specific response such as the name of an item, a yes/no answer, a date or title. For example:

- What colour is used to signify a positive in electrical wiring?
- When was this product last used?
- What are the four types of fuel used in this workplace?

Closed questions are used to find out if the student has specific factual information that is required in the module. They are used in situations where only one answer is correct. When used on their own, closed questions have limited application as they do not easily provide information on all of the dimensions of competency or the application of underpinning knowledge. Closed questions need to be asked in conjunction with open-ended questions to obtain sufficient information for the assessor to determine the student's competence.

Open-ended questions

Open-ended questions are used when a more detailed response from the student is required. They often involve problem solving, interpretation and the application of knowledge and skill to new situations. Open-ended questions can be used to:

- extend on what has been observed in similar but different situations or in using other equipment or procedures or

- probe the student's underpinning knowledge and understanding - that is, the what, when, where, why and how of what the student is doing.

Some examples of these types of questions are provided below.

- What would you do if …? (a similar but different situation)
- What if you were using … instead of …? (alternative equipment/procedures etc)

Hints for effective questioning

The assessor should:

- keep questions short and focused on one key concept
- use open-ended questions such as 'what if…?' and 'why…?', rather than closed questions
- keep questions clear and straightforward and ask one at a time
- link the questions to work experience
- use words that the student will understand

B. Written examination forms:

- Tests
- Written assignments
- Essays on proposed subjects;

During written examinations students are to work independently, but without immediate interaction with a teacher. All the students have the same tasks, hence they are in the same position; in that way comparison and assessment on an equal basis is ensured. The assessor has more time for assessment of the written tests/assignments and this activity does not have to be performed immediately upon the completion of the examination, but after careful reading and sorting out the tests/assignments into groups. These activities are aimed at eliminating the impact of non-systematic subjective factors on

the school grade. Written examination has a large number of strengths, but several weaknesses are present as well.

Written questions

Written questions can be useful for assessing underpinning knowledge and for supplementing evidence gathered through real time/real work and structured activities. Written questions can be asked under test situations or as part of a structured activity.

Written questions:

- are a valuable tool where knowledge forms a key element of competent performance
- can be cost and time effective, particularly when:
    used with large groups
    completed in remote locations or away from the workplace
    used to standardise the assessment process.

However, there are challenges the assessor needs to consider when deciding to use written questions. The use of written questions may:

- be unfair as it relies on a level of literacy and comprehension which may be beyond the level of the competency stated in the module (such as writing and language skills necessary to construct coherent responses)
- measure knowledge but cannot confirm the ability to apply that knowledge

Question types

There are two general types of question formats used for written questions. These are:

- selected-response questions where the student chooses the correct answer, for example:
    - multiple choice
    - true/false
    - matching questions
- constructed-response questions where the student provides the answer, for example:
    - completion questions/fill in the gaps
    - short answer questions
    - extended response/short report questions.

Selected-response questions

Multiple choice

Multiple choice questions require the student to select a correct response from a number of given responses. These questions include a 'stem' and a number of possible 'options'. For example:

The best item to use when cleaning an overhead projector lens is:

- warm soapy water
- warm water only
- a solvent
- a dry tissue.

Advantages:

Multiple choice questions:

- are very effective for testing knowledge and the application of knowledge
- are versatile and can be used in a number of situations
- require a minimum of writing for the student
- reduce the opportunity for guessing
- can cover a broad range of information and knowledge.

Limitations:

Multiple choice questions:

- are hard to construct (difficult to think up realistic options).

Hints for developing multiple choice questions

The assessor should:

- present a single, clearly formulated problem
- write the stem in clear, easy to use language
- make sure the distracters/options are plausible and grammatically correct
- present alternatives in a logical manner on separate lines
- place correct answers at random
- make each question independent of other questions
- use more than three alternatives (four is best).

The following are examples of poorly constructed multiple choice questions.

When spraying chemicals what do you have to wear?

    a)   gloves and goggles
    b)   boots and goggles
    c)   mask and helmet
    d)   mask and goggles
    e)   all of the above.

As the same items occur in more than one option the student is able to eliminate plausible options and is left with the answer 'e' all of the above.

Poor: Water will be a liquid between and degrees centigrade.

    a) 0, 100
    b) -50; 0
    c) 100; 150

(Note that a and b both include 0 and a and c both include 100 -- they overlap.)

Better: Water will be a liquid between ____and ____degrees centigrade.

a) 1; 99

    b) -50; 0
    c) 100; 150
    (Note that there is now no overlap.)

True/false questions

True/false questions ask the student to confirm or deny a statement by circling true or false. They are good for testing factual knowledge, for example*:*

> A well adjusted type AAA engine has an engine idle speed of between 700 and 900 RPMs.
> True or False.

This is a factual statement and is either right or wrong (true or false). The following statement is debatable and based on judgement and is therefore a poor true/false question.

