

# The case of an academic institute: the classes' daily timetable schedule and its operations' performance through the use of operations tools.

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**Abstract:** The emergence of entrepreneurial oriented academic institutes or in other words the academic capitalism have affected the character and purpose of higher education in broader terms. Both, the velocity of technological changes and globalisation in combination with the complex and uncertain situations, embedded a framework of market-sensitive institutes. Education remains one of the essential axes in a community. Besides its entrepreneurial character, the mission of shaping personalities and building careers remains the foremost function for an institute. Entrepreneurship in education may bring people back to advancement and care for their personal progress while may constitute an area-based regeneration initiative, which is inspired by the principle that joined-up problems need joined-up solutions.

Nevertheless, it is inevitable for an entrepreneurial-oriented institute not to follow modern practices in terms of its internal organisation and operations. The vision starts from the inside and the experience-centric services are of primary concern for an institute.

In this paper there is an attempt to examine the case of the classes' daily timetable schedule and how this can be improved from the operations perspective. This project incorporates the administration of crucial resources for a school. It can be considered as the platform whereupon it is based the service-delivery and the study experience of the student. Although, empirical analysis has shown that, in general concern, this is underestimated, this paper may serve as a semaphore for future research.

Bringing together tangible and intangible resources is a challenge, especially for the administrator who needs to apply a set of rules on the one side, while on the other side must see the big picture of the daily classes that run in the institute. Such a mission includes the management of cost, premises, human capital and most of all the effective coordination of them in order to establish the so called "final product", which is the successful delivery of courses. This daily success multiplied to the years a student needs to attend a course, builds the brand equity of the institute and cultivates the students' loyalty in due time.

Actually, the intention is to analyse and suggest a certain framework of operations tools which could be used from an administrator to cope with the designing and creation of the timetable. So far, there are some operations techniques applied but not in a way that could provide effective feedback and scenario planning in the right time. So, this is an opportunity to create a practice. The aim is to acquire the ability to handle different scenarios each time and decide which scenario to adopt taking into consideration costs and human capital.

To achieve that, a number of operations techniques and tools are discussed and presented following the steps of PDCA (Plan-Do-Check-Act) problem solving process.

It is concluded that, such a detailed approach may help the top management of the institute to better analyse the given data in the right timing, and do effective decision making. Further decisions are made on the basis of saving valuable resources and building the quality of the augmented service that the institute offers. A successful institute should forego and reveal the insight potential strengths of its human resource, by bringing together and interacting with these entities. This paper approaches the educational issues from business and administrative perspective, thus it adopts relevant terminology.

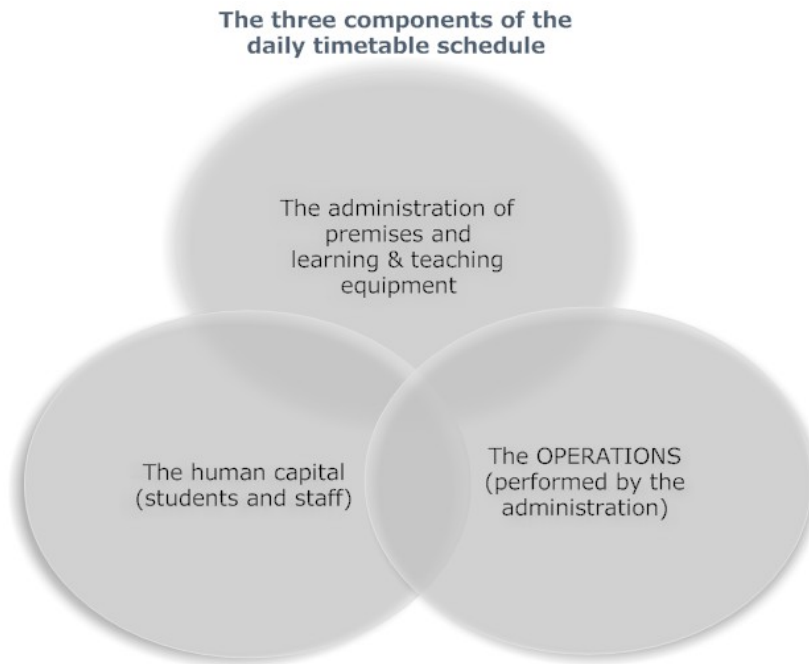
**Keywords:** operations, service experience, education, administration, timetable schedule

## 1. INTRODUCTION

This paper is an attempt to describe and evaluate the operations that take place during the design and implementation of the classes' daily timetable schedule in an academic institute.

The academic institute approaches this project as an augmented service, finally provided to the students. Actually, students are not the only entity in this project but academic and administrative staff as well. This schedule, at no doubt, creates the framework for the service experience, since

education incorporates more complex and sophisticated attributes. In addition, such specialties entail careful and proactive consideration, while the operations of the educational service are rather demanding. Moreover, this paper intends to describe and discuss the main operations that take place before the commencement of the classes focusing in the preparation of the daily timetable schedule and its implementation. Although this seems simple, the project is considered rather difficult, multipurpose and demanding since it requires the effective collaboration of different resources. The final product is the platform upon which the education service is performed and completed throughout the academic semester. This platform includes mainly human capital and premises, materials. In order to illustrate the initial concept of bringing together these components, below is given a figure.

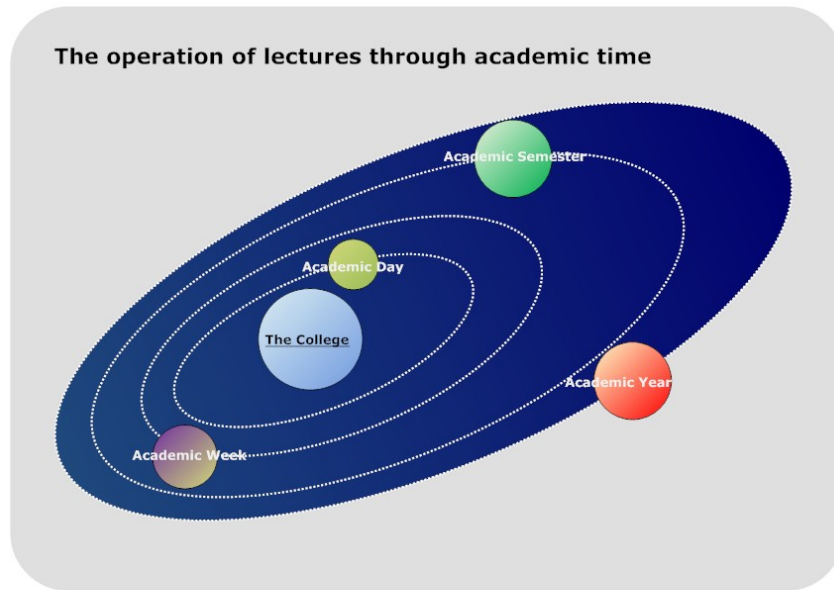


*Figure 1. The three components of the daily timetable schedule*

In the section 2, there is an attempt to describe the current situation in the institute and how it applies in practice the daily timetable scheduling. Actually, this practice mostly follows an empirical path rather than the adoption of effective operation tools. Therefore, in the section 3 of this paper, it is given a set of operation tools that are suggested to be followed according to PDCA cycle. The administration admits, for a series of reasons, that more sophisticated techniques should be implemented from now on. Where it is appropriate, there are given data and numbers. In section 4 there is a brief literature review to justify the selected concept and in section 5 it is given the perception of the new situation. Section 6 dictates some extra reasons for deciding the specific concept while in section 7 it is described in details the implementation plan through a Gantt chart. Finally recommendations and conclusions complete the big picture of the change introduced.

## **2. Description of current situation**

The institute already follows certain procedures to create the daily timetable schedule which applies to the classes that are taught in all academic programmes (undergraduate and postgraduate) both for the first and second academic semesters of the year. It is worth to mention that the measure unit in this project is the day. This project takes place twice a year, prior to the start of each academic semester. The overview of the schedule and its significance could be better realised in the next given figure.



The number of lectures that take place in an academic day, week, semester, year

Figure 2. The operation of lectures through academic time

The design and implementation of the schedule implies the cooperation of the central administration office, which is responsible for the creation of it, with the academic departments as well as other administrative offices. It is necessary to start from describing first the elements that actually are the participants in this project.

