



MODULAR VOCATIONAL EDUCATION AND TRAINING IN POLAND

INTRODUCTION

Under the influence of economic and social reforms the demand for qualifications changes. Also educational systems should adjust teaching methods and contents to the labour market needs and ensure graduates conditions for personal and professional development. In the past effective systems enabling acquisition or improvement of qualifications were based on stable market institutions and on the certainty that they meet expectations connected with the chosen occupation and education. Globalisation, technological progress, shorter production cycles and new forms of work organisation contribute to changes of conditions, in which decisions concerning selection, range and method of educational contents delivery are made.

At present the following tendencies are predominant in searching for development paths of vocational education (*White Paper on Education, EU, 1997*):

- humanisation – preparation of an employee and citizen, comprehensive development of personality, preparation to participation in culture, learning society,
- integration of science, technology and educational contents, educational technology approaches production technology, integration of educational levels at the school and out-of-school systems,
- globalisation – creation of scientific and technological networks, which join research centres in huge enterprises of the whole world not excluding education,
- co-operation and collaboration – of the learner with the environment, school with enterprise, different types of schools in the educational process of an individual, co-operation network,
- intensification – flexible, multi-medial educational technologies, educational packages, didactic measurement tools, assessment and self-assessment,
- mobility – good base preparation, wide profile, but with directed specialisation, compatibility of acquired qualifications,
- continuity – life long learning and development, teach to learn, flexible education and development systems,
- creativity – responsibility for own professional career, not encyclopaedism but adaptation to creative building of a career, winning with competitors, creative execution of tasks,
- quality – precision in execution of occupational tasks, creation and execution of design, production, service tasks over requirements of standards.

In the nearest years quality should be one of educational policy priorities in Poland (*Bogaj A., 1996*). There are many reasons for this. However, three of them seem to be significantly important. The first one results from the intensifying decrease in the teaching level and students' school problems. The second one is the proceeding integration process in Europe and connected with it requirement of competition among educational institutions in the field of attracting clients. The third



important reason concerns requirements and directions of changes in economy and education in our country caused by structural transformation.

In vocational education curricula are elements determining quality and at the same time didactic work effects. The educational system reform in Poland assumes creation of an integrated vocational education system referring to European Union standards, enabling acquisition and confirmation of vocational qualifications on the same principles in the school and out-of-school system. It will ensure the increase in professional mobility level and linking the vocational education system with the labour market. *Modular curricula, which let create flexible and adjusted to employers' expectations offers of acquisition of vocational qualifications and competencies* are one of basic tools helpful in achievement of objectives of the vocational education system reform. (*Ministry of National Education about vocational education, 1999*).

Curricular reform enables vocational schools to develop own curricula on the basis of education curricular bases in an occupation approved by MoNE. Some schools have already prepared such curricula, but for the majority of them it is a new challenge, which must be preceded by familiarisation with new conceptions of selection and arrangement of educational contents. Schools will still for many years use centrally approved curricula without modification or only with modified educational contents. Such a curricular freedom is very required, in particular in vocational education, where we observe the most dynamic changes in the range of teaching contents. That is why school cannot indiscriminately delivery curricula, even these approved by MoNE. It is impossible to educate for the labour market needs without taking into account regional and local conditions, expectations and predisposition of students, without checking if they meet requirements included in the curricular base of education in an occupation.

Changing requirements of jobs, their evolution, creation and disappearance forces to search for effective methods of vocational education and flexible treatment of curricula. New curricula should enable to create students' vocational activation attitudes, in particular skills of executing vocational tasks in the conditions of competitiveness, use of modern technologies, adaptation to changes in technology and work organisation and readiness to continuing education and repeated change of an occupation. It is an assumption important for forming new quality of curricula and educational services, as it contributes to a creative attitude of a teacher to design and delivery of educational contents.

1. NEW EDUCATIONAL CHALLENGES

An increasing pace of economic and technological changes observed in the last decade, which is shared by the Polish economy, causes a lack of adjustment of vocational qualifications acquired in the vocational education system to the labour market needs. Transformation concerning the contents of executed work and required competencies of employees are conditioned by a trend observed among firms to increase their competitiveness on the market. Strategies of firms behaviour include introduction of new manufacturing technologies, new products, implementation of new forms of work organisation and mode of functioning the enterprises, changes in mentality and aspirations of employees. All the employees must be characterised by flexibility, creativity, proper motivation, acceptance of innovations, assertiveness, skill of group work to be able to contribute to the increase

in productivity and competitiveness of an enterprise. It means a fundamental change of the attitude towards the policy of employment and human resources management - leaving quantitative aspects for the benefit of qualitative ones and emphasising the role of vocational competencies acquired in the school and out-of-school system.

For the vocational education system the necessity of co-ordinating the policy of staff education and development with the policy of mobility and recruitment carried out by enterprises is currently one of the most important tasks. The present vocational tasks and in particular forecasting of their changes require that employees should have not only high qualifications and mastery at work but also occupational preparation on a considerably wider range. The vocational education process requires a considerable distribution in time of activities connected with preparation of a specialist in a particular occupation. The ministries of education and labour as well as different European Union documents emphasise the need of approaching vocational education and economy, and as a consequence also the labour market. It results from this that employers should have a bigger influence on the model of vocational education system in Poland, in particular on objectives, contents, methods and organisational forms of school and out-of-school education. As it is seen in practice, on the one hand employers expect more and more competent employees, whose qualifications meet standards of work posts in a modern enterprise, on the other hand they do not make efforts to have a bigger influence on vocational education contents and quality. That is why today there is a lack of efficient mechanisms enabling approach and co-operation of the spheres of education and economy.

In the contemporary society three big factors of changes appeared: **development of the information society, development of the scientific and technical civilisation and globalisation of economy.** Changes in employment of vocational schools graduates connected with development of the sector of services and information processing with simultaneous decrease in employment in the agricultural and industrial sectors are influenced by these trends. Another factor is competitiveness of the labour force on the European and world labour market.

Development tendencies of enterprises indicate the need to change objectives and contents of vocational education and the way of delivering knowledge by educational institutions. Decisive factors of changes in enterprises concern development of technology and organisation and improvement of employees' qualifications (Fig. 1).

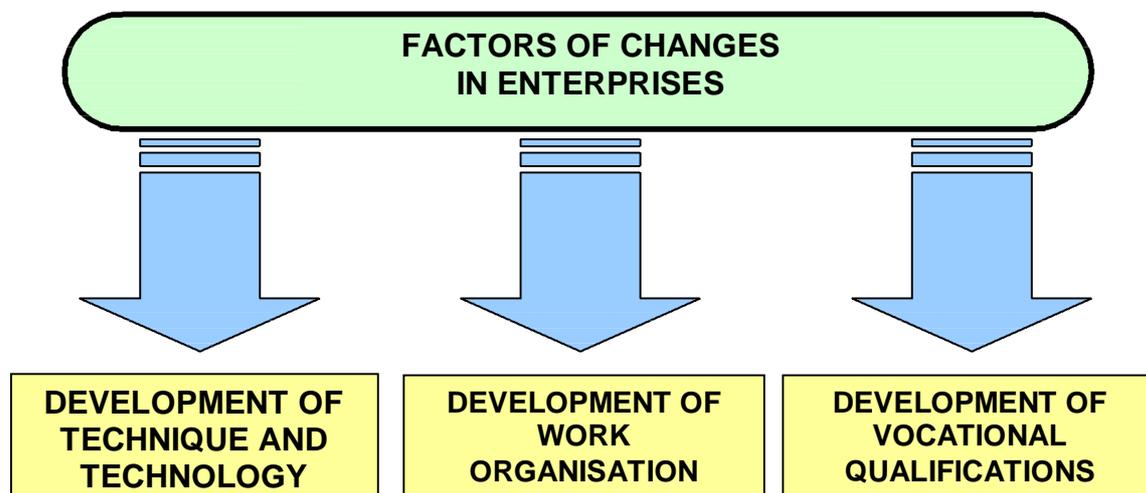




Fig. 1. Factors of changes in enterprises influencing the educational system

To cope with new challenges concerning development of qualifications, the European Commission White Paper proposes to search for educational paths adjusted to perspectives of work and employment. In particular the following problems were stressed:

- elimination of opposition between general and vocational education,
- development of key skills,
- development of co-operation between school and enterprise on the principle of mutual benefits,
- decrease in the number of school problems,
- increase in educational flexibility,
- education quality assurance,
- development of active teaching methods,
- creation of appropriate conditions for life-long learning,
- improvement of financial situation of educational institutions.

