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Institute for Sustainable Technologies – National Research Institute

MODULAR TRAINING PROGRAM

for the specialization:

TECHNOLOGY OF INTERIOR DRYWALL SYSTEMS

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Introduction

Modular training program for specialization in the field of **Technology of Interior Drywall Systems** is designed for Basic Vocational School, for the following occupations:

- Bricklayer 712[06]
- Building Finishing Engineer 713[06]

The aim of vocational education is to prepare a student to the effective performance of occupational tasks within a market economy. It requires sound rudimentary knowledge and skills as well as relevant professional competence. Upon finishing the school, a student should be open, communicative, imaginative, apt at constant learning and competence developing. A learner should also be capable of assessing his/her own potential. Implementation of modular training systems fosters the achievement of the above mentioned objectives.

The modular training system in vocational education, within which objectives and teaching materials are linked with work processes and occupational activities, facilitates:

- students' readiness for performing key occupational activities (within a job profile) and acquiring professional skills, knowledge and competence which correspond to the activities,
- integration of learning content from different branches of study
- stimulation of students' intellectual and motor activity which conduces to individualized learning pathways.

Features of modular education:

- it promotes teaching methods which boost students' initiative, creativity and self-assessment; on the other hand the role of the teacher is more of an advisor, partner, designer, organizer, and assessor of the learning process,
- teaching and learning process focuses on the achievement of tangible outcomes formulated in terms of intellectual and practical skills which enable carrying out specific professional tasks,
- it allows students to transfer credit that is given for assessed and documented knowledge and skills, which were obtained earlier during formal, non-formal, or informal ways of learning
- its training program has flexible structure consisting of modules and units which can be modified according to the needs, for example it allows to adjust learning content to the demand of the job market, scientific and technological developments or learners' aptitude.

Modular training program for a specific occupation consists of "modules of professional learning outcomes" and corresponding "modular units"

which are designed on the basis of certain criteria referring to knowledge, skills and competences within a profession.

As for the structure of the training program, it encompasses:

- intended training program outcomes and training organization for the target occupation,
- teaching plans,
- modules and modular units schemes.

A module of professional learning outcomes comprises of: learning objectives, a modular units list, a diagram of modular units and bibliography.

Each modular unit consists of: detailed learning objectives, the scope of teaching, practical learning activities, teaching aids/necessary resources, methodological guidelines concerning implementation of the training program, as well as proposed assessment methods of students' learning outcomes.

A map of the training program - a part of the intended training program outcomes and training organization for the target occupation - presents correlations between modules and modular units. It also demonstrates them in a form of hierarchy, so it indicates the sequence in which the modules and units should be implemented. Therefore, the map makes it easier for principals and teaching staff to plan and organize education programs.

The modular training program has coding system of modules and modular units. Its elements are as follows:

- numeric symbol of an occupation relevant to the current classification of vocational education professions,
- literal symbol denoting a set of modules:
 - O – for general occupations,
 - Z – for specific vocational occupations,
 - S – for specializations,
- Arabic numerals for the subsequent module in a set and for the subsequent modular unit identified in a module.

I. Intended training program outcomes and training organization for the target occupation/ specialization

1. Job profile description within the target specialization

Typical job posts

Upon finishing vocational school and obtaining a qualification in the area of Technology of Interior Drywall Systems, a student is prepared for work in:

- enterprises performing building work,
- enterprises performing finishing work,
- enterprises performing renovations.

Key occupational activities

Occupational tasks within the specialization:

- installation of partition walls, wall linings, dropped ceilings, roof linings, dry screeds applying the technology of drywall systems
- redecoration, maintenance and repairs of drywall system components.

Professional skills

Upon completion of vocational education in the field of Technology of Drywall Systems, a student is able to:

- apply technical specifications,
- do basic measurements relevant to the performed tasks,
- identify the properties of building materials used in Technology of Drywall Systems,
- select appropriate materials, machines, tools and equipment in order to perform expected finishing works,
- install partition walls using Technology of Interior Drywall Systems,
- install wall linings using Technology of Interior Drywall Systems,
- install dropped ceilings using Technology of Interior Drywall Systems,
- install roof linings using Technology of Interior Drywall Systems,
- install dry screeds using Technology of Interior Drywall Systems,
- redecorate, maintain, and repair components of interior drywall systems,
- use and maintain machines, tools and equipment according to standards,
- do basic works involving the use of concrete, metal and wood,
- obey occupational health and safety rules, fire regulations as well as environmental law requirements,
- organize work in line with the requirements of ergonomics,

- give first aid at the workplace,
- effectively communicate with co-workers,
- respect Labour Code including rights and obligations of employees and employers,
- use different sources of information.

Mental and physical requirements relevant to the profession

- good physical condition,
- manual and technical skills,
- ability to work in a group,
- responsibility,
- good level of independence in performing assigned duties,
- patience, perseverance, attention to detail,
- readiness to work in different weather conditions.

2. Recommendations on the organization of the instruction process

The main teaching aim within the scope of specialization in Technology of Interior Drywall Systems, is to prepare a student for performing a variety of tasks within the area of finishing building works and develop a student's knowledge and skills which gives him/her capacity to continue formal or informal education in future. The teaching process according to the modular training program within the target specialization is implemented in a vocational school.