Most economists agree that databases are the best way to present reports.

> True or False.

Advantages

True/false questions:

- test a large amount of material in a short time and are easy to assess.

Limitations

True/false questions:

- give the student a 50-50 chance of getting the right answer
- test facts, not the application of facts
- are not always easy to write (poorly phrased questions can confuse the student)
- may only test superficially

Hints for developing true/false questions

The assessor should:

- use only one central idea in each item
- use exact language.

The assessor should not:

- use double negatives
- use long/complex sentences
- use overly specific terms such as never, only, all, none, always, might
- ask about unimportant or trivial information.

Matching questions

Matching questions ask the student to match one set of information with corresponding information in another set of information. For example:

Column A contains a list of electrical units of measurement. For each unit of measurement select the correct definition from Column B.

Column A	Column B
1. Ampere	a. unit of electromotive force
2. Watt	b. base unit of electrical current
3. Volt	c. unit of power

Matching questions have the same limitations and benefits of multiple choice questions. They are often used to match terms with definitions, phrases with other phrases, causes with effects, parts with larger units and problems with solutions.

Advantages:

Matching questions:

- are valuable in content areas where there are a lot of facts
- can cover a lot of information in one question
- are good for discriminating between items.

Limitations:

Matching questions:

- need instructions carefully and clearly worded
- can be difficult to construct.

How to develop matching questions

The assessor should:

- give clear directions for matching
- make all options to be matched plausible and relevant
- put responses in a logical order, for example alphabetical or chronological
- include more than the required number of options to be matched to reduce the incidence of guessing.

Constructed response questions

Constructed response questions are suited to situations where the student has to describe, explain, analyse or evaluate.

Completion question/fill the gaps

Completion questions focus on one or two word answers. They are useful for the recall of information, without the cues provided in multiple choices or matching questions. For example:

_____ is the name of a small food portion of one or two bites, which is served at the commencement of a meal.

Advantages:

Completion questions:

- can cover a lot of factual information
- can be used pictorially (to label diagrams/pictures).

Limitations:

Completion questions:

- can be difficult to construct
- may test reading comprehension rather than underpinning knowledge.

Hints for developing completion question/fill the gaps

Do not just copy a sentence of text and leave a key word out.
The statement should pose a specific problem so that the answer is specific and factual.

Short answer questions

Short answer questions concentrate on a single issue or concept and require the student to write a brief response to the question. These questions usually start with 'who', 'what', 'where', 'when' and 'how'. For example:

What safety equipment would you wear if you were spraying chemicals?

Advantages:

Short answer questions:

- are easy to construct
- minimise the opportunity for guessing
- assess that the student can recall the correct information rather than just recognise it.

Limitations:

Short answer questions:

- can emphasise the recalling rather than the application of information
- are harder to correct than selected response questions and require the assessor to develop a list of acceptable answers

Hints for developing short answer questions

The assessor should:

- use direct questions
- phrase the question so that the student is given guidance to the scope of the required response
- use language familiar to the student
- leave sufficient space for writing answers.

<u>Extended response/short report questions</u>

Extended response/short report questions give the student an opportunity to communicate ideas in writing and to demonstrate the extent of the student's knowledge of a topic or issue. These questions are useful for assessing cognitive skills such as comparison, analysis and synthesis. For example:

> Write a short report (approximately 1000 words) to describe different drying wood principles. List the principles, explain each and find an example of how it is applied in a company that your school has contact to.

This type of question should relate directly to the learning outcome.

Advantages:

Extended response questions:

- assess the application of knowledge
- are easy to design
- allow the student to be creative and to distinguish different levels of performance.

Limitations:

Extended response questions:

- can be hard to assess (a marking guide is usually needed)
- can be irrelevant to the workplace

- can be a test of skills other than those directly linked to the learning outcome (for example research, layout and writing).

Hints for developing extended response/short report questions

The assessor should:

- provide reasonable time limits for writing and thinking
- give the student a tangible task to achieve (such as describe, compare, evaluate)
- give clear instructions with an example of what is expected
- develop a checklist of acceptable responses/criteria to use when assessing responses.

Assessing written questions

An assessment guide, containing acceptable responses to questions, should be developed for all written questions given to the student, whether the questions are set under test conditions or not. It is good practice to write the expected response(s) to a question as the question is being written. Developing responses to questions helps to ensure that the answers are assessed objectively and consistently, increasing the reliability and validity of the assessment.

Instruments for assessment of practical skills

A holistic assessment (combination of skills, knowledge and attitudes)

The aim of outcome-based curricula is to provide the students with vocational knowledge and skills but also to develop the students' abilities of take initiative, communicate, make decision and solve problems which are closely related to real work situations. Consequently, the assessment instruments have to ensure that students are assessed to perform a whole work activity rather than passing separate knowledge and skill tests.