2. THE PROCESS OF DESIGNING MODULAR CURRICULA OF VOCATIONAL EDUCATION

Modularisation is not a new concept. It has been introduced into many domains, frequently in an intuitive, natural way, on many occasions without conscious thinking about the benefits it brings. It relies on the acceptance of a common standard and construction of its multiplication (e.g building, manufacturing industry, electronics). „Module” means a permanent factor repeatable dimension of something, a unit of defined features (e.g architectural module).” (Dictionary of the Polish Language, PWN, Warszawa, 1988). Modularisation aims at ordering (material and non-material) elements which are comprised by a final product , into appropriate subsets.

Development of new teaching programmes is based on basic programme, educational framework and general formal and legal requirements in respect of educational system reform, together with the output of science, technique, pedagogy and didactic (figure 2).

The choice of the way in which of the teaching programme for a vocation should be organised (arranged) (thematic, „teaching blocks”, modular, mixed) should depend on the programme authors. In the programmes organised by „blocks” the contents of related subjects are connected into thematic cycles (for example, humanities-social block, mathematics-nature block). **In the programmes of modular structure theoretical and practical contents from many fields of knowledge are integrated.**

The scope and content of teaching programmes for a vocation are determined by programme guidelines for education in a vocation, which is also a starting point for specifying examination requirements. In future the programme guidelines for

education in a vocation will be replaced by vocational qualification standards resulting from the work process requirements.

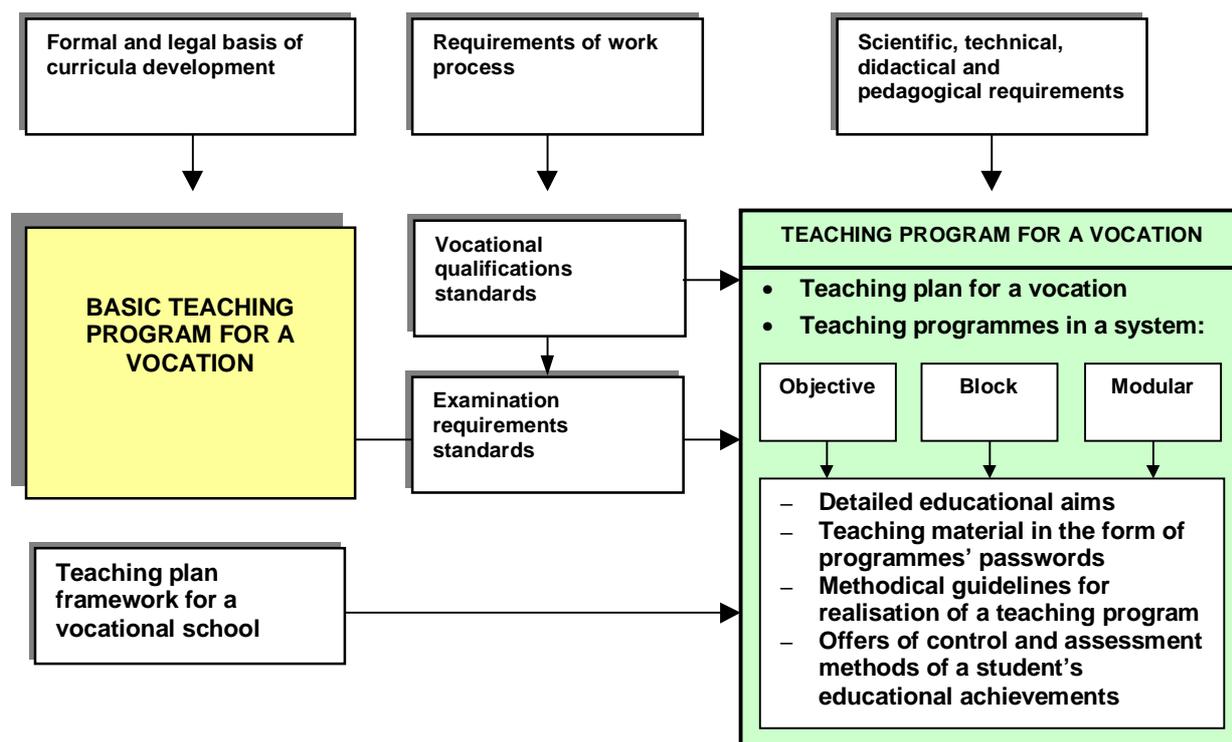


Fig.2: Model of designing teaching programmes for a vocation

Modular curricula are preferred in the undergoing reform vocational school. The base of designing a curriculum is a three-element system of education in vocational school, i.e. general education (including general vocational education), general vocational (general technical) education and vocational and specialisation education as well as connected with this system of possibilities of separating vocational education modules within educational classes. The following aspects are taken into account in the course of designing a curriculum, separating modules and later modular units:

- functions of graduates from a particular type of school,
- objects of work and dominant type of collaboration in the course of executing vocational tasks,

Functions of graduates result from the range of contents included in the notion of a practised profession(s) executed at the workers' (journeyman's – craftsman's)



level. The main functions of this group of employees first of all have an executive character. Sets of activities connected with technological processes in industrial, building, agricultural and other production or activities connected with material and non-material services for citizens and enterprises contribute to this character. Preparation to work at this educational level requires to acquire not only necessary knowledge and skills from the area of appropriate technological processes but also communication skills and skills of preparing documentation connected with running economic activity – running-repair service, craftsman's activity, etc.

A general division of required skills can be used in the course of deciding the work object in a particular occupation according to the situation if they concern: data – information (e.g. comparison, specification, analysis), people (e.g. persuasion, instruction, negotiation), objects (e.g. installation, service, regulations). Moreover, knowledge of dominant types of co-operation characteristic for execution of tasks in a particular occupation is also crucial. These types are as follows: man-technology, man – man, man – nature, man – system of signs, man – work of art. Tasks specific for a particular occupation require execution of lots of activities (single and complex ones) in the area of three categories:

- **technological tasks** – concerning methods of work, manufacturing technologies, services, execution of operations, development of projects, research, etc.,
- **organisational tasks** – concerning organisation of work, planning at own post and organisation of work of subordinate employees (among others planning, checking, control, etc.),
- **tasks of management and co-operation** – concerning co-operation with other workers, team management and co-operation within a team, co-operation with superior authorities, collaborators, the enterprise's environment,
- **tasks of quality control** – concern self-control of the job performed or the service provided, control the work of subordinate employees, quality assessment of products and services, responsibilities applying to the procedures of quality assurance in a company

One should also bear in mind that a particular object of work (e.g. technical system, living organism or element of work of art) is connected with a particular kind of means of work, system of work organisation, etc.

Three paths of reaching a modularised arrangement of vocational education contents are possible through:

- (1) analysis of curricular bases of education in an occupation,
- (2) analysis of vocational requirements included in different vocation-related materials or direct analysis of work at posts appropriate for a particular occupation,
- (3) direct application of a particular qualification making a subject of vocational examination.

Designing a curriculum begins with defining separation criteria of vocational education modules (Fig. 3). The first (initial) criterion defines internal logic relations occurring among vocational tasks and qualifications needed for their execution. Grouped sets of tasks and qualification requirements (skills, knowledge and psycho-

physical features) identified on the basis of curricular bases of education in an occupation, real requirements of the work process and requirements of examination standards and vocational qualification standards (if such will be developed for nearly 1700 occupations characteristic for a Polish economy) should be the result of analysis.