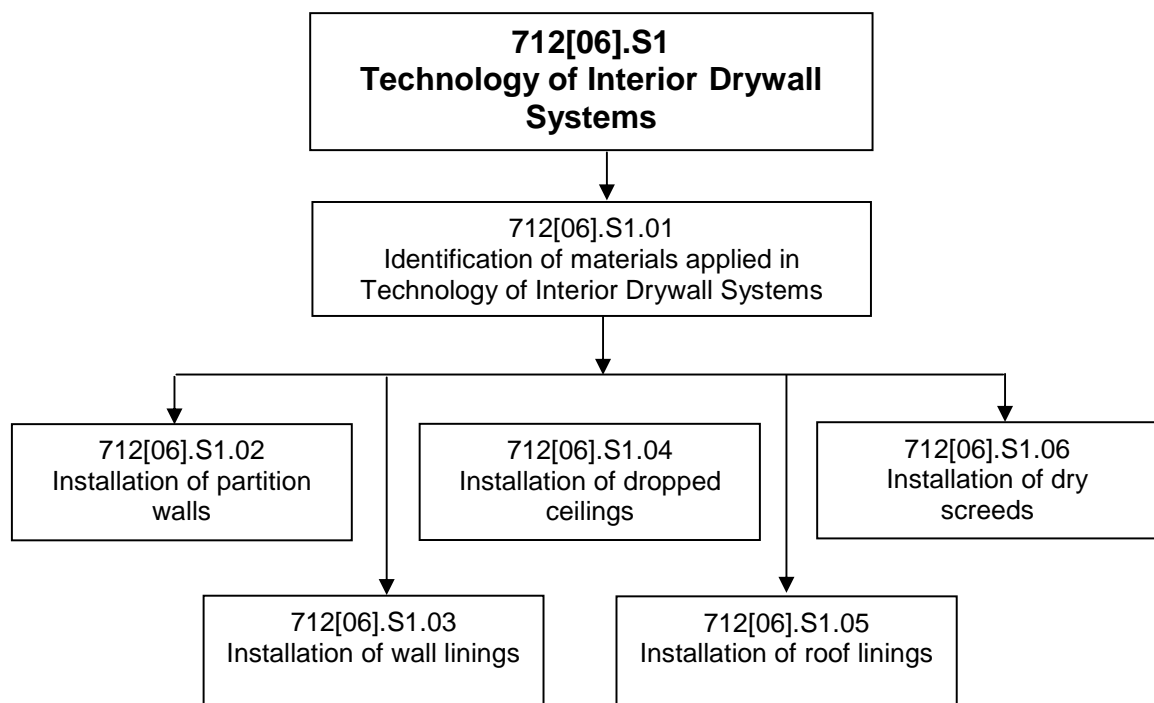
The training program encompasses general vocational education and specific vocational education. The general vocational education ensures students' basic knowledge concerning building engineering. Specific vocational education prepares students for typical occupational posts and for performing duties related to the posts.

The content of the training program constitutes one module which refers to Technology of Interior Drywall Systems. The module, which consists of key occupational activities, is divided into modular units. Each modular unit makes a meaningful component. Such a unit is supposed to give certain learning outcomes in the form of competences which in turn will enable a student to perform a particular scope of work.

Table: modules and modular units correlation

Modular unit symbol	Modules and modular units	Estimated number of hours necessary for teaching
		Class III
	Module 712[06].S1 Technology of Interior Drywall Systems	
712[06].S1.01	Identification of materials applied in Technology of Drywall Systems	15
712[06].S1.02	Installation of partition wall systems	25
712[06].S1.03	Installation of wall lining systems	20
712[06].S1.04	Installation of dropped ceiling systems	20
712[06].S1.05	Installation of roof lining systems	25
712[06].S1.06	Installation of dry screed systems	20
	Total	125

The map of the training program for specialization



On the basis of the correlation table, a training program map for the target specialization was devised. The map reflects arrangement of modular units within a module.

The map of the modular training program demonstrates correlations between modules and indicates the sequence in which they should be taught. It functions as a teaching aid to lesson planning.

The teacher who prepares and conducts the training program should possess methodological knowledge about modular training, designing educational packages, a learner-centered teaching approach and relevant assessment methods.

The role of the teacher is to assist in solving problems related to the assigned tasks, control the pace of competence acquisition referring to students' level of autonomy and their individual aptitudes. When justified, the teacher can decide on an individualized education path. Furthermore, the teacher's role is to develop students' interest in the occupation, show them possibilities of continues education within the profession. The teacher should also influence students' attitude towards their chosen occupation. Namely, students ought to understand the notion of professional liability, perform their jobs to quality standards, keep order at the workplace, respect work of co-employees and make optimal use of materials.

Bearing in mind constant changes in building technologies as well as changes in vocational education, the teacher should participate in creating a pedagogical base, organizing technical aspects and assessing the training programs. The teacher should develop educational packages which form an essential component of modular training programs.