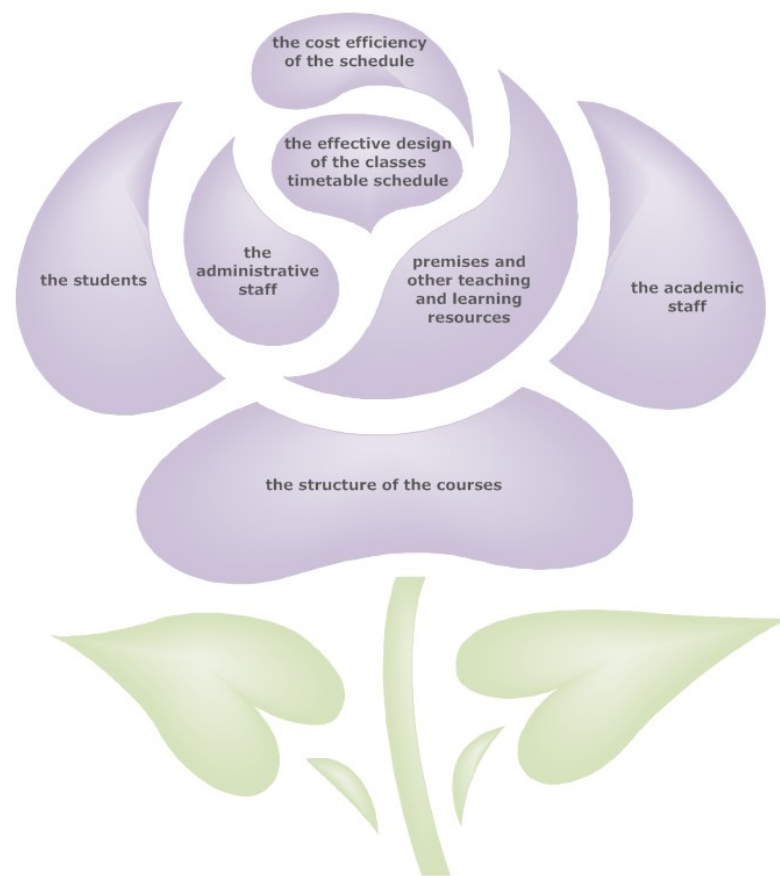
Human capital		Premises (buildings & equipment)
Academic participants	Administrative participants	
<ul style="list-style-type: none"> <li>• Business Department, staff</li> <li>• Business Department, students</li> <li>• Computer Science Department, staff</li> <li>• Computer Science Department, students</li> <li>• Psychology Department, staff</li> <li>• Psychology Department, students</li> <li>• Humanities Division, staff</li> <li>• Humanities Division, students</li> <li>• Exchange students from outside institutes</li> <li>• Executive Education Centre</li> </ul>	<ul style="list-style-type: none"> <li>• Central Administration Office</li> <li>• Database Administration Office</li> <li>• Students Services Office</li> <li>• Accounts Office</li> <li>• Administration Secretaries</li> <li>• Computer Support and Facilities Office</li> <li>• Technical support and premises maintenance office</li> <li>• Library and Learning Resources</li> <li>• Cleaning services</li> </ul>	<ul style="list-style-type: none"> <li>• Hi-tech equipment</li> <li>• Classrooms</li> <li>• Computer facilities</li> <li>• Audio-visual equipment and learning &amp; teaching presentation tools</li> <li>• Buildings</li> </ul>

Table 1. Daily timetable schedule – The participating entities

The distinction in the above elements has been done based on the specialties and the characteristics that each of them experience as a participant in the schedule. Therefore, all of them are considered as basic and necessary and need to be coordinated effectively.

In an educational process, the “product-service” has certain duration, it is intangible and complex. Thus, it can be defined as an augmented service, since it incorporates characteristics that are tangible as well. In the figure below is given this specific augmented service as it is perceived by the central administration office and constitutes the main dogma.

**The daily timetable schedule:  
The service dogma and components**



*Figure 3. The daily timetable schedule – The augmented service*

The case is not faced as a problem but rather as a challenge for the institute, to experience and apply an effective operational framework which could be adopted from now on. Since educating people is a dynamic process, the administration is always looking for further developments that will improve the service experience and will upgrade the quality of its services.

Therefore, the request that is examined in this paper is to find ways for improving the operations of the daily timetable schedule in terms of achieving: (a) more satisfied academic staff and students, (b) better use of resources (buildings & equipment), (c) effective coordination of all participants, (d) cost efficiency & financial control, and (e) existence of alternative scenarios and back-up plans for the schedule.

These are the primary aims and concerns.

Actually, in market terms, the central administration office is required to deliver the schedule in the customers by taking into consideration any specialties, restrictions and demands as well as

principles, rules and regulations and policies of the institute. As customers could be defined not only students but rest of staff as well.

To achieve that, current operations are divided into three categories depending on their managerial level and these are: (a) strategic level, (b) tactical level, and (c) operational level. There is an effort to record the operations in these three levels, in the next figure and this is expected to serve as a guide for more analysis.

<b>Strategic level</b>	<b>Tactical level</b>	<b>Operational level</b>
<u>Product development</u> : the policies that define the design of the daily timetable schedule;	<u>HR resources</u> : the academic staff planning; the administration staff that will support the project;	Schedule, the processes in terms of procedures to design the schedule (do the scheduling);
<u>Process decision</u> : the central administration office undertake the responsibility for the design and the control of the schedule;	Premises and equipment; control and maintenance operations;	Order the processes in a way that fulfil the requirements (ordering);
<u>Site location decision</u> : which premises will be used;	The premises layout and structure;	Delegate the processes as tasks to people; tasks assignment;
<u>Financials</u> : what are the financial restrictions and the policies that should be taken under consideration;	The project management methods to follow;	Establish quality procedures; inspection and evaluation of the schedule's run; Crosschecks and points of evaluation for the smooth run of it;
		Material and equipment; administration;

Table 2. The daily timetable schedule – Levels of operation

The institute uses the following premises to accommodate around 100 students and 100 people of academic and administrative staff.

<b>Buildings</b>	<b>Rooms</b>
<b>Campus One</b>	2 auditoriums
	4 classrooms
	4 conference rooms (round tables)
	3 computer lab rooms
	2 study rooms
	1 library computer lab
	1 executive conference room
	20 staff offices
	1 students' office
	1 library facility
<b>Campus Two</b>	2 classrooms
	2 conference rooms (round tables)
	2 computer labs
	10 staff offices
	3 students' offices
<b>Administration</b>	7 staff offices

Table 3. List of premises

Students and staff, belong to the following programmes and departments in undergraduate and postgraduate level:

<b>Level of studies</b>	<b>Programme of study</b>	<b>Department belongs to:</b>
<i>Undergraduate</i>	BA Hons in Business Studies	Business Adm. & Economics
	BSc Hons in Computer Science	Computer Science
	BSc Hons in Psychology	Psychology
<i>Postgraduate</i>	MA in Marketing, Advertising & Public Relations	Business Adm. & Economics
	MSc in Management	Business Adm. & Economics
	MSc in Human Resource Management	Business Adm. & Economics
	MSc in Leisure & Tourism Management	Business Adm. & Economics
	MSc in Logistics & Supply Chain Management	Business Adm. & Economics
	MSc in Software Engineering & Telecommunications	Computer Science
	MSc in Counselling Psychology	Psychology
<i>Executive (postgraduate)</i>	Executive Master of Business Administration	Executive Education Centre

Table 4. List of the academic programmes-products offered

The lecture days are the following:

<b>Lecture day</b>	<b>Level of programme</b>
Monday	Undergraduate, postgraduate
Tuesday	Undergraduate, postgraduate
Wednesday	Undergraduate, postgraduate
Thursday	Undergraduate, postgraduate
Friday	Undergraduate, postgraduate, executive
Saturday	Executive
Sunday	Executive

Table 5. Working days

Concerning the lecture times, the institute adopts the time zones principle, meaning that a lecture day, lasts from 09:00 to 22:00, and is divided preferably in three (3) teaching zones: (a) 09:00-13:00, (b) 13:00-17:00, (c) 18:00-22:00. This is not mandatory, but it is followed as a rule for the better performance and use of the facilities.

So far, it is given the elements and the parameters of the schedule, which could be represented together in the following figure. This is the ecomap of operations, which identifies the inputs (resources), the transformation (the operations of the scheduling) and the outputs, the experience for all involved parts.

