IMPLEMENTATION

1.1 LOGIN DESCRIPTION

The welcome screen of the system

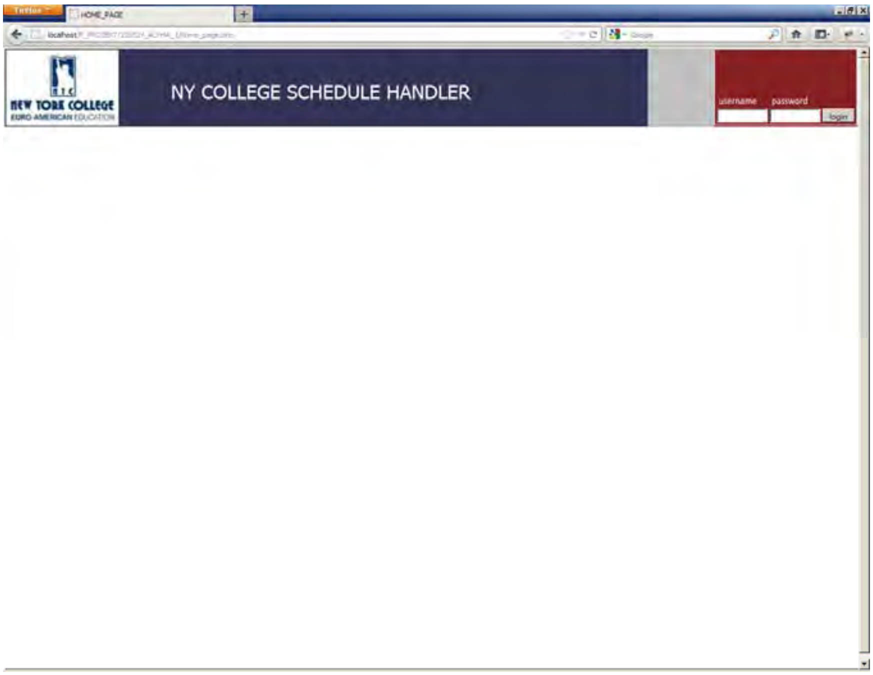


Figure 0.1 WELCOME PAGE

A user with a not registered credentials tries to enter the system

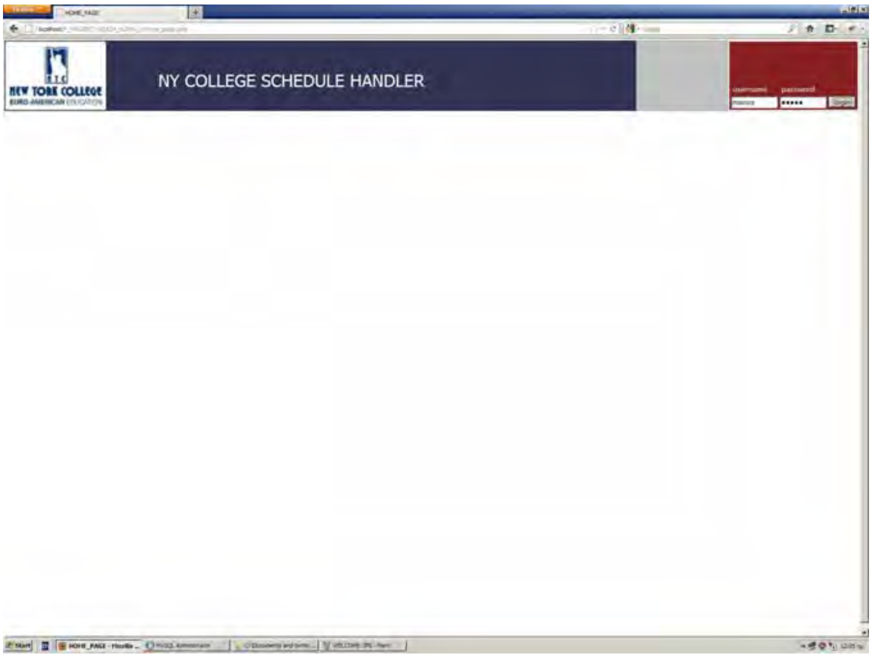


Figure 0.2 USER LOGIN

Script remains at the front page

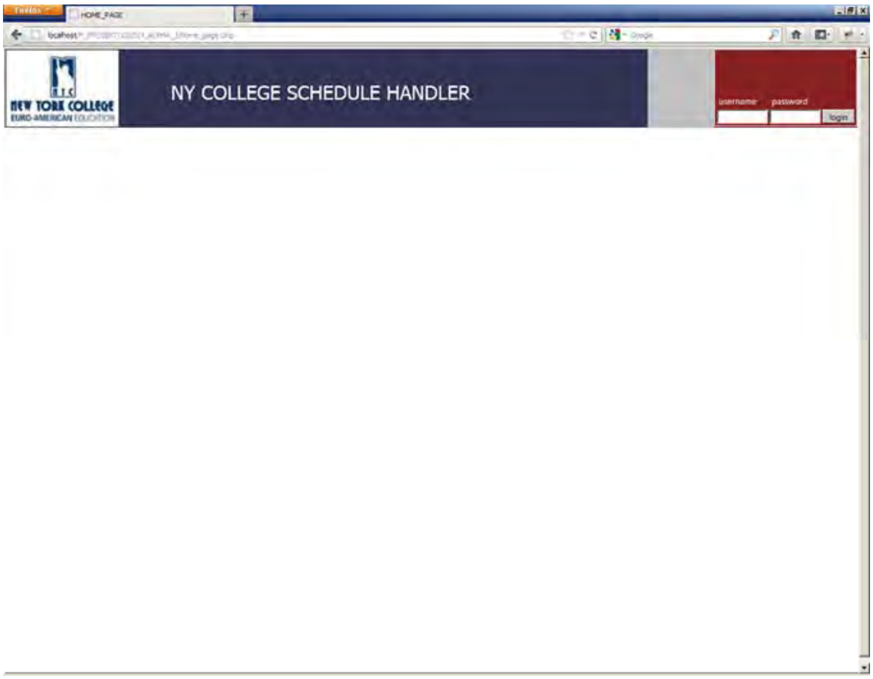
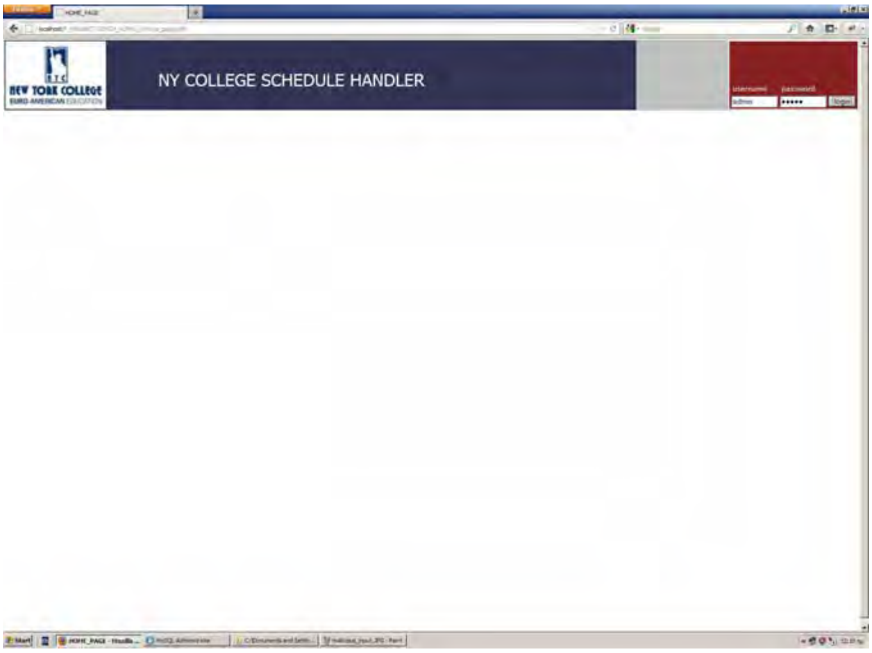


Figure 0.3 REJECT LOGIN CREDENTIALS

Registered user applies the credentials to the log in iputs



admin

•••••

Figure 0.4 VALID USER LOGIN

Welcome screen. Script loads the buttons that the user has access and outputs a ‘welcome’ message with the user’s name

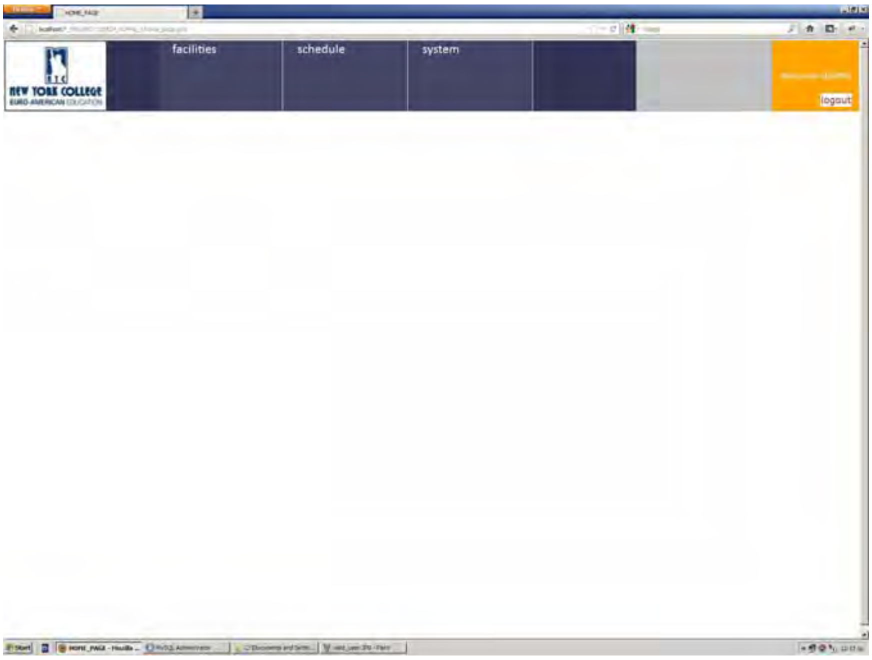


Figure 0.5 ENDORSE VALID USER

1.2 VALID USER ‘ADMIN’

1.2.1 ‘FACILITIES’ FAMILY OF FUNCTIONS

The relevant buttons are loaded on the screen

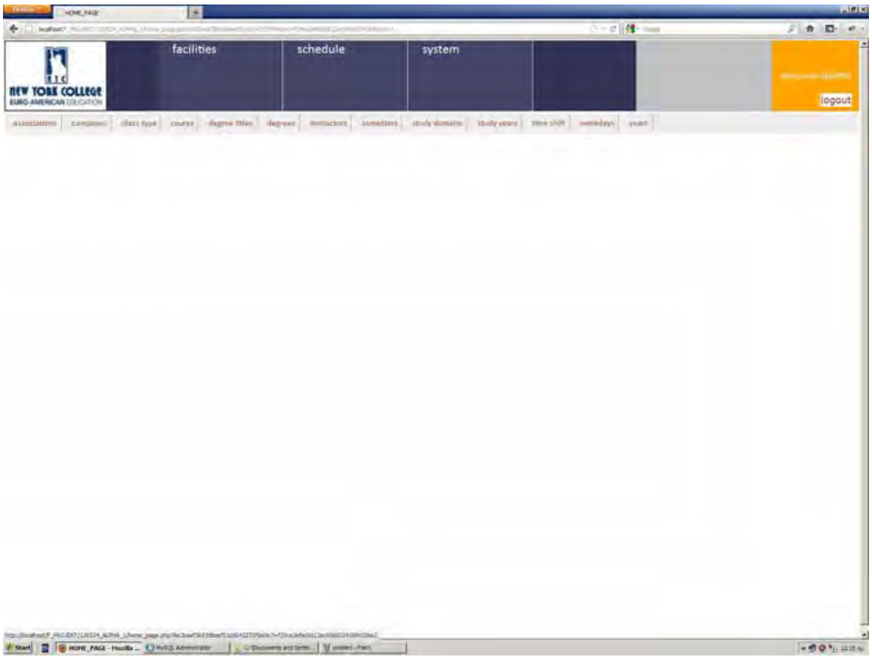


Figure 0.6 USER 'ADMIN'

The user chooses the ‘courses’

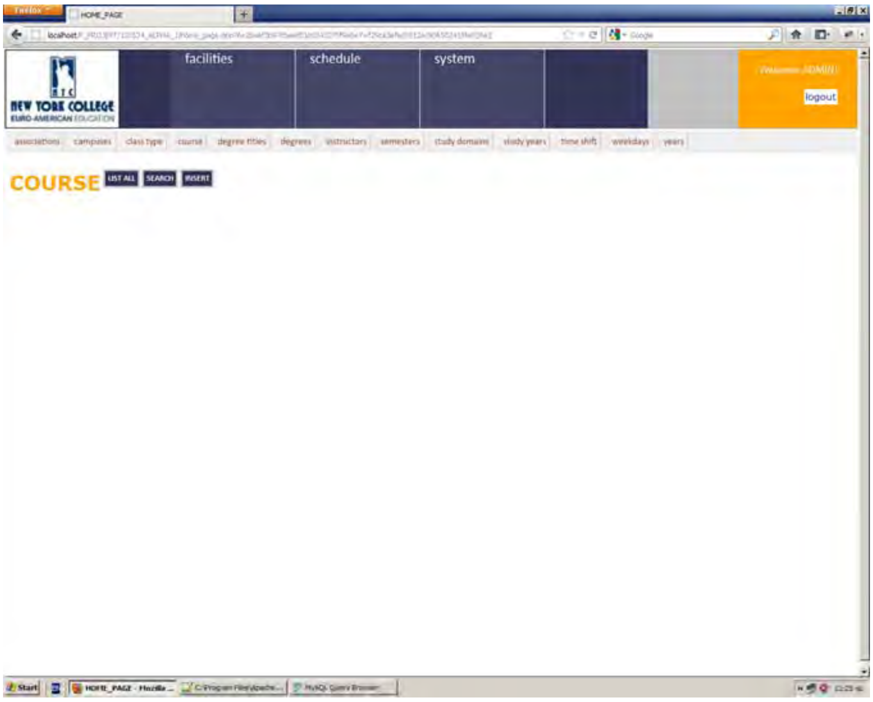
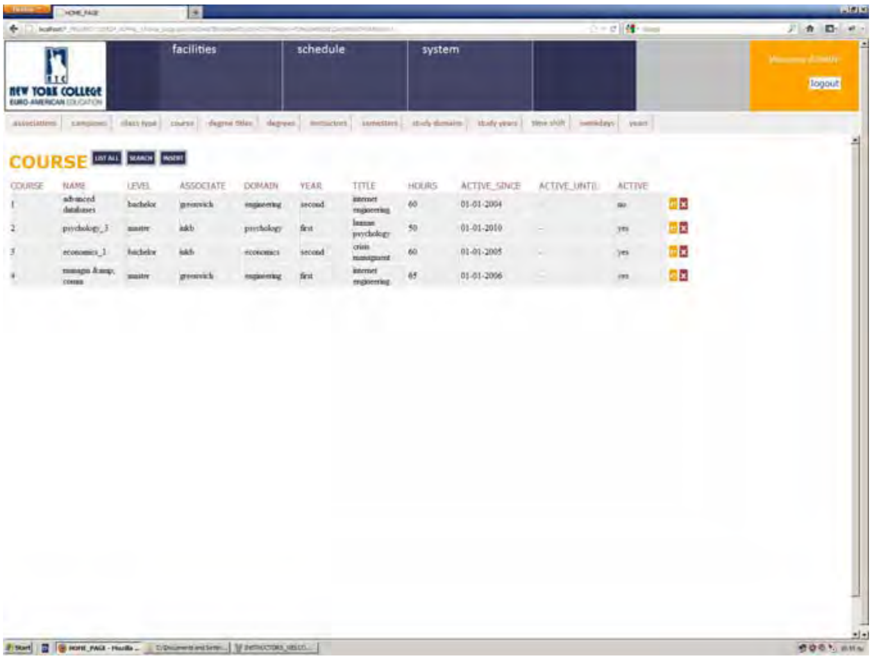


Figure 0.7 'ADMIN' ACTION BUTTONS

User clicks the button ‘LIST ALL’ to preview all the registered data in the table

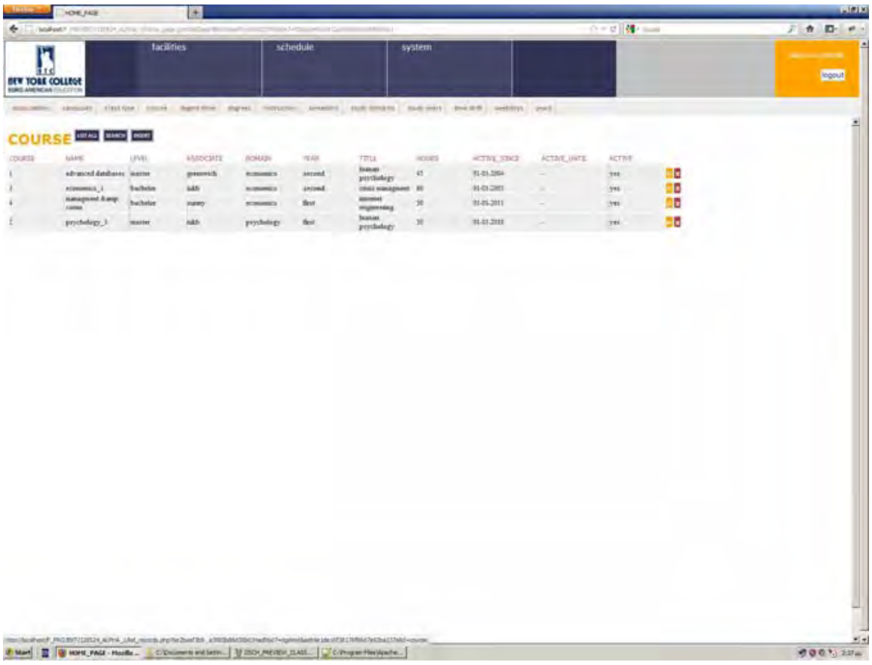


COURSE

COURSE	NAME	LEVEL	ASSOCIATE	DOMAIN	YEAR	TITLE	HOURS	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
1	advanced databases	bachelor	greenwich	engineering	second	internet engineering	60	01-01-2004	–	no
2	psychology_3	mastre	iukb	psychology	first	human psychology	50	01-01-2010	–	yes
3	economics_1	bachelor	iukb	economics	second	crisis managment	60	01-01-2005	–	yes
4	managm &amp; comm	mastre	greenwich	engineering	first	internet engineering	65	01-01-2006	–	yes

Figure 0.8 'LIST ALL' PREVIEW

The user wants to list the data of the record in a different ordering format. The ‘name’ header column is clicked.

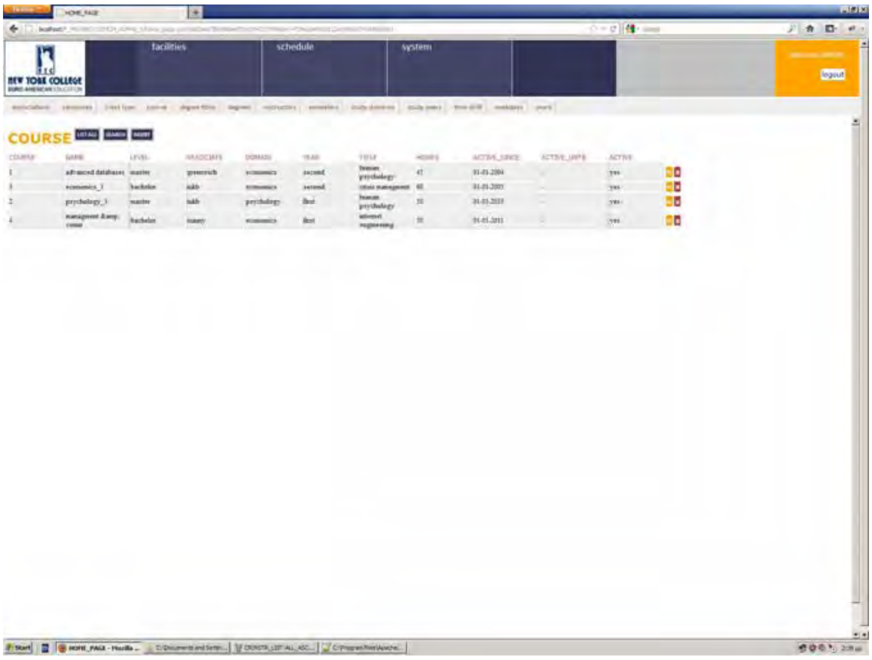


COURSE

COURSE	NAME	LEVEL	ASSOCIATE	DOMAIN	YEAR	TITLE	HOURS	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
1	advanced databases	master	greenwich	economics	second	human psychology	45	01-01-2004	–	yes
3	economics_1	bachelor	iukb	economics	second	crisis management	80	01-01-2005	–	yes
4	management &amp; comm	bachelor	[illegible]	economics	first	internet engineering	30	01-01-2011	–	yes
2	psychology_3	master	iukb	psychology	first	human psychology	30	01-01-2010	–	yes

Figure 0.9 CLICK LINK HEADERS

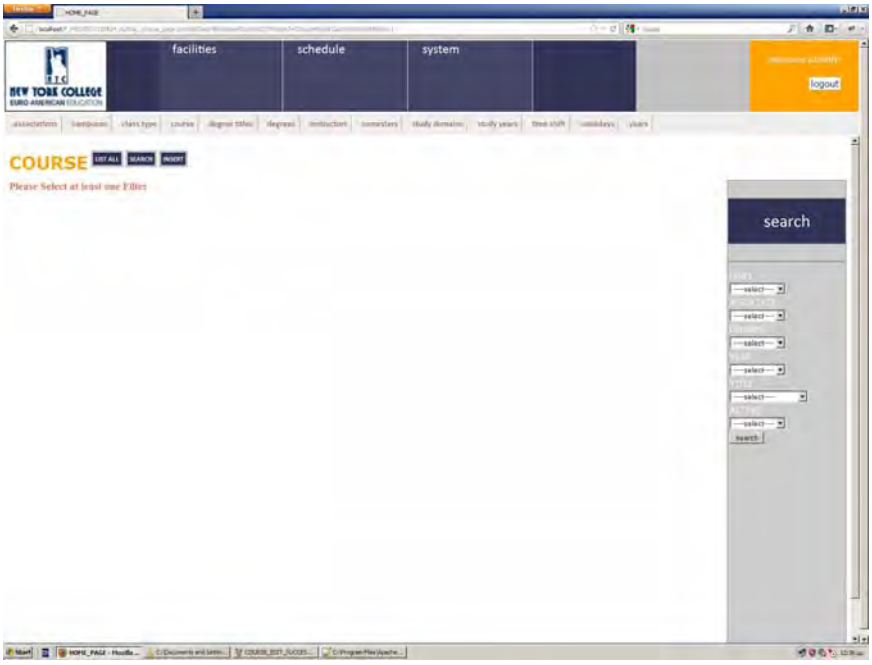
The users alters the order by selecting the ‘active_since’ header adjuster



COURSE	NAME	LEVEL	ASSOCIATE	DOMAIN	YEAR	TITLE	HOURS	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
1	advanced databases	master	greenrich	economics	second	human psychology	47	01-01-2004	-	yes
3	economics_1	bachelor	nikb	economics	second	crisis management	40	01-01-2005	-	yes
2	psychology_1	master	nikb	psychology	first	human psychology	35	01-01-2010	-	yes
4	management &amp; course	bachelor	manny	economics	first	internet engineering	35	01-01-2011	-	yes

Figure 0.10 RECORDS ASCENDING ORDER

The user decides to use the search mechanism for finding data based on certain parameters. In the following example the user accidentally clicks the ‘search’ button without first selecting one of the provided filters. The system responds with a message, prompting the user to select a filter first before firing a searching routine



Please Select at least one Filter

Figure 0.11APPLY SEARCH WITHOUT VALID ARGUMENTS

The user uses again the searching mechanism but this time selects to preview the courses that are part of the 'master' degree

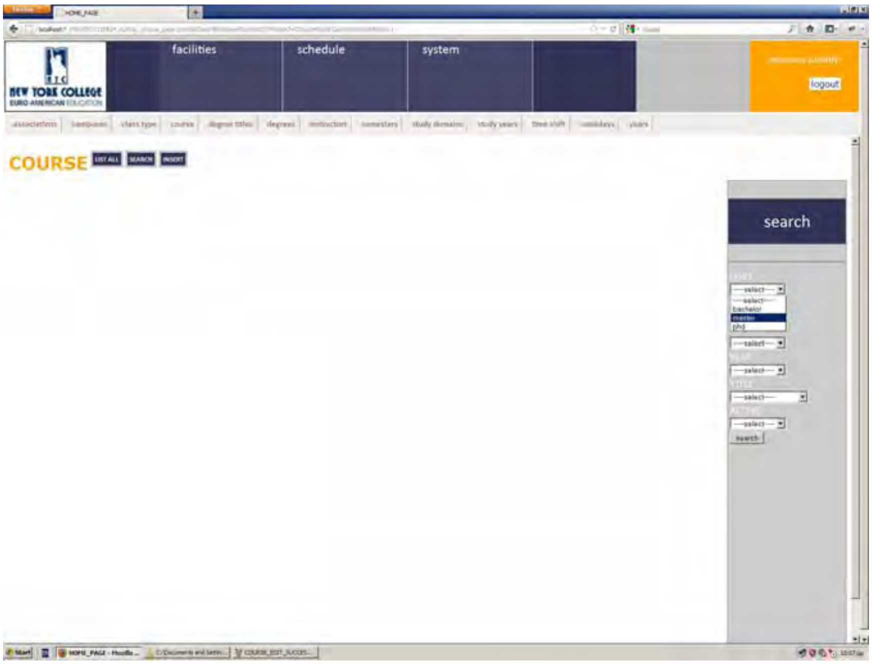
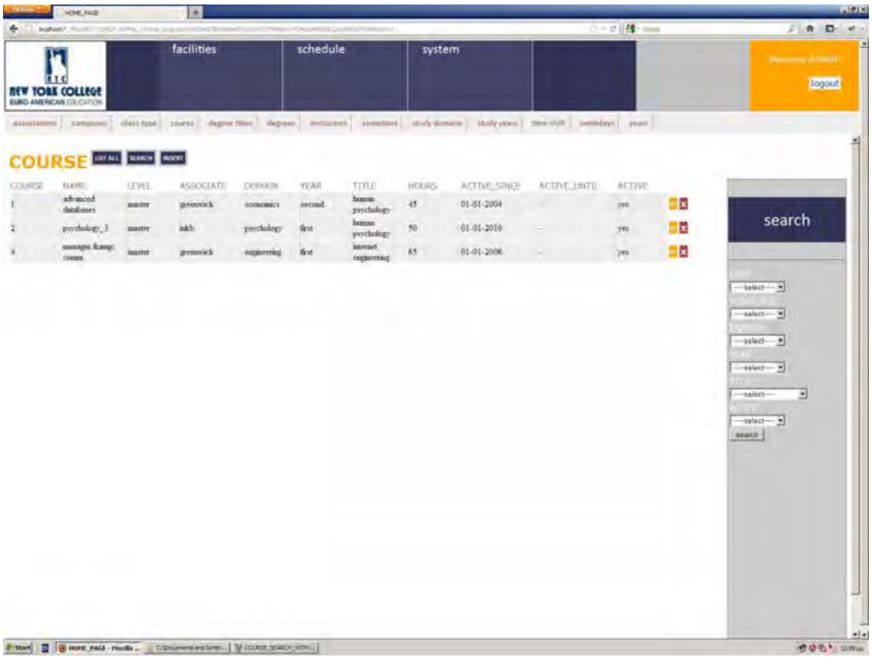


Figure 0.12 SEARCHING FILTERS

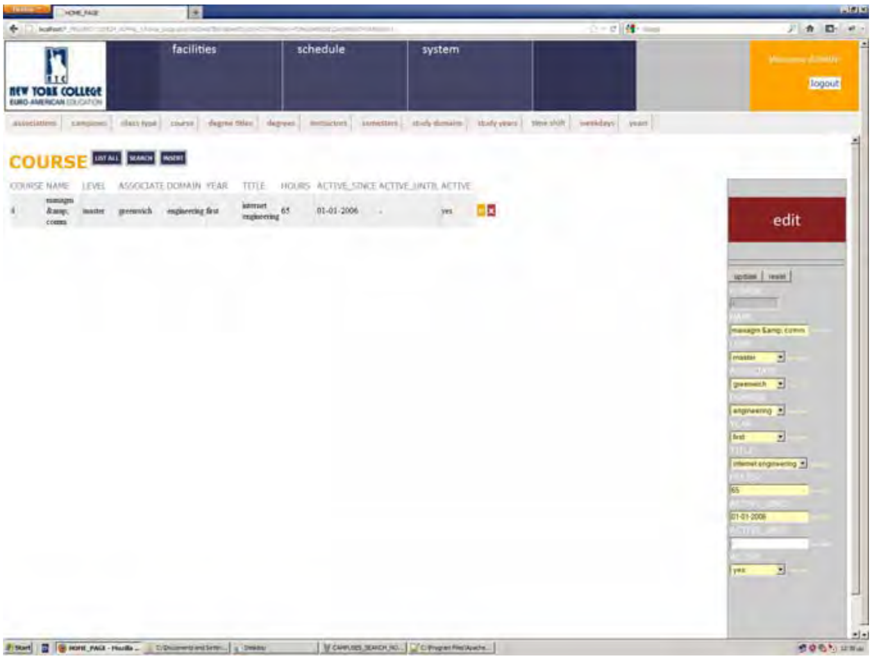
The system dispatches the search in the background, retrieving the relevant data that apply to the search parameters and displays results on screen



COURSE	NAME	LEVEL	ASSOCIATE	DOMAIN	YEAR	TITLE	HOURS	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
1	advanced databases	master	greenwich	economics	second	human psychology	45	01-01-2004	-	yes
2	psychology_3	master	akb	psychology	first	human psychology	50	01-01-2010	-	yes
4	managm &amp; comm	master	greenwich	engineering	first	internet engineering	65	01-01-2006	-	yes

Figure 0.13 SEARCHING RESULTS

The user decides to edit some of the data and clicks on the right orange button to edit the last record. The data are provided in a sidebar at the right of the screen. At the same time the dataset is previewed on screen.

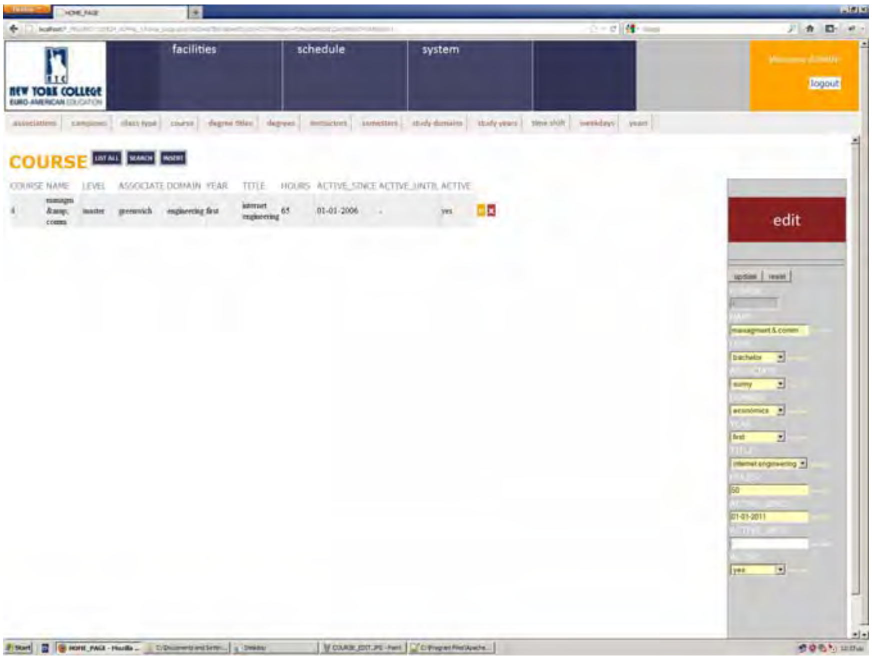


COURSE	NAME	LEVEL	ASSOCIATE	DOMAIN	YEAR	TITLE	HOURS	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
4	managm &amp; comm	master	greenwich	engineering	first	internet engineering	65	01-01-2006	-	yes

managm &amp; comm
master
greenwich
engineering
first
internet engineering
65
01-01-2006
yes

Figure 0.14 EDIT RECORD

The user changes the data on the sidebar and clicks “update” button

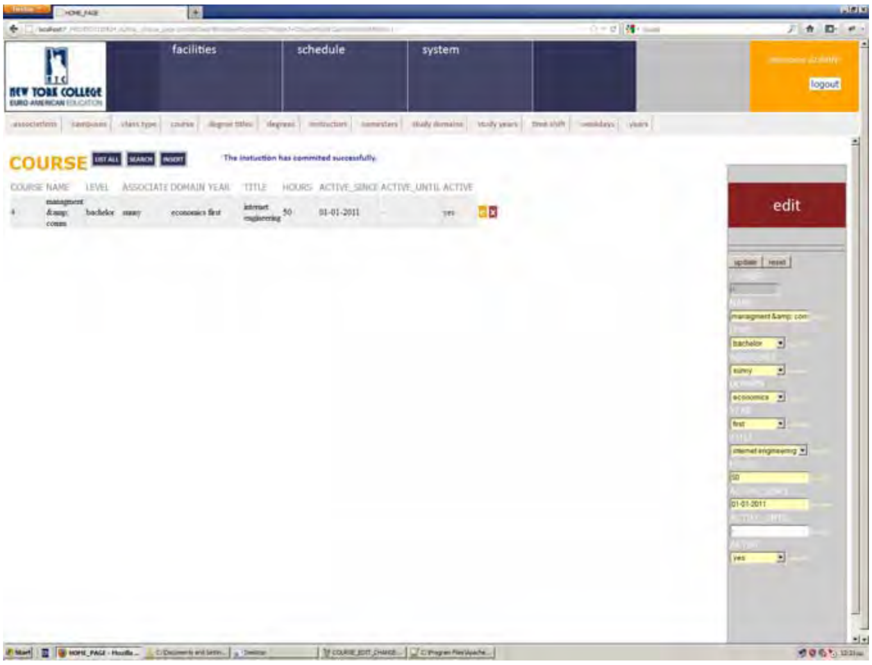


COURSE	NAME	LEVEL	ASSOCIATE	DOMAIN	YEAR	TITLE	HOURS	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
4	managm &amp; comm	master	greenwich	engineering	first	internet engineering	65	01-01-2006	-	yes

managment & comm
bachelor
surrey
economics
first
internet engineering
50
01-01-2011
yes

Figure 0.15 UPDATE RECORDS

The system informs the user that the data were successfully registered



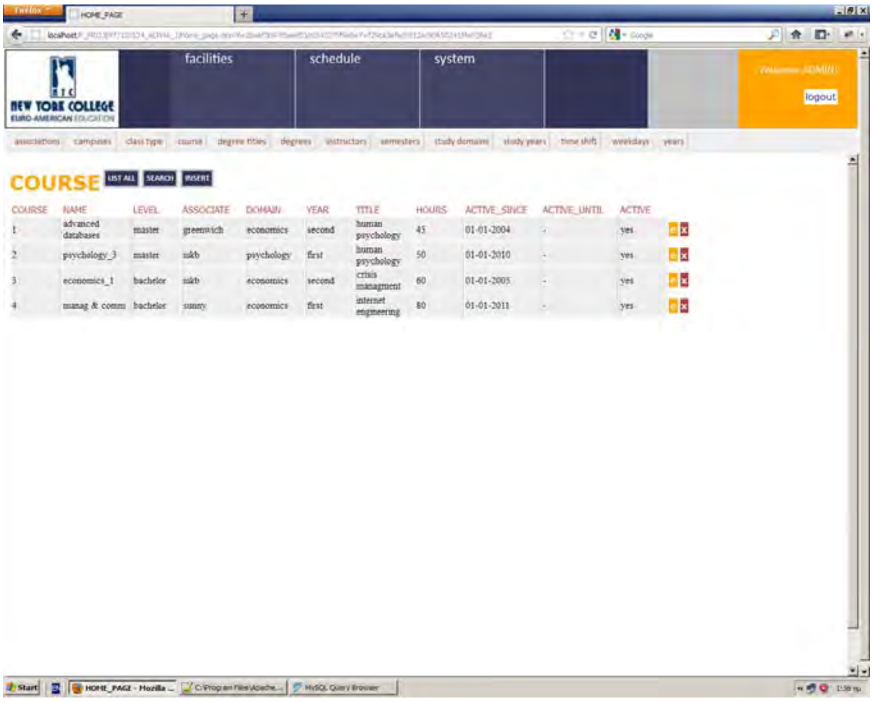
The instuction has commited successfully.

COURSE	NAME	LEVEL	ASSOCIATE	DOMAIN	YEAR	TITLE	HOURS	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
4	managment &amp; comm	bachelor	sunny	economics	first	internet engineering	50	01-01-2011	-	yes

managment &amp; com
bachelor
sunny
economics
first
internet engineering
50
01-01-2011
yes

Figure 0.16 SYSTEM RESPONCE ON UPDATES

The user wants to verify that the last change to the data were truly successful and chooses to display all data again.



COURSE	NAME	LEVEL	ASSOCIATE	DOMAIN	YEAR	TITLE	HOURS	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
1	advanced databases	master	greenwich	economics	second	human psychology	45	01-01-2004	-	yes
2	psychology_3	master	nkb	psychology	first	human psychology	50	01-01-2010	-	yes
3	economics_1	bachelor	nkb	economics	second	crisis managment	60	01-01-2005	-	yes
4	manag & comm	bachelor	sunny	economics	first	internet engineering	80	01-01-2011	-	yes

Figure 0.17 PREVIEW UPDATED RECORDS

The user wants to register a new course to the system and clicks the ‘insert’ button. The system provides a different sidebar - with empty inputs - for data that will be registered for the first time in the system. Additionally ‘select’ options are provided for data that are already registered to the system and relate with the recording.

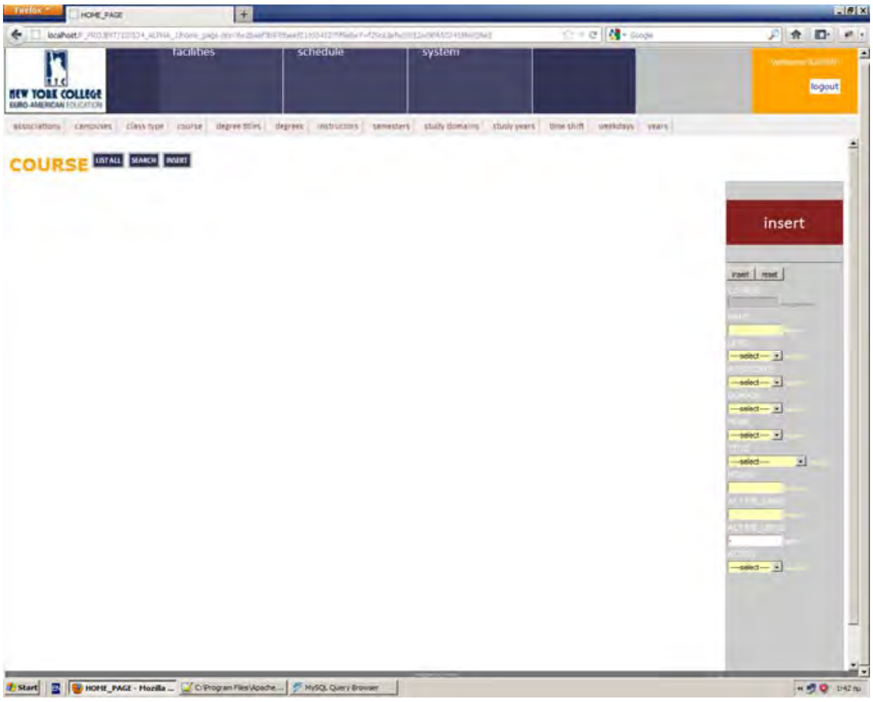
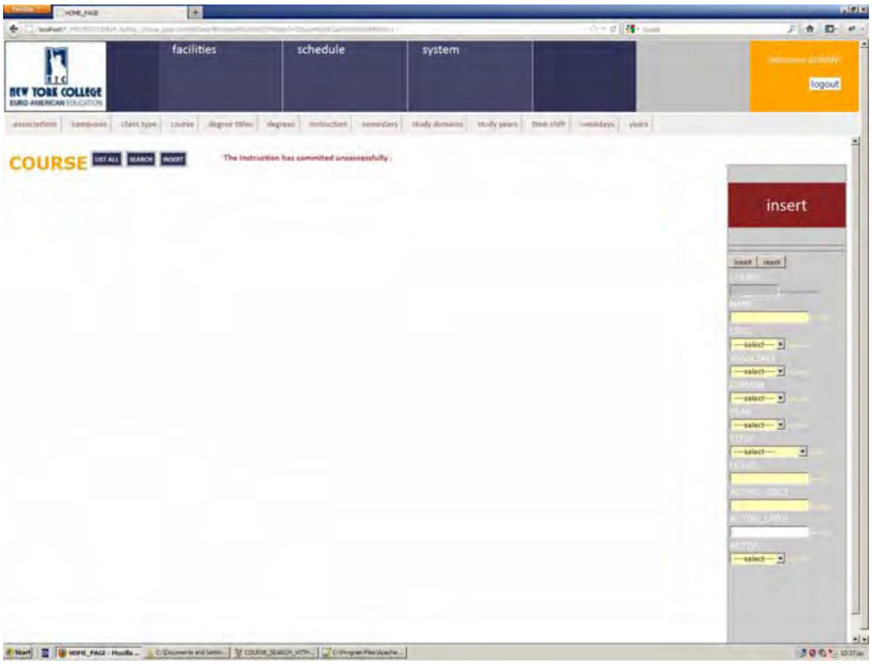


Figure 0.18 INSERT NEW DATA

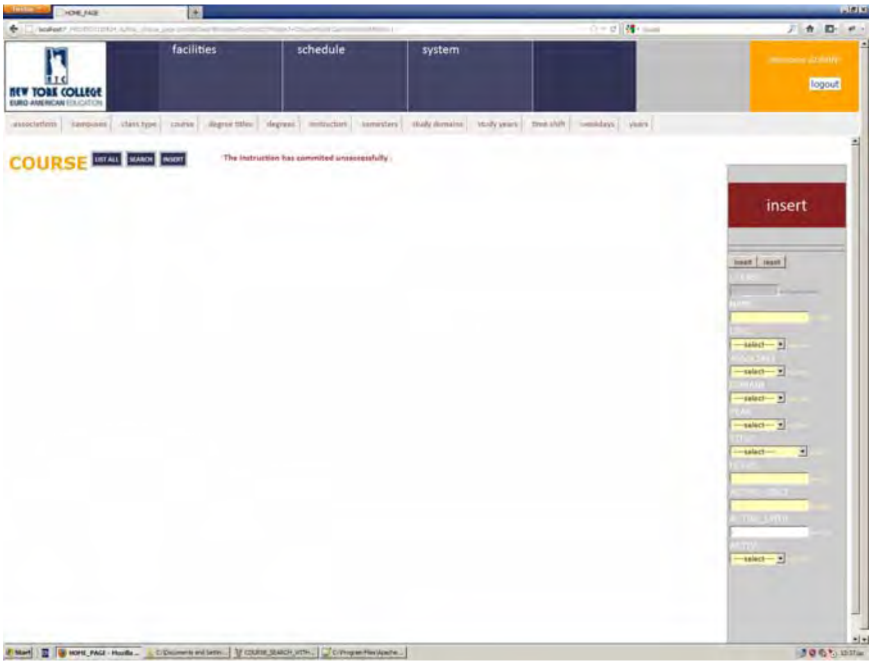
The user accidentally clicks the ‘insert’ button without first applying any data, and the system outputs message that alerts the user about the faulty registration.



The instruction has commited unsuccessfully .

Figure 0.19 SYSTEM RESPONCE ON REQUEST OF INSERTING INVALID DATA

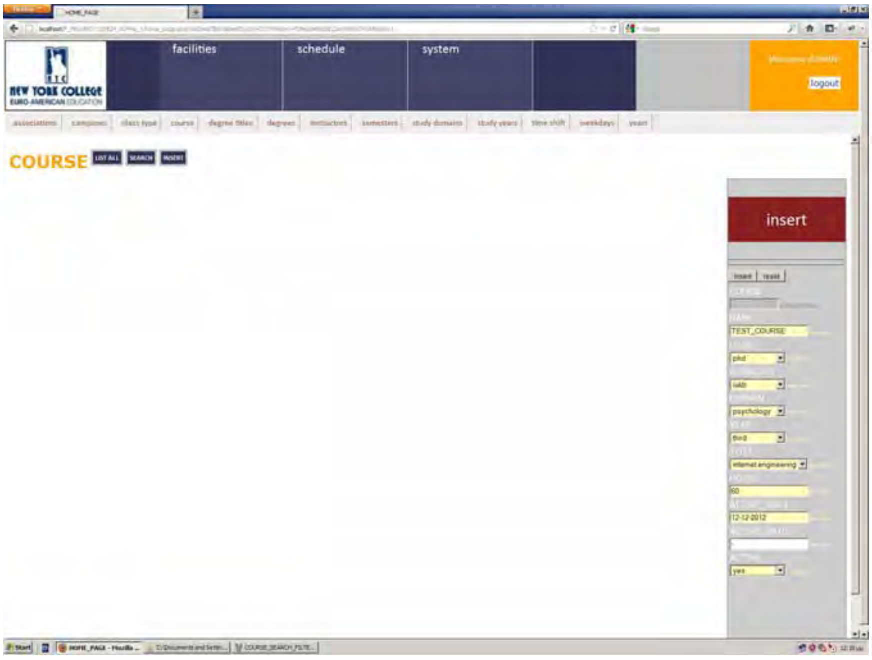
The user applies the data in the form but misses to apply one of the required values and leaves it to the default value ‘select’.



The instruction has commited unsuccessfully .

---select---
---select---
---select---
---select---
---select---
---select---

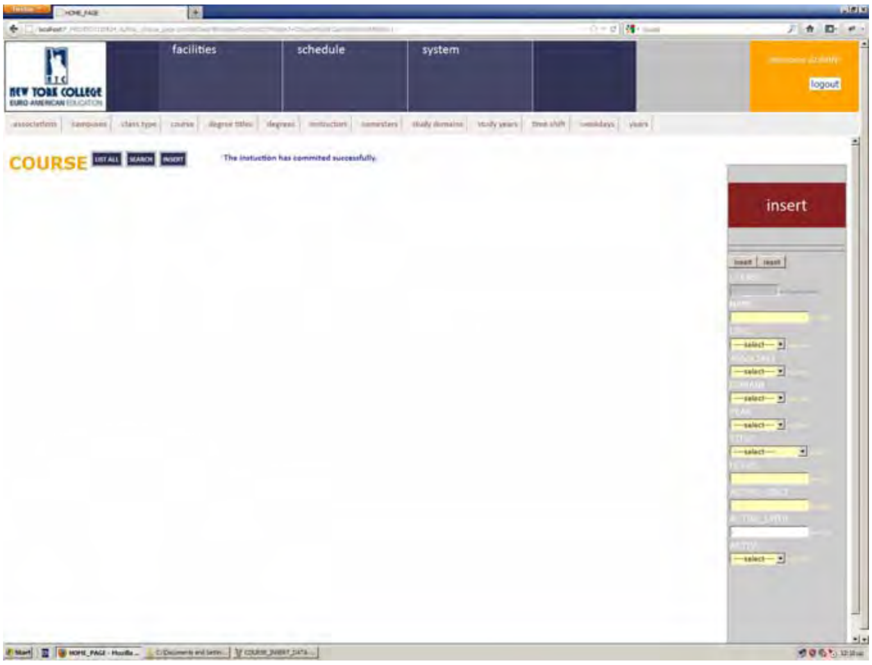
The user applies the data that needs to register in the system



TEST_COURSE
phd
lab
psychology
third
internet engineering
60
12-12-2012
yes

Figure 0.20 INSERT VALID DATA

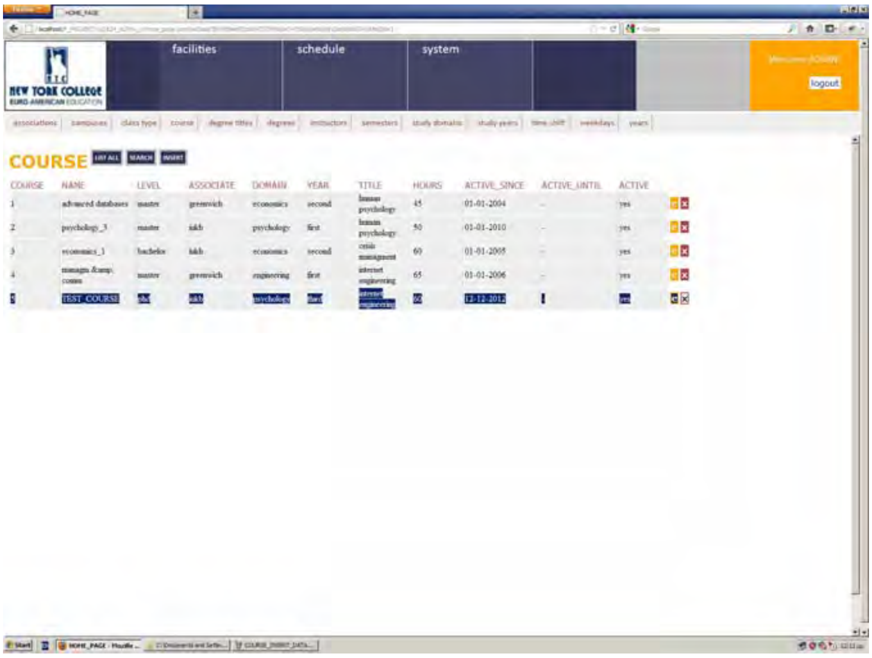
The user clicks the ‘insert‘ button and the system responds with a message informing the user that the registration was successful.


facilities
schedule
system
logout
associations | campuses | class type | course | degree titles | degrees | instructors | semesters | study domains | study years | time shift | weekdays | years
COURSE
LIST ALL
SEARCH
INSERT
insert

The instuction has commited successfully.

Figure 0.21 SYSTEM RESPONCE ON VALID ENTRIES

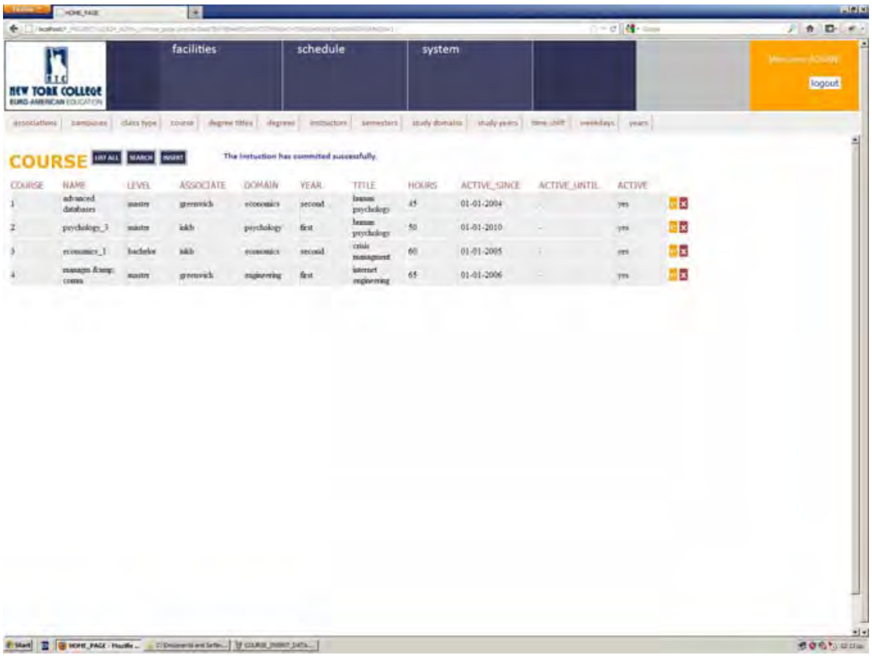
The user needs to be confident that the data were truly registered and clicks the ‘list all’ button to verify the activity.


facilities
schedule
system
logout
associations | campuses | class type | course | degree titles | degrees | instructors | semesters | study domains | study years | time shift | weekdays | years
COURSE
LIST ALL
SEARCH
INSERT

COURSE	NAME	LEVEL	ASSOCIATE	DOMAIN	YEAR	TITLE	HOURS	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
1	advanced databases	master	greenwich	economics	second	human psychology	45	01-01-2004	-	yes
2	psychology_3	master	iukb	psychology	first	human psychology	50	01-01-2010	-	yes
3	economics_1	bachelor	iukb	economics	second	crisis management	60	01-01-2005	-	yes
4	managm &amp; comm	master	greenwich	engineering	first	internet engineering	65	01-01-2006	-	yes
5	TEST_COURSE	phd	iukb	psychology	third	internet engineering	60	12-12-2012		yes

Figure 0.22 VERIFY SUBMITTED DATA

The user is not sure whether that the last registration that was made was accurate and decides to delete it for better. The system informs the user that the command has successfully dispatched.

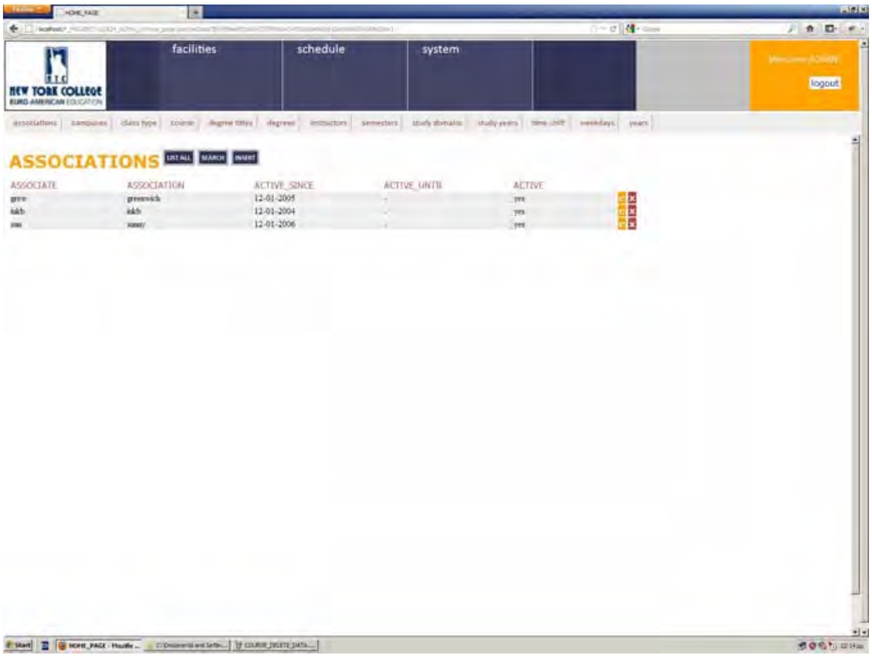


The instuction has commited successfully.