The following teaching approaches are recommended in modular education: a guiding text method, supervised self-direction in learning, a situational method, learning through projects and practical classes. The key approach focuses on practical exercises in the form of educational films, tours of places of interest for business such as warehouses, technical shops with tools and materials, building trade fairs, exhibitions of machinery and materials. As for resources used in the self-directed learning, students should use among others: course books, manuals, guides and documents such as technical specifications. Education and so practical classes should focus on the newest technologies, materials, tools and machinery.

The student-centered approach requires from the teacher a special preparation of teaching aids such as: a guiding text, instructions for a project approach, guidance sheets for self-direction in learning, instructions for doing practical exercises, instructions for a particular occupational post as well as for health and safety procedures at the workplace.

The salient element of educational process is the assessment of learning outcomes. It is recommended to conduct diagnostic tests, carry out formative assessment and summative assessment. The diagnostic tests aim at assessing students' knowledge and skills at the beginning of the training program. The formative assessment, which is carried out throughout the course, is supposed to inform about effectiveness of the teaching methods. In other words, it provides feedback on students' work. On its basis, it is possible to introduce necessary improvements into the training program. The summative assessment should be done after each modular unit.

Moreover, the assessment process should make students aware of what they have achieved in relation to the educational requirements and be an incentive to systematic work, self-control and self-assessment. The assessment methods should include oral, written and situational examinations, observation of student working process and a measurable grading system. Testing standards and evaluation standards should be based on fixed criteria and norms which are elaborated in line with tests, observation sheets and progress evaluation sheets.

The modular training system requires a variety of teaching aids, equipment for vocational-technical education, textbooks and other instructional materials.

The estimated number of hours required for formal teaching, which is specified in the tables of modular units, may change depending on teaching methods and teaching aids.

The modular training programs and their units can be organized in different forms depending on the teaching content. In the course of training, students attend lectures, workshops, practical classes. They participate in group work and on-site training. Workshops should be equipped in necessary teaching aids specified in modular unit training programs.

There is no clear cut division into production training and theoretical instruction within the modular training process. The most effective combination of theoretical instruction and practical training should be established for a given content and a method of training.

It is recommended that classes be conducted in groups of 8-12 people, practical training in groups of 2-3 people. Individual work is also advised.

The practical skill training should take place in properly equipped workstations, where the simulation of occupational activities is possible, workshops as well as on building sites. Learners should have appropriate working conditions which enable the execution of assigned activities and boost the process of acquiring knowledge.

Workstations may be arranged as a part of a workshop or a

workroom. Using the available materials, tools, and equipment, students may perform the assigned tasks. After the analysis of key occupational activities specified for the specialization in Technology of Interior Drywall Systems, the following workstations (places where students' vocational skills are developed) have been identified:

- a workstation for measuring tasks,
- a workstation for preparing drywall system materials,
- a workstation for preparing the background for partition wall systems,
- a workstation for preparing the background for dropped ceiling systems,
- a workstation for preparing the background for dry roof lining systems,
- a workstation for preparing the base/subfloor for dry screed systems,
- a workstation for the installation of walls and ceilings,
- a workstation for carpentry work.

A vocational school, which offers modular training system, should provide students with appropriate facilities, equipment and a methodological base. Each workroom should have:

- workstations for practical training equipped in necessary tools, equipment and machinery,
- workstations adjusted to different organization forms (group work, individual work),
- the teacher's workstation equipped in audiovisual and multimedia aids,
- a reference library suitable for individual and group training needs,
- a depository of building materials and finish materials.

The use of guiding texts and project approach in the teaching process requires appropriately equipped workrooms (for practical training) which enable work in groups of 2-3 people or even in bigger teams.

It is emphasized that learners in modular training program could become familiar with the real working conditions within the occupation, become accustomed to the organization of building sites and the storage conditions of materials and equipment. Furthermore, learners should know how to ensure safety and health on a building site, should know the specificity of individual and group work as well as the work organization of a given post.

The vocational school needs systematic actions connected with:

- organizing technical resources which enables execution of the didactic program,
- cooperation with industrial enterprises which perform finishing building works and manufacture materials devoted to drywall systems,

- training of teachers in the scope of modular education methodology, student-centered teaching methods, teaching assessment and designing educational packages.

II. TEACHING PLANS

TEACHING PLAN

Vocational School for Young Learners

Occupation: Bricklayer 712[06]

No.	Educational modules	Number of hours within formal teaching (2 years)
1.	Technical building basics	114
2.	Bricklaying technology	760
3.	Plastering technology	266
4.	Supporting work technology	228
Total		1368*

* In case of longer than two-year formal teaching, the number of hours changes proportionally.

TEACHING PLAN

Vocational School for Adults

Occupation: Bricklayer 712[06]

No.	Educational modules	Number of hours within formal teaching (2 years)	Number of hours within formal teaching (2 years)
1.	Technical building basics	76	38
2.	Bricklaying technology	570	276
3.	Plastering technology	228	100
4.	Supporting work technology	190	90
Total		1064*	504*

* In case of longer than two-year formal teaching, the number of hours changes proportionally.