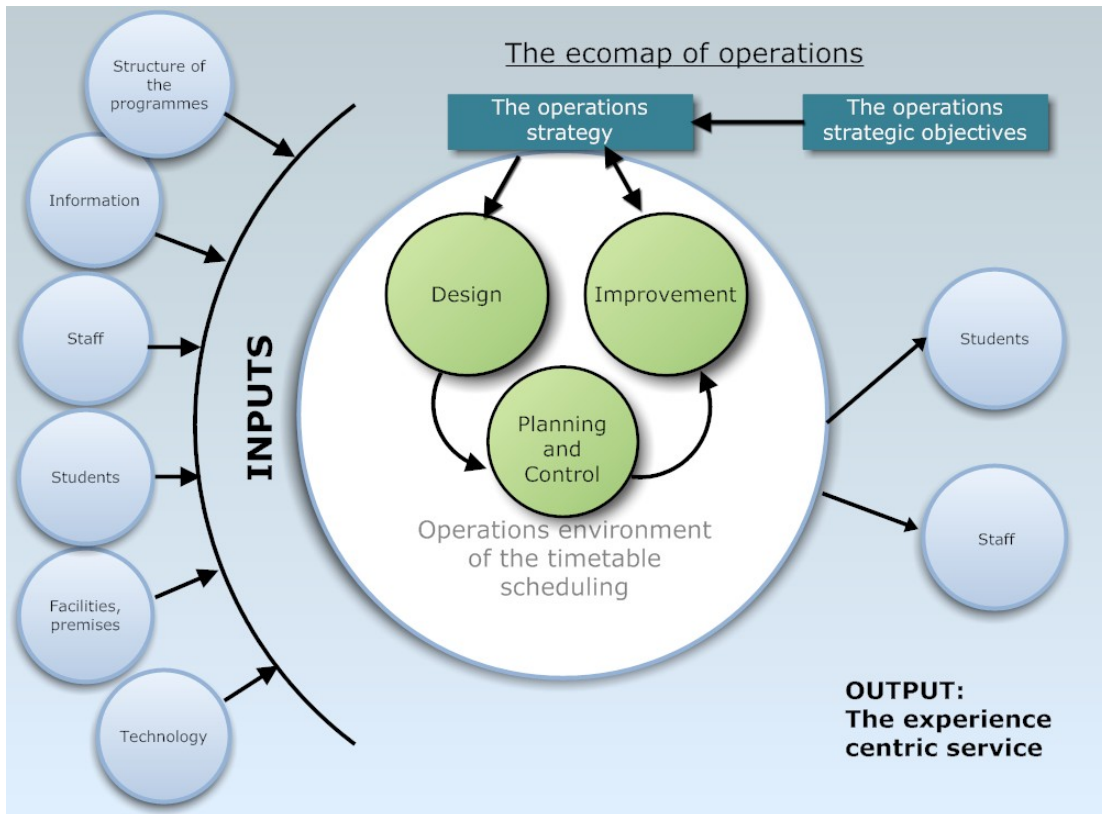


Figure 4. The ecomap of operations

In the ecomap, is omitted the financial control, which is also essential. Cost efficiency and control is a challenging process for an educational institute, since education by itself is difficult to be cost administered. Main reason is the hidden costs which derive from the specialties and the characteristics of this experience. Possible financial gains or losses are mostly related to the effective use of resources.

The operations strategy in experience-centric services, such as in educational process, is concerned with the alignment and fit of marketing and operations in a service environment (Voss et al, 2008). The figure presented below clearly gives the correlation between student, brand equity and customer loyalty through the scheme of operations strategy of the institute.

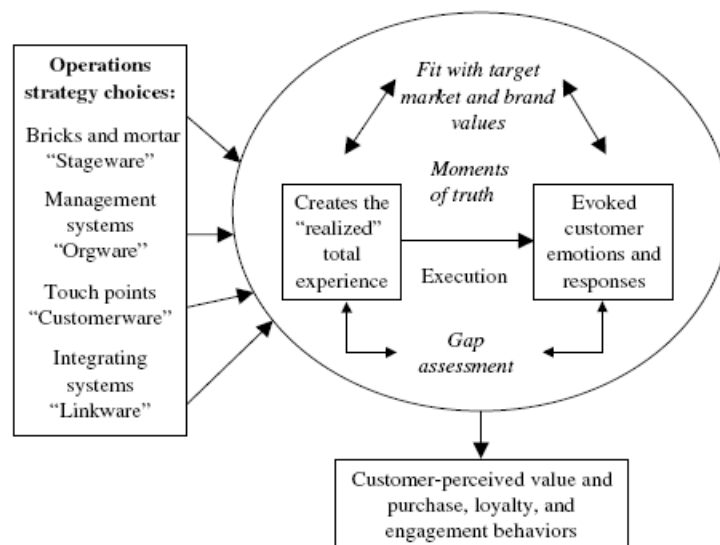


Figure 5. The Role of Operations Strategy in experience-centric services

(Source: Voss, Chris et al (2008) Experience, Service operations strategy and services as destinations: foundations and exploratory investigation. *Journal of Production and Operations Management*, 17(3), p. 250)

The operations strategy is responsible for the total experience which stimulates perception and the customers' perceived value. By no means, values direct to loyalty.

### 3. Possible solutions

Therefore, the problem is how the central administration office could achieve a more efficient daily timetable schedule, by adopting a number of certain practices which could guarantee high quality service in a calculated cost.

The top management requires the schedule to: (a) effectively coordinate all involved parts, (b) apply the policies and strategies of the institute, (c) give feedback about the costs, (d) be ready in the right timing, (e) provide necessary information for decision making.

In other words, the central administration office is expected to find ways in monitoring the overall operations performance of the project. The specific demands-targets require knowledge. Actually, in order to be accomplished, this depends on the knowledge infrastructure that the administration office possesses and how this could be exploited with success. The PDCA (Plan-Do-Check-Act) methodology could be adopted to perform a number of operation techniques following the problem solving process while in parallel could help in building this infrastructure in the institute. The next figure could serve as a compass in the whole process.

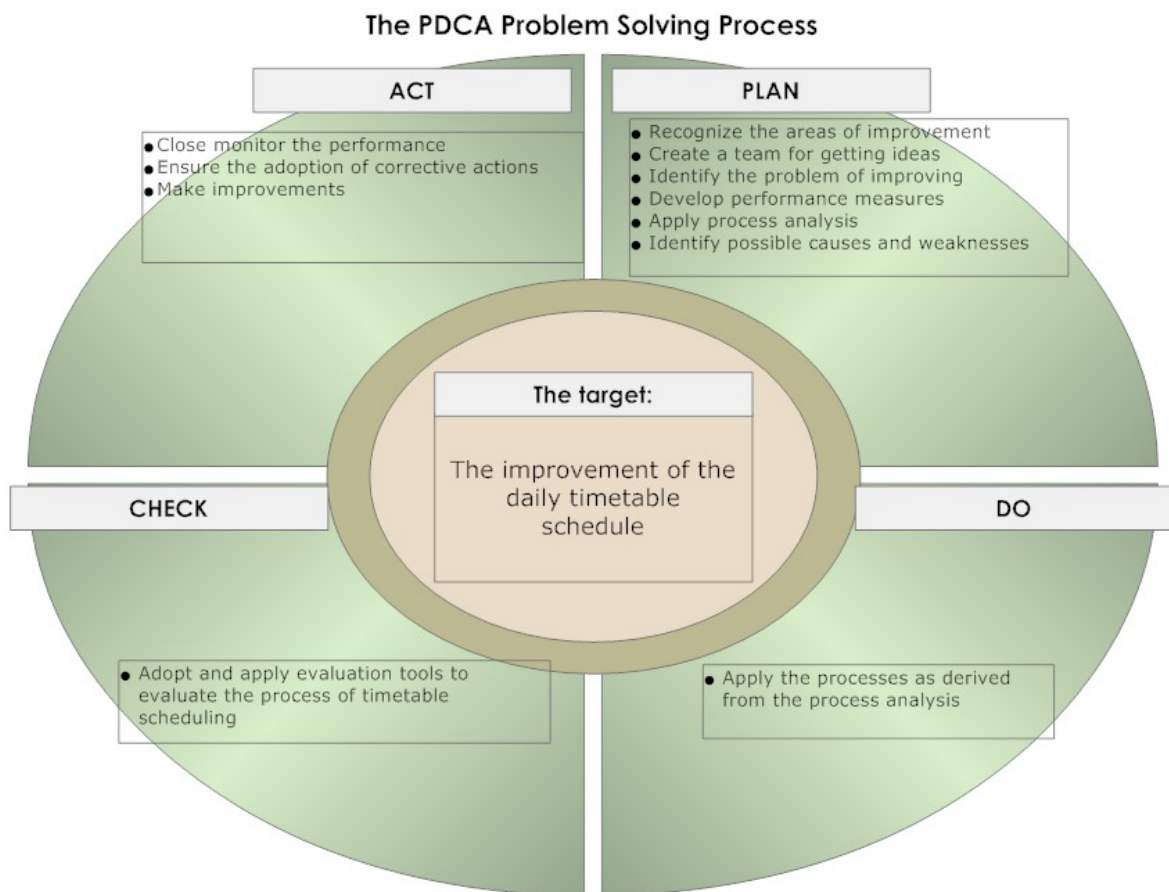


Figure 6. The PDCA Cycle – The steps to follow

Below is analysed each step and is related to certain operations tools.

#### Step 1: Recognise the areas of improvement

According to the problem solving process described earlier, first it is needed to recognise the areas of improvement. The adoption of check sheet as an effective operation tool could be useful in terms of data collection and analysis. This will help to reveal the weaknesses prior and after the implementation of the timetable schedule. To be more specific, it is suggested to apply two check



sheets. The first check sheet will be used to capture the given data of the timetable schedule, its parameters, any restrictions of resources and special requests by staff. The second check sheet will be used to register problems that will rise during the implementation of the schedule, actually during the semester run of classes. Both of them are expected to bring forth areas of weakness and points to be improved. More precisely, in the appendices section are given the check sheets as they will be used. The first (*Appendix A*), will be the responsibility of the central administration officer to maintain, while the second (*Appendix B*) could be used by the secretariats of each building, who are the primary receivers of any complaints, comments or suggestions from students and staff.

The use of check sheets will contribute in collecting data about parameters and events that are derivatives of decisions and policies from the management and the departments of the institute. Moreover, these will help in the identification of parameters that affect the quality of the final timetable schedule. Such parameters are the capacity of premises, and the human capital restrictions. Besides that, the number of students per class and other management policies may be considered as additional to the previous ones. Thus, this detailed operation tool gives an overall picture of the main parameters and reveals possible weaknesses in class level and in lecturer level.

The check sheets are intended to be updated on daily, weekly and semester basis, accumulating any parameters that rise during the semester.

Especially the second check sheet (*Appendix B*) serves as source for getting feedback both from staff and students about the smooth run of classes during the semester. This is an operation tool to use for corrective actions and to take into consideration any objections and suggestions from the "customers" as considered both staff and students. The continuous upgrade of this check sheet is unavoidable, since various specialties and reasons may appear each semester. Education is a dynamic process which involves people who have demands and expectations.