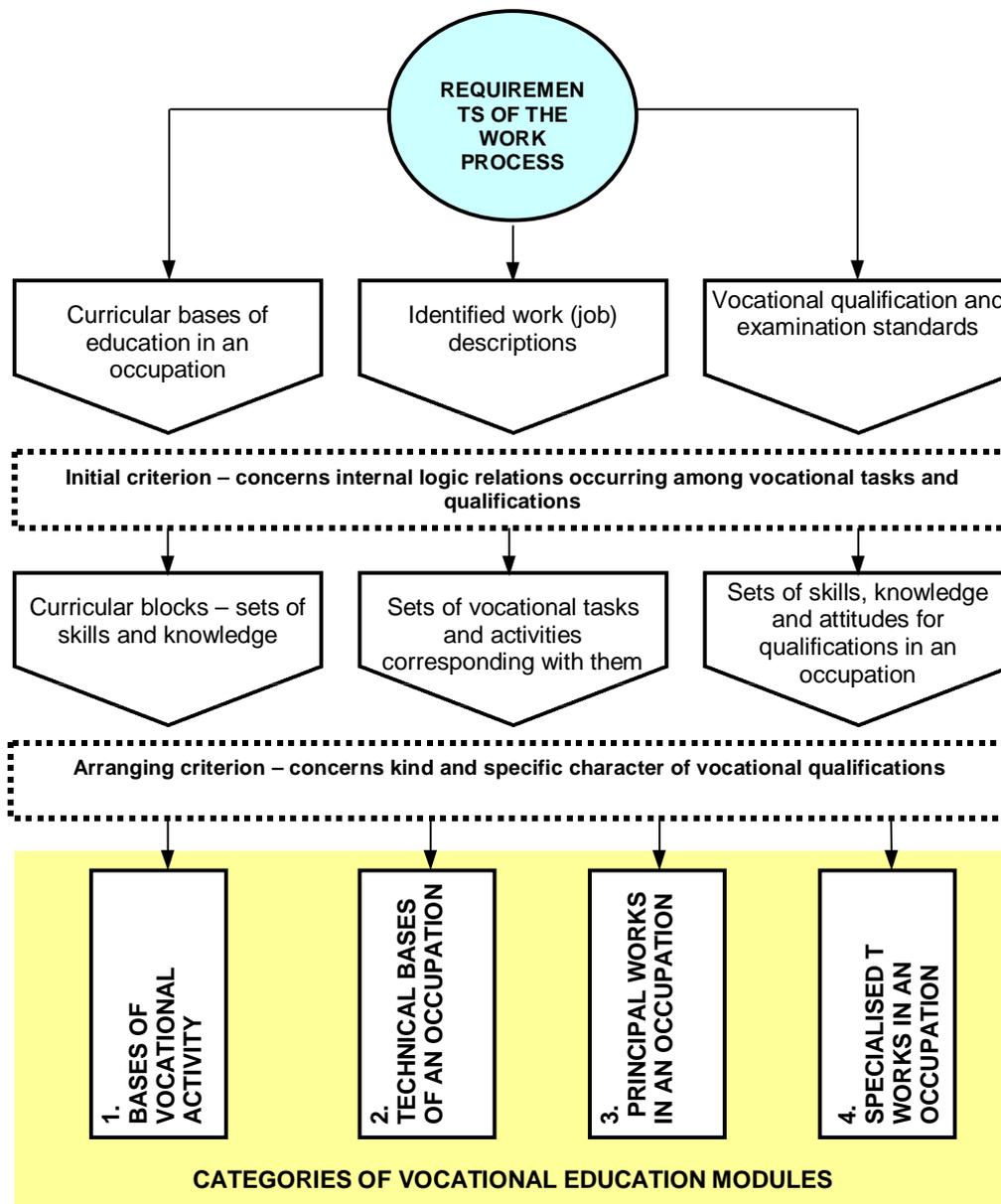




Fig. 3. Separation process of vocational education modules

In operational activities one should carry out identification of vocational tasks specific for an occupation and analyses showing their assignment to qualifications making a subject of external vocational examination. Similar analyses should concern correlation of vocational skills constituting vocational qualifications (included in a curricular base of education in an occupation in description of graduate qualifications) and vocational tasks separated in the occupation.

The agreed second criterion concerns kind and specific character of vocational qualifications and enables to verify and arrange an initial set of tasks and vocational qualifications according to specific character of four kinds of qualifications, i.e. further vocational, general vocational, basic for an occupation and specialised qualifications. The above mentioned division of vocational qualifications was agreed in the course of work concerning creation of a methodology of vocational qualification standards in Poland (*Kwiatkowski S. M., Symela K, 2001*). That is why it was agreed to be used as an arranging criterion.

Such an approach implies occurrence of four categories of modules in a vocational education curriculum, without prejudice of their final number. It is very probable that vocational education curricula will include a few modules in each category, in particular different specialised modules or modules directed at particular vocational areas (within the category of general vocational modules)

The first category of vocational education modules called “**Attitudes of vocational activity**” concerns the canon of further vocational education, common for all occupations, where skills of a general character, practical skills (useful in occupational and extra-occupational life) key, social, economic-legal, organisational and other skills should be particularly emphasised. According to kind of activity names of modules in this category can be differentiated, e.g. “Bases of social communication”, “Bases of work with computer”, etc. However, one should remember that vocational education includes also general education, among others the subject “entrepreneurship”, which – what is often forgotten by teachers and curricula designers – also prepares to an occupation. Thus, possible separation of modules in this category should be preceded by an in-depth analysis of curricular bases and curricula belonging to the group of general comprehensive subjects.

The second category of vocational education modules called “**Technical bases of an occupation**” refers to the canon of education common for a particular vocational area, e.g. building trade, mechanics, etc. According to a group of occupations, for which a curriculum is developed, the last element of the module’s name should be differentiated. In the case of building occupations it can be called “Technical principles of the building trade”. The number of modules in this group depends on differentiation of subjects and work means in occupations qualified to the vocational area. If differentiation is small then one module of vocational education should be separated (example as above).

The third category of vocational education modules called “**Basic works in an occupation**” refers to the canon of education specific (basic) for a particular occupation, e.g. bricklayer, plasterer, floorer, etc. In this case also the last element of the module’s name should be differentiated and it can have e.g. the name “Basic



bricklayer technologies". The number of modules in this category results from the assortment of work and development of technique, technology and organisation of manufacturing (production), service and technological work.

The fourth category of vocational education modules called "**Specialised works in an occupation**" also refers to the canon of education specific for a particular occupation. However, it refers to narrow specialisation in the occupation. In this case names of modules in this category can refer to name of specialisation, if such occurs in the occupation. One should also take into account that a lot of specialisations require the employee to have additional qualifications certified by competent organisations in the out-of-school system. The curriculum should include the areas of tasks of specialisation, which do not require these certified qualifications. However, it is worth showing students what their further vocational career could be. Thanks to appropriate efforts – agreements with authorised bodies - school can be an organiser of training leading to acquirement of particular certified qualifications. These new functions of school, connected with continuing education should constitute an additional educational offer for students, in particular when school delivers a curriculum with a modular structure of educational contents.

Vocational education modules from the first, second and third category should be obligatory (compulsory) for all occupations (educated at the level of a worker) forecasted in the classification of school occupations. On the other hand, the fourth category of modules will occur in the situation when school decides for running specialisation, what depends on having an appropriate base and staff and on regional needs.

In the course of developing modular curricula for vocational school two succeeding and tightly connected stages are distinguished:

Stage I – separation of vocational education modules and modular units.

Stage II – selection of modularised contents of vocational education (Fig. 4).

The mentioned stages arise from the following conditions:

- adjustment of curricular contents to requirements of a curricular base of education in an occupation and market economy expectations,
- optimal assurance of possibilities to delivery a vocational education curriculum.

The scheme of the course of developing a vocational education curriculum in a modular system is presented in Fig. 4. Because of the process complexity, the Figure shows some simplification. Each distinguished activity block should finally have its own procedure to be fulfilled. Four complementary phases of activity were distinguished:

- I. Defining qualification requirements for an occupation.
- II. Constructing a didactic map of a vocational education modular curriculum.
- III. Selection and assignment of a structure of vocational education contents for modularised educational classes.
- IV. Development of a methodological cover of modularised educational classes.

First three phases of activity should be obeyed while developing a vocational education curriculum. The three phases consist of formal requirements specific for all vocational education curricula defined by the Ministry of National Education and Sports. The fourth phase applies to development of educational packages for



students and teachers. Educational packages should be developed by vocational schools which implement modular curricula. Educational packages represent a kind of “closed” educational technology which should be adjusted to predispositions of the learners. Teachers should have the possibility of choosing a “way” of reaching the goals that were planned in the third phase of detailed modular units’ educational aims, as well as, planning individual paths of acquiring vocational qualifications.