III. Modular education packages within the target specialization

Module 712[06].S1

Technology of Interior Drywall Systems

1. Teaching objectives

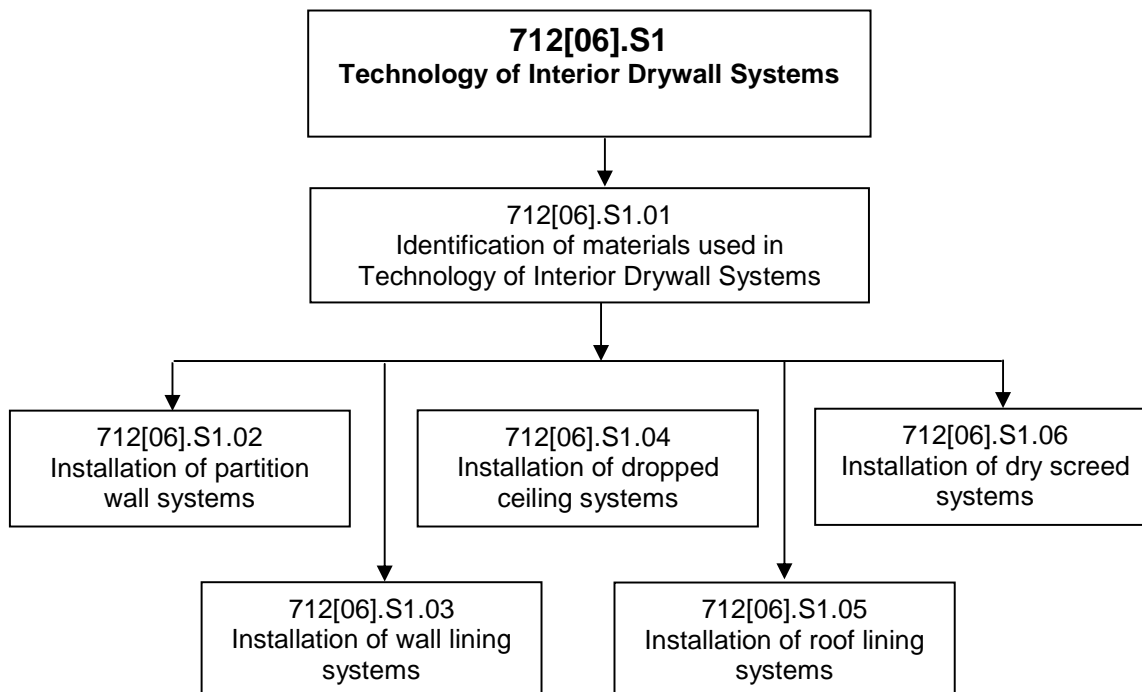
Upon the completion of the education program, a student should be able to:

- use technical building terminology,
- distinguish between different technologies of interior drywall systems,
- name key features of various technologies of interior drywall systems,
- identify and describe building materials used in Technology of Interior Drywall Systems
- install Interior Drywall Systems,
- obey the safety rules at the workplace, anticipate and prevent dangers,
- apply first aid procedures,
- read and construe technical building drawings,
- use documents such as technical specifications,
- prepare a bill of quantities and a quantity survey,
- organize places for storing building materials used in Technology of Interior Drywall Systems,
- ensure the proper transportation of building materials.

2. Index of modular units

Modular unit symbol	Modular unit name	Estimated number of formal teaching hours
712[06].S1.01	Identification of materials used in Technology of Interior Drywall Systems	15
712[06].S1.02	Installation of partition wall systems	25
712[06].S1.03	Installation of wall lining systems	20
712[06].S1.04	Installation of dropped ceiling systems	20
712[06].S1.05	Installation of roof lining systems	25
712[06].S1.06	Installation of dry screed systems	20
	Total	125

3. Diagram of modular units



Teaching starts from the modular unit: 712[06].S1.01 „Identification of materials used Technology of Interior Drywall Systems” which forms a basis for the subsequent modular units. The remaining units can be taught in any order.

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Rozporządzenie Rady Ministrów z dnia 28.07.1998r. w sprawie ustalenia okoliczności i przyczyn wypadków przy pracy oraz sposobu ich dokumentowania, a także zakresu informacji zamieszczonych w rejestrze wypadków przy pracy. Dz. U. Nr 115, poz.744

Rozporządzenie Ministra Budownictwa i Przemysłu Materiałów Budowlanych z dnia 28.03.1972r. w sprawie bezpieczeństwa i higieny pracy przy wykonywaniu robót budowlano-montażowych i rozbiórkowych. Dz. U. Nr 13, poz. 93

Kodeks Pracy (aktualnie obowiązujący)

Czasopisma specjalistyczne firm specjalizujących się w systemach suchej zabudowy.

The reference list has to be updated according to the latest publications.

Modular unit 712[06].S1.01

Identification of materials used in Technology of Interior Drywall Systems

1. Detailed learning objectives

Upon the completion of the education program, a student should be able to:

- Identify paper-based plasterboards (drywalls),
- Identify gypsum fibre boards,
- Identify steel profiles used in Technology of Interior Drywall Systems,
- Identify construction components used in Technology of Interior Drywall Systems,
- Identify sealants and insulation materials,
- Identify physical, chemical and mechanical properties of drywalls,
- Determine drywall parameters,
- Determine steel section parameters used in Technology of Interior Drywall Systems,
- Prepare plastering “mud”/joint filler used in Technology of Interior Drywall Systems,
- Identify symbols and properties of the materials used in Technology of Interior Drywall Systems and apply quality check methods,
- Determine the appropriate application of the materials used in Technology of Interior Drywall Systems,
- Obey occupational health and safety rules as well as environmental law requirements while using building materials, apply them economically.