#### Step 2: Creating a team for getting ideas

According to *Winchip (2001)*, the affinity diagram is a tool to brainstorm ideas and group concepts into categories. Moreover this can be used by administrators who wish to identify key demands or solve traditional problems. The central administration office considers as a good chance to establish a quality team of key persons within the institute, who will contribute through similar sessions for the improvement of the schedule. The team will be consisted of (a) academics, (b) administrators, (c) students' representative and (d) top management. This group should gather at least twice an academic year, one before the commencement of the classes and one after the end of them, at the end of the year. An affinity diagram will follow a brainstorming session and it will aim to stimulate the members to share their experiences and thoughts in terms of what affects the quality of timetable scheduling. The results will be used each time for the management and planning processes of the scheduling. As *Kelley (2000)* stated, the affinity diagram is often used after brainstorming sessions where there is a need to reduce the ideas into manageable categories. The characteristics of these sessions will incorporate: (a) a non-threatening environment for the free expression of ideas, (b) consensus, (c) an action plan based on what was expressed, (d) the registration of all ideas that were expressed (*Winchip, 2001*).

Each of the four team groups will register the ideas and silently group them into categories under an appropriate header. At this stage there is no discussion between the groups. Each group prioritises by itself the factors that considers most important. The form of the four groups is not accidental; it is considered that the specific four institute's entities are focus groups that bring their own specialties. In the affinity diagram given in *Appendix C*, it is given some possible headers that affect the timetable schedule.

The aim of this diagram is to analyse the focus group data. Focus groups are considered as our customers and their headers are demands. Therefore, the registration of their demands will be the requirements for the timetable scheduling. The affinity diagram is an interesting tool which helps break old patterns of thought and generate more creative ways of thinking, trying to reveal meaningful patterns (*Cagle, 2003*).

#### Step 3: Identify the problem of improving

The previous two steps help in the identification of the areas to be improved, as well as in the factors that affect the quality of scheduling. Obviously, these are related mostly to the human capital and their requirements. Therefore, it is considered crucial to prioritise them towards the design of the timetable scheduling. These should be closely monitored. In relation to the next section which is about developing performance measures, the specific two steps will be interrelated.

#### Step 4: Develop performance measures

The adoption and implementation of performance measures will indicate to the administration the need for improvements or changes. The timetable schedule's performance is affected by the customers' demands (students & staff), the changes in premises and the external environment which in an extent incorporates competition. As discussed in the beginning of this paper, the timetable schedule is the platform whereupon the "final product" is delivered. Therefore, this is part of the education process and may be competitive advantage for the institute. Moreover, it adds value to the overall experience for the student who decided to join the specific institute.

Taking into consideration both the strategic plan of the institute and the competition, different objectives imply different measures. In the figure given below, it is given the five performance objectives for the central administration office in terms of designing and applying the daily timetable schedule.

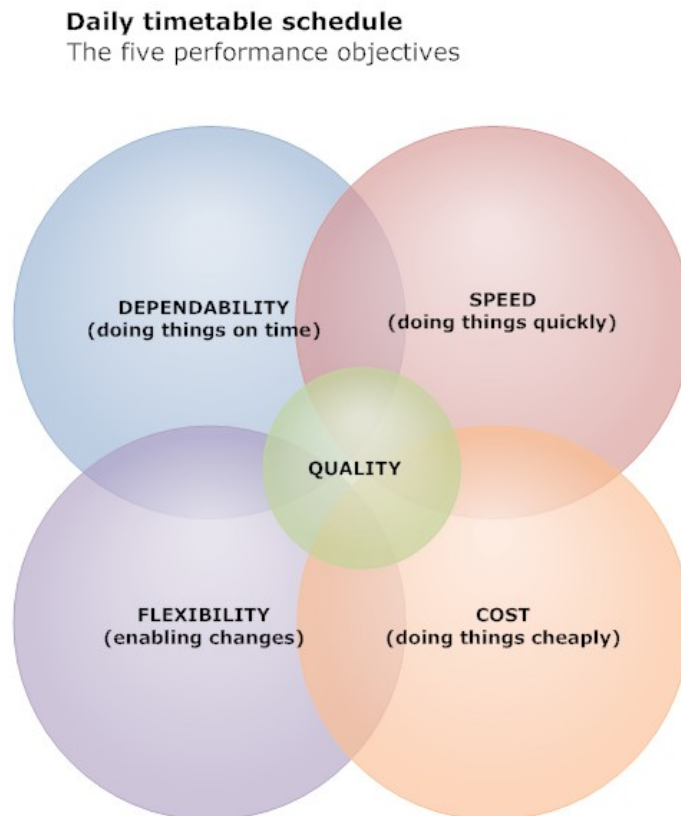


Figure 7. The five performance objectives

Performance measures should be built on these five performance objectives. The operations tool to be used is the benchmarking. The entities to be benchmarked will be internal, meaning the schedule's participants, students and staff. It is rather obvious that this tool is very important. *Hesham (2011)* claimed that benchmarking is the continuous review of outputs from the operations which helps in identifying ways to make changes in the processes in order to improve the results. Therefore, the effective application of benchmarking will result in useful feedback which is expected to help in proactive tactics.

Who will be benchmarked? The participants in the timetable scheduling, each group depending on its size of participation and contribution.

A. The Central Administration Office
B. The Database Administration
C. The Academic Departments
D. The students
E. The rest of administration offices

Depending on the information getting both from the check sheets and the affinity diagram, benchmarking should take place in the following areas:

Central Administration Office	Database Administration	Academic Departments	Students	Administrative offices
Effective coordination of resources (inconsistencies and faults)	Software use	Lecturers' restrictions	Demands in terms of schedule	Effective communication of the schedule to students and academic staff
Quick response to problems (ready-made solutions)	New patterns of administering the information	Lecturers' number of teaching hours	On-time arrival in classes	Diffusion of useful information and feedback
Cost control		Structure of offered classes	Percentages of presence at classes	
		Use of hi-tech equipment (effective or non-effective)	Damages caused to premises	
			Complaints related to hi-tech equipment	

Table 6. Who and what will be benchmarked

Nevertheless, it should not be omitted the strong key resources that the central administration office possesses and these are: (a) past experience in scheduling, (b) the basic operations backbone which followed so far, (c) the creative relationships with other members of staff and students, (d) the successful performance of scheduling so far, which at no doubt, needs to be improved to cope with future challenges. However, the above entities could be measures in terms of their performance using both leading and lagging indicators related to the areas of benchmarking.

The benchmarking is expected to give results that will imply improvements or even changes. It is suggested to adopt a more systematic and continuous improvement scenario, versus the short-term dramatic and innovative. Education is a rather people oriented experience, therefore the tactic of protect and improve could guarantee a small-stepped incremental and undramatic transition (Pawar, 2011).

#### Step 5: Apply Process Analysis Tools

This operation helps the administration to identify unnecessary processes and risks. Moreover, the aim is to increase efficiency, reduce timelines and cut costs (Kastanas, 2011). The Failure Modes and Effects Analysis tool (FMEA) is used to identify, quantify and prioritise risks (Welborn, 2010).

This technique focuses in (a) quality risks, (b) risks created during processing operations, and (c) design risks. Risks are quantified in terms of three categories: (a) severity, (b) occurrence, and (c) detection. The bottom line on this technique is to identify the impact of the risks to the end-user of the product or service and try to mitigate them. Each category gets a number in the scale of 1-10 and then the three categories are multiplied and give a risk priority number. More precisely the three categories are explained as follows:

Severity:	is the impact to the customer
Occurrence:	is the actual failure happened
Detection:	is the prevention of the failure

It is considered that the processes for the timetable scheduling will be divided in smaller areas, in order for the FMEA tool to be applied effectively. The areas will be (a) the lecturers' restrictions and requirements, (b) the facilities available and their given capacity, (c) the students' requirements. In the table below is given the FMEA for the lecturers' restrictions and requirements.

FMEA form					
Process name: Lecturers' restrictions and requirements					
Factor	Severity (rate 1-10, 10=most severe)	Occurrence (rate 1-10, 10=highest probability)	Detection (rate 1-10, 10=lowest probability)	Risk Priority Number	Action to improve
1. Personal restrictions	6	5	4	120	
2. Other academic obligations	8	6	3	144	
3. Teaching in many classes	5	4	7	140	
4. Number of teaching hours (week)	5	4	7	140	
5. Travel abroad to outside cooperative institutes	8	6	3	144	
6. Use of hi-tech equipment	4	3	8	96	
7. Special requests on premises, material and teaching & learning equipment	4	3	9	108	

Table 7. FMEA form

This tool has clearly identified the potential risks for the timetable scheduling, giving the main factors that should be scrutinised by the central administration office.

**Step 6: Identify possible causes and weaknesses**

This step implies the adoption of root cause analysis tools. As *Maze-Emerly (2008)* concluded, knowing the cause is half the battle. The fishbone diagram contributes in the overall identification of weaknesses that scheduling faces.

