



European Schools

Office of the Secretary-General
Pedagogical Development Unit

Ref.: 2014-01-D-49-en-5

Orig.: EN

ICTC Syllabus – S1 - S3¹ – S4 - S5

**APPROVED BY WRITTEN PROCEDURE 2015/12 BY THE JOINT TEACHING
COMMITTEE ON 6 MARCH 2015**

Entry into force on 1 September 2015 for S4

¹ THE SYLLABUS ICTC S1-S3 WAS APPROVED BY THE JOINT TEACHING COMMITTEE ON 13
AND 14 FEBRUARY 2014 IN BRUSSELS WITH ENTRY INTO FORCE ON 1 SEPTEMBER 2014

Table of Contents

1. General Objectives of the European Schools	3
2. Introduction:.....	4
3. Didactic principles.....	5
3.1. General principles.....	5
3.2. Subject-specific principles	6
4. Learning objectives.....	7
4.1. Year 1 and 2.....	7
4.2. Year 3.....	7
4.3. Year 4 and 5.....	7
5. Program for year 1 and 2 (32 periods per year)	8
6. Program for year 3 (64 periods)	13
7. Program for year 4 and 5 (64 periods per year)	14
8. Assessment (Formative assessment).....	17
9. ICT in the European Schools	18
10. Annex.....	20

1. General Objectives of the European Schools

The European Schools have the two objectives of providing formal education and of encouraging pupils' personal development in a wider social and cultural context. Formal education involves the acquisition of competences – knowledge, skills and attitudes across a range of domains. Personal development takes place in a variety of spiritual, moral, social and cultural contexts. It involves an awareness of appropriate behaviour, an understanding of the environment in which pupils live, and a development of their individual identity.

These two objectives are nurtured in the context of an enhanced awareness of the richness of European culture. Awareness and experience of a shared European life should lead pupils towards a greater respect for the traditions of each individual country and region in Europe, while developing and preserving their own national identities.

The pupils of the European Schools are future citizens of Europe and the world. As such, they need a range of competences if they are to meet the challenges of a rapidly-changing world. In 2006 the European Council and European Parliament adopted a European Framework for Key Competences for Lifelong Learning. It identifies eight key competences which all individuals need for personal fulfilment and development, for active citizenship, for social inclusion and for employment:

1. communication in the mother tongue
2. communication in foreign languages
3. mathematical competence and basic competences in science and
1. technology
4. digital competence
5. learning to learn
6. social and civic competences
7. sense of initiative and entrepreneurship
8. cultural awareness and expression

The European Schools' syllabuses seek to develop all of these key competences in the pupils.

2. Introduction:

IT is possibly the fastest developing commodity in the last decades. Computers (in all shapes and sizes) and the Internet have acquired a very important role in most domains of our every day's life. In the same way, education is not imaginable anymore without a strong presence of IT tools and resources.

The European Schools ICT steering committee, throughout its latest ICT-plan, has proposed to create this working group in order to:

1. Update the secondary school ICT syllabus (2000-D-218) so as to integrate the very many developments in ICT in the last decade.
2. Establish a list of recommendations as how to integrate IT tools and resources in order to teach and learn in the most efficient way.

3. Didactic principles

3.1. General principles

The secondary cycle of the European Schools needs to perform the dual task of providing formal, subject-based education and of encouraging pupils' personal development in a wider social and cultural context.

On one hand, formal education involves understanding concepts and processes. It aims at acquiring knowledge and skills in order to be able to apply what has been learnt within each subject area and across subjects.

On the other hand, pupils will learn to describe, analyse, interpret, have a critical view and apply their acquired knowledge and skills in a creative and original way in a wide range of social, scientific and cultural contexts.

Computer use involves questions of law, ethics and democracy, such as copyright, freedom of speech and freedom of information and people's right to privacy. For the future computer users will be required both a creative approach to computer technology for use and that awareness of legal and democratic aspects of the technology.

3.2. Subject-specific principles

Since the world of ICT is changing so rapidly, one of the two main goals of this new syllabus are, on one hand, to provide the pupils with the basic knowledge and fundamental skills and, on the other hand, to empower them to become independent and autonomous learners. In this sense, pupils should acquire a range of skills that will allow them to continue learning by themselves.

- The pupils will be able to use the information and communication technologies as tools to research, select, process and distribute information.
- The pupils will be able to critically differentiate the varying quality and sources of information. They will learn to use information in a respectful way, quote and refer to sources.
- The pupils understand the fundamental functionality of hard- and software.
- The pupils will be able to develop skills in how to continue to learn and how to apply themselves with new tools in ICT for solving problems in general.

