

Curriculum changes CreaTe

This note is a final proposal for a change in the first year of the Creative Technology curriculum.

The proposed change influences the contents of the first year as a whole, and it reorganizes the way subjects are grouped into units of study. At the same time it makes tutoring and portfolio activities count as units of study.

The CreaTe programme's first year

The current first year's programme for CreaTe is depicted in table 1 below.

Table 1, the current first year

block 1A	block1B	block2A	block2B
(3 EC, block 1A) We create identity	(3 EC, block 1B) Smart environments	(6 EC, block 2A) Living and working tomorrow	(6 EC, block 2B) Have fun and play
(3 EC, block 1A) Web technology		(5 EC, block 2A) Interactive visualization	
(2 EC, block 1A) Graphic design	(2 EC, block 1B) Sketching for CreaTe	(2 EC, block 2A) Designing in Context	(3 EC, block 2B) Human factors
(3 EC, block 1A) Introduction to Computer Science	(5 EC, sem 1) Programming for CreaTe	(3 EC, block 2A) Signals and systems	(2 EC, block 2B) Creative exploration of structures
	(3 EC, sem 1) Motion and modelling	(6 EC, block 1B-2A) Dynamical systems	(3 EC, block 2B) Statistics and probability

Tables 2 and 3 show the proposal for the new first year. Table 3 is the list of units, table 2 shows how they are arranged into blocks. (Explanation follows after table 3.)

Table 2, the proposed first year

block 1A	block1B	block2A	block2B
(5 EC, block 1A) We Create Identity	(3 EC, block 1B) Smart environments	(5 EC, block 2A) Living and working tomorrow	(5 EC, block 2B) Have fun and play
(4 EC, block 1A) Visual Communication	(2 EC, block 1B) Sketching	(2 EC, block 2BA) Designing in context	(3 EC, block 2B) Human factors
(3+2 EC, block 1A) Computer Science / Programming	(5 EC, block 1B) Programming and Physical Computing	(3 EC, block 2A) Interactive Visualization part 1	(2 EC, block 2B) Interactive Visualization part 2
	(3+1 EC, block 1B) Intro Math+Modelling / Dynamical Systems	(3+1 EC, block 2A) Dynamical Systems / Intro Math+Modelling	(2+2 EC, block 2B) Intro Math+Modelling / Dynamical Systems
(1 EC) Portfolio 1	(1 EC) Portfolio 2	(1 EC) Portfolio 3	(1 EC) Portfolio 3

Table 3: the courses of the proposed first year¹

	study load in EC	teaching activities	assessment
We Create Identity	5	LPIDG	DPE
Smart Environments	3	LPIDG	DPE
Interactive Visualization	5	LPID	DE
Living and Working Tomorrow	5	LPIDG	DPEO
Have Fun and Play!	5	LPIDG	DPE
Visual Communication	4	LPI	D
Sketching for CreaTe	2	LIA	D
Designing in Context	2	LAI	D
Human Factors	3		
Introduction to Computer Science	3	LIAG	APE
Programming and Physical Computing	7	LIA	AO
Dynamical systems	6	LIA	AO
Introduction to Mathematics and Modelling	6	LIAD	DW
First year portfolio	4	I	D
Year 1	60		

The relationship between the list of courses and their arrangement in blocks is not straightforward. Table 4 below shows how *Programming and Physical Computing*, *Interactive Visualization*, *Dynamical Systems* and *Mathematical Modelling* stretch over a longer period of time.

All four courses where learning activities are scheduled across block boundaries have an intermediate test at the end of each block. The numbers in table 4 indicate how intermediate tests are arranged in blocks. (FA indicates final assessment; a(b) stands for a tests, accounting for a study load of b EC)

There is a single course, We Create Identity, which has two intermediate tests in a single block.

¹ The abbreviations in the columns Teaching activities and assessment are explained at the end of this note.

Table 4*: tests

	block1A	block1B	blok2A	block2B
We Create Identity	2(5) FA			
Smart Environments		FA		
Interactive Visualization			1(2)	1(3) FA
Living and Working Tomorrow			FA	
Have Fun and Play!				FA
Visual Communication	FA			
Sketching for CreaTe		FA		
Designing in Context			FA	
Human Factors				FA
Introduction to Computer Science	FA			
Programming and Physical Computing	1(2)	1(5) FA		
Dynamical systems		1(1)	1(3)	1(2) FA
Mathematical Modelling		1(3)	1(1)	1(2) FA
First year portfolio	1(1)	1(1)	1(1)	1(1) FA
Year 1	3	3	2	6

*FA is final assessment; a(b) stands for a tests, accounting for a study load of b EC

STUDY LOAD

Looking at names of units of study only (redistribution of contents is not taken into consideration) the proposal shows the following shifts in study load

Loss

Statistics	3
Systems and signals	3
Creative Explorations	2
We Create identity + Web Technology	1
Living and Working Tomorrow	1
Have Fun and Play!	1
Total	11

Gain

Portfolio	4
Visual Communication	2
Programming and Physical Computing	2
Mathematical Modelling	3
Total	11

ABOUT THE CONTENT OF THE COURSES

- In the new *We Create Identity* the contents of *Web Technology* and (the old) *We Create Identity* should be combined.
- In *Visual Communication* the contents of (the old) *Graphic Design* should be combined with sketching. However, Sketching as it is (and as it will remain), concentrates on hand drawing of 3d objects from various perspectives, with fairly strict requirements on correctness. The sketching of *Visual Communication* should deal with “non-verbal idea capturing”
- In *Programming and Physical Computing* one should find the contents of (the old) *Programming for CreaTe* and the physical computing which is now taught as part of *Smart Environments*.
- The contents of *Sketching* will be reduced to fit the purposes of *CreaTe* (and the 2EC study load).

