Sapienza PhD in ICT
First Year Doctoral Program Form

Doctoral program in Information and Communications Technologies at Sapienza Università di Roma, Rome, Italy

LAST NAME	**Zanaj**
NAME	**Eljona**
CURRICULUM	**Information and Communication Engineering**
DOCTORAL CYCLE	**XXXIII**

The Doctoral Program Form contains, year by year, the description of the PhD program of each Doctoral student. This form must be submitted to the PhD coordinator with roughly the following timing:

- by the end of February of the first year for first year students
- before the admission to the second year by perspective second year students
- before the admission to the third year by perspective third year students

The Doctoral Program Proposal is approved by the PhD boardshortly after submission.The Doctoral Program requirements place formalized emphasis on methodology and mastery of fundamental and applied engineering systems concepts. A Doctoral Program Proposal should be constructed in agreement with the Faculty mentor, that is the supervisor or tutor, by complying to the requirements, described in the Tables below.

ADVANCED COURSES: 12 CREDIT FORMATION UNITS (CFU)[1]
Only courses/schools providing a final verification test with pass/fail outcome certified by instructor can be included here.

Title	Type	Duration/ period	CFU[2]	Motivationfor selection
Insert here course /school title, etc..	Insert here course type, e.g. Master Degree course, PhD course,	Insert duration (measured in hours or days) and period of year		Insert here a detailed explanation of why the course/school was selected and how it connects with the research area of the PhD student.
A SYSTEM VIEW OF COMMUNICATIONS: FROM SIGNALS TO PACKETS (Part 2) – The Hong Kong University of Science and Technology	Online certified course	30 hours March – April 2018	6	This course seeks to enable a better understanding of the engineering tools used and encounteres in the design of mobile phones or WiFi hotspot communication systems. iThis course examines how multiple transmitters can share the same physical channel.
4G NETWORK ESSENTIALS – Institute Mines-Telecom	Online certified course	24 hours March –April 2018	4	This course offers a better understanding of how 4G mobile network works. You will gain exposure and knowledge to the global architecture of the network and then you go on to learn about the operational side of how does 4G handle millions of terminals. Only by mastering 4G we can be ready for the next phase in mobile networking that is 5G
INTRODUCTION TO POINT PROCESSES=DIET Sapienza PhD	PhD Course	30 hours May – June 2018	6	This course introduces students to the point process theory. The course aims to help students acquire both the mathematical principles and the intuition necessary to create, analyze, and understand models for a broad range of applications. The purpose is to provide students with background and basic tools, so that they will be able to effectively conduct research.
TotalCFU			16	

[1]Please insert lines as required/appropriate, and for each line complete each column of the Table.
[2] Indicate here the CFUs that can be accounted for as a result of the successful completion of the activity; for Master Degree courses, assume 1 CFU = 8 teaching hours + 12 homework/study hours, for a total of 20 hours. This rule can be slightly adjusted for other types of courses/activities (e.g., PhD courses may require slightly less hours per CFU)

SEMINARS AND LABORATORY ACTIVITIES: 6 CFU[3]				
Activity	**Type**	**Duration/ period**	**CFU[4]**	**Motivation for selection**
Insert title of activity (seminar, laboratory sessions) and a description of goals and expected results	Insert here activity type, e.g. seminar, lab sessions	Insert duration (measured in hours or days) and period of year		Insert here a detailed explanation of why the activity was selected and included in the doctoral program, and how it connects with the research area of the PhD student.
Research activity in Professor Di Benedetto's ACTS Lab	Seminars and Laboratory sessions	60 hours, January-August 2018	6	Within the ACTS Lab we will be able to perform laboratory sessions to better acquire general and detailed knowledge in impulsive communications.
Total CFU			6	

ADDITIONAL INDEPENDENT FORMATION AND RESEARCH ACTIVITIES: 6 CFU[5] Indicate activities that extend and complement the mandatory activities listed above				
Activity	**Type**	**Duration/period**	**CFU[6]**	**Motivation for selection**
Insert the title of the activity and a description of goals and expected results.	Insert here activity type, (e.g. course, seminar, lab, tutorial)	Insert here the duration of the activity (measured in full days of work) and the period of the year when it will be carried out		Insert here a detailed explanation of why the activity was selected and included in the program form, taking into account the research area of the PhD candidate, any previous activity related to the one being proposed, and specific interest of the candidate in the topic covered by the activity.
COMPUTER FORENSIS	Online certified course	96 hours August-September 2018	6	Digital forensic involves the investigation of computer-related crimes. During this course I will learn the principles and techniques involved in digital foresnsis investigation and the available computer forensic tools. I will also learn how to perform a forensic investigationon both Unix/Linux and Windows systems.
Total CFU			6	

RESEARCH ACTIVITY: 36 CFU	
Research area	Impulse radio and UWB communications in 5G
Research topic	The study and use of impulse radio in 5G. The implementation, advantages and disadvantages of using it. UWB communicationin 5G, why is UWB the best technology, its characteristics.
Framework of the proposed research topic	The use of Impulse Radio technique, known for its very large bandwidth which facilitates high time resolution and allows for very prescise data, has found its niche in the new emerging 5G. UWB communications , till these moments more in the theoretical plane, now it is widely used as the cornerstone for the 5G architecture. I am basing my research in 2 main areas: 1. The study of UWB communications 2. The study of Impulse radio, bandwidth, frequency, network requirements and other characteristics. To proceed then with the use of impulse radio in 5G, the advantages of using it and the best ways to achieve better implementation.,
Research environment	Collaborations are being explored with different operators in the telecommunications field. A research collaboration in place with Telecom Italia, that already have a consolidated relationship with the ACTS Lab.

[3] Please insert lines as required/appropriate, and for each line complete each column of the Table.
[4] Indicate here the CFUs that can be accounted for as a result of the successful completion of the activity; as a rule of thumb, assume 1 CFU = 20 working hours.
[5]Please insert lines as required/appropriate, and for each line complete each column of the Table.
[6] Indicate here the CFUs that can be accounted for as a result of the successful completion of the activity; as a rule of thumb, assume 1 CFU = 20 working hours.

FACULTY MENTOR (TUTOR OR SUPERVISOR)	
Prof. Dr.	Maria-Gabriella Di Benedetto
Supervisor signature for approval	

Signature of Doctoral student

Date

24/02/2018