COURSE	NAME	LEVEL	ASSOCIATE	DOMAIN	YEAR	TITLE	HOURS	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
1	advanced databases	mastre	greenwich	economics	second	human psychology	45	01-01-2004	-	yes
2	psychology_3	mastre	iokb	psychology	first	human psychology	50	01-01-2010	-	yes
3	economics_1	bachelor	iokb	economics	second	crisis management	60	01-01-2005	-	yes
4	managm &amp; comm	mastre	greenwich	engineering	first	internet engineering	65	01-01-2006	-	yes

Figure 0.23 DELETE DATA USING 'X' BUTTON

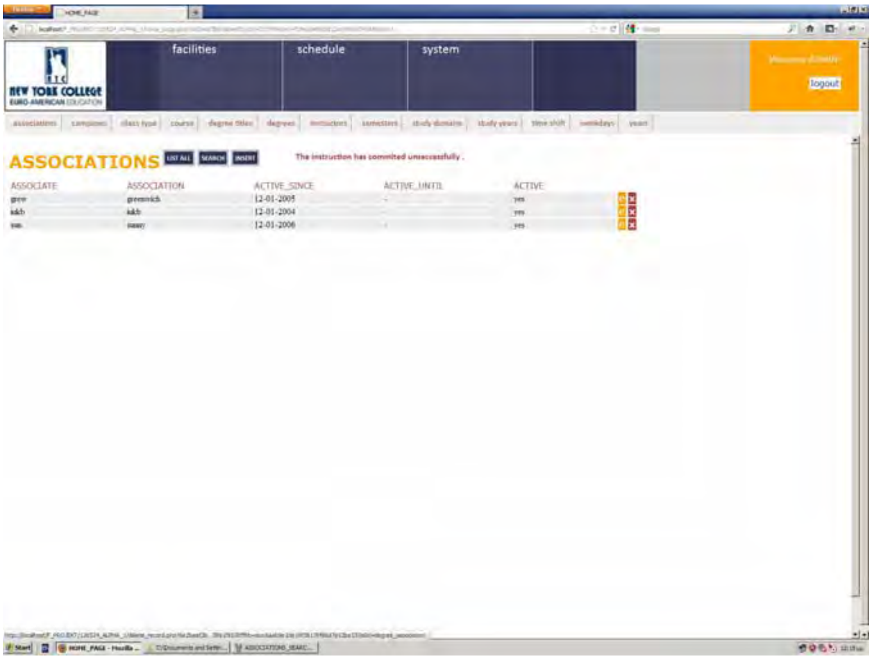
The user wants now to move to another domain of relevance and crosscheck some of its data. The user moves to the ‘associations’ table and clicks the ‘list all’ button to modify some data. The system presents the data that are stored in the table.



ASSOCIATE	ASSOCIATION	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
grew	greenwich	12-01-2005	-	yes
iokb	iokb	12-01-2004	-	yes
sun	sunny	12-01-2006	-	yes

Figure 0.24 PREVIEW ‘ASSOCIATION’ TABLE DATA

The user accidentally clicks the red button that deletes the aligned record. The system informs user that the interaction could not be completed. The system prevents this activity because the record that the user accidentally tried to delete is a foreign key value that is already referenced by other tables of the database, thus should not and cannot be deleted; otherwise it would cause disastrously implications to the integrity of the data.



The instruction has commited unsuccessfully .

ASSOCIATE	ASSOCIATION	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
grew	greenwich	12-01-2005	-	yes
nkb	nkb	12-01-2004	-	yes
sus	sussy	12-01-2006	-	yes

Figure 0.25 SYSTEM PREVENTS THE DELETION OF REFERENCED DATA

The user moves to ‘campus’ table to see how its interface functions. Initially the user clicks to check the ‘insert’ button. The user sees that there are not many data to input in this table. Also there are no filters available for selecting data from.

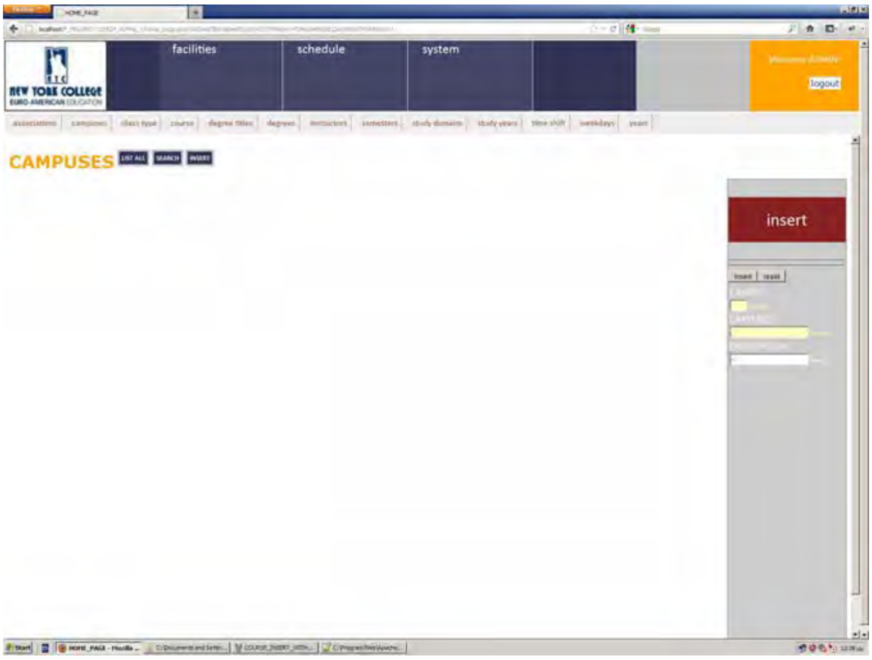
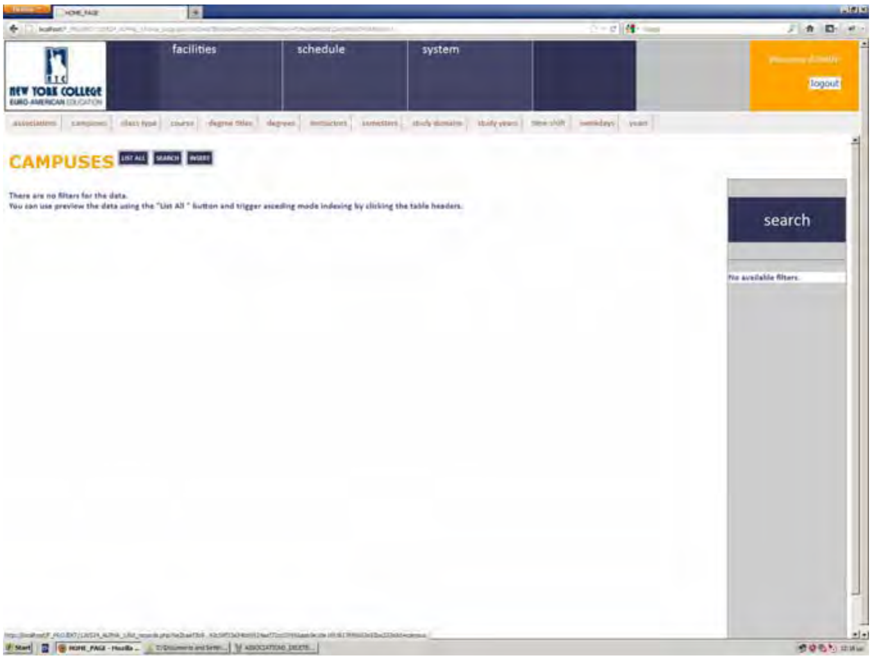


Figure 0.26 TABLES WITHOUT DATA OPTIONS ON ‘INSERT’ MODE

The user clicks the ‘search’ button. The system outputs a message and informs the user that there are no select options in this section to filter data from. Instead the systems suggests the user with the alternative choice as moving to ‘list all’ area and use the headers of the listing data as adjusters that can drive their order in ascending format, by clicking on them.



There are no filters for the data.
You can use preview the data using the "List All " button and trigger asceding mode indexing by clicking the table headers.

No available filters.

Figure 0.27 SYSTEM RESPONCE WHILE SEARCHING FILTERS ARE MISSING

1.2.2 ‘SCHEDULE’ FAMILY OF FUNCTIONS

COURSES & INSTRUCTORS

The user moves to the ‘Courses & Instructors’ page

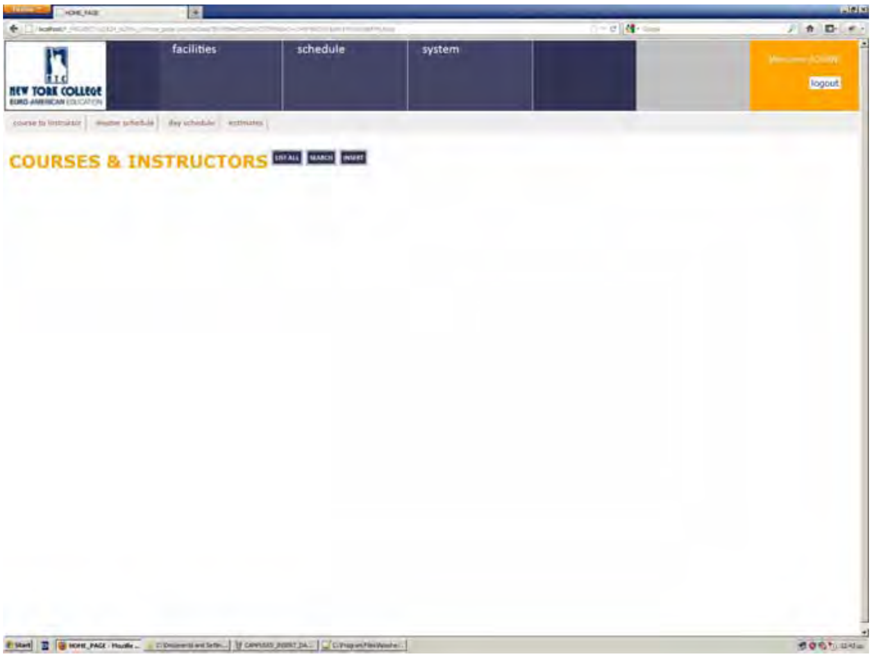
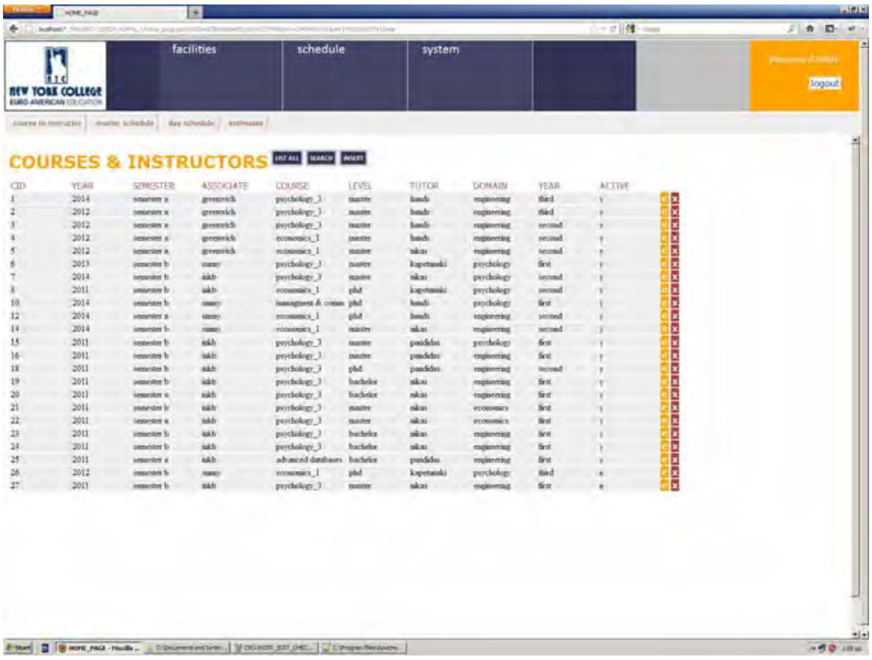


Figure 0.28 'COURSES & INSTRUCTORS' TABLE

The user selects the 'click all' button to display all the data of the table on screen



COURSES & INSTRUCTORS

CID	YEAR	SEMESTER	ASSOCIATE	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	ACTIVE
1	2014	semester a	greenwich	psychology_3	master	bandis	engineering	third	y
2	2012	semester a	greenwich	psychology_3	master	bandis	engineering	third	y
3	2012	semester a	greenwich	psychology_3	master	bandis	engineering	second	y
4	2012	semester a	greenwich	economics_1	master	bandis	engineering	second	y
5	2012	semester a	greenwich	economics_1	master	nikas	engineering	second	y
6	2013	semester b	sunny	psychology_3	master	kapetanaki	psychology	first	y
7	2014	semester b	iakb	psychology_3	master	nikas	psychology	second	y
8	2011	semester b	iakb	economics_1	phd	kapetanaki	psychology	second	y
10	2014	semester b	sunny	management & comm	phd	bandis	psychology	first	y
12	2014	semester a	sunny	economics_1	phd	bandis	engineering	second	y
14	2014	semester b	sunny	economics_1	master	nikas	engineering	second	y
15	2011	semester b	iakb	psychology_3	master	pandidas	psychology	first	y
16	2011	semester b	iakb	psychology_3	master	pandidas	engineering	first	y
18	2011	semester b	iakb	psychology_3	phd	pandidas	engineering	second	y
19	2011	semester b	iakb	psychology_3	bachelor	nikas	engineering	first	y
20	2011	semester a	iakb	psychology_3	bachelor	nikas	engineering	first	y
21	2011	semester b	iakb	psychology_3	master	nikas	economics	first	y
22	2011	semester a	iakb	psychology_3	master	nikas	economics	first	y
23	2011	semester b	iakb	psychology_3	bachelor	nikas	engineering	first	y
24	2011	semester b	iakb	psychology_3	bachelor	nikas	engineering	first	y
25	2011	semester a	iakb	advanced databases	bachelor	pandidas	engineering	first	y
26	2012	semester b	sunny	economics_1	phd	kapetanaki	psychology	third	n
27	2011	semester b	iakb	psychology_3	master	nikas	engineering	first	n

Figure 0.29 'COURSES & INSTRUCTORS' ALL DATA LISTING

The user chooses to generate the searching mechanism to display rather some grouped data on screen.

The 'year' filter is chosen so that the user can check those matches that have value for the current year.

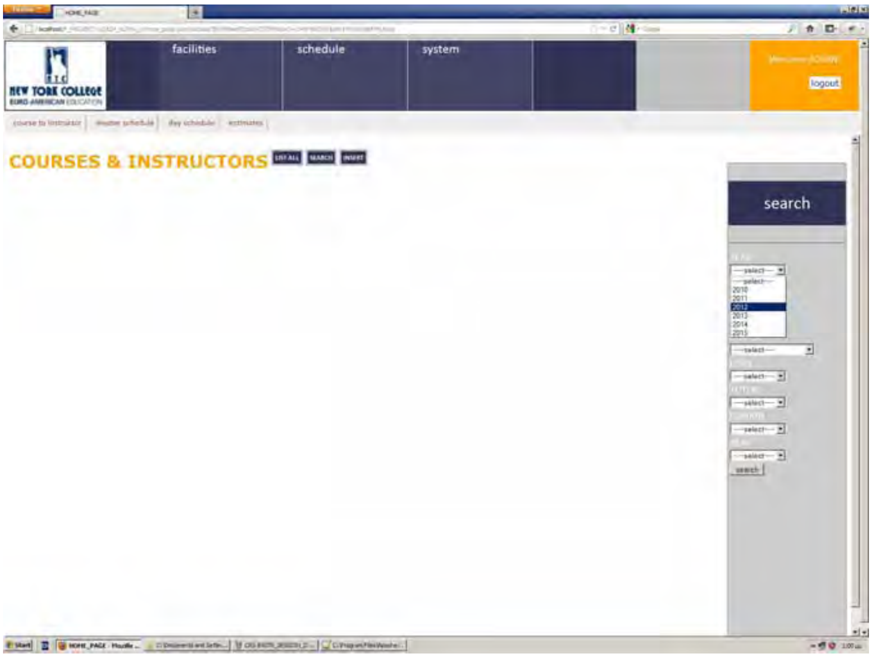
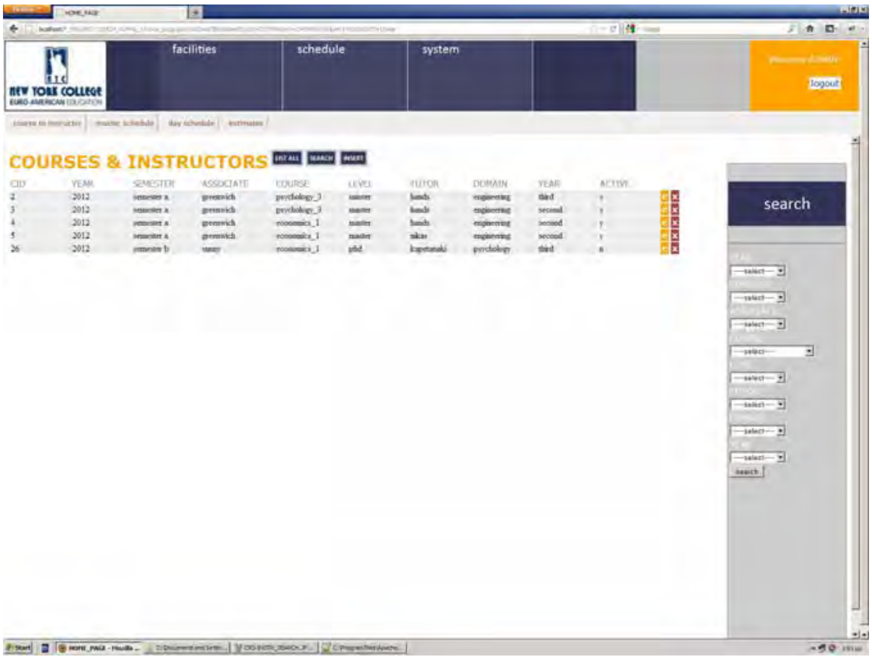


Figure 0.30 'COURSES & INSTRUCTORS' FILTERED SEARCH

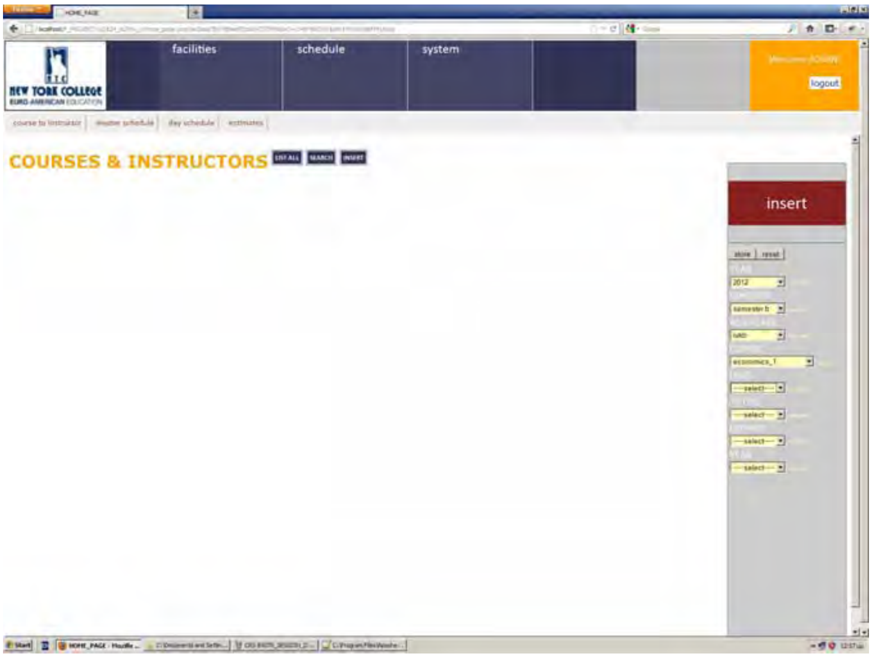
The system responds with previewing on screen all the registered data that provide output to the current year.



CID	YEAR	SEMESTER	ASSOCIATE	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	ACTIVE
2	2012	semester a	greenwich	psychology_1	master	bandi	engineering	third	y
3	2012	semester a	greenwich	psychology_1	master	bandi	engineering	second	y
4	2012	semester a	greenwich	economics_1	master	bandi	engineering	second	y
5	2012	semester a	greenwich	economics_1	master	nikas	engineering	second	y
26	2012	semester b	stany	economics_1	phd	kapetanaki	psychology	third	n

Figure 0.31 FILTERED SEARCH RESULTS

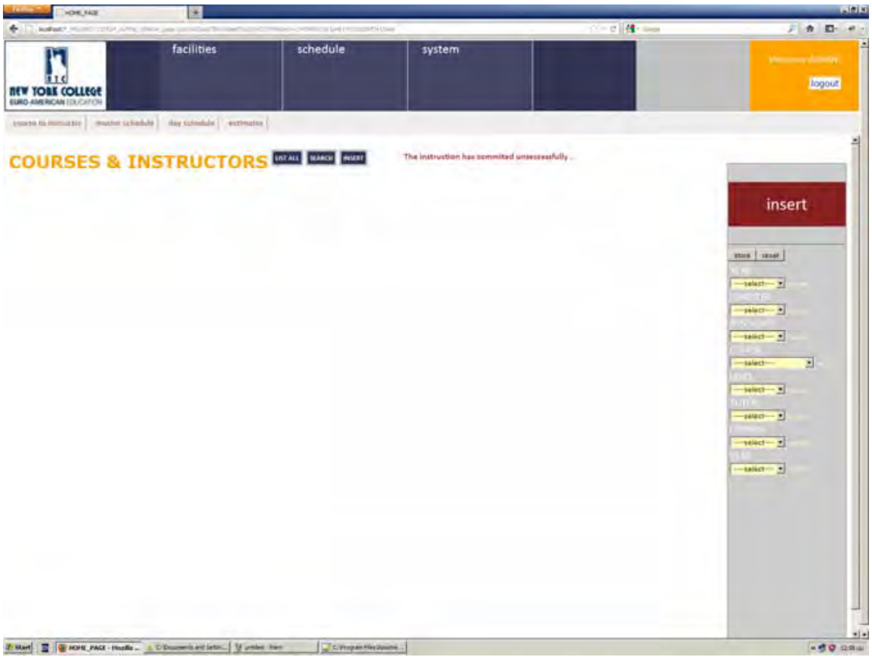
The user wants to add some new courses that were assigned to instructor for the running semester, thus chooses to 'insert' button initially and applies the values in the inputs. Nevertheless, while on a rush, the user misses apply values for some of the required inputs and submits the data for registration.



economics_1

Figure 0.32 OMIT TO APPLY DATA FOR 'REQUIRED' INPUTS

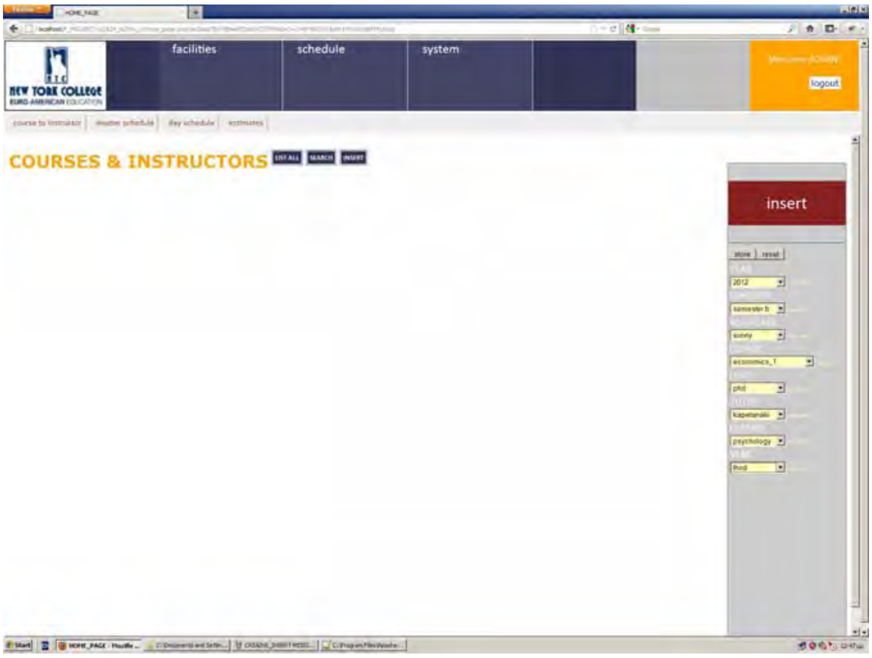
The system responds to the erroneous activity and feedbacks the user with a message that informs about the ineffectiveness of the last interaction.



The instruction has commited unsuccessfully ..

Figure 0.33 SYSTEM RESPONCE ON APPLYING INVALID DATA

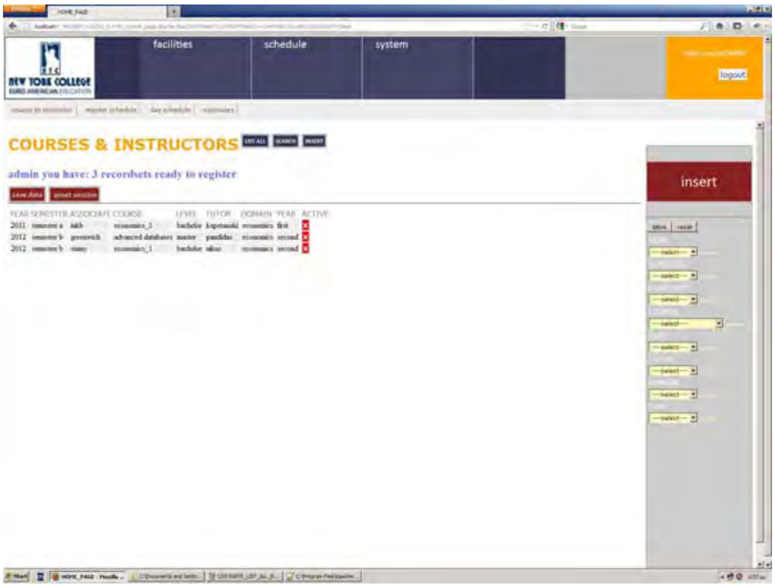
The user iterates the process but now minds to fill in all of the required inputs.



2012
semester b
sunny
economics_1
phd
kapetanaki
psychology
third

Figure 0.34 APPLY VALID RECORDS TO FORM INPUTS

The system dispatches the interaction and provides a message to the user, followed by the user's name, implying that the registration was not saved instantly in the database, rather it is retained temporarily in the systems memory. The registration data are previewed on the screen instead and the user is provided with some further control buttons by the system. The buttons impose the registration can be saved in the database, it can be deleted or this whole memory that sustains the users inputs temporarily can be cleared out at once and all the entries ignored by the system. Among all, the user chooses to insert some 2 extra datasets in the temporary memory, and the system counts and screens those entries that waiting to register.

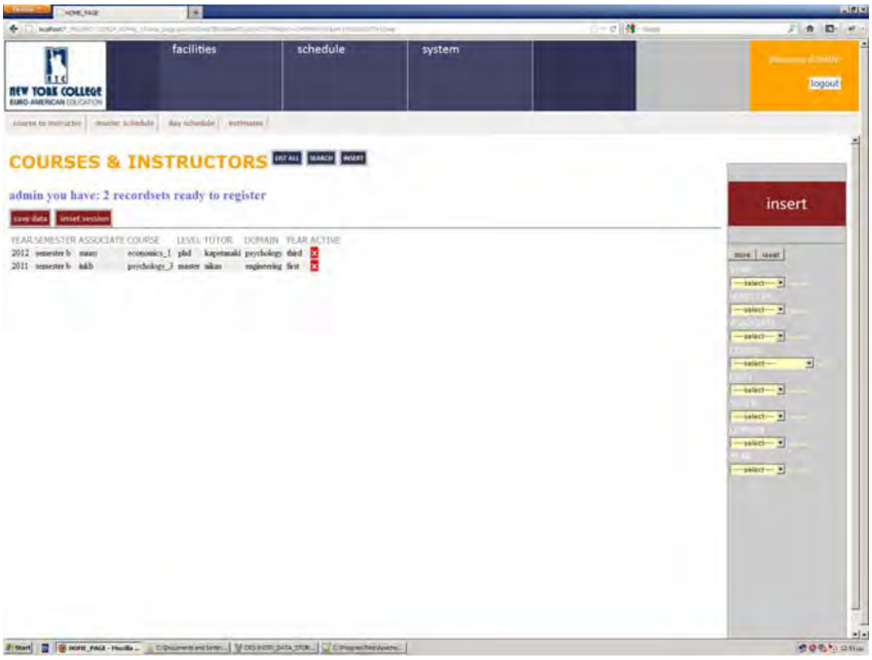


admin you have: 3 recordsets ready to register

YEAR	SEMESTER	ASSOCIATE	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	ACTIVE
2011	semester a	iakb	economics_1	bachelor	kapetanaki	economics	first	☒
2012	semester b	greenwich	advanced databases	master	pandidai	economics	second	☒
2012	semester b	sunny	economics_1	bachelor	alkar	economics	second	☒

Figure 0.35 'COURSES & INSTRUCTORS' USING SESSION TO REGISTER DATA

The user changes his mind and decides to delete one of those entries that have inserted previously, by clicking the red button at the end of the dataset.



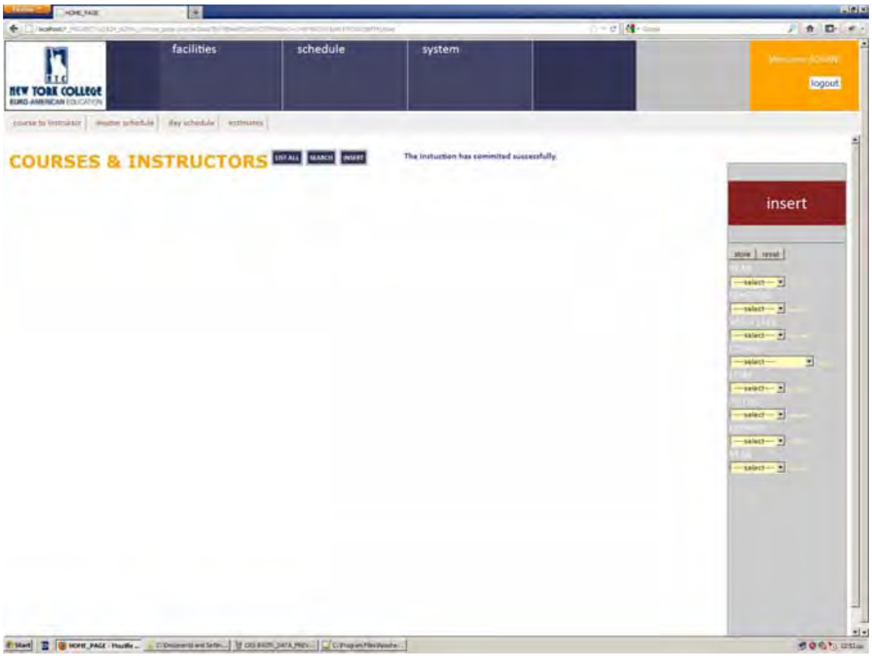
COURSES & INSTRUCTORS

admin you have: 2 recordsets ready to register

YEAR	SEMESTER	ASSOCIATE	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	ACTIVE
2012	semester b	stany	economics_1	phd	kapetanaki	psychology	third	☒
2011	semester b	akb	psychology_3	master	nikas	engineering	first	☒

Figure 0.36 DELETE RECORDSETS FROM SESSIONS ENTRIES

The user is now confident that the data that has been inserted to the system are valid and will be used during the coming semester. Thus the user chooses to click on the ‘save data’ button that resides at the top of the records. The system informs that the registration was successfully committed.

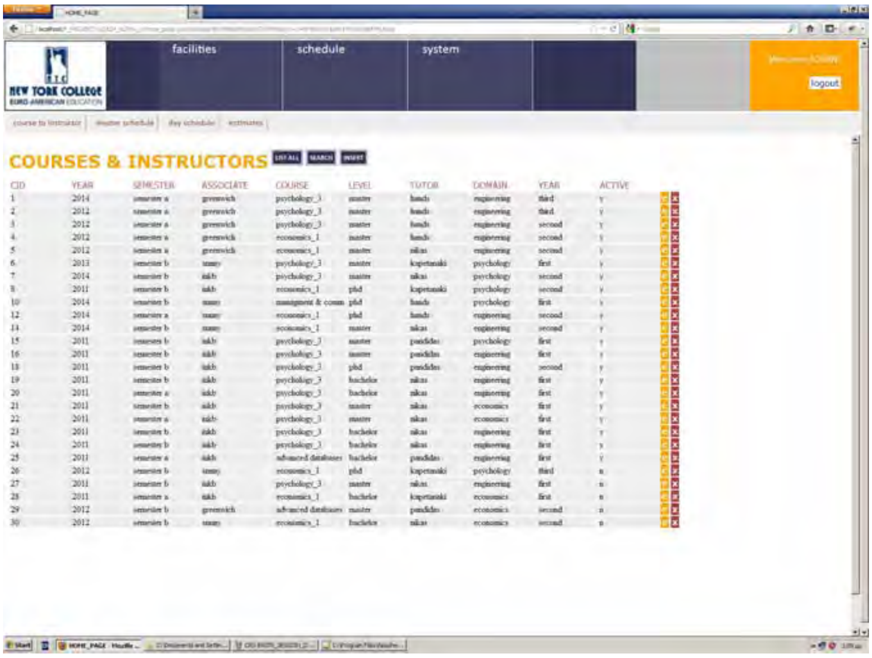


COURSES & INSTRUCTORS

The instuction has commited successfully.

Figure 0.37 SYSTEM RESPONCE WHILE SUBMITTING SESSION ENTRIES

The user wants to be sure that the registration was successful and selects to display all data to verify the effectiveness of the last command.



COURSES & INSTRUCTORS

CID	YEAR	SEMESTER	ASSOCIATE	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	ACTIVE
1	2014	semester a	greenwich	psychology_3	master	handis	engineering	third	y
2	2012	semester a	greenwich	psychology_3	master	handis	engineering	third	y
3	2012	semester a	greenwich	psychology_3	master	handis	engineering	second	y
4	2012	semester a	greenwich	economics_1	master	handis	engineering	second	y
5	2012	semester a	greenwich	economics_1	master	nikas	engineering	second	y
6	2013	semester b	staffs	psychology_3	master	kapetanaki	psychology	first	y
7	2014	semester b	iekb	psychology_3	master	nikas	psychology	second	y
8	2011	semester b	iekb	economics_1	phd	kapetanaki	psychology	second	y
10	2014	semester b	staffs	management & comm	phd	handis	psychology	first	y
12	2014	semester a	staffs	economics_1	phd	handis	engineering	second	y
14	2014	semester b	staffs	economics_1	master	nikas	engineering	second	y
15	2011	semester b	iekb	psychology_3	master	pandidis	psychology	first	y
16	2011	semester b	iekb	psychology_3	master	pandidis	engineering	first	y
18	2011	semester b	iekb	psychology_3	phd	pandidis	engineering	second	y
19	2011	semester b	iekb	psychology_3	bachelor	nikas	engineering	first	y
20	2011	semester a	iekb	psychology_3	bachelor	nikas	engineering	first	y
21	2011	semester b	iekb	psychology_3	master	nikas	economics	first	y
22	2011	semester a	iekb	psychology_3	master	nikas	economics	first	y
23	2011	semester b	iekb	psychology_3	bachelor	nikas	engineering	first	y
24	2011	semester b	iekb	psychology_3	bachelor	nikas	engineering	first	y
25	2011	semester a	iekb	advanced databases	bachelor	pandidis	engineering	first	y
26	2012	semester b	staffs	economics_1	phd	kapetanaki	psychology	third	n
27	2011	semester b	iekb	psychology_3	master	nikas	engineering	first	n
28	2011	semester a	iekb	economics_1	bachelor	kapetanaki	economics	first	n
29	2012	semester b	greenwich	advanced databases	master	pandidis	economics	second	n
30	2012	semester b	staffs	economics_1	bachelor	nikas	economics	second	n

Figure 0.38 VERIFY THAT SESSION DATA ARE SUBMITTED

Note

Something that is of significant value to clarify, is that while examining the 'course-instructor' table met a 'column' labeled as active at the end of that table that maintains a critical role in the systems operation and especially in the emerging interaction between this table and 'master schedule' table, which in essence uses that data of the table

.

For instance the values that have been inserted lastly and are found at the bottom of data list are characterized as 'no active'. That is because the system uses this column to retrieve the latest entries from the table and transit them to the 'master schedule' table, on demand of the user. At the same time the system as it copies the 'no active' data it will continue with updating this entry to 'active' automatically, so that the next time it searches for new entries, will not fall into the trap of retrieving values that have already been retrieved once in the past.

Additionally when the users is called to place data for the 'course-instructor' table this column is not in the list of choices. (see 'course-instructor' insert mode). Nevertheless, this button cannot be totally hidden from the authorized users thus it is available in 'edit' mode. Whatsoever, the column is suggested to be used rarely, if not at all, unless the user is much confident about the purpose of the change and the implications that this change will issue.

MASTER SCHEDULE

The user enters the 'Master Schedule' area.

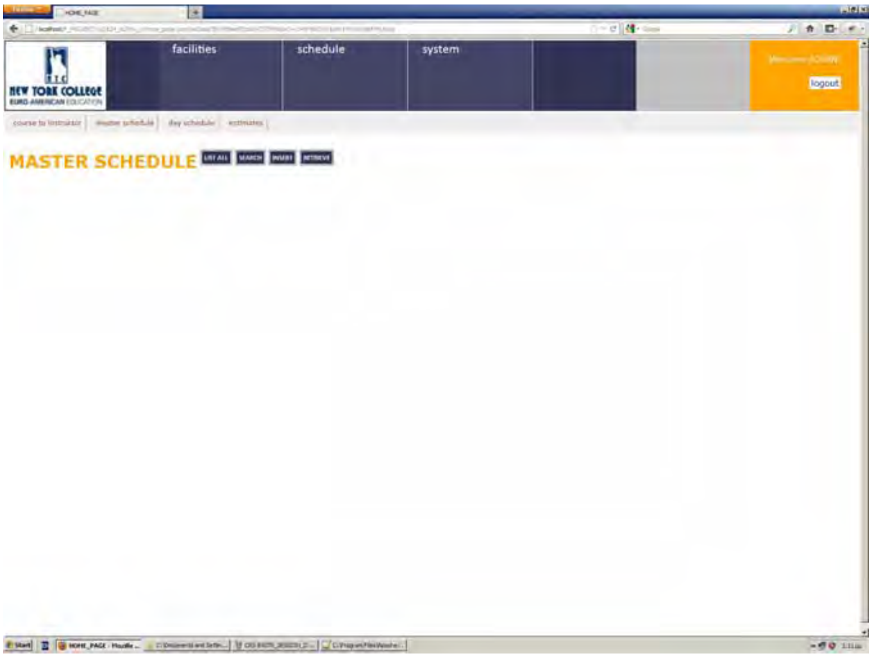
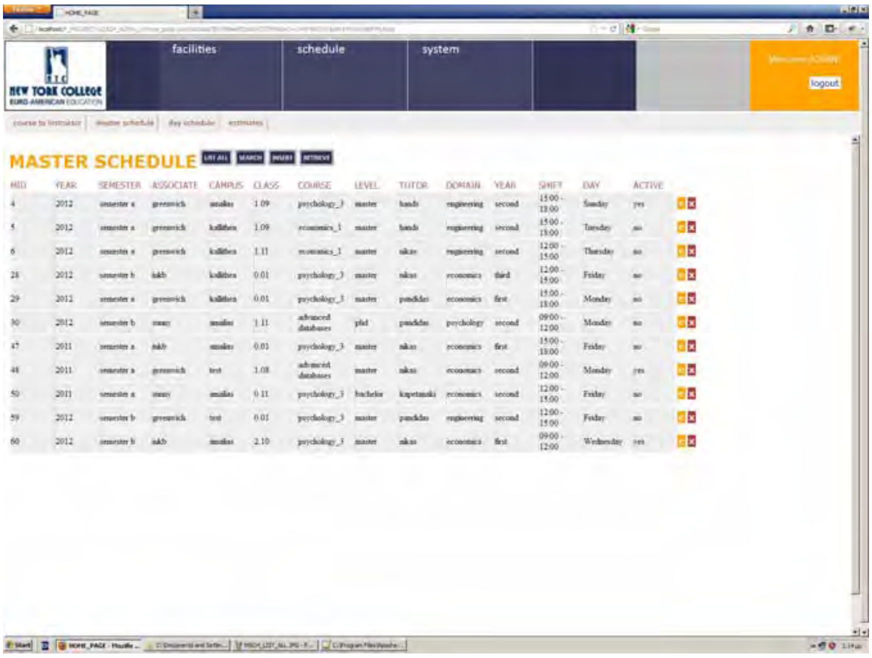


Figure 0.39 PREVIEW THE 'MASTER SCHEDULE' PAGE

The user 'lists all' the records that the table contents.



MID	YEAR	SEMESTER	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	ACTIVE
4	2012	semester a	greenwich	amalias	1.09	psychology_3	master	bandi	engineering	second	15:00 - 18:00	Sunday	yes
5	2012	semester a	greenwich	kallithea	1.09	economics_1	master	bandi	engineering	second	15:00 - 18:00	Tuesday	no
6	2012	semester a	greenwich	kallithea	1.11	economics_1	master	nikas	engineering	second	12:00 - 15:00	Thursday	no
28	2012	semester b	iakb	kallithea	0.01	psychology_3	master	nikas	economics	third	12:00 - 15:00	Friday	no
29	2012	semester a	greenwich	kallithea	0.01	psychology_3	master	pandidas	economics	first	15:00 - 18:00	Monday	no
30	2012	semester b	stany	amalias	1.11	advanced databases	phd	pandidas	psychology	second	09:00 - 12:00	Monday	no
47	2011	semester a	iakb	amalias	0.01	psychology_3	master	nikas	economics	first	15:00 - 18:00	Friday	no
48	2011	semester a	greenwich	test	1.08	advanced databases	master	nikas	economics	second	09:00 - 12:00	Monday	yes
50	2011	semester a	stany	amalias	0.11	psychology_3	bachelor	kapetanaki	economics	second	12:00 - 15:00	Friday	no
59	2012	semester b	greenwich	test	0.01	psychology_3	master	pandidas	engineering	second	12:00 - 15:00	Friday	no
60	2012	semester b	iakb	amalias	2.10	psychology_3	master	nikas	economics	first	09:00 - 12:00	Wednesday	yes

Figure 0.40 PREVIEW 'MASTER SCHEDULE' ALL DATA

The user opens the search mechanism for of the table.

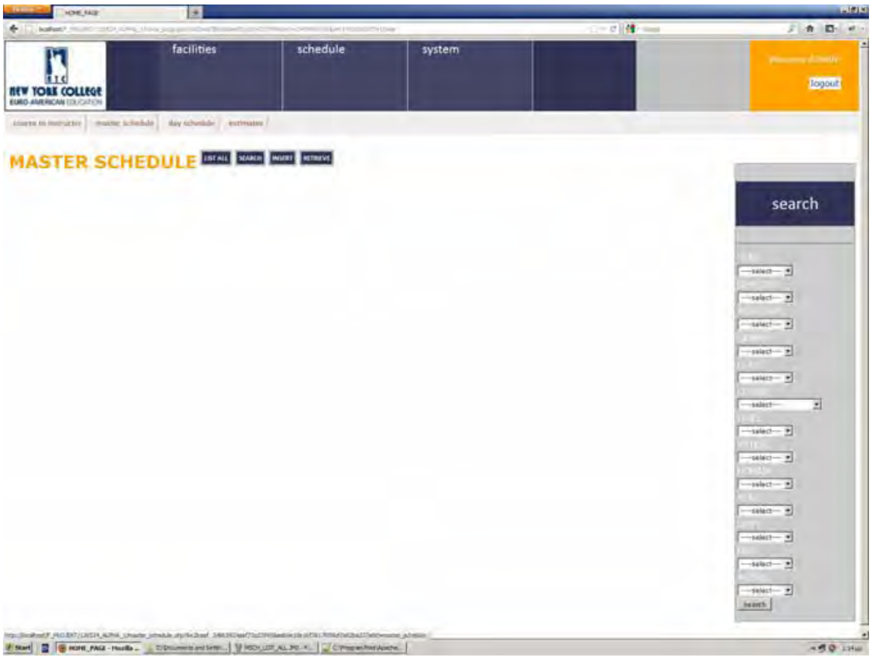


Figure 0.41 'MASTER SCHEDULE' FILTERS FORM

The user moves to ‘insert’ data in the table.

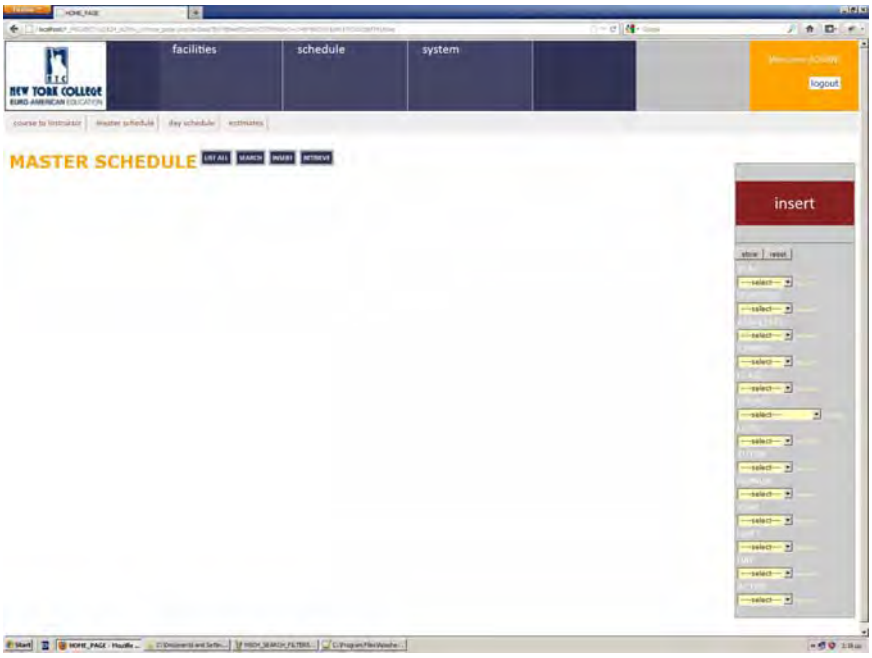
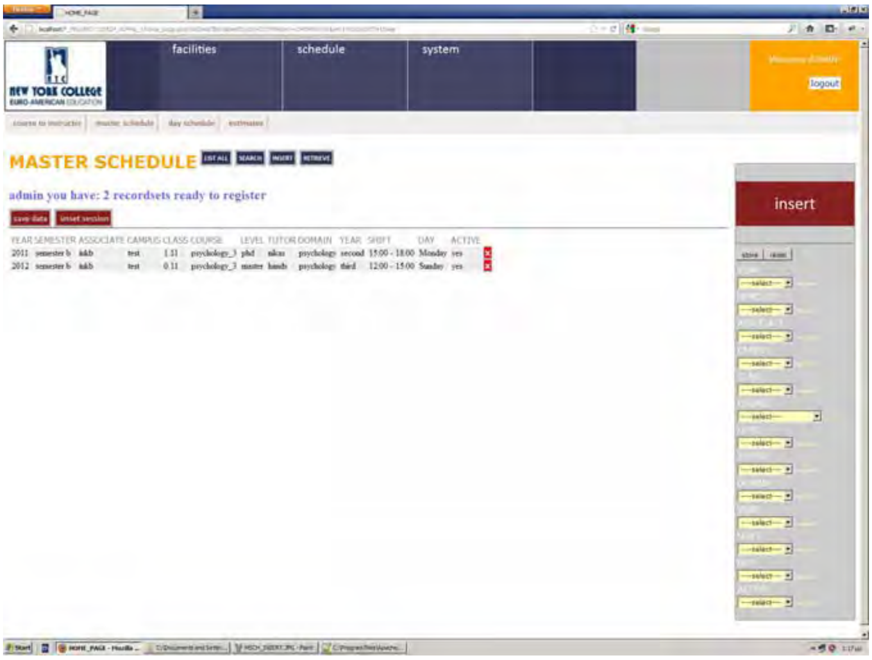


Figure 0.42 'MASTER SCHEDULE' INSERT FORM

The user chooses to add two rows of data successively and the system screens the data and informs about the number of datasets that are pending to be registered.



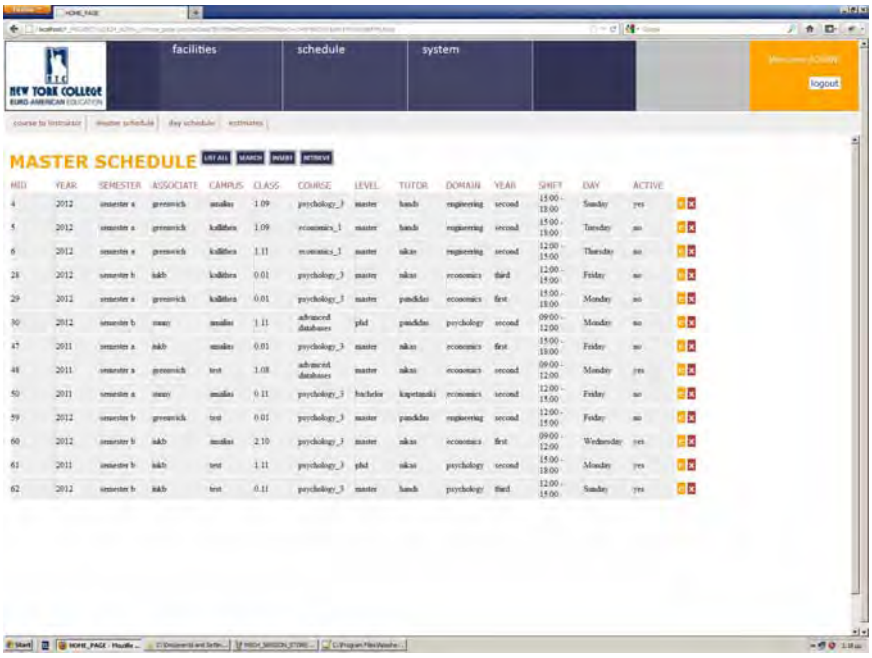
MASTER SCHEDULE

admin you have: 2 recordsets ready to register

YEAR	SEMESTER	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	ACTIVE
2011	semester b	iakb	test	1.11	psychology_3	phd	nikas	psychology	second	15:00 - 18:00	Monday	yes
2012	semester b	iakb	test	0.11	psychology_3	master	hands	psychology	third	12:00 - 15:00	Sunday	yes

Figure 0.43 'STORE' DATA USING SESSION

The user submits the ‘save data’ button and the records are inserted in the database. To check the validity of the instruction the user moves to ‘list all’ of the records.



MASTER SCHEDULE

MID	YEAR	SEMESTER	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	ACTIVE
4	2012	semester a	greenwich	amalias	1.09	psychology_3	master	hands	engineering	second	15:00 - 18:00	Sunday	yes
5	2012	semester a	greenwich	kallithea	1.09	economics_1	master	hands	engineering	second	15:00 - 18:00	Tuesday	no
6	2012	semester a	greenwich	kallithea	1.11	economics_1	master	nikas	engineering	second	12:00 - 15:00	Thursday	no
28	2012	semester b	iakb	kallithea	0.01	psychology_3	master	nikas	economics	third	12:00 - 15:00	Friday	no
29	2012	semester a	greenwich	kallithea	0.01	psychology_3	master	pandidas	economics	first	15:00 - 18:00	Monday	no
30	2012	semester b	mary	amalias	1.11	advanced databases	phd	pandidas	psychology	second	09:00 - 12:00	Monday	no
47	2011	semester a	iakb	amalias	0.01	psychology_3	master	nikas	economics	first	15:00 - 18:00	Friday	no
48	2011	semester a	greenwich	test	1.08	advanced databases	master	nikas	economics	second	09:00 - 12:00	Monday	yes
50	2011	semester a	mary	amalias	0.11	psychology_3	bachelor	kapetanaki	economics	second	12:00 - 15:00	Friday	no
59	2012	semester b	greenwich	test	0.01	psychology_3	master	pandidas	engineering	second	12:00 - 15:00	Friday	no
60	2012	semester b	iakb	amalias	2.10	psychology_3	master	nikas	economics	first	09:00 - 12:00	Wednesday	yes
61	2011	semester b	iakb	test	1.11	psychology_3	phd	nikas	psychology	second	15:00 - 18:00	Monday	yes
62	2012	semester b	iakb	test	0.11	psychology_3	master	hands	psychology	third	12:00 - 15:00	Sunday	yes

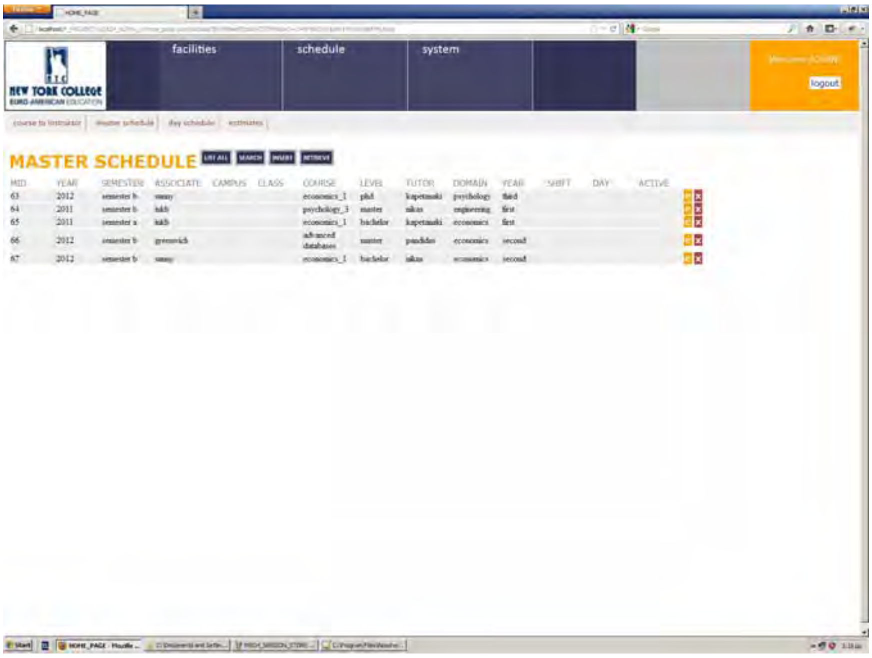
Figure 0.44 VERIFY SUBMITTED DATA ACTUALLY SAVED

Note

Up to this point the table operates using pretty alike routines with the previously showcased 'course-instructor' table. And that is why the examination of the 'master schedule' table up to now is so concise. Nevertheless, the table maintains an extra button that is only meaningful in its domestic domain and that, while dispatched, will make this table to communicate with the 'course-instructor' table and retrieve some of its data while those comply with its programming constraints.