- In *Mathematical Modelling* the contents of *Motion and Modelling* and *Creative Exploration of Structures* (Heart of Mathematics) will be combined, and maybe even some of the content of *Systems and Signals*.
- *Dynamical Systems* will be the course as it is, except (which is most important) that it is taught interwoven with *Mathematical Modelling*.
- *First year portfolio* is not so much a course. It is a space for self directed learning. Over the last half year tutors have been working on a “road map” for the development of the individual Create students. The idea of such a map is the following:
The map draws development lines, which show the characteristics of a “beginner”, and the characteristics of an “expert”.
 - Every student starts as a “beginner” for most lines.
 - All students arrive at least half way along all lines
 - All students have a few strengths which they shall want to develop especially. Along those lines they should reach the “expert” level. Everyone will be “expert” along some lines.The role of tutor and portfolio (and also of a course like *We Create Identity*) is:
 - to make students aware of their “beginner” status, and at the same time of their ambition to reach the “expert” status along some lines;
 - to help students to monitor their own development along all lines, to make sure they do not fall behind along some lines, and to help them to reach a higher level along the expert lines of their choice;
 - to help students studying in this self directed manner.

First year portfolio has four intermediate tests. In this case they are portfolio assessments. The student portfolio is assessed on the basis of the following:

1. It shows products of projects and assignments of the current block
2. It show personal development along relevant development lines (from the tutoring floorplan):

All courses not in the above list will be the courses as they are.

THE LOST COURSE SYSTEMS AND SIGNALS

In the current situation *Systems and Signals* serves a dual purpose. It is supposed to explain the elementary mathematical modelling of signals for a diverse audience, but at the same time it has to be an introduction to the *Control Engineering* course in the *Smart Technology* track of year 2. It seems wise to give two separate courses *Systems and Signals*, one which fits in the *Smart Technology* track, and one in the *New Media* track of the second year. So *Systems and Signals* returns in two shapes, one for each track of year 2.

THE LOST COURSE INTRODUCTION TO STATISTICS AND PROBABILITY

There is a strong urge to have at least some research methodology course in the curriculum. My proposal is to move statistics to the second year and to add a research methodology component, to make it a single 5 EC course.

The CreaTe programme's second year

The changes in the first year's curriculum imply that, starting in 2012-2013, we shall need a revision of the second year of the Creative Technology programme as well.

Due to unforeseen circumstances (in the collaboration with NIKOS for marketing and business courses, and in the absence of contents and staff for Digital Content Creation Tools), we shall have to modify the second year's programme also in 2011-2012, for the generation 2010-2011.

The current second year's programme for CreaTe is depicted in table 5 below.

Tables 6 and 7 show the proposed second year 2011-2012 (the intermediate version); firstly arranged in blocks, secondly as a list of units.

Table 8 shows a proposal for the new second year for 2012-2013 and beyond.

The general considerations for "reconstruction" of the first year apply to this second year as well. But there is more. The second year as it is, shows an unacceptable disbalance in study loads between blocks. E.g. for New Media students the first block has only 10EC, while the last block has 20.

Table 5, the current second year

block 1A	block1B	block2A	block2B
	(8 EC, block 1B) Ambient Screens		(9 EC, block 2B) Hybrid Worlds
(3 EC, block 1A) Strategies and Protocols		(3 EC, block 2A) Queues and Logistics	
(2 EC, block 1A) 3d Modelling	(3 EC, block 1B) Design Marketing	(2 EC, block 2A) Advanced Graphic Design	(3 EC, block 2B) Business Management
(5 EC, block 1A) Programming with Structures		(3 EC, block 2A) Data-driven applications	(2 EC, block 2B) Digital Content Creation Tools
(4 EC, block 1A) Introduction to Electronics	(4 EC, block 1B) Introduction to Communication Systems	(4 EC, block 2A) Control Engineering	(3 EC, block 2B) Sensors
	(3 EC, block 1B) Web 2.0 Mash-ups	(6 EC, block 2A) Virtual Environments	(6 EC, block 2A) Game Development
(2 EC, whole year) Creative exploration of structures			

