

EMBEDDED SYSTEMS PROGRAMMING 2014-15

Information About the Course

INSTRUCTOR

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COURSE WEBSITE

- <http://www.dei.unipd.it/~fantozzi/esp1415/>
- Every information will be posted there
⇒ look at the home page every single day
- License: [CC Attribution Share-Alike 3.0](#)

FACEBOOK GROUP

- <https://www.facebook.com/groups/esp1415/>
- esp1415@groups.facebook.com
- Restricted to students enrolled for grades



NEW

CONTENTS

Revolution w.r.t. last year!

- Only one platform (Android)
- Algorithmics
- Both L and LM students, different projects for the two groups
- Class participation is graded



TEXTBOOKS

- No official textbook
- Slides from the lessons
- Material linked from the course website
- All the material for the course is in English

Advice: TAKE your own NOTES

SUGGESTED BOOKS

- Ken Arnold, James Gosling, David Holmes, “The **Java** Programming Language”, Fourth Edition, 2005
- Herbert Schildt, “**C++**: The Complete Reference”, Fourth Edition, 2002
- Brian W. Kernighan, Dennis M. Ritchie, “The **C** Programming Language”, Second Edition, 1988
- Reto Meier, “Professional **Android** 4 Application Development”, Third Edition, 2012
- Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides, “Design Patterns: Elements of Reusable Object-Oriented Software”, 1995
- Kenneth Dawson-Howe, “A Practical Introduction to Computer Vision with OpenCV”, 2014

ENROLLMENT

- 60 students maximum (40 L + 20 LM)
- To enroll: from your institutional account, send an email to the instructor with your name, surname, matriculation number, course of study, number of credits acquired before March 1, 2015
- **Deadline: Sunday, March 8**

LAB (1/3)

- Integrated Development Environment (Eclipse) for Android; real hardware
- IDE includes an emulator/simulator
- Main purpose of lab: develop the group project

WHY ECLIPSE?

- Android Studio is still too immature... And too slow



LAB: HARDWARE

- Archos 32: 15 pieces
- Archos 70: 5 pieces
- Nexus 7: 5 pieces
- Galaxy Nexus: 1 piece
- Pop C3: 4 pieces
- Galaxy Next Turbo: 1 piece
- Smart Pad 706i: 1 piece



LAB (2/3)

- Reserved for you: “Aula Te”, DEI/G, Via Gradenigo 6/A
- Open every Tuesday afternoon from Tuesday, March 17
- Open until Tuesday, June 30



LAB (3/3)

- The IDE is accessible from any lab workstation in the Department, just fire up `/nfsd/opt/eclipsekepler/eclipse`
- Beware of disk quota!
Emulator files live inside your home directory
- You can install the software on your PCs as well

SAFETY

- Before accessing the lab,
you must attend an **online course on safety**
 1. Connect to <https://elearning.unipd.it/servizioformazione/course/index.php?categoryid=15>
 2. Select “PARTE GENERALE”, then login
 3. Use “sicurezza” as the enrollment key

HOW TO PASS THE COURSE

Class participation +
Group project +
oral exam

(3 points + 16.5 points + 10.5 points = 30 points)

CLASS PARTICIPATION

- Weight: 10% (3 points)
- Each student graded individually
- You can pass the exam with 0 points in class participation, but the final mark will be at most 27
- For shy people: questions administered at the end of some lessons, chosen at random
- Behave as engineers, not accountants!

GROUP PROJECT

- Weight: 55% (16.5 points)
- You must get at least 9.9 points (i.e., 18) to pass the exam
- Groups of 3 L or 3 LM students;
all the students in a group will get the same mark
- Students can propose groups;
only LM students can propose projects
- Students not grouping and/or not proposing a project
will be forcibly grouped and/or assigned a project

ORAL EXAM

- Weight: 35% (10.5 points)
- One-to-one, hence members of a project group may get different marks
- Questions on all the material presented during lectures
- Project must be approved before the oral exam (no project \Rightarrow no oral exam)

ABOUT THE PROJECT (1/6)

- The project is the most important term in the final mark

- Different members can have different roles



- ...But if one team member is lagging behind, then the whole project may fail, and everybody get bad grades

ABOUT THE PROJECT (2/6)

- **Work as a team**
- **You will be evaluated as a team**
 - I don't care who does what
 - I don't care if a member does a bit more/less than the others
 - However, I do care if a member does nothing:
in this case, please notify me immediately

ABOUT THE PROJECT (3/6)

- **Default Project (L students only)**
- **Special Projects (LM students only)**
 - Real-world problems or surveys
 - More challenging \Rightarrow more useful for your career
 - Assigned on a first come, first served basis

ABOUT THE PROJECT (4/6)

- LM groups can propose **Custom Projects**.
Use the doc of the default project as a template
- Feedback will be provided, projects can be rejected.
Propose something really different!
- LM projects must embody significant methodological content,
up to the point where just a portion of an app is defined
- Source code for LM projects must be accompanied by a report
detailing the state of the art and the proposed solution

PROJECT TYPES: SUMMARY

	L	LM
Default	✓	-
Special	-	✓ proposal required
Custom	-	✓ proposal required

ABOUT THE PROJECT (5/6)

- Remember: each non-default project must be described by a detailed proposal
- The proposal must be approved by the instructor
- Device assigned only after the proposal has been approved
- No deadline for submission, but the sooner you have your proposal approved, the sooner you can start working

PROJECTS AND DEVICES

- Every group will be assigned a device and will be responsible for it till the end of the course
- L students: devices assigned immediately after the formation of groups
- LM students: devices assigned after the project proposal has been approved

BYOD

- **BYOD = “Bring Your Own Device”**
- It is OK, but
 - If you code/debug on your own computer, you are responsible for setting the IDE up
 - If you use your own mobile device, remember to make arrangements with the instructor well before the exam, so that your project can be properly tested

ABOUT THE PROJECT (6/6)

To have your project graded, do the following.

1. Enroll in the session of your choice (via Uniweb)
2. By the day enrollment ends, send source code & report to the instructor by e-mail or some other means
3. In the day of the exam, discuss your project with the instructor. All project members must enroll & attend. At the end of the discussion, you will receive a mark

EXPIRATION OF GRADES

- **Incomplete grades (i.e., project marks) will be valid until February 2016**
- **Consequence: If you complete the project this year, you must pass the oral exam before ESP1516 begins**

ESPI 3 | 4: SOME FIGURES

- **56** students enrolled
(not including early drop-outs)
- **52** students (82%) presented a project:
all of them received a positive mark
- **51** students (98%) passed the oral exam



PROGRAM OF STUDY

- Please update your program of study to include IN01122661 “Embedded Systems Programming”
- If you are an LM-IF student, please include this code, not the code for “Real-time systems”
- Update your POS it in a timely manner, or you will not be able to enroll for the exams and complete the course. You have been warned

COURSE TIMELINE (1/2)

- **March 8:** deadline for enrollment
- **March 10:** students list published
- **By March 17:** projects published
- **March 17:** lab opens

COURSE TIMELINE (2/2)

- **March 27:** deadline for the definition of groups. By this date, each group must also choose a group name
- **March 31:** devices assigned to L groups (i.e., those aiming at the default project)
- **April 2:** project discussion session
- **June 30:** lab closes, devices available only upon request

FINALS

- First session: beginning of July
- Second session: mid-July
- Third session: mid-September
- Fourth session: TBA (February 2016)

- All dates available on the course website

LAST MODIFIED: MARCH 2, 2015

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