THE 'RETRIEVE' BUTTON

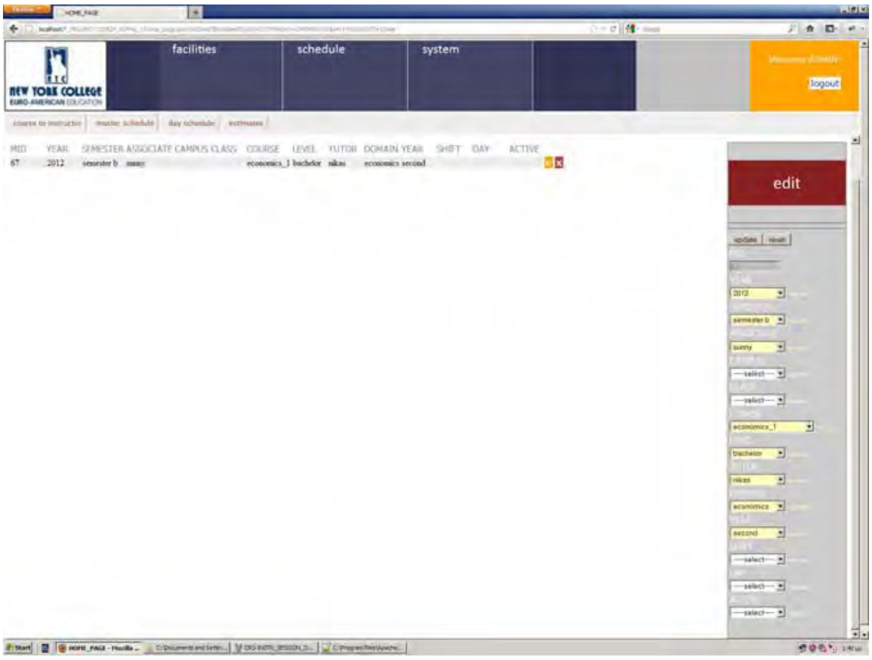
The user clicks the 'retrieve' button so that all those 'course-instructor' entries that have been arranged and agreed by the authorities in previous time, will forwardly be verified in the 'semester schedule'. The system will bring out and display those 'unregistered' entries. In this level, the registered 'courses' will further correlate to those materialistic entities (like 'campus', 'class' etc,) in a way to designate the path that the course will follow during semester.



MID	YEAR	SEMESTER	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	ACTIVE
63	2012	semester b	sunny			economics_1	phd	kapetanaki	psychology	third			
64	2011	semester b	iukb			psychology_3	master	nikas	engineering	first			
65	2011	semester a	iukb			economics_1	bachelor	kapetanaki	economics	first			
66	2012	semester b	greenwich			advanced databases	master	pandidas	economics	second			
67	2012	semester b	sunny			economics_1	bachelor	nikas	economics	second			

Figure 0.45 USING MASTER SCHEDULE'S 'RETRIEVE' BUTTON TO COLLECT DATA FROM 'COURSES & INSTRUCTORS' TABLE

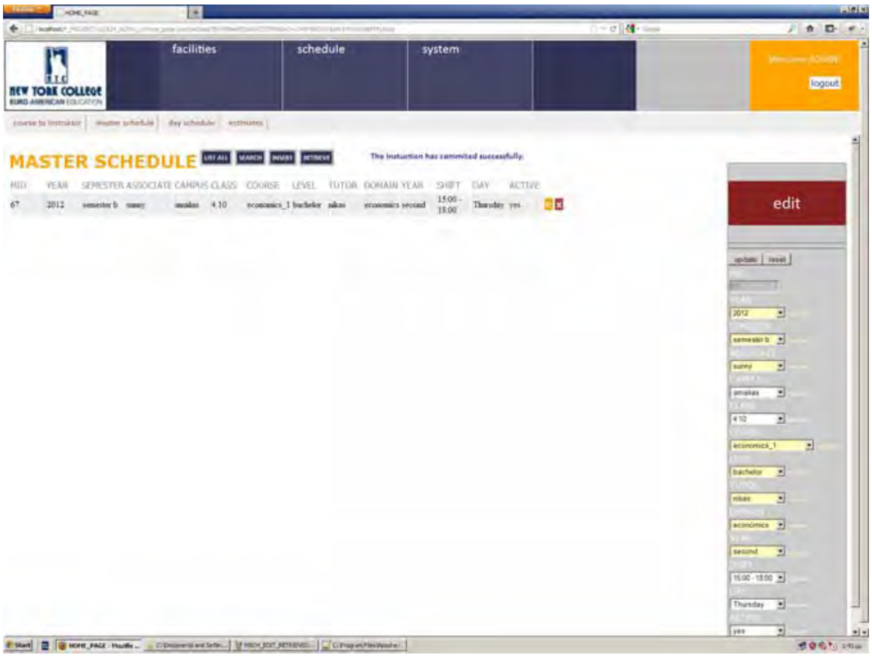
The user decides to register one of records supplied.



MID	YEAR	SEMESTER	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	ACTIVE
67	2012	semester b	sunny			economics_1	bachelor	nikas	economics	second			

Figure 0.46 ENCHANCE THE 'RERTIEVED' RECORDSETS

The user applies the missing records and submits the changes to the system. The system informs that the instructions were successfully registered.



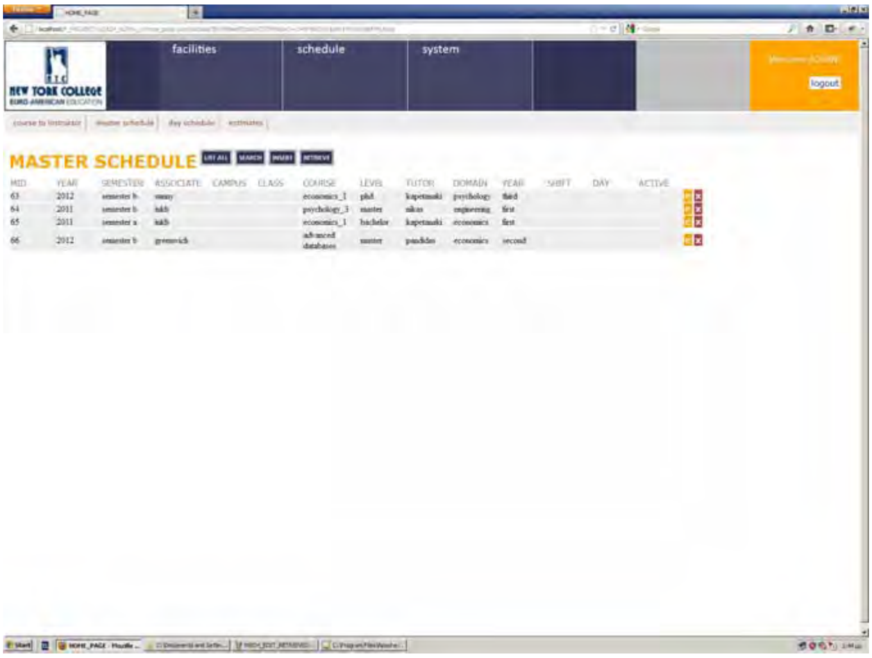
MASTER SCHEDULE

The instuction has commited successfully.

MID	YEAR	SEMESTER	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	ACTIVE
67	2012	semester b	sunny	amakas	4.10	economics_1	bachelor	nikas	economics	second	15:00 - 18:00	Thursday	yes

Figure 0.47 'RETRIEVED' RECORDS UPDATED

The user moves back to ‘retrieve’ the unregistered entries again. The system displays those entries and the one that has been designated by the user is now missing, so the entry is now registered in the ‘master schedule’.

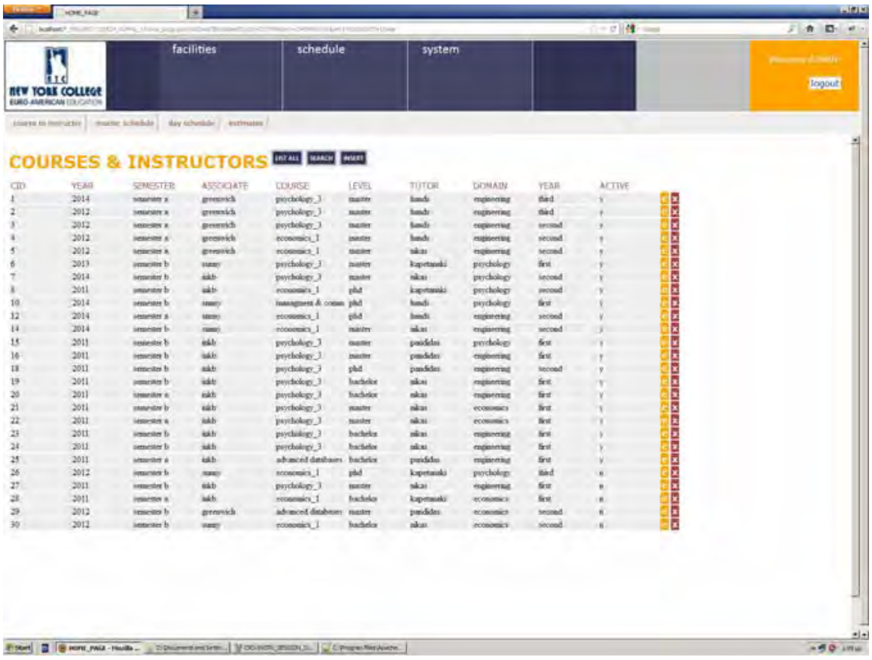


MASTER SCHEDULE

MID	YEAR	SEMESTER	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	ACTIVE
63	2012	semester b	sunny			economics_1	phd	kapetanaki	psychology	third			
64	2011	semester b	iukb			psychology_3	master	nikas	engineering	first			
65	2011	semester a	iukb			economics_1	bachelor	kapetanaki	economics	first			
66	2012	semester b	greenwich			advanced databases	master	pandidas	economics	second			

Figure 0.48 SYSTEM ESCAPES TO 'RETRIEVE' FILLED IN RECORDSETS

At this phase it would be meaningful to crosscheck how those records from the ‘course-instructors’ table have been handled by the system. Those are the data that the ‘retrieve’ button has collected while the user requested to be brought in the ‘master schedule’ interface and processed further. The last time that the data were previewed where characterized by the ‘no active’ indication, as it can be seen at the following picture.

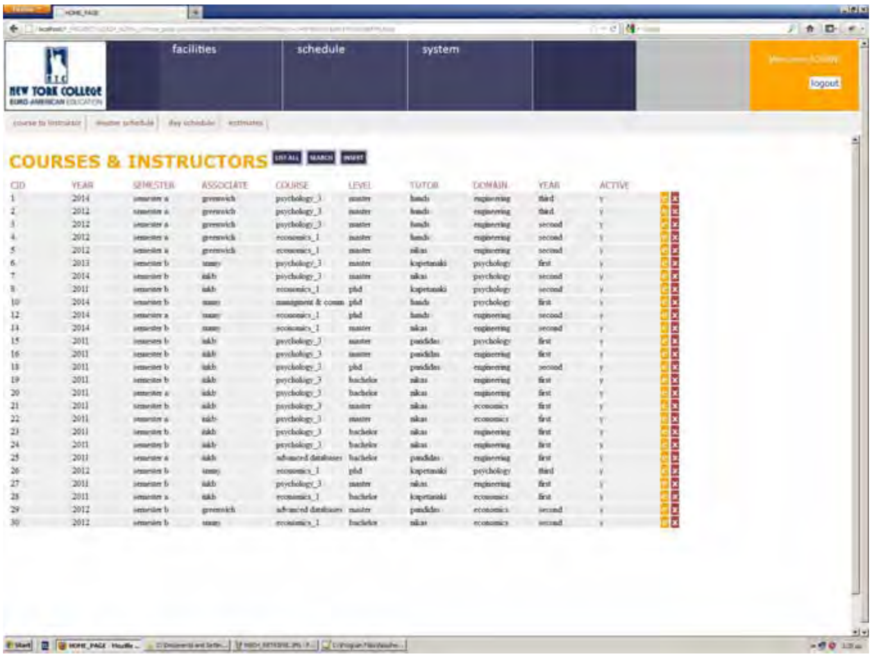


COURSES & INSTRUCTORS

CID	YEAR	SEMESTER	ASSOCIATE	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	ACTIVE
1	2014	semester a	greenwich	psychology_3	master	bandi	engineering	third	y
2	2012	semester a	greenwich	psychology_3	master	bandi	engineering	third	y
3	2012	semester a	greenwich	psychology_3	master	bandi	engineering	second	y
4	2012	semester a	greenwich	economics_1	master	bandi	engineering	second	y
5	2012	semester a	greenwich	economics_1	master	nikas	engineering	second	y
6	2013	semester b	sunny	psychology_3	master	kapetanaki	psychology	first	y
7	2014	semester b	iakb	psychology_3	master	nikas	psychology	second	y
8	2011	semester b	iakb	economics_1	phd	kapetanaki	psychology	second	y
10	2014	semester b	sunny	management & comm	phd	bandi	psychology	first	y
12	2014	semester a	sunny	economics_1	phd	bandi	engineering	second	y
14	2014	semester b	sunny	economics_1	master	nikas	engineering	second	y
15	2011	semester b	iakb	psychology_3	master	pandidas	psychology	first	y
16	2011	semester b	iakb	psychology_3	master	pandidas	engineering	first	y
18	2011	semester b	iakb	psychology_3	phd	pandidas	engineering	second	y
19	2011	semester b	iakb	psychology_3	bachelor	nikas	engineering	first	y
20	2011	semester a	iakb	psychology_3	bachelor	nikas	engineering	first	y
21	2011	semester b	iakb	psychology_3	master	nikas	economics	first	y
22	2011	semester a	iakb	psychology_3	master	nikas	economics	first	y
23	2011	semester b	iakb	psychology_3	bachelor	nikas	engineering	first	y
24	2011	semester b	iakb	psychology_3	bachelor	nikas	engineering	first	y
25	2011	semester a	iakb	advanced databases	bachelor	pandidas	engineering	first	y
26	2012	semester b	sunny	economics_1	phd	kapetanaki	psychology	third	n
27	2011	semester b	iakb	psychology_3	master	nikas	engineering	first	n
28	2011	semester a	iakb	economics_1	bachelor	kapetanaki	economics	first	n
29	2012	semester b	greenwich	advanced databases	master	pandidas	economics	second	n
30	2012	semester b	sunny	economics_1	bachelor	nikas	economics	second	n

Figure 0.49 PREVIEW DATA IN 'COURSES & INSTRUCTORS' TABLE BEFORE RETRIEVE

Nevertheless, since the 'master schedule' table has generate its function over the 'course-instructors' table, collecting those unregistered values, the registrations are now altered to 'active' ('y').



COURSES & INSTRUCTORS

CID	YEAR	SEMESTER	ASSOCIATE	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	ACTIVE
1	2014	semester a	greenwich	psychology_3	master	bandi	engineering	third	y
2	2012	semester a	greenwich	psychology_3	master	bandi	engineering	third	y
3	2012	semester a	greenwich	psychology_3	master	bandi	engineering	second	y
4	2012	semester a	greenwich	economics_1	master	bandi	engineering	second	y
5	2012	semester a	greenwich	economics_1	master	nikas	engineering	second	y
6	2013	semester b	sunny	psychology_3	master	kapetanaki	psychology	first	y
7	2014	semester b	iakb	psychology_3	master	nikas	psychology	second	y
8	2011	semester b	iakb	economics_1	phd	kapetanaki	psychology	second	y
10	2014	semester b	sunny	management & comm	phd	bandi	psychology	first	y
12	2014	semester a	sunny	economics_1	phd	bandi	engineering	second	y
14	2014	semester b	sunny	economics_1	master	nikas	engineering	second	y
15	2011	semester b	iakb	psychology_3	master	pandidas	psychology	first	y
16	2011	semester b	iakb	psychology_3	master	pandidas	engineering	first	y
18	2011	semester b	iakb	psychology_3	phd	pandidas	engineering	second	y
19	2011	semester b	iakb	psychology_3	bachelor	nikas	engineering	first	y
20	2011	semester a	iakb	psychology_3	bachelor	nikas	engineering	first	y
21	2011	semester b	iakb	psychology_3	master	nikas	economics	first	y
22	2011	semester a	iakb	psychology_3	master	nikas	economics	first	y
23	2011	semester b	iakb	psychology_3	bachelor	nikas	engineering	first	y
24	2011	semester b	iakb	psychology_3	bachelor	nikas	engineering	first	y
25	2011	semester a	iakb	advanced databases	bachelor	pandidas	engineering	first	y
26	2012	semester b	sunny	economics_1	phd	kapetanaki	psychology	third	y
27	2011	semester b	iakb	psychology_3	master	nikas	engineering	first	y
28	2011	semester a	iakb	economics_1	bachelor	kapetanaki	economics	first	y
29	2012	semester b	greenwich	advanced databases	master	pandidas	economics	second	y
30	2012	semester b	sunny	economics_1	bachelor	nikas	economics	second	y

Figure 0.50 PREVIEW DATA IN THE 'COURSES & INSTRUCTORS' TABLE AFTER THE 'RETRIVE' BUTTON WAS CLICKED

Note

The 'yes' indication that is now signified in all columns of the table means that the 'master schedule' table is aware of those entries existence, and has 'agreed' with the 'course-instructor' table to retrieve and process them further.

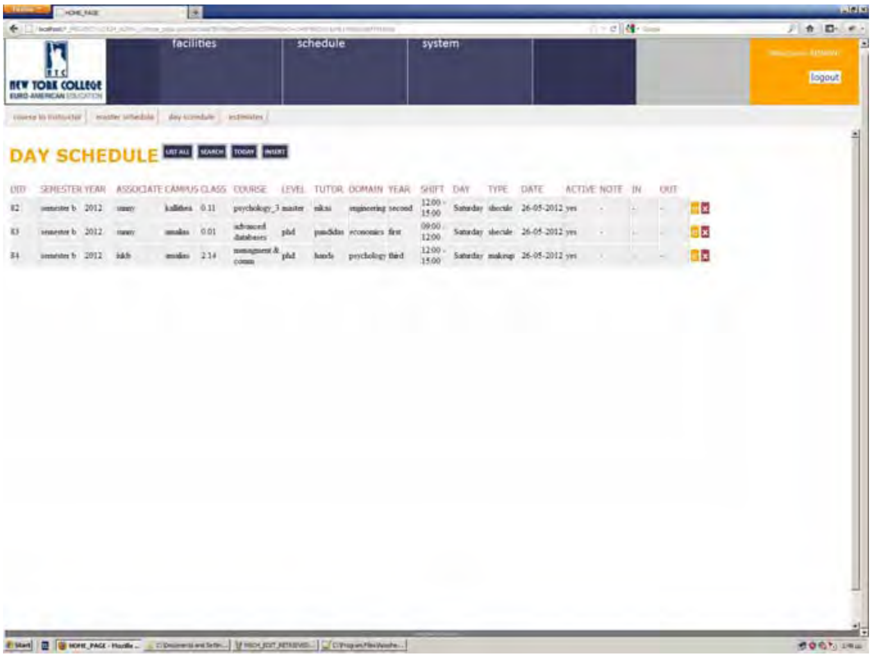
In the background the operation works like this:

1. The ‘master schedule’ table will search in the ‘course-instructor’ table for unregistered entries.
2. All those entries that will be found (if found), will copied to the master schedule table.
3. A search will be dispatched in the ‘master schedule’ table that will retrieved all those values that are retaining missing values (the unregistered) and the results will be outputted on screen.

Therefore it is critical to realize that the ‘course-instructors’ table will never actually be in place to answer if those data that were retrieved where actually used in the Master Schedule, because those could be retrieved and then deleted. The only table that can provide adequate information about the courses delivered during time, is the Master Schedule table and any regarded queries should be referring only to it.

DAY SCHEDULE

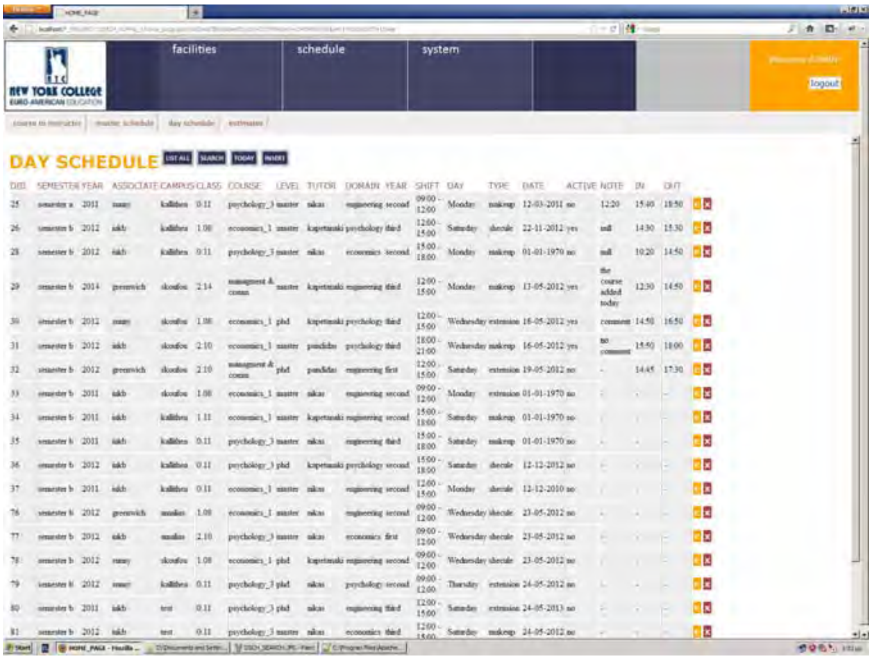
The user clicks the ‘Day Schedule’ button from the sub-navigation buttons and enters the ‘day schedule’ welcome page.The ‘day schedule’ is programmed to initially move the users in the ‘today’ section, since it is regarded that this will be the page that will retain the majority of the visits. The system loads the currents day schedule.At the top of the page there is a button that, while dispatched, will lead back to this page the users.



UID	SEMESTER	YEAR	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	TYPE	DATE	ACTIVE	NOTE	IN	OUT
82	semester b	2012	sunny	kallithea	0.11	psychology_3	master	nikas	engineering	second	12:00 - 15:00	Saturday	shecule	26-05-2012	yes	-	-	-
83	semester b	2012	nanny	amalias	0.01	advanced databases	phd	pandidas	economics	first	09:00 - 12:00	Saturday	shecule	26-05-2012	yes	-	-	-
84	semester b	2012	kkfr	amalias	2.14	management & comm	phd	hands	psychology	third	12:00 - 15:00	Saturday	makeup	26-05-2012	yes	-	-	-

Figure 0.51 'TODAY SCHEDULE'

Other pages that are provided by the system are the ‘list all’, ‘search’, and ‘insert’ sections, as those exists in other pages as well. The user clicks the ‘list all’ button and previews all the records that exist in the table.



DAY SCHEDULE

DIID	SEMESTER	YEAR	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	TYPE	DATE	ACTIVE	NOTE	IN	OUT	
25	semester a	2011	[illegible]	kallithea	0.11	psychology_3	master	nikas	engineering	second	09:00 - 12:00	Monday	makeup	12-03-2011	no	12:20	15:40	18:50	✎ ✕
26	semester b	2012	iakb	kallithea	1.08	economics_1	master	kapetanaki	psychology	third	12:00 - 15:00	Saturday	shecule	22-11-2012	yes	null	14:30	15:30	✎ ✕
28	semester b	2012	iakb	kallithea	0.11	psychology_3	master	nikas	economics	second	15:00 - 18:00	Monday	makeup	01-01-1970	no	null	10:20	14:50	✎ ✕
29	semester b	2014	greenwich	skoufou	2.14	management & comm	master	kapetanaki	engineering	third	12:00 - 15:00	Monday	makeup	13-05-2012	yes	the course added today	12:30	14:50	✎ ✕
30	semester b	2012	[illegible]	skoufou	1.08	economics_1	phd	kapetanaki	psychology	third	12:00 - 15:00	Wednesday	extension	16-05-2012	yes	comment	14:50	16:50	✎ ✕
31	semester b	2012	iakb	skoufou	2.10	economics_1	master	pandidis	psychology	third	18:00 - 21:00	Wednesday	makeup	16-05-2012	yes	no comment	15:50	18:00	✎ ✕
32	semester b	2012	greenwich	skoufou	2.10	management & comm	phd	pandidis	engineering	first	12:00 - 15:00	Saturday	extension	19-05-2012	no	-	14:45	17:30	✎ ✕
33	semester b	2011	iakb	skoufou	1.08	economics_1	master	nikas	engineering	second	09:00 - 12:00	Monday	extension	01-01-1970	no	-	-	-	✎ ✕
34	semester b	2011	iakb	kallithea	1.11	economics_1	master	kapetanaki	engineering	second	15:00 - 18:00	Saturday	makeup	01-01-1970	no	-	-	-	✎ ✕
35	semester b	2011	iakb	kallithea	0.11	psychology_3	master	nikas	engineering	third	15:00 - 18:00	Saturday	makeup	01-01-1970	no	-	-	-	✎ ✕
36	semester b	2012	iakb	kallithea	0.11	psychology_3	phd	kapetanaki	psychology	second	15:00 - 18:00	Saturday	shecule	12-12-2012	no	-	-	-	✎ ✕
37	semester b	2011	iakb	kallithea	0.11	economics_1	master	nikas	engineering	second	12:00 - 15:00	Monday	shecule	12-12-2010	no	-	-	-	✎ ✕
76	semester b	2012	greenwich	[illegible]	1.08	economics_1	master	nikas	engineering	second	09:00 - 12:00	Wednesday	shecule	23-05-2012	no	-	-	-	✎ ✕
77	semester b	2012	iakb	[illegible]	2.10	psychology_3	master	nikas	economics	first	09:00 - 12:00	Wednesday	shecule	23-05-2012	no	-	-	-	✎ ✕
78	semester b	2012	[illegible]	skoufou	1.08	economics_1	phd	kapetanaki	engineering	second	09:00 - 12:00	Wednesday	shecule	23-05-2012	no	-	-	-	✎ ✕
79	semester b	2012	[illegible]	kallithea	0.11	psychology_3	phd	nikas	psychology	second	09:00 - 12:00	Thursday	extension	24-05-2012	no	-	-	-	✎ ✕
80	semester b	2011	iakb	test	0.11	psychology_3	phd	nikas	engineering	third	12:00 - 15:00	Saturday	extension	24-05-2013	no	-	-	-	✎ ✕
81	semester b	2012	iakb	test	0.11	psychology_3	master	nikas	economics	third	12:00 - 15:00	Saturday	makeup	24-05-2012	no	-	-	-	✎ ✕

Figure 0.52 'DAY SCHEDULE' ALL RECORDS LIST

Note

There is an argument about this button and is about whether the ‘list all’ functionality should be provided to users or hide it. As the table recording grows enormously it would be insufficient whether the ‘list all’ functionality would remain effective for users to trigger and probably it would be much of a better concept to use the search engine instead of it.

Nevertheless, only for this demonstration the button has chosen to remain visible, otherwise it would probably remain hidden from public.

The user clicks the ‘search’ button and the system travels the user to the page.

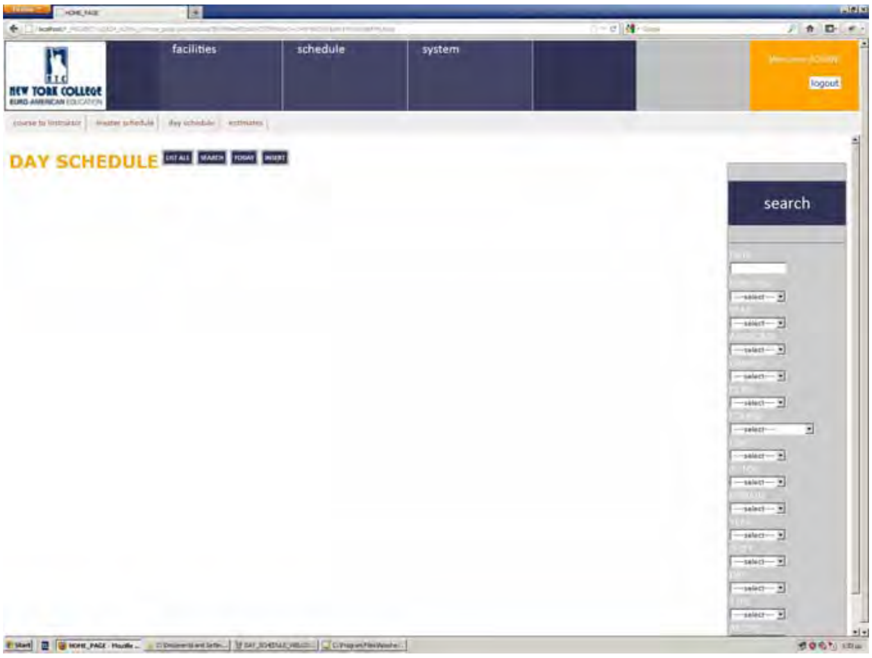


Figure 0.53 'DAY SCHEDULE' SEARCH FILTERS

Note

Exactly because the page is anticipated to host a huge amount of data, there is an additional input that has been injected manually to the searching form area and empowers the users to apply date searching queries or combine it with other filters in a way to fire more advanced and targeted queries towards the table's data.

The user invokes a searching procedure, selecting some of the form's filters, which amongst the first seen 'date' filter.

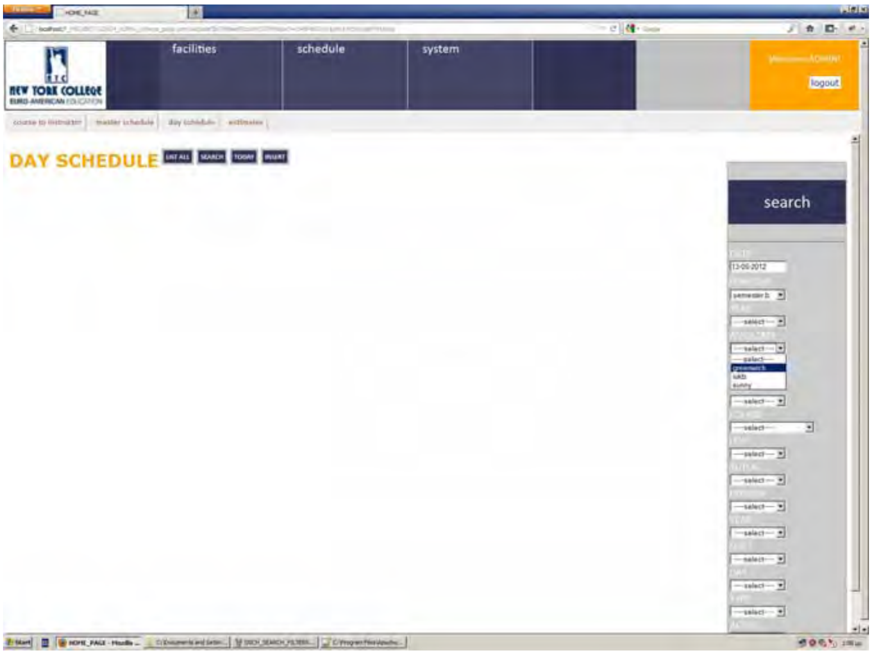
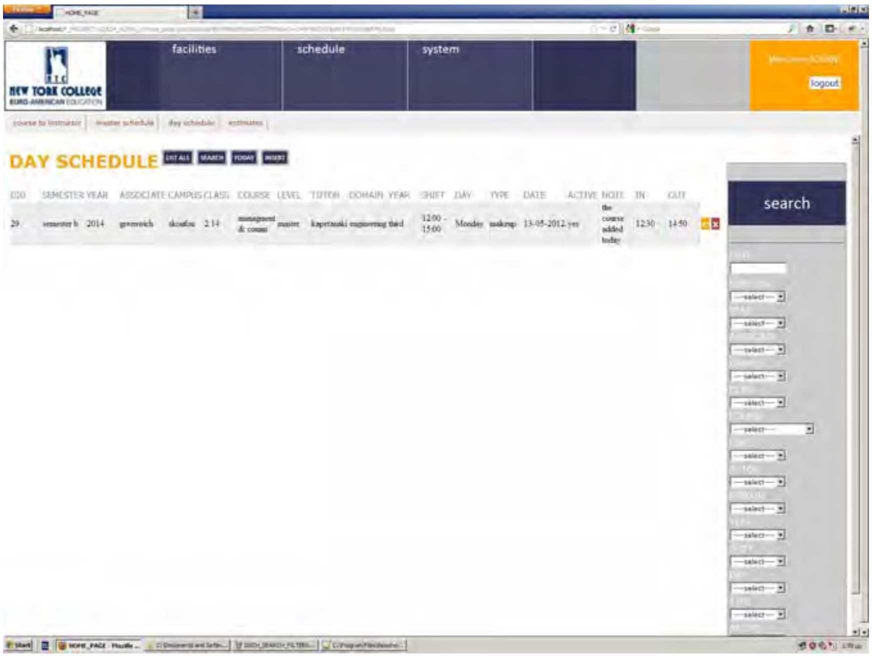


Figure 0.54 APPLY 'DAY SCEDULE' FILTERS

The system reply to the user's searching with the following data results.



IDD	SEMESTER	YEAR	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	TYPE	DATE	ACTIVE	NOTE	IN	OUT
29	semester b	2014	greenwich	skoufou	2.14	management & comm	master	kapetanaki	engineering	third	12:00 - 15:00	Monday	makeup	13-05-2012	yes	the course added today	12:30	14:50

Figure 0.55 'DAY SCHEDULE' REPLY ON SEARCH

The user wants to insert some data to the table and issues an 'insert' command to the system by clicking on the respective button. The system bring the 'insert' form to the display.

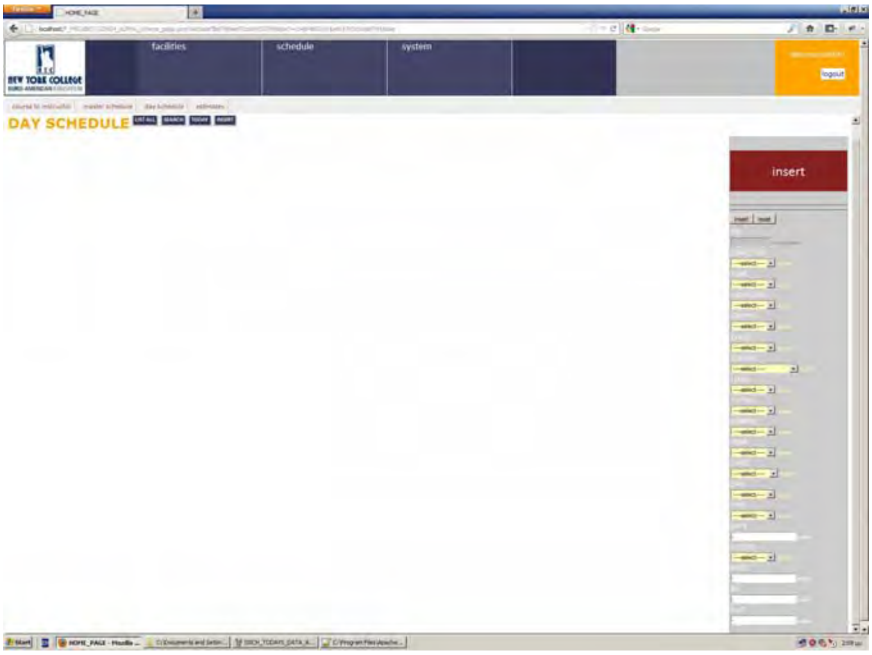


Figure 0.56 'DAY SCHEDULE' INSERT FORM

Note

The ‘insert’ form is provided to the system with the regard that this will be used only in rare cases. Likewise this functionality could effectively add value to the system while used in cases where a course emerges to be taken out of schedule and overrides the formal schedule as the way this is dictated by the arrangements of the Master Schedule. ‘Make-up’ classes as an instance would prospectively be issued effectively by this ‘insert’ operation. ‘Extension’ classes, unless taken in the usual weekday and time-shift orders, could be issued by this mechanism as well. On the other hand if the extension classes were to follow the scheduled semester path the administration could rely on leaving the course active for a certain amount of time and deactivate the course due to its completion. Later on with the demonstration there are examples of how to activate/deactivate a course.

In a formal week process, the daily courses are autonomously generated by the system, as the system retrieves all the required feedback from the arrangements of the Master Schedule resources, therefore for someone to create a day schedule without any emerging need would be meaningless and would probably cause dilemmas to the accuracy of the recordings.

The user issues an out of schedule ‘extension’ class to the system on a certain date that for the case is the same with the current date.

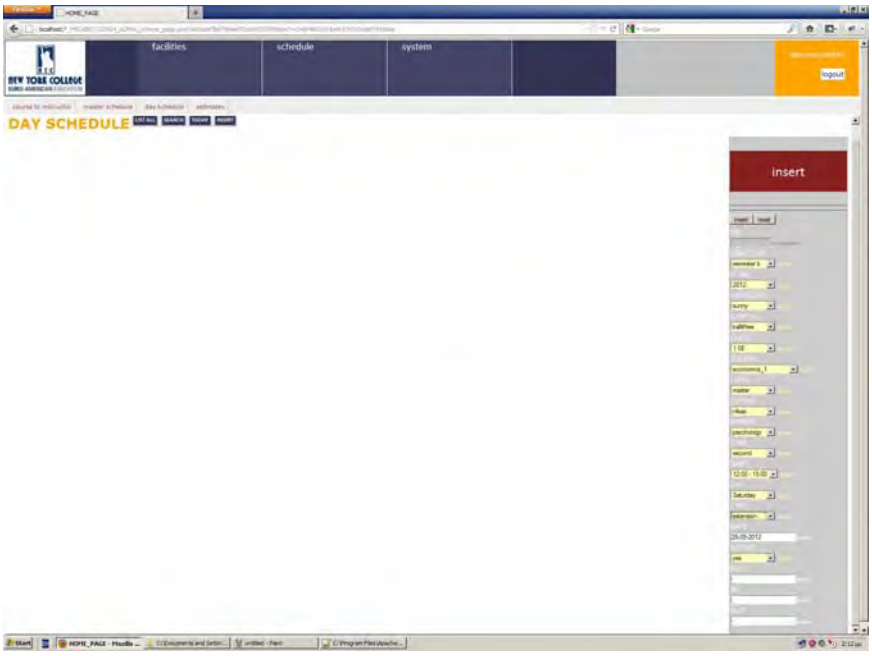
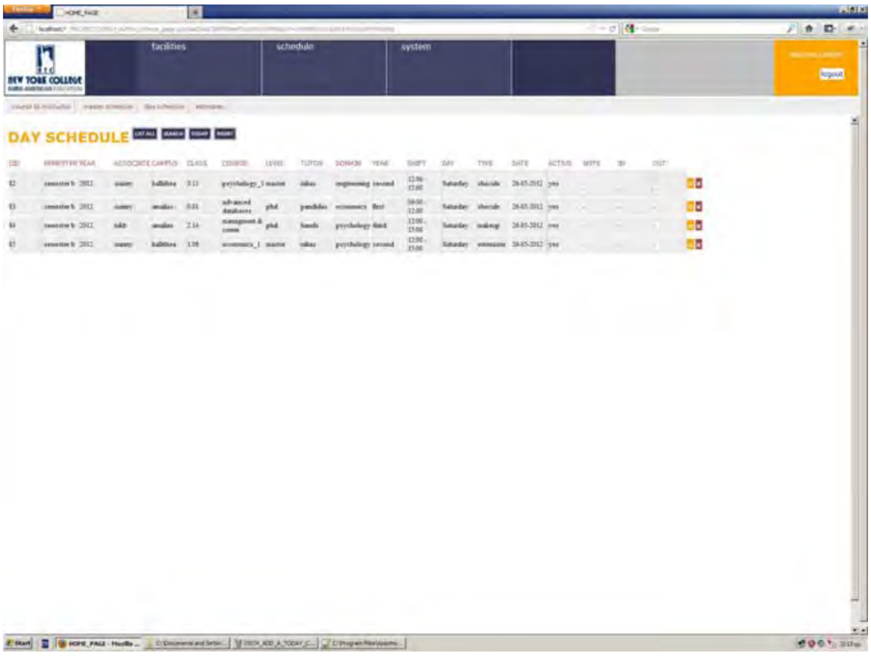


Figure 0.57 INSERT A 'COURSE' FOR THE CURRENT DAY

Even though, the user should probably issue the course at least a day earlier since the extension is taking place on the same date, the course will still display while moving back to or reloading the ‘today’ page.

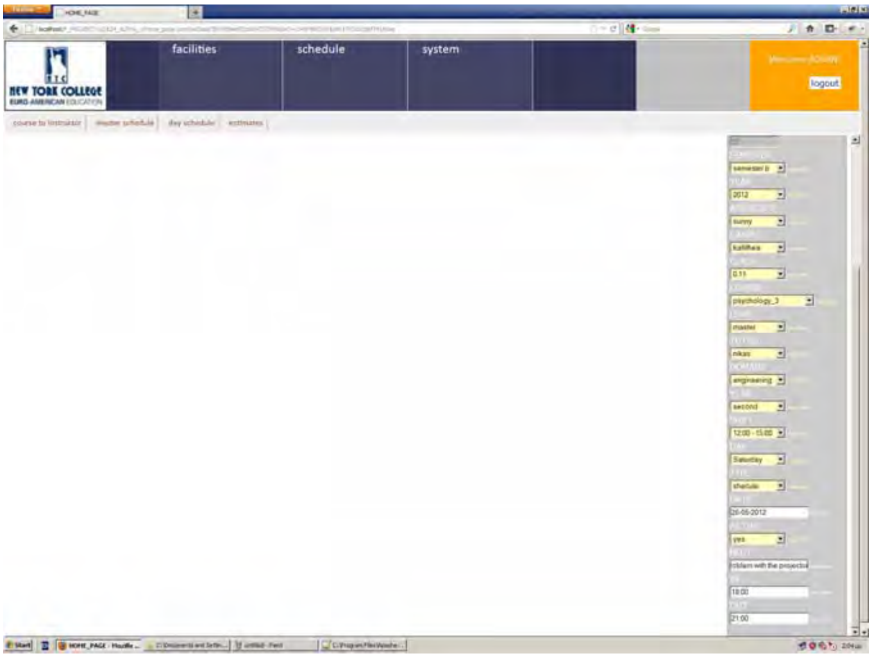


DID	SEMESTER	YEAR	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	TYPE	DATE	ACTIVE	NOTE	IN	OUT
82	semester b	2012	sunny	kallithea	3.11	psychology_1	master	nikas	engineering	second	12:00 - 15:00	Saturday	schedule	26-05-2012	yes			
83	semester b	2012	sunny	amalias	0.01	advanced databases	phd	pandidas	economics	first	09:00 - 12:00	Saturday	schedule	26-05-2012	yes	-	-	-
84	semester b	2012	nikh	amalias	2.14	management & comm	phd	Sandis	psychology	third	12:00 - 15:00	Saturday	makeup	26-05-2012	yes			
85	semester b	2012	sunny	kallithea	3.18	economics_1	master	nikas	psychology	second	12:00 - 15:00	Saturday	extension	26-05-2012	yes			

Figure 0.58 SAME DAY 'INSERTED' RECORDSET IS PREVIEWED

The user wants to enhance the current day schedule and fill in the data that delegates the daily activity.

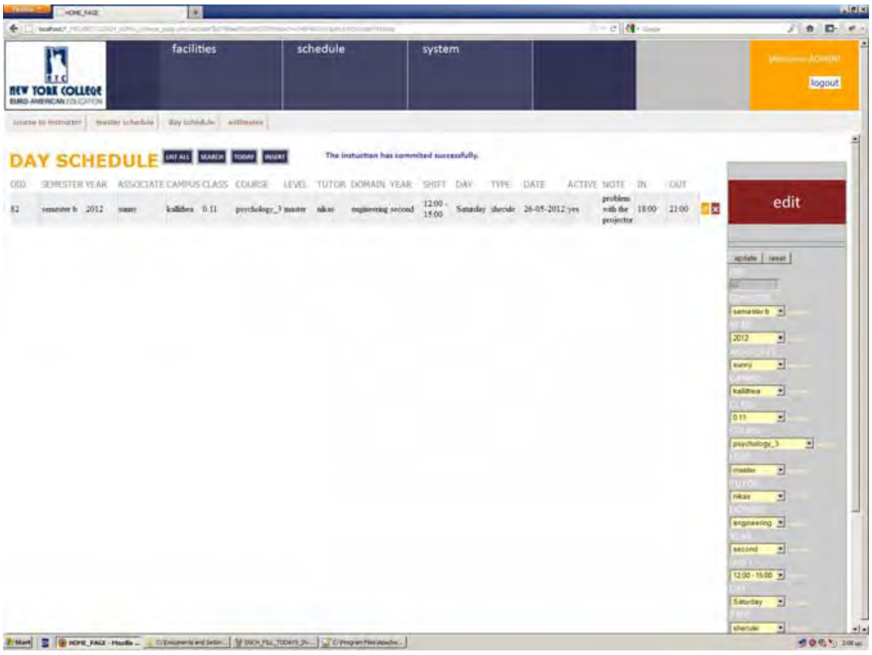
The user adds the current date, the time that the instructor entered and campus and the time leaved. Additionally since the instructor while leaving the campus informed the officer that the projector of the class encountered some problems during the previewing, the officer inserted the message to the systems as well right at the 'comments' area.



semester b
2012
sunny
kallithea
0.11
psychology_3
master
nikas
engineering
second
12:00 - 15:00
Saturday
shedule
26-05-2012
yes
roblem with the projecto
18:00
21:00

Figure 0.59 'RECORD' THE DAILY ACTIVITY

The user submits the data and system reports that the registration was successful.



DAY SCHEDULE

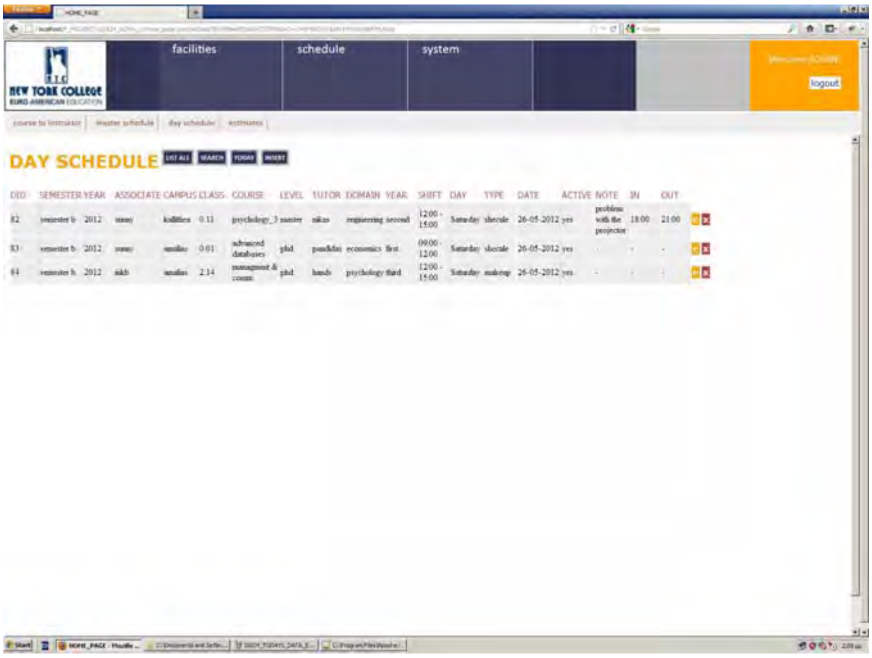
The instuction has commited successfully.

OID	SEMESTER	YEAR	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	TYPE	DATE	ACTIVE	NOTE	IN	OUT
82	semester b	2012	sunny	kallithea	0.11	psychology_3	master	nikas	engineering	second	12:00 - 15:00	Saturday	shecule	26-05-2012	yes	problem with the projector	18:00	21:00

semester b
2012
sunny
kallithea
0.11
psychology_3
master
nikas
engineering
second
12:00 - 15:00
Saturday
shedule

Figure 0.60 THE DAILY ACTIVITY IS REGISTERED

The user moves back to the ‘today’ page and the new records are displayed on screen.



DAY SCHEDULE

DID	SEMESTER	YEAR	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	TYPE	DATE	ACTIVE	NOTE	IN	OUT
82	semester b	2012	sunny	kalithea	0.11	psychology_3	master	nikas	engineering	second	12:00 - 15:00	Saturday	shedule	26-05-2012	yes	problem with the projector	18:00	21:00
83	semester b	2012	sunny	amalias	0.01	advanced databases	phd	pandidas	economics	first	09:00 - 12:00	Saturday	shedule	26-05-2012	yes	-	-	-
84	semester b	2012	nikb	amalias	2.14	managment & comm	phd	hands	psychology	third	12:00 - 15:00	Saturday	makeup	26-05-2012	yes	-	-	-

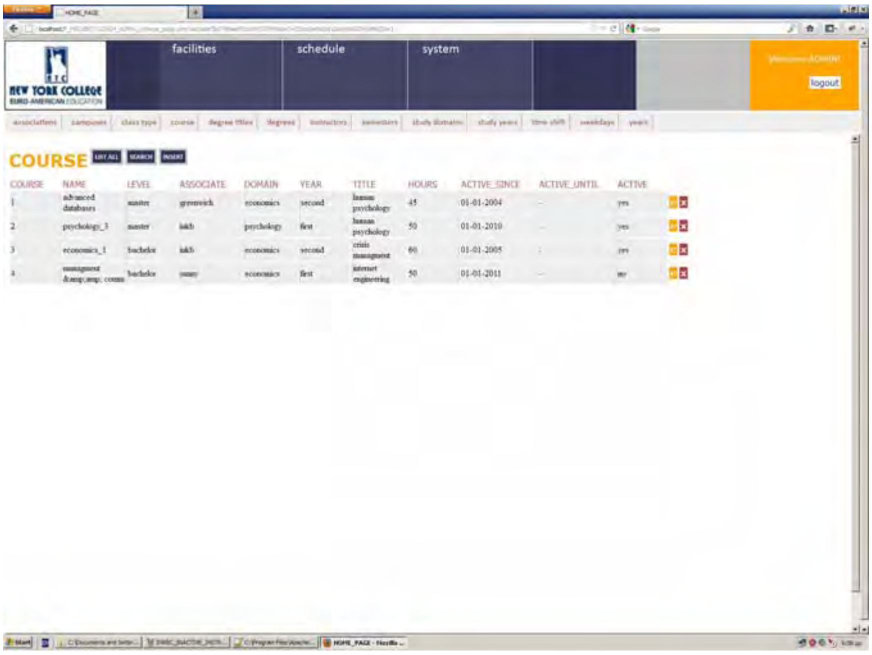
Figure 0.61 DAILY ACTIVITY WILL BE PREVIEWED EVEN AFTER REGISTERED

1.3 ENABLING/DISABLING RECORDS

Since most of the ‘schedule’ activity is showcased thus far, there is an additional issue that relates and needs to be credited for this section since it plays a key role in the actual form data delivery, in order to provide value output to the users while choosing for data.

The objective here is that during a semester schedule there are courses that last longer before finishing than other courses. Moreover there are additionally cases where courses, degree titles or even instructors are no longer maintaining their roles as parts-entities of the organization. Those entities should not further be credited as valid options by the system and should not be offered to the users for registration any longer.

The user has disabled a course (using the 'edit' function) because it is no longer provided by the organization. The user sees in the 'course' list that the lesson is considered inactive.

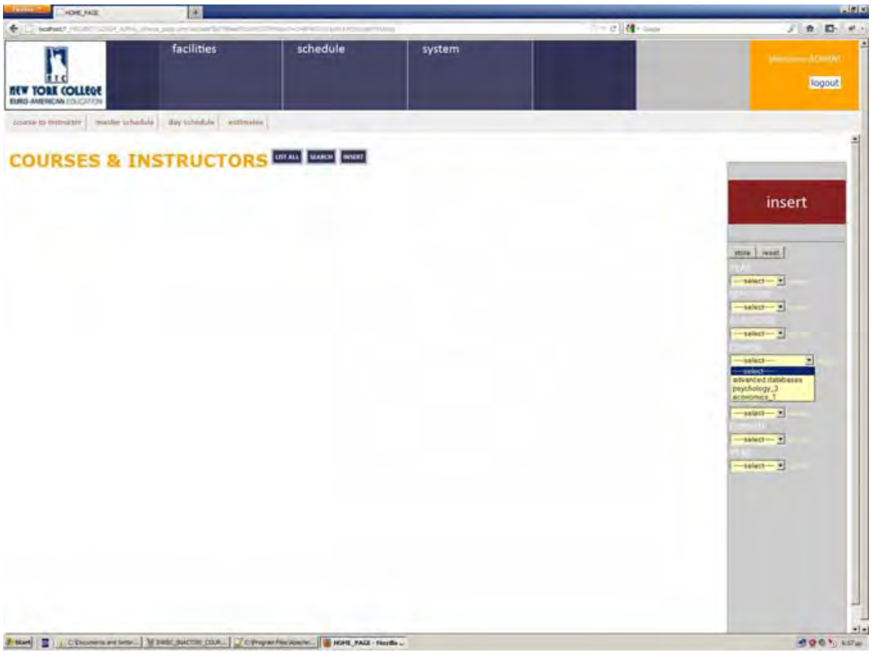


COURSE

COURSE	NAME	LEVEL	ASSOCIATE	DOMAIN	YEAR	TITLE	HOURS	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
1	advanced databases	mastre	greenwich	economics	second	human psychology	45	01-01-2004	-	yes
2	psychology_3	master	iukb	psychology	first	human psychology	50	01-01-2010	-	yes
3	economics_1	bachelor	iukb	economics	second	crisis management	60	01-01-2005	-	yes
4	management &amp; comm	bachelor	suny	economics	first	internet engineering	50	01-01-2011	-	no

Figure 0.62 DEACTIVE A COURSE

The user moves to the 'courses-instructors' table and checks whether the course provide a valid option for registration. The 'course' can no longer be indexed by the system's searching mechanism.



COURSES & INSTRUCTORS

---select---
advanced databases
psychology_3
economics_1

Figure 0.63 DISABLED COURSE WILL NOT PREVIEW ON 'COURSES & INSTRUCTORS'

‘Master Schedule’ interface would also avoid procuring the user with the course name as a valid option.

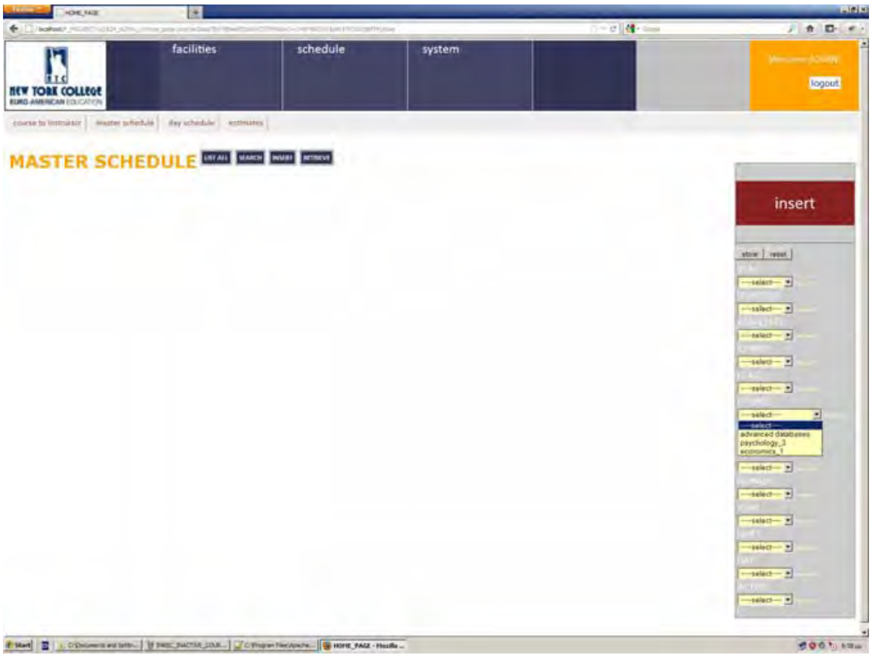
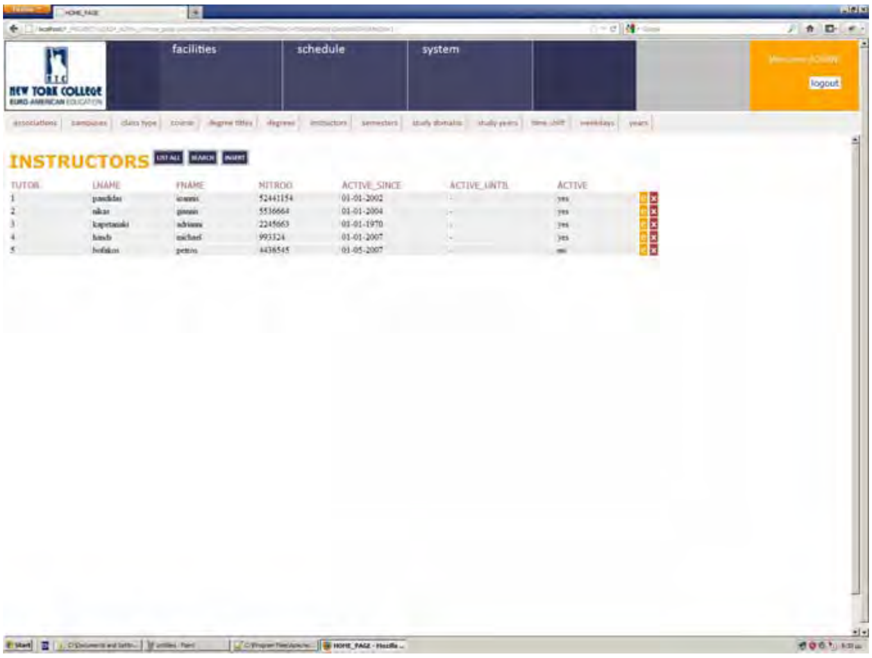


Figure 0.64 DEACTIVATED COURSES WILL NOT PREVIEWED ON 'MASTER SCHEDULE'

The user disables an instructor as well.