For this purpose applied learning methods are based on 'problems' from real life in a work-related context, leading to professional competencies.
In conducting a holistic assessment (assessment of whole work activities) the assessor develops an image or picture of how a competent worker would perform the activity.

Step 1: Selection of one or more learning outcomes that can create the basis for a realistic work activity (from the module that has to be assessed)

Step 2: Answers to the following questions will have to be found as a preparation:

1. **What does the work activity involve?**

2. **What skills are needed to perform the work activity?**

3. **What level of skill is needed?**

4. **What are the conditions under which this work activity may be conducted?**

5. **What knowledge and skills are needed to perform the work activity?**

6. **What generic work skills are needed?**

7. **What resources are required to gather the evidence?**

The typical assessment instruments for assessing practical skills in a holistic way are:

- Assignments

- Case study

- Role play

- Practical exercises

- Project

<u>Assignments</u>

An assignment is a problem-solving task with clear guidelines, structure and length. An assignment is more structured and less open-ended than a project. Students are given little choice of methodology or content.

 A well designed assignment will have the following characteristics:

CLEAR TASKS. The instruction to the students should be clearly expressed so that there can be no doubt of what is required.

SKILLS IDENTIFIED. The students should be made aware of EXACTLY what is required.

LEVEL APPROPRIATE. It must be remembered that when assignments are designed to be used within a three or four year programme with increasing difficulty in each year much care should be taken to

ensure that the assignment fits within the three/four year programme and takes consideration of what may have gone before and what may come after.

POINTS FOR ASSESSMENT IDENTIFIED. It is imperative that the student knows which parts of the programme are being assessed as it will be necessary for the student to check the criteria which have to be met.

ASSESSMENT METHODS SPECIFIED. It is equally important that the assessment methodology be specified so that the student provides the information required in the appropriate manner e.g. a short report might be presented, or an oral presentation.

CRITERIA CLEARLY STATED. This is linked with the Points for Assessment Identified (see above)

CLEAR INSTRUCTIONS GIVEN. The assignment must have a TITLE and the instructions to the student must be explicit and include timescale.

LINKS WITH OTHER MODULES. Although an assignment will normally have a particular relationship with one module, the links with other modules should also be pointed out for students to consider.

REALISTIC AND RELEVANT. As far as possible the assignment should reflect the type of situation to be found in any company on any day of the year. It will probably be necessary for teachers to imaginatively construct assignments from their own experience and knowledge. The realism should make the subject live and students quickly see how useful it is to have had an opportunity to deal with `real world` decisions.

PLACE IN PROGRAMME. It is important for the student to see how each individual assignment and assessment fits into the programme. Failure to identify why a particular piece of work is required from a student is very de-motivating and, in business, would be considered bad management!

RESOURCES IDENTIFIED/AVAILABLE. There is very little point in setting an assignment for which the student does not have any information available. Sometimes, in addition to books, libraries and the internet there are significant resources available locally either in a company or with a private person. In terms of resource shortage it is important to try to obtain access to all available material. It should be remembered that a great deal of free material can also be obtained e.g. magazines and most daily newspapers have a business section which can be kept and filed for future use. In most cases it is an important part of education for students to have to search and research material.

THEMES IDENTIFIED. Where the assignment is designed as a `cross modular assignment` the theme which is being addressed should be clearly stated.

REASONABLY TIMETABLED. As an assignment may require the student to undertake research with local companies, or by post/internet, with organisations, it is reasonable to set a date for completion which reflects the time required to complete it. In some cases an assignment can be of a group work nature where the group may be responsible for planning and implementing an activity. In this case the assignment may last for several weeks. In all cases a clear indication of the date for completion must be included - generally immediately under the Assignment Title.

ASSESSMENT. The criteria which are being assessed will have been identified through the Criteria (see above) but the process of assessment and the recording of this, together with arrangements for handing back the work to the student with proper feedback, must be completed within a stated period.

EMPLOYER INVOLVEMENT IN DESIGN/ DELIVERY/ ASSESSMENT/ EVALUATION. This can be an extremely valuable way to ensure that an assignment is relevant. It is also an opportunity for students to be made aware of the real world situation in business.

Assignment writing may appear to be a very difficult activity, but if these rules are implemented it soon becomes a rewarding and satisfying mode of implementing the curricula.

An example of how an assignment from IT/electronics could look like

Title: Installation of Server-based network in a new company.

This assignment covers 'technical management module 2'. The assignment will enable you to cover the requirements of the Learning Outcome 1-5:
The student is able to

- Explain the procedure, the steps and the methodology of technical project planning.
- Read, study and understand the terms.
- Conduct the planning of a technical project.
- Carry out the technical work individually in group or team work.
- Evaluate the product of his work.

The assignment: You are employed as technician in a small IT/electronics company in Serbia. You are given the memo below and asked to produce the required quotation. You can choose your own way to present the quotation and include any other information that you may think would satisfy the company.