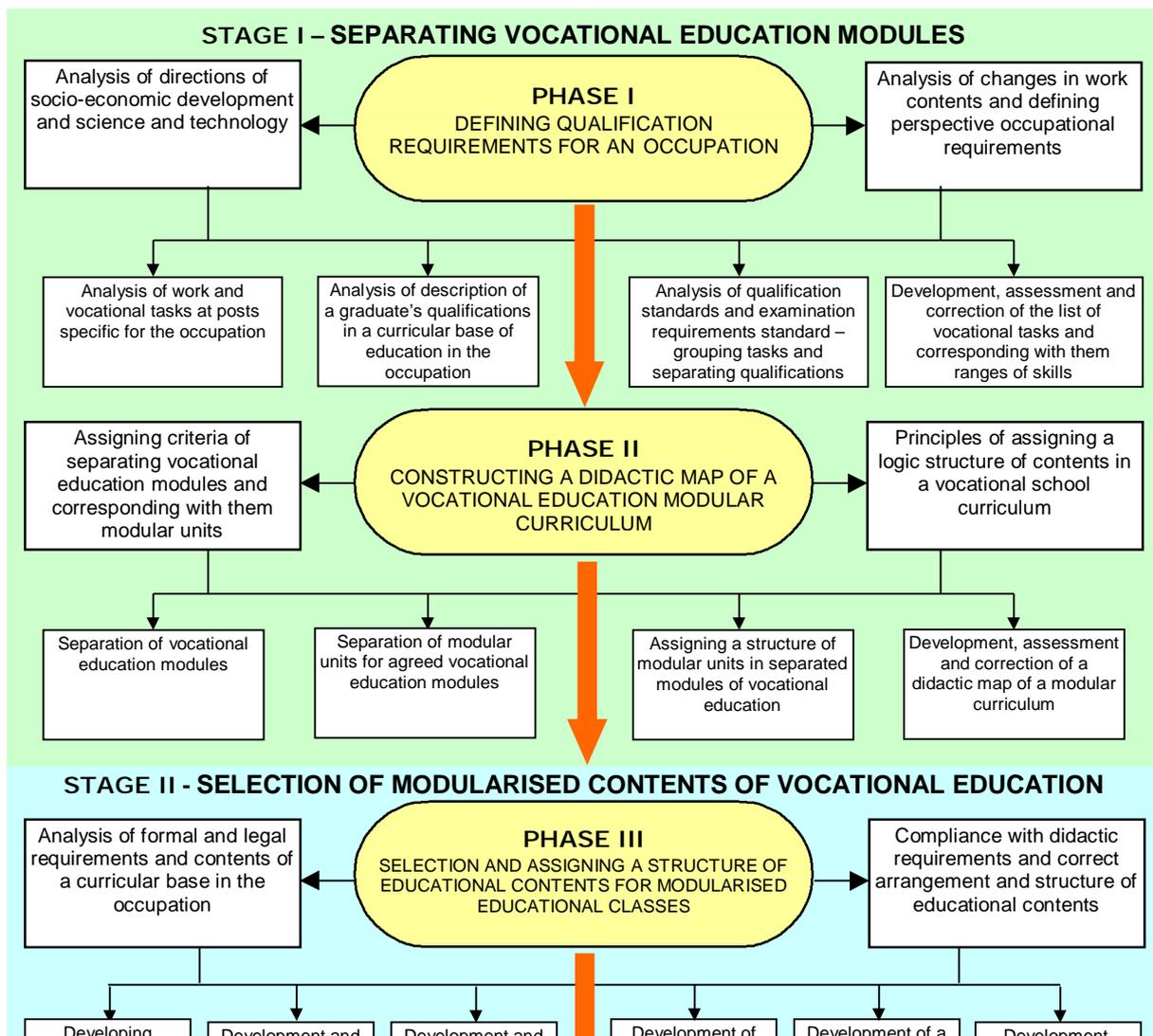


Fig. 4. The course of developing a vocational education curriculum in a modular system
In the process of separation of modular units typical for a specified vocational education module the following criteria should be pointed out:

- logical links between activities that form occupational tasks
- qualifications that are necessary in a specified occupation, in a realization of occupational tasks
- general vocational educational premises – fixed packages of general - technical educational contents of a crucial meaning for occupations of a specified vocational group.

Modular curriculum for an occupation can consist of modules of four categories. The names of modules as structural and functional methodic totals should be included in the teaching program of a school.

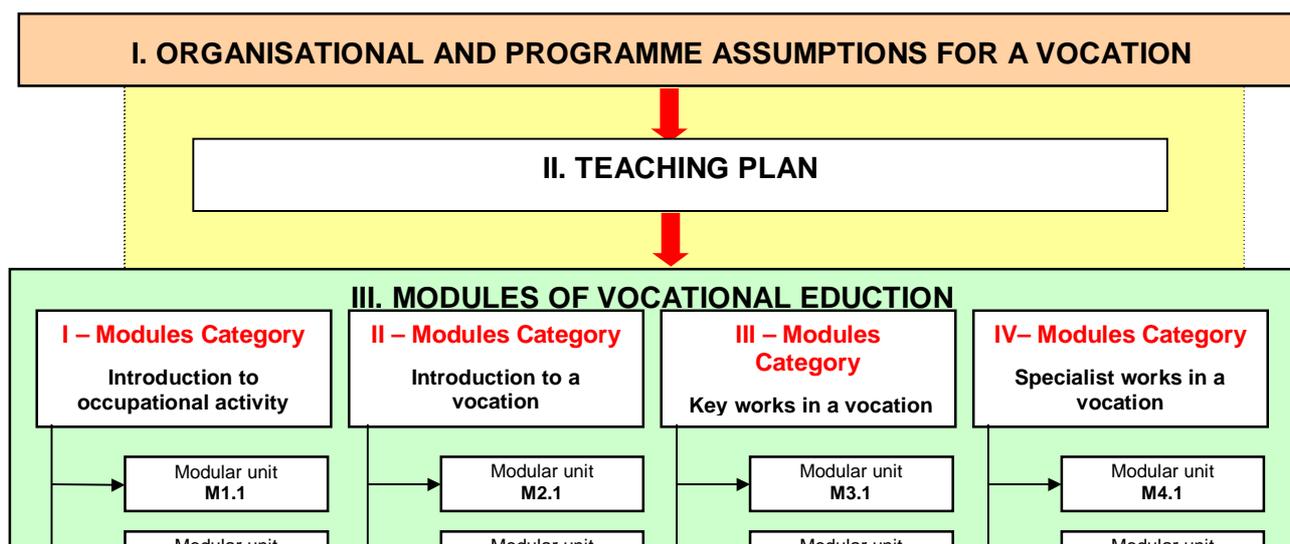


Fig. 5. Teaching program model of modular structure for a vocational school



3. DIRECTIONS FOR IMPLEMENTATION OF VOCATIONAL EDUCATION MODULAR CURRICULA

As mentioned before, the assumptions that apply to development of modular curricula (for a vocation), result from Polish experiences and international practice in modular education, especially from the experience of International Labour Organisation. The directions (see below) include the context in which the curriculum is developed, as well as, its implementation:

- acquiring knowledge and skills, in modular education, depends mainly on the tasks which one should perform in real or simulated conditions;
- modules and modular units related to them should be the basis for the organisation of learning content and should enable, taking the specific profession into account, development of various contents structure – obligatory and/or adjusted to individual needs.
- modular educational system defines specific ways of acquiring vocational qualifications and competencies:
 - while acquiring qualifications one demonstrates the ability to do the job according to norms and standards that are required in a specific work place;
 - students' progress and achievements are controlled regularly which helps to eliminate school failures;
- development of modular education is based on following rules:
 - vocational curricula correspond with the requirements of a specific job and take individual qualities and experience of learners into account;
 - in the learning process, the theory is integrated with practice and supported by application of activating methods of teaching and learning;
 - teaching underlines the necessity of acquiring the knowledge in a gradual way and necessity of helping to gain skills and qualities of character; going to the next stage is possible after passing the preceding one;
 - vocational curricula should be flexible, open for necessary modifications and structural supplements of some of their elements; which enables the students in acquiring specific skills, knowledge and helps them to gain the necessary qualities of character;
 - modules should integrate theoretical knowledge of different areas, together with practice. This interdisciplinary character of modules influences the change of the teachers' function and competencies, organisation of classes and methods of teaching and learning;
 - modular curricula "break" with objective oriented content structure of learning, modular content structure is a reflection of vocational tasks;
 - educational package which is an integral part of the curricula is directed on a student enabling him to learn independently or with the help of a teacher by the application of multimedia techniques;
 - modules and modular units are assessed and marked separately which enables a student to get specific competencies and qualifications confirmed by a certificate;
 - a teacher, in the role of an advisor or a partner, organises and manages the didactic process and gives feedback on the students' achievements;
 - development of a modular curriculum requires co – operation of many experts, the developers should have specific competencies especially in identification and



analysis of occupational tasks and activities, as well as, their extrapolation on didactic tasks.

The features of modular curricula and of vocational education process lead according to them, verified within the pedagogical experiment executed by the Institute for Terotechnology under the auspices of the Ministry of National Education and Sports between the years 1997 – 2000 are presented in table 1 and 2. Some of the features, which apply to modular and objective education, are particularly exposed in modular education.

