

EMBEDDED SYSTEMS PROGRAMMING 2016-17

Information About the Course

INSTRUCTOR

Carlo Fantozzi
Assistant Professor

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Office hours: by appointment,
contact the instructor via email

TUTOR

Matteo Ceccarello
Research Assistant
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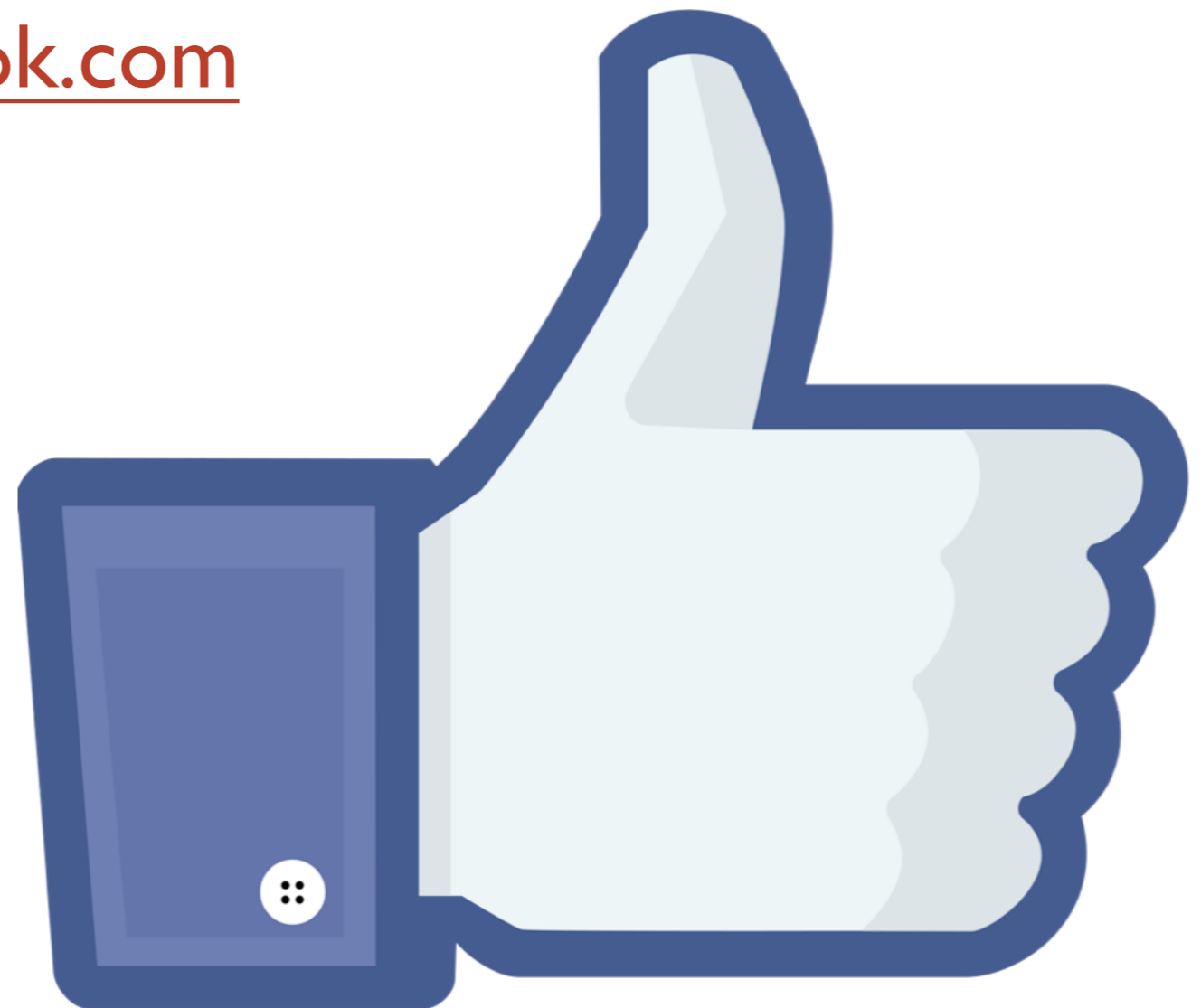
Ask him questions when he is in the lab (preferably)
Make arrangements via email

COURSE WEBSITE

- <https://www.dei.unipd.it/~fantozzi/esp1617/>
- Every information will be posted there
⇒ **look at the home page every single day**
- License: [CC Attribution Share-Alike 3.0](https://creativecommons.org/licenses/by-sa/3.0/)

FACEBOOK GROUP

- <https://www.facebook.com/groups/esp1617/>
- esp1617@groups.facebook.com
- Restricted to students enrolled for grades



TEXTBOOKS

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

Advice: TAKE your own NOTES

SUGGESTED BOOKS

- Bill Phillips, Chris Stewart, Brian Hardy, Kristin Marsicano, “**Android Programming: The Big Nerd Ranch Guide,**” Second Edition, 2015
- Ken Arnold, James Gosling, David Holmes, “**The Java Programming Language,**” Fourth Edition, 2005
- Herbert Schildt, “**C++: The Complete Reference,**” Fourth Edition, 2002
- Richard Szeliski, “**Computer Vision: Algorithms and Applications,**” 2011
- Rastislav Lukac, “**Computational Photography: Methods and Applications,**” 2010
- Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides, “**Design Patterns: Elements of Reusable Object-Oriented Software,**” 1995