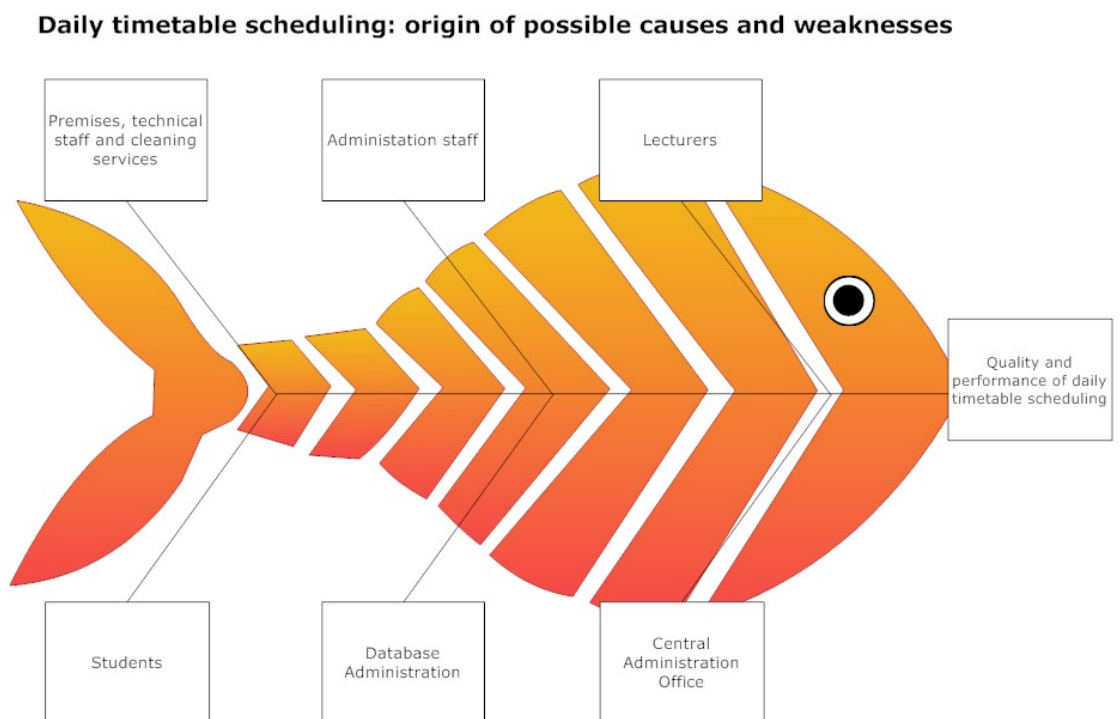


Figure 8. The Fishbone Diagram: identifying possible causes and weaknesses

This diagram highlights the possible sources of weaknesses, which already have been identified so far. Its significance though lies in the ground of seeing the big picture of who is the participant in the project of scheduling, and how could possibly affect it. Besides the six entities identified, there is additionally the top management. This was not included in the diagram as it is considered that it is responsible for setting the main framework of operations in the institute. Thus, any process is aligned with the strategic plan.

Further to the fishbone diagram and following its structure, the quality and performance of daily timetable scheduling is affected by a number of factors that are described additionally in the mindmap given in *Appendix D*. This is inspired by the diagram and tries to break into smaller parts the possible causes and points of weakness that need to be monitored.

The next steps which are part of the remaining DO-CHECK-ACT phases are suggested to be monitored through a Gantt chart. This chart will be used for the attendance of the implementation and the improvement of the scheduling as an overall process. This chart is explained in section 7, the implementation plan.

#### **4. Proposal of a new procedure or change**

The administration identifies that an effective daily timetable schedule, could add value and give competitive advantage in the institute. Therefore, it adopts the plan-do-check-act concept (PDCA). In the previous section, there were developed in detail a number of operation tools that could be used to contribute in the creation of the new platform. The change is inevitable, if the institute desires to remain at the top in terms of administrative expertise and organising. According to *Srivannaboon (2009)*, the plan-do-check-act concept is an important methodology to align operations with business strategies. Thus, any change in strategy in the institute could be easily be penetrated in the basis of operations through the effective use of tools belong to this concept. In education is difficult to pass effectively decisions from strategic to operational level. Usually, academic environments experience difficulties in quick reactions but in any case, this is the responsibility of the administration which plays a connecting role.

Furthermore, *Kumar and Wellbrock (2009)* claimed that the Deming's cycle (plan-do-check-act), is a method to measure changes in the systems and evaluate if the modified ones are performing better. Besides that *Zeng et al (2010)* have identified that P-D-C-A cycle should be provided with audits and management review for attaining continuous improvement.

As *Keffler (2006)* presented, audits is a useful tool which operated supportively to the PDCA cycle and it is used for monitoring and controlling the progress of the operations. Moreover, audits could help in identifying misleading operations which furthermore imply a service recovery strategy. All processes are experience-centred. Thus, as *Craighead et al (2004)* highlighted, service failures do not necessarily result in permanent negative consequences as long as effective service recovery strategies are undertaken.

On the other hand, the PDCA concept as could be implemented incorporates the involvement of the customers (students and staff). In an academic institute, students are expected to do things on their own. Thus, we experience a situation of customer self-efficacy and response to service (*McKee et al, 2006*). At this stage, students have an increase in perceived value and feel the essence of participating in their own student life.

#### **5. Description of the new situation in the institute**

The new situation will be fully complied with the adoption and implementation of the operations tools as described in the earlier sections. The use of check sheets, brainstorming and affinity diagrams, performance measures and benchmarking, fishbone diagrams and Gantt charts are expected to support the daily timetable scheduling as one of the main operational projects of the institute. Below is given the final model of the new situation, as it is perceived incorporating the operation tools and the PDCA philosophy. This is a challenge for the central administration office since it is expected, on the one side to put in order the empirical procedures followed in the past while on the other side to actually experience new ways of improving the timetable scheduling project.

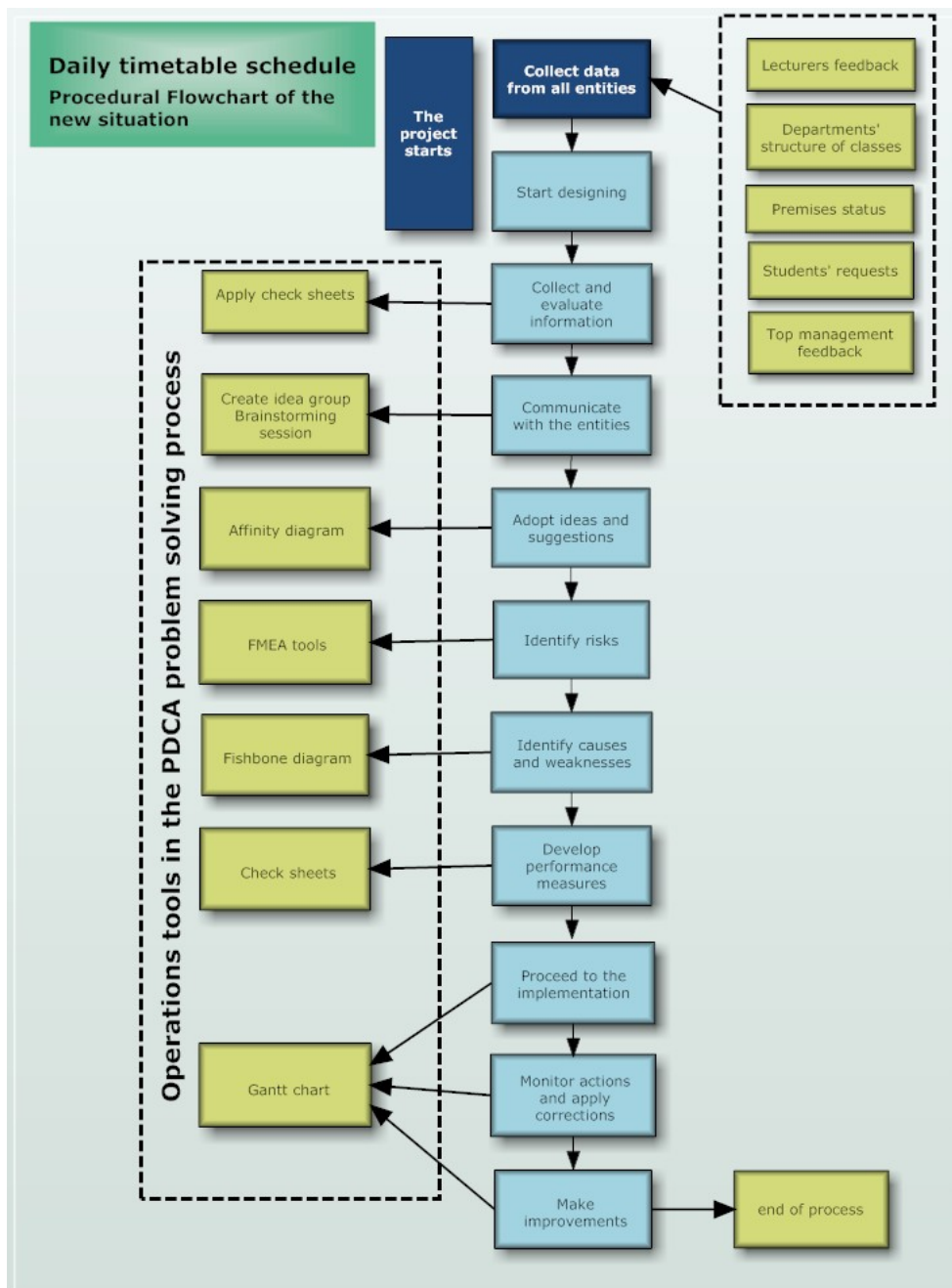


Figure 9. Flowchart of the new situation

It is true that such techniques had not followed in the past to implement the schedule. Nevertheless, some elements were used, although it wasn't clear to the administration their usefulness and origin.