TUTOR	LNAME	FNAME	MITROO	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
1	pasdidas	ioannis	52441154	01-01-2002	-	yes
2	nikas	giannis	5536664	01-01-2004	-	yes
3	kapetanaki	adriana	2245663	01-01-1970	-	yes
4	hinds	michael	993324	01-01-2007	-	yes
5	bofakos	petros	4436545	01-05-2007	-	no

Figure 0.65 DEACTIVATE INSTRUCTOR

The system will escape to provide an option for the name of the instructor that has been disabled by the authorities while at the ‘Courses & Instructors’page

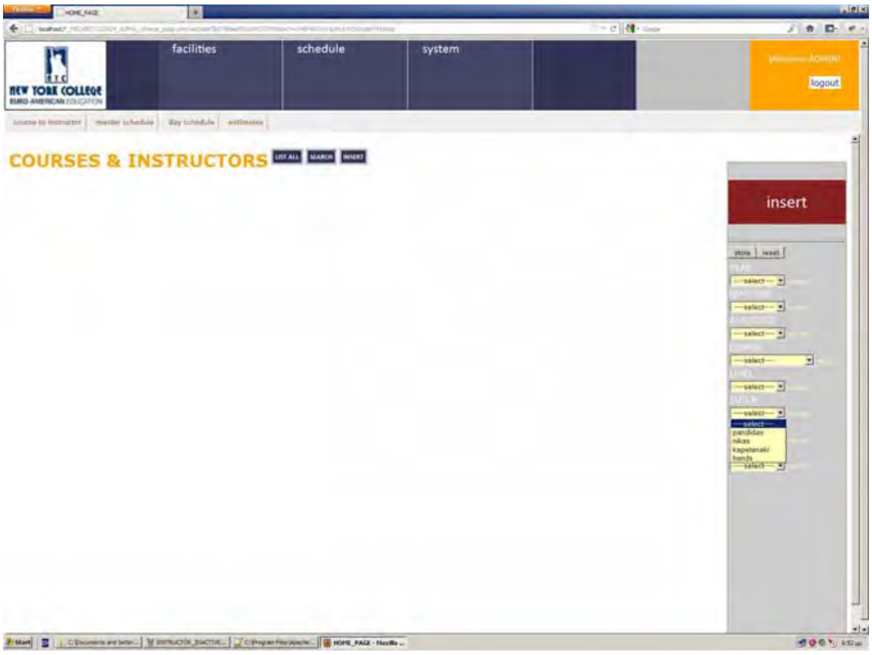


Figure 0.66 DISABLED INSTRUCTORS ARE NOT PREVIEWED IN 'COURSES & INSTRUCTORS'

The system will escape to provide an option for the name of the instructor that has been disabled by the authorities while at the ‘Master Schedule’ page

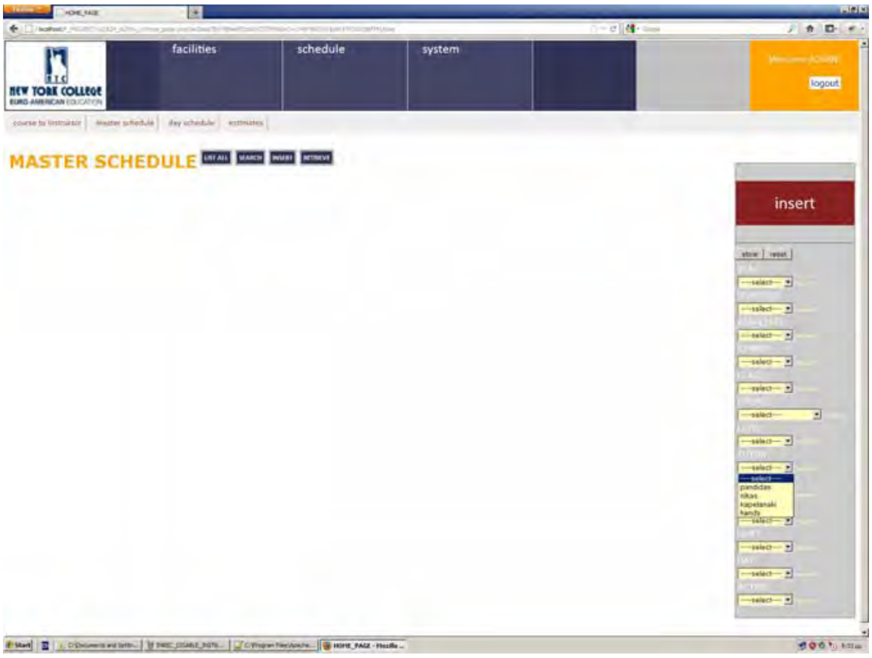


Figure 0.67 DISABLED INSTRUCTORS ARE NOT PREVIEWED IN MASTER SCHEDULE'

The system will escape to provide an option for the name of the instructor that has been disabled by the authorities while at the 'Day Schedule' page

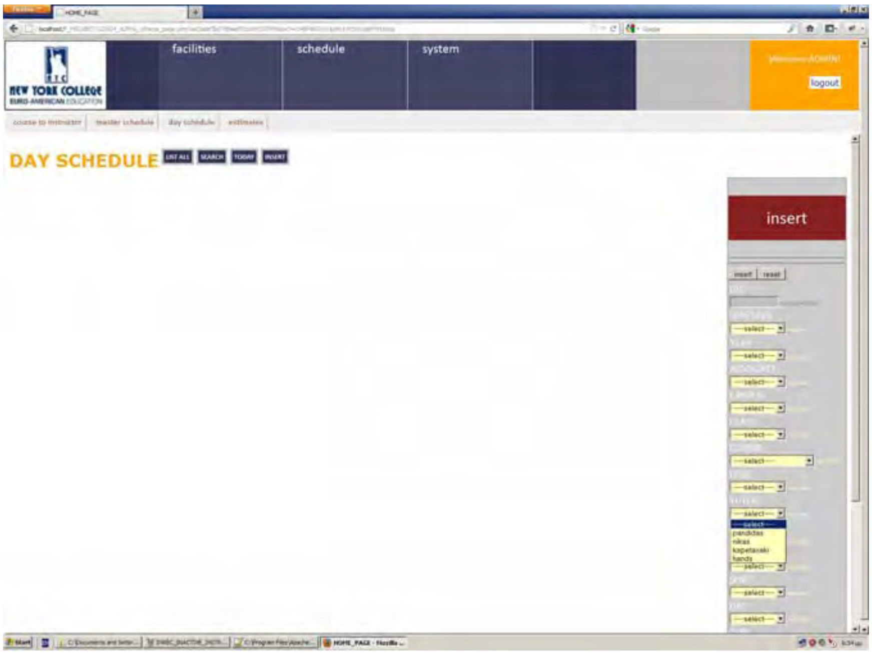


Figure 0.68 DISABLED INSTRUCTORS ARE NOT PREVIEWED IN 'DAY SCHEDULE'

1.4 ESTIMATIONS

The estimations page is a functionality that has been injected manually to the scope of the schedule functions and is not a table like most of the functions that deploys in the application. Therefore the estimations cannot be found in the database, and has been manually designed instead.

The optimum challenge that the functions is intended to resolve is count and estimate the total hours that a given instructor has summarized within a time period, and bases the results on the actual time recordings that were issued in the system database by the officers day by day. The requested time that can be issued for results is very flexible and scales from a single date to the total amount of time the instructor is providing services from the organization.

The user enters the estimation page.

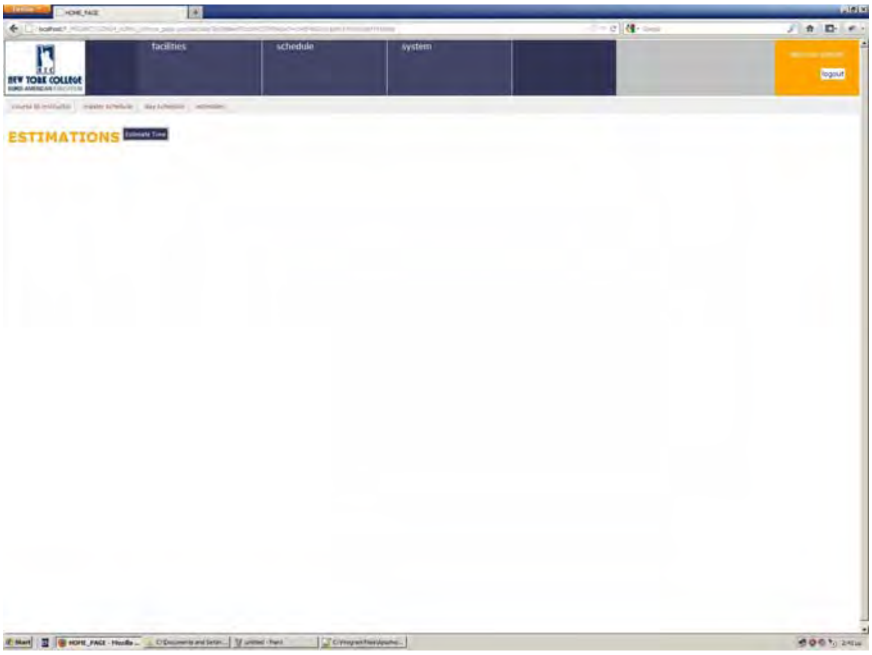


Figure 0.69 'ESTIMATIONS' PAGE

The user selects the ‘estimate time’ button and the system displays a right sidebar form select, date and checkbox inputs.

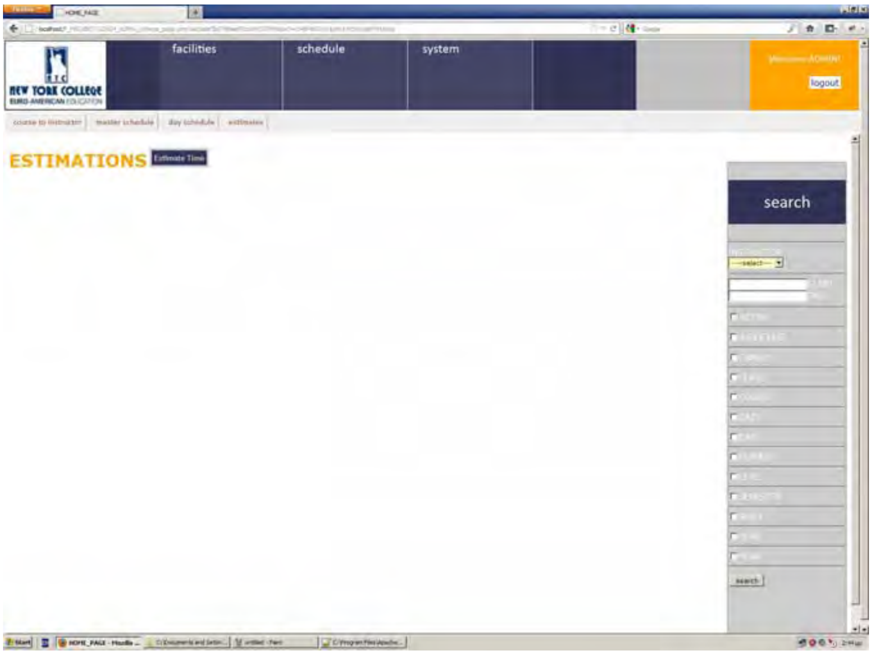
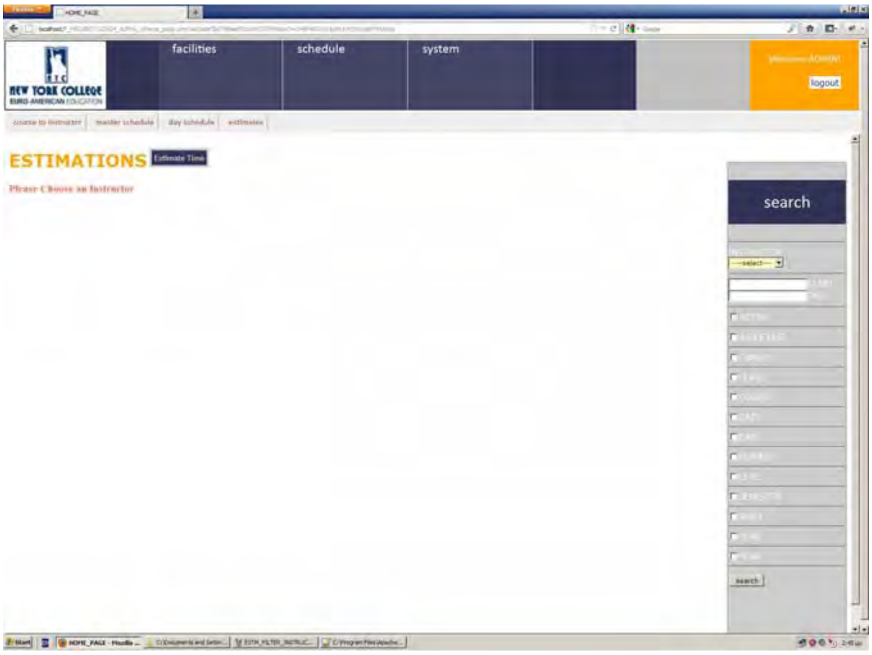


Figure 0.70 'ESTIMATIONS' FILTERS

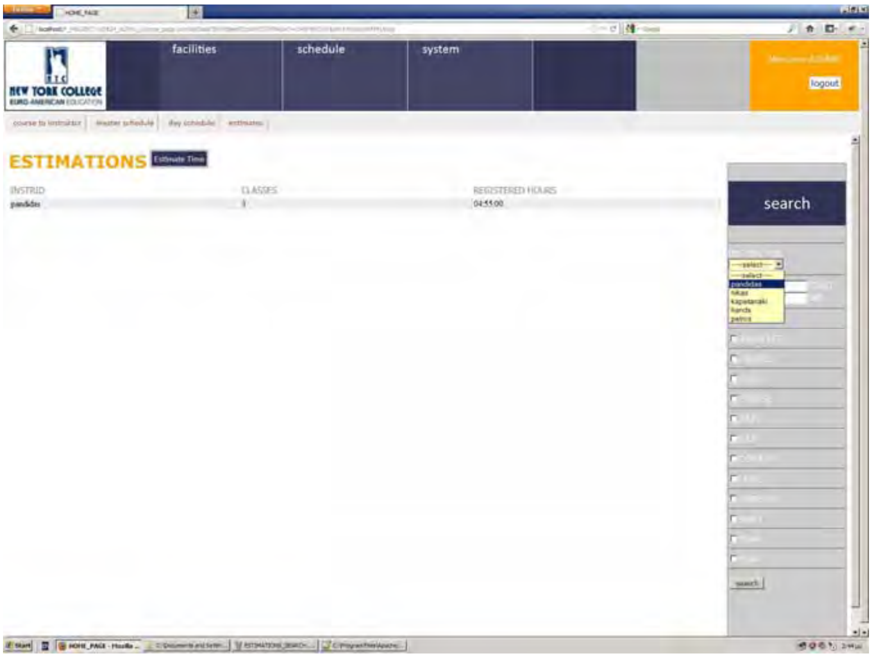
The user carelessly submits a search without first selecting a instructor name.The system responds with an informative message that prompts the user to select an instructor before generating the search.



Please Choose an Instructor

Figure 0.71 SYSTEM RESPONCE ON INVALID SEARCH INPUTS

The user returns to the searching form and selects the name of an instructor to initialize the search.



INSTRID	CLASSES	REGISTERED HOURS
pandidas	1	04:55:00

Figure 0.72 SELECT AN INSTRUCTOR FOR SEARCHING IN ‘ESTIMATIONS’ PAGE

The user checks three filters along with the name of the instructor.

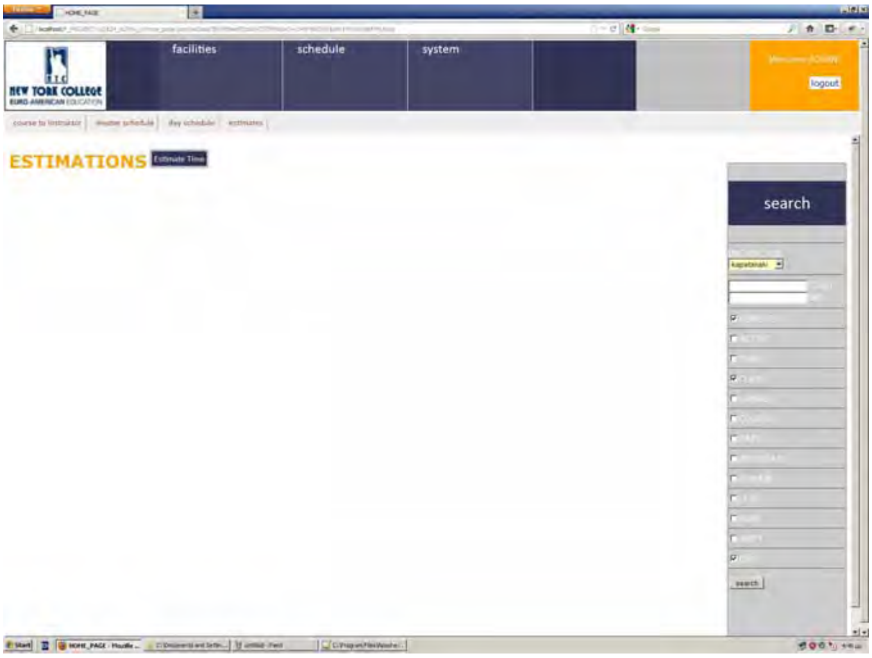
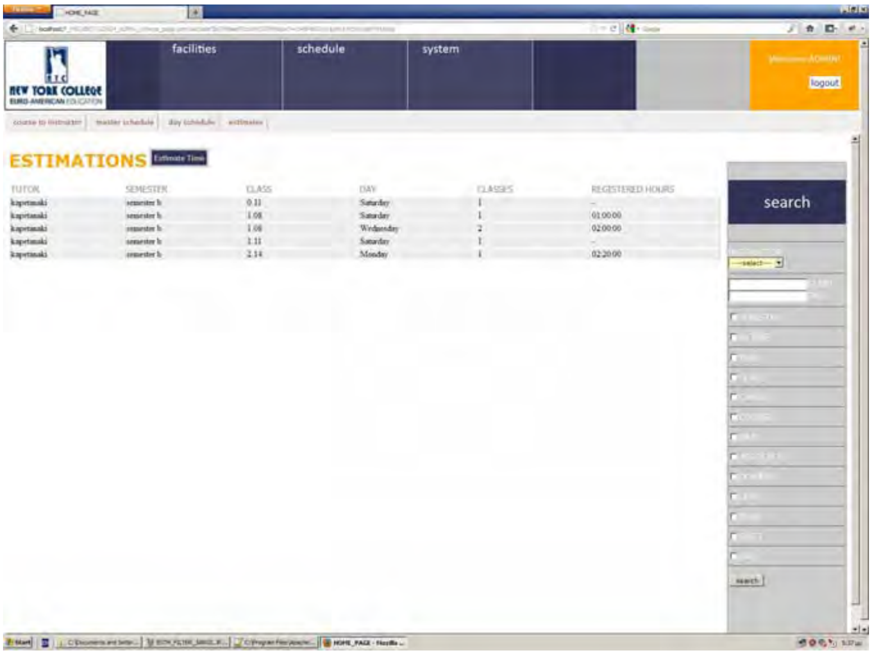


Figure 0.73 SELECT MANY FILTERS IN 'ESTIMATIONS' PAGE

The user submits the choice to the system.



ESTIMATIONS Estimate Time

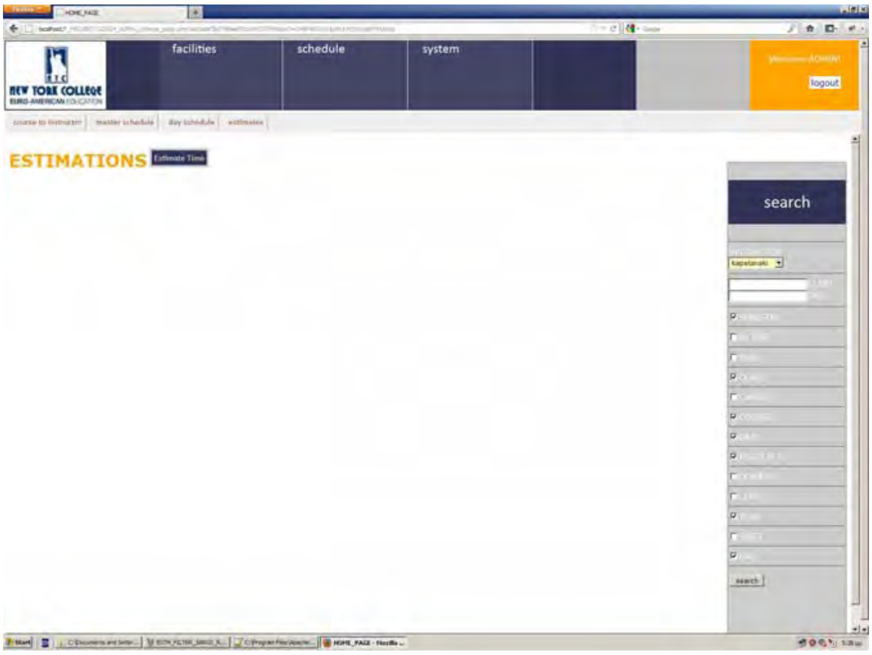
TUTOR	SEMESTER	CLASS	DAY	CLASSES	REGESTERED HOURS
kapetanaki	semester b	0.11	Saturday	1	-
kapetanaki	semester b	1.08	Saturday	1	01:00:00
kapetanaki	semester b	1.08	Wednesday	2	02:00:00
kapetanaki	semester b	1.11	Saturday	1	-
kapetanaki	semester b	2.14	Monday	1	02:20:00

Figure 0.74 SYSTEM RESPONCE ON MULTIPLE FILTERS

Note

The ‘estimations’ searching mechanism deploys its function given the fact that an increased number of filters issued by the user will respectively generate a searching with increased amount of detail and will eventually display more long-winded results on screen.

The user has seen the results and wants to explore their emergence in greater depth. Thus the user provides more filters instead.

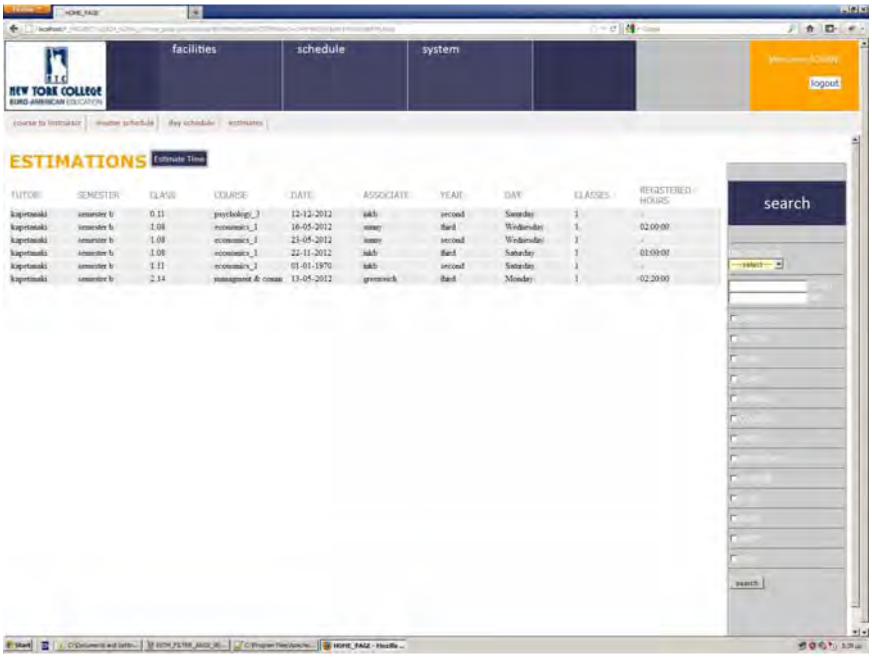


ESTIMATIONS Estimate Time

kapetanaki

Figure 0.75 'ESTIMATIONS' SELECT MOST OF THE FILTERS

The system responds with more detailed results of how, when and where those estimations came up.

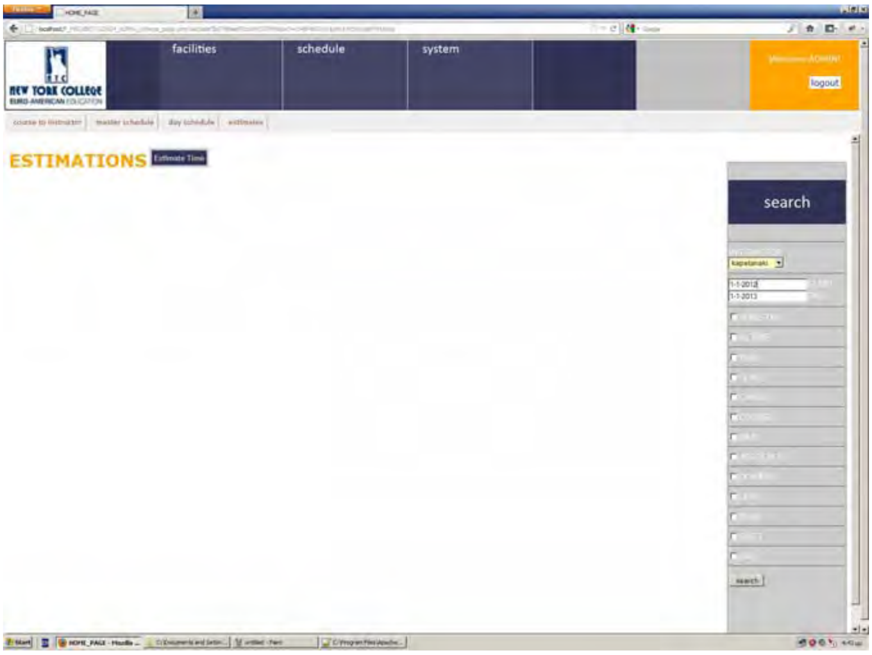


ESTIMATIONS

TUTOR	SEMESTER	CLASS	COURSE	DATE	ASSOCIATE	YEAR	DAY	CLASSES	REGISTERED HOURS
kapetanaki	semester b	0.11	psychology_3	12-12-2012	iakb	second	Saturday	1	-
kapetanaki	semester b	1.08	economics_1	16-05-2012	simmy	third	Wednesday	1	02:00:00
kapetanaki	semester b	1.08	economics_1	23-05-2012	simmy	second	Wednesday	1	-
kapetanaki	semester b	1.08	economics_1	22-11-2012	iakb	third	Saturday	1	01:00:00
kapetanaki	semester b	1.11	economics_1	01-01-1970	iakb	second	Saturday	1	-
kapetanaki	semester b	2.14	management & comm	13-05-2012	greenwich	third	Monday	1	02:20:00

Figure 0.76 SYSTEM RESPOND WITH DETAILED INFORMATION

The user invokes a time-space search using the date inputs.



ESTIMATIONS

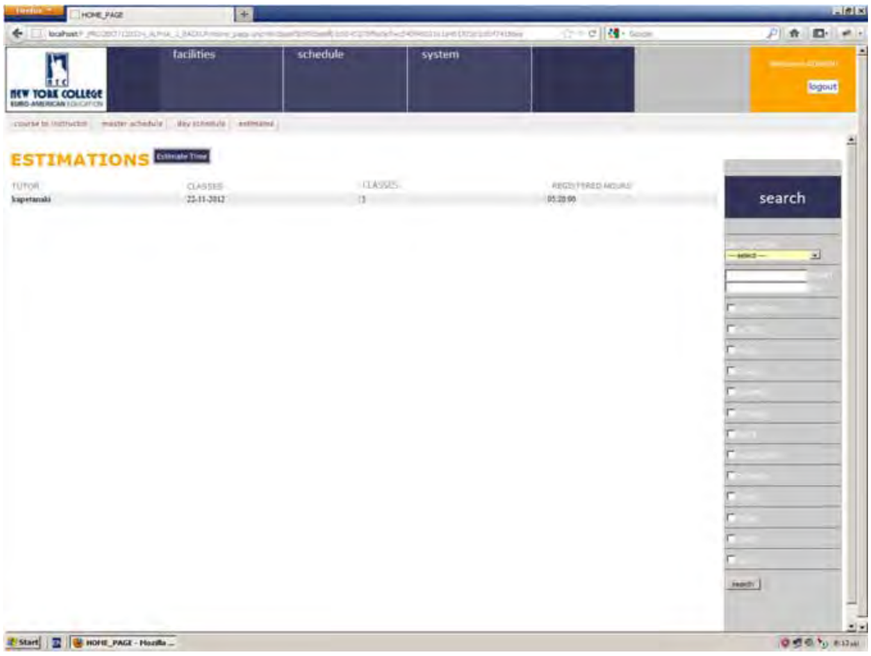
kapetanaki

1-1-2012

1-1-2013

Figure 0.77 'ESTIMATIONS' CHOOSE THE DATE FILTERS

The system responds with more succinct and results counting the sums in classes given and time.



TUTOR	CLASSES	CLASSES	REGISTERED HOURS
kapetanaki	22-11-2012	13	05:28:00

Figure 0.78 SYSTEM RESPONCE ON 'ESTIMATION' DATE FILTERS

The wants to preview the number of lessons that the instructor was scheduled to deliver and those were cancelled eventually.

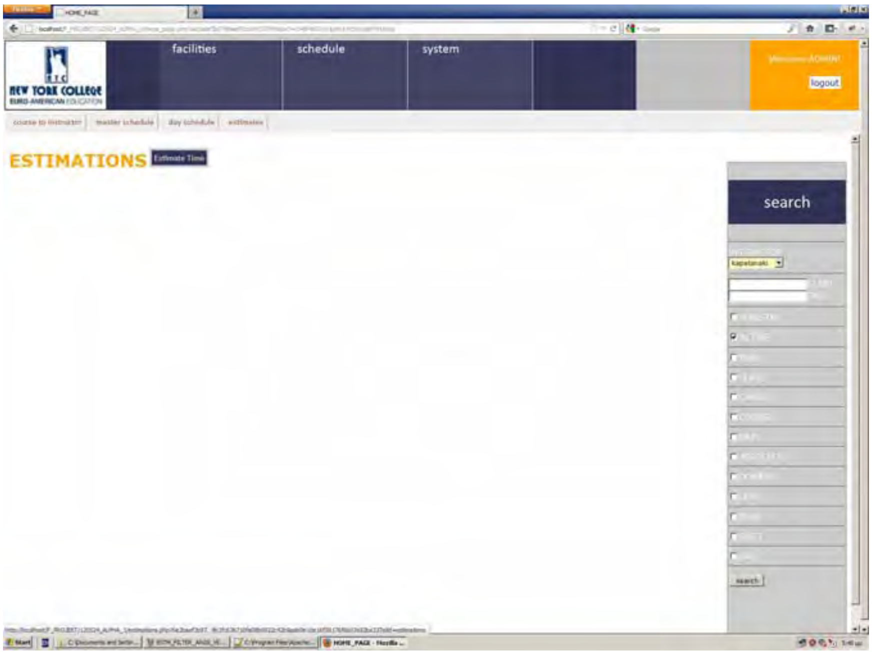
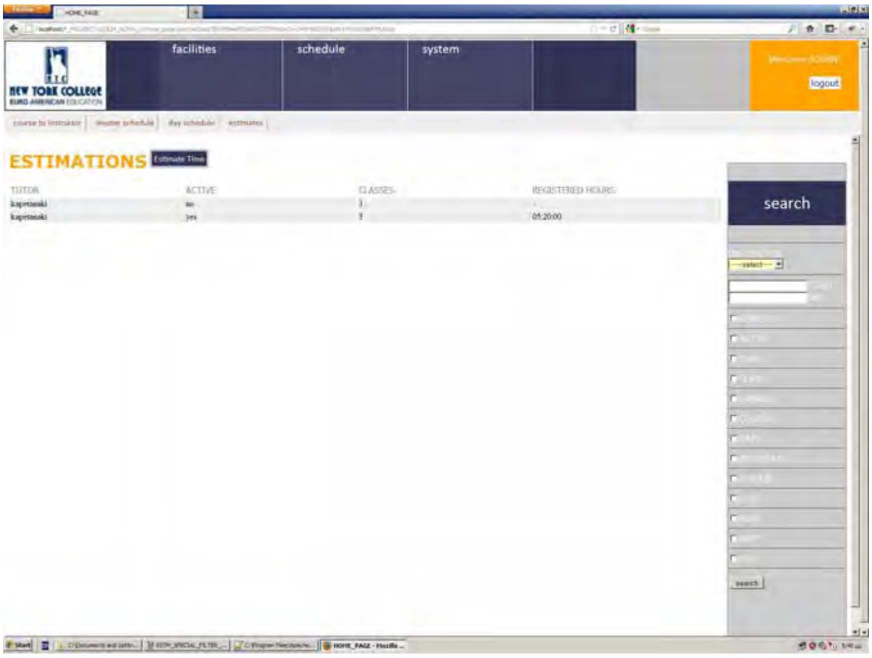


Figure 0.79 'ESTIMATIONS' SELECT TO PREVIEW FALLBACK LESSONS

The system responds with the results.



ESTIMATIONS

TUTOR	ACTIVE	CLASSES	REGISTERED HOURS
kapetanaki	no	1	-
kapetanaki	yes	3	05:20:00

Figure 0.80 'ESTIMATIONS' RESULTS TO FALLBACK LESSONS SEARCH

Note

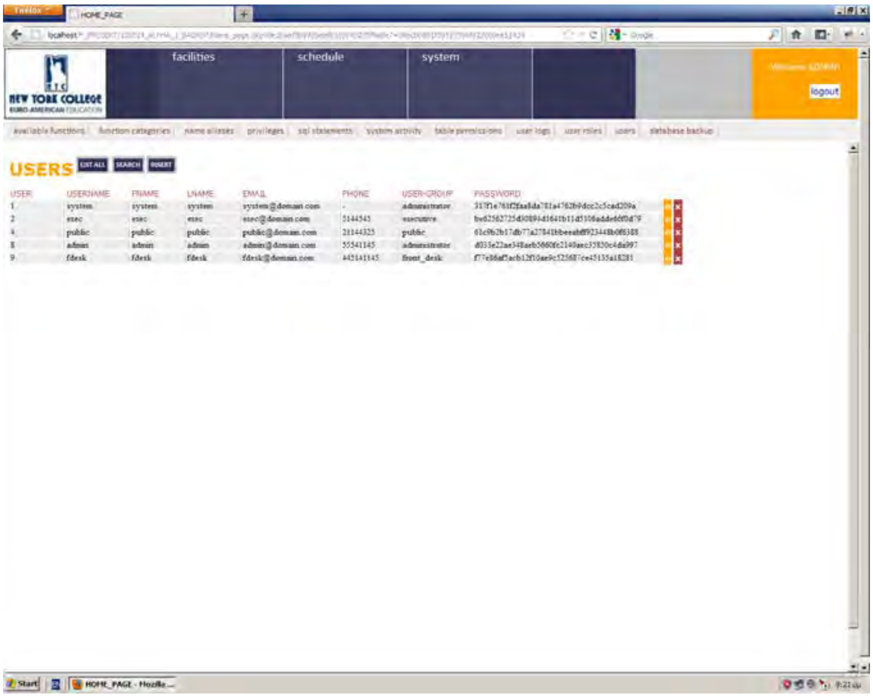
The column labeled active will signify with a ‘no’ value those classes that have been canceled and those that have been given will be signified with ‘yes’. Additionally those classes that were canceled will not display the hours under the ‘registered hours’ column, but rather will output a hyphen (-) implying the lack of registered hours.

1.5 ‘SYSTEM’ FAMILY OF FUNCTIONS

The ‘system’ functionality is the back-end section where only the administrators of the system are granting their access within. Through this interface the administrators can register users, provide them with roles and adjust the levels of interaction that users grant on using the system functions, provide alias names for the tables of the system, backup and restore the database, monitor the user and system activity.

The system in general sustains the same philosophy according to the interface that provides for users to manipulate the data of the pages. Therefore the majority of the pages will provide the casual ‘insert’, ‘search’ and ‘list all’ buttons for handling data contented within, unless there are cases where buttons are irrelevant for generating their function, like for instance the user or system activity pages(logs). Database maintenance page uses a distinct interface since its core operation is distinguished from other pages of the category.

The user enters the ‘users’ page and checks all of the registered users.



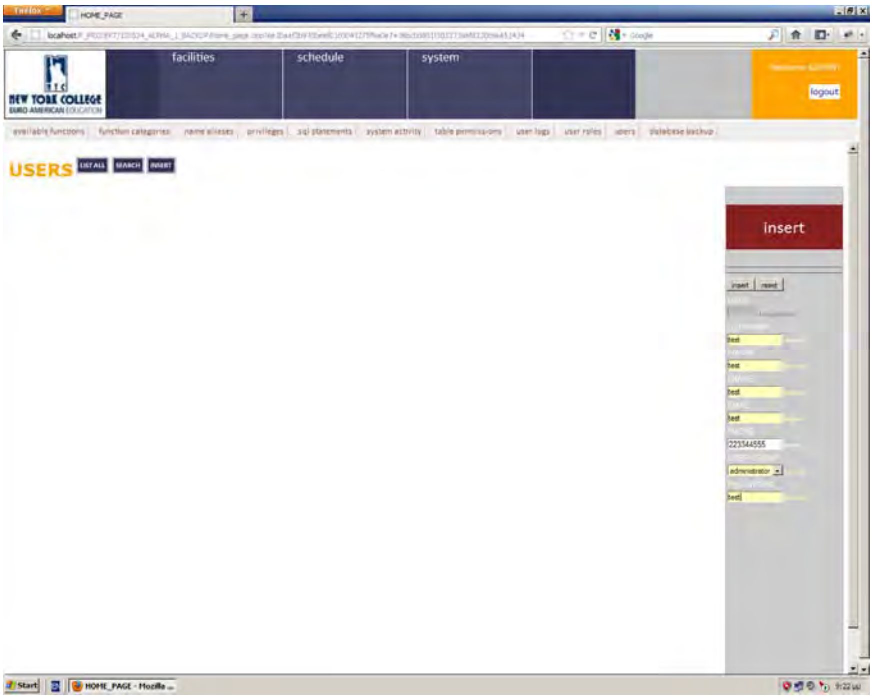
USER	USERNAME	FNAME	LNAME	EMAIL	PHONE	USER-GROUP	PASSWORD
1	system	system	system	system@domain.com	-	administrator	317f1e761f2faa8da781a4762b9dcc2c5cad209a
2	exec	exec	exec	exec@domain.com	5144545	executive	be62562725d30894d1641b11d5106adde6ff0d79
4	public	public	public	public@domain.com	21144325	public	61c9b2b17db77a27841bbeeabff923448b0f6388
8	admin	admin	admin	admin@domain.com	55541145	administrator	d033e22ae348aeb5660fc2140aec35850c4da997
9	fdesk	fdesk	fdesk	fdesk@domain.com	445141145	front_desk	f77e86af5acb12f10ae9c525687ce45135a18281

Figure 0.1 'USERS' TABLE DATA

Note

Among register users the system retains as a valid a ‘system’ user that in fact does not delegate any physical user. The ‘user’ system is provided because the system is programmed to keep track of the login attempts that are issued to the system while still at the front door of the application. At this time there is no active user recognized by the system, therefore there is no one to actually credit the activity. Therefore the default user that will be assigned to this activity is the ‘system’ user. Additionally while the system runs procedures sustaining its operation this activity will also be appended to the ‘system’ user and be recorded (system activity - system logs).

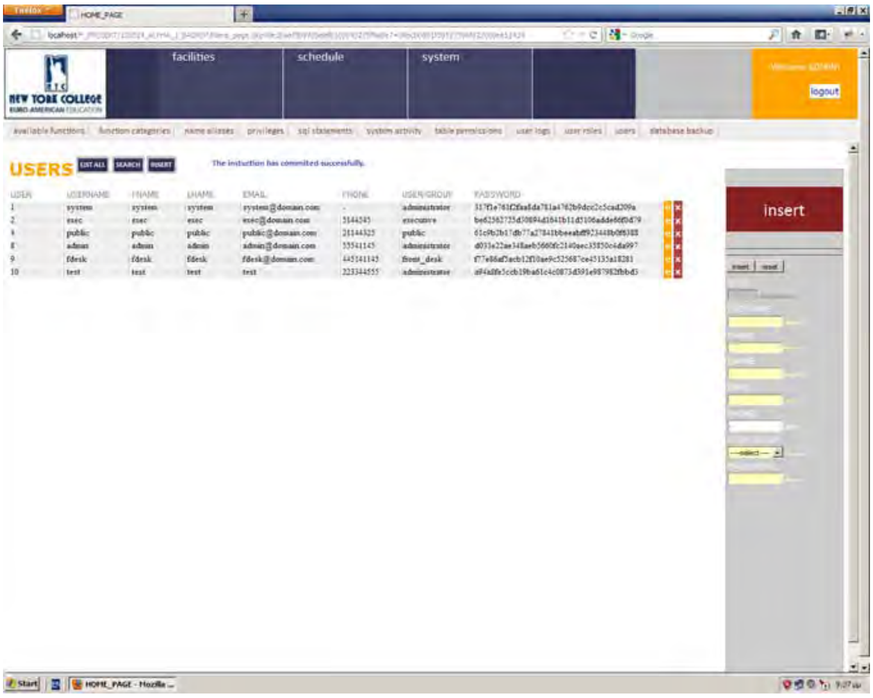
The administrator ‘inserts’ a new user to the system. This new user will grant the ultimate privileged role that the system integrates which is the ‘administrator’ role.



test
test
test
test
223344555
administrator
test

Figure 0.2 ADD A NEW USER WIH ADMINISTRATION PRIVILEGES

The system registers the new user and informs the administrator about the successfully dispatched command. In the background the password of the user will be encoded and the hashed value will be stored instead.



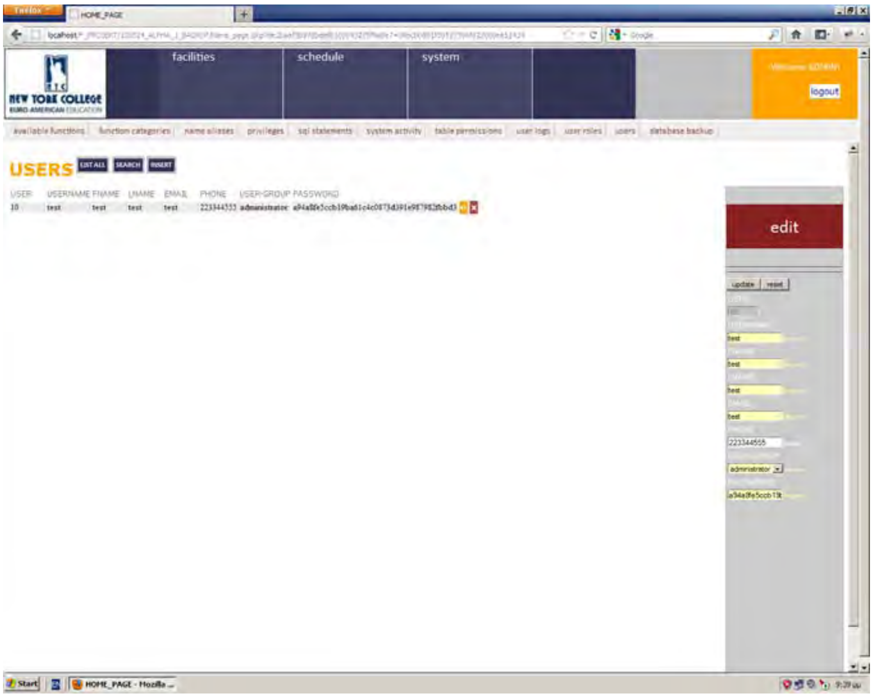
USERS

The instruction has commited successfully.

USER	USERNAME	FNAME	LNAME	EMAIL	PHONE	USER/GROUP	PASSWORD
1	system	system	system	system@domain.com	-	administrator	317f1e761f2faa8da781a4762b9dcc2c5cad209a
2	exec	exec	exec	exec@domain.com	5144545	executive	be62562725d70894d1641b11d5106adde66f0d79
4	public	public	public	public@domain.com	21144325	public	61c9b2b17db77a27841bbeeabff923448b0f8388
8	admin	admin	admin	admin@domain.com	55541145	administrator	d033e22ae348aeb5660fc2140aec35850c4da997
9	fdesk	fdesk	fdesk	fdesk@domain.com	445141145	front_desk	f77e86af5acb12f10ae9c525687ce45135a18281
10	test	test	test	test	223344555	administrator	a94a8fe5ccb19ba61c4c0873d391e987982fbbd3

Figure 0.3 DISPLAY A REGISTERED USER ON SCREEN

The administrator decides that the password that has settled for the user is a ‘weak’ issued password and decides to alter it with a more secure one. The system retrieves the data of the user and displays on screen.



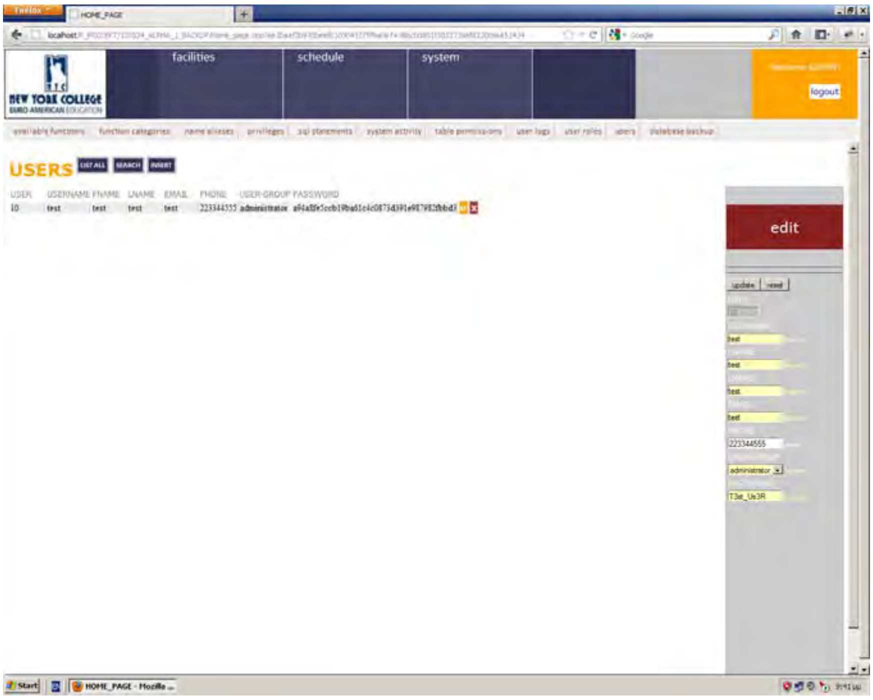
USERS

USER	USERNAME	FNAME	LNAME	EMAIL	PHONE	USER-GROUP	PASSWORD
10	test	test	test	test	223344555	administrator	a94a8fe5ccb19ba61c4c0873d391e987982fbbd3

test
test
test
test
223344555
administrator
a94a8fe5ccb19

Figure 0.4 EDIT A REGISTERED USER

The administrator alters the password of the user.



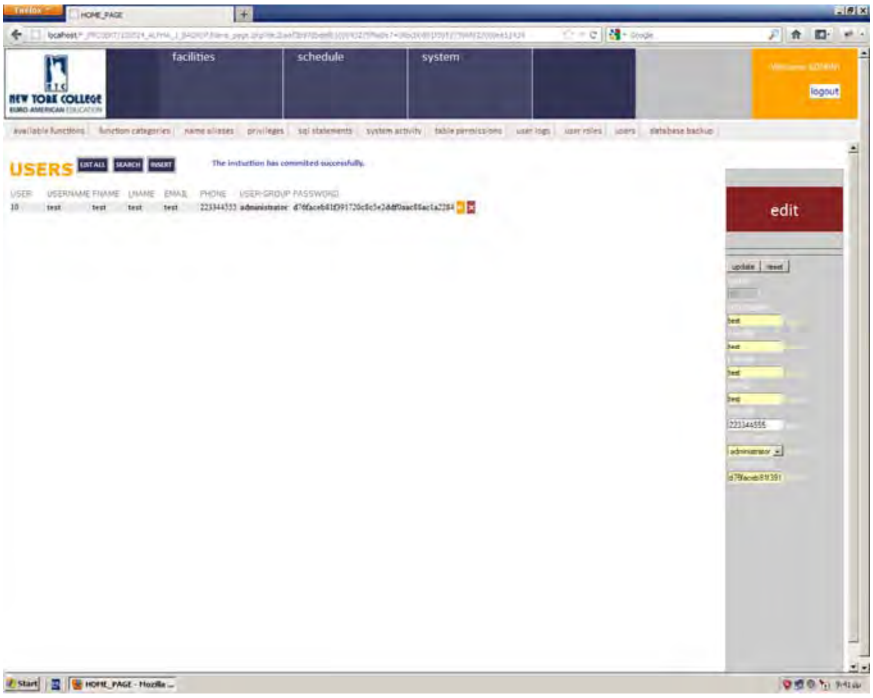
USERS

USER	USERNAME	FNAME	LNAME	EMAIL	PHONE	USER-GROUP	PASSWORD
10	test	test	test	test	223344555	administrator	a94a8fe5ccb19ba61c4c0873d391e987982fbbd3

test
test
test
test
223344555
administrator
T3st_Us3R

Figure 0.5 CHANGE A USER PASSWORD

The administrator submits the new data to the system. The system dispatches successfully the command and for once again encodes the password before storing it to the database.



USERS

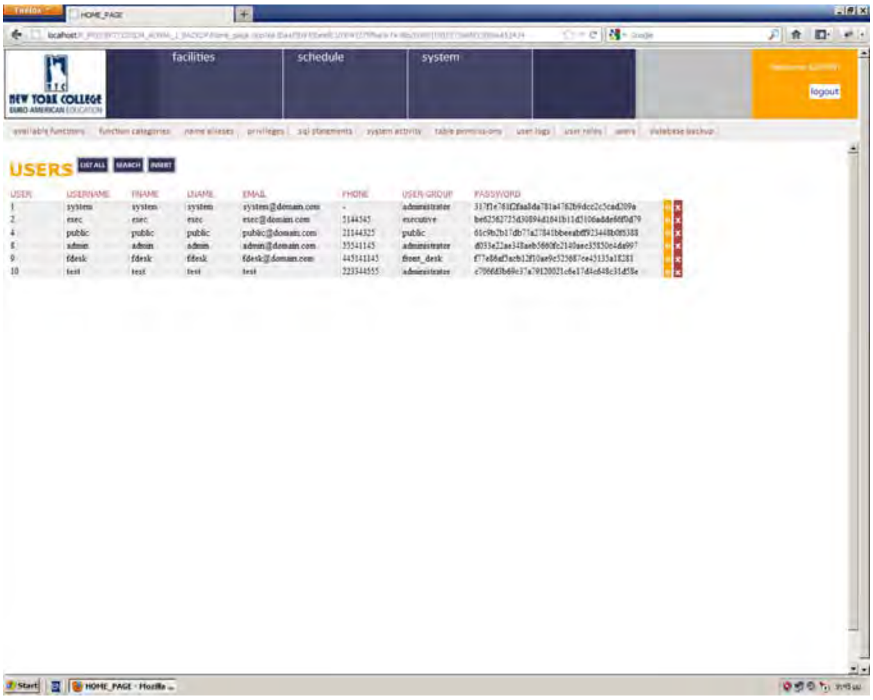
The instuction has commited successfully.

USER	USERNAME	FNAME	LNAME	EMAIL	PHONE	USER-GROUP	PASSWORD
10	test	test	test	test	223344555	administrator	d78faceb81f391720c8c5e2ddf0aac88ac1a2284

test
test
test
test
223344555
administrator
d78faceb81f391

Figure 0.6 SYSTEM RESPONCE ON SUCCESSFUL PASSWORD CHANGE

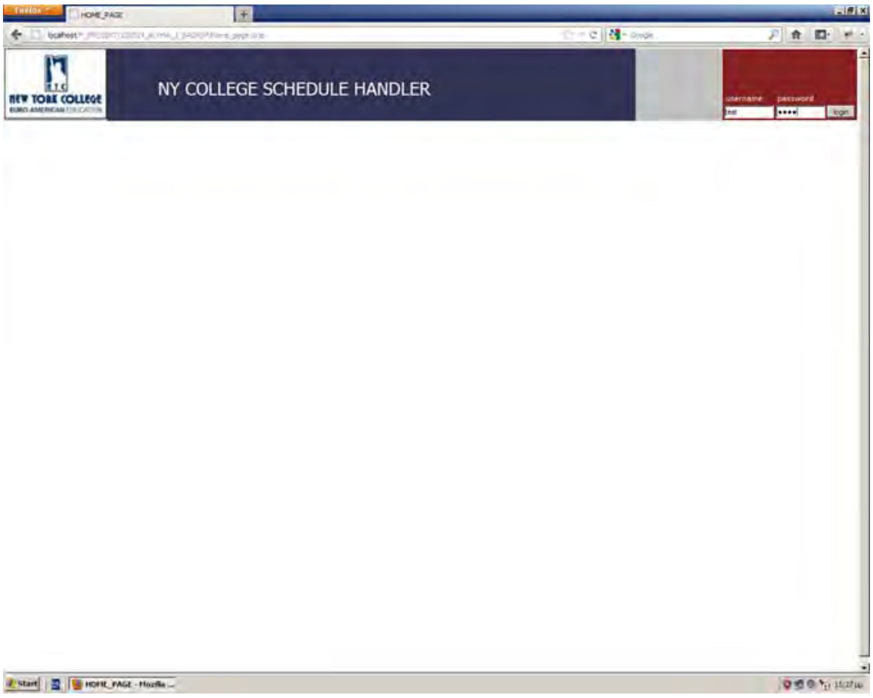
The user commands to previews all the registered users



USER	USERNAME	FNAME	LNAME	EMAIL	PHONE	USER GROUP	PASSWORD
1	system	system	system	system@domain.com	-	administrator	317f1e761f2faa8da781a4762b9dcc2c5cad209a
2	exec	exec	exec	exec@domain.com	5144345	executive	be62562725d30894d1841b11d5106adde66f0d79
4	public	public	public	public@domain.com	21144325	public	61c9b2b17db77a27841bbeeabff923448b0f6388
8	admin	admin	admin	admin@domain.com	35541145	administrator	d033e22ae348aeb5660fc2140aec35850c4da997
9	fdesk	fdesk	fdesk	fdesk@domain.com	445141145	front_desk	f77e86af3acb12f10ae9e525687ee45135a18281
10	test	test	test	test	223344555	administrator	c7066d3b69c37a79120021c6e17d4c648c31d58e

Figure 0.7 VERIFY USER DATA UPDATED

The administrator will move on to verify that the new ‘test’ user has been given sufficient privileges to enter and use the system effectively. The user logs out of the system and inserts the ‘test’ user registration data to the login area in order to validate that the entry.



username: test
password: ••••

Figure 0.8 LOGIN WITH THE A NEW USER'S CREDENTIALS

The user grants entry access to the system given the new 'test' user's data on the login form. Moreover it is clear that the user has also been privileged with the 'administration' role since due to the entry the 'system' button revealed, and this button only displays to highly authorized memberships.