Table 1. Features of modular curricula

CURRICULUM STRUCTURE AND LAYOUT	AIMS OF EDUCATION	TEACHING MATERIAL	CURRICULUM ORGANISATION AND REALISATION
<ol style="list-style-type: none"> 1. Readable concept of the curricula (theoretical basics, separating criteria of modules) 2. Transparent layout of the curriculum 3. Structure of the curriculum – modules and modular units 4. Correlation schemes between modules and modular units 5. Coding system of modules and modular units 6. Possibility of application of modules and modular units in different occupations and occupation areas 	<ol style="list-style-type: none"> 1. Occupation description including list of occupational tasks and needs of the labour market 2. Operational aims of education (activity and its content, conditions, standard) 3. Hierarchical layout of detailed aims of education 4. Readable and clear aims description 	<ol style="list-style-type: none"> 1. Structured teaching material 2. Teaching material related to the aims of education 3. Teaching material related to the students' perception 4. Examples of exercises, test problems, materials for students 5. Enter criteria for each module and modular unit, and a way of assessing them 	<ol style="list-style-type: none"> 1. Possibility of individualisation of education 2. Integration of different teaching concepts: structural, individual, multimedia etc. teaching 3. Possibility of receiving certificates confirming school achievements after the completion of modules and modular units 4. Specific standard of tech. didactic equipment 5. Propositions of testing and assessing students' achievements 6. Methodical guidelines for realisation of teaching material within separated modules and modular units 7. Teaching plan

Table 2. Features of educational process according to module based curricula

ORGANISATION OF EDUCATIONAL PROCESS	METHODS OF EDUCATIONAL WORK	DIDACTIC MATERIALS	RELATION: TEACHER - STUDENT	QUALITY OF EDUCATION
<ol style="list-style-type: none"> 1. Availability of curricula documentation for a teacher 2. Recruiting process combined with diagnosis of the candidates' knowledge and skills 3. Facilities for students (social, didactic) 4. Individual teaching curricula for students 5. Possibility of taking additional classes 6. Services and counselling for students 	<ol style="list-style-type: none"> 1. Activating teaching methods 2. Organisation of classes in groups (up to 15 students) 3. Optimal use of the time in class 4. Control of enter skills 5. Attractiveness of methods for students 6. Self-organisation and creativity of students 7. Assessment of a teacher's teaching methods given by the students 	<ol style="list-style-type: none"> 1. Availability of educational packages 2. Actuality and aesthetics of students' materials 3. Methodical materials for a teacher 4. Availability and modernity of educational equipment 5. Exact number of educational materials and facilities 	<ol style="list-style-type: none"> 1. Motivating students to studying – regular control of their achievements 2. Partner contact teacher – student 3. Collecting certificates of achievements by the students 4. Giving feedback on students' achievements 5. Collecting feedback from the students 	<ol style="list-style-type: none"> 1. Clear and understandable assessment criteria 2. Assessment procedures corresponding with curriculum requirements 3. Documentation of the educational process 4. Monitoring and evaluation of the educational process by the teachers and a school management body 5. Procedures of assuring quality of education



7. Issuing "partial" certificates				6. Effective system of information
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3. MODULAR CURRICULA IN VOCATIONAL EDUCATION AND TRAINING FOR THE LABOUR MARKET

In Poland modular training is based either on individual curricula developed by different educational institutions, which by the rule are a kind of "self solution", or adaptation of ILO – MES concept to the local and institutional conditions. According to the experience, resulting from the project TOR#9 – Adult Training, executed in the years 1993 – 1997 by the Ministry of Labour and Social Policy in co – operation with the International Labour Organisation, the process of modular training is highly effective and useful especially in shaping vocational skills. It is applicable where the individualisation, choice and differential of training contents is needed, where flexibility and fast, effective technique of shaping specific sets of skills enabling realisation of specific occupational tasks in specified jobs, is essential. It should be underlined that MES methodology in Poland has gone through two phases of development. The first one took place within the project TOR#9 whereas the second within just finished project PHARE 2000 – National System of Vocational Education and Training. The necessity of adjustment this methodology to Polish conditions was the outcome of the following premises:

- Candidates for training presented higher intellectual level than people to whom International Labour Organisation dedicated the MES methodology. Because of this fact, Polish curricula enable shaping typical, as well as, combined skills on basic vocational preparation, vocational, secondary and higher levels. Whereas, the ILO's bank of modular curricula applies to key activities on the lowest level.
- Theoretical basis of vocational education and training should include traditions and output of Polish pedagogical science (especially pedagogy of work) and other sciences, which influence the competencies of didactic staff, as well as the teaching and learning process. The idea is "to ensure a positive transfer of modular teaching concept into the already existing educational and training systems in different institutions that offer educational service".
- Development of modular educational curricula in vocational education and training institutions is the reason for designing such a set and structure of these curricula in vocational training, which could be used and adapted to different types and forms of learning (in a training institution and distance learning), including self-education (especially of teachers and trainers).
- Widening the range of various didactic aids and materials (printed and multimedia including the Internet resources) which can be used in modular training, influences the range and form of materials dedicated to students and teachers. Whereas, in the classic MES concept, materials for students as part of "didactic elements" are usually printed ones.

Modern understanding of modular training based on MES methodology implies the following:



- 1) the range of learning content in training programmes results from the analysis of the occupational content, that is: tasks and related to them occupational activities practically realised in a specific workplace in a company;
- 2) teaching programme is divided independently into specifically designed and correlated teaching and learning units (that is: modular and training units described in this paper), which relate to knowledge, skills and attitudes required in realisation of occupational tasks in a workplace;
- 3) candidates for training can start their education from different introductory levels, that is: there are different learning paths available which can be adjusted to different levels of the knowledge acquired earlier, individual predispositions and needs;
- 4) teachers/trainers design and realise educational classes using a wide range of methods in order to help the students in reaching the expected results;
- 5) educational materials for students and teachers are an integral part of a teaching programme and are of key importance in teaching and learning; they enable to assess the achievements and results of learning and acquire selected knowledge essential in shaping specified sets of skills;
- 6) the organisational structure is highly effective (that is: staff competencies and tech. didactic materials); that is why a vocational modular curriculum can be executed in real or simulated conditions (though related to the real ones);
- 7) assessment of the students' achievements is a fixed element of a teaching and learning process, based on two level assessment: "can" ("is able to") or "cannot" (is not able to), which eventually requires additional training (classes) to pass a specific training unit or the whole set of training units that form a specific modular unit;
- 8) "modularisation" in vocational schools should be perceived as a kind of universal, structural concept which offers people education in different life situations and at the same time keeping their vocational mobility (Gruber E., 2002).

Such approach makes modular curricula of vocational training to be perceived as an effective way in coping with the dynamic changes in work content which are "transformed" by education into various training services' offers. Whereas modular curricula itself, is a basic document in organising training for a specific work area characteristic for an occupation, specialisation or integrated multi occupational area. This area is divided into independent, specifically designed and correlated teaching and learning units which enable an effective acquirement of vocational skills and knowledge required on the labour market.

5. DEVELOPING A FLEXIBLE VOCATIONAL TRAINING OFFER

There are areas in education which seem to be specifically designed for modularisation, for example: staff education and development, retraining, re-qualification, schools for adults, completing basic qualifications or acquiring new specialist qualifications. Modular education/training is organised in a system way that ensures reaching planned goals, makes processes and their outcomes recurrent, but most of all it guarantees much better effectiveness than traditional training methods. Taking actual situation in the labour market into account, modularisation of the educational and vocational training content is a chance for a strict connection of

education and the labour market (Fig. 6). Nevertheless, appropriate legal mechanisms and resolutions which form a system of didactic and training services are necessary. Modularised educational offer should concentrate on the final result of a teaching and learning process; that is on such qualifications and competencies of a graduate, which are or will be in demand among the employers. These are so called partial vocational qualifications, which collected regularly may lead to reaching full qualifications in a specific occupation.