This change is intended to give flexibility and enable the administration to work on scenario-planning tactics. It is crucial for the institute in an extent to get feedback on time and have the ability to reconsider and re-adjust factors.

The dimension of cost has not been included in the new situation. It could be though a challenge to correlate in the above flowchart, each function with a cost. This will be counted from the daily operating costs, salaries as well as any other fixed costs related to the operation of the institute.

## **6. Justification of change**

In section 4 of this paper, is given a brief literature review which supports the decision of the administration to adopt the specific concept and apply a series of operations tools. Furthermore, from empirical analysis and based on past experience the new situation is expected to activate a number of internal changes.

Specifically, the interaction between the central administration office and the other participants will be more efficient and creative. In addition, the contribution of the rest administrative offices will acquire a more important character and the performance of the whole process could be monitored efficiently. Besides that, the central administration plays the additional role of customer service and as *Froehle (2006)* concluded the customer service characteristics have direct impact in customer satisfaction.

However, the request from the top management is, for the administration, to find an effective operational framework for the daily timetable scheduling and to guarantee the effective performance of daily run of classes.

According to *Makowsky and Wagner (2009)* the cost-benefit analysis in an institute is a fairly new-adopted tool which conflicts many times with policy issues. Nevertheless, this is a useful source to apply and quantify the internal processes of the institute while on the other hand cultivates an attitude of measurements and comparisons. Moreover, *Wallace (2010)* claimed that in a cost-benefit analysis there is a number of hard and soft benefits that should be monitored before proceeding to any action. This paper identifies that in education the essence of cost is difficult to be specified, but given the opportunity of improving the operations performance of the daily timetable schedule there is a suggestion of cost-benefit analysis plan.

The hard benefits could be any measurable improvements in terms of the delivery of the final schedule to the students and staff as well as the actual run of classes on daily basis.

The soft benefits could be identified in terms of (a) effective communication among offices, (b) teamwork and cohesion in actions, (c) good control, (d) effective decision making, and (e) successful financial control.

Referring to costs, below are given some of them that could be taken into consideration:

### **Direct costs**

1. Capital equipment
2. Durable goods costs
3. Outsource fees

### **Indirect Costs**

1. Training costs
2. Facilities expansion costs
3. Labour costs related to the implementation of the schedule
4. Overhead costs (utilities, repairs etc.)

## **7. Implementation plan**

The implementation of the new framework is registered in a Gantt chart which will be used as the main operation tool to follow. This is given in the appendix section (*Appendix E*). The number of operating days is close to 52. Each process is divided into smaller parts and there is also assigned the resources appointed. The chart includes all operations that take place in the scheduling of classes for the first academic semester. During the second academic semester most of the operations are followed, but not all of them. The first semester's timetabling is considered more important and serves as the main framework for the second as well.

The central administrator and the database administrator play significant role in the design and creation of the timetable schedule. The implementation is performed by more participants as already has been presented. The Gantt chart follows the structure that described in the section 2 of this paper. It adopts the operation tools and incorporates them in the whole process of operations performance.

## **8. Recommendations**

The change should be incrementally introduced since it alters the normal practice traditionally followed in the previous semesters. Although the new situation is more communicative and focuses in the human capital of the institute, this would be preferably follow a practice of getting participants

involved on a step-by-step basis. There must be secured the coherence among front office and back office operations of the administration. In addition, the central administration officer should keep stable the structure of the administration department and delegate accordingly the tasks as presented in the implementation Gantt chart. In addition, there are some more focus points to be considered as follows:

- Attention to facilities
- Continuous revision of quality issues
- Measurement of performance through the use of operations tools
- Turn the weaknesses into advantages through close monitoring and interaction
- Exploit information and share knowledge with all participants
- Do the necessary operations to customise the study experience by taking into consideration the requirements of both students and staff
- Cultivate the intrinsic and extrinsic features of the service provided (daily timetable schedule)

## 9. CONCLUSIONS

As implied earlier, the operations of the administration in an academic institute are the platform for the educational process. Therefore, quality must be present in all processes. According to *Vitkiene (2010)* the education administration is linked to the organisational strategy of the institute. Therefore, effective internal structures supported by the administration, and more specific their quality and performance may guarantee sustainable development. In addition, the continuous improvement in operations performance creates a positive environment which leads through time in customer loyalty.

This attempt is more important especially for the higher education institutes which undertake the responsibility to share knowledge and cultivate thinking and acting. Administration processes are tools for the improvement and the coordination of the institute's work. Therefore, an institute should adopt quality management techniques (*Ruzevicius et al, 2009*). These techniques are consisted of operation tools which in extent create a competitive advantage and add value in the institute as a service-experience organization. As *Tseng et al (1999)* identified, the service operations performance should map objectively the service experience of the customer from the view of the customer journey. On the other hand, an entrepreneurial oriented institute is expected to adapt and implement these tools in the internal processes satisfying the needs of both its shareholders and its stakeholders.

Finally, there is another outcome derived from this concept and this is the brand equity of the institution which after the implementation of an effective operations performance plan, is definitely increased.

In conclusion, an effective daily timetable schedule, improves the students' experience, increase their perceived value and satisfaction, create loyal customers who spread their positive attitude and add value in the institute's brand equity.

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**APPENDIX A**  
**The check sheet for restrictions**

**Classes' Timetable schedule restrictions (check sheet)**  
**for undergraduate level classes**

Name of class	Class A	Class B	Class C	Class D	Class E	
<b>Number of students in the class (e.g. Class A)</b>	21	22	19	22	18	
<b>Capacity of the rooms that the class will use (number of seats)</b>	26	26	26	26	26	
<b>Academic hours of lecturers (with each class, weekly basis)</b>						weekly lecturers hours
<i>Lecturer A</i>	3	3		3		<b>9</b>
<i>Lecturer B</i>	3	3		3		<b>9</b>
<i>Lecturer C</i>	3	3		3		<b>9</b>
<i>Lecturer D</i>		3	3	3		<b>9</b>
<i>Lecturer E</i>	3	3	3			<b>9</b>
<i>Lecturer F</i>	3		3		3	<b>9</b>
<i>Lecturer G</i>			3	3	3	<b>9</b>
<i>Lecturer H</i>			3	3	3	<b>9</b>
<i>Lecturer I</i>	3		3		3	<b>9</b>
<i>Lecturer J</i>	2	2	2		2	<b>8</b>
<i>Lecturer K</i>				2	3	<b>5</b>
<i>Lecturer L</i>		3			3	<b>6</b>
<b><u>total hours weekly</u></b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>20</b>	<b>100</b>
<b>Lecturers' personal restrictions</b>						
<i>Lecturer A</i>	N/A					
<i>Lecturer B</i>	N/A					
<i>Lecturer C</i>	N/A					
<i>Lecturer D</i>	Lecturer has increased family obligations					
<i>Lecturer E</i>	N/A					
<i>Lecturer F</i>	Lecturer prefers to have classes early in the morning					
<i>Lecturer G</i>	N/A					
<i>Lecturer H</i>	N/A					
<i>Lecturer I</i>	Lecturer belongs to part time staff and has a primary job in the mornings (9-5)					
<i>Lecturer J</i>	N/A					
<i>Lecturer K</i>	N/A					
<i>Lecturer L</i>	N/A					
<b>Lecturers' other academic obligations</b>						
<i>Lecturer A</i>	Lecturer teaches in postgraduate level					
<i>Lecturer B</i>	N/A					
<i>Lecturer C</i>	Lecturer teaches abroad in cooperative Universities					
<i>Lecturer D</i>	N/A					
<i>Lecturer E</i>	if any					
<i>Lecturer F</i>	if any					
<i>Lecturer G</i>	if any					

<i>Lecturer H</i>	Lecturer has increased research oriented duties				
<i>Lecturer I</i>	if any				
<i>Lecturer J</i>	if any				
<i>Lecturer K</i>	Lecturer teaches in Executive MBA courses				
<i>Lecturer L</i>	Lecturer has increased travels to cooperative Universities				
<b>Special requests from lecturers about rooms and equipment</b>					
<i>Lecturer A</i>	Lecturer uses the interactive whiteboard				
<i>Lecturer B</i>	N/A				
<i>Lecturer C</i>	N/A				
<i>Lecturer D</i>	Lecturer needs to move his classes to computer labs in specific weeks				
<i>Lecturer E</i>	N/A				
<i>Lecturer F</i>	Lecturer uses hi-tech equipment, videoprojection and sound files in his classes				
<i>Lecturer G</i>	N/A				
<i>Lecturer H</i>	N/A				
<i>Lecturer I</i>	Lecturer uses videos and recordings in his classes				
<i>Lecturer J</i>	N/A				
<i>Lecturer K</i>	N/A				
<i>Lecturer L</i>	N/A				
<b>Maximum hours that a class can have per day</b>	4	4	4	4	4
<b>Maximum hours that a class can have per week</b>	20	20	20	20	20