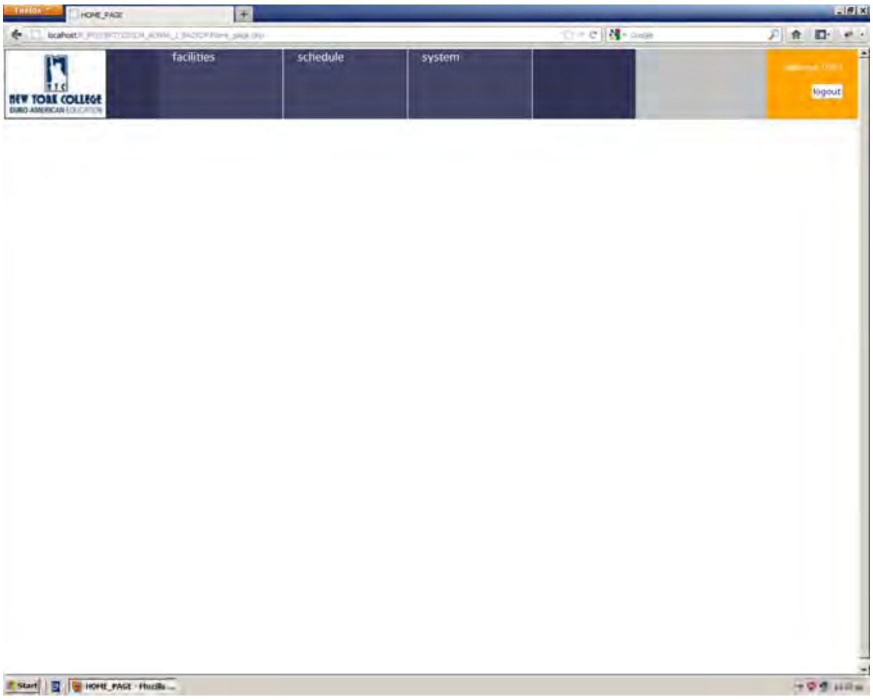
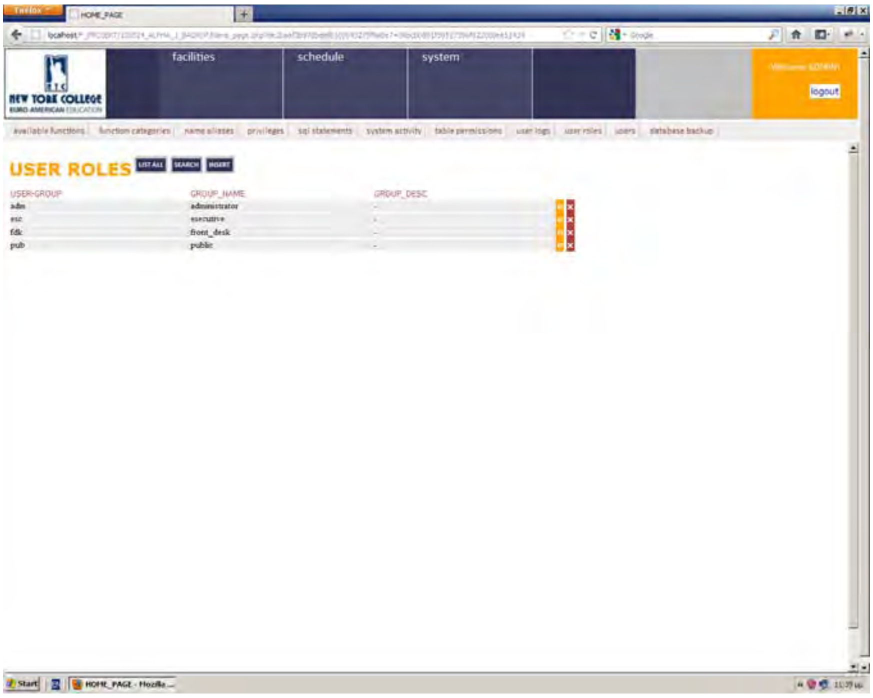


Figure 0.9 A NEW USERS WITH ADMINISTRATION ACCESS GRANTS PRIVILEGED ACCESS TO THE SYSTEM

The administrator will need to create a new privileged role for the system, therefore initially moves under the 'user roles' area.



USER ROLES

USER-GROUP	GROUP_NAME	GROUP_DESC
adm	administrator	-
exc	executive	-
fdk	front_desk	-
pub	public	-

Figure 0.10 DISPLAY ALL THE 'ROLES' THAT EXIST IN THE SYSTEM

The admin select to insert the new 'test' role.

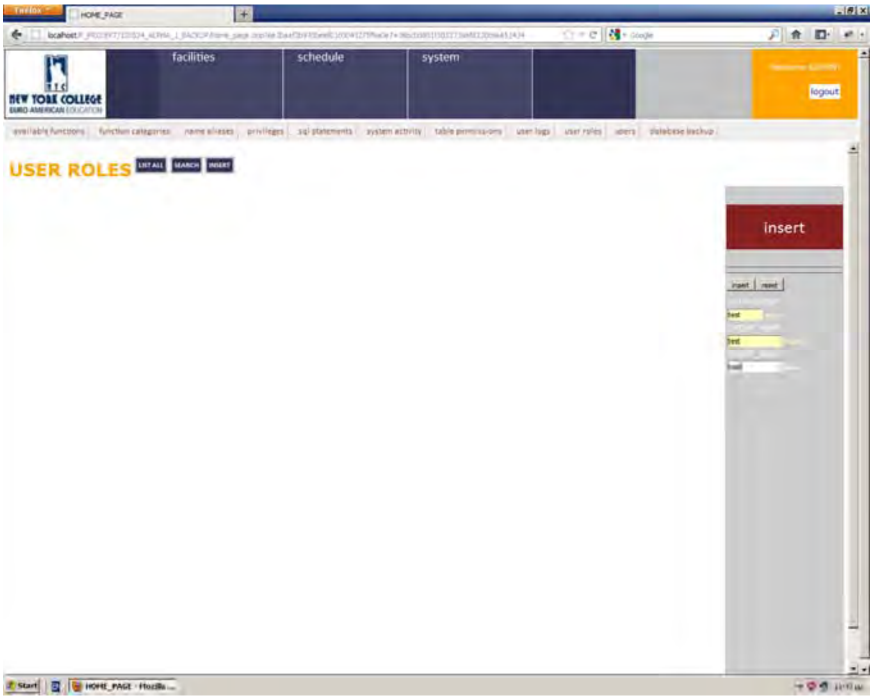
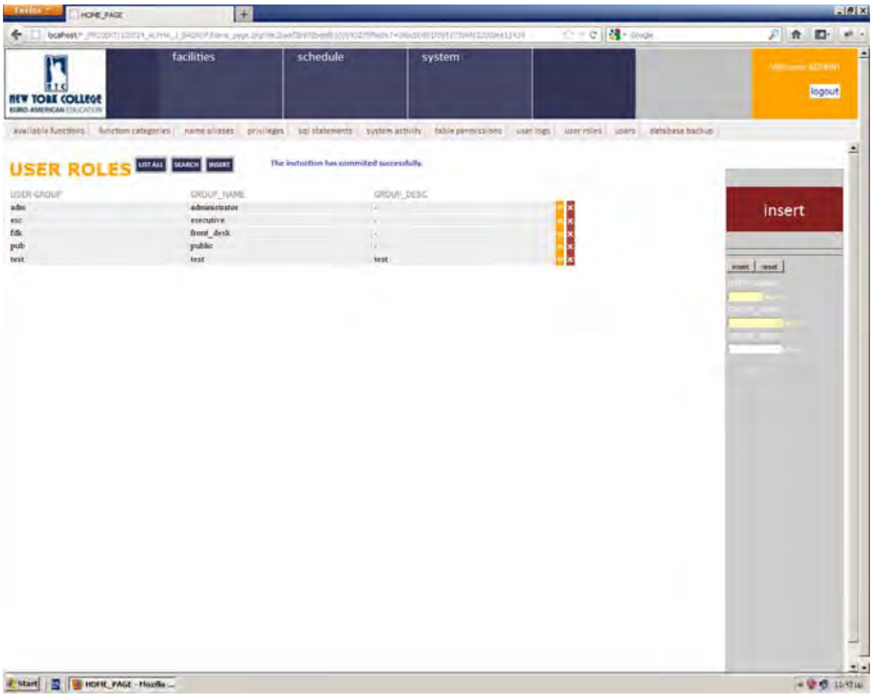


Figure 0.11 CREATE A NEW ROLE FOR THE SYSTEM

The system responds with a message that informs the admin that the last command has been successful and the new role has been enlisted in the list of available roles.



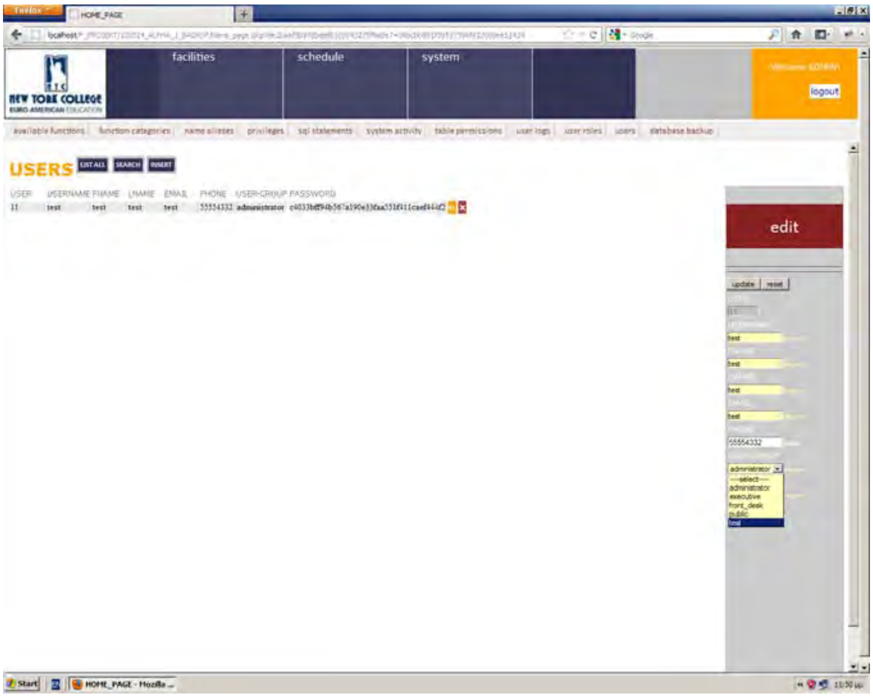
USER ROLES

The instuction has commited successfully.

USER GROUP	GROUP_NAME	GROUP_DESC
adm	administrator	-
exc	executive	-
fdk	front_desk	-
pub	public	-
test	test	test

Figure 0.12 A NEW 'ROLE' IS CREATED

The admin will need to return to ‘users’ area and alter the role of the last registered ‘test’ user as from now on the user will grant the ‘test’ role permissions.



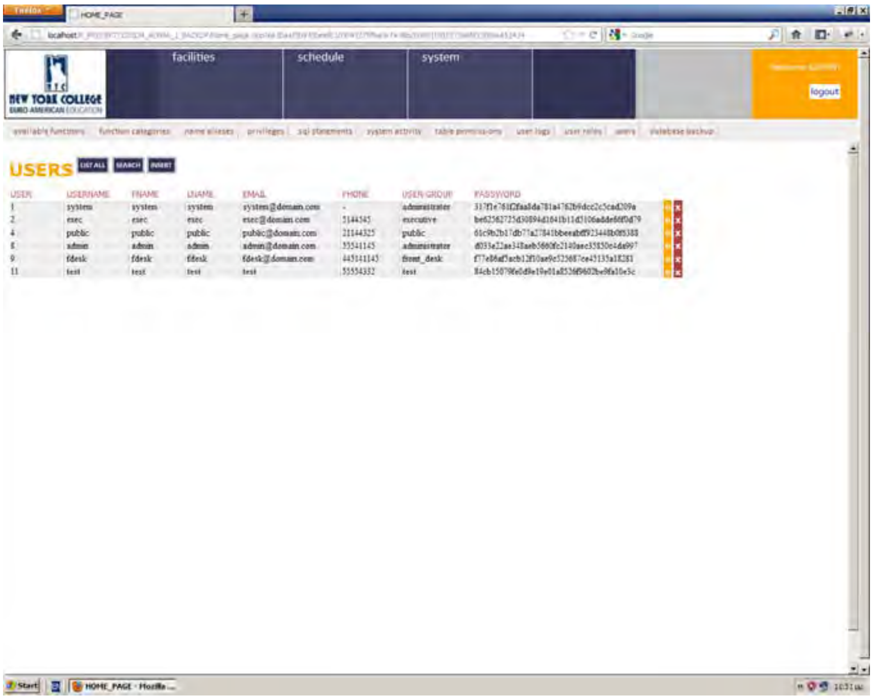
USERS

USER	USERNAME	FNAME	LNAME	EMAIL	PHONE	USERGROUP	PASSWORD
11	test	test	test	test	55554332	administrator	c4033bff94b567a190e33faa551f411caef444f2

11
test
test
test
test
55554332
administrator
---select---
administrator
executive
front_desk
public
test

Figure 0.13 ASSIGN A NEW ROLE TO A NEW USER

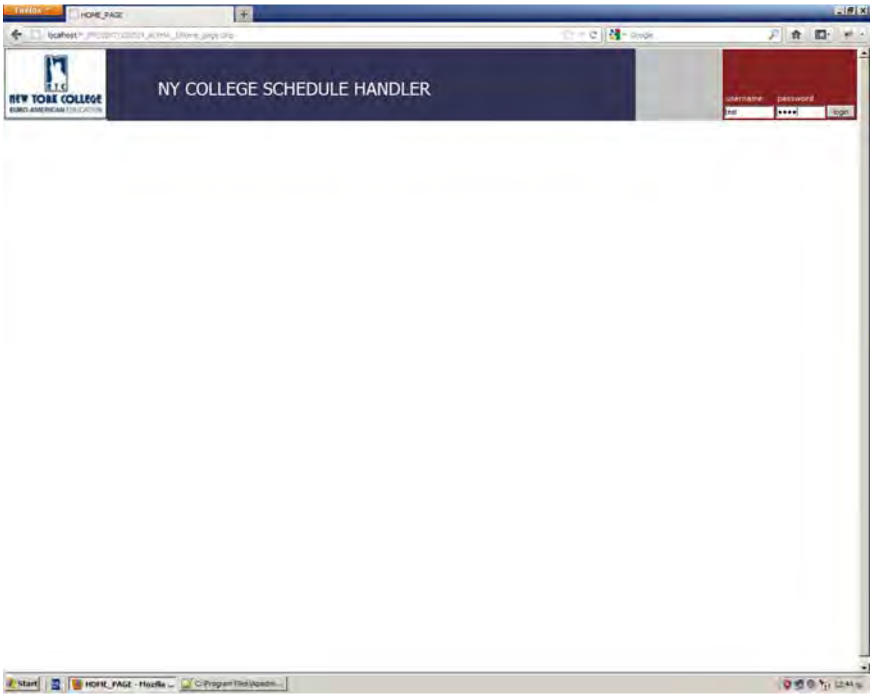
The ‘test’ user has acquired the new ‘test’ role in the system.



USER	USERNAME	FNAME	LNAME	EMAIL	PHONE	USER GROUP	PASSWORD
1	system	system	system	system@domain.com	-	administrator	317f1e761f2faa8da781a4762b9dcc2c5cad209a
2	exec	exec	exec	exec@domain.com	5144545	executive	be62582725d30894d1841b11d5106adde66f0d79
4	public	public	public	public@domain.com	21144325	public	61c9b2b17db77a27841bbeeabff923448b0f5388
8	admin	admin	admin	admin@domain.com	55541145	administrator	d033e22ae348aeb5660fc2140aec35850c4da997
9	fdesk	fdesk	fdesk	fdesk@domain.com	445141145	front_desk	f77e86af5acb12f10ae9e523687ce45135a18281
11	test	test	test	test	55554332	test	84cb150796e0d9e19e01af526f9602be9fa10e5c

Figure 0.14 A NEW ROLE IS SUCCEFULLY ATTACHED TO A NEW USER

The admin will need to log out and examine the new role that has just created using the ‘test’ user login data.



username: test
password: ••••

Figure 0.15 A NEW USER WITH NEW ROLE ATTATCHED LOGS IN THE SYSTEM

The admin submits the ‘login’ button and the system allows the ‘test’ user to enter the system. Nevertheless the ‘test’ user has not yet been given any sufficient permission to any of the functions of the system therefore on the entry cannot preview any button, thus the user is stacked in the welcome page.

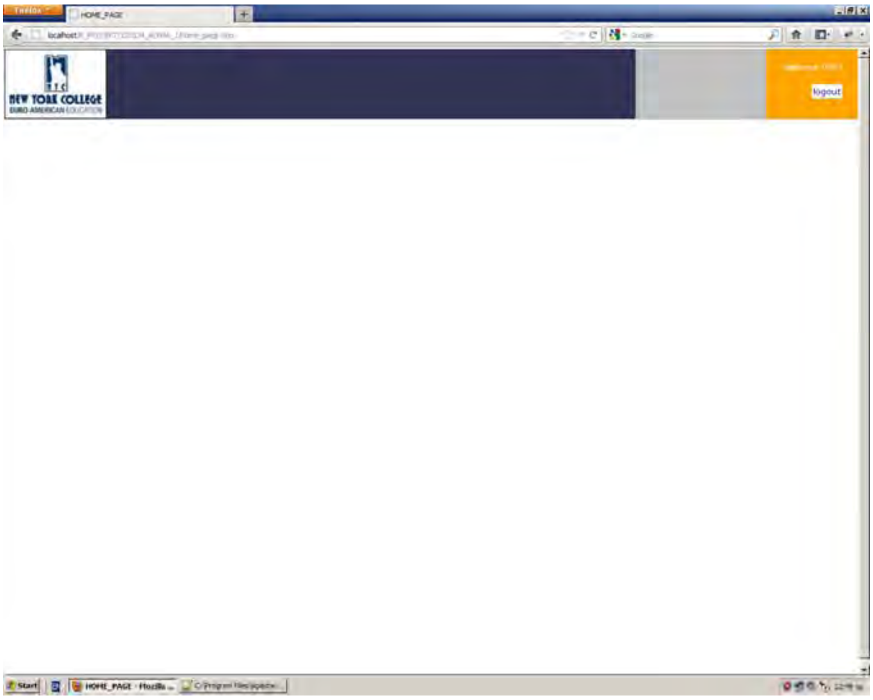


Figure 0.16 A USER WITH A NEW ROLE ATTACHED SUCCESSFULLY LOGS IN THE SYSTEM

The admin will enhance the ‘test’ user role with a single permission and that is to allow this role to preview the daily schedule of the organization. Probably the role is intended for the public viewing of the current day schedule for the students.

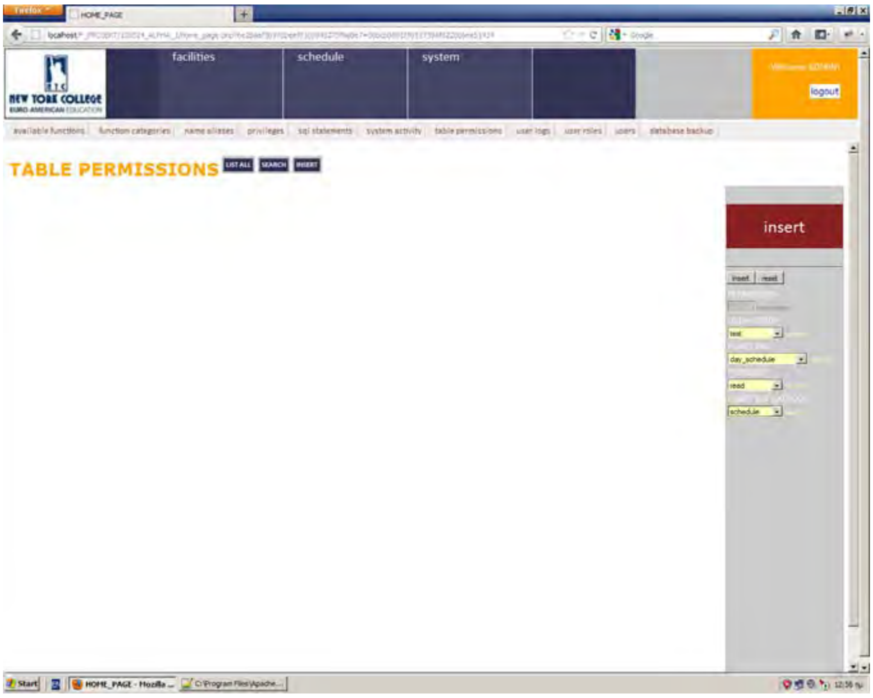


TABLE PERMISSIONS

test

day_schedule

read

schedule

Figure 0.17 ATTACH PERMISSIONS TO A NEW ROLE

The admin checks to verify the privileges for the 'test' role. The admin used the searching mechanism to avoid displaying to many entries on the display. The system responds with outputting the single permission that the roles has granted and that is to 'read' the 'day schedule' data.

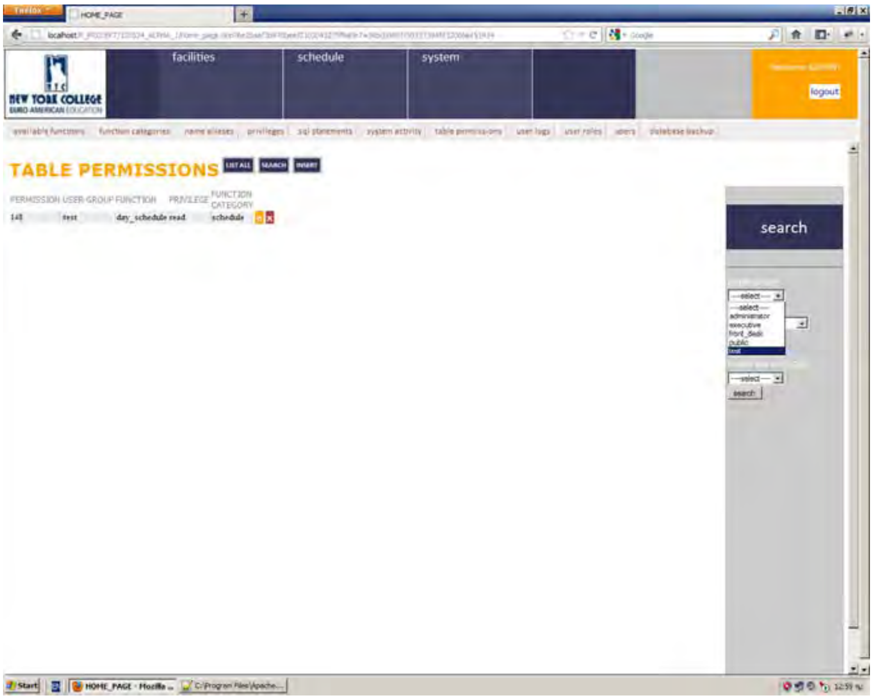


TABLE PERMISSIONS

PERMISSION	USER GROUP	FUNCTION	PRIVILEGE	FUNCTION CATEGORY
148	test	day_schedule	read	schedule

Figure 0.18 TABLE PERMISSION IS ATTACHED TO A NEW ROLE

The admin logs out the system and logs in using the 'test' users identification. This time the system provides a 'schedule' button to the user that will be very helpful for moving to another page.

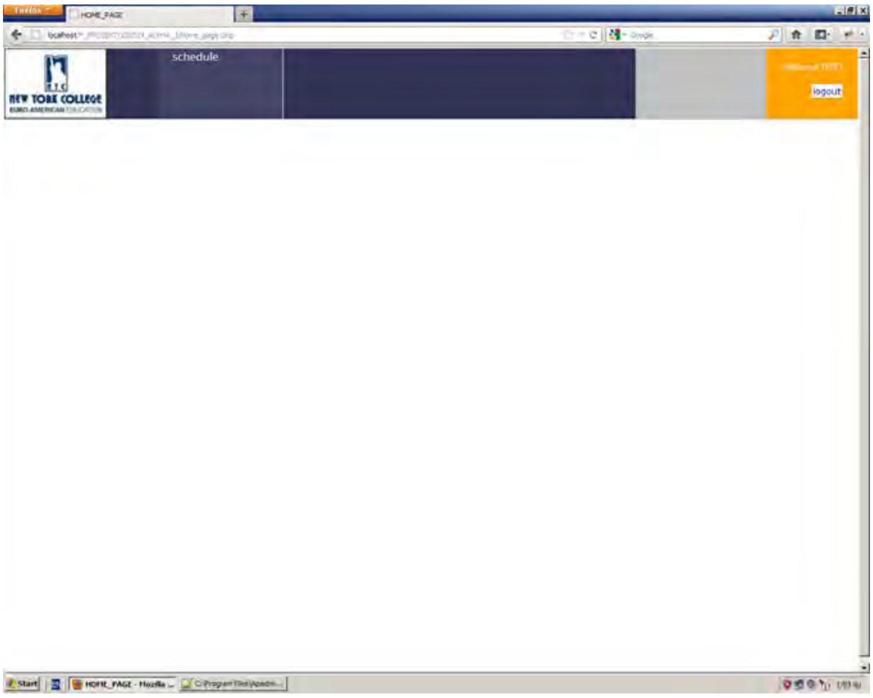


Figure 0.19 A USER WITH A NEW ROLE ATTACHED ONLY HAS CERTAIN PERMISSIONS

The admin follows the path that the button leads to and generates the 4 buttons that resides under the ‘schedule’ area.

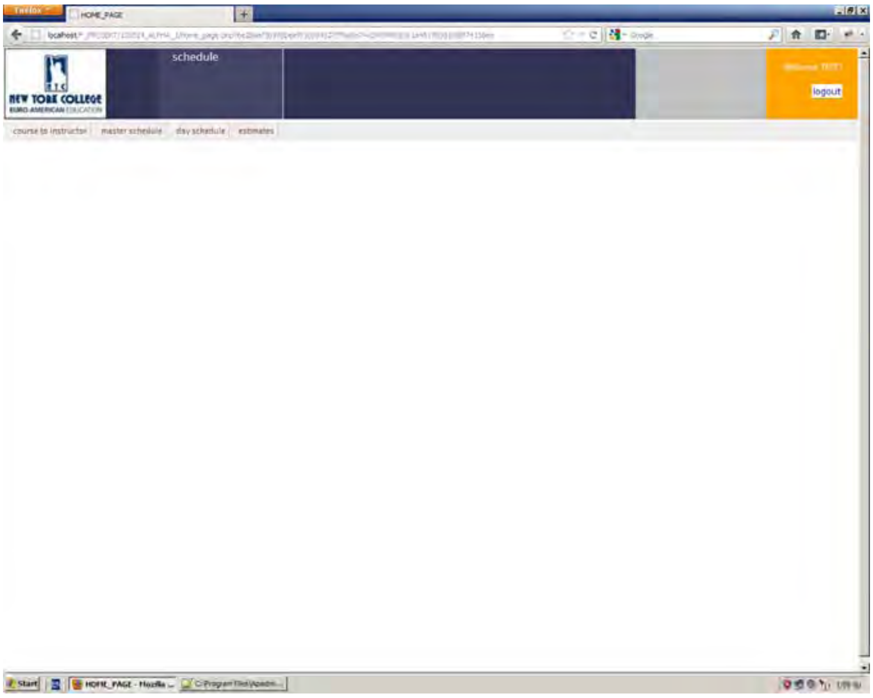


Figure 0.20 A NEW ROLE REVEALS THE ACCESS THAT HAS BEEN ASSIGNED

The admin visits pages that has no permission to access. Nevertheless before previewing the tables data, the system will block any further activity by hiding all of the ‘action’ buttons.

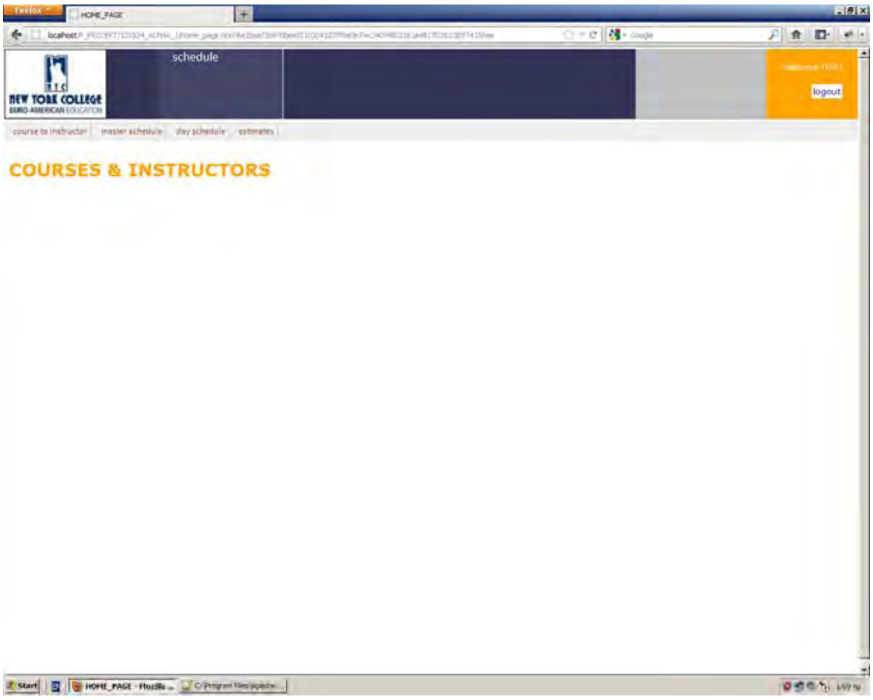
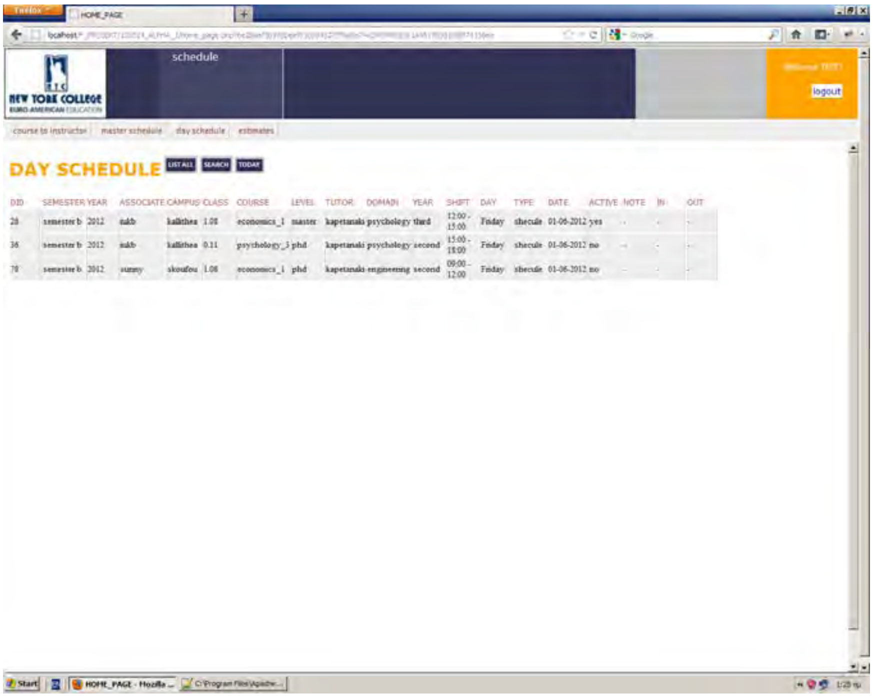


Figure 0.21 THE SYSTEM WILL NOT REVEAL 'ACTION' BUTTONS TO ROLES THAT DO NOT HAVE EXPLICIT PERMISSION

The admin moves to the 'day schedule' page that is permitted to display its data. The system generates 'action' buttons but hides the 'insert' but also 'edit' and 'delete' buttons on the records listing.



DAY SCHEDULE

DID	SEMESTER	YEAR	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	TYPE	DATE	ACTIVE	NOTE	IN	OUT
28	semester b	2012	nikb	kallithea	1.08	economics_1	master	kapetanaki	psychology	third	12:00 - 15:00	Friday	shecule	01-06-2012	yes	-	-	-
36	semester b	2012	nikb	kallithea	0.11	psychology_3	phd	kapetanaki	psychology	second	15:00 - 18:00	Friday	shecule	01-06-2012	no	-	-	-
78	semester b	2012	sunny	skoufou	1.08	economics_1	phd	kapetanaki	engineering	second	09:00 - 12:00	Friday	shecule	01-06-2012	no	-	-	-

Figure 0.22 THE SYSTEM WILL ALLOW TO A NEW ROLE ONLY THE ACCESS THAT IS ASSINGED. THE 'EDIT' ACTION IS NOT REVEALED

Note

The pages that were revealed to the created 'role' should not be displayed to users even though they have succeeded to restrain their data access effectively. Nevertheless unauthorized user should not be allowed to preview functions of the system that were not intended to in the first place. That conflict with the appearance of other tables to the user has emerged because of the fact that all members of the 'schedule' family of functions are designed as standalone pages of the system because they incorporate functionality that adds value distinctively to their domains. On the other hand, if the created role had been assigned to access a table that evolves in the 'facilities' family of functions then other pages would not be displayed on screen, and this would not be an issue.

The admin assigns additionally the permission to the 'test' role to access the campuses data stored in the 'campus' table.

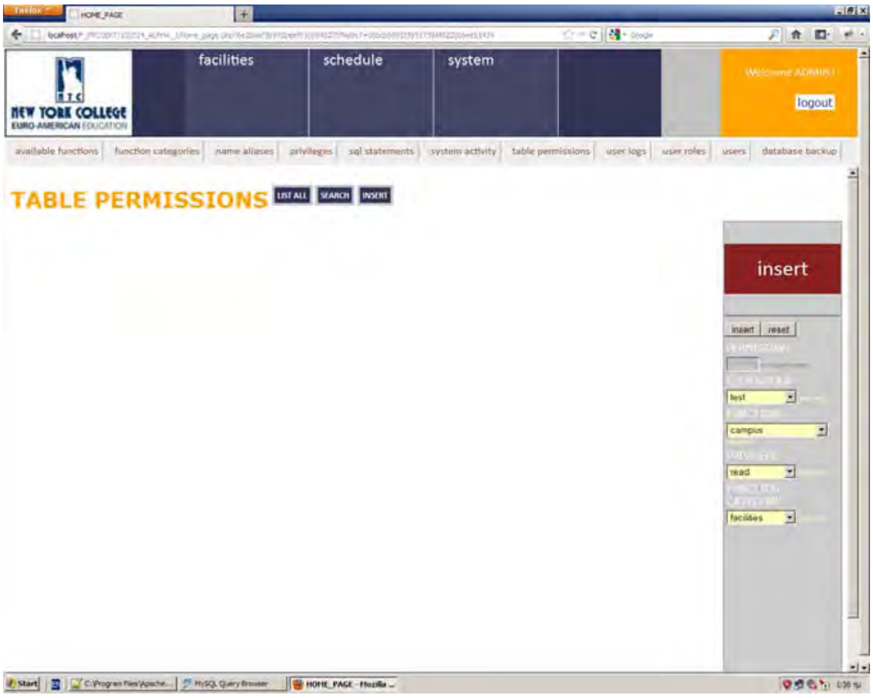


TABLE PERMISSIONS

insert

insert reset

test

campus

read

facilities

Figure 0.23 A NEW ROLE ACQUIRES MORE PERMISSIONS ON THE SYSTEM TABLES

The admin checks that the permission was correctly given to the ‘role’

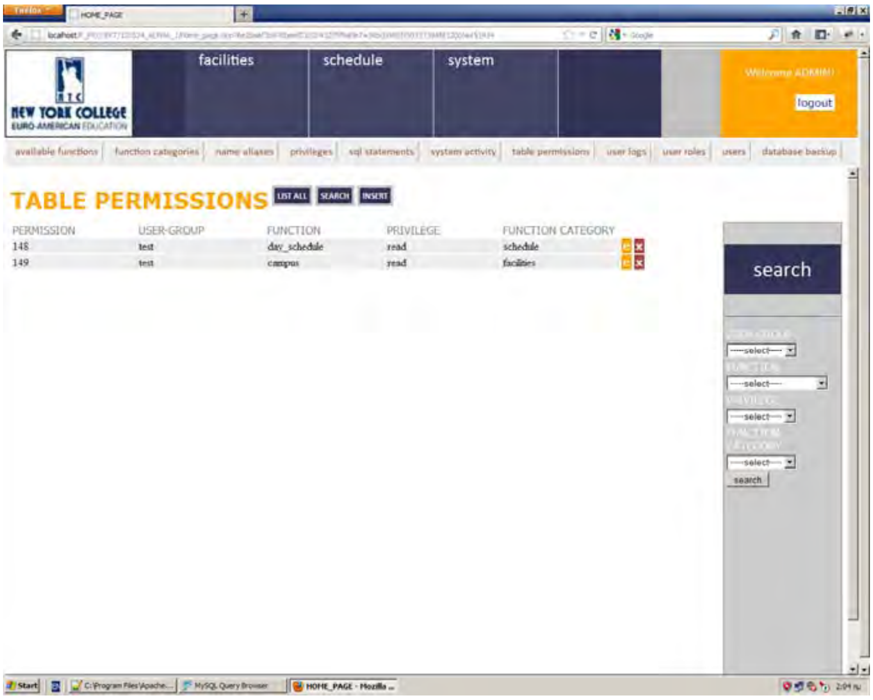


TABLE PERMISSIONS

PERMISSION	USER-GROUP	FUNCTION	PRIVILEGE	FUNCTION CATEGORY
148	test	day_schedule	read	schedule
149	test	campus	read	facilities

Figure 0.24 THE ACCESS PRIVILEGES OF A NEW ROLE ARE VERIFIED ON THE 'TABLE PERMISSIONS' PAGE

The admin uses the 'test' role to enter the system.An additional button is displayed at the top implying the 'test' user access to this page as well

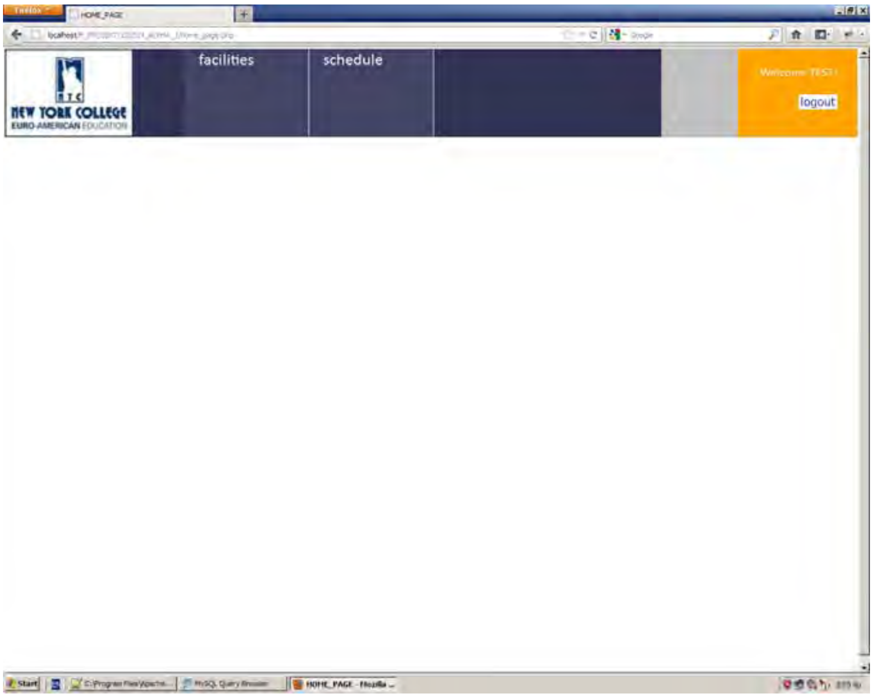


Figure 0.25 A NEW ROLE ENTERS THE SYSTEM AND VERIFIES THE ACCESS PERMISSIONS THAT IS GRANTING. MORE BUTTONS ARE AVAILABLE

The admin clicks the button and enters the 'facilities' area. The domain displays a single button to the user as it was originally arranged during the permissions assignments.

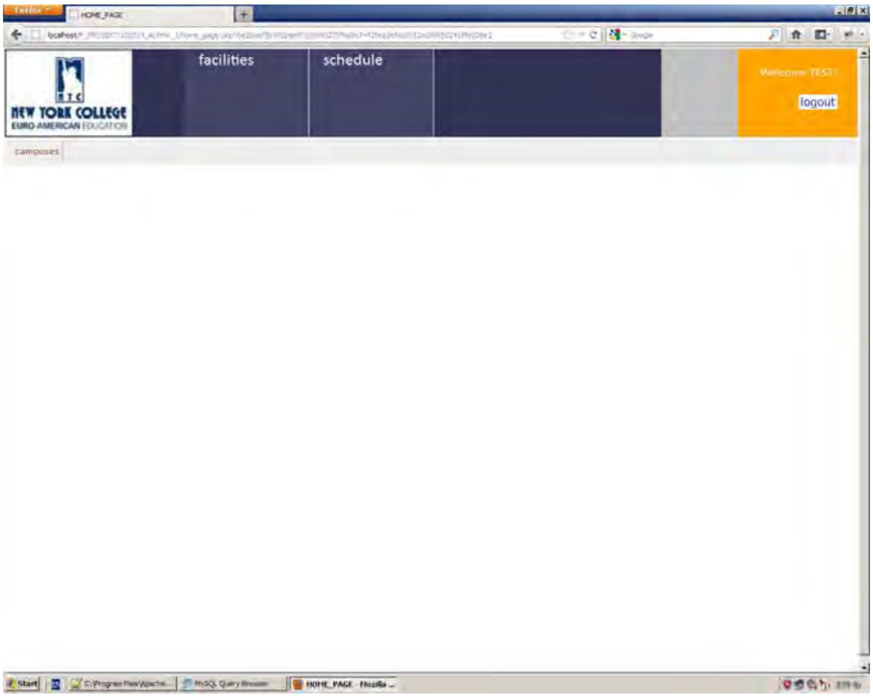
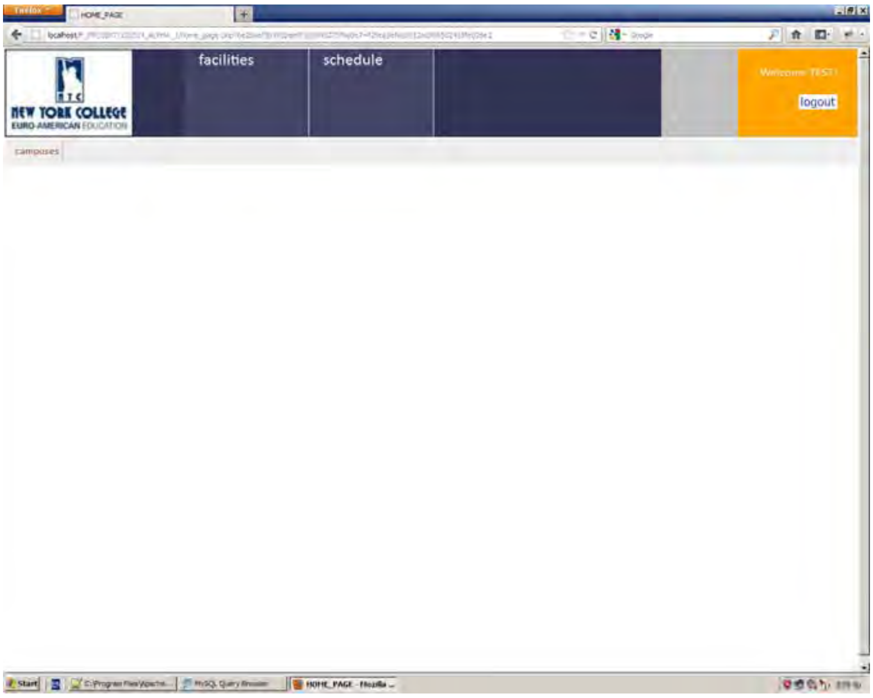
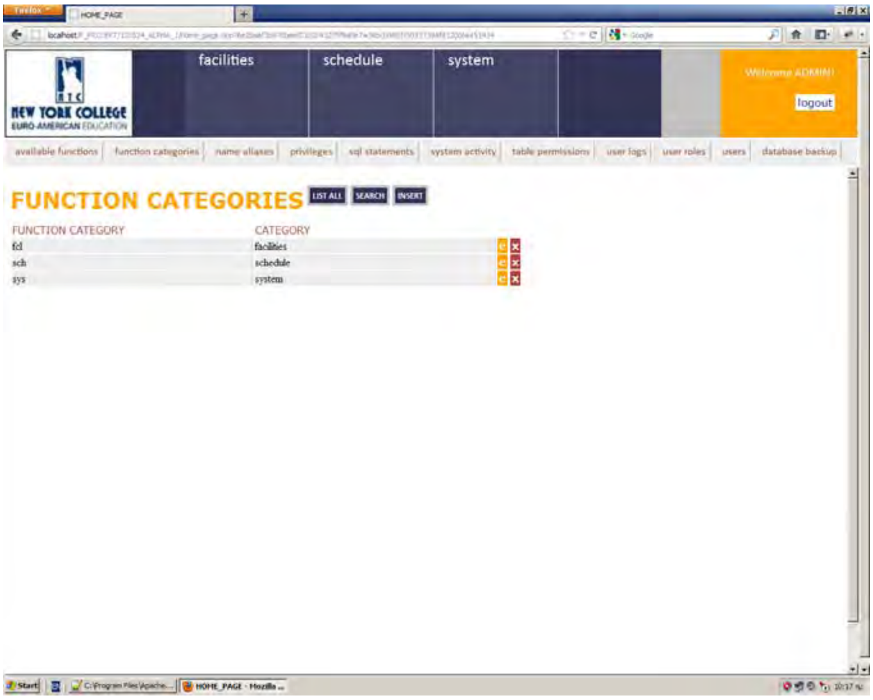


Figure 0.26 A NEW ROLE REVEALS THE SUB-BUTTONS ACCESS THAT IS GRANTING

The admin using the 'test' role clicks the campuses button to preview the table data. The system displays the data on screen and at the same time prevents the user from having any further control over their manipulation, hiding the action buttons.



The admin ‘lists all’ function categories The system displays the distinct categories on screen.



FUNCTION CATEGORIES

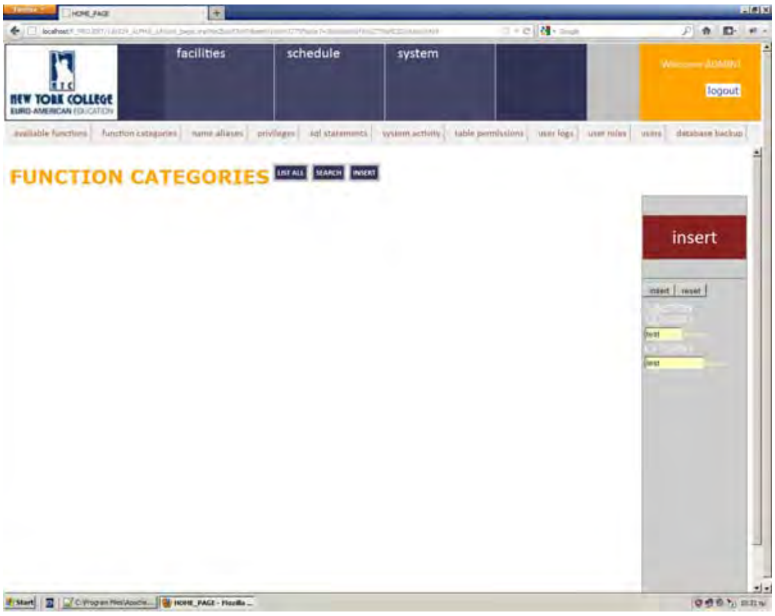
FUNCTION CATEGORY	CATEGORY
fcl	facilities
sch	schedule
sys	system

Figure 0.27 ALL ‘FUNCTION-CATEGORY’ DATA

Note

The function categories are the names of the groups that the functions of the system becoming are part-members according to the semantic scope that they deploy their function. In fact the function categories are the represented by the by the main navigation menu that the users sees when login the system.

The admin creates a new category of functions.

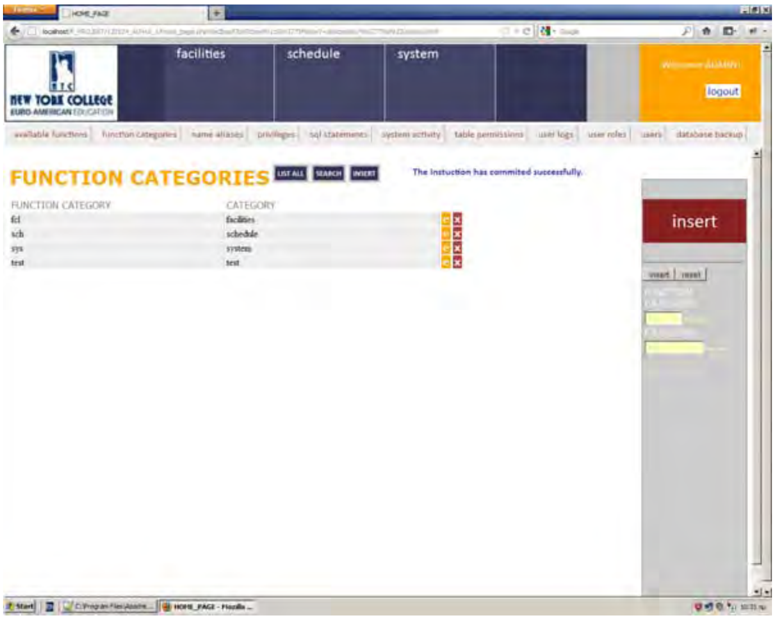


test

test

Figure 0.28 CREATE A NEW CATEGORY OF FUNCTIONS

The admin submits the new ‘function category’ and the system informs that the action has been dispatched successfully.



The Instuction has commited successfully.

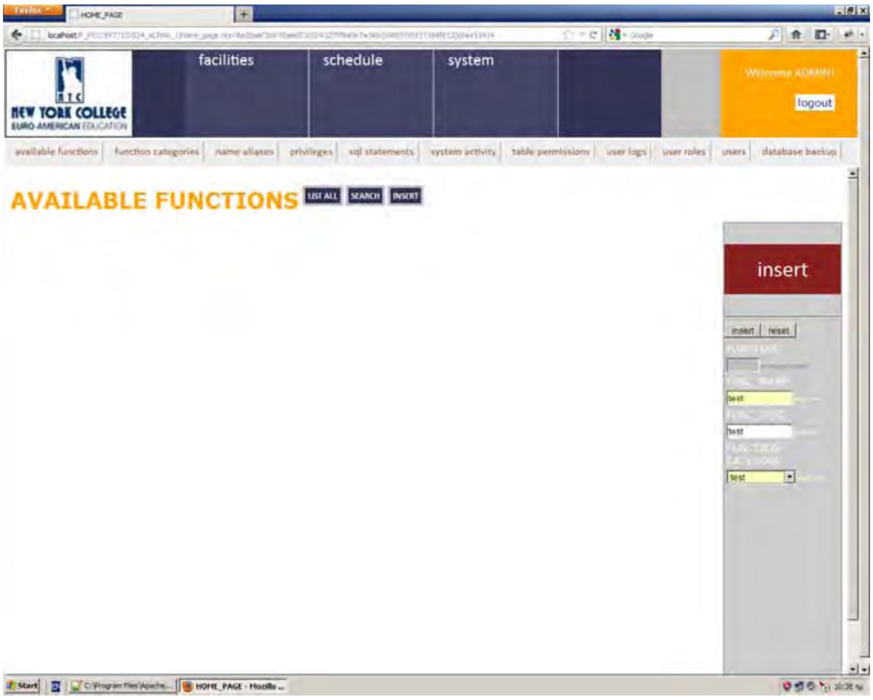
FUNCTION CATEGORY	CATEGORY
fcl	facilities
sch	schedule
sys	system
test	test

Figure 0.29 VERIFY A NEW CATEGORY IS CREATED

Note

The new ‘function category’ button cannot be revealed because there is no ‘function’ that exists under this domain yet, neither a function of the category has been assigned to a user.

The admin creates a new function that belongs to the previously created ‘test’ category of functions.



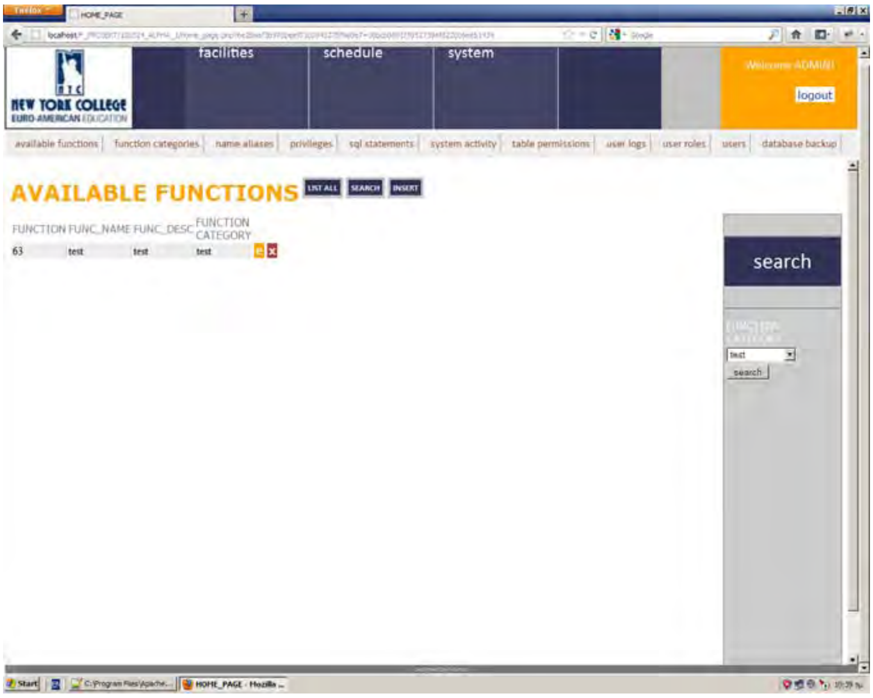
test

test

test

Figure 0.30 CREATE A NEW FUNCTION

The admin checks that the ‘test’ function was efficiently created by using the search mechanism and submitting a search with the keyword ‘test’.The system finds the ‘test’ function and displays on screen.



FUNCTION	FUNC_NAME	FUNC_DESC	FUNCTION CATEGORY
63	test	test	test

test

Figure 0.31 VERIFY A NEW FUNCTION IS CREATED

The admin moves to 'table permissions' area in order to allow the 'test' role to access the 'test' page. Admin issues those permissions to the system and submits. The admin checks whether the permission has been truly appended to the 'test' user by using the search mechanism and issuing the keyword 'test' for the user group. The system collects all the permissions to the user-group 'test' and displays on screen.