2. The scope of teaching

Types, properties and gypsum labelling

Gypsum additives.

Paper-based plasterboards.

Gypsum fibre boards.

Steel profiles used in Technology of Interior Drywall Systems.

Construction components used in Technology of Interior Drywall Systems.

Insulation materials and sealants used in Technology of Interior Drywall Systems.

Materials used for protection, maintenance of building products applied in Technology of Interior Drywall Systems.

3. Practical learning activities

- Determining quality and applicability of gypsum samples according to technical specifications.
- Preparation of a particular gypsum “mud” made by hand according to technical specifications.
- Identification of paper-based plasterboards and defining their appropriate application.
- Identification of gypsum fiber boards and defining their appropriate application.
- Defining different types of gypsum materials, their basic parameters, properties, applicability, and conditions in which the materials can be stored on the bases of the packaging and labels.
- Identification of steel profiles and defining their applicability.

4. Teaching aids/necessary recourses

Gypsum samples in their original packaging or without.

Sample paper-based plasterboards and gypsum fiber boards.

Sample steel profiles used in Technology of Interior Drywall Systems.

Construction components and accessories used in Technology of Interior Drywall Systems.

Gypsum, drywall and steel profile catalogues.

Interior drywall system catalogues.

Computers and software which enable Internet access.

5. Methodological guidelines concerning implementation of the training program

Each modular unit covers essential parts of training program within the target occupation/specialization. A particular attention should be paid to building materials which are specific for Technology of Interior Drywall Systems. The training process should include both student-centered and teacher-centered approaches to teaching, demonstrations accompanied by material description, a guiding text method and practical activities/workshops. Each student should have the opportunity to identify materials. It is also recommended that learners participate in practical group work as many times as the work outcomes are satisfying.

Given a great variety of available materials, students should be able to select appropriate building products relating to their quality, durability, applicability, their effect on the environment as well as economic factors. The Internet is an advisable source of information concerning building companies and building materials described and used by them.

Workshops should be equipped in necessary building materials. Samples, packages and manufacturers' catalogues of various building products can be the required minimum.

It is recommended that tours to the specialized shops, building fair trades, as well as construction sites are organized in order to make students familiar with the building materials.

6. Proposed assessment methods of students' learning outcomes.

The assessment of students' learning outcomes should be carried out throughout the entire period devoted to formal teaching of a modular unit on the basis of fixed criteria. Knowledge, which is necessary to perform practical tasks, can be checked in the form of tests. The tests should concern different kinds of building materials, their application and properties.

It is recommended that practical abilities be verified through observation of students' working process during practical classes and practical work examinations.

During observation of students' working process and their assessment, the following areas are to be taken into consideration:

- identification of material samples and products which are used in Technology of Interior Drywall Systems,
- determining properties of materials used in Technology of Interior Drywall Systems,
- defining the application of particular types of boards available in Technology of Interior Drywall Systems,
- defining the application of drywall accessories,
- respecting the occupational health and safety rules as well as environmental law requirements.

Before proceeding to performing any practical task, theoretical knowledge has to be verified through either oral or written examination. The exam results should inform about students' familiarity with different kinds of materials used in Technology of Interior Drywall Systems, their application and properties. Being given a positive grade, a student should be allowed to proceed to practical work.

During practical activities, the assessment of students should be limited to two indicators: "success," "failure."

In final evaluation of students' learning outcomes after each modular unit, all results from tests/examinations must be taken into consideration.

Modular unit 712[06].S1.02

Installation of partition wall systems

1. Detailed learning objectives

Upon the completion of the education program, a student should be able to:

- prepare the workplace for the installation of partition walls,
- prepare the place where the materials for the installation of partition walls can be stored,
- ensure a proper transportation of all the necessary materials used in the installation of partition walls,
- establish the position of partition walls,
- prepare and cut down to size boards for flat wall installation,
- prepare and cut down to size boards for arc-shaped wall installation,
- choose and assemble the steel profiles for the installation of partition walls,
- fix the boards to the wall profiles,
- fit insulation between boards,
- fix door frames,
- install walls with cavities in which service lines such as plumbing lines and sewage pipes can be concealed,
- fix shelves, walls and board frames (the binding),
- complete the finishing work such as filling, finishing internal angles, board cleaning,
- make an inventory of the materials needed for wall installation,
- assess the quality of the work done,
- respect the occupational health and safety rules as well as environmental law requirements.

2. The scope of teaching

Preparation and storage of boards and steel profiles for installation.

Types of partition wall systems.

Selection criteria of partition wall systems; wall parameters.

Steps in the installation of partition walls.

Setting the positions of partition walls.

Assembling metal profiles for partition wall installation.

Laying the boards.

Installation of additional fitting.

Finish work, concealing seams between boards.

