

E-learning for manufacturing enterprises and universities based on ISOF Academy

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ABSTRACT

Purpose: The main issue of this paper is to present digital courses. They are part of a ISOF Academy programme which is dedicated to both technical and economical university students and employees hired in various companies including manufacturing companies.

Design/methodology/approach: Within this paper a diagram of tasks and problems occurring in a real companies was presented. Students solve this in an attractive form of virtual company with the use of digital teaching aids.

Findings: The paper introduces advantages and benefits achieved by applying digital exercise platform in a process of educating students. It presents also a set of functional abilities which knowledge is necessary for students for a proper maintenance of ERP/MRP systems.

Research limitations/implications: Further research should be concentrated on increasing efficiency and attractivity of digital trainings which are part of presented program.

Practical implications: The paper introduces contents and characteristic features of existing digital exercise platform designated for universities and companies. The platform is based on a Moodle packet and meant for assisting in an education process ERP/MRP rank computer system working in a ASP mode.

Originality/value: This paper can be useful for those who works with remote teaching methods including e-learning. It can also be helpful for students and company employees interested in modern business technologies in ERP/MRP rank systems.

Keywords: Computer aided teaching; E-learning; ERP/MRP systems; Moodle

1. Introduction

E-learning is a modern teaching method using computing technology. It can be performed in many accessible digital solutions especially like Internet, extranet or interactive TV whose one common feature is no personal contact between teacher and student.

E-learning is usually used to describe a method of training in which computer carry out the teaching process and examinations. Use of a modern resources on all levels starting from the course designing through module production, implementation on a e-learning platform, testing and administration of both platform and course participants is characteristic for such kind of training [1-14].

The use of e-learning education methods is currently spreading in big companies, public administration and higher education units which appreciate the importance of modern technologies in an organization development. Economic profitability of this form of training grows simultaneously with the growth of participant number.

E-learning trainings are currently one of the fastest developing branches. It is resultant of combination between education and computing. This development will be strongly financially supported within different e-learning programs donated by European Union. Their main goal is to adjust education and training systems used in EU to economy which is based on knowledge and digital technologies.

At present in Poland there are available many sponsored by EU programs which on one side can co-finance preparation of e-learning trainings and on the other participation in courses that are currently taking place. European Social Fund and The Sectoral Operational Programme - Improvement of the Competitiveness of Enterprises are the most important ones.

2. E-learning program ISOF Academy

One of many interesting proposals of e-learning training is program ISOF Academy [15, 16].

Two very similar applications were hidden under this name. ISOF for Universities and ISOF for Enterprises. Although similar they are not only designated for different target groups and they have originally distinct aims but they also differ from each other with some technical details. However one common aim for both applications is to enable an access for course participants to modern systems and solutions of administrating both trading and servicing companies (ERP rank system) as well as manufacturing companies (MRP rank system).

The paper's author, an employee of a higher education unit, supervised content-related and teaching extent of both trainings. The supervision was done on a base of agreement with HEUTHES company who created both programs.

3.ISOF for Universities

ISOF for Universities is a program for students and employees of higher education units. Its goal is to teach how to model and manage business and manufacturing processes. It also prepares students to work with the use of computing managing systems for companies (ERP/MRP rank systems). These abilities will make them more competitive on a Polish and European labour market. Until now a cooperation agreements within framework of ISOF for Universities program were signed with following companies:

- Technical University of Łódź,
 - Silesian University of Technology,
 - University of Szczecin,
 - Higher School of Business in Gorzów Wielkopolski

Primary advantages resulting from participation in university program are:

- access to internet e-learning platform ISOF for Universities (Fig. 1) created on a base of Moodle system [17],
 - access to a modern ISOF system used for servicing ERP/MRP rank companies,
 - training materials,
 - free of charge instruction course for person seconded by university for cooperation within a project.

Training programme consists of fifteen courses and allows students for self-studying or it can also be helpful in carrying out traditional courses which are taking place at the university (fifteen week semester cycle). During the classes students execute a programme based on so-called *virtual company*. Within that program each person is assigned to a different position and has

some tasks to complete. It simulates real situation that can occur in trade, servicing or manufacturing companies.