To: The technician
From: The sales department
Re : Instalment of server-based network

'Safe' is a new insurance company in Serbia with 20 employees. 'Safe' has just moved into a new office building and needs their own server to be installed in order to ensure that all employees have access to the same documents and are able to communicate internally. We have promised to provide the quotation within a week. We need the following:

1. A plan for the work:

    - how many technicians and other staff will have to be allocated to the work.

    - how many working hours are needed to carry out the installation

2. A list of materials needed to carry out the installation

3. A plan for short training of the insurance company employees in how to apply and maintain the network

Resources: Attached you will find a sketch of the office with all the measures. It is recommended that you contact IT/electronics companies to collect information about how they usually make quotations

As the company "Safe" is invented by the teacher, it will be necessary that the teacher creates a sketch of the office with the measurements of the floorage.

Another example from the Plumbing profile

Title: Replacement of cupper pipes with plastic pipes in a bath room.
This assignment covers 'Installation of the inner grid of water supply with plastic pipes". The assignment will enable you to cover the requirements of the Learning Outcome 1-2:

The student is able to:
    - prepare the installation of plastic pipes for water supply grid.
    - install water supply grid with plastic pipes
The assignment: You are employed as plumber in a new established plumbing company in Belgrade. A costumer has contacted the company because the cupper pipes are old and leaking in his bathroom. The costumer wants the cupper pipes to be replaced by plastic pipes. You are required to go to the costumer's apartment next morning to do the work.

Before going to the apartment, please study carefully the sketch of the bathroom with the measures inserted.

1. task: Give a list of the tools and materials that you need to bring to the apartment in order to make the replacement.
2. task: Give a short description of how you have planned to do the work
3. task: replace the cupper pipes with the plastic pipes

The assessment of the assignment will be carried out by your teacher, following a checklist.

Case study

By using Case Study the students are given a description of an event of a real-life or simulated nature, as a basis for an assessment of such skills as decision-making, planning or verifying.

An example of a Case Study from a module on 'health and safety' within hospitality

Learning outcomes: the student is able to:

- Follow workplace procedures for health, safety and security
- Deal with emergency situations
- Provide feedback on health, safety and security

S c e n a r i o/Case Study

You are working in a busy restaurant at an alpine ski resort. Customers are happy and boisterous after a good day on the slopes. Bags of ski gear have been lodged under tables where their owners are eating. As a waiter passes carrying a tray loaded with plates of hot soup, he trips over one of the bags, spilling the tray of hot soup over a neighbouring table of unsuspecting customers, causing pain and havoc. The waiter injures himself badly in the fall and may have broken his ankle.

Analyse the scenario and answer the following questions.

1. What hazards led to the emergency arising?
_____
_____

2. What immediate action(s) should be taken once the emergency has occurred?
_____
_____

3. Who is liable for any damages resulting from the incident?
_____
_____

4. What records should be kept of the incident?

_____

_____

5. To whom should the incident be reported formally?

_____

_____

Role play

This is an open-ended exercise which provides opportunities to display behavioural or inter-personal skills in a simulated context.

An example of Role Play from a module on "Promote products and services to costumers" within hospitality

Learning outcomes: the student is able to:

- Develop and maintain product/service
- Encourage costumers to use and buy products and services

Scenario 1

(Telephone)

As front office operator in a hotel, you receive a telephone call from a potential customer inquiring about room availability next weekend. The customer is not familiar with the hotel and has not visited your country before. You use the opportunity to

promote the hotel's products and services.

The assessor can use this Assessment checklist:

Item	Yes	No
Customer details clarified		
Effective telephone technique employed		
Questioning skills demonstrated		
Customer requirements clarified		
Product knowledge demonstrated		
Products and services promoted in terms of: • prices • location • room types • package deals etc.		
Customer requirements confirmed		
Negotiations successfully completed		

Scenario 2

(Face to face)

You are a waiter in a busy restaurant. A customer at your table seeks information. You

take the opportunity to promote the restaurant's products and services.

The assessor may use the following Assessment checklist

Item	Yes	No
Customer details clarified		
Appropriate interpersonal skills employed		
Questioning skills demonstrated		
Customer requirements clarified		
Product knowledge demonstrated		
Products and services promoted in terms of: • menu items/specials • wine selection • time commitment for certain items (eg flambé)		
'Extras' and 'add-ons' promoted		
Customer requirements confirmed		
Sales successfully completed		
Customer feedback sought on products and services		

Practical exercises

This requires students to display a range of practical skills. The assessment may be based on the end result of the activity (the product) or the carrying-out of the activity (the process) or a combination of both.

An example of a practical exercise from module "Wood working with handheld tools: cutting instruments – saw"

Learning outcomes: the student is able to:

- perform preparatory operations for using handheld cutting instruments - saw
- saw wooden materials with sawing instruments

Practical task:

Produce a simple wooden frame according to the drawing on the black board (20 cm x 30 cm).