Table 6, the proposed second year 2011-2012

block 1A	block1B	block2A	block2B
	(6,5 EC, block 1B) Ambient Screens		(7,5 EC, block 2B) Hybrid Worlds
(1 EC, block 1A) Strategies and Protocols part 1	(2 EC, block 1B) Strategies and Protocols part 2	(3 EC, block 2A) Queues and Logistics	
(5 EC, block 1A) Design Marketing	(2,5 EC, block 1B) 3-D Modelling	(5 EC, block 2A) Business Management	(2,5 EC, block 2B) Advanced Graphic Design
(5 EC, block 1A) Programming with Structures		(3 EC, block 2A) Data-driven Applications	(2 EC, block 2B) Creative Exploration in Art, Science and Technology
(4 EC, block 1A) Introduction to Electronics	(4 EC, block 1B) Introduction to Communication Systems	(4 EC, block 2A) Control Engineering	(3 EC, block 2B) Sensors
(3 EC, block 1A) Web 2.0 Mash-ups	(4 EC, block 2A) Virtual Environments	(2+2 EC, block 2A) Virtual Environments and Game Development	(4 EC, block 2B) Game Development
Tutoring			

Table 7, the units of study for 2011-2012²

	study load in EC	teaching activities	assessment
Ambient Screens	6,5	LPIDG	DEP
Hybrid Worlds	7,5	LPIDG	DEP
CE in Art, Science and Technology	2	A	A
3-D Modelling	2,5	LID	D
Advanced Graphic Design	2,5	LPID	D
Design Marketing	5	LPI	W
Business Management	5	LI	DP
Introduction to Electronics	4	LA	AO
Wireless Communication Systems	4	LA	W
Control Systems	4	LIA	W
Sensors	3	LIA	
Web 2.0 Mashups	3	LPID	DEP
Virtual Environments	6	LPID	DEP
Game Development	6	LPID	DEP
Programming with Structures	5	LID	AO
Data-driven Applications	3	LA	A
Strategies and Protocols	3	LI	W
Queues and Logistics	3	LI	W
Tutoring		I	D
Year 2	60		

² The abbreviations in the columns Teaching activities and assessment are explained at the end of this note.

Table 8, the proposed second year for 2012-2013 and beyond

block 1A	block1B	block2A	block2B
(5 EC, block 1A) Statistics and Research Methodology	(5 EC, block 1B) Ambient Screens	(3 EC, block 2A) <i>Mathematics</i>	(6 EC, block 2B) Hybrid Worlds
	(3 EC, block 1 B) Systems and Signals	(4 EC, block 2A) Design Marketing and Business management	(3 EC, block 2B) Design Marketing and Business management
(5 EC, block 1A) Programming with Structures	(3 EC, block 2A) 3-D Modelling	(3 EC, block 2A) Data driven Applications	(3 EC, block 2A) Advanced Graphic Design
(4 EC, block 1A) Introduction to Electronics	(4 EC, block 1B) Introduction to Communication Systems	(4 EC, block 2A) Control Engineering	(3 EC, block 2B) Sensors
(4 EC, block 1A) New Media Course 1	(4 EC, block 1B) New Media Course 2	(4 EC, block 2A) New Media Course 3	(3 EC, block 2B) New Media course 4
(1EC) Portfolio 5		(1 EC) Portfolio 6	

ABOUT THE (NEW AND OLD) COURSES

- In the 4 New Media courses one should find the contents of the old units *Web 2.0 Mashups*, *Virtual Environments* and *Game Development*.
- The Systems and Signals course is in fact two courses, one for each specialization)
- What will be the contents of the new Mathematics courses? Do we maybe offer a choice here, between two courses. If there are 60 students in the second year, this may be an alternative. The choice needs not necessarily to correspond with the specialization.
- I think the disappearance of *Digital Content Creation tools* is not a big loss.
- Creative Exploration of Structures gave the students some freedom to introduce an individual project. It is a pity to lose that freedom. But, what can we do?

STUDY LOAD

Looking at names of units of study only (redistribution of contents is not taken into consideration) the proposal shows the following shifts in study load

Loss

Strategies and Protocols	3
Queues and Logistics	3
Creative Explorations	2
Digital Content Creation Tools	2
Ambient Screens	3
Hybrid Worlds	3
Total	16

Gain

Portfolio	2
Statistics and Research Methodology	5
Advanced Graphic Design+3-D Modelling	2
Design Marketing+ Business Management	1
Systems and Signals + Mathematics	6
Total	16

Abbreviations for teaching activities and assessment

The abbreviations in the various tables must be read as follows.

For teaching activities

- L (Lectures) an expert speaker addresses the students.
- P (Presentations) the students address their fellow students.
- I (Interaction) questions are raised, discussed and answered, in collaboration between students and teacher.
- A (Assignments) Students work on assignments, under supervision of a teacher and/or assistant.
- D (Deliverable) a result is being produced, which can be demonstrated and observed; the product is more than mere text for reading.
- G (Group) students collaborate in a group.

For assessment

- W (Written) students participate in a session for a written examination.
- O (Oral) oral examination
- E (Essay) students hand in one or more essays.
- A (Assignments) students hand in (homework) assignments.
- P (Public defence) student give a presentation and (publicly) defend the results of an assignment
- D (Deliverable) students demonstrate the results of an assignment (a working prototype, a result to be analyzed and observed, not mere text)