Fig. 1. ISOF Academy – CRM Operational course

Individual courses concentrate on issues encompassing following subjects:

1. *CRM (Customer Relationship Management)*. It contains the studying process of modern CRM modules: Operational, Analytical, Marketing, Service, Task Management, Sale Forecasting. Complete set of modules enables full consumer service starting with the planning of the sale levels through planning of marketing campaigns, dispatching of offers, main sale up to the product maintenance.
 2. *DMS (Document Management System)*. It contains the studying process of document management system. Thanks to it all company documents existing in a company life cycle are stored in a digital form. Only entitled person can have an access to the documents. When access is granted it is possible to use advanced searching, version arrangement and inserting documents into cycle of group work. System stores and equally deals with digital forms of different documents such as: documents of popular office packages (Microsoft Office, Open Office), emails, scans of documents, phone calls or multimedia files.
 3. *Sale and purchase service*. It contains the studying process of management of sale and purchase documents including making the documents out as well as editing, correcting and reporting.
 4. *Warehouse management*. It contains the studying process of warehouse documents management, reporting, delivery of goods to a warehouse and stocktaking.
 5. *Logistics*. Contains the studying process of solutions which enable to facilitate and accelerate commodity distribution. Some of those solutions are: customers orders management, assistance for telemarketers, deliverer orders management, optimization of distribution routes, supplies management, service departure management, delivery control.
 6. *Accountancy*. It contains the studying process of working with a accountancy computer system. It discusses basic functions

- needed in a daily accountant work and adaptation of a accountancy system to company specification. It describes also accountancy methods, declarations preparation methods as well as balance sheets and reports defined by system users.
7. *Company management*. It contains the studying process of preparing a set of reports which will allow for checking all parameters that are important for company owners and company central management.
 8. *Administrating the ERP/MRP system*. It contains the discussion about activities that are needed for preparing all the systems for proper work.
 9. *Task and time management*. It contains the studying process of solutions enabling for a digital control of a time usage as well as planning the tasks assigned to a different people or workgroups.
 10. *Office service*. It contains the studying process of functions supporting the office activities: running a contractor database, preparing delegation forms for employees, writing out contracts, document management, keeping a correspondence and public department records as well as appointment calendar.
 11. *Feedback between system and peripheral devices*. It contains the studying process of maintenance the feedbacks between ERP/MRP systems and other programmes or devices like telephone exchange, bar code scanners and cash registers.
 12. *Communication*. It contains the studying process of solutions which enable both exchange of text or sound information and organization of teleconferences and videoconferences.
 13. *E-business (Online Shop)*. It contains the studying process of online shop services.
 14. *Mobile solutions*. It contains the studying of maintenance process for mobile PDA devices and smartphones equipped with Java applications linked with stationary systems.
 15. *Modules integration*. It contains the discussion about possibilities of cooperation between different ERP rank modules. Thanks to such integration it is possible to receive cross-sectional reports with real data or single-time data entries of various papers like store and sale documents.

Each course class consist of basic elements:

- theoretical specification with examples illustrating practical applications;
- graphic illustrations;
- teaching films (Fig. 2) prepared in a FLASH format which present practical execution methods of the discussed problems;
- control tasks for self-studying after finishing familiarizing with the lesson;
- set of summarizing questions prepared as a quiz (Fig. 3).

There is also an additional summarizing quiz in each course. After finishing it participants can receive a personal Certificate of ISOF Academy which confirm one's knowledge within a particular issues (Fig. 4).

It is recommended for participants that during executing the training they should keep the ISOF system work sessions open. This will allow for up to date checks and tests of proposed in various courses solutions. It is possible since the ISOF is accessible as a ASP (outsourcing) service. In such model the ISOF is installed on a servicer server and users have an access by the computer with the web browser.



Fig. 2. Teaching film

Differently than in a traditional licences of ERP rank systems universities taking part in a programme do not have to install any software on their servers. Besides they do not have to take into consideration cost of servers, operating systems, databases, computing maintenance, energy for powering the server or update fees.



Fig. 3. Set of summarizing questions

ISOF is used to train issues presented in a e-learning course. It consist of many related to each other modules which cover all basic branches of company functionality.

It is ERP rank system which also enables compatibility with planning in a MRP standard working in a closed loop. It supports such elements as: sale process, creating and managing product portfolio, general planning, planning a load of marginal resources, planning a supplies, manufacturing orders, records of goods transactions and purchasing process. Modern systems for manufacture managing (MRP) are nowadays better and better integrated with enterprise management systems (ERP).



Fig. 4. Certificate of ISOF Academy

4. ISOF for Enterprises

The second programme, ISOF for Enterprises, also realizes all presented in a first example tasks. Moreover it put an emphases on employee trainings within a rising efficiency of functionality and labour quality in appropriate branches of companies and organizations.

I SOF for Enterprises differ also in a way of accessing the protected e-learning platform for companies. First it is necessary to possess a special SSL certificate and then run a platform by using a special button in a system ISOF desktop dedicated to individual companies.

Certificate exists in a form of digital data saved on a hard drive of specific user. It can also allow participant for better mobility when distributed as physical device - a cryptographic USB token.

5. Conclusions

Presented in this paper program ISOF Academy represents a very interesting educational system designated for both university students and company employees of any branch. Modern training programme is based on a combination of e-learning platform and exercises done in a ERP/MRP rank system. Due to this students have a possibility of acquiring practical knowledge about functioning of modern company management systems (ERP rank) and manufacture management (MRP). Moreover employees have

a possibility to familiarize with the newest company software trends.

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