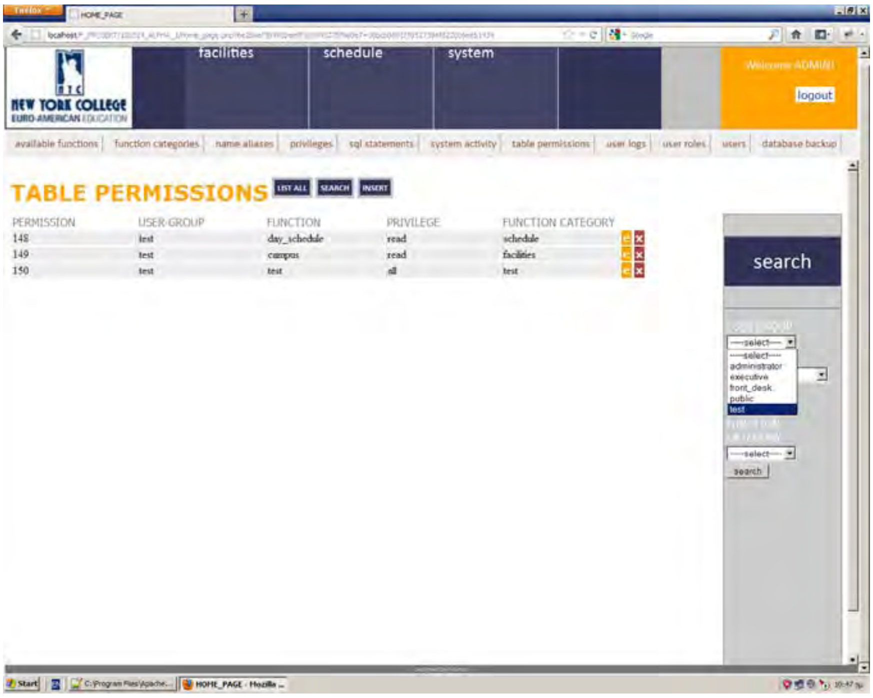


TABLE PERMISSIONS

PERMISSION	USER GROUP	FUNCTION	PRIVILEGE	FUNCTION CATEGORY
148	test	day_schedule	read	schedule
149	test	campus	read	facilities
150	test	test	all	test

Figure 0.32 ATTACH USER PERMISSION TO A NEW FUNCTION

The admin logs out the system and using the 'test' user identity logs back in to the system.The system displays the 'welcome' page and at the main navigation menu displays a 'test' area that actually is the 'test' category of functions that was just before created by the admin. Nevertheless the area is not providing any further functionality the 'test' user and the sub-navigation menu is empty.

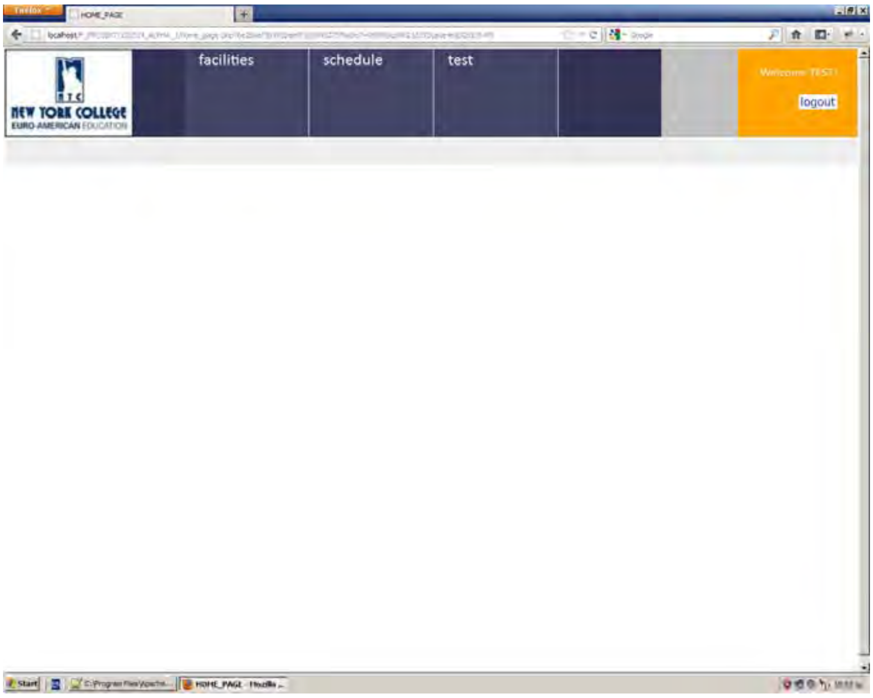
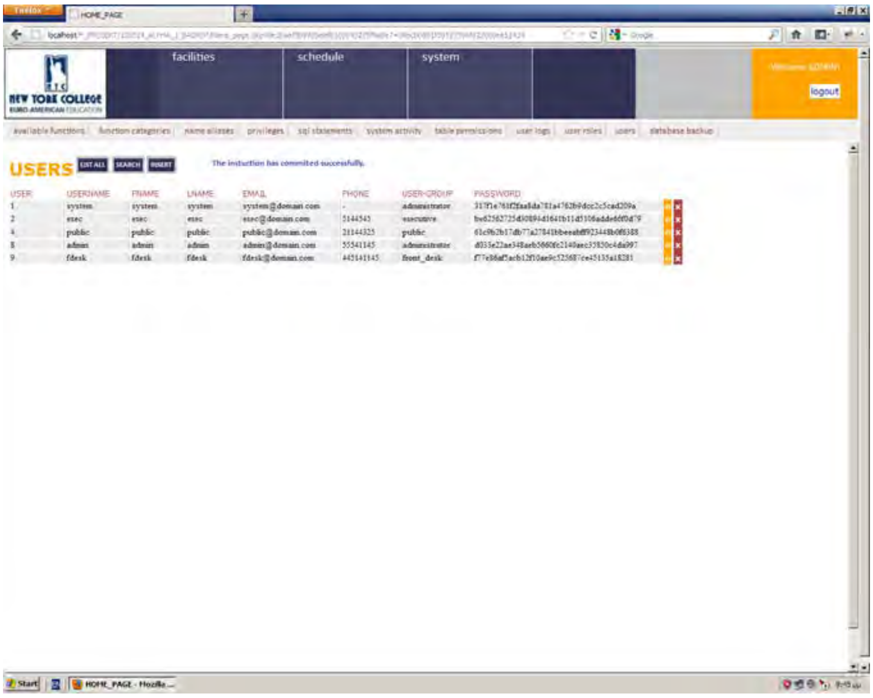


Figure 0.33 A USER HAS PRIVILEGES TO A NEW CATEGORY OF FUNCTIONS (MAIN BUTTON)

Note

The system was not processed further as to develop functionality for the new buttons, because in order for the new button to extent the system functionality the system needs to create new database tables and provide the new users with permissions to access along. This can be approved as further functionality for the system to accommodate in a version and after requires some modification in the code. In this future version the system could additionally select distinctively tables that already exist in the database and provide their function under newly created buttons.

The administrator eventually deletes the registered user because before the permissions are given for this role the system must be configured further for hiding irrelevant pages from the role, something the system did not covered while at the ‘schedule’ family of functions. The system informs about the successfully issued command.



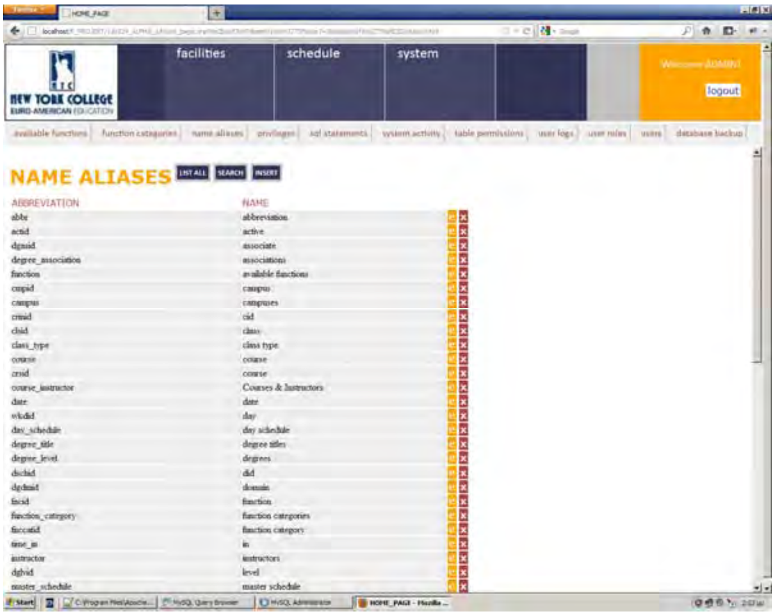
USERS

The instruction has commited successfully.

USER	USERNAME	FNAME	LNAME	EMAIL	PHONE	USER-GROUP	PASSWORD
1	system	system	system	system@domain.com	-	administrator	317f1e761f2faa8da781a4762b9dcc2c5cad209a
2	exec	exec	exec	exec@domain.com	5144545	executive	be62562725d90894d1641b11d5106addedd0d479
4	public	public	public	public@domain.com	21144325	public	61c9b2b17db77a27841bbeeabff923448b0f6388
8	admin	admin	admin	admin@domain.com	55541145	administrator	d033e22ae348aeb5660fc2140aec35850c4da997
9	fdesk	fdesk	fdesk	fdesk@domain.com	44514145	front_desk	f77e86af5acb12f10ae9c525687ce45135a18281

Figure 0.34 A USER IS DELETED FROM THE SYSTEM

The admin moves under the territory of the 'name aliases' button and 'lists all' the aliases that exist in the system. The system displays the list on screen.



NAME ALIASES

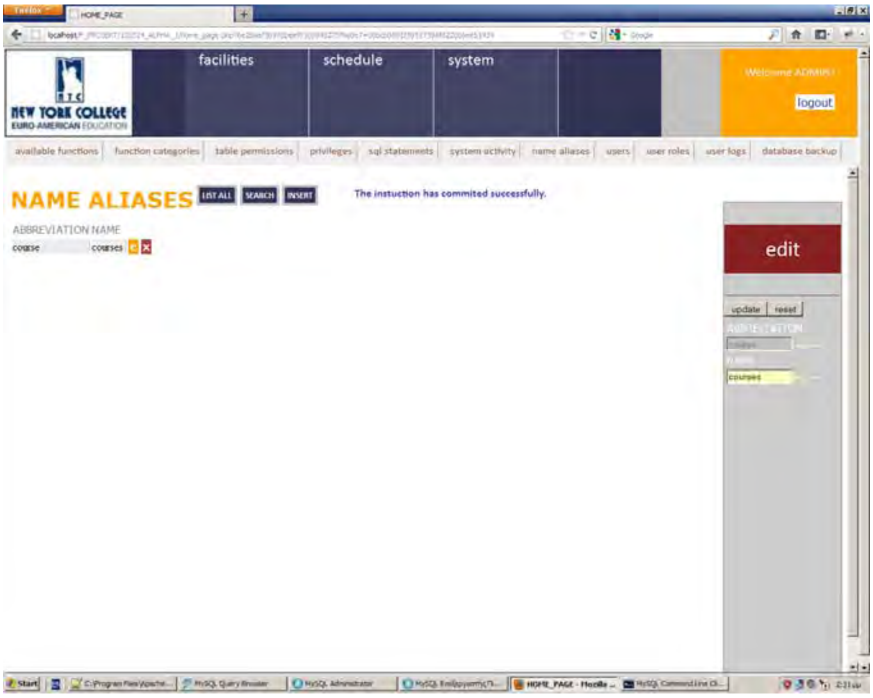
ABBREVIATION	NAME
abbr	abbreviation
actid	active
dgnaid	associate
degree_association	associations
function	available functions
cmpid	campus
campus	campuses
crnid	cid
clsid	class
class_type	class type
course	course
crsid	course
course_instructor	Courses & Instructors
date	date
wkdid	day
day_schedule	day schedule
degree_title	degree titles
degree_level	degrees
dschid	did
dgdmid	domain
fncid	function
function_category	function categories
fnccatid	function category
time_in	in
instructor	instructors
dglvid	level
master_schedule	master schedule

Figure 0.35 ALL DATA OF THE 'NAME ALIASES' TABLE

Note

The' name aliases' table hosts both table names and column names that exist in the table. Even thought the system underneath the display stores and communicates the true names of the tables/columns during its function, nevertheless displays more meaningful and readable names for the users.

The admin selects the 'course' name and changes the name of the table 'course' to 'courses'



The instuction has commited successfully.

ABBREVIATION NAME
course courses

ABBREVIATION
NAME
courses

Figure 0.36 A TABLE ALIAS NAME IS ALTERED

The admin moves the 'courses' table to regard the change and the system displays pages as 'courses'.

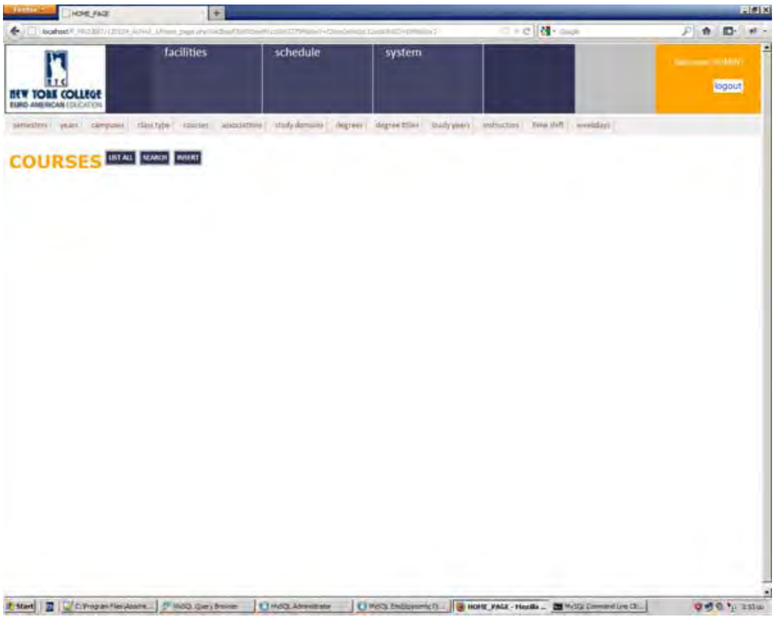


Figure 0.37 A TABLE ALIAS HEADER NAME IS CHANGED

The user moves to the 'user logs' page.

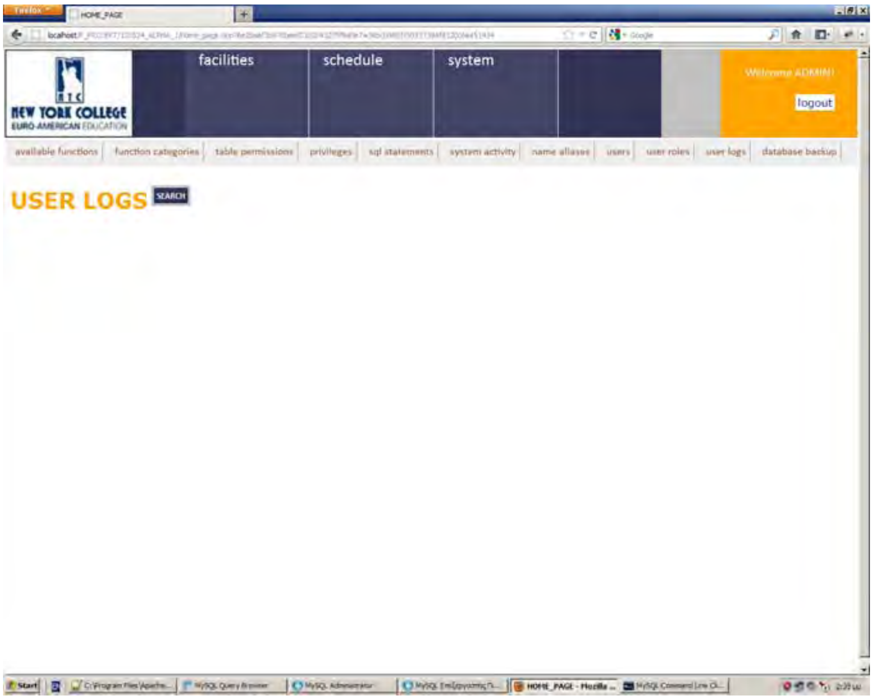


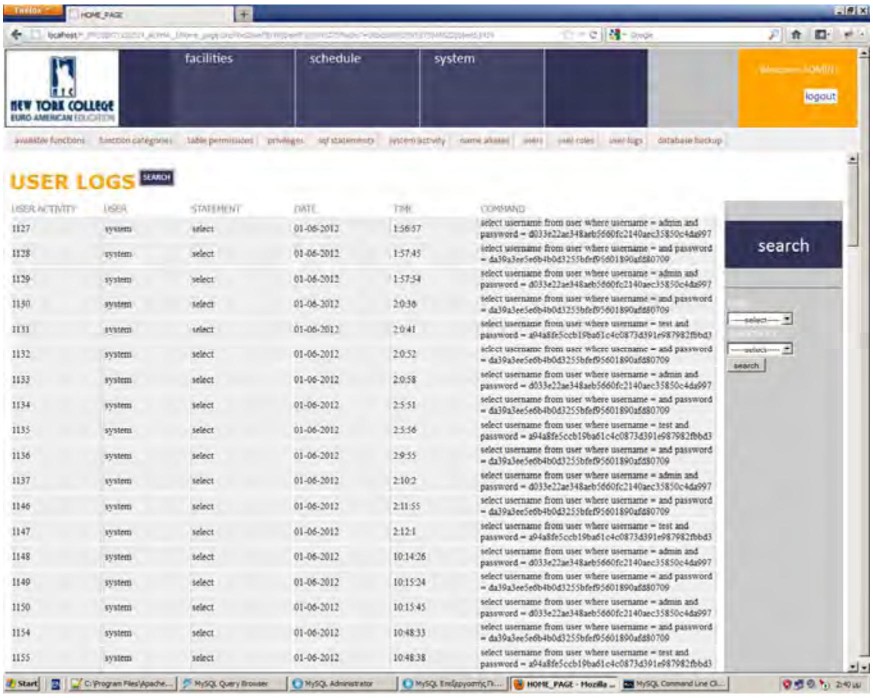
Figure 0.38 THE 'USER-LOGS' TABLE. 'LIST ALL' BUTTON IS DELIBERATELY HIDDEN

Note

The system displays the 'user logs' page but provides only a search button. Obviously the system offers for the page reduced functionality since the data that are hosted within should not be given the ability to manipulate, otherwise the whole concept would apply a controversial meaning for the system.

In complement the system avoid to provide the 'list all' button since the data of the table are of a huge volume thus it would be trivial to provide them all in once. For this page the only available routine for examining the registry is to make use of the 'search' mechanism.

The admin chooses to search the log activity and initially selects to display the login attempts that have been made thus far to the system. The system replies with a listing of the login cases that it has experienced thus far at the same time hides any action button that could manipulate the resources.

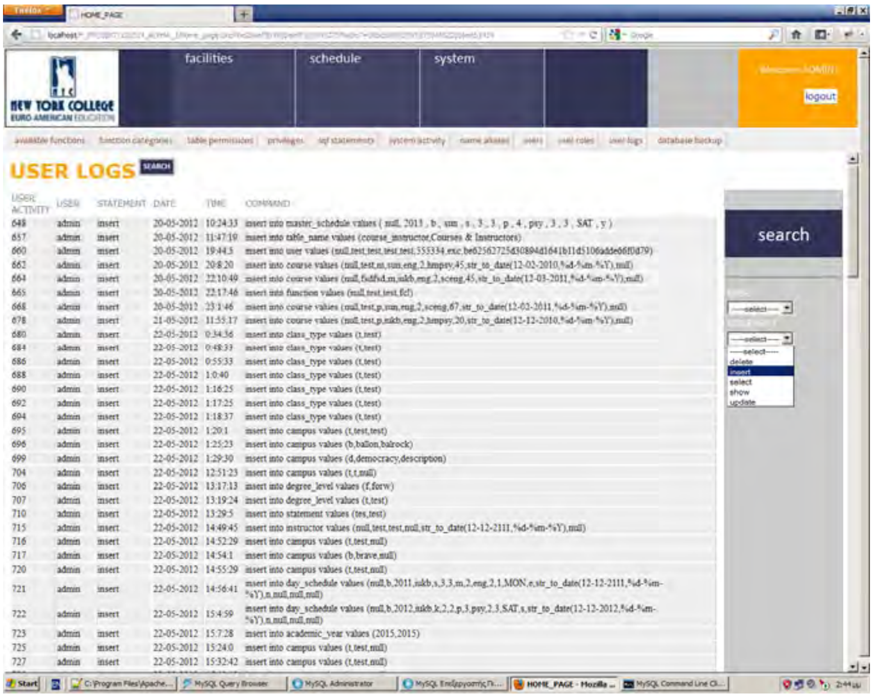


USER LOGS

USER ACTIVITY	USER	STATEMENT	DATE	TIME	COMMAND
1127	system	select	01-06-2012	1:56:57	select username from user where username = admin and password = d033e22ae348aeb5660fc2140aec35850c4da997
1128	system	select	01-06-2012	1:57:45	select username from user where username = and password = da39a3ee5e6b4b0d3255bfef95601890afd80709
1129	system	select	01-06-2012	1:57:54	select username from user where username = admin and password = d033e22ae348aeb5660fc2140aec35850c4da997
1130	system	select	01-06-2012	2:0:36	select username from user where username = and password = da39a3ee5e6b4b0d3255bfef95601890afd80709
1131	system	select	01-06-2012	2:0:41	select username from user where username = test and password = a94a8fe5ccb19ba61c4c0873d391e987982fbbd3
1132	system	select	01-06-2012	2:0:52	select username from user where username = and password = da39a3ee5e6b4b0d3255bfef95601890afd80709
1133	system	select	01-06-2012	2:0:58	select username from user where username = admin and password = d033e22ae348aeb5660fc2140aec35850c4da997
1134	system	select	01-06-2012	2:5:51	select username from user where username = and password = da39a3ee5e6b4b0d3255bfef95601890afd80709
1135	system	select	01-06-2012	2:5:56	select username from user where username = test and password = a94a8fe5ccb19ba61c4c0873d391e987982fbbd3
1136	system	select	01-06-2012	2:9:55	select username from user where username = and password = da39a3ee5e6b4b0d3255bfef95601890afd80709
1137	system	select	01-06-2012	2:10:2	select username from user where username = admin and password = d033e22ae348aeb5660fc2140aec35850c4da997
1146	system	select	01-06-2012	2:11:55	select username from user where username = and password = da39a3ee5e6b4b0d3255bfef95601890afd80709
1147	system	select	01-06-2012	2:12:1	select username from user where username = test and password = a94a8fe5ccb19ba61c4c0873d391e987982fbbd3
1148	system	select	01-06-2012	10:14:26	select username from user where username = admin and password = d033e22ae348aeb5660fc2140aec35850c4da997
1149	system	select	01-06-2012	10:15:24	select username from user where username = and password = da39a3ee5e6b4b0d3255bfef95601890afd80709
1150	system	select	01-06-2012	10:15:45	select username from user where username = admin and password = d033e22ae348aeb5660fc2140aec35850c4da997
1154	system	select	01-06-2012	10:48:33	select username from user where username = and password = da39a3ee5e6b4b0d3255bfef95601890afd80709
1155	system	select	01-06-2012	10:48:38	select username from user where username = test and password = a94a8fe5ccb19ba61c4c0873d391e987982fbbd3

Figure 0.39 SEARCH THROUGH THE LOGS THE LOGIN ATTEMPTS

The admin chooses to display on screen all of the ‘inserts’ that have been issued to the system. The system reply with a list of data that satisfy the admin supplied arguments.



USER LOGS

USER ACTIVITY	USER	STATEMENT	DATE	TIME	COMMAND
648	admin	insert	20-05-2012	10:24:33	insert into master_schedule values (null, 2015 , b , sun , s , 3 , 3 , p , 4 , psy , 3 , 3 , SAT , y)
657	admin	insert	20-05-2012	11:47:19	insert into table_name values (course_instructor,Courses & Instructors)
660	admin	insert	20-05-2012	19:44:5	insert into user values (null,test,test,test,test,555334,exc,be62562725d30894d1641b11d5106adde66f0d79)
662	admin	insert	20-05-2012	20:8:20	insert into course values (null,test,m,sun,eng,2,hmpsy,45,str_to_date(12-02-2010,%d-%m-%Y),null)
664	admin	insert	20-05-2012	22:10:49	insert into course values (null,fsdfsd,m,sukb,eng,2,sceng,45,str_to_date(12-03-2011,%d-%m-%Y),null)
665	admin	insert	20-05-2012	22:17:46	insert into function values (null,test,test,fcl)
668	admin	insert	20-05-2012	23:1:46	insert into course values (null,test,p,sun,eng,2,sceng,67,str_to_date(12-02-2011,%d-%m-%Y),null)
678	admin	insert	21-05-2012	11:55:17	insert into course values (null,test,p,sukb,eng,2,hmpsy,20,str_to_date(12-12-2010,%d-%m-%Y),null)
680	admin	insert	22-05-2012	0:34:36	insert into class_type values (t,test)
684	admin	insert	22-05-2012	0:48:33	insert into class_type values (t,test)
686	admin	insert	22-05-2012	0:55:33	insert into class_type values (t,test)
688	admin	insert	22-05-2012	1:0:40	insert into class_type values (t,test)
690	admin	insert	22-05-2012	1:16:25	insert into class_type values (t,test)
692	admin	insert	22-05-2012	1:17:25	insert into class_type values (t,test)
694	admin	insert	22-05-2012	1:18:37	insert into class_type values (t,test)
695	admin	insert	22-05-2012	1:20:1	insert into campus values (t,test,test)
696	admin	insert	22-05-2012	1:25:23	insert into campus values (b,ballon,balrock)
699	admin	insert	22-05-2012	1:29:30	insert into campus values (d,democracy,description)
704	admin	insert	22-05-2012	12:51:23	insert into campus values (t,t,null)
706	admin	insert	22-05-2012	13:17:13	insert into degree_level values (f,forw)
707	admin	insert	22-05-2012	13:19:24	insert into degree_level values (t,test)
710	admin	insert	22-05-2012	13:29:5	insert into statement values (tes,test)
715	admin	insert	22-05-2012	14:49:45	insert into instructor values (null,test,test,null,str_to_date(12-12-2111,%d-%m-%Y),null)
716	admin	insert	22-05-2012	14:52:29	insert into campus values (t,test,null)
717	admin	insert	22-05-2012	14:54:1	insert into campus values (b,brave,null)
720	admin	insert	22-05-2012	14:55:29	insert into campus values (t,test,null)
721	admin	insert	22-05-2012	14:56:41	insert into day_schedule values (null,b,2011,sukb,s,3,3,m,2,eng,2,1,MON,e,str_to_date(12-12-2111,%d-%m-%Y),n,null,null,null)
722	admin	insert	22-05-2012	15:4:59	insert into day_schedule values (null,b,2012,sukb,k,2,2,p,3,psy,2,3,SAT,s,str_to_date(12-12-2012,%d-%m-%Y),n,null,null,null)
723	admin	insert	22-05-2012	15:7:28	insert into academic_year values (2015,2015)
725	admin	insert	22-05-2012	15:24:0	insert into campus values (t,test,null)
727	admin	insert	22-05-2012	15:32:42	insert into campus values (t,test,null)

Figure 0.40 SEARCH THE 'DELETE' STATEMENTS THAT HAVE BEEN APPLIED TO THE SYSTEM

Note

The system offers a searching mechanism for avoiding display all the data that exist in the table. Nevertheless it could provide more effective searching by at least complement the searching filters ‘date’ searching. This is not integrated in this current version of the system but would be an essence for future versions.

The user wants to use the backup and restore functionality and moves to the backup page.

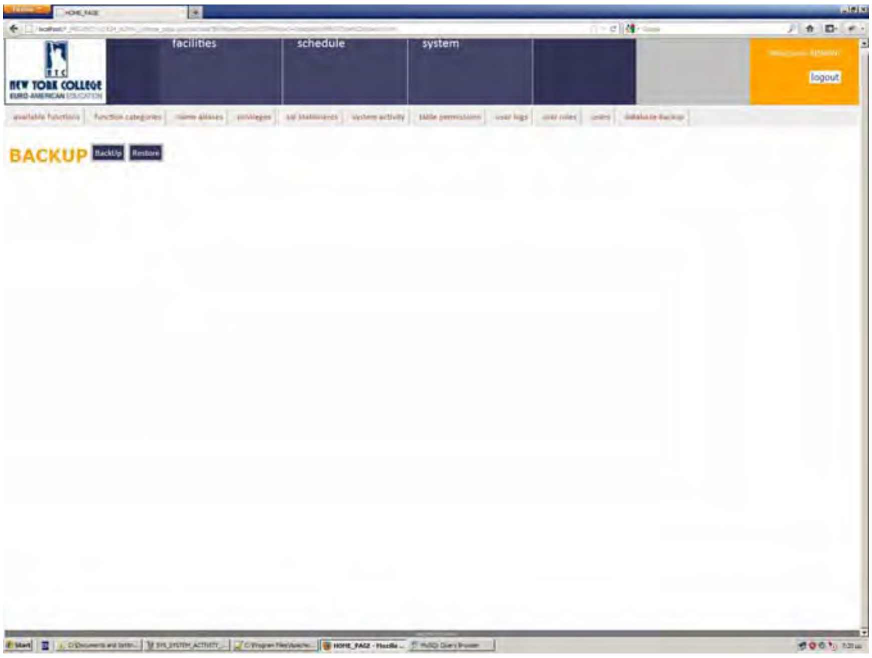


Figure 0.41 BACKUP PAGE

The user clicks the ‘backup’ button and the control form is displayed.

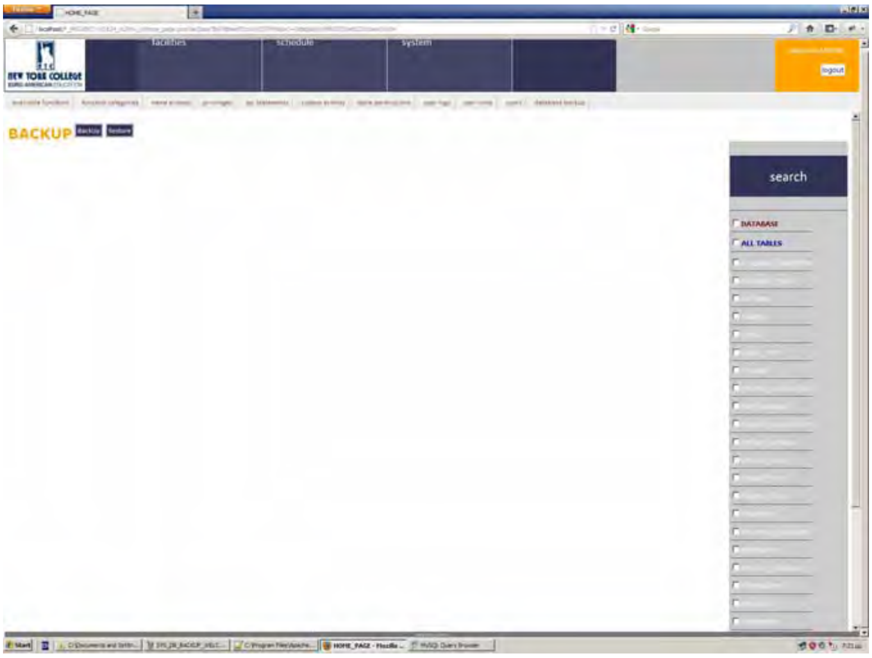
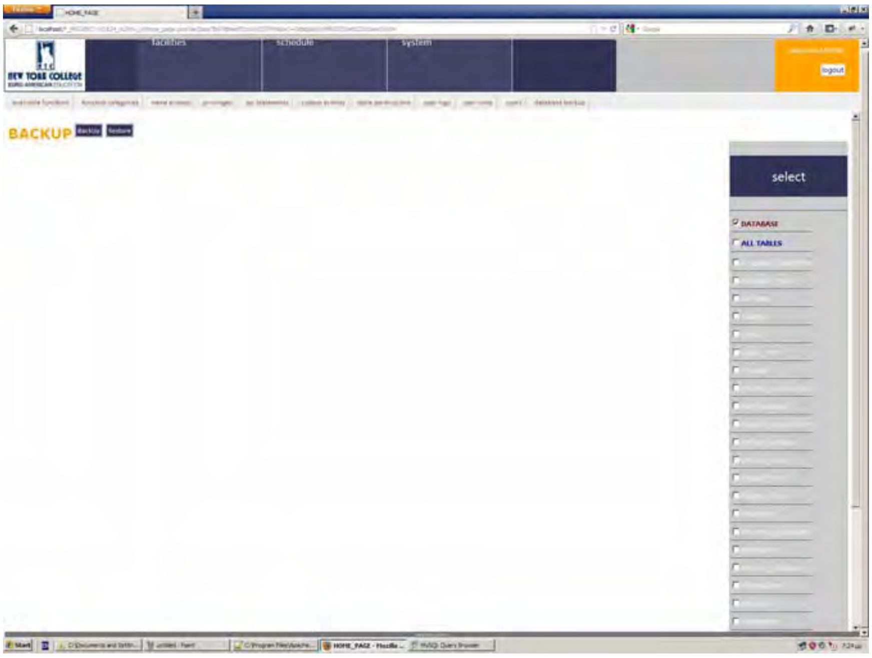


Figure 0.42 BACKUP PAGE FILTERS

The user ‘selects’ to backup the entire database and selects the filter on the form.



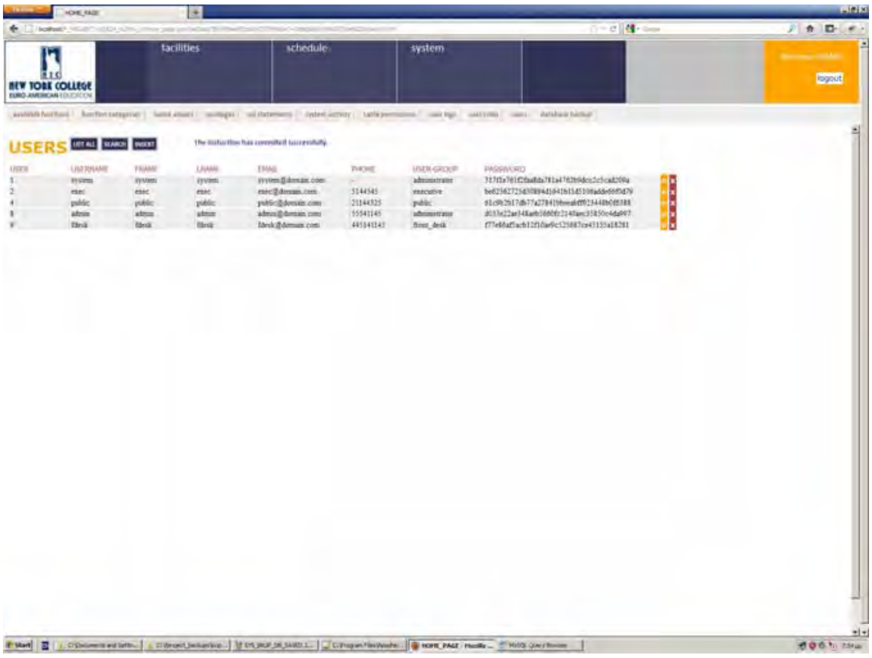
BACKUP

☑ DATABASE

☐ ALL TABLES

Figure 0.43 BACKUP ENTIRE DATABASE

The user wants to see if the ‘backup’ procedure is working, therefore moves to the ‘users’ table and deletes one of the users.



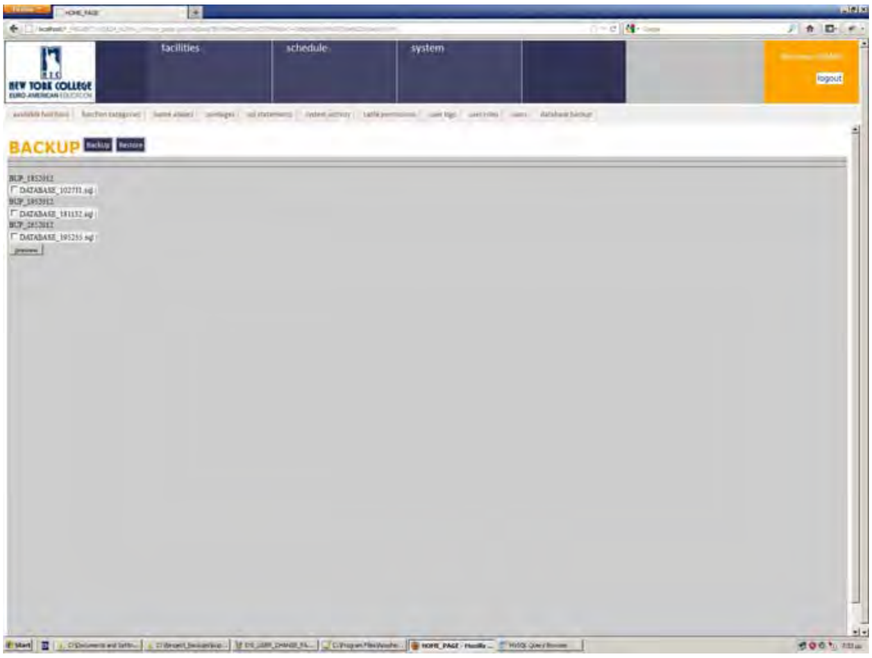
USERS

The instruction has committed successfully.

USER	USERNAME	FNAME	LNAME	EMAIL	PHONE	USER-GROUP	PASSWORD
1	system	system	system	system@domain.com	-	administrator	317f1e761f2fba8da781a4782b9dcc2c5cad209a
2	exec	exec	exec	exec@domain.com	5144545	executive	be825627254308894d1041b1345108adde69f0d79
4	public	public	public	public@domain.com	21144325	public	61c9b2617db77a278419beeabff0234480f0f188
8	admin	admin	admin	admin@domain.com	55541145	administrator	d033e22ae348aeb5660fc2140aec35850c4da997
9	fdesk	fdesk	fdesk	fdesk@domain.com	445141143	front_desk	f77e8faf5acb12f10ae9c125087ce43135a18281

Figure 0.44 DELETE USER BEFORE BACKUP

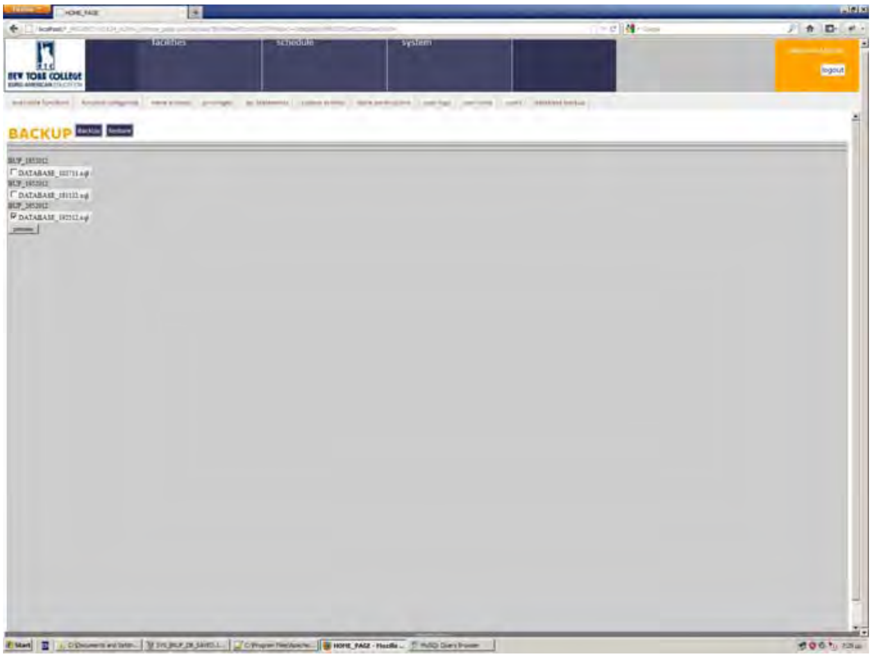
The user moves to the ‘backup’ page and selects the ‘restore’ button



BUP_1852012
□ DATABASE_102711.sql
BUP_1852012
□ DATABASE_181132.sql
BUP_2852012
□ DATABASE_195255.sql

Figure 0.45 RESTORE DATABASE

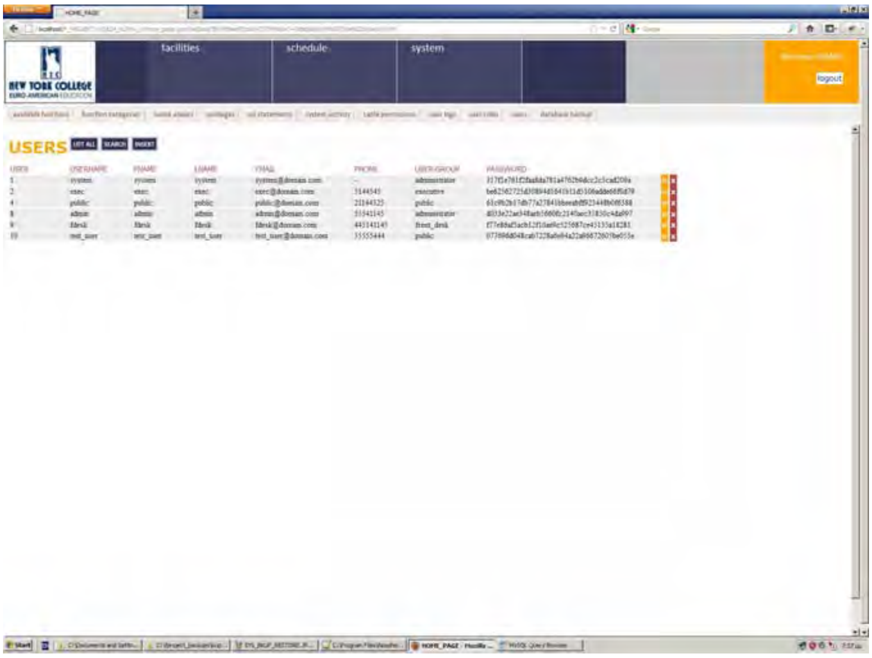
The user selects to ‘restore’ the last database backup file that was created.



BUP_1852012
□ DATABASE_102711.sql
BUP_1852012
□ DATABASE_181132.sql
BUP_2852012
☑ DATABASE_192312.sql

Figure 0.46 SELECT DATABASE FILE TO RESTORE

The user moves to the ‘users’ table to see if the deleted user has been restored, and sees that the user is back in the list.



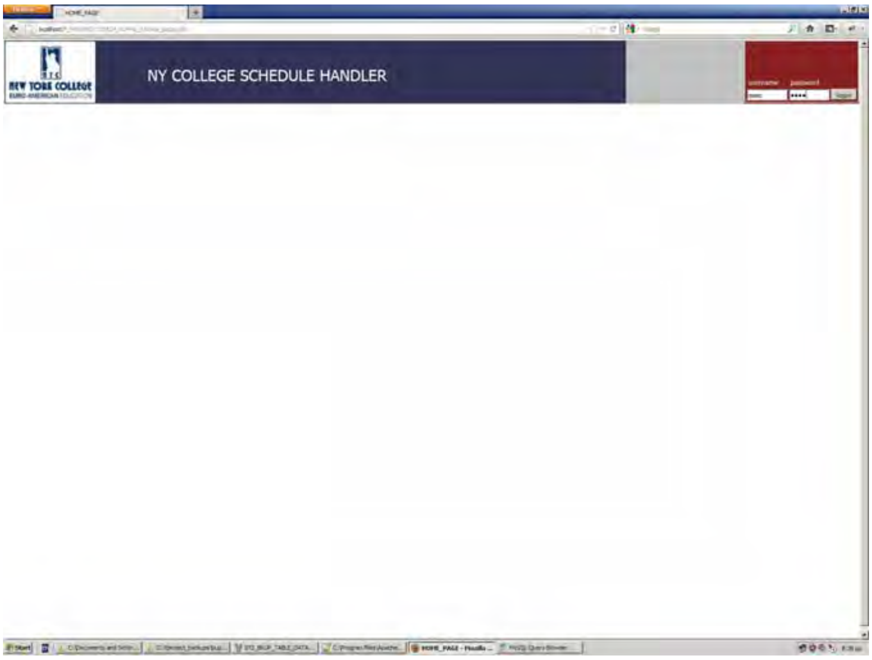
USERS

USER	USERNAME	FNAME	LNAME	EMAIL	PHONE	USER GROUP	PASSWORD
1	system	system	system	system@domain.com	-	administrator	317f1e761f2faa8da781a4762b6dcc2c5cad208a
2	exec	exec	exec	exec@domain.com	3144545	executive	be82562725d30894d1641b11d5106adde6f8d79
4	public	public	public	public@domain.com	21144525	public	61c9b2b17db77a27841bbeeabff923448b0f6388
8	admin	admin	admin	admin@domain.com	55541145	administrator	d033e22ae348aeb5660fc2140aec35850c4da997
9	fdesk	fdesk	fdesk	fdesk@domain.com	445141145	front_desk	f77e88af5acb12f1dae9c525687ce45135a18281
10	test_user	test_user	test_user	test_user@domain.com	35555444	public	07789fd048cab7228a6e84a22a86872603be055e

Figure 0.47 DELETED USER REVEALS AFTER RESTORE

1.6 VALID ‘EXECUTIVE’ USER

User logs in the front page of the system



username: exec
password: ••••

Figure 0.48 VALID USER 'EXECUTIVE' LOGS IN THE SYSTEM

The system allows the entrance and welcomes the identified user.

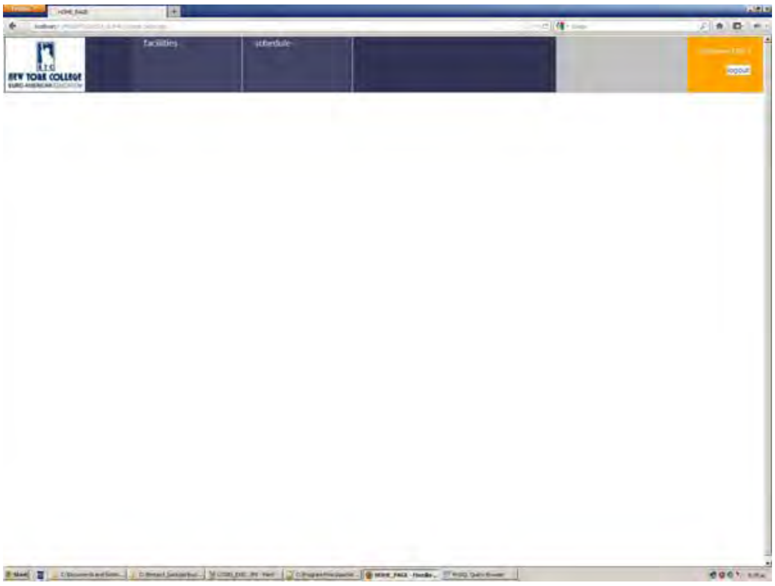
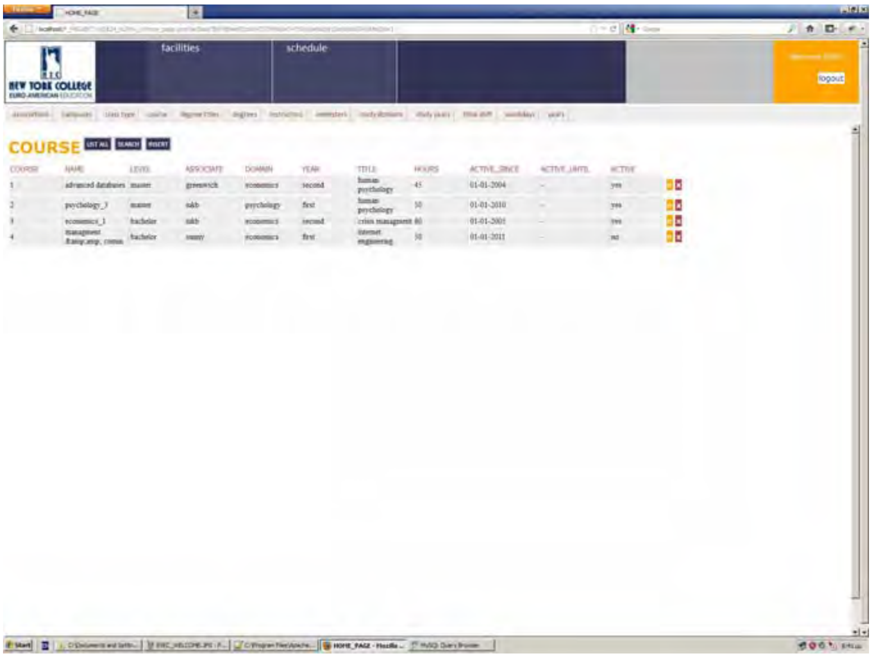


Figure 0.49 THE SYSTEM REVEALS ONLY THE BUTTONS THAT 'EXECUTIVE' USER HAS ACCESS

Note

The system does not all the ‘executive’ user’s entry to the ‘system’ territory therefore it will not reveal any button to move in to the ‘system’ area.

The user clicks the ‘facilities’ family of functions button, moves to the ‘course’ section and lists ‘all’ the available courses. The system generates the list of available courses providing ‘action’ buttons.



COURSE	NAME	LEVEL	ASSOCIATE	DOMAIN	YEAR	TITLE	HOURS	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
1	advanced databases	master	greenwich	economics	second	human psychology	45	01-01-2004	-	yes
2	psychology_3	master	nkb	psychology	first	human psychology	50	01-01-2010	-	yes
3	economics_1	bachelor	nkb	economics	second	crisis management	80	01-01-2005	-	yes
4	management &amp; comm	bachelor	sunny	economics	first	internet engineering	50	01-01-2011	-	no

Figure 0.50 'EXECUTIVE' USER MAINTAINS FULL ACCESS PERMISSION ON 'FACILITIES' DOMAIN

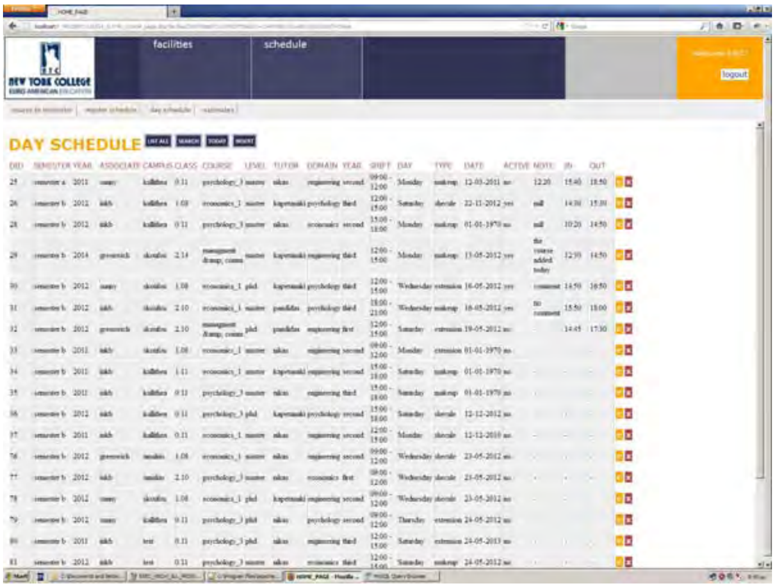
Note

‘Executive’ user maintains full access privileges under the ‘facilities’ domain. All pages under this group will provide the ‘executive’ with the same access with the ‘administrator’ users.

The functions will not be described extensively as those are exactly the ‘administrator’ user, and has already been describe extensively in a previous chapter.

User visits the pages of the ‘schedule’ domain and uses the ‘list all’ button to preview the hosted data

The system provides a list of the available records along with action button for processing its data.

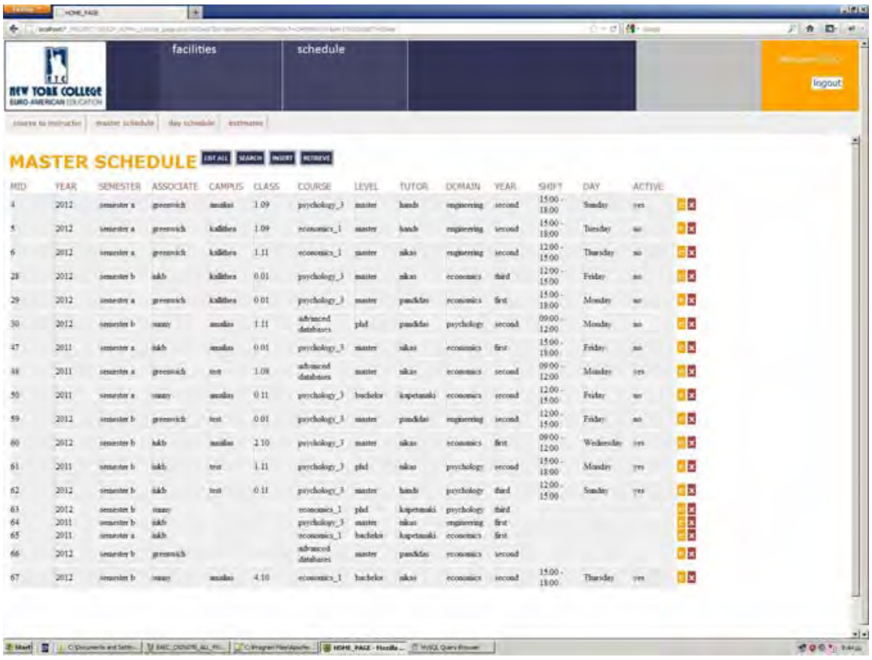


DAY SCHEDULE

DID	SEMESTER	YEAR	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	TYPE	DATE	ACTIVE	NOTE	IN	OUT	
25	semester a	2011	sunny	kallithea	0.11	psychology_3	master	nikas	engineering	second	09:00 - 12:00	Monday	makeup	12-03-2011	no	12:20	15:40	18:50	✎ ✖
26	semester b	2012	iakb	kallithea	1.08	economics_1	master	kapetanaki	psychology	third	12:00 - 15:00	Saturday	shedule	22-11-2012	yes	null	14:30	15:30	✎ ✖
28	semester b	2012	iakb	kallithea	0.11	psychology_3	master	nikas	economics	second	15:00 - 18:00	Monday	makeup	01-01-1970	no	null	10:20	14:50	✎ ✖
29	semester b	2014	greenwich	akadia	2.14	management &amp; comm	master	kapetanaki	engineering	third	12:00 - 15:00	Monday	makeup	13-05-2012	yes	the course added today	12:30	14:50	✎ ✖
30	semester b	2012	sunny	akadia	1.08	economics_1	phd	kapetanaki	psychology	third	12:00 - 15:00	Wednesday	extension	16-05-2012	yes	comment	14:50	16:50	✎ ✖
31	semester b	2012	iakb	akadia	2.10	economics_1	master	pandidas	psychology	third	18:00 - 21:00	Wednesday	makeup	16-05-2012	yes	no comment	15:50	18:00	✎ ✖
32	semester b	2012	greenwich	akadia	2.10	management &amp; comm	phd	pandidas	engineering	first	12:00 - 15:00	Saturday	extension	19-05-2012	no	-	14:45	17:30	✎ ✖
33	semester b	2011	iakb	akadia	1.08	economics_1	master	nikas	engineering	second	09:00 - 12:00	Monday	extension	01-01-1970	no			-	✎ ✖
34	semester b	2011	iakb	kallithea	1.11	economics_1	master	kapetanaki	engineering	second	15:00 - 18:00	Saturday	makeup	01-01-1970	no	-	-	-	✎ ✖
35	semester b	2011	iakb	kallithea	0.11	psychology_3	master	nikas	engineering	third	15:00 - 18:00	Saturday	makeup	01-01-1970	no	-	-	-	✎ ✖
36	semester b	2012	iakb	kallithea	0.11	psychology_3	phd	kapetanaki	psychology	second	15:00 - 18:00	Saturday	shedule	12-12-2012	no	-	-	-	✎ ✖
37	semester b	2011	iakb	kallithea	0.11	economics_1	master	nikas	engineering	second	12:00 - 15:00	Monday	shedule	12-12-2010	no	-	-	-	✎ ✖
76	semester b	2012	greenwich	amalias	1.08	economics_1	master	nikas	engineering	second	09:00 - 12:00	Wednesday	shedule	23-05-2012	no	-	-	-	✎ ✖
77	semester b	2012	iakb	amalias	2.10	psychology_3	master	nikas	economics	first	09:00 - 12:00	Wednesday	shedule	23-05-2012	no	-	-	-	✎ ✖
78	semester b	2012	sunny	akadia	1.08	economics_1	phd	kapetanaki	engineering	second	09:00 - 12:00	Wednesday	shedule	23-05-2012	no	-	-		✎ ✖
79	semester b	2012	sunny	kallithea	0.11	psychology_3	phd	nikas	psychology	second	09:00 - 12:00	Thursday	extension	24-05-2012	no				✎ ✖
80	semester b	2011	iakb	test	0.11	psychology_3	phd	nikas	engineering	third	12:00 - 15:00	Saturday	extension	24-05-2013	no	-	-	-	✎ ✖
81	semester b	2012	iakb	test	0.11	psychology_3	master	nikas	economics	third	12:00 - 15:00	Saturday	makeup	24-05-2012	no	-	-		✎ ✖

Figure 0.51 'EXECUTIVE' USER MAINTAINS FULL ACCESS TO 'DAY SCHEDULE' PAGe

The same activity is iterated for the Master Schedule.