Materials to be used: - strips of wood, marked for this purpose, standing in the

                                  room next to our workshop

35

- select among the saws on the wall the most suitable for the work

- share a work bench with one of your classmates

Timing: You have 30 minutes to produce the frame

Assessment: You will be assessed by your teacher according to a checklist. The assessment will comprise the quality of the work, your work process, your timing, waste of materials

Project

This is a substantial piece of work in which students are required to carry out research, planning, problem solving and verifying over an extended period of time. Some projects include a practical component. Projects are more comprehensive and open-ended than assignments and may be tackled individually or by a group of students. Many projects will involve students working without close supervision, but in the interests of authenticity, the levels of supervision required should be stated.

An example of a project: virtual firm

The objective of practice firms/virtual firms/mini companies run by the students is that of developing on a small scale a real economy activity, or of simulating in a realistic way the operations of real firms. Though operating in a protected environment and for a pedagogical purpose, the simulation has to be sufficiently realistic.

Mini-companies are defined as a pedagogical tool based on practical experience by means of running a simulated company project, with the aim of replicating the operations and challenges of a real company. The approach is to set up a fictitious company by providing students with the physical space equipped with the necessary instruments from where they will run the operations of the company. Like a real company, the fictitious company is organised in departments (production, sales, accounts, etc.) and the students take up all the roles.

These activities allow students to acquire basic company skills, but also to develop personal qualities and transversal skills. In fact, through participation in mini-companies students display their creativity, develop enthusiasm and self-confidence, learn how to work in a team, become more willing to take responsibility and to use their initiative.

Running of a simulated mini-company will have a cross modular dimension.

The role of the teachers when running the mini-companies is that of the facilitators. They will not impose their ideas on the students, but rather give them support and advice. Students should be free to develop their own ideas and be fully responsible for the operations of the mini-company. The teacher is a tutor who intervenes only to a minimum degree in the decision-making process of the group. This type of methodology is about learning through direct experience: students are likely to make mistakes, and to see the consequences of their mistakes. Some of the tasks typically performed by teachers in facilitating

a mini-company include: assisting the students in defining the subject; guiding the group through the starting phase; acting as conciliator in the event of problems inside the group, etc.

An example of a concrete project

This example can be considered a project if practical work can be established, otherwise it must be seen as an assignment.
This project/assignment combines 'Personal Computers (module 2)' and 'Personal Computers (module 1). The assignment will enable you to cover the requirements of the module "Personal Computers (module 2)" Learning Outcomes 1-12.

The student is able to
- provide system advice to customers
- open a computer housing
- install a motherboard
- install a CPU
- install memory modules
- prepare motherboard for use
- install expansion boards
- install hard disk drives and fan modules
- install storage devices
- install power supply and power supply fan
- install modems and LAN cards
- set-up the computer for operation

Title: Mounting of a computer lab in a vocational secondary school

The assignment: As your class has learned how to install computers, software and networks the Ministry of Education has decided to give the task to your class as a contribution to the educational system. The Ministry believes that by asking your class to carry out this task, they can save money and you can learn at the same time. You will have to divide the tasks between you. You can choose your own way to present the plan and include any other information that you may think would satisfy MoE.

To: The IT/electronics class

From: The VET division in MoE

Re : Mounting of a computer lab

MoE has received financial support for the purchase of 10 new computers to be installed in one of your neighbouring vocational secondary schools. The computers are going to be used for "European Computer Driver Licence" courses

MoE asks you to present a plan for the mounting within 2 weeks. MoE needs the following:

1.   A specification of the computers:

   •   Type, capacity, and speed, - needed for the courses

2.   A specification of the network, and additional equipment and materials

3.   A sketch of the class room and where to place the computers, printers, cables etc.

4.   A time schedule for the mounting of computers

5.   A plan for the manning regarding the mounting of the computers

   ▪   Who is doing what and when
   ▪   how many working hours are needed

Resources It is recommended that you meet with the director and IT teachers of the vocational secondary school to discuss their wishes and plans.

Objective and subjective assessment instruments

Assessment instruments are in general selected according to measure the competencies expected to be the result of the learning.

However, some instruments are **objective** others **subjective**

For **objective** instruments assessors do not need to use either judgement or opinion to determine whether a student's answer is right or wrong. Students' answer can be compared to a simple scoring or answer key. If the key indicates that the answer to a true-false test should be "true", for example, a student's answer either does or does not agree. The following assessment types are considered to be objective:

- Multiple-choice
- Matching
- Completion
- True-false

Other kinds of assessment types are called **subjective** because they require the use of judgement and interpretation in scoring answers. Assessors must resolve a number of questions in scoring subjective items: Is a given answer right answer? Is it partially right? If a question is worth 20 points, how many points should be awarded a partially right answer? The following types are considered to be subjective:

- Essay
- Oral test
- Problem-solving

Knowledge assessment

In simple terms there are three main types of knowledge:

Type 1 -   factual recall -   (often referred to as `what')

Type 2 -   comprehension -   (often referred to as `why')

Type 3 -   application -   (often referred to as `how')

Type 1 knowledge includes giving examples and definitions. Questions involve asking candidates to calculate, give examples, classify. Typical verbs used in these questions include e.g. 'identify' and 'describe'.

