Babeş–Bolyai University, Cluj–Napoca
Faculty of Mathematics and Computer Science
University year 2006-2007
Semester 5

I. General information on the course, seminar, practical work or lab

Title of discipline: Windows Programming
Code: MID0018
Credits number: 6
Place:
Schedule of activities:

II. Information on the instructor for the course, seminar, practical work or lab

Name, scientific degree: Prof. Horia F. Pop
Contact information (e-mail address): hfpop@cs.ubbcluj.ro
Office hours:

III. Description

Contents

The course deals with the following issues:
- approaches conceptual aspects of Windows systems;
- describes the structure of Windows applications, the Win32 API functions library, on functional categories, etc;
- presents other aspects of Windows programming, necessary to realise Windows applications: development of DLL applications, use of Windows Registry, etc.

Win32 API is a collection of libraries and headerfiles, that contains data types, macrodefinitions and functions wriiten in C. These functions are used for the management of the application and its visual components. Win32 API is available as three dynamic linked libraries, delivered together with the OS and part of it: KERNEL (low level services), GDI (graphic capabilities), USER (windows manaler).

Objectives

- Knowledge of the structure and functionality of Microsoft Windows family systems;
- Knowledge of fundamental elements of Win32 API;
- Development of the capacity to realise applications using the Visual C++ environment.

Competences

Each student has to prove that (s)he acquired an acceptable level of knowledge and understanding of the subject, that (s)he is capable of stating these knowledge in a coherent form,

that (s)he has the ability to establish certain connections and to use the knowledge in solving different problems. The competences described at the section 'objectives' will be acquired by attending this class.

Methods

Lectures, presentations, conversations, projects, exercises, individual study, homework assignments.

IV. Required bibliography:

[1] Microsoft Developer Network, http://www.msdn.microsoft.com
[2] PETZOLD C., Programming Windows, Microsoft Press, 1998
[3] ORDEAN M., Programarea aplicatiilor C sub Windows, Editura Microinformatica, 1996
[4] TOTH V., Visual C++ Unleashed, Sams Publishing, 1996
[5] * * *, Documentatii ale sistemelor Microsoft Windows 9x/NT/2000/XP
[6] * * *, Documentatii ale produselor Microsoft Visual C++, Borland C++ Builder
[7] * * *, Documentatii ale produselor: gcc, mingw, cygwin

V. Materials used for the educational process, specific to the studied discipline:

The course has lab classes, but no seminar classes. Bibliographical materials specific to the studied topics are used (books, papers, Internet resources). As well, computers (departmental network) loaded with the relevant system software and the development environments, are used for the students work on the lab projects assignments. All technical resources necessary for running the class lectures are used.

VI. Schedule / Calendar of the meetings and quizzes/graded papers/midterms:

Schedule of lectures

1. Resources for Windows programming
        - Bibliography: (MSDN), (HELP Win), (HELP COMPILERS), (HELP IDEs)

2. Overview of Windows OS
        - Bibliography: (PETZOLD, 1998), (ORDEAN, 1996)

3. Overview of Win32 API
        - Bibliography: (PETZOLD, 1998), (ORDEAN, 1996)

4. Overview of Microsoft Foundation Classes
        - Bibliography: (TOTH, 1996), (MSDN), (HELP IDEs)

5. Examples of Windows applications written using Win32 API
        - Bibliography: (PETZOLD, 1998), (ORDEAN, 1996), (HELP IDEs)

6. Window classes and windows management
        - Bibliografie: (PETZOLD, 1998), (ORDEAN, 1996)

7. Dialog controls
        - Bibliography: (PETZOLD, 1998), (ORDEAN, 1996)

8. Messages management
        - Bibliography: (PETZOLD, 1998), (ORDEAN, 1996)

9. Graphics with Windows: Device contexts
        - Bibliography: (PETZOLD, 1998), (ORDEAN, 1996)

10. Resources management
        - Bibliography: (PETZOLD, 1998), (ORDEAN, 1996)

11. Input management: keyboard, mouse, timer
        - Bibliography: (PETZOLD, 1998), (ORDEAN, 1996)

12. Dynamically linked libraries
        - Bibliography: (PETZOLD, 1998), (ORDEAN, 1996)

13. Registry and initialization files
        - Bibliography: (MSDN)

14. Other elements of graphics with Windows
        - Bibliography: (PETZOLD, 1998), (ORDEAN, 1996)

Schedule of labs

Lab 1
        - prezentation of the Visual C programming environment
        - prezentation of an application with many windows

Lab 2
        - prezentation of dynamic link libraries

Lab 3
        - prezentation of Windows Registry

Lab 4
        - partial submission of application with many windows

Lab 5
        - partial submission of dll application

Lab 6
- partial submission of registry application

Lab 7
- submission of final application

Description of the exam

First written test
- Required materials: windows, messages, message queues, message loop, standard controls, common controls.

Second written test
- Required materials: graphics, dll, registry.

VII. Evaluation:

The examination is based on two written tests during the semester, and a few lab projects to be programmed and documented.

The final grade will take into account the lab activity and the two graded ppapers, as follows: 30% lab activity (attendance, submission deadlines, etc; quality of lab projects and documentations, etc.); 70% two written tests.

VIII. Technical details, exceptional situations:

All university official rules with respect to students' attendance of academic activities, as well as to cheating and plagiarism, are valid and enforced. Labs copied from other students are not accepted. Lab sources and documentations willl be checked at end of semester. The pairs of lab sources and documentations found to be identical will be cancelled.

In order to get a passing grade, the student should get an average of at least 5 tat the two written tests and will have to submit all required lab projects.

Each week of delay in submitting the lab projects is penalised by one point from the corresponding grade.

All issues with respect to grading are solved during lab classes.

IX. Optional bibliography:

[1] Programming resources for Windows, freely available on Internet.