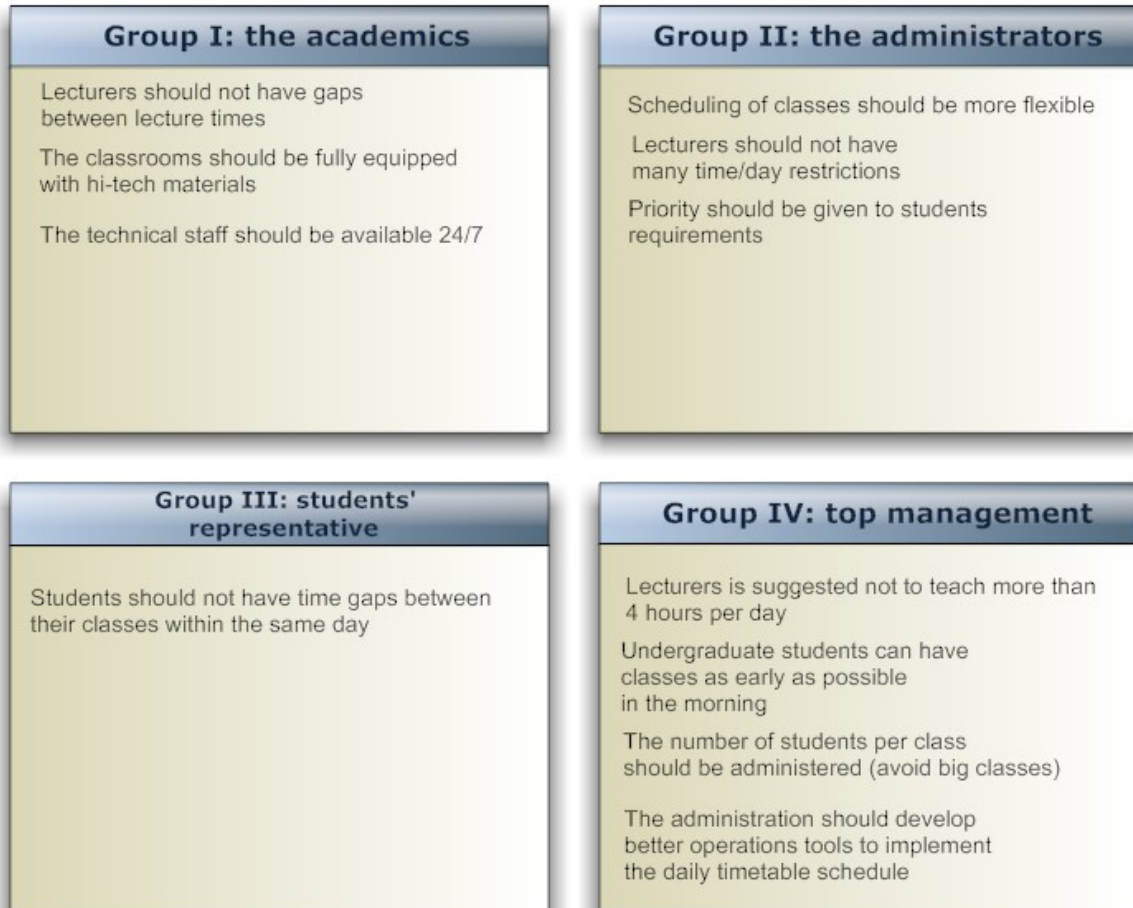
**APPENDIX B**  
**The check sheet of events' reporting**

**Daily run of classes (reporting events' check sheet)**  
**completed on weekly basis**

Reason	Week 01						
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
Requests about extra equipment	II				II		
Report technical problems with the rooms (electricity, tables, chairs, whiteboards etc)						I	I
Lecturers request assistance with the use of hi-tech							
Students complaints about the time schedule		I		I			
Report rooms conflicts							
Use of premises without scheduling		I			I		
Complaints about the quality of videoprojections			I				
Complaints about technical issues from the use of hi-tech equipment	II	I					
Delays in the start of classes				I			
Keep track of on-time run of classes according to the timetable schedule			III		I		
Cancelations of lectures	I						
Students requests for changes in the schedule	I						

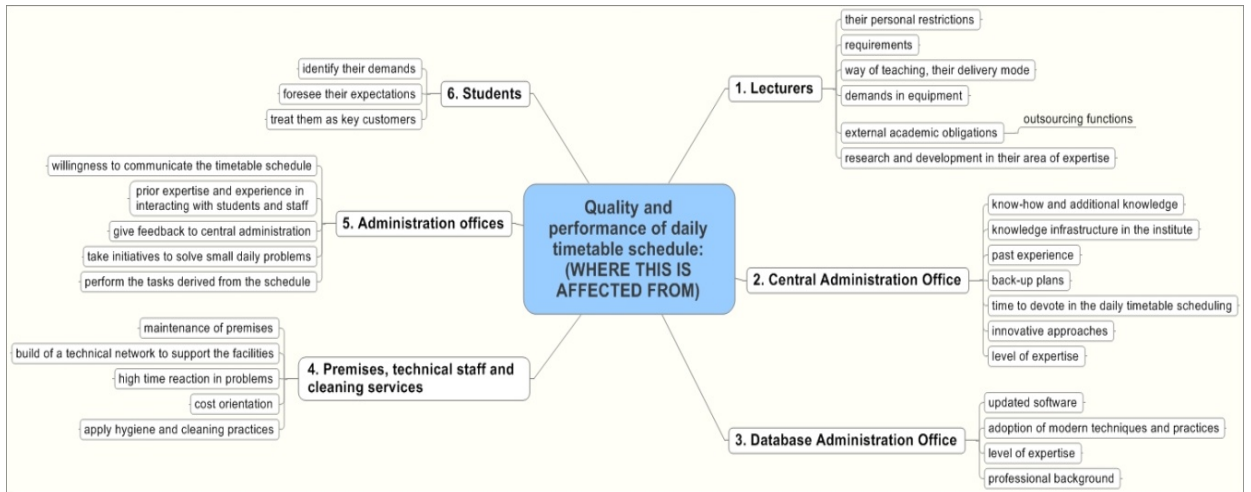
**APPENDIX C**  
**The affinity diagram from the brainstorming session (idea group)**