3. Practical learning activities

- Setting the position of a partition wall on the basis of a technical drawing.
- Selecting steel profiles appropriate for a particular partition wall type.
- Assembling chosen steel profiles for the installation of a partition wall.
- Attaching paper-based plasterboards on the one side of the wall.
- Finishing the seams between boards.
- Finishing internal angles.

4. Teaching aids/necessary resources

Detailed design documentation.

Measuring tools.

Tools and equipment used for the installation of steel profiles and boards.

Metal profiles used for the installation of walls in Technology of Interior Drywall Systems.

Paper-based plasterboards and gypsum fiber boards.

Installation components.

Materials used for finishing the partition walls in Technology of Interior Drywall Systems.

Catalogues of interior drywall systems of various companies.

5. Methodological guidelines concerning implementation of the training program

The content of the modular unit is necessary for acquiring skills and competences needed for the installation of partition walls in Technology of Interior Drywall Systems. Particular attention has to be paid to developing skills/competences which enable proper positioning of the walls, assembling the profiles and boards. The training process should focus on practical work in the form of workshops. Each student should have the opportunity to perform every step of partition wall installation process. The group size should be limited to the maximum of 3 people. It gives learners the chance to repeat the practical tasks till the skills are mastered.

Given a variety of drywall systems, it is essential to develop students' installation skills with reference to quality, durability, applicability, the environment protection and economic factors. It is advised to use the Internet and different materials published by private companies in order to gain information about the latest technologies in drywall systems.

Workrooms should be equipped with all the necessary building materials, tools and devices which enable the installation of various drywall systems.

6. Proposed assessment methods of students' learning outcomes.

The assessment criteria should refer to the quality of activity performance as well as the scope of training program. In particular they should concern the following:

- positioning of partition walls,
- selection and installation of steel profiles,
- cutting to size the boards,
- attaching the boards to profiles,
- joint finishing.

The performance of activities should be evaluated in terms of: "success," "failure." After each activity, students' progress has to be checked. A modular unit can be recognized as mastered on the basis of positive examination results. Constant analysis of learners' progress is important as it enables the tutor adjusting the training methods in such a way that expected learning outcomes are achieved. Therefore, the tutor should register both positive and negative learning outcomes concerning the installation of steel profiles and plasterboards. It is essential to provide students with feedback so that they can understand and correct their mistakes on their own.

The passing grades should be awarded according to fixed criteria and a fixed evaluation scale. The tasks which were failed should be repeated until a positive result can be achieved.

Modular unit 712[06].S1.03

Installation of wall lining systems

1. Detailed learning objectives

Upon the completion of the education program, a student should be able to:

- prepare the workplace for the installation of wall lining systems,
- prepare a place where materials for the installation of wall lining systems can be stored,
- prepare the background for wall linings,
- select appropriate boards,
- prepare and cut to size the boards for the wall lining system,
- attach wall linings directly to masonry background,
- (mark guidelines on the floor and ceiling) to establish the new wall plane,
- mark vertical guidelines on the background to establish the bonding positions (as determined by lining system type and the board size and thickness,)
- select and assemble steel profiles appropriate for the installation of wall linings,
- fit insulation material,
- attach the boards to the profiles,
- install wall linings with cavities in which service lines can be concealed,
- complete finish works such as filling, finishing internal angles, board cleaning,
- obey the occupational health and safety rules, fire regulations, as well as environmental law requirements.

2. The scope of teaching

Types of wall lining systems.

Installation of wall linings on plasterboard adhesive.

Attaching wall linings to steel profiles.

The rules of determining the new wall plane.

Fixing and aligning the board so that it is plumb

3. Practical learning activities

- Determining the new wall plane.
- Fixing the boards directly to masonry background.
- Selecting appropriate steel profiles for a particular wall.
- Attaching the boards to steel profiles.

4. Teaching aids/necessary resources

Technical specification documentation.

Measuring tools.

Tools and devices used for installation of steel profiles and boards.

Metal profiles for installation of wall linings.

Paper-based plasterboards and gypsum fibre boards.

Catalogues of interior drywall systems of different companies.

5. Methodological guidelines concerning implementation of the training program

The content of the modular unit is necessary for acquiring skills and competences needed for the installation of wall linings in Technology of Interior Drywall Systems. Particular attention has to be paid to developing skills/competences which enable proper positioning of the wall linings, assembling the profiles and boards. The training process should focus on practical work in the form of workshops. Each student should have the opportunity to perform every step of partition wall installation process. The group size should be limited to the maximum of 3 people. It gives learners the chance to repeat the practical tasks till the skills are mastered.

Given a variety of drywall systems, it is essential to develop students' installation skills with reference to quality, durability, applicability, the environment protection and economic factors. It is advised to use the Internet and different materials published by private companies in order to gain information about the latest technologies in drywall systems. Workrooms should be equipped with all the necessary building materials, tools and devices which enable the installation of various drywall systems.

6. Proposed assessment methods of students' learning outcomes.

The assessment criteria should refer to the quality of activity performance as well as the scope of training program. In particular the assessment should concern the following:

- determining the positioning of wall linings,
- selection and installation of steel profiles,
- cutting to size plasterboards,
- attaching the boards to masonry background and profiles,
- joint finishing.

