Starting laboratory session

Methods and tools for software quality

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Goals

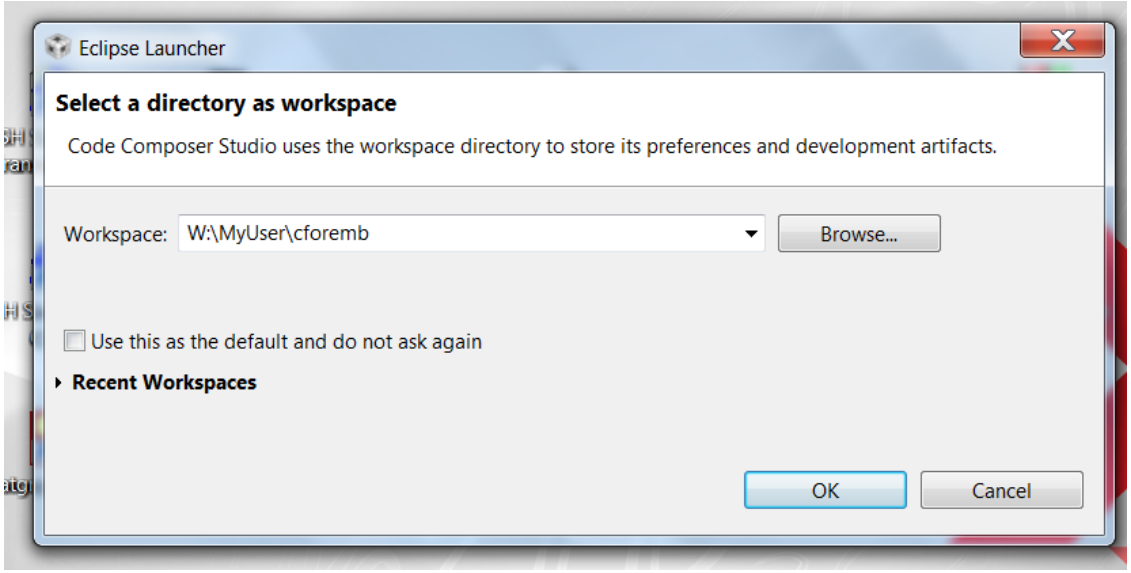
- Getting basic knowledge about the Integrated Development Environment (IDE) of Texas Instrument.
  - Code Composer Studio (CCS)

Plan

- Creating a new project.
- Setting options for the project.
- Adding robot_library.
- Testing the project.
- Testing the hardware.

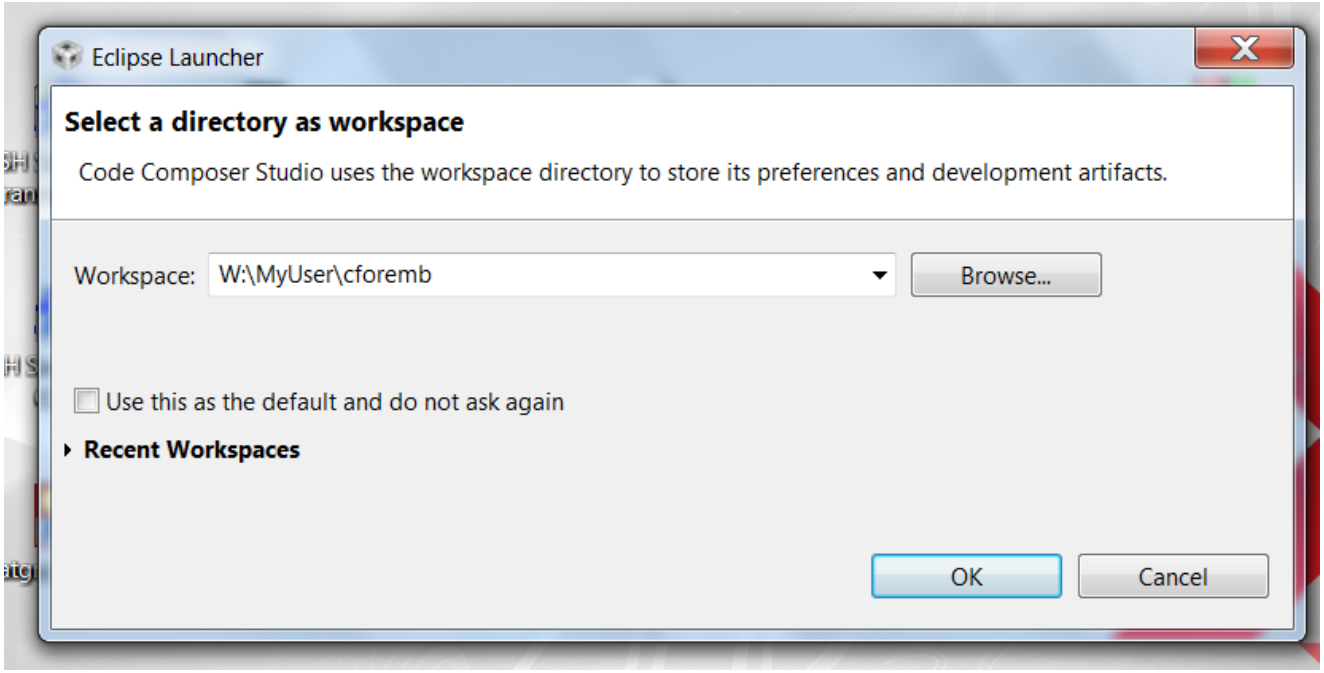
Code Composer Studio

- Execute CCS
  - From shortcut in desktop or folder “Texas Instruments” in menu Start
  - There may be several versions of CCS
    - Choose CCS6 for MSP430