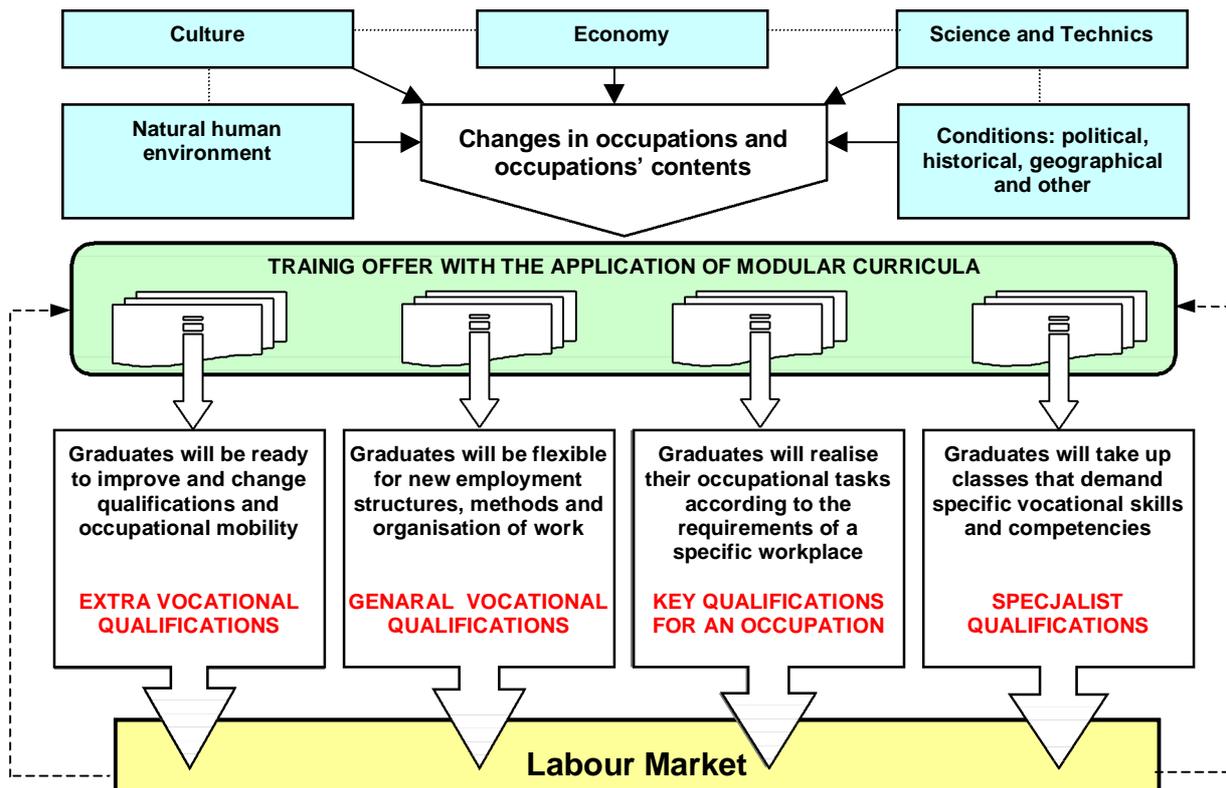


Fig. 6. Development of modular curricula of vocational education and training offer, concerning the requirements of the labour market

A curriculum is the basis for planning, realisation, managing and control of teaching and learning process in the activity of educational institution. It is at the same time the basis for selecting information for teachers and students. "Mechanism" of developing a curricula offer has also a crucial meaning for an institution. Schools and training institutions may choose among some options:

- they can select curricula from available to all register approved by appropriate decision making groups (e.g. by Ministry of Education – curricula approved for the use in schools, or by Ministry of Labour – modular curricula, adult training courses developed as a result of TOR#9 and PHARE 2000 projects) and put them directly into practice;
- they can modify already existed curricula adjusting them to their needs, especially to the clients' expectations;



- they can develop new, own (author) modular curricula, after going “a rough way” through following phases: diagnosing the needs within education (or training), stating tasks and goals of education, planning the system of assessment, designing, implementing and evaluating a modular curriculum. This cycle of activities must be recurrent so that all curricula have quality accepted on the market.

Each option has its advantages and disadvantages. Undoubtedly, the easiest and most beneficial way is to select and apply a curriculum, which was approved officially. The bigger offer of various curricula on the “educational market” is, the more effective such operation will be. Thanks to such diversity it will be easier to find a curriculum that meets the specific needs and/or fits stated aims. Because each curriculum has its own educational package that protects its realisation, an institution will not have any problems with educational materials. Unfortunately, actual offer of available modular curricula is too poor to meet the needs of the labour market.

As shown in practice, developing a new curriculum is the best way to realise educational aims of a provider of educational services. On the other hand, it means bigger intellectual and financial effort and in many cases includes designing educational materials, too.

Therefore, the third possible option that is: adjustment, modernisation, actualisation or modification of already existing curricula seems to be a good compromise. Moreover, if the scale of necessary modifications is relatively small there will be no need for radical change of educational materials that are already included in the curriculum. Finally, this option enables the engaged staff to self development in the range of designing and development of curricula offer that characterizes their training institution (**ANNEX 1**)

SUMMARY

Modular structure of a curriculum is the main, but not the only didactic novelty of last years, which emerged in vocational education and on the educational services market. Assignment, with the use of evaluation methods, what benefits it brings will enable educational decision-makers and managers to plan a development strategy of this sphere of services for the society in the area of a didactic system of educational institutions. Articulation of experimentally checked principles, methods and procedures, on which education in the modular system should be based in Polish conditions is aimed at facilitating the process of making optimal decisions at the level of the vocational education system, educational institution, teacher and pupil/student.

New “generation” of modular vocational curricula is the beginning of a way that leads to quality improvement of educational services and to the development of qualifications and competencies of “human resources” in Europe. So far collected intellectual potential (experts, curricula authors, reviewers, training institutions) is a good basis for continuation of work in order to develop modularised curricula offers.

It should be underlined that modularisation appreciates and makes the use of informatics systems in the range of offering content – related and methodical help for trainers and for learners. That is why the database which was designed during execution of EMCET de Bank project was the first such solution in Europe with good chances for further development. It should lead to creation of international platform of



information exchange concerning modular curricula of vocational education and training in different countries, as well as, development of trainers' competencies and offering internationally approved training modules.

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Annex 1

The example of modular programme of training for instructors - the Polish experiences

The workshop programme is addressed to teachers/instructors who are preparing for designing and carrying out of modular vocational training programmes utilising the experiences of the project which in the years 1993-97 was co-ordinated by the Ministry of Labour and Social Policy as TOR #9 - *Adult Education* and ILO's concept of Modules of Employable Skills (MES).

Modular programme is designed by the Institute for Terotechnology in Radom, under the Phare 2000 CVT project execution. This annex shows only a part of the programme, because the total No. of pages in the document is more than 400 pages.

1. General goals

Initial preparation of participants in the field of:

- designing modular vocational training programmes with the use of ILO's Modules of Employable Skills (ILO-MES),
- identification and analysis of training needs and creating flexible offers of courses for the labour market with the use of modular training programmes,
- designing tools for evaluation and assessment of modular training quality,
- implementation of modular training programmes, application of activating teaching methods taking into account andragogical issues.

Expected outcomes:

The training will contribute to the popularisation of MES concept among different groups of society and thus enhance creating flexible training offers for the labour market and National Vocational Training System. The training topics are meant to give participants orientation in the complex approach to the design process and implementation of modular training programmes. As a result the course graduate should be able to:

- characterise the MES methodology and the possibility of using it for the development of modular vocational training programmes,
- use the modular vocational training programme documentation which was developed with the use of the MES concept within the framework of the project TOR# 9 - *Adult Education* - and Project PHARE 2000 - National Vocational Training System,
- conduct training needs analysis with the use of basic methods and available information sources,
- evaluate modular vocational training programme quality with the use of evaluation tools,
- apply selected activating teaching methods (project, lead-in text, metaplan) in adult education,
- apply acquired skills for developing a fragment of a modular vocational training programme.

Confirmation of the qualifications acquired:

The course graduate, having acquired credits in all the modular units covered by the programme will obtain a **certificate of the course completion** confirming his methodological competencies at the **elementary level** in the field of: „**Modular Vocational Training Programme Design, Execution and Evaluation**”.



It will also be possible to confirm (by a separate certificate) the successfully completed modular units in case the candidate, for reasons beyond his/her control, cannot complete the whole course. It will enable him to acquire a full set of competencies covered by the course programme at a different time, convenient for the participant and during another training, without the necessity of acquiring credits again in the modular units the completion of which was confirmed by the earlier, self-contained certificate.

2. Model of modular vocational training programme documentation

- such documentation consists of two parts: Part I - Guidelines for the Training Programme and Organisation, and Part II - Programmes of Modular Unit Execution. Part One serves mainly the purpose of planning the training. Part Two serves the purposes of the training execution. Such a division of the programme influences significantly the understanding of the programme concept (methodological organisation) and clarity of the content organisation which in Part Two makes separate „training mini-programmes” corresponding to vocational tasks performed on the job. In the didactic language the vocational tasks assume the form of modular units which in our concept of modularisation become a **criterion of distinguishing, selection as well as organisation of the training/education contents**. What is actually carried out within the framework of didactic classes with the use of MES methodology can be found in the contents of instructional units which are the heart and the aim of the training accomplished in the modular system. Instructional units are the smallest element of the modular, MES-based programme structure.

A graphic visualization of the model of modular vocational training programme documentation is shown in the diagram enclosed. Our vocational training programme for teachers and instructors has been prepared according to this model and is its practical illustration.