This syllabus aims to improve the teaching of ICT because it's a guideline through the topics of the important present technologies and it will give a vision of future developments. To meet those aims it's important to update this syllabus regularly.

A very important issue of the ICT course is to provide the training students need to use new technologies in the daily school life which can't be included in other subjects!

4. Learning objectives

4.1. Year 1 and 2

At the end of year 2, the student should be able to:

- get to know and get comfortable with the computers and the schools ICT-environment
- use the operating system and the applications as tools
- work with files, folders and different storages
- use the most common software types like word processing, spread sheet and presentation tools
- use the internet as a source of knowledge and communication
- get to know the ethics, risks and chances of modern technologies

4.2 Year 3

At the end of year 3, the student should be able to:

- know more about ICT
- manipulate simple objects in computers
- learn the basics of web design and programming

In S3 ICT is an optional course. The aim of this course is to add some abilities for students who want to know more about ICT. The students will get to know how to manipulate simple objects in computers. So they will learn the basics of web design and programming.

4.3 Year 4 and 5

In these two years the students will go deeper into the topics, which were taught in years 1-3 and will use more advanced features of applications. They will understand more and more the connections between those applications and how they can learn things by themselves using ICT.

Also there are some new topics like databases, and computer graphics. At this stage it is very important to make the students aware of things like data security and copyright, that they can take the right decisions when they use modern technologies in everyday life.

5. Program for year 1 and 2 (32 periods per year)

TOPIC (number of periods is only a guideline)	KNOWLEDGE & SKILLS	POSSIBLE PEDAGOGICAL APPROACHES
Getting started with the school ICT environment (2 periods)	<p>The student must be able to use:</p> <ul style="list-style-type: none"> • Devices • The school network • Login and password • Email address • Personal file storage 	<p>Show the different devices used in school (pc, tablet, printer, scanner, etc...)</p> <p>Explain the different part of the network (wifi, intranet, learning platforms)</p>
Getting to know your operating system (2 periods)	<p>The student must be able to:</p> <ul style="list-style-type: none"> • use input devices • Open/close windows • Manage Files and folders • Find and open standard applications 	
Internet (4 periods)	<p>The student must be able to:</p> <ul style="list-style-type: none"> • Use and compare different browsers • How to navigate and search • Be aware of ethics, risks and security • Understand what is social networking 	<p>Show difference between browsers</p> <p>Intelligent searching, organizing sources</p> <p>Of course this needs to be integrated in every topic of the syllabus!!!</p>

TOPIC (number of periods is only a guideline)	KNOWLEDGE & SKILLS	POSSIBLE PEDAGOGICAL APPROACHES
Presentation tools (10 periods)	<p>The student must be able to:</p> <ul style="list-style-type: none"> • Open/close the tool • Create the layout of a slide • Insert text • Insert graphical objects • Insert multimedia objects • Change animation and transition of slides • Prepare, rehearse and run a presentation 	<p>Timelines, key cards, hand-out's, practicing presentations, gestures and presence</p>
Word processing (10 periods)	<p>The student must be able to:</p> <ul style="list-style-type: none"> • Open and close the tool • Create/Save and organise a document. • Use tables • Format text • Format sections • Insert graphical objects • Use dictionary and thesaurus • Format/Print pages 	<p>Only print out on paper when it's really necessary!!! (Use print preview, page layout, print to PDF instead)</p>

TOPIC (number of periods is only a guideline)	KNOWLEDGE & SKILLS	POSSIBLE PEDAGOGICAL APPROACHES
Presentation tools (10 periods)	<p>The student must be able to:</p> <ul style="list-style-type: none"> • Open/close the tool • Create the layout of a slide • Insert text • Insert graphical objects • Insert multimedia objects • Change animation and transition of slides • Prepare, rehearse and run a presentation 	<p>Timelines, key cards, hand-out's, practicing presentations, gestures and presence</p>
Spread sheets (6 periods)	<p>The student must be able to:</p> <ul style="list-style-type: none"> • Open and close the tool • Understand the terminology of spread sheets • Perform simple calculations • Use simple functions • Format tables • Simple diagrams 	<p>(cell, column, row, address, ...)</p>