CONTENTS (1/2)

General structure: similar to ESP1516

- Only one platform (Android)
- Algorithmics
- Both L and LM students,
different projects for the two groups
- Hands-on labs

CONTENTS (2/2)

Changes w.r.t. ESP1516

- Algorithmics: Computational Photography instead of Computer Vision
- More lessons in the lab (+2h, hopefully +4h)
- Course participation is no longer graded

LAB (1/2)

- “Aula Te” (on Tuesdays): lab lectures, tutoring
- “Aula Ge”: development of your project.
Free access; check reservations for exams, etc.
- **Integrated Development Environment for Android (Android Studio);**
- IDE includes an emulator;
limit yourself to Android 4.3 for performance reasons

LAB (2/2)

- A network installation of the IDE is accessible from any lab workstation in the Department.
Setup procedure published before the lab begins
- You can install the software on your PCs as well.
Download it from <http://developer.android.com/sdk/>
and follow the online instructions

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

ENROLLMENT

- 60 students maximum (40 L + 20 LM)
- Enrollment took place via GestNuPro 3 at the beginning of the academic year. **No latecomers.** Student lists available on the course website
- Students in the lists will be emailed for confirmation. If a student responds negatively, or does not respond within 24 hours, she/he will be **replaced**

HOW TO PASS THE COURSE

Group project
+
oral exam

(18 points + 12 points = 30 points)

GROUP PROJECT

- Weight: 60% (18 points)
- Get at least 10.8 points (i.e., 18) for a pass
- 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: 40% (12 points)
- Get at least 7.2 points (i.e., 18) for a pass
- Each student graded individually
- Questions on everything 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 contribution to the final mark

- Different members can have different roles



- ...But if one team member is lagging behind, then the project may fail, and everybody gets 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)

- **Standard Projects (L students only)**
 - Report on an Android topic not presented during classroom, plus a **mockup app** illustrating the topic
 - List of possible topics prepared by the instructor
 - Several groups can choose the same topic

ABOUT THE PROJECT (4/6)

- **Special Projects (LM students only)**
 - **App with significant algorithmic content, plus Facebook posts. hashtag: #groupname**
 - **List of possible topics prepared by the instructor. Only one group per topic. Topics assigned on a first come, first served basis**
- **Groups can propose Custom Projects**

ON LM PROJECTS

- All LM groups must prepare a written project proposal
- Feedback will be provided, proposals can be rejected
- For Custom Projects: invent something really different!
- LM projects must embody significant methodological content, up to the point where just a portion of an app is defined
- Facebook posts for LM projects log the design+development process: state of the art, proposed solution, implementation

PROJECT TYPES: SUMMARY

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

ABOUT THE PROJECT (5/6)

- There is a deadline for the formation of groups
- There is no deadline to decide which project to develop. However, the sooner you make up your mind (and have your proposal approved, for LM groups), the sooner you can start working

AVAILABLE DEVICES

Hardware is available for groups who do not have any personal Android device

- **Nexus 7: 5 pieces**
- **Galaxy Nexus: 1 piece**
- **Pop C3: 4 pieces**
- **Smart Pad 706i: 1 piece**



PROJECTS AND DEVICES

- Devices assigned on request on a FCFS basis
- Devices assigned only after the project proposal has been approved
- Every group assigned a device will be responsible for it till the end of the course
- Devices cannot leave the Department

BYOD

- If you develop the project on your own device, remember to
 - **communicate your device model and OS version to the instructor when you submit your project,**
 - **take the device with you the day your project is discussed**
- This is the only way to ascertain the cause of glitches

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

SITTING FOR THE EXAM

- Memento to L students:

“Per poter sostenere gli esami del terzo anno, gli studenti devono aver acquisito almeno 75 CFU complessivi e aver superato tutti gli esami del primo anno previsti dal manifesto degli studi (o riconosciuti come equivalenti)”

- You have been warned

EXPIRATION OF GRADES

- **Incomplete grades (i.e., project marks) will be valid until February 2018**
- **Consequence: If you complete the project this year, you must pass the oral exam before ESP1718 begins**

PROGRAM OF STUDY

- Update your program of study to include IN01122661 “Embedded Systems Programming”
- 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

ESP1516: SOME FIGURES

- 116 students asked to enroll
- 60 students selected (40L+20LM)
- 59 students presented a project:
all of them received a positive mark
- 56 students passed the oral exam



COURSE TIMELINE

- **March 14:** lab opens
- **By March 16:** projects published
- **March 20:** project discussion session
- **March 24:** deadline for the definition of groups. By this date, each group must also choose a group name
- **July 4:** end of tutoring, devices available only upon request

FINALS

- First session: end of June
- Second session: mid-July
- Third session: mid-September
- Fourth session: TBA (February 2018)

- All dates published on the course website

LAST MODIFIED: FEBRUARY 27, 2017

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