The performance of activities should be evaluated in terms of: "success," "failure." After each activity, students' progress has to be

checked. A modular unit can be recognized as mastered on the basis of positive examination results. Constant analysis of learners' progress is important as it enables the tutor adjusting the training methods in such a way that expected learning outcomes are achieved. Therefore, the tutor should register both positive and negative learning outcomes concerning the installation of steel profiles and plasterboards. It is essential to provide students with feedback so that they can understand and correct their mistakes on their own.

The passing grades should be awarded according to fixed criteria and a fixed evaluation scale. The tasks which were failed should be repeated until a positive result can be achieved.

Modular unit 712[06].S1.04

Installation of dropped ceiling systems

1. Detailed learning objectives

Upon the completion of the education program, a student should be able to:

- prepare the workplace for the installation of dropped ceiling systems,
- prepare a place where materials for the installation of dropped ceiling systems can be stored,
- ensure the proper transportation of materials used for dropped ceiling systems,
- determine the positioning of dropped ceilings,
- prepare and cut to size the boards used for dropped ceiling systems,
- select and assemble steel profiles appropriate for the installation of dropped ceiling systems
- attach the plasterboards to the steel profiles
- fit insulation material between the boards,
- complete finish works such as filling, finishing internal angles, board cleaning,
- obey the occupational health and safety rules, fire regulations, as well as environmental law requirements.

2. The scope of teaching

Kinds of dropped ceiling systems.

Installation of drywalls on monolithic ceiling.

Installation of flat and arc-shaped dropped ceiling systems.

Installation of coffer ceilings.

3. Practical learning activities

- Installing a fragment of one-level dropped ceiling.
- Installing a fragment of arc-shaped dropped ceiling.
- Establishing the new plane for a coffer ceiling.
- Installation of boards in a coffer dropped ceiling.

4. Teaching aids/necessary resources

Technical specification documentation.

Measuring tools.

Tools and devices used for installation of steel profiles and boards.

Metal profiles for installation of the dropped ceiling systems.

Paper-based plasterboards and gypsum fibre boards.

Finish materials used for dropped ceiling systems.
Catalogues of drywall systems of different companies.

5. Methodological guidelines concerning implementation of the training program

The content of the modular unit is necessary for acquiring skills and competences needed for installation of dropped ceilings in dry development technology. Particular attention has to be paid to developing skills/competences which enable proper positioning of the dropped ceiling, assembling the profiles and boards. The training process should focus on practical work in the form of workshops. Each student should have the opportunity to perform every step of dropped ceiling system installation. The group size should be limited to the maximum of 3 people. It gives learners the chance to repeat the practical tasks till the skills are mastered.

Given a variety of dry development systems, it is essential to develop students' installation skills with reference to quality, durability, applicability, the environment protection and economic factors. It is advised to use the Internet and different materials published by private companies in order to gain information about the latest technologies in drywall systems. Workrooms should be equipped with all the necessary building materials, tools and devices which are used for the installation of various dropped ceiling systems. The tutor should also lay emphasis on organization of work process and team work.

6. Proposed assessment methods of students' learning outcomes.

The assessment criteria should refer to the quality of activity performance as well as the scope of training program. In particular the assessment should concern the following:

- determining the positioning of dropped ceilings,
- selection and installation of steel profiles,
- cutting to size plasterboards,
- attaching the boards to profiles,
- joint finishing.

The performance of activities should be evaluated in terms of: "success," "failure." After each activity, students' progress has to be checked. A modular unit can be recognized as mastered on the basis of positive examination results. Constant analysis of learners' progress is important as it enables the tutor adjusting the training methods in such a way that expected learning outcomes are achieved. Therefore, the tutor should register both positive and negative learning outcomes concerning

the installation of steel profiles and plasterboards. It is essential to provide students with feedback so that they can understand and correct their mistakes on their own.

The passing grades should be awarded according to fixed criteria and a fixed evaluation scale. The tasks which were failed should be repeated until a positive result can be achieved.

Modular unit 712[06].S1.05

Installation of roof lining systems

1. Detailed learning objectives

Upon the completion of the education program, a student should be able to:

- prepare the workplace for the installation of roof linings,
- prepare a place where materials for the installation of roof lining systems can be stored,
- ensure proper transportation of materials used for roof lining systems,
- determine the positioning of roof linings,
- prepare and cut to size the boards used for roof lining installation,
- select and assemble steel profiles appropriate for the installation of roof lining systems,
- attach the boards to the profiles,
- fit insulation material between the boards,
- complete finish works such as filling, finishing internal angles, board cleaning,
- obey the occupational health and safety rules, fire regulations, as well as environmental law requirements.

2. Scope of teaching

Types of roof lining systems.

Fixing load-bearing construction.

Fitting thermal insulation.

Plasterboard installation within roof lining systems.

Installation of roof lining systems on roofs with windows.

3. Practical learning activities

- Determining the positioning of differently structured roof lining systems.
- Assembling steel profiles.
- Attaching the boards to the selected fragment of the roof.
- Installation of roof lining by a roof window or another roof opening.

4. Teaching aids/necessary resources

Technical specification documentaion.

Measuring tools.