TOPIC (number of periods is only a guideline)	KNOWLEDGE & SKILLS	POSSIBLE PEDAGOGICAL APPROACHES
Presentation tools (10 periods)	<p>The student must be able to:</p> <ul style="list-style-type: none"> • Open/close the tool • Create the layout of a slide • Insert text • Insert graphical objects • Insert multimedia objects • Change animation and transition of slides • Prepare, rehearse and run a presentation 	<p>Timelines, key cards, hand-out's, practicing presentations, gestures and presence</p>
Multimedia (10 periods)	<p>The student must be able to:</p> <ul style="list-style-type: none"> • Edit pictures • Edit sound • Edit video 	<p>Common formats, picture viewing tools, working with editing tools, resizing tools ... Common formats, sound playback tools, sound editing tools. Common formats, media players, video editing tools, etc...</p>
Projects (10 periods)		<p>To go deeper in the topics above and/or combine them. Cross-over projects with other subjects and/or language sections. Introductions to other topics (not mentioned</p>

TOPIC (number of periods is only a guideline)	KNOWLEDGE & SKILLS	POSSIBLE PEDAGOGICAL APPROACHES
Presentation tools (10 periods)	<p>The student must be able to:</p> <ul style="list-style-type: none"> • Open/close the tool • Create the layout of a slide • Insert text • Insert graphical objects • Insert multimedia objects • Change animation and transition of slides • Prepare, rehearse and run a presentation 	<p>Timelines, key cards, hand-out's, practicing presentations, gestures and presence</p>
		<p>above) ICT oriented school trips</p>
Testing periods (8 periods)		<p>Can be a test of a topic above or an evaluation of a project.</p>

6. Program for year 3 (64 periods)

TOPIC (number of periods is only a guideline)	KNOWLEDGE & SKILLS The student must be able to:	POSSIBLE PEDAGOGICAL APPROACHES
Introduction to web design (20 periods)	<ul style="list-style-type: none"> • Build a simple web site • Create a web site layout • Implement a menu structure • Insert content 	Use drag and drop web design tools WYSIWYG editors Text, table, picture, link, video, etc...
Introduction to programming (20 periods)	Use <ul style="list-style-type: none"> • simple algorithms • sequences • simple structures 	Game oriented programming environment Robotics
Projects (16 periods)		To go deeper in the topics above and/or combine them. Cross-over projects with other subjects and/or language sections. Introductions to other topics (not mentioned above) ICT oriented school trips
Testing periods (8 periods)		Can be a test of a topic above or an evaluation of a project.

7. Program for year 4 and 5 (64 periods per year)

TOPIC (number of periods is only a guideline)	KNOWLEDGE & SKILLS The student must be able to:	POSSIBLE PEDAGOGICAL APPROACHES
Spread sheets (20periods)	<ul style="list-style-type: none"> • Use data types • Format the table • Use conditional formatting • protect cells • address cells • Use functions • combine functions • Use conditional functions • Visualise data • compare and interpret different types of diagrams • analyse the data shown in diagrams 	Formatting cells, rows, columns, sheets, maps, pages relative and absolute addressing, addressing with names different function types, parameters, output of functions IF–function, counting functions
Word processing (8 periods)	Use <ul style="list-style-type: none"> • templates • tab stops • mail merge 	Document templates, style templates

<p>Introduction to programming (16 periods)</p>	<p>Use</p> <ul style="list-style-type: none"> • sequential instructions • different data types • variables • simple structures 	<p>Use visual tools which provides a playful introduction to programming</p> <p>Conditions, loops, arrays</p>
<p>Databases (20 periods)</p>	<ul style="list-style-type: none"> • Create tables • Make queries • Use forms • Make reports • Import/export data 	
<p>Computer graphics (20 periods)</p>	<ul style="list-style-type: none"> • Use graphical 2D software • Open and save pictures • Use different file formats • Manipulate pictures • Use selection tools • Use filters • Draw and manipulate objects • Use layers • Animate pictures • Use 3D-Visualization tools 	<p>compressed formats, raw formats red eye, lighting, resolution, colouring, effects free selection, cropping pictures e.g. blur, textures create, delete, change the order, merge and change properties</p> <p>e.g. animated gifs, flash create, move, rotate, select, merge objects adding textures and shapes</p>

