Programming in Assembler – Laboratory

Exercise No.1 Installing MASM 6.14 with Programmers Workbench environment

During the Exercise No.1 students are to install and configure Microsoft assembler MASM 6.14 with full environment for program writing and debugging.

Environment consists of:

- The Microsoft Macro Assembler (MASM)
- Editor
- Debbuger CodeView
- A project management ("make") utility
- A source-level browser
- A complete online reference system

All parts of this environment should be installed. They all are intergated with one shell tool - The Programmer's WorkBench (PWB).

To install the MASM 6.14 environment the following are needed:

- Instalation version of the MASM 6.11
- Patch to update the MASM 6.11 to 6.14
- Documentation of the environment

All needed materials can be accessed from location **D:\lab_assembler**

Step by step guide for installation:

- Read the documents in **Getting Started** folder they describe installation process
- Read the packing txt file it describes files to be installed
- Install the MASM 6.11 running **setup.exe** from **DISK1** folder with default parameters
- Refer to documentation for help about installing parameters
- Unpack the MASM 6.14 update running the **ml614.exe**
- Refer to documentation in **readme.txt** file for updating process
- Update MASM 6.11 to 6.14 running the patch.exe

To run the PWB environment first set the environment variables using the **new-vars.bat** located in the BINR directory. Now it is possible to correctly run the **pwb.exe**.

After installation test the functions of the tools writing simple assembler program.

```
TITLE HELLO
.MODEL small, c, os_dos
                                   ; Could be any model except flat
                                    ; Force DOS segment order
.DOSSEG
.STACK
                                   ; Data segment
  msg BYTE "Hello, world.", 13, 10, "$"
                                    ; Code segment
.CODE
.STARTUP
                                    ; Initialize data segment and
                                    ; set SS = DS
                                    ; Request DOS Function 9
  mov ah, 09h
  mov dx, OFFSET msg
                                    ; Load DX with offset of string
                                    ; (segment already in DS)
                                    ; Display String to Standard Out
  int 21h
.EXIT 0
                                    ; Exit with return code 0
END
```