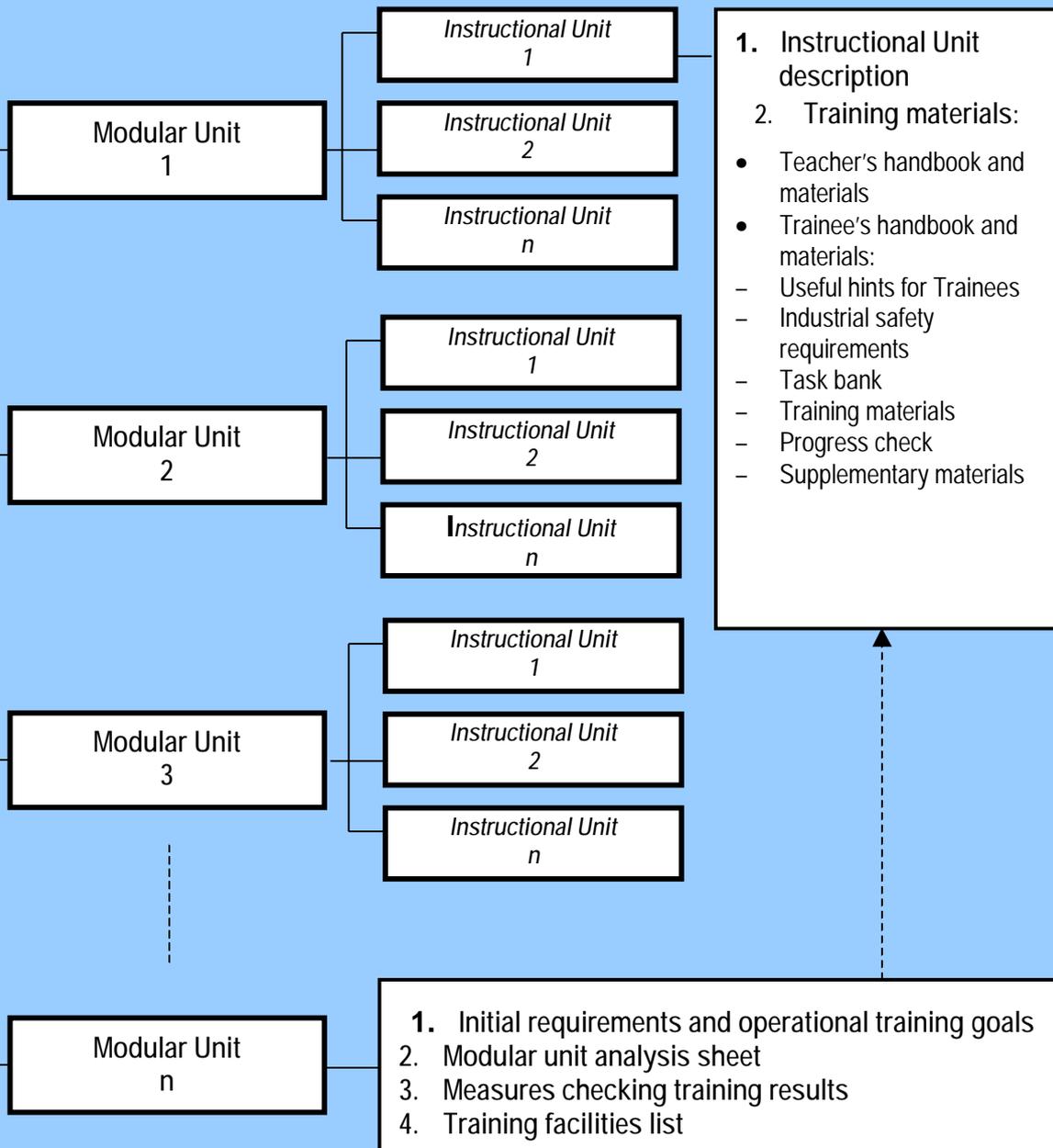


DOCUMENTATION MODEL OF MODULAR VOCATIONAL TRAINING PROGRAMME

1. Overall training goals
2. Introduction to modular training
3. Job description and qualification requirements
4. List and description of modular units
5. Block diagram of training organisation
6. Training execution plan

PART I: ORGANISATIONAL AND PROGRAMME ASSUMPTIONS

PART II MODULAR UNITS EXECUTION PROGRAMMES





3. Job Description and Qualification Requirements

JOB DESCRIPTION

Name of the job according to the Classification of occupations and specialisations of the Ministry of Economy, Labour and Social Policy:

Teacher/Instructor -235102

Course Instructor (Educator, Trainer) - 235910

Teacher/Instructor of practical job skills - 311105

Field of work: **Modular vocational training design, execution and evaluation**

Occupational area: **Educational services**

Page 1 of 2:

Developed by: Institute for Terotechnology in Radom

Description of responsibilities

Teachers in this group are in charge of didactic work, participate in developing methodological materials, educational and didactic aids as well as in developing, updating and evaluating of teaching programmes. They adjust instruction contents to the requirements of employers, plan didactic processes, organise working posts for learners and evaluate training effectiveness. They can specialise in the development, implementation and evaluation of MES-based modular training for the labour market developed by the International Labour Organisation (ILO) and adapted to Polish conditions by the Ministry of Economy, Labour and Social Policy (MGPiPS). In their didactic and training activities they apply the rules referring to adult education, activating teaching/learning methods and the procedures and tools of pedagogical evaluation. While creating educational offers they employ the method of the training needs analysis, they participate in the development of new modular training programmes and modify the existing ones, they select materials and facilities indispensable for the execution of classes in the modular system while taking into account individual and collective customers' expectations.

Place in the organisational structure (accountable to/for):

- Accountable to the director of the centre or other educational institution or the manager of the task group.
- Accountable for the design of the modular training programmes conformable with the expectations of the labour market, their execution and quality of the educational services offered.
- Works individually and in the team.
- Can hold the function of the modular training co-ordinator in an organisation

Job conditions/performance standards

1. Works in training centres rendering services for vocational upgrading, updating, training, re-qualification of workers and the unemployed, in conformity with the general and internal regulations.
2. Usually works in laboratories adjusted to the execution of the programme topics (classrooms, lecture halls, laboratories including simulation laboratories, production halls, in the open-air (a military range), in conformity with the labour code, industrial safety and environmental regulations.
3. Can work on his own account, in conformity with the regulations of the Acts on running economic activity and copyright.
4. Deals with pupils/learners, depending on their needs and in conformity with the established rules.
5. Deals with clients (internal ones - other workers and external ones - ordering parties, including Job Agencies) directly or by electronic mail while observing the rules of job



<p>ethics and respect towards other people and in conformity with his competencies.</p> <p>6. Works in the time ruled by the needs of the training organiser.</p>
<p>Requirements of admission to work:</p> <ul style="list-style-type: none"> - University education; in some cases, regulated by appropriate regulations, can have secondary education (e.g. conducting classes at the vocational courses of elementary level). - Knowledge of sector regulations, depending on the speciality represented and the type of course. - Appropriate health condition, confirmed by a medical certificate. <p><i>Desired qualifications:</i></p> <ul style="list-style-type: none"> - Pedagogical preparation, in conformity with the regulations in force. - Practice in a given area of work. - Computer skills and knowledge of basic Office software. - Knowledge of English, at least at elementary level. - Certificates of the courses completed within the framework of his own vocational development; own programmes and training materials developed. - Communicative skills.

4. List and description of modular units

The training programme consists of 7 modular units (JM). The names of modular units correspond to the names of vocational tasks performed by the teacher/instructor on the job. The list below presents their descriptions together with the information on standards (norms) of vocational task performance.

JM.01

Training needs identification and analysis

It identifies own training needs and those of the trainees following the labour market analysis and the information obtained from different sources on jobs and job requirements, while taking into account the existing description of the vocational qualifications standard. Applies basic methods and tools for identification of training needs, resulting from requirements and expectations of the institution, organisational unit or individual person.

Performance standards/norms - in conformity with the principles and procedures of the training needs analysis.

JM.02

Modular vocational training programme design

Identifies features characteristic for the concept of modular vocational training based on Modules of Employable Skills (MES). Characterises particular elements of a model programme documentation of modular training. Defines vocational tasks and prepares job descriptions for the established field of work. Individualises modular units, describes them and defines their training goals. Individualises instructional units and specifies their execution time. Working in a team, describes instructional units and develops sample materials for participants and teachers/instructors. Develops progress checks and Performance tests to control training results. Specifies learning facilities necessary for modular training execution.

Performance standards/norms - in conformity with MES methodology adapted for Polish conditions and model documentation.

JM.03



Application of activating teaching methods in training practice

Selects teaching methods suitable for the classes. Applies selected activating methods, such as metaplan, project, lead-in text in the teaching/learning process. Employs Information Technology for the purposes of preparing and applying different teaching methods.

Performance standards/norms - in conformity with requirements of teaching methodology and communication.

JM.04

Modular vocational training organisation

Presents the way of work co-ordination, procedure and documentation used in the modular training organisation for the labour market. Presents technical and didactic infrastructure and discusses the problems connected with teaching resources organisation for the needs of modular training programme implementation. Characterises the ways of the teaching and managerial staff competency improvement for the needs of modular training programme implementation. Carries out observation of the training employing modular training programmes and learning packages. Shares experience with other teachers/instructors (problems, „strengths and weaknesses”) in the field of modular training organisation.

Performance standards/norms - in conformity with the requirements of the MES methodology adapted for Polish conditions.

JM.05

Creating learning packages; selection and adaptation of training materials

Specifies materials and learning facilities indispensable for the execution of training. Collects materials in the form of the learning package for the purposes of organising and carrying out of the modular training. Selects training materials for exercises. Defines teaching methods and technique of information transfer in conformity with the character of the contents taught. Adapts materials for tailor-made vocational training.