<p>ICT and Society (6 periods)</p>	<p>The student must:</p> <ul style="list-style-type: none"> • Be aware of data security • Be able to find the right sources of information • Be aware of copyright and alternative concepts • Understand social networks • Know about new developments in ICT • Be aware of chances and risks of modern technologies 	<p>Data encryption Advanced use of search engines, Critically compare different sources, Copyleft, creative commons</p> <p>e.g. with students presentations</p>
<p>Web design (16 periods)</p>	<p>The student must:</p> <ul style="list-style-type: none"> • Know the basic terms of the Internet • Use (an) editing tool(s) • Create websites • Organise the web content • Manage the layout of a website • Build a menu structure 	<p>URL, Server, DNS, Coding tools, WYSIWYG-Editors basics of HTML and CSS, text, pictures, links files and folders positioning of elements, fonts, font size, colours, columns, headlines, paragraphs</p>
<p>Projects (16 periods)</p>		<p>To go deeper in the topics above and/or combine them. Cross-over projects with other subjects and/or language sections. Introductions to other topics (not mentioned above) ICT oriented school trips</p>
<p>Testing (6 periods)</p>		<p>Can be a test of a topic above or an evaluation of a project.</p>

8. Assessment (Formative assessment)

The assessment should be mainly formative. By means of teacher's observation, tests and self-assessment the students acquire an awareness of their level and their progress throughout the course. The basis of the assessment should be the learning objectives of the cycle.

9. ICT in the European Schools

a. Primary School

There is currently no timetable set aside for computer science at the kindergarten and primary school.

However, many competences in the school directly or indirectly induce the use of ICT in classrooms.

It is therefore necessary to agree on some basic principles that will enable teachers to integrate ICT tools to their teaching methods and do so daily and multidisciplinary.

These principles will be addressed under the five following skills:

1^o - to be familiar with an IT work environment;

2^o - to create, produce, to deal with and use data;

3^o - to search and gather information;

4^o - to communicate and exchange;

5^o - to adopt a responsible attitude, to be aware of the dangers of the Internet.

b. Secondary School

ICT is taught through vehicular languages or language of the host country.

ICT is a 1 period a week compulsory course in years 1 and 2.

In year 3 ICT becomes a 2 period optional course.

In the years 4 – 5 ICT is a 2-period optional course.

In the orientation cycle (years 6 and 7) we feel the need to create a new 4 period optional course alongside with the existing 2 period complementary course, to facilitate access to university studies with a relevant ICT component such as telecommunication, computer science, engineering,..

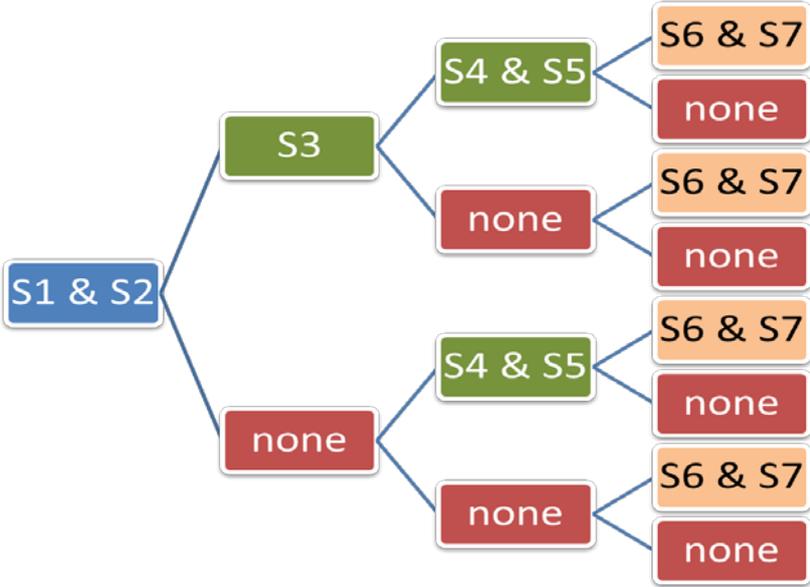
ICT becomes an optional course like the other 4 period courses and keeps the minimum number of periods the same and gives the students a wider range of options to choose from.

If a school has the infrastructure and the competences to organize a 4 period ICT course it has to be able to organize the exams for those 2 years.

COMPULSORY
Counts towards:
Minimum number of
periods

OPTIONAL:
Counts towards:
Minimum number of
periods

COMPLEMENTARY
Counts towards:
Minimum number of
periods



10. Annex

Recommendations for an ICT lab

- 1 computer for every pupil
- 1 computer for the teacher
- Internet connection
- Beamer (with interactive board) and/or monitoring software.
- Each pupil should have a username, password, email account and storage space.