Type 2 knowledge includes explaining the consequences of actions and the relationship between things. Questions involve comparing processes, estimating the results of actions etc. Typical verbs used in these questions include e.g. 'summarise', 'classify', and 'explain'.

Type 3 knowledge includes providing the purpose of something or asking to apply a principle. Questions involve asking to describe processes or sequence of things or giving reasons for things. Typical verbs used in these questions include e.g. 'illustrate' and 'determine'.

<table>
<thead>
<tr><th colspan="2" rowspan="2"></th><th colspan="6">Cognitive domain (from Blooms taxonomy)</th></tr>
<tr><th>Knowledge
(recall or recognise factual information</th><th>Comprehension
(interpret, translate, summarise, or paraphrase given information</th><th>Application
(use learned information in new contexts)</th><th>Analysis
(break down information into parts to identify relationship and organisation</th><th>Synthesis
(put parts together to form new whole)</th><th>Evaluation
(judge the value of material for a given purpose)</th></tr>
</thead>
<tbody>
<tr><td rowspan="10" style="writing-mode:vertical">O B J E C T I V E</td><td>True-false</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td></tr>
<tr><td>Matching</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td></tr>
<tr><td>Multiple-choice</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td></tr>
<tr><td>Completion</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="4">Short Essay (restricted response)</td><td></td><td>x</td><td>x</td><td>x</td><td></td><td></td></tr>
<tr><td>Essay (extended response</td><td></td><td></td><td></td><td></td><td>x</td><td>x</td></tr>
</tbody>
</table>

Types of Items (row label spanning OBJECTIVE / SUBJECTIVE)

Skills Assessment

The **assessment instruments** used for performance testing include demonstration, simulation, role-play, case-studies, assignments, and projects. Performance tests, to be carried out, usually cover a job task or clusters of tasks. They also delineate the standards to be met (i.e. process/product criteria) and the level of performance to be achieved. The focus of a performance test is on psychomotor performance; the learner must perform the job task(s) according to occupational standards. The cognitive (knowledge) and affective (attitude) domains of learning are not neglected in performance testing however.

Cognition may be measured explicitly; for example, learners may be asked to respond to key knowledge questions before being allowed to move to the performance test. Cognition is also measured implicitly; in performing, the learner applying knowledge gained. Likewise, some of the criteria specified may be related to the affective domain. Performing a task frequently involves far more than simply performing the right steps in the right sequence. When criteria measure whether the task was performed carefully, neatly, and safely, the affective domain is involved.

Notice that the term, criteria, plays a major role in this discussion. Each learner is measured against specific established criteria.

The performance criteria that have to be developed for each learning outcome and the checklist are all tools to ensure the assessment to be as **objective** as possible.

Final Examination and Matura Examination in Vocational Education

III Section

The Final Examination in three year vocational education

The purpose of the final examination in VET is to assess the vocational competencies that the students have gained upon completion of education in the given profile

The students take final examination in accordance with the current legal regulations and other legal acts that relate to this area.

Organisation of final examination for the 3 year education

Within the frame of final examination for the vocational profiles a student is supposed to conduct two or 3 working tasks regarding testing of competencies, defined by the curricula.

The place where the final examination in VET will be taken (the school or working places and conditions which the students encountered during their education) depends on the kinds of working tasks for the final examination in each educational profile.

The conduction of final examination can take maximum 3 days for students.

The Examination Committee provides assessment of gained competencies. The Committee implies at least 3 members and 3 deputies. The Committee members are:

- 2 teachers of vocational subjects according to the educational profile to be assessed; one of them is the Committee chairman as well, and
- 1 representative of employers – craftsman in the required field

The Institute for the Improvement of Education and the VET Centre in cooperation with the Union of Employers, business associations and the Serbian Chamber of Commerce, propose the representative of employers for the member of the examination committee   The VET Centre maintains the data base regarding Examination Committee members.

The school appoints **the mentor** to the student from teachers of vocational subjects who was teaching him/her during the education. The mentor is supposed to assist the student in preparation of the theoretical and practical part for taking the final examination. The mentor is allowed to participate in the final examination, but should not be the members of the examination committee.

Working tasks

The list of working tasks by which the competencies are tested are prepared by the VET Centre. Each task is standardised, based on the assessment criteria/standards.

The suitable number of combinations is prepared by combining the standardised   working tasks. The number must be 10% higher than the number of students of school who are taking the final examination.

 VET Centre delivers the list of the working tasks as well as the list of combinations to the schools.