Tool and devices for installation of steel profiles and plasterboards.

Steel profiles used for installation of roof lining systems.

Paper-based plasterboards and gypsum fibre boards.

Finish materials used for roof lining systems.
Catalogues of drywall systems of different companies.

5. Methodological guidelines concerning implementation of the training program

The content of the modular unit is necessary for acquiring skills and competences needed for installation of dropped ceilings in Technology of Interior Drywall Systems. Particular attention has to be paid to developing skills/competences which enable proper positioning of the roof linings, assembling the profiles and boards. The training process should focus on practical work in the form of workshops. Each student should have the opportunity to perform every step of roof lining system installation. The group size should be limited to the maximum of 3 people. It gives learners the chance to repeat the practical tasks till the skills are mastered.

Given a variety of dry development systems, it is essential to develop students' installation skills with reference to quality, durability, applicability, the environment protection and economic factors. It is advised to use the Internet and different materials published by private companies in order to gain information about the latest technologies in drywall systems. Workrooms should be equipped with all the necessary building materials, tools and devices which are used for the installation of various roof lining systems. The tutor should also lay emphasis on organization of work process and team work.

6. Proposed assessment methods of students' learning outcomes.

The assessment criteria should refer to the quality of activity performance as well as the scope of training program. In particular, the assessment should concern the following:

- determining the positioning of roof linings
- selection and installation of appropriate steel profiles,
- cutting to size plasterboards,
- attaching the boards to profiles,
- joint finishing.

The performance of activities should be evaluated in terms of: "success," "failure." After each activity, students' progress has to be checked. A modular unit can be recognized as mastered on the basis of positive examination results. Constant analysis of learners' progress is important as it enables the tutor adjusting the training methods in such a way that expected learning outcomes are achieved. Therefore, the tutor should register both positive and negative learning outcomes concerning

the installation of steel profiles and plasterboards. It is essential to provide students with feedback so that they can understand and correct their mistakes on their own.

The passing grades should be awarded according to fixed criteria and a fixed evaluation scale. The tasks which were failed should be repeated until a positive result can be achieved.

Modular unit 712[06].S1.06

Installation of dry screed systems

1. Detailed learning objectives

Upon the completion of the education program, a student should be able to:

- prepare the workplace for the installation of dry screeds,
- prepare a place where materials for the installation of dry screeds can be stored,
- ensure proper transportation of materials/components used for dry screed flooring installation
- determine the positioning of dry screeds,
- prepare the base/subfloor for the dry screeds
- prepare and cut to size the boards used for dry screed installation,
- lay the dry screed boards in different patterns,
- complete finish works such as filling, finishing internal angles, board cleaning,
- obey the occupational health and safety rules, fire regulations, as well as environmental law requirements.

2. Scope of teaching

Materials used for dry floor installation

Dry screed main features/structure

Multilayer dry screeds.

Single-layer dry screeds.

Types of dry screed systems.

3. Practical learning activities

- Selecting appropriate materials for installation of different dry screed systems.
- Preparing the subfloor/base for different dry screed systems.
- Laying the boards in different patterns.
- Fixing the multilayer boards
- Fixing the single-layer boards

4. Teaching aids/necessary resources

Technical specification documentation.

Measuring tools.

Tool and devices used for installation of dry screeds.

Materials used for different types of dry screed systems.

Paper-based plasterboards and gypsum fibre boards.

Finish materials used for dry screed systems.
Catalogues of drywall systems of different companies.

5. Methodological guidelines concerning implementation of the training program

The content of the modular unit is necessary for acquiring skills and competences needed for installation of dry screeds. Particular attention has to be paid to developing skills/competences which enable proper leveling of the subfloor, laying the boards in the right patterns, laying the right dry screed layers depending on technology, a proper fixing of the boards to the subfloor. The training process should focus on practical work in the form of workshops. Each student should have the opportunity to perform every step of dry screed system installation. The group size should be limited to the maximum of 3 people. It gives learners the chance to repeat the practical tasks till the skills are mastered.

Given a variety of dry development systems, it is essential to develop students' installation skills with reference to quality, durability, applicability, the environment protection and economic factors. It is advised to use the Internet and different materials published by private companies in order to gain information about the latest technologies of drywall systems. Workrooms should be equipped with all the necessary building materials, tools and devices which are used to the installation of various dry screed systems. The tutor should also lay emphasis on organization of work process and team work.

6. Proposed assessment methods of students' learning outcomes.

The assessment criteria should refer to the quality of activity performance as well as the scope of training program. In particular, the assessment should concern the following:

- determining the positioning of dry screeds,
- selection of appropriate materials in relation to the system or technology,
- leveling of the base/subfloor,
- attaching the boards to various bases.

The performance of activities should be evaluated in terms of: "success," "failure." After each activity, students' progress has to be checked. A modular unit can be recognized as mastered on the basis of positive examination results. Constant analysis of learners' progress is important as it enables the tutor adjusting the training methods in such a way that expected learning outcomes are achieved. Therefore, the tutor

should register both positive and negative learning outcomes concerning the installation of steel profiles and plasterboards. It is essential to provide students with feedback so that they can understand and correct their mistakes on their own.