Code Composer Studio

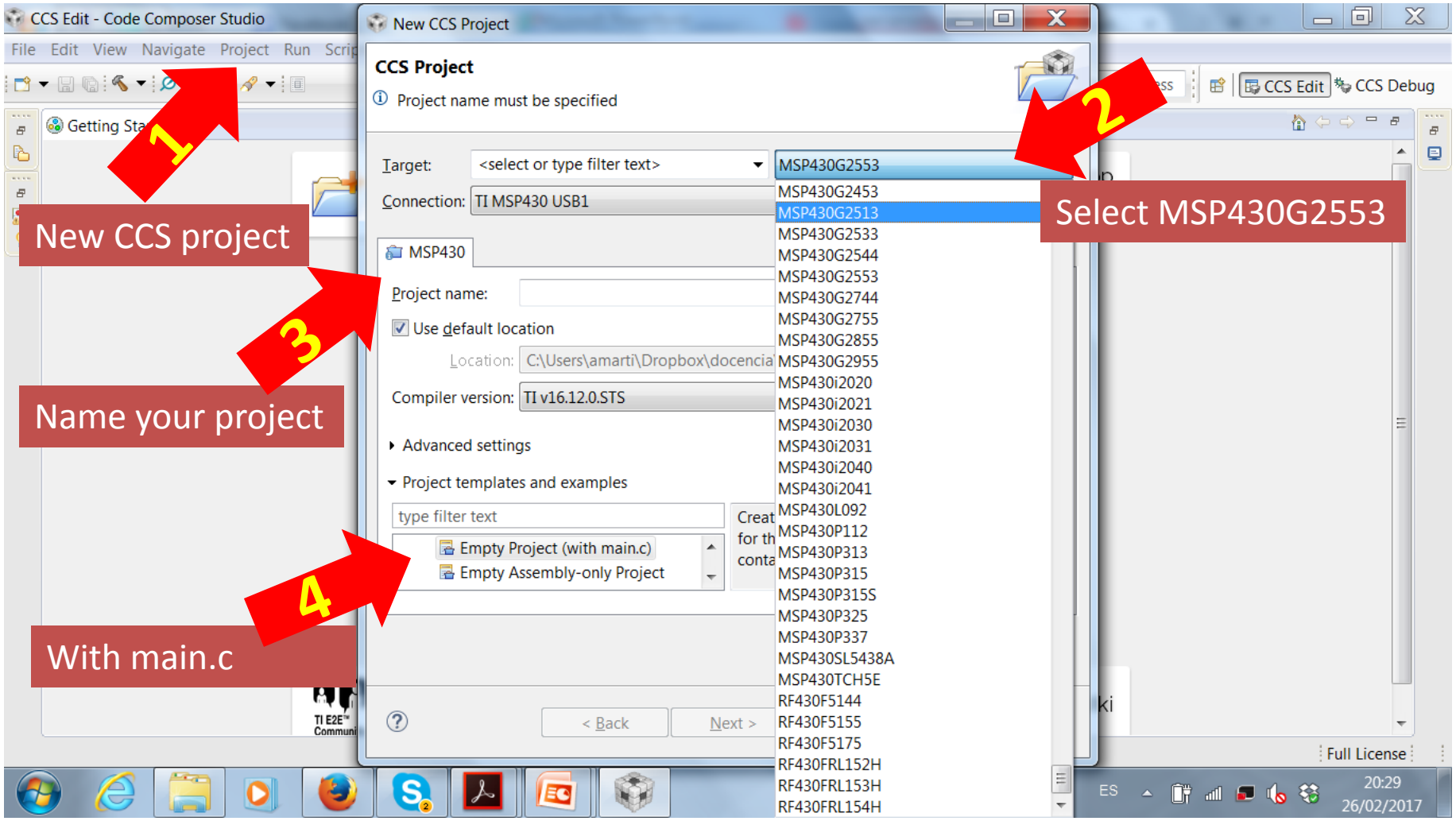
- Select your Workspace
- Option A:



- Option B:

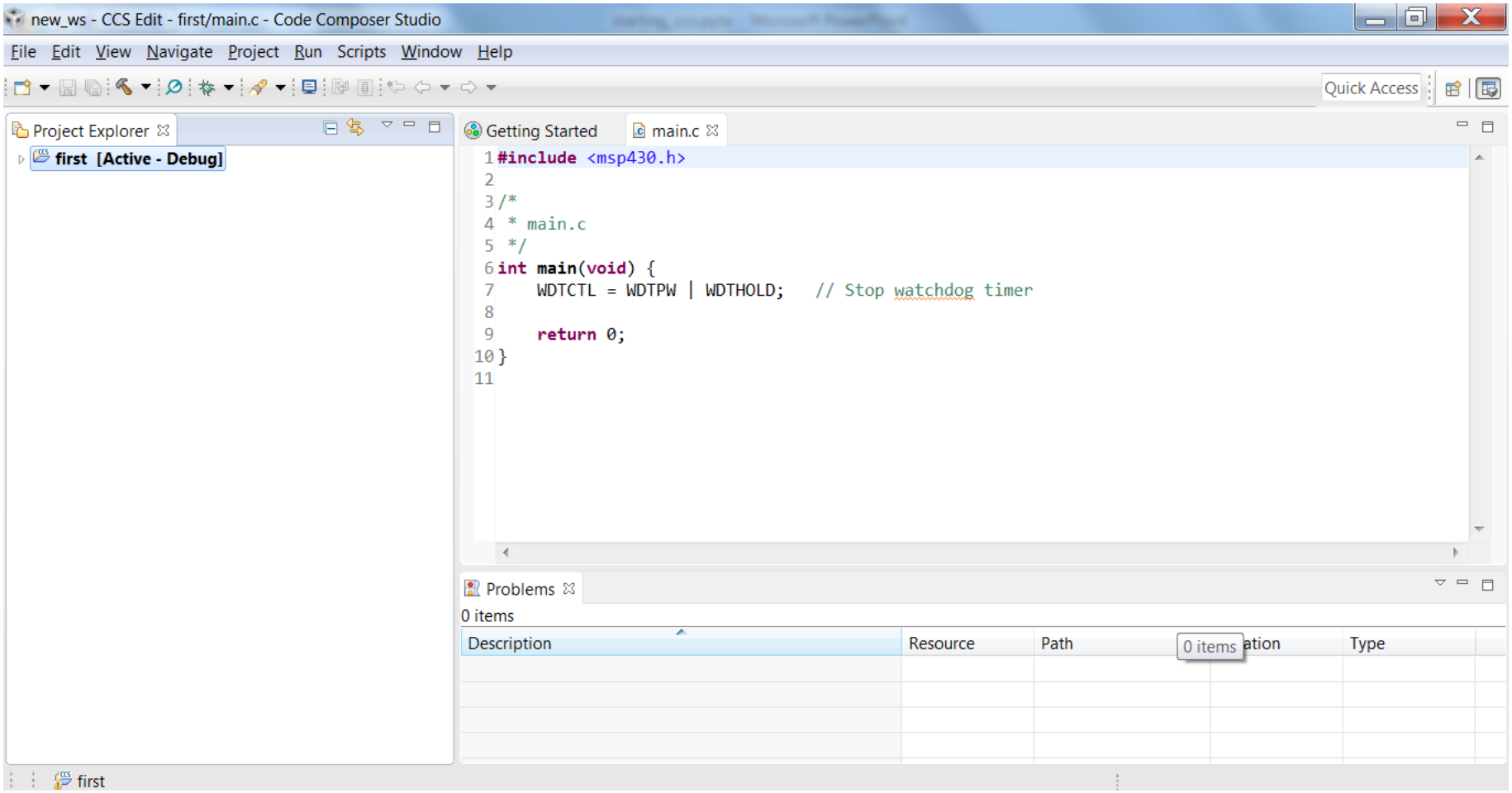
  menu File -> Switch workspace -> Other

Create a new project



The project

- Here your new project



Preparing main.c

- Replace the generic microcontroller header file with the actual microcontroller header:
  - #include <msp430.h> replace with #include <msp430g2553.h>
- Add header file for library “system”
  - #include “system.h”
- Add header file <stdint.h>
  - Allow the use of standard types: uint8_t, int16_t,…

Preparing main.c

- Change type of function main from int to void:
  - *void main(void)*
- Remove *return 0;*

} //An embedded system never returns

- Add header files “stdint.h” and “intrinsics.h” to have access to standard types and low level functions
- Add in the main function sentences to disable the watchdog.

```
// Stop watchdog timer to prevent time out reset
  WDTCTL = WDTPW + WDTHOLD;
```

Setup the project

- Download file “library_ccs_v2_no_source.rar” from folder “robot_library” in moodle: ent.esigelec.fr
  - Extract files in the folder of your workspace/project
  - Copy all .h files and library_ccs_v3.lib to the folder of your project.

- After disabling the watchdog, add a call to *Clock_graceInit_DCO_12M();*
  - You have to include header “system.h”

Test the project

- Now, before adding your own code, test if everything is ok building the project:

1. Compile all files and link them with “Project → Build All or Build Project”
   - Check window “Problems”: expected result is warnings: 0 errors:0
2. Download and activate debug with “Run → Debug”
   - CCS changes to CCS Debug window.
   - First line of function main is highlighted.

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