The student can take the final exam if he / she has successfully completed the three – year education envisaged by the pilot curriculum for the given profile. The pilot curriculum presumes 3 weeks for preparation and taking the final examination. Within these 3 weeks the school arranges consultations as well as additional requirements

(time, space, equipment) for additional preparation of students for accomplishment of all foreseen working tasks.

Assessment in final examination

The final examination is conducted through 2 or 3 working tasks depending on educational profile. The success of final examination depends on total score which student has gained accomplishing all working tasks.

Each working task can be assessed with maximum of 100 scores.

In the table is presented particularly the structure of working task as well as of complete final examination and maximum possible score of particular element of the working task.

ELEMENTS OF WORKING TASK		score
1.	Preparation for working task performance (theoretical part)	10
2.	Tidiness during the working out	20
3.	Working task conduction	70
	3.1. Technological procedure of conduction (order of operations)	22
	3.2. Expected time for conduction	20
	3.3. Quality parameters	28
TOTAL:		100

Elements of working tasks

1. Preparation for working task performance

Upon the selection of working tasks for final examination the student is preparing theoretical part of final examination in written form which has to contain only basic data about:
• Machines, devices and necessary equipment for working task provision
• Raw and other materials necessary for working task provision
• Prescription (if the working task is related to preparation of defined product) including raw materials estimation needed for conducting of ordered quantities of final product
• Procedure description of working task development

This short written part of final examination presents only basic information about working task and therefore brings to student the maximum of 10 scores. Student is preparing it in school during the consultations using the school books or learning materials as well as with teacher/instructor assistance on the working place where practical part of learning has been provided. This text student submits in 3 samples to Committee chairman 24 hours before the practical conducting of final examination and present component part of report on final examination.

2. Tidiness during the working out

One of the main curriculum requirements of all pilot profiles is to develop awareness of students for obligatory application of hygienic norms, safety measures on work, safety measures of fire as well as of environment protection.

In accordance to that the Committee during the examination evaluate the student taking into consideration the following:

- **Work preparation** (regulated clothes and shoes, personal hygiene on working place);
- **Tidiness of working place**-preparation (prepared tools, devices, dishes…and in which condition the student leaves working place upon finalisation of working task)
- **Application of hygienic norms** during the work
- **Application of safety measures on work** and
- **Following the valid regulations of environment protection** in that working sector

The Examination Committee evaluates the application of all these regulations in accordance to the working task. Following all these norms brings to student 20 scores.

3. Working task conduction
In the total score the working task conduction brings the most scores (**70**) which are structured on the following way:

3.1. Technological procedure of conduction (order of operations)

Each working task has its own order of working operations (according to the assessment criteria) . The Committee monitors and evaluates all phases during the working task conduction. Well organisation and proper work bring to student the maximum of **22 scores**.

3.2. Expected time for conduction

It is necessary to define the most suitable time needed for working task conduction. If student conducts the working task within that time frame he/she gets the maximum of **20 scores**. In the case that is needed more time, the numbers of scores are proportionally decreasing.

3.3. Quality parameters

The quality parameters are defined for each working task (looks, flexibility, quality of section, if the device is in order after student intervention, etc.) The Committee evaluates each of the

defined parameters. In this part of final examination a student can gain the maximum of **28 scores**.

Each member of the Committee fills the enclosed form of report on evaluation with marks. The enclosed form of assessment report implies required standards for each working task. The VET Centre prepares these enclosed evaluation reports and submits to all schools which are conducting pilot programme.

According to the assessment carried out by each committee member, the examination committee determines the average score for each working task and then this score is written in the final report form for the assessment of working tasks in the final examination.

The total score which a student gain on final examination is equal to the sum of average gained scores on all working tasks.

The scores are reflecting the success. The evaluation scale is divided in 5 levels.

THE TOTAL SCORE			THE SUCCES
1 working task	2 working tasks	3 working tasks	
Up to 50	Up to 100	Up 150	Insufficient (1)
51-63	101-126	151-189	Sufficient (2)
64-75	127-150	190-225	Good (3)
76-87	151-174	226-260	Very good (4)
88-100	175-200	261-300	Excellent (5)

The level of student performance is presented with following expression as the mark: "the student achieved _____ (level of success)".

DIPLOMA

"The student who has passed the final exam in VET can get the Diploma of Secondary Education.

Besides the Diploma, the school also issues the Certificate stating that the student passed the exams envisaged by the curriculum for the given pilot profile. The Certificate contains the data about:

- the school which issued the Certificate
- the pilot curriculum for the given profile
- the outcomes of vocational education that were achieved
- the average score achieved during the education and the average score achieved during the final exam.

The Vocational Matura (Final Exam in four year vocational education)

The purpose of vocational matura is to determine whether the student (upon the successful completion of the four – year education) has acquired the knowledge, skills and key professional competencies defined by the curriculum for the pilot profile.