MASTER SCHEDULE

MID	YEAR	SEMESTER	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	ACTIVE	
4	2012	semester a	greenwich	amalias	1.09	psychology_3	master	handi	engineering	second	15:00 - 18:00	Sunday	yes	✎ ✖
5	2012	semester a	greenwich	kallithea	1.09	economics_1	master	handi	engineering	second	15:00 - 18:00	Tuesday	no	✎ ✖
6	2012	semester a	greenwich	kallithea	1.11	economics_1	master	nikas	engineering	second	12:00 - 15:00	Thursday	no	✎ ✖
28	2012	semester b	iakb	kallithea	0.01	psychology_3	master	nikas	economics	third	12:00 - 15:00	Friday	no	✎ ✖
29	2012	semester a	greenwich	kallithea	0.01	psychology_3	master	pandidas	economics	first	15:00 - 18:00	Monday	no	✎ ✖
30	2012	semester b	sunny	amalias	1.11	advanced databases	phd	pandidas	psychology	second	09:00 - 12:00	Monday	no	✎ ✖
47	2011	semester a	iakb	amalias	0.01	psychology_3	master	nikas	economics	first	15:00 - 18:00	Friday	no	✎ ✖
48	2011	semester a	greenwich	test	1.08	advanced databases	master	nikas	economics	second	09:00 - 12:00	Monday	yes	✎ ✖
50	2011	semester a	sunny	amalias	0.11	psychology_3	bachelor	kapetanaki	economics	second	12:00 - 15:00	Friday	no	✎ ✖
59	2012	semester b	greenwich	test	0.01	psychology_3	master	pandidas	engineering	second	12:00 - 15:00	Friday	no	✎ ✖
60	2012	semester b	iakb	amalias	2.10	psychology_3	master	nikas	economics	first	09:00 - 12:00	Wednesday	yes	✎ ✖
61	2011	semester b	iakb	test	1.11	psychology_3	phd	nikas	psychology	second	15:00 - 18:00	Monday	yes	✎ ✖
62	2012	semester b	iakb	test	0.11	psychology_3	master	handi	psychology	third	12:00 - 15:00	Sunday	yes	✎ ✖
63	2012	semester b	sunny			economics_1	phd	kapetanaki	psychology	third				✎ ✖
64	2011	semester b	iakb			psychology_3	master	nikas	engineering	first				✎ ✖
65	2011	semester a	iakb			economics_1	bachelor	kapetanaki	economics	first				✎ ✖
66	2012	semester b	greenwich			advanced databases	master	pandidas	economics	second				✎ ✖
67	2012	semester b	sunny	amalias	4.10	economics_1	bachelor	nikas	economics	second	15:00 - 18:00	Thursday	yes	✎ ✖

Figure 0.52 'EXECUTIVE' MAINTAINS FULL ACCESS UNDER 'MASTER SCHEDULE' PAGE

The ‘executive’ user has access to run the ‘estimation’ page functions.

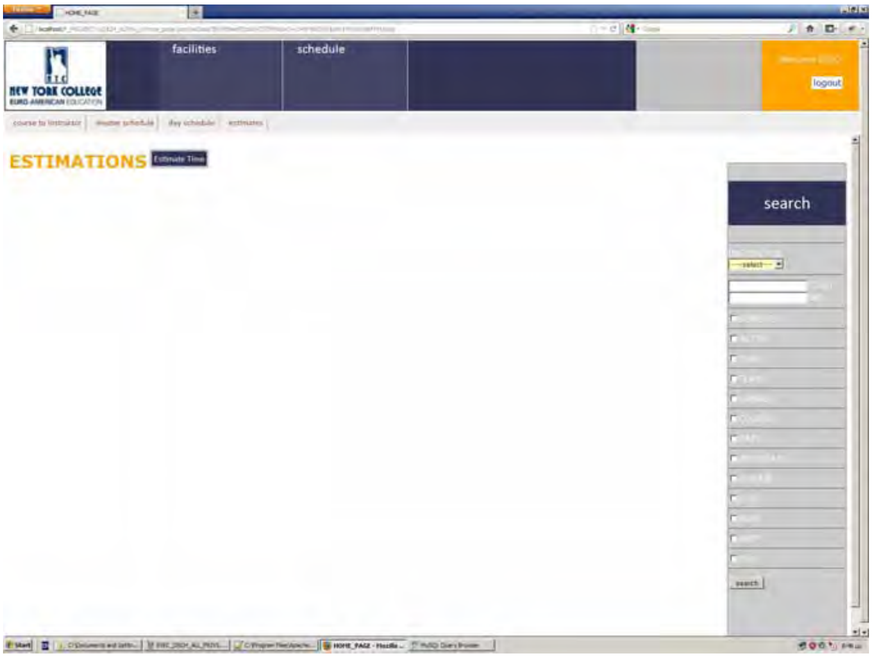


Figure 0.53 'EXECUTIVE' MAINTAINS FULL ACCESS UNDER THE 'ESTIMATIONS' PAGE

1.7 VALID ‘FRONT-DESK’ USER

User logs in and the system generates the buttons that are allowed to use.

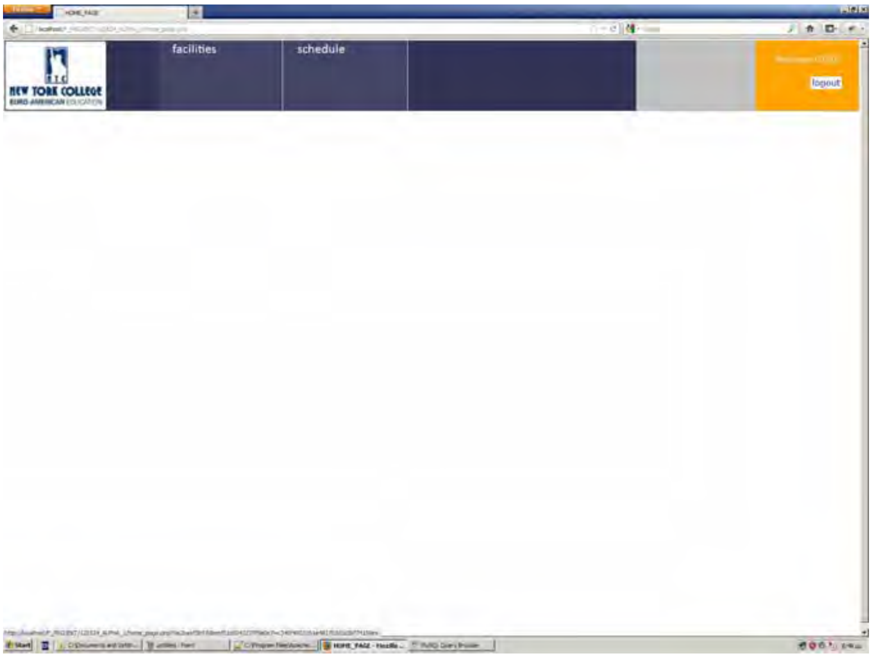
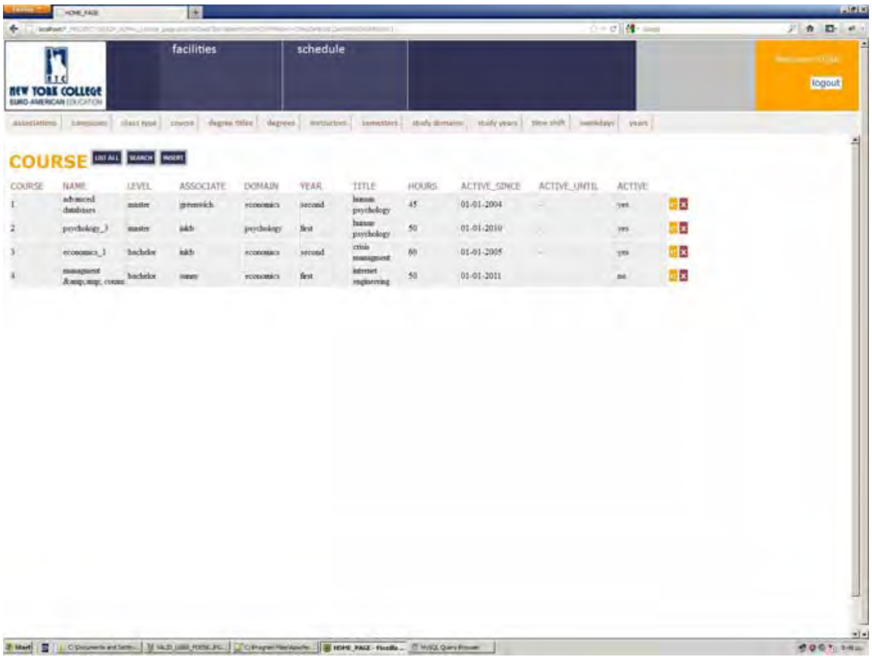


Figure 0.54 'FRONT DESK' USER GRANTS LOGIN ACCESS

User maintains full access on the ‘facilities’ family of functions of the system.

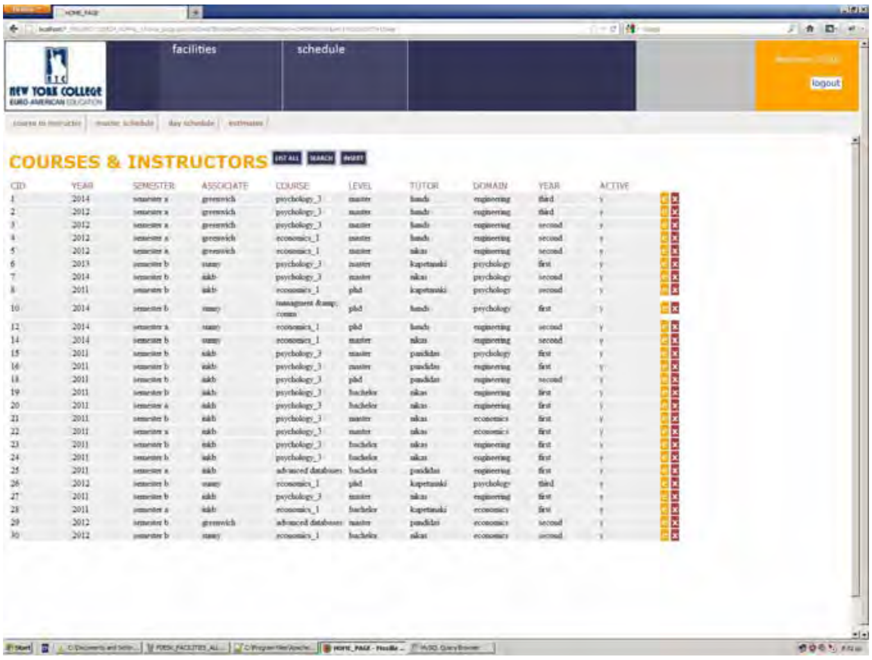


COURSE

COURSE	NAME	LEVEL	ASSOCIATE	DOMAIN	YEAR	TITLE	HOURS	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
1	advanced databases	master	greenwich	economics	second	human psychology	45	01-01-2004	-	yes
2	psychology_3	master	aidh	psychology	first	human psychology	50	01-01-2010	-	yes
3	economics_1	bachelor	aidh	economics	second	crisis management	60	01-01-2005	-	yes
4	management &amp; comm	bachelor	sunny	economics	first	internet engineering	50	01-01-2011		no

Figure 0.55 'FRONT DESK' USER MAINTAINS FULL PRIVILEGES UNDER THE 'FACILITIES' DOMAIN

The user maintains full access on the ‘course-instructor’ section that lies above the ‘schedule’ domain.

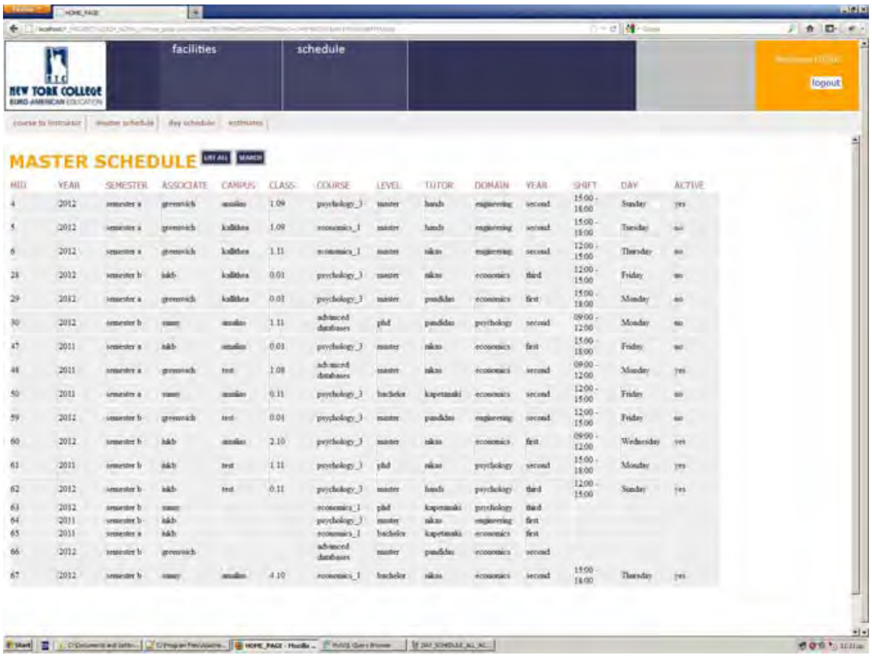


COURSES & INSTRUCTORS

CID	YEAR	SEMESTER	ASSOCIATE	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	ACTIVE
1	2014	semester a	greenwich	psychology_3	master	bandis	engineering	third	y
2	2012	semester a	greenwich	psychology_3	master	bandis	engineering	third	y
3	2012	semester a	greenwich	psychology_3	master	bandis	engineering	second	y
4	2012	semester a	greenwich	economics_1	master	bandis	engineering	second	y
5	2012	semester a	greenwich	economics_1	master	nikas	engineering	second	y
6	2013	semester b	suny	psychology_3	master	kapetanaki	psychology	first	y
7	2014	semester b	iakb	psychology_3	master	nikas	psychology	second	y
8	2011	semester b	iakb	economics_1	phd	kapetanaki	psychology	second	y
10	2014	semester b	suny	management &amp; comm	phd	bandis	psychology	first	y
12	2014	semester a	suny	economics_1	phd	bandis	engineering	second	y
14	2014	semester b	suny	economics_1	master	nikas	engineering	second	y
15	2011	semester b	iakb	psychology_3	master	pandidas	psychology	first	y
16	2011	semester b	iakb	psychology_3	master	pandidas	engineering	first	y
18	2011	semester b	iakb	psychology_3	phd	pandidas	engineering	second	y
19	2011	semester b	iakb	psychology_3	bachelor	nikas	engineering	first	y
20	2011	semester a	iakb	psychology_3	bachelor	nikas	engineering	first	y
21	2011	semester b	iakb	psychology_3	master	nikas	economics	first	y
22	2011	semester a	iakb	psychology_3	master	nikas	economics	first	y
23	2011	semester b	iakb	psychology_3	bachelor	nikas	engineering	first	y
24	2011	semester b	iakb	psychology_3	bachelor	nikas	engineering	first	y
25	2011	semester a	iakb	advanced databases	bachelor	pandidas	engineering	first	y
26	2012	semester b	suny	economics_1	phd	kapetanaki	psychology	third	y
27	2011	semester b	iakb	psychology_3	master	nikas	engineering	first	y
28	2011	semester a	iakb	economics_1	bachelor	kapetanaki	economics	first	y
29	2012	semester b	greenwich	advanced databases	master	pandidas	economics	second	y
30	2012	semester b	suny	economics_1	bachelor	nikas	economics	second	y

Figure 0.56 'FRONT DESK' USER MAINTAINS FULL ACCESS ON THE 'COURSE INSTRUCTOR' PAGE

The user's access on the 'master schedule' section is restrained to 'read'. The interface will not generate the 'add' action button on start, and will additionally omit to provide action buttons 'edit' / 'delete' next to the data that displays.

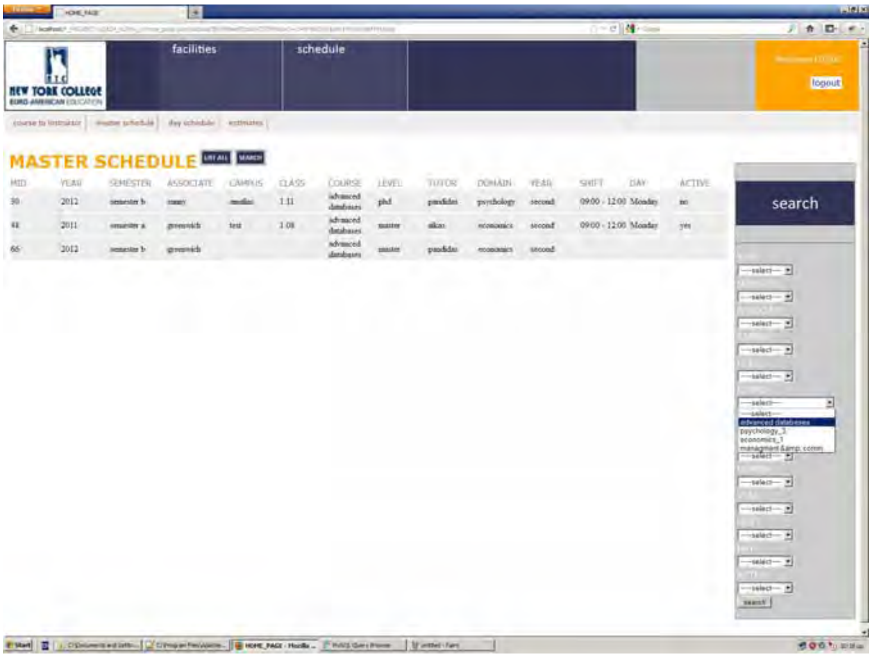


MASTER SCHEDULE

MID	YEAR	SEMESTER	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	ACTIVE
4	2012	semester a	greenwich	amalias	1.09	psychology_3	master	bandis	engineering	second	15:00 - 18:00	Sunday	yes
5	2012	semester a	greenwich	kallithea	1.09	economics_1	master	bandis	engineering	second	15:00 - 18:00	Tuesday	no
6	2012	semester a	greenwich	kallithea	1.11	economics_1	master	nikas	engineering	second	12:00 - 15:00	Thursday	no
28	2012	semester b	iakb	kallithea	0.01	psychology_3	master	nikas	economics	third	12:00 - 15:00	Friday	no
29	2012	semester a	greenwich	kallithea	0.01	psychology_3	master	pandidas	economics	first	15:00 - 18:00	Monday	no
30	2012	semester b	suny	amalias	1.11	advanced databases	phd	pandidas	psychology	second	09:00 - 12:00	Monday	no
47	2011	semester a	iakb	amalias	0.01	psychology_3	master	nikas	economics	first	15:00 - 18:00	Friday	no
48	2011	semester a	greenwich	test	1.08	advanced databases	master	nikas	economics	second	09:00 - 12:00	Monday	yes
50	2011	semester a	suny	amalias	0.11	psychology_3	bachelor	kapetanaki	economics	second	12:00 - 15:00	Friday	no
59	2012	semester b	greenwich	test	0.01	psychology_3	master	pandidas	engineering	second	12:00 - 15:00	Friday	no
60	2012	semester b	iakb	amalias	2.10	psychology_3	master	nikas	economics	first	09:00 - 12:00	Wednesday	yes
61	2011	semester b	iakb	test	1.11	psychology_3	phd	nikas	psychology	second	15:00 - 18:00	Monday	yes
62	2012	semester b	iakb	test	0.11	psychology_3	master	bandis	psychology	third	12:00 - 15:00	Sunday	yes
63	2012	semester b	suny			economics_1	phd	kapetanaki	psychology	third			
64	2011	semester b	iakb			psychology_3	master	nikas	engineering	first			
65	2011	semester a	iakb			economics_1	bachelor	kapetanaki	economics	first			
66	2012	semester b	greenwich			advanced databases	master	pandidas	economics	second			
67	2012	semester b	suny	amalias	4.10	economics_1	bachelor	nikas	economics	second	15:00 - 18:00	Thursday	yes

Figure 0.57 'FRONT DESK' USER IS RESTRAINED TO 'READ' ACCESS UNDER THE 'MASTER SCHEDULE' PAGE

The ‘searching’ mechanism will also restrict the data that are previewed from its interface to generate action buttons.

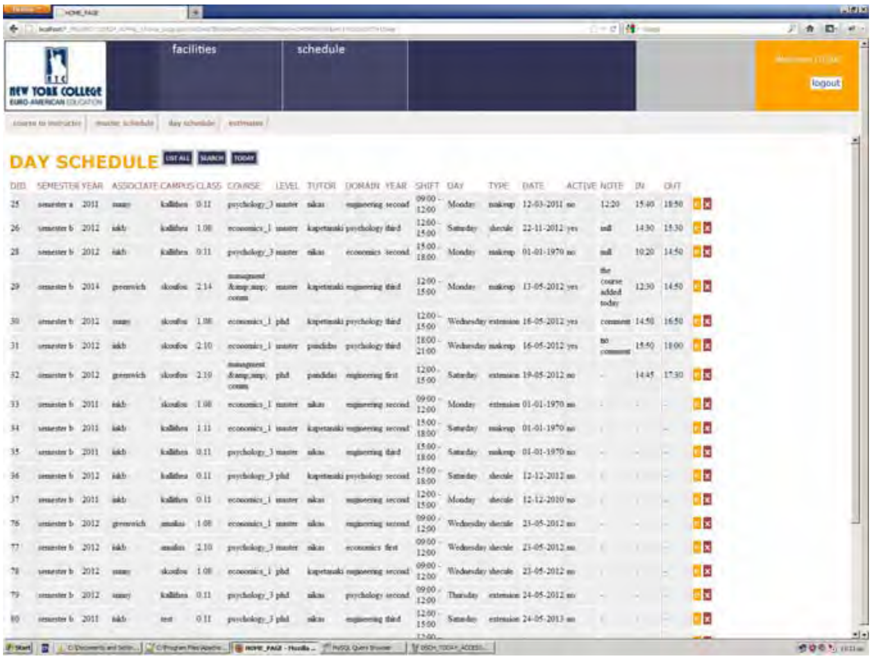


MASTER SCHEDULE

MID	YEAR	SEMESTER	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	ACTIVE
30	2012	semester b	sunny	amalias	1.11	advanced databases	phd	pandidas	psychology	second	09:00 - 12:00	Monday	no
41	2011	semester a	greenwich	test	1.08	advanced databases	master	nikas	economics	second	09:00 - 12:00	Monday	yes
66	2012	semester b	greenwich			advanced databases	master	pandidas	economics	second			

Figure 0.58 'FRONT DESK' USER CAN SEARCH THROUGH 'MASTER SCHEDULE' BUT ONLY WITH 'READ' PERMISSION

The user will maintains ‘read’ access on the ‘day schedule’ section on ‘today’, ‘list all’, and ‘searching’ results modes. The button ‘add’ is not revealed to the user while at the page.

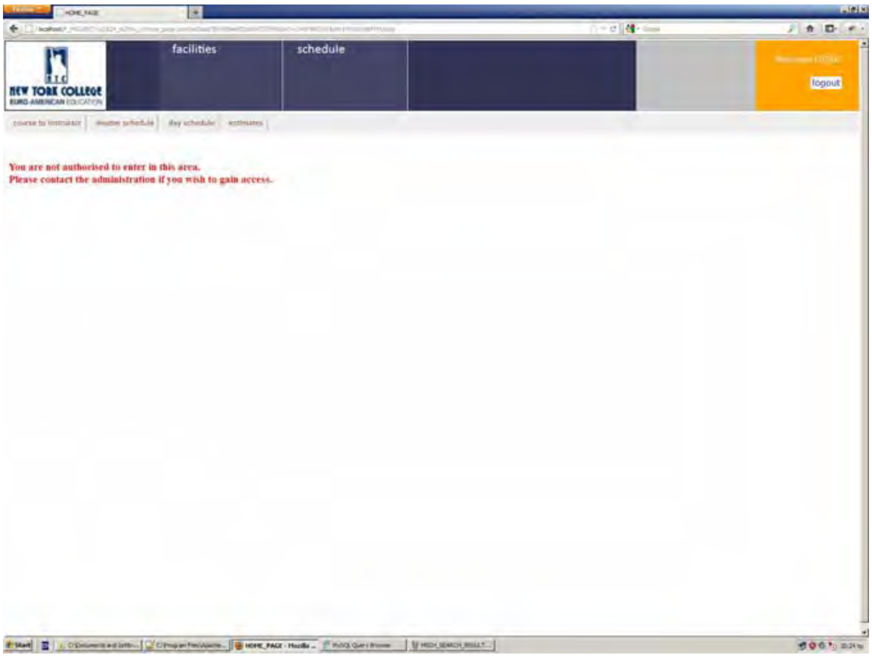


DAY SCHEDULE

DID	SEMESTER	YEAR	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	TYPE	DATE	ACTIVE	NOTE	IN	OUT
25	semester a	2011	sunny	kallithea	0.11	psychology_3	master	nikas	engineering	second	09:00 - 12:00	Monday	makeup	12-03-2011	no	12:20	15:40	18:50
26	semester b	2012	iakb	kallithea	1.08	economics_1	master	kapetanaki	psychology	third	12:00 - 15:00	Saturday	shecule	22-11-2012	yes	null	14:30	15:30
28	semester b	2012	iakb	kallithea	0.11	psychology_3	master	nikas	economics	second	15:00 - 18:00	Monday	makeup	01-01-1970	no	null	10:20	14:50
29	semester b	2014	greenwich	skoufou	2.14	management &amp; comm	master	kapetanaki	engineering	third	12:00 - 15:00	Monday	makeup	13-05-2012	yes	the course added today	12:30	14:50
30	semester b	2012	sunny	skoufou	1.08	economics_1	phd	kapetanaki	psychology	third	12:00 - 15:00	Wednesday	extension	16-05-2012	yes	comment	14:50	16:50
31	semester b	2012	iakb	skoufou	2.10	economics_1	master	pandidas	psychology	third	18:00 - 21:00	Wednesday	makeup	16-05-2012	yes	no comment	15:50	18:00
32	semester b	2012	greenwich	skoufou	2.10	management &amp; comm	phd	pandidas	engineering	first	12:00 - 15:00	Saturday	extension	19-05-2012	no	-	14:45	17:30
33	semester b	2011	iakb	skoufou	1.08	economics_1	master	nikas	engineering	second	09:00 - 12:00	Monday	extension	01-01-1970	no	-	-	-
34	semester b	2011	iakb	kallithea	1.11	economics_1	master	kapetanaki	engineering	second	15:00 - 18:00	Saturday	makeup	01-01-1970	no	-	-	-
35	semester b	2011	iakb	kallithea	0.11	psychology_3	master	nikas	engineering	third	15:00 - 18:00	Saturday	makeup	01-01-1970	no	-	-	-
36	semester b	2012	iakb	kallithea	0.11	psychology_3	phd	kapetanaki	psychology	second	15:00 - 18:00	Saturday	shecule	12-12-2012	no	-	-	-
37	semester b	2011	iakb	kallithea	0.11	economics_1	master	nikas	engineering	second	12:00 - 15:00	Monday	shecule	12-12-2010	no	-	-	-
76	semester b	2012	greenwich	amalias	1.08	economics_1	master	nikas	engineering	second	09:00 - 12:00	Wednesday	shecule	23-05-2012	no	-	-	-
77	semester b	2012	iakb	amalias	2.10	psychology_3	master	nikas	economics	first	09:00 - 12:00	Wednesday	shecule	23-05-2012	no	-	-	-
78	semester b	2012	sunny	skoufou	1.08	economics_1	phd	kapetanaki	engineering	second	09:00 - 12:00	Wednesday	shecule	23-05-2012	no	-	-	-
79	semester b	2012	sunny	kallithea	0.11	psychology_3	phd	nikas	psychology	second	09:00 - 12:00	Thursday	extension	24-05-2012	no	-	-	-
80	semester b	2011	iakb	test	0.11	psychology_3	phd	nikas	engineering	third	12:00 - 15:00	Saturday	extension	24-05-2013	no	-	-	-

Figure 0.59 'FRONT DESK' USER GRANTS FULL ACCESS PRIVILEGES UNDER THE 'DAY SCHEDULE' PAGE

The user is not allowed to use the ‘estimates’ page and will he alerted with a message by the system.

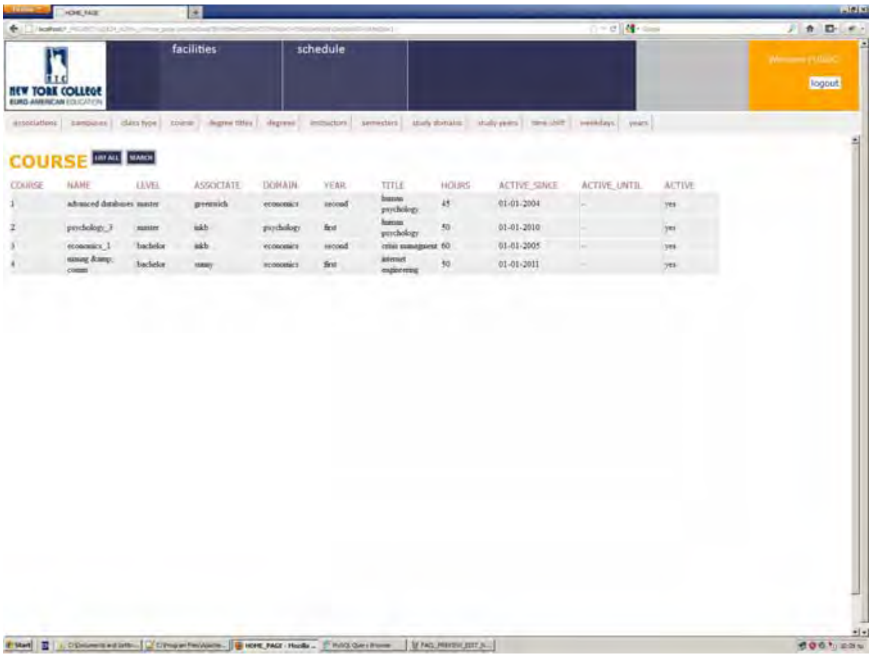


You are not authorised to enter in this area.
Please contact the administration if you wish to gain access.

Figure 0.60 'FRONT DESK' USER IS NOT ALLOWED TO ACCESS THE 'ESTIMATIONS' PAGE

1.8 VALID ‘PUBLIC’ USER

The user logs the system and moves to the ‘courses’ section. The system will generate all the buttons that the user is permitted to use. The user maintains only ‘read-only’ privileges under the ‘facilities’ domain. The user is not in place to use any of the ‘action’ buttons, but can search through the records of the system to provide valuable information.

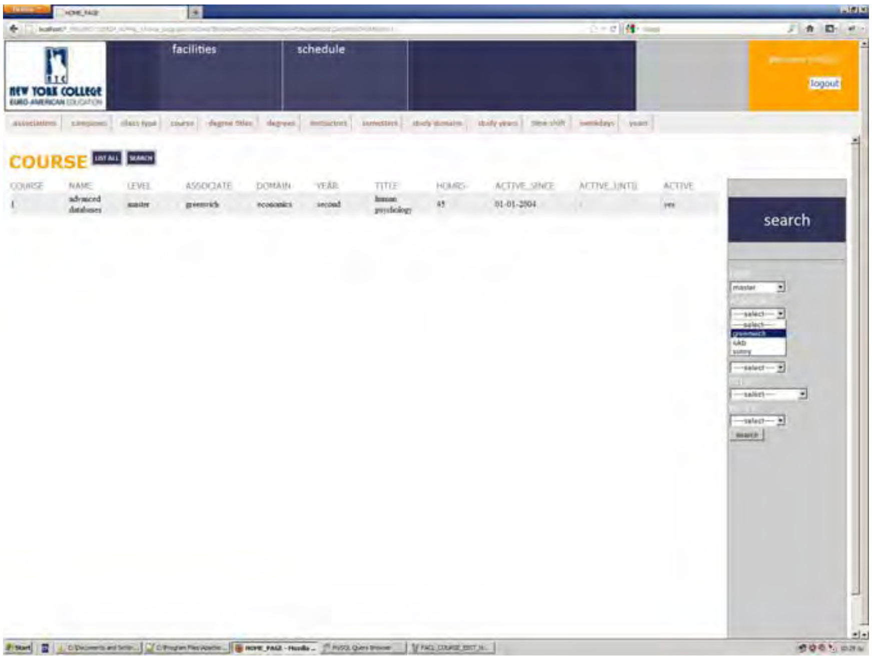


COURSE

COURSE	NAME	LEVEL	ASSOCIATE	DOMAIN	YEAR	TITLE	HOURS	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
1	advanced databases	master	greenwich	economics	second	human psychology	45	01-01-2004	–	yes
2	psychology_3	master	iakb	psychology	first	human psychology	50	01-01-2010	–	yes
3	economics_1	bachelor	iakb	economics	second	crisis management	60	01-01-2005	–	yes
4	mining &amp; comm	bachelor	suny	economics	first	internet engineering	50	01-01-2011	–	yes

Figure 0.61 'PUBLIC' USER MAINTAINS ONLY 'READ' ACCESS PERMISSION UNDER THE 'FACILITIES' DOMAIN

Searching results will also restrain the user from applying any modification upon.

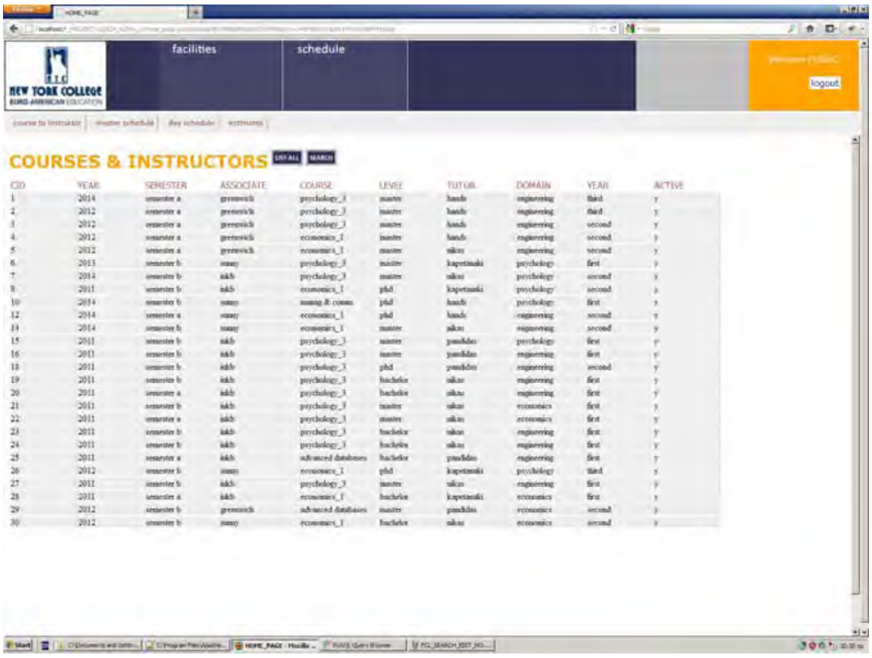


COURSE

COURSE	NAME	LEVEL	ASSOCIATE	DOMAIN	YEAR	TITLE	HOURS	ACTIVE_SINCE	ACTIVE_UNTIL	ACTIVE
1	advanced databases	master	greenwich	economics	second	human psychology	45	01-01-2004		yes

Figure 0.62 'PUBLIC' USER CAN USE THE SEARCHING MECHANISM BUT ONLY WITH 'READ' ACCESS PERMISSION

The user maintains 'read' access under the 'course-instructor' domain under the 'schedule' family of functions.

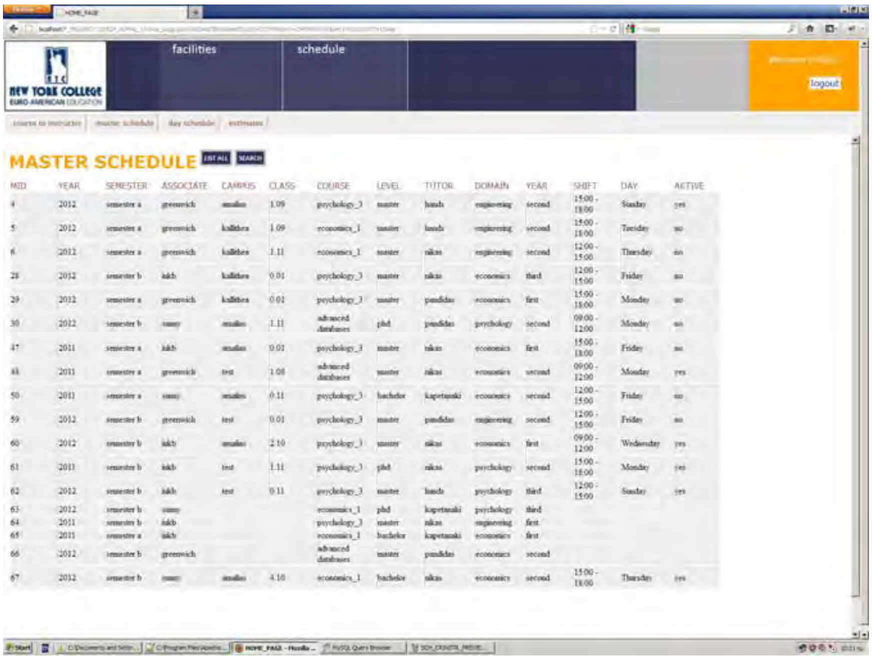


COURSES & INSTRUCTORS

CID	YEAR	SEMESTER	ASSOCIATE	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	ACTIVE
1	2014	semester a	greenwich	psychology_3	master	handi	engineering	third	y
2	2012	semester a	greenwich	psychology_3	master	handi	engineering	third	y
3	2012	semester a	greenwich	psychology_3	master	handi	engineering	second	y
4	2012	semester a	greenwich	economics_1	master	handi	engineering	second	y
5	2012	semester a	greenwich	economics_1	master	nikas	engineering	second	y
6	2013	semester b	surrey	psychology_3	master	kapetanaki	psychology	first	y
7	2014	semester b	iakb	psychology_3	master	nikas	psychology	second	y
8	2011	semester b	iakb	economics_1	phd	kapetanaki	psychology	second	y
10	2014	semester b	surrey	mining & comm	phd	handi	psychology	first	y
12	2014	semester a	surrey	economics_1	phd	handi	engineering	second	y
13	2014	semester b	surrey	economics_1	master	nikas	engineering	second	y
15	2011	semester b	iakb	psychology_3	master	pandidas	psychology	first	y
16	2011	semester b	iakb	psychology_3	master	pandidas	engineering	first	y
18	2011	semester b	iakb	psychology_3	phd	pandidas	engineering	second	y
19	2011	semester b	iakb	psychology_3	bachelor	nikas	engineering	first	y
20	2011	semester a	iakb	psychology_3	bachelor	nikas	engineering	first	y
21	2011	semester b	iakb	psychology_3	master	nikas	economics	first	y
22	2011	semester a	iakb	psychology_3	master	nikas	economics	first	y
23	2011	semester b	iakb	psychology_3	bachelor	nikas	engineering	first	y
24	2011	semester b	iakb	psychology_3	bachelor	nikas	engineering	first	y
25	2011	semester a	iakb	advanced databases	bachelor	pandidas	engineering	first	y
26	2012	semester b	surrey	economics_1	phd	kapetanaki	psychology	third	y
27	2011	semester b	iakb	psychology_3	master	nikas	engineering	first	y
28	2011	semester a	iakb	economics_1	bachelor	kapetanaki	economics	first	y
29	2012	semester b	greenwich	advanced databases	master	pandidas	economics	second	y
30	2012	semester b	surrey	economics_1	bachelor	nikas	economics	second	y

Figure 0.63 'PUBLIC' USER MAINTAINS ONLY 'READ' ACCESS PERMISSIONS ON THE 'COURSE INSTRUCTOR' PAGE

The user maintains ‘read’ access while at the ‘master schedule’ section.

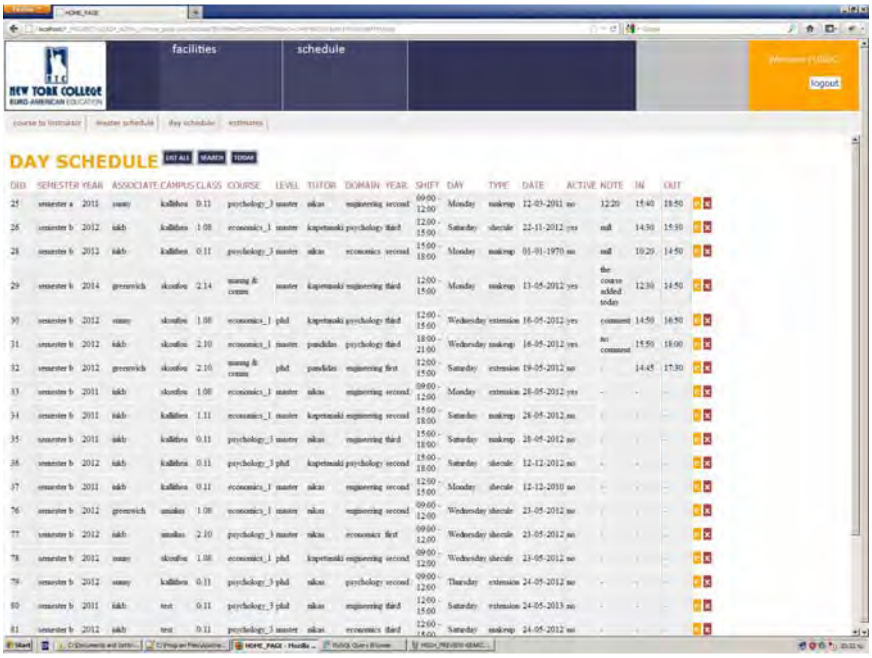


MASTER SCHEDULE

MID	YEAR	SEMESTER	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	ACTIVE
4	2012	semester a	greenwich	amalias	1.09	psychology_3	master	bands	engineering	second	15:00 - 18:00	Sunday	yes
5	2012	semester a	greenwich	kallithea	1.09	economics_1	master	bands	engineering	second	15:00 - 18:00	Tuesday	no
6	2012	semester a	greenwich	kallithea	1.11	economics_1	master	nikas	engineering	second	12:00 - 15:00	Thursday	no
28	2012	semester b	iakb	kallithea	0.01	psychology_3	master	nikas	economics	third	12:00 - 15:00	Friday	no
29	2012	semester a	greenwich	kallithea	0.02	psychology_3	master	pandidas	economics	first	15:00 - 18:00	Monday	no
30	2012	semester b	sunny	amalias	1.11	advanced databases	phd	pandidas	psychology	second	09:00 - 12:00	Monday	no
47	2011	semester a	iakb	amalias	0.01	psychology_3	master	nikas	economics	first	15:00 - 18:00	Friday	no
48	2011	semester a	greenwich	test	1.08	advanced databases	master	nikas	economics	second	09:00 - 12:00	Monday	yes
50	2011	semester a	sunny	amalias	0.11	psychology_3	bachelor	kapetanaki	economics	second	12:00 - 15:00	Friday	no
59	2012	semester b	greenwich	test	0.01	psychology_3	master	pandidas	engineering	second	12:00 - 15:00	Friday	no
60	2012	semester b	iakb	amalias	2.10	psychology_3	master	nikas	economics	first	09:00 - 12:00	Wednesday	yes
61	2011	semester b	iakb	test	1.11	psychology_3	phd	nikas	psychology	second	15:00 - 18:00	Monday	yes
62	2012	semester b	iakb	test	0.11	psychology_3	master	bands	psychology	third	12:00 - 15:00	Sunday	yes
63	2012	semester b	sunny			economics_1	phd	kapetanaki	psychology	third			
64	2011	semester b	iakb			psychology_3	master	nikas	engineering	first			
65	2011	semester a	iakb			economics_1	bachelor	kapetanaki	economics	first			
66	2012	semester b	greenwich			advanced databases	master	pandidas	economics	second			
67	2012	semester b	sunny	amalias	4.10	economics_1	bachelor	nikas	economics	second	15:00 - 18:00	Thursday	yes

Figure 0.64 'PUBLIC' USER MAINTAINS ONLY 'READ' ACCESS PERMISSION ON THE ‘MASTER SCHEDULE’ TABLE

The user maintains ‘edit’ access under the ‘day schedule’ domain. This is critical because this role is the one that is by default the role that records the daily activity of the organization.

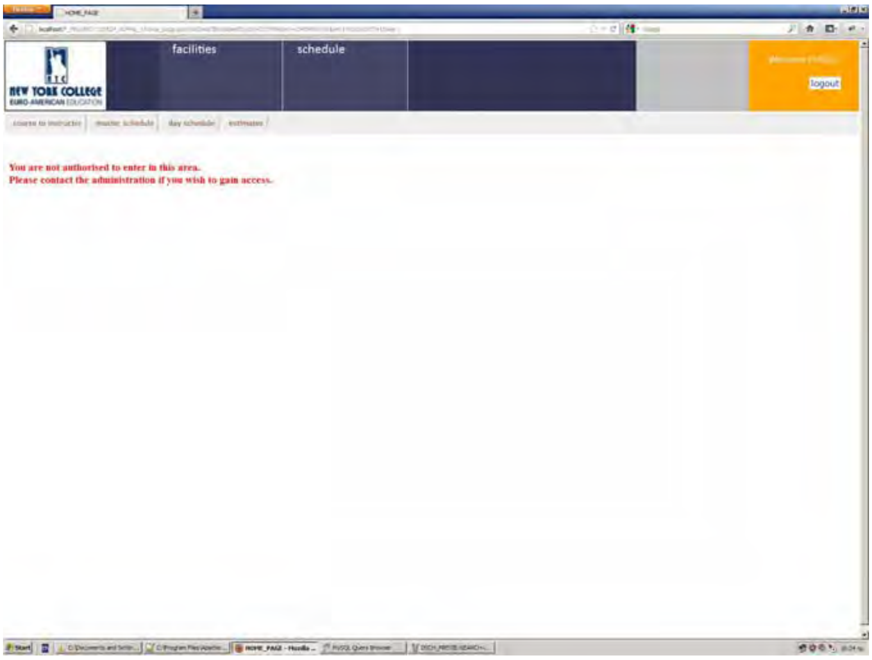


DAY SCHEDULE

DID	SEMESTER	YEAR	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	TYPE	DATE	ACTIVE	NOTE	IN	OUT	
25	semester a	2011	sunny	kallithea	0.11	psychology_3	master	nikas	engineering	second	09:00 - 12:00	Monday	makeup	12-03-2011	no	12:20	15:40	18:50	✎ ✖
26	semester b	2012	iakb	kallithea	1.08	economics_1	master	kapetanaki	psychology	third	12:00 - 15:00	Saturday	shecule	22-11-2012	yes	null	14:50	15:50	✎ ✖
28	semester b	2012	iakb	kallithea	0.11	psychology_3	master	nikas	economics	second	15:00 - 18:00	Monday	makeup	01-01-1970	no	null	10:20	14:50	✎ ✖
29	semester b	2014	greenwich	skoufou	2.14	marang & comm	master	kapetanaki	engineering	third	12:00 - 15:00	Monday	makeup	13-05-2012	yes	the course added today	12:30	14:50	✎ ✖
30	semester b	2012	sunny	skoufou	1.08	economics_1	phd	kapetanaki	psychology	third	12:00 - 15:00	Wednesday	extension	16-05-2012	yes	comment	14:50	16:50	✎ ✖
31	semester b	2012	iakb	skoufou	2.10	economics_1	master	pandidas	psychology	third	18:00 - 21:00	Wednesday	makeup	16-05-2012	yes	no comment	15:50	18:00	✎ ✖
32	semester b	2012	greenwich	skoufou	2.10	marang & comm	phd	pandidas	engineering	first	12:00 - 15:00	Saturday	extension	19-05-2012	no	-	14:45	17:30	✎ ✖
33	semester b	2011	iakb	skoufou	1.08	economics_1	master	nikas	engineering	second	09:00 - 12:00	Monday	extension	28-05-2012	yes	-	-	-	✎ ✖
34	semester b	2011	iakb	kallithea	1.11	economics_1	master	kapetanaki	engineering	second	15:00 - 18:00	Saturday	makeup	28-05-2012	no	-	-	-	✎ ✖
35	semester b	2011	iakb	kallithea	0.11	psychology_3	master	nikas	engineering	third	15:00 - 18:00	Saturday	makeup	28-05-2012	no	-	-	-	✎ ✖
36	semester b	2012	iakb	kallithea	0.11	psychology_3	phd	kapetanaki	psychology	second	15:00 - 18:00	Saturday	shecule	12-12-2012	no	-	-	-	✎ ✖
37	semester b	2011	iakb	kallithea	0.11	economics_1	master	nikas	engineering	second	12:00 - 15:00	Monday	shecule	12-12-2010	no	-	-	-	✎ ✖
76	semester b	2012	greenwich	amalias	1.08	economics_1	master	nikas	engineering	second	09:00 - 12:00	Wednesday	shecule	23-05-2012	no	-	-	-	✎ ✖
77	semester b	2012	iakb	amalias	2.10	psychology_3	master	nikas	economics	first	09:00 - 12:00	Wednesday	shecule	23-05-2012	no	-	-	-	✎ ✖
78	semester b	2012	sunny	skoufou	1.08	economics_1	phd	kapetanaki	engineering	second	09:00 - 12:00	Wednesday	shecule	23-05-2012	no	-	-	-	✎ ✖
79	semester b	2012	sunny	kallithea	0.11	psychology_3	phd	nikas	psychology	second	09:00 - 12:00	Thursday	extension	24-05-2012	no	-	-	-	✎ ✖
80	semester b	2011	iakb	test	0.11	psychology_3	phd	nikas	engineering	third	12:00 - 15:00	Saturday	extension	24-05-2013	no	-	-	-	✎ ✖
81	semester b	2012	iakb	test	0.11	psychology_3	master	nikas	economics	third	12:00 - 15:00	Saturday	makeup	24-05-2012	no	-	-	-	✎ ✖

Figure 0.65 'PUBLIC' USER MAINTAINS FULL ACCESS PRIVILEGE ON THE 'DAY SCHEDULE' TABLE

The ‘estimates’ page will prohibit its function to the user and will respond with an informative message while the user tries to enter.



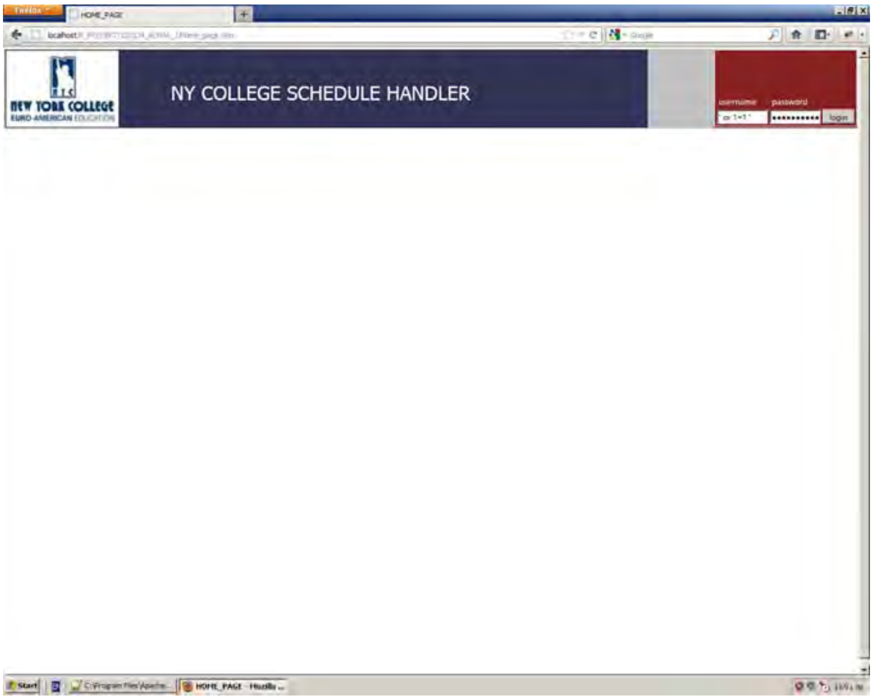
You are not authorised to enter in this area.
Please contact the administration if you wish to gain access.

Figure 0.66 'PUBLIC' USER IS NOT ALLOWED TO ENTER THE 'ESTIMATIONS' PAGE

1.9 SECURITY

1.9.1 SQL CODE INJECTION - LOGIN

The user attempts to inject SQL malicious coding to break the semantic queries that run in the background of the system.



username: ' or 1=1 '
password: ••••••••••

Figure 0.67 INJECT SQL STATEMENTS TO LOGIN

The system will not validate the user inputs and will ask for valid the user credentials again.