Performance standards/norms - in conformity with the requirements of the MES methodology adapted for Polish conditions and the copyright law.

JM.06

Monitoring and evaluation of modular vocational training

Chooses evaluation tools (or prepares the ones of his own) and conducts a cyclical evaluation of the quality of classes carried out in the modular system. Assesses the methodological and content quality of modular vocational training programmes. Collects information and data enabling assessment of the modular training effectiveness. Monitors implementation and prepares reports on the execution of modular training in a given institution.

Performance standards/norms - in conformity with the principles of pedagogical evaluation and instructions concerning report making.

JM.07

Preparing modular training offers and their implementation while taking into account the specificity of adult training

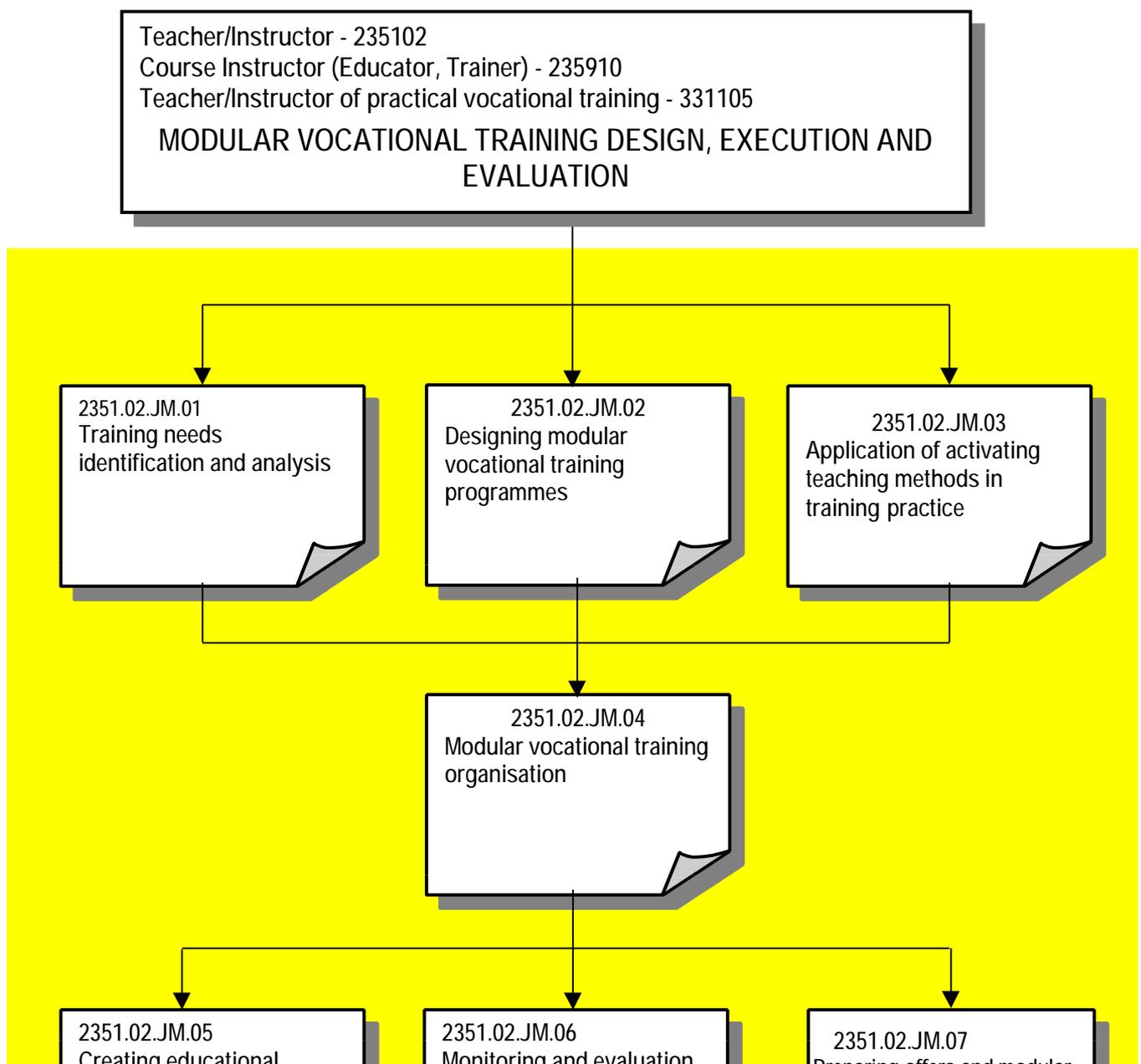
Develops the concept of modular programme implementation and prepares modular training offers responding to the labour market and job agency expectations. Disseminates information on modular training offers. Creates favourable conditions for effective learning of adults. Establishes contact with candidates for training, identifies their predispositions and experience and defines the individual path (programme) of modular training.



Performance standards/norms - in conformity with the MES methodology adapted for Polish conditions, principles of adult education, report requirements set by the Ministry of Economy, Labour and Social Policy and procedures adopted by the training institution.

5. Flow chart of the organization of the training course

The flow chart shows the structure of the modular units – parts of the whole modular curriculum. Mutual relations and interdependence shows that it's possible to realize the modular units in "parallel" and "serial" way, what can be easy used by the training organizers to work with groups.





6. Training Execution Plan

TRAINING EXECUTION PLAN			
<p>Name of the job according to the Classification of occupations and specialisations of the Ministry of Economy, Labour and Social Policy: Teacher/instructor -235102 Course instructor (Educator, Trainer) - 235910 Teacher/instructor of practical job skills - 311105</p> <p>Field of work: Modular vocational training design, execution and evaluation Occupational area: Educational services</p> <p>Page 1 of 2: Developed by: Institute for Terotechnology in Radom</p>			
Training Execution Plan:			
Includes a list of modular and instructional units and the time of their execution within the course			
Modular unit code and name	Instructional unit code and name	Approximate realisation time (hours)	
2351.02.JM.01 Training needs identification and analysis	JS.01 - Training needs assessment and information source analysis.	2	
	JS.02 - Application of basic tools for training needs identification (levels: institution, the unemployed)	4	
TOTAL:		6	
2351.02.JM.02 Modular vocational training programme design	JS.03 - Explaining the concept MES-based modular training	4	
	JS.04 - Characterising the structure and identifying the elements of modular vocational training programme documentation	2	
	JS.05 - Identifying vocational tasks on the basis of job analysis and preparing job description	4	
	JS.06 - Defining modular units and describing them	3	
	JS.07 - Formulating modular unit training goals	3	
	JS.08 - Individualising instructional units while taking into account the modular unit analysis	4	
	JS.09 - Describing the instructional unit and preparing training materials	6	
	JS.10 - Designing Performance Tests and checking training results	4	
	JS.11 Preparing training facilities	2	
	JS.12 Preparing methodological handbooks for learners and teachers/instructors	2	
	TOTAL:		34
	2351.02.JM.03 Application of activating teaching methods in training practice	JS.13 - Distinguishing and selection of optimum teaching methods suiting the specificity of training	2
JS.14 - Application of selected activating teaching methods in the vocational training process		4	
JS.15 - Organisation of teacher/instructor's work with the use of modern information and communication technologies		2	
TOTAL:		8	



2351.02.JM.04 Modular vocational training organisation	JS.16 - Co-ordination, procedures and documentation used in the organisation of modular training for the labour market	1
	JS.17 - Preparing all the necessary technical and didactic infrastructure for the needs of modular training	2
	JS.18 - Improving teaching and managerial staff competencies for the purposes of modular training programme implementation	2
	JS.19 - Observation of training classes carried out with the use of modular teaching programmes and learning packages	2
	JS.20 - Identification of „strengths and weaknesses” of the modular training organisation	1
	TOTAL:	8
2351.02.JM.05 Creating learning packages; selection and adaptation of training materials	JS.21 - Application of various materials and didactic aids in modular vocational training	2
	JS.22 - Searching for, collecting, selecting and adapting printed and non-printed materials for training	2
	JS.23 - Developing learning packages for modular units	4
	TOTAL:	8
2351.02.JM.06 Monitoring and evaluation of modular vocational training	JS.24 - Evaluation of classes carried out in modular system	2
	JS.25 - Preparing reports monitoring the implementation of modular training in the institution	2
	JS.26 - Assessment of modular training programme quality	4
	TOTAL:	8
2351.02.JM.07 Preparing modular training offers and their implementation while taking into account the specificity of adult training	JS.27 - Creating a friendly teaching/learning environment for adults	2
	JS.28 - Interviewing candidates and creating individual modular vocational training programmes	3
	JS.29 - Developing implementation concept, modular training offers and their promotion among the people concerned	3
	TOTAL:	8
	OVERALL TOTAL:	80