The vocational matura is divided into 3 parts

- Serbian language and literature examination, that is, the language of the ethnic minority (hereinafter "the mother tongue")
- Theoretical part of vocational matura
- Practical part of vocational matura

 The student takes vocational matura exam in accordance with the Law.

Language and literature examination

- The examination is a written examination.
- One of four offered topics should be selected
- These subjects have been given by Examination School Board, proposed by native language teachers (Board) from the list of topics published in the Manual/Guide
- Two topics are free topics, two topics are from literature
- During examination, only one student is sitting in each school bench
- During examination, one teacher is on call who is not a member of native language teachers (Board)
- The written examination lasts for 3 hours
- The teacher on call writes the topics on the black board and from that moment on the time is measured
- Examination Committee consists of 3 native language teachers
- Each written assignment shall be checked by all 3 members of the Committee and a collective mark shall be given.

Theoretical part of vocational matura

- The aim of this part of vocational matura is to assess the professional theoretical knowledge necessary for doing the jobs and tasks the student was trained for during his /her education. This knowledge is acquired through the subjects determined by the programme of vocational matura.

- In this written exam students do the test which assesses their professional knowledge; it consists of 50 questions, and the total number of points that the student can get is 100. The points are then turned into the level of success. The five – level scale shows how successful the student was.

Total number of points scored on the test	Success
Up to 50	Insufficient (1)
51 – 63	Sufficient (2)
64 – 75	Good (3)
76 – 87	Very good (4)
88 - 100	Excellent (5)

- The VET Centre prepares the test by previously taking into consideration the collection of tasks for vocational matura, and sends it in an e - form 24 hours before the exam starts to the schools in which vocational matura will take place. The questions in the collection of tasks are divided into sections that cover particular areas.
- The principal of the school is responsible for the security of the tests.
- Taking the exam lasts for 2 hours under the supervision of two teachers of general subjects.
- The tests are assessed by the examination committee that consists of three teachers of vocational subjects. Assessing is done by the help of the key submitted by the VET Centre.
- The complete answers are the only correct answers.
- The student has the right to make the complaint at the latest 24 hours after the test results were put on the school notice board,
- The test is the integral part of the records on taking vocational matura.

Practical part of vocational matura

The purpose of the practical part of vocational matura is the assessment of **main vocational competencies** envisaged by the curriculum for the given pilot profile.
The practical part of vocational matura is carried out in schools or working places or under the conditions for which the student was trained during his/her education.
The examination committee gives the mark for the acquired competencies envisaged by the curriculum.

The committee consists of three members and three deputy members who are appointed by the school principal. The committee consists of:

- two teachers of vocational subjects for the given profile, one of whom is the chairman of the committee and
- representative of the employers –the expert in the given area who is proposed by the Union of Employers of Serbia in cooperation with the corresponding (appropriate) business associations, the Chamber of Commerce of Serbia and the VET Centre. The VET Centre is responsible for (maintains) the data base of the members of examination committees.

During the practical part of vocational matura the student performs two or three working tasks. The number of the working tasks corresponds to the number of the key professional competencies that were previously defined, and each of the competencies is assessed by one working task.

The appropriate number of combinations of the working tasks for the practical part of vocational matura is made out of the standardised working tasks. The number of combinations must be 10% higher than the number of students who take vocational matura exam in one school.

The student has the right to draw the combination of the working tasks without the right to replace it with some other combination.

The following elements are taken into account while assessing each working task:

1. preparation for performing the working task (the written text);
2. tidiness during the work ;
3. conduction of the practical work:
4. the order of operations, that is, the technological process of conduction
5. the expected time for the completion of the task
6. quality parameters.

Each working task may be awarded maximum 100 points. The success achieved at the practical part of vocational matura depends on the total number of points the student scored while performing all working tasks envisaged by the curriculum.

Each member of the examination committee fills in the assessment form by giving his / her marks. This form consists of the standards for the given working task.

Each committee member first gives individual marks; then the committee calculates the average score for each working task and this score is written in the final assessment form for the working tasks at the practical part of vocational matura, which is the integral part of the records on taking vocational matura.

The total number of points that the student scores at the practical part of vocational matura equals the sum of the points scored on all working tasks. The total number of points is turned into the level of success. The five – level scale shows the success.

The total number of points		Success
2 working tasks	3 working tasks	
Up to 100	Up to 150	Insufficient (1)
101 – 126	151 – 189	Sufficient (2)
127 – 150	190 – 225	Good (3)
151 – 174	226 – 260	Very good (4)
175 - 200	261 - 300	Excellent (5)

DIPLOMA AND CERTIFICATE

The student who passed vocational matura can get the Diploma of Secondary Education for the given profile.

Together with the Diploma the student gets the Certificate stating that the student passed the exams envisaged by the curriculum for the given pilot profile.

Specific part with an example

IV Section