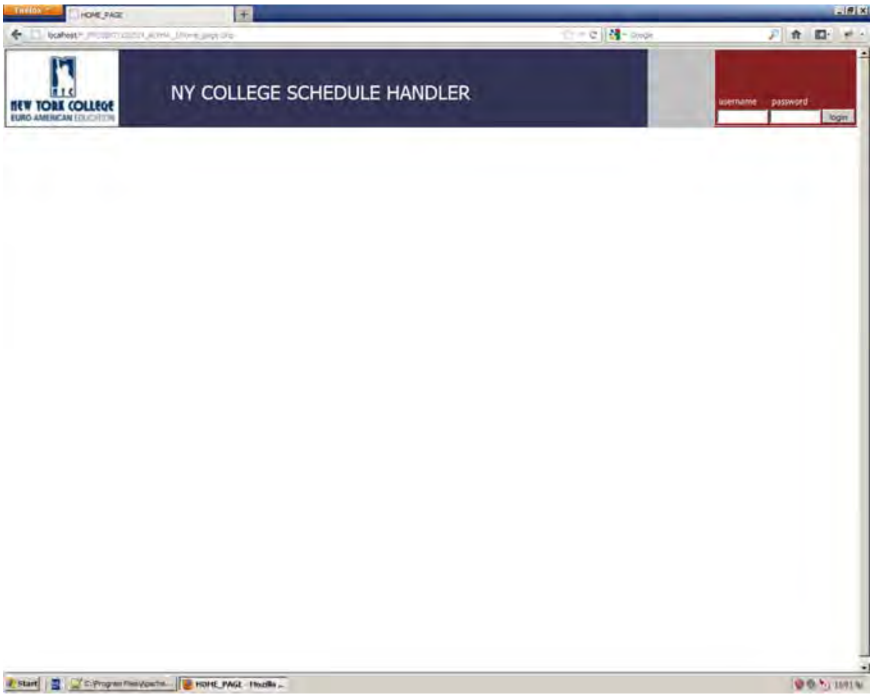
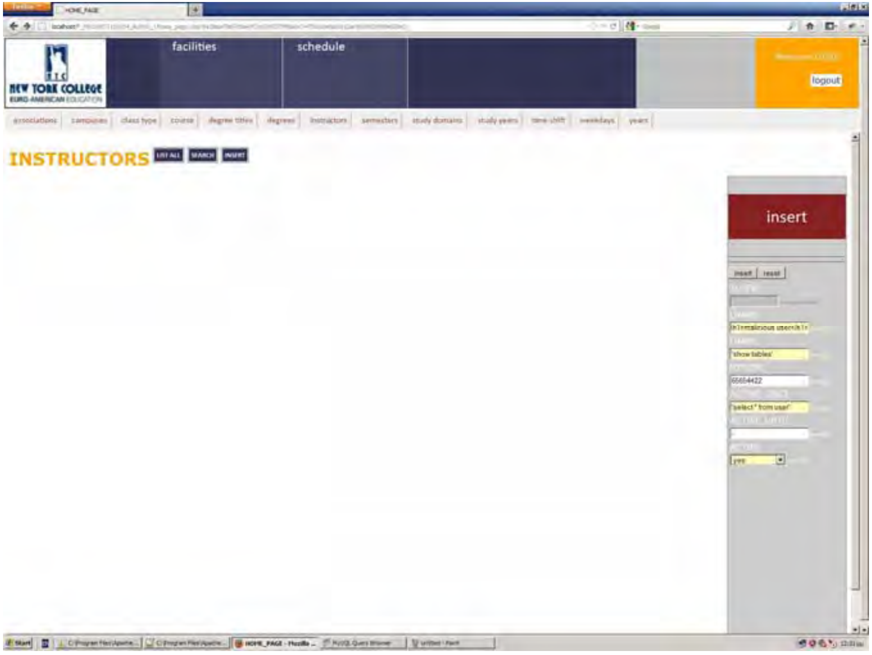


Figure 0.68 LOGIN OMITS TO GENERATE SQL INJECTED CODE

1.9.2 SQL CODE INJECTION - FORMS

The user, while at the ‘instructors’ area, tries to inject HTML and dangerous MySQL code to the system.



h1>malicious user</h1>

'show tables'

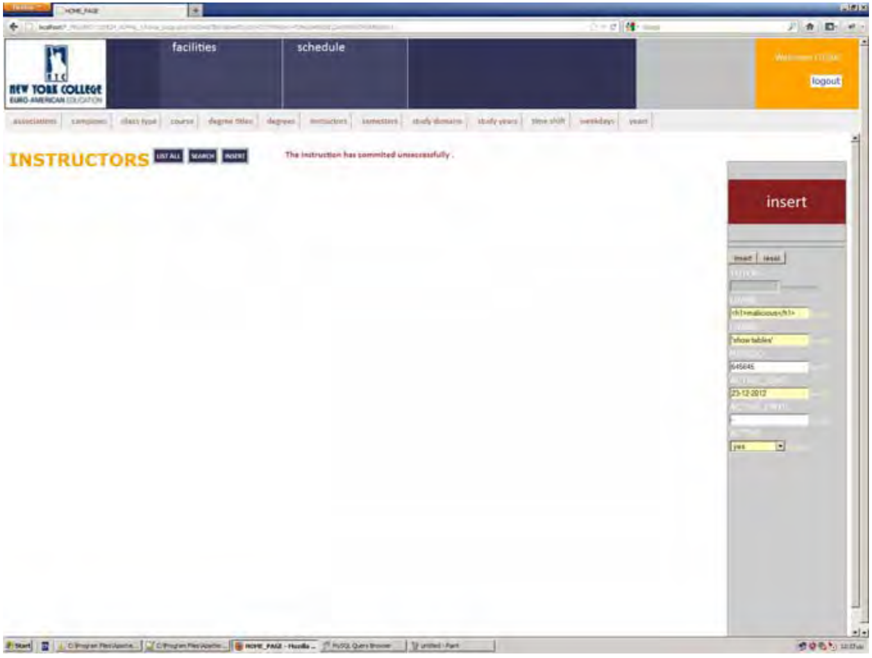
65654422

'select * from user'

yes

Figure 0.69 INJECT SQL CODE TO THE FORM INPUTS

The system will reject the invalid entries, and will display a relative message to the user. In fact the problem with the data is that the value that is added in the 'active_since' input will need to be interpreted in the background of the system as a 'date' value and this interpretation will be attempted to store. Since the interpretation will not make any 'date' sense the storage will be rejected.

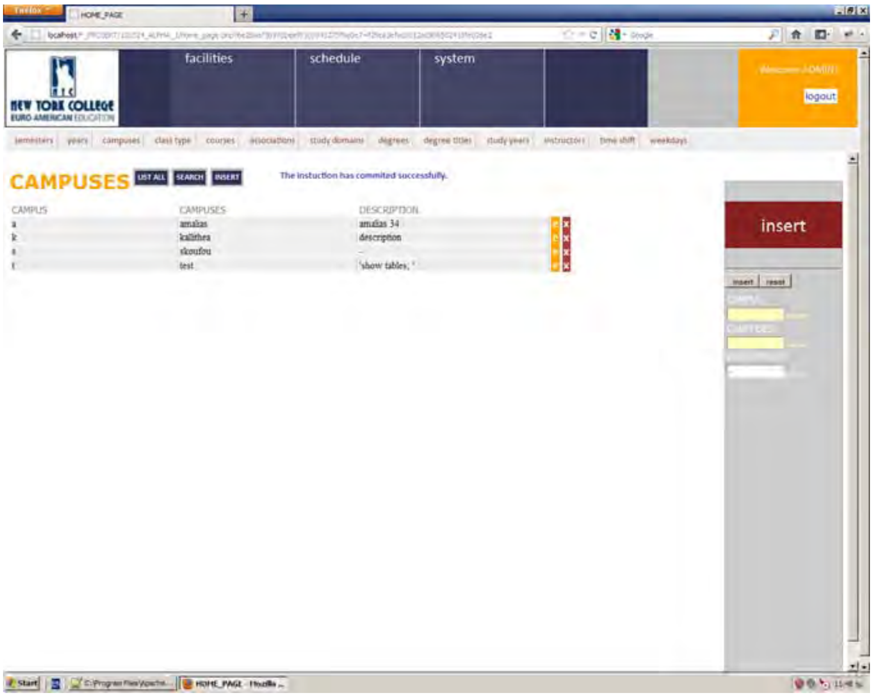


The instruction has commited unsuccessfully .

<h1>malicious</h1>
'show tables'
645645
23-12-2012
yes

Figure 0.70 THE SYSTEM WILL AVOID TO GENERATE SQL INJECTED CODE

The user tries to inject MySQL code in the 'campuses' section. The user will try to map all the tables that exist in the database give the 'show tables' command .The system will examine the value, and while making the essential adjustments will eventually treat it like common string values storing it to the database.

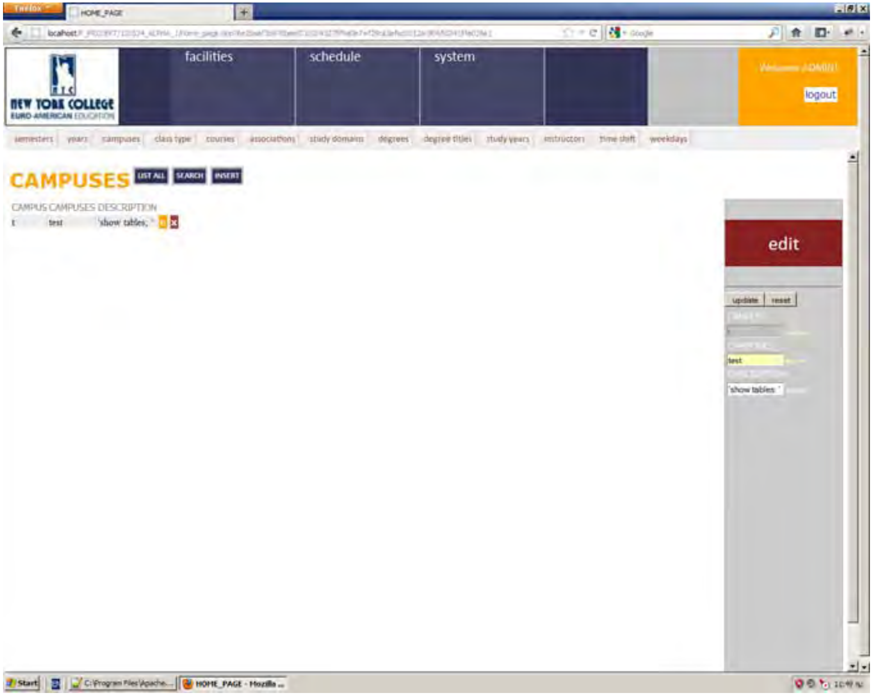


The instuction has commited successfully.

CAMPUS	CAMPUSES	DESCRIPTION
a	amalias	amalias 34
k	kallithea	description
s	skoufou	-
t	test	'show tables; '

Figure 0.71 THE INJECTION OF SQL CODE TO THE 'DESCRIPTION' INPUTS WILL TREAT THE CODE LIKE COMMON STRING INPUT

While in 'edit' mode the value will acquire the same treatment.

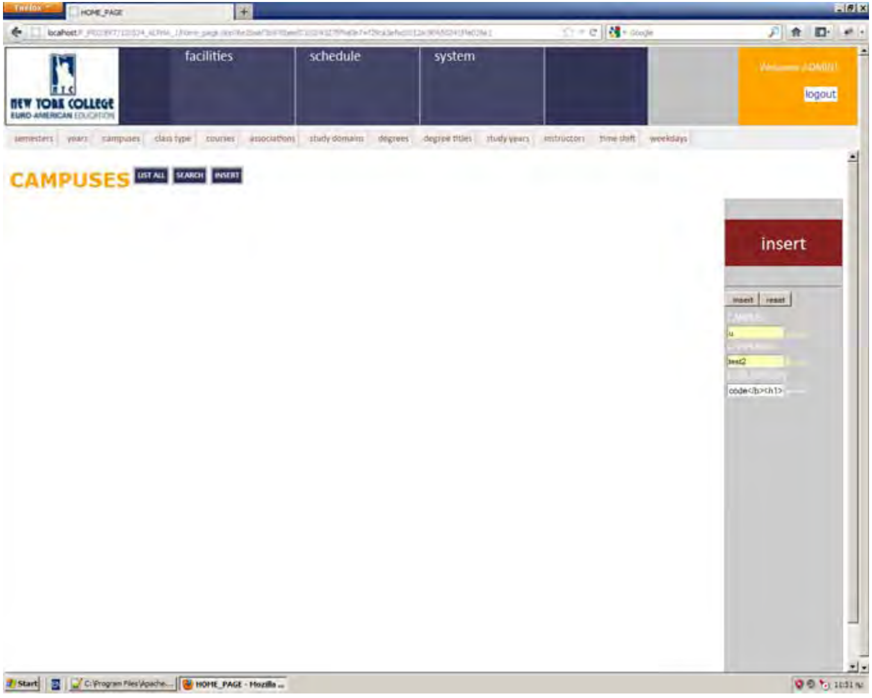


CAMPUS CAMPUSES DESCRIPTION
1 test 'show tables; '

test
'show tables; '

Figure 0.72 INJECTION OF SQL CODE IN THE 'EDIT' FORM WILL TREAT THE CODE AS COMMON STRING INPUT

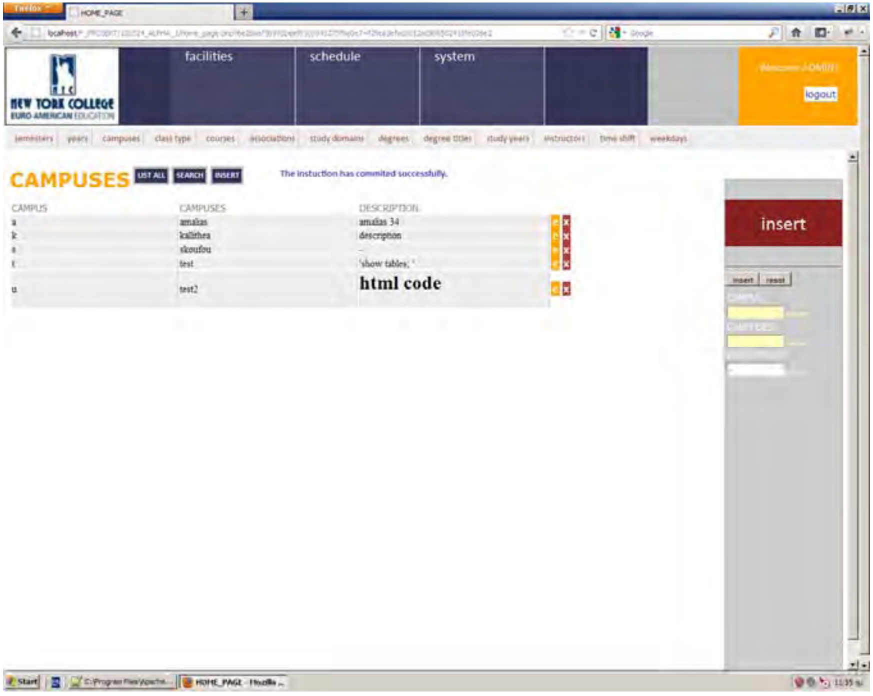
Another form of controversial input that the user could potentially issue to the system is 'html code'.



u
test2
code</b><h1>

Figure 0.73 INJECTION OF HTML CODE ON THE FORM INPUTS

The user submits the input and the ‘html’ code modifies the output result.



CAMPUSES

The instuction has commited successfully.

CAMPUS	CAMPUSES	DESCRIPTION
a	amalias	amalias 34
k	kallithea	description
s	skoufou	-
t	test	'show tables; '
u	test2	**html code**

Figure 0.74 HTML VALID CODE IS DELIBERATELY SET TO OPERATE BY DEFAULT

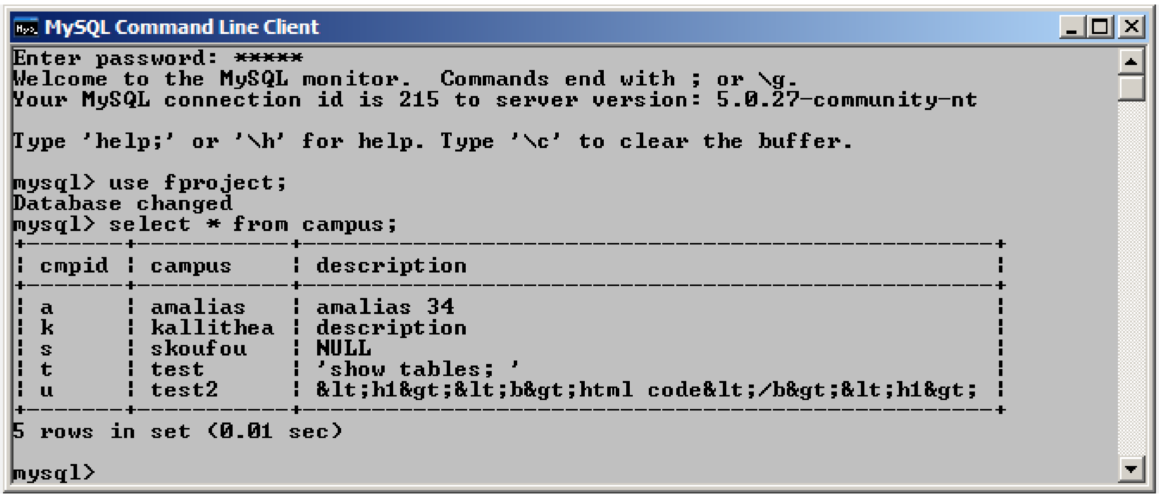
Note

This code break methodology has been deliberately treated loosely because the nature of the system is to be used within an organization and it is not publicly on the web. Therefore the system will provide meaning for the ‘html’ commands on screen.

This was chosen as best choice because the system incorporates entities names (like courses for example) that will potentially contain symbols (ampersands ‘ & ‘) that also make sense to ‘html’ and if those where to treated with security measures, the name that contains those symbols would be distorted and its output would lose its readability

.

Nevertheless, the way that the system handles ‘html’ code can be altered in demand of administrators, since the code already integrates the mechanism to do so. For example, we can see above that in reality the value is stored securely in the database and the ‘html’ meaningful symbols have already been escaped by the mechanism, and those are regaining their meaning while called back from user.



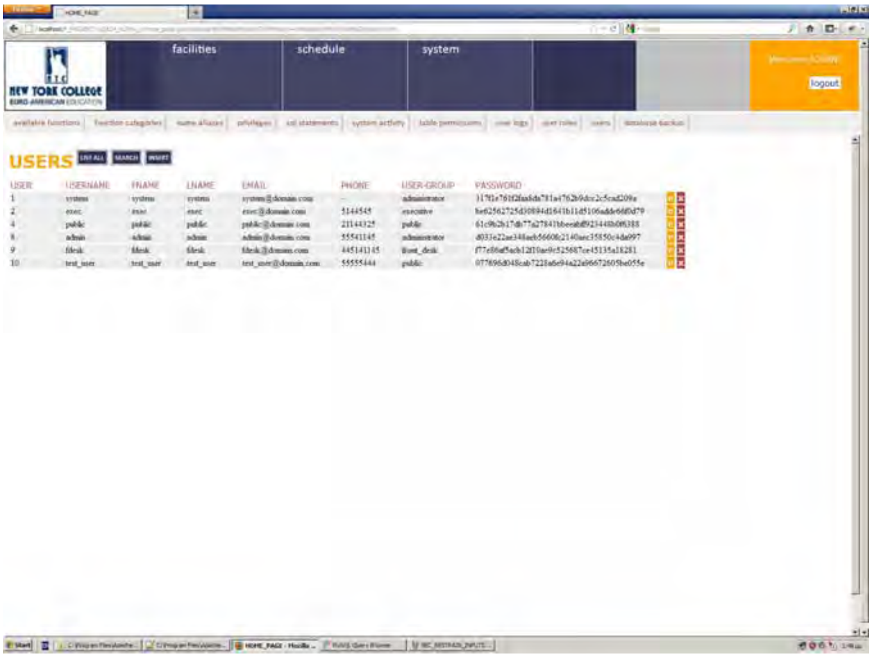
```
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 215 to server version: 5.0.27-community-nt

Type 'help;' or '\h' for help. Type '\c' to clear the buffer.

mysql> use fproject;
Database changed
mysql> select * from campus;
+-------+-----------+--------------------------------------------+
| cmpid | campus    | description                                |
+-------+-----------+--------------------------------------------+
| a     | amalias   | amalias 34                                 |
| k     | kallithea | description                                |
| s     | skoufou   | NULL                                       |
| t     | test      | 'show tables; '                            |
| u     | test2     | &lt;h1&gt;&lt;b&gt;html code&lt;/b&gt;&lt;h1&gt; |
+-------+-----------+--------------------------------------------+
5 rows in set (0.01 sec)

mysql>
```

Figure 0.75 HTML CODE INJECTION IS HANDLED PROPERLY IN THE DATABASE

The only reason that this method was preferred is that the system is anticipated to deploy its function internally in the organization and the users or more or less regarded trustful, otherwise this would be restrictively escaped

1.9.3 USER PASSWORD

The passwords of the users are stored with 'SHA1' encoding algorithm and while a user is searched the system triggers the indexing only the hashed password. So when the password is found then the system strikes a more detailed retrieval of data.



USER	USERNAME	FNAME	LNAME	EMAIL	PHONE	USER-GROUP	PASSWORD
1	system	system	system	system@domain.com	-	administrator	317f1e761f2faa6da781a4762b9dcc2c5cad209a
2	exec	exec	exec	exec@domain.com	5144545	executive	fe62562725d30894d1641b11d5106adde66f0d79
4	public	public	public	public@domain.com	21144325	public	61c9b2b17db77a27841bbeabff923448b0f6388
8	admin	admin	admin	admin@domain.com	55541145	administrator	d033e22ae348aeb5660fc2140aec35850c4da997
9	fdesk	fdesk	fdesk	fdesk@domain.com	445141145	front_desk	f77e86af5acb12f10ae9c525687ce45135a18281
10	test_user	test_user	test_user	test_user@domain.com	55555444	public	077896d048cab7228a6e94a22a96672605be055e

Figure 0.76 USER PASSWORDS ARE BY DEFAULY ENCODED USING SHA1

1.9.4 TABLE PERMISSIONS

The user has specific permissions on the data of the system. Nevertheless these are not true database table permissions that by nature are much more restrictive and explicit. The permissions system that is deployed in the application is implemented within the software and grants its function while supervising the user's activity in the system, and offering those action buttons that is permitted to use.

Probably one of the top-priority future considerations about the system would include the implementation of database table privileges to the users of the system.

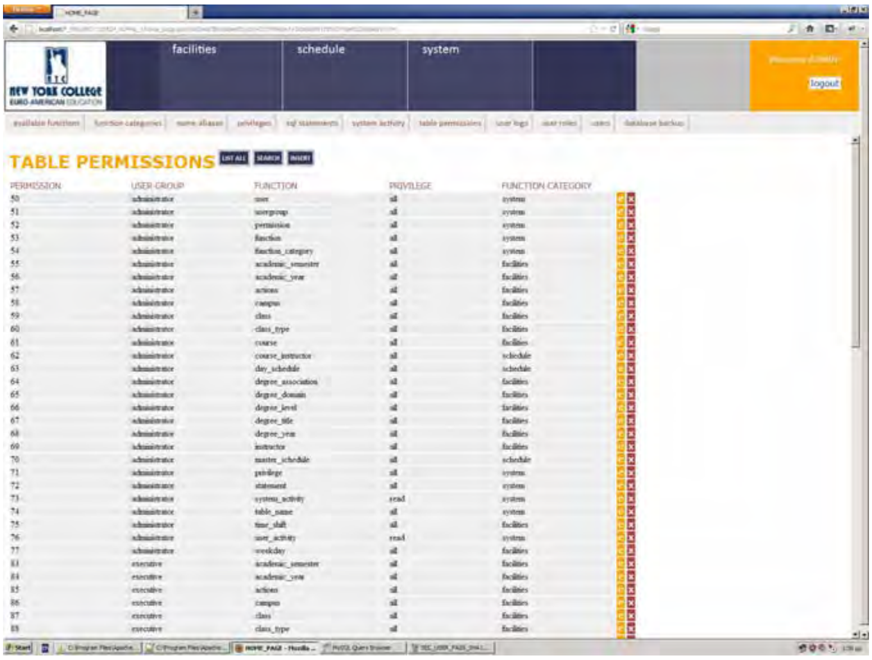


TABLE PERMISSIONS

PERMISSION	USER GROUP	FUNCTION	PRIVILEGE	FUNCTION CATEGORY
50	administrator	user	all	system
51	administrator	usergroup	all	system
52	administrator	permission	all	system
53	administrator	function	all	system
54	administrator	function_category	all	system
55	administrator	academic_semester	all	facilities
56	administrator	academic_year	all	facilities
57	administrator	actions	all	facilities
58	administrator	campus	all	facilities
59	administrator	class	all	facilities
60	administrator	class_type	all	facilities
61	administrator	course	all	facilities
62	administrator	course_instructor	all	schedule
63	administrator	day_schedule	all	schedule
64	administrator	degree_association	all	facilities
65	administrator	degree_domain	all	facilities
66	administrator	degree_level	all	facilities
67	administrator	degree_title	all	facilities
68	administrator	degree_year	all	facilities
69	administrator	instructor	all	facilities
70	administrator	master_schedule	all	schedule
71	administrator	privilege	all	system
72	administrator	statement	all	system
73	administrator	system_activity	read	system
74	administrator	table_name	all	system
75	administrator	time_shift	all	facilities
76	administrator	user_activity	read	system
77	administrator	weekday	all	facilities
83	executive	academic_semester	all	facilities
84	executive	academic_year	all	facilities
85	executive	actions	all	facilities
86	executive	campus	all	facilities
87	executive	class	all	facilities
88	executive	class_type	all	facilities

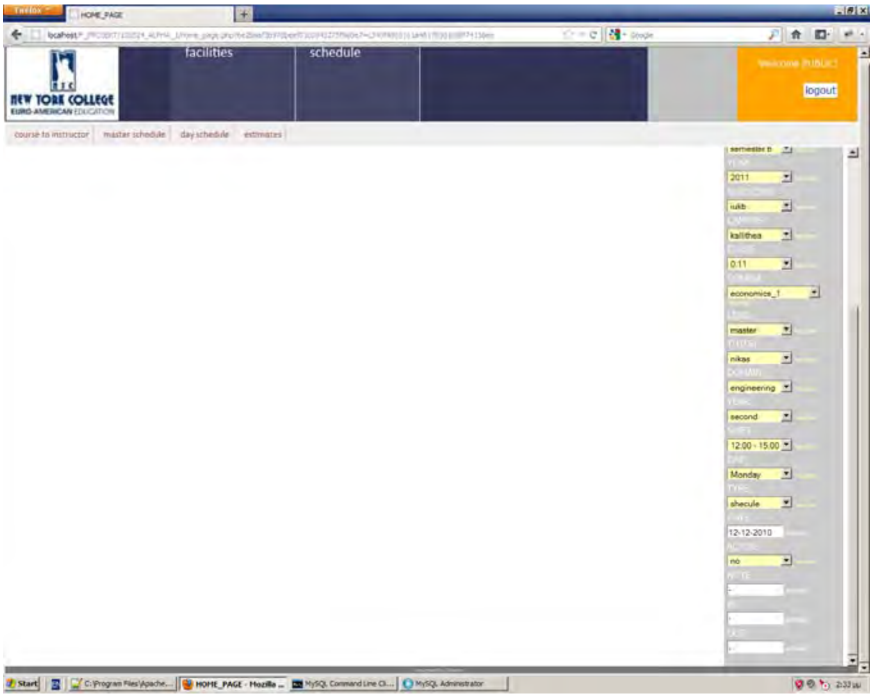
Figure 0.77 USER PERMISSIONS ON THE DATABASE ARE ASSIGNED BY THE ADMINISTRATION

Table permissions are originally assigned to 'user roles' which later are handled by the administrators in order to include users in their activity domains.

1.9.5 PREDETERMINED DATA

The system uses this top-bottom privileged permission formation that distinguishes the access permissions in 4 principal departments. At the lowest level of the formation, where presumably the less entrusted employees are found, the system has restrained most of the access when it comes to 'insert' or generally manipulate data. Moreover the functions that the users are arranged to authorize, are in majority sets of prearranged data that already exist in the system and the users are enabled to compose the days registry by selecting among those and not issuing new records.

Among those entries that the public user is authorized to insert data are ‘date’, ‘time-in’, ’time-out’ and ‘note’. These are numbered as 4 out of 20 overall and those are bind to surveillance by the latest and more secure procedures prompted officially by ‘PHP’, as all of the inputs are.



semester b

2011

iukb

kallithea

0.11

economics_1

master

nikas

engineering

second

12:00 - 15:00

Monday

shecule

12-12-2010

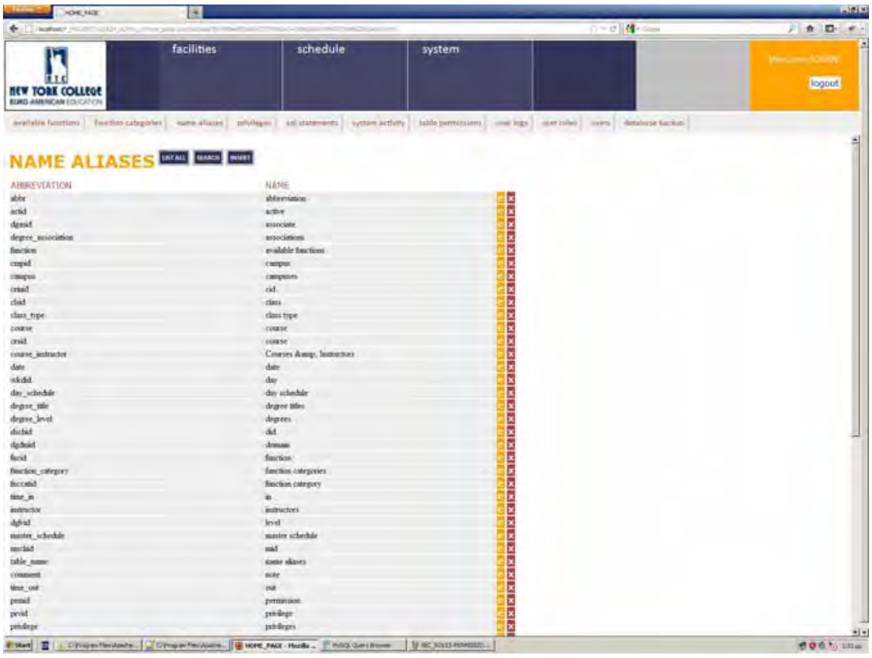
no

Figure 0.78 MOST OF THE DATA USED ARE ALREADY EXISTING IN THE DATABASE

HIDE CRITICAL INFRORMATION FROM THE SCREEN

1.9.6 TABLE & COLUMN NAME ALIASES

The system uses table alias names for the entities of the database. This technique allows the users of the system to display on screen readable data and make sufficient clauses, instead of previewing short-hand abbreviations that are used more effectively by the system. In addition the alias names are very helpful for the security of the system, as they provide it with a tool to hide in the background the true names of the entities that exist in the database.



NAME ALIASES

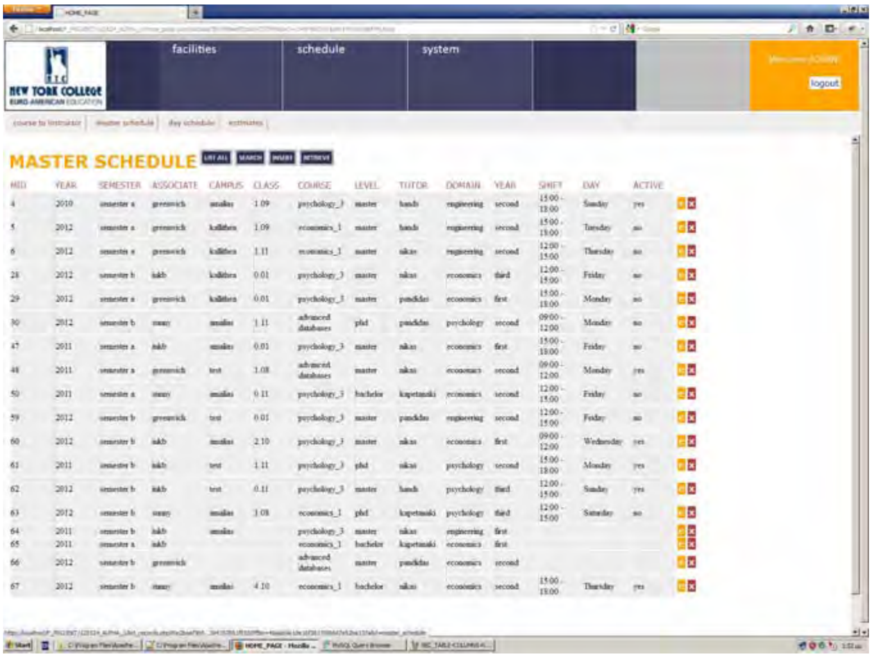
ABBREVIATION	NAME
abbr	abbreviation
actid	active
dgasid	associate
degree_association	associations
function	available functions
cmpid	campus
campus	campuses
crnid	cid
clsid	class
class_type	class type
course	course
crsid	course
course_instructor	Courses &amp; Instructors
date	date
wkdid	day
day_schedule	day schedule
degree_title	degree titles
degree_level	degrees
dscbid	did
dpdnid	domain
fncid	function
function_category	function categories
fnccatid	function category
time_in	in
instructor	instructors
dglvid	level
master_schedule	master schedule
mschid	mid
table_name	name aliases
comment	note
time_out	out
pemid	permission
prvid	privilege
privilege	privileges

Figure 0.79 NAME ALIASES WILL HIDE THE SCHEMA OF THE DATABASE

1.9.7 ENCODE ‘URL’ VARIABLES

Even though the system makes excessive implementation of encoding the data that are travelling along with the ‘URL’, at this phase it was omitted to encode the names of the tables and those are visible to malicious users. This could be a potential security drawback for the system. Nevertheless in a future version of the system this threat could easily be eliminated by using the name alias of a database entity for traveling out on public, and while it returns to the system this could be ‘white-list’ validated upon the ‘name aliases’ table values and interpreted. This method would be much more secure.

The above picture demonstrates an example of a ‘URL’ address that the system designs while the user visits different pages. The integrating hashed variables that are use can be previewed and also the name of the table that remains uncovered.



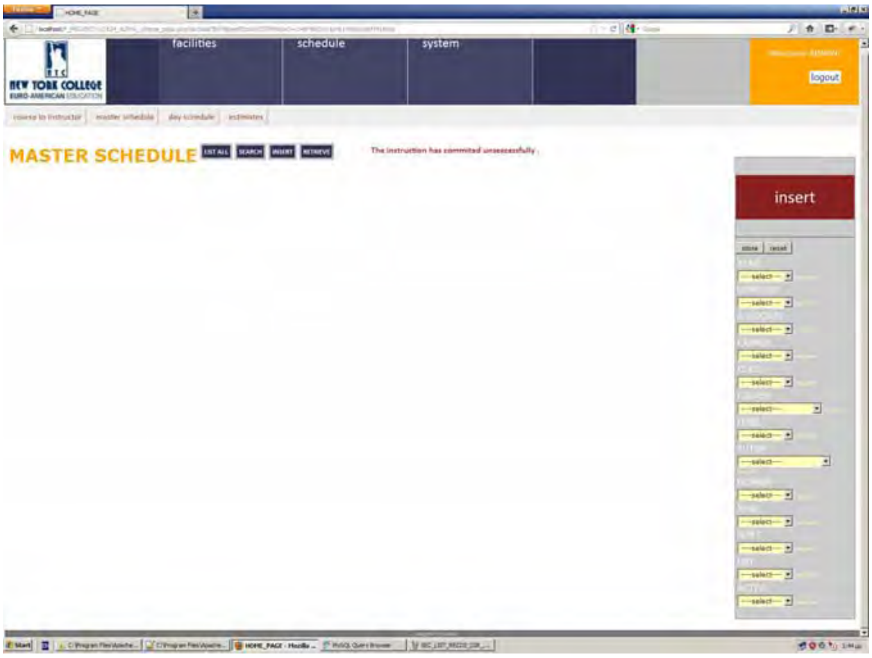
MASTER SCHEDULE

MID	YEAR	SEMESTER	ASSOCIATE	CAMPUS	CLASS	COURSE	LEVEL	TUTOR	DOMAIN	YEAR	SHIFT	DAY	ACTIVE
4	2010	semester a	greenwich	amalias	1.09	psychology_3	master	handi	engineering	second	15:00 - 18:00	Sunday	yes
5	2012	semester a	greenwich	kallithea	1.09	economics_1	master	handi	engineering	second	15:00 - 18:00	Tuesday	no
6	2012	semester a	greenwich	kallithea	1.11	economics_1	master	nikas	engineering	second	12:00 - 15:00	Thursday	no
28	2012	semester b	iakb	kallithea	0.01	psychology_3	master	nikas	economics	third	12:00 - 15:00	Friday	no
29	2012	semester a	greenwich	kallithea	0.01	psychology_3	master	pandidas	economics	first	15:00 - 18:00	Monday	no
30	2012	semester b	nnny	amalias	1.11	advanced databases	phd	pandidas	psychology	second	09:00 - 12:00	Monday	no
47	2011	semester a	iakb	amalias	0.01	psychology_3	master	nikas	economics	first	15:00 - 18:00	Friday	no
48	2011	semester a	greenwich	test	1.08	advanced databases	master	nikas	economics	second	09:00 - 12:00	Monday	yes
50	2011	semester a	nnny	amalias	0.11	psychology_3	bachelor	kapetanaki	economics	second	12:00 - 15:00	Friday	no
59	2012	semester b	greenwich	test	0.01	psychology_3	master	pandidas	engineering	second	12:00 - 15:00	Friday	no
60	2012	semester b	iakb	amalias	2.10	psychology_3	master	nikas	economics	first	09:00 - 12:00	Wednesday	yes
61	2011	semester b	iakb	test	1.11	psychology_3	phd	nikas	psychology	second	15:00 - 18:00	Monday	yes
62	2012	semester b	iakb	test	0.11	psychology_3	master	handi	psychology	third	12:00 - 15:00	Sunday	yes
63	2012	semester b	nnny	amalias	1.08	economics_1	phd	kapetanaki	psychology	third	12:00 - 15:00	Saturday	no
64	2011	semester b	iakb	amalias		psychology_3	master	nikas	engineering	first			
65	2011	semester a	iakb			economics_1	bachelor	kapetanaki	economics	first			
66	2012	semester b	greenwich			advanced databases	master	pandidas	economics	second			
67	2012	semester b	nnny	amalias	4.10	economics_1	bachelor	nikas	economics	second	15:00 - 18:00	Thursday	yes

Figure 0.80 THE URL VARIBALES AND VARIBALE CONTAINERS ARE ENCODED

1.9.8 ERROR HANDLING

The user attempts to record a dataset on the ‘master schedule’ table without first issuing values from the provided form. This would regularly announce a ‘fatal error’ to the user along with justification of what was it that prevent the system of executing the command.Nevertheless this is handled by the local function that acknowledges the error and outputs a rather less verbose message on screen.

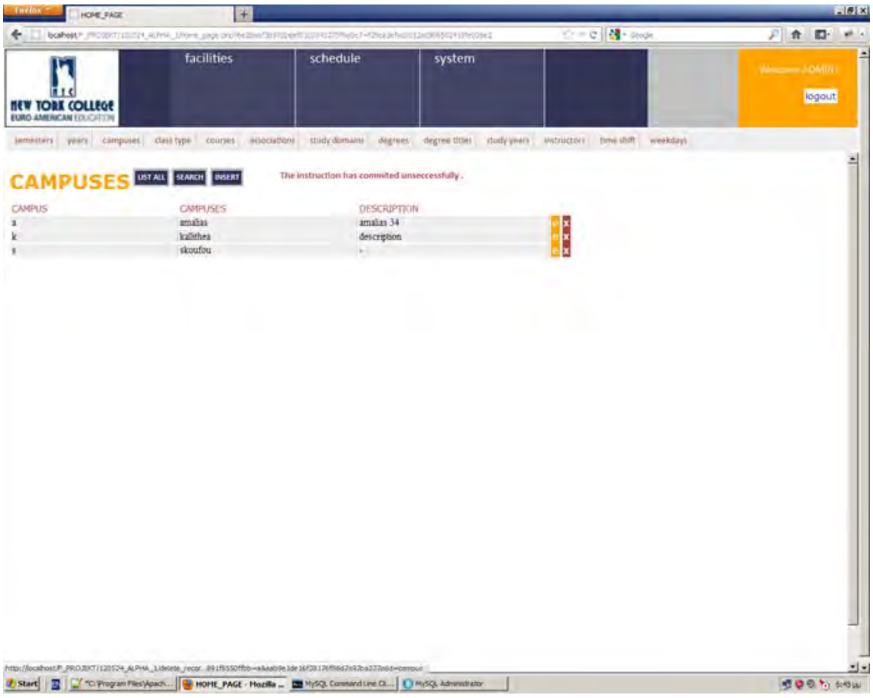


MASTER SCHEDULE

The instruction has commited unsuccessfully .

Figure 0.81 ERROR HANDLLING IS PROVIDED BY THE SYSTEM. DETAILED MESSAGES ARE ESCAPED

The user attempts to delete a campus record that is already used and referenced by other tables of the database. This would normally announce a ‘fatal error’ to the system, but is handled by the local function.



CAMPUSES

The instruction has commited unseccessfully .

CAMPUS	CAMPUSES	DESCRIPTION
a	amalias	amalias 34
k	kallithea	description
s	skoufou	-

Figure 0.82 ALL SYSTEM ERRORS ARE HANDLED BY AN INTERNAL MECHANISM

Note

The errors are generated to the system while it deploys it operation are an additional headache for the security of the system. Even thought the error messages could provide assistance for users to realize their faulty behavior, on the other hand error messages could unveil security holes to malicious users.

The error messages that the system generates while it deploys its function are totally absorbed by local function in order to prevent it from revealing the structure of the system to public. Moreover the function will further generate and announce its own messages are only sustained to whether or not the command was successful.

In a future version, the error messaging mechanism of the system could be enhanced with more error messaging options. This could be achieved by keeping track more closely for the time and objective that caused the error, and right above send an indication to the error message generator that will recognize and announce on public.

1.9.9 SECURE PAGE ACCESS

The user log in the system and the system initially recognizes and then endorses the user.

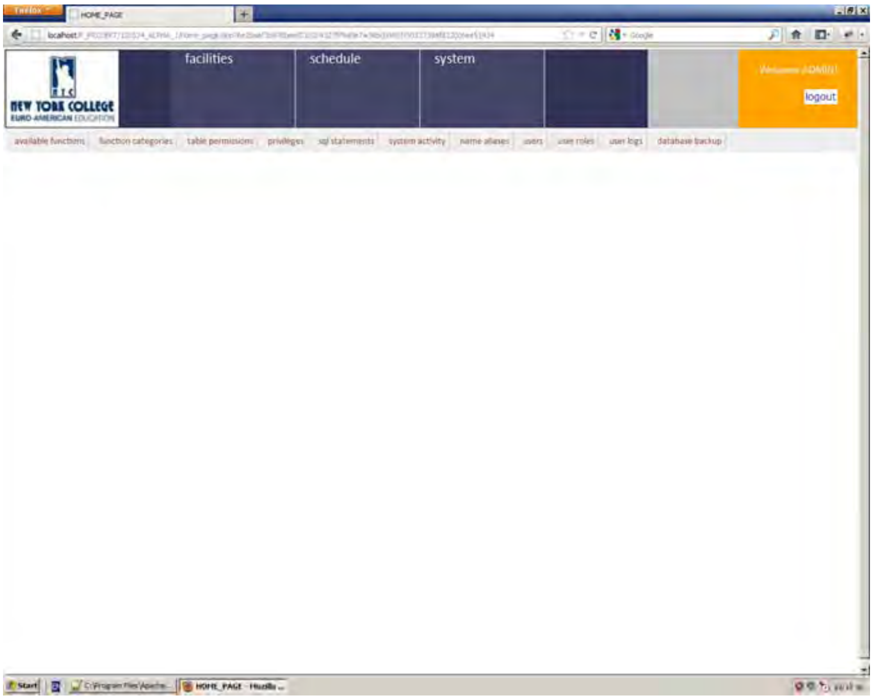


Figure 0.83 USER HAS LOGIN THE SYSTEM

The user needs to log out the system for some time and leave the office.

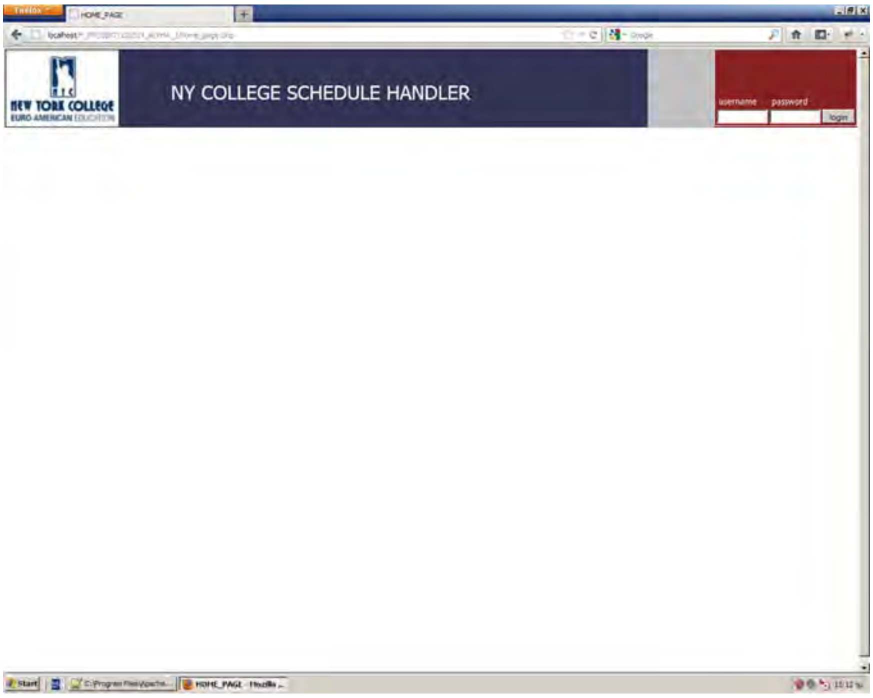
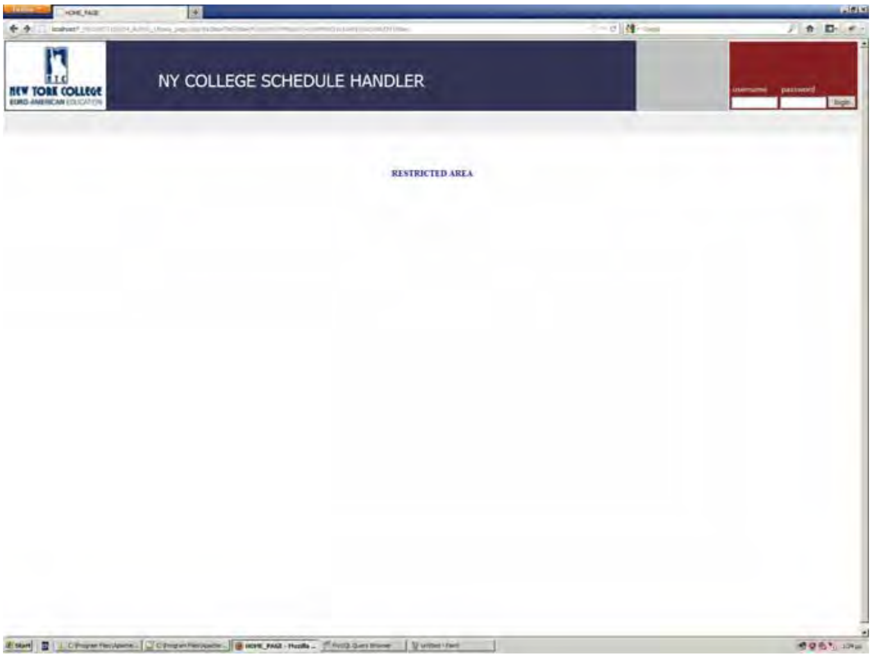


Figure 0.84 USER LOGS OUT THE SYSTEM

Another unregistered user comes to the office and tries to exploit the 'back' function button of the browser. The system responds with a 'restricted area' message on screen.



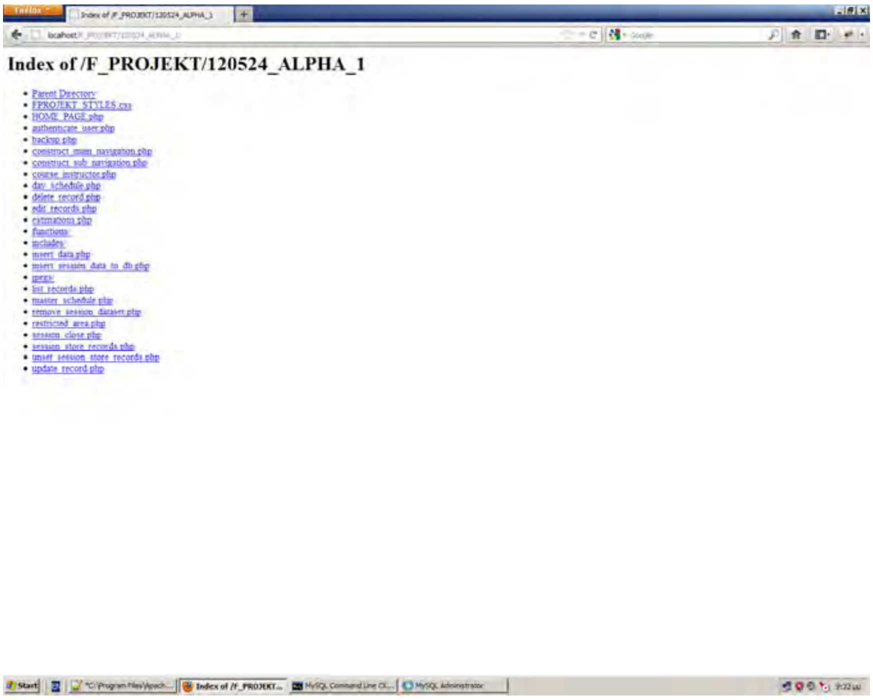
RESTRICTED AREA

Figure 0.85 USER TRIES TO EXPLOIT THE BROWSERS 'BACK' FUNCTION BUT IS RESTRAINED ACCESS

Note

The system allows the entrance only to users that have been validated and retain an active 'session' identification number while visiting diverse pages. The absence of this 'session' id will engage the user to the restriction of login first.

In addition if the user manages to reach the directory where the system's functional routines reside, and attempts to generate their function sparely, these pages are programmed to either emerge an entrance restriction, or totally remain empty. In advance, most of the pages/functions could not be reached effectively outside the systems framework, because these are programmed to respond only while retrieving encoded messages from their addresses.

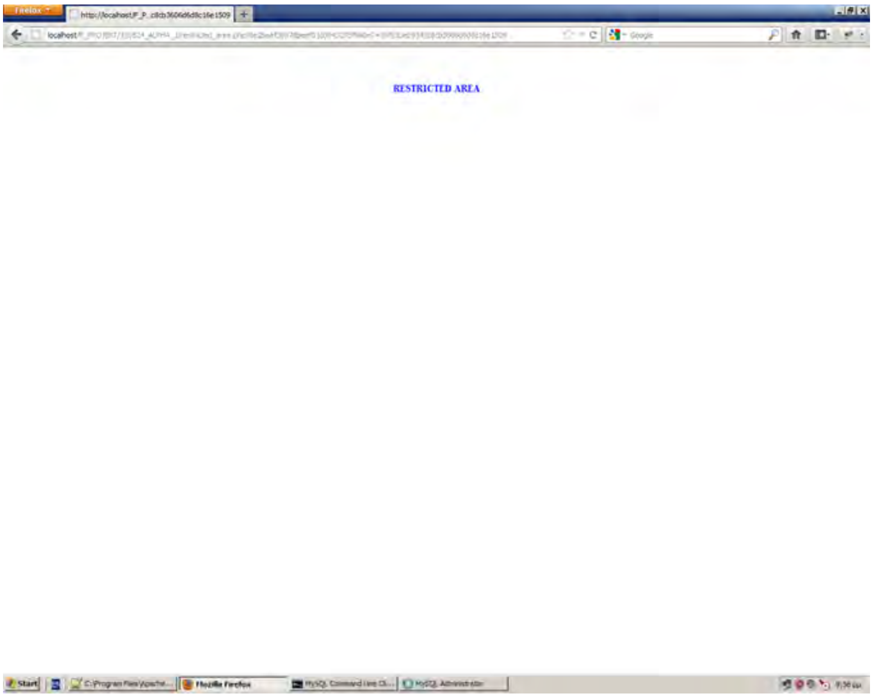


Index of /F_PROJEKT/120524_ALPHA_1

- Parent Directory
- FPROJEKT_STYLES.css
- HOME_PAGE.php
- authenticate_user.php
- backup.php
- construct_main_navigation.php
- construct_sub_navigation.php
- course_instructor.php
- day_schedule.php
- delete_record.php
- edit_records.php
- estimations.php
- functions/
- includes/
- insert_data.php
- insert_session_data_to_db.php
- jpegs/
- list_records.php
- master_schedule.php
- remove_session_dataset.php
- restricted_area.php
- session_close.php
- session_store_records.php
- unset_session_store_records.php
- update_record.php

Figure 0.86 USER REACHES TO THE DIRECTORY OF THE SYSTEM

The user selects ‘day_schedule’ link to gain access to the page.



RESTRICTED AREA

Figure 0.87 SYSTEM WILL PROHIBIT USERS FROM FOLLOWING THE LINKS AND ENTER THE SYSTEM

BIBLIOGRAPHY

Alshanetsky, I. (2005). *Guide to PHP Security .* Toronto: Marco Tabini & Associates, Inc.

Best ways to avoid code injection in PHP. (2012). Retrieved 01 03, 2012, from Stack Overflow: http://stackoverflow.com/questions/38875/best-way-to-avoid-code-injection-in-php

Blind SQL Injection - Regular Expressions Attack [online]. (2012). Retrieved 01 03, 2012, from IHTeam Security: http://www.ihteam.net/papers/blind-sqli-regexp-attack.pdf

Database Security. (2012). Retrieved 01 03, 2012, from Darkreading: http://www.darkreading.com/database-security/167901020/security/application-security/223100129/sql-injections-top-attack-statistics.html

Kofler, M. (2005). *The Definite Quide to MySQL 5 - Third Edition.* Apress.

PHP MySQL Tutorial. (n.d.). *Using php to backup mysql databases*. Retrieved 5 2005, 2012, from PHP MySQL Tutorial: http://www.php-mysql-tutorial.com/wikis/mysql-tutorials/using-php-to-backup-mysql-databases.aspx

Rerdorf, R. (2005). *Guide to PHP Security.* NB PHP | Architech Nanobooks.

Shafik, D. (2006). *PHP5 Certification Study Guide.* NB PHP | Architech Nanobooks.

SQL Injection [Nameless Wiki]. (2012). Retrieved 01 03, 2012, from Nameless Wiki: http://namelesswiki.com/wiki/SQL_Injection

SQL Injection [WASC]. (2012). Retrieved 01 03, 2012, from The Web Application Security Consortium: http://projects.webappsec.org/w/page/13246963/SQL%20Injection

SQL Injection [Wikipedia]. (2012). Retrieved 01 03, 2012, from Wikipedia: http://en.wikipedia.org/wiki/SQL_injection

SQL Injection Prevention Cheat Sheet. (2012). Retrieved 01 03, 2012, from The Open Application Security Project: https://www.owasp.org/index.php/SQL_Injection_Prevention_Cheat_Sheet#Defense_Option_2:_Stored_Procedures

Suehring, S. (2002). *MySQL Bible.* Wiley Publishing Inc.

Tim Converse, J. P. (2004). *Php & MySQL Bible.* Wiley Publishing Inc.

W3C. (n.d.). *CSS*. Retrieved 5 25, 2012, from W3C Schools: http://www.w3schools.com/css

W3C. (n.d.). *HTML*. Retrieved 5 25, 2012, from W3C Schools: http://www.w3schools.com/html

W3C. (n.d.). *PHP*. Retrieved 5 25, 2012, from W3C Schools: http://www.w3schools.com/php