**AFFINITY DIAGRAM**










## APPENDIX D

### The Mindmap identifying possible weaknesses



**APPENDIX E**  
**The Gantt chart of the implementation**



ID	Task Name	Duration	Start	Finish	Predecessor	Resource Names
1	 <b>Daily Timetable schedule and operations</b>	<b>52.38 days</b>	<b>Mon 8/22/11</b>	<b>Wed 11/2/11</b>		
2	<b>start project</b>	<b>1 day</b>	<b>Mon 8/22/11</b>	<b>Mon 8/22/11</b>		
3	Retrieve and study the material of previous academic year structure	1 day	Mon 8/22/11	Mon 8/22/11		central administrator
4	<b>Initial actions</b>	<b>5 days</b>	<b>Tue 8/23/11</b>	<b>Mon 8/29/11</b>	<b>3</b>	
5	Get and review the Academic Calendar/flow of weeks	1 day	Tue 8/23/11	Tue 8/23/11		central administrator
6	Get and review the one-page STUDENTS BODY/class analysis	1 day	Tue 8/23/11	Tue 8/23/11		database administrator,central administrator
7	Contact Registrar to ensure when the results will be available / cross semester students/proceeds/dismissed	0.5 days	Tue 8/23/11	Tue 8/23/11		registrar,administration
8	<b>Get feedback from the departments about the results of exams</b>	<b>3 days</b>	<b>Wed 8/24/11</b>	<b>Fri 8/26/11</b>		
9	Ask for lists of results from Registrar	1 day	Wed 8/24/11	Wed 8/24/11	3,5,6,7	central administrator
10	update the database with the results	2 days	Thu 8/25/11	Fri 8/26/11	9	database administrator
11	Check for any withdraws/dismissals/changes in current students status	1 day	Mon 8/29/11	Mon 8/29/11	10	database administrator
12	Get feedback from the admissions about new registrations	1 day	Mon 8/29/11	Mon 8/29/11	10	database administrator
13	Form the classes of new registered students (first version)	1 day	Mon 8/29/11	Mon 8/29/11	10	central administrator,academic departments
14						
15	<b>Get the information</b>	<b>3.38 days</b>	<b>Mon 8/22/11</b>	<b>Thu 8/25/11</b>		
16	<b>Contact departments/administrators to send the first draft schedule</b>	<b>0.13 days</b>	<b>Mon 8/22/11</b>	<b>Mon 8/22/11</b>		
17	bs bachelors	1 hr	Mon 8/22/11	Mon 8/22/11		central administrator
18	bs masters	1 hr	Mon 8/22/11	Mon 8/22/11		central administrator
19	cs department	1 hr	Mon 8/22/11	Mon 8/22/11		central administrator
20	psychology department	1 hr	Mon 8/22/11	Mon 8/22/11		central administrator
21	liberals and english lang classes	1 hr	Mon 8/22/11	Mon 8/22/11		central administrator
22	<b>Define a time constraint to get the drafts no later than the next two working days</b>	<b>3 days</b>	<b>Mon 8/22/11</b>	<b>Thu 8/25/11</b>	<b>16</b>	
23	business bachelors	3 days	Mon 8/22/11	Thu 8/25/11		business department
24	business masters	3 days	Mon 8/22/11	Thu 8/25/11		business department
25	computer science	3 days	Mon 8/22/11	Thu 8/25/11		cs department
26	psychology	3 days	Mon 8/22/11	Thu 8/25/11		ps department
27	liberals and english lang classes	3 days	Mon 8/22/11	Thu 8/25/11		liberal division
28	<b>First draft session from the departments (restrictions and requests)</b>	<b>0.25 days</b>	<b>Thu 8/25/11</b>	<b>Thu 8/25/11</b>	<b>22</b>	
29	 Get restrictions from BS under lecturers	2 hrs	Thu 8/25/11	Thu 8/25/11		central administrator
30	 Get restrictions from BS post lecturers	2 hrs	Thu 8/25/11	Thu 8/25/11		central administrator
31	 Get restrictions from CS lecturers	1 hr	Thu 8/25/11	Thu 8/25/11		central administrator
32	 Get restrictions from PS staff	2 hrs	Thu 8/25/11	Thu 8/25/11		central administrator
33	 Get restrictions from LIB staff	2 hrs	Thu 8/25/11	Thu 8/25/11		central administrator
34	 Get restrictions from ENG lecturers	1 hr	Thu 8/25/11	Thu 8/25/11		central administrator
35	<b>Start the operations</b>	<b>46.38 days</b>	<b>Tue 8/30/11</b>	<b>Wed 11/2/11</b>	<b>4,15</b>	
36	Make a brainstorm session with the schedule participants	1 day	Tue 8/30/11	Tue 8/30/11	28	central administrator
37	Create a first general draft based on the un-filtered data / excel sheet	1 day	Wed 8/31/11	Wed 8/31/11	36	central administrator
38	<b>The phase of design</b>	<b>7 days</b>	<b>Wed 8/31/11</b>	<b>Fri 9/9/11</b>	<b>37</b>	
39	apply by taking into consideration main policies and requests	0 hrs	Wed 8/31/11	Wed 8/31/11		central administrator
40	resources allocation / capacity of rooms / hi-tech review	0 hrs	Wed 8/31/11	Wed 8/31/11		central administrator
41	the right class in the right classroom / place each according to quantitative/qualitative criteria	1 day	Thu 9/1/11	Thu 9/1/11		central administrator
42	students priorities	0 hrs	Wed 8/31/11	Wed 8/31/11		central administrator
43	lecturers requests - time restrictions - special priorities	0 hrs	Wed 8/31/11	Wed 8/31/11		central administrator
44	clubs and parallel activities / keep in mind for having free time zones as possible	0 hrs	Wed 8/31/11	Wed 8/31/11		central administrator
45	Greek courses / formation of groups / schedule / lecturers	2 days	Thu 9/1/11	Fri 9/2/11		international office,central administrator
46	Liberals - 1st edition with the schedule / mostly updated version	2 days	Thu 9/1/11	Fri 9/2/11		liberal department,central administrator
47	projected design of english - discuss with Mrs Hannam / lecturers / rooms / schedules	1 hr	Thu 9/1/11	Thu 9/1/11		english unit,central administrator
48	try to take into consideration big events that will use college resources during the semester	1 hr	Thu 9/1/11	Thu 9/1/11		central administrator,top management
49	<b>tutorials</b>	<b>3 days</b>	<b>Thu 9/1/11</b>	<b>Mon 9/5/11</b>		
50	print the groups of last semester	3 hrs	Thu 9/1/11	Thu 9/1/11		database administrator
51	discuss the new shape with the head of the dept / change of groups numbers	2 days	Thu 9/1/11	Fri 9/2/11		central administrator
52	re-formation of new groups / apply the changes-if any	3 hrs	Thu 9/1/11	Thu 9/1/11		central administrator
53	data entry the groups of students to the database system - e.g. TUTBSENG-??	2 hrs	Thu 9/1/11	Thu 9/1/11		secretary1,database administrator
54	check the time schedule of the groups / remain the same or change?	2 hrs	Thu 9/1/11	Thu 9/1/11		central administrator
55	make suggestions	2 days	Thu 9/1/11	Fri 9/2/11		central administrator

ID	Task Name	Duration	Start	Finish	Predecessor	Resource Names
56	send the suggestions to the depts	1 hr	Thu 9/1/11	Thu 9/1/11		central administrator
57	data entry the time schedule to the system	1 day	Thu 9/1/11	Thu 9/1/11		secretary1,database administrator
58	send lists of groups and time schedule to the heads/administrators for approval	1 hr	Thu 9/1/11	Thu 9/1/11		secretary1,database administrator
59	confirm with each dept	3 days	Thu 9/1/11	Mon 9/5/11		central administrator
60	<b>Cross semester students / Special cases</b>	<b>0.5 days</b>	<b>Thu 9/1/11</b>	<b>Thu 9/1/11</b>		
61	contact with the administrators / get email and list with their obligations	2 hrs	Thu 9/1/11	Thu 9/1/11		central administrator
62	double-check and entry the cases to the system	2 hrs	Thu 9/1/11	Thu 9/1/11	61	secretary2
63	feedback on the main parameters of the programme	5 days	Thu 9/1/11	Wed 9/7/11		central administrator
64	work on the design of the schedule - handwritten	3 days	Thu 9/1/11	Mon 9/5/11		central administrator
65	report of rooms allocation - per level/department	1 day	Thu 9/1/11	Thu 9/1/11		central administrator
66	re-evaluation and continous checkings	7 days	Thu 9/1/11	Fri 9/9/11		central administrator
67	<b>The phase of implementation</b>	<b>9.63 days</b>	<b>Mon 9/12/11</b>	<b>Fri 9/23/11</b>	<b>38</b>	
68	Data entry of the Depts schedules to the excel sheet	1 day	Mon 9/12/11	Mon 9/12/11		central administrator
69	print and review the schedule of each dept	1 day	Tue 9/13/11	Tue 9/13/11	68	central administrator
70	send a first unofficial draft to heads+administrators for check/revert back with comments	1 day	Wed 9/14/11	Wed 9/14/11	69	central administrator
71	data entry of the schedules to rdbms system	2 days	Thu 9/15/11	Fri 9/16/11	70	secretary1,database administrator
72	create the queries and the code that will handle the data	2 days	Mon 9/19/11	Tue 9/20/11	71	database administrator
73	measure the performance of the team	1 day	Wed 9/21/11	Wed 9/21/11	72	central administrator
74	<b>derivatives from the entry to the system/reports</b>	<b>0.63 days</b>	<b>Thu 9/22/11</b>	<b>Thu 9/22/11</b>	<b>73</b>	
75	daily run of classes in each building (create the report)	3 hrs	Thu 9/22/11	Thu 9/22/11		database administrator
76	lecturers teaching hours - personal lists and indicators' sheet (create the report and make the cross-checkings)	5 hrs	Thu 9/22/11	Thu 9/22/11		database administrator
77	lecturers schedule to administrators	1 hr	Thu 9/22/11	Thu 9/22/11		database administrator
78	personal schedule of students (create the report)	3 hrs	Thu 9/22/11	Thu 9/22/11		database administrator
79	class schedule (create the report)	3 hrs	Thu 9/22/11	Thu 9/22/11		database administrator
80	credits attendance	4 hrs	Thu 9/22/11	Thu 9/22/11		database administrator
81	presence lists	4 hrs	Thu 9/22/11	Thu 9/22/11		database administrator
82	statistics on active students (one-page)	3 hrs	Thu 9/22/11	Thu 9/22/11		database administrator
83	<b>checkings of the reports</b>	<b>1 day</b>	<b>Thu 9/22/11</b>	<b>Fri 9/23/11</b>	<b>74</b>	
84	check the lecturers teaching hours/hours per day/measure performance	1.33 hrs	Thu 9/22/11	Thu 9/22/11		central administrator,secretary2,secretary3
85	check the daily run report for rooms conflicts/measure performance	3 hrs	Thu 9/22/11	Thu 9/22/11		central administrator,secretary2,secretary3
86	<b>check the credits attendance</b>	<b>1 day</b>	<b>Thu 9/22/11</b>	<b>Fri 9/23/11</b>		
87	send them to administrators and the Registrar for cross-check	1 day	Thu 9/22/11	Fri 9/23/11		database administrator
88	check the class schedules and compare it with the excelised sheets	4 hrs	Thu 9/22/11	Fri 9/23/11		central administrator
89	<b>The phase of informing staff/students</b>	<b>7.13 days</b>	<b>Fri 9/23/11</b>	<b>Tue 10/4/11</b>		
90	<b>Distribution of the reports</b>	<b>0.13 days</b>	<b>Fri 9/23/11</b>	<b>Fri 9/23/11</b>	<b>83</b>	
91	send lecturers hours list to heads/administrators	1 hr	Fri 9/23/11	Fri 9/23/11		database administrator
92	send teaching hours report to administrators/heads	1 hr	Fri 9/23/11	Fri 9/23/11		database administrator
93	send class schedule report to administrators/heads	1 hr	Fri 9/23/11	Fri 9/23/11		database administrator
94	send daily run report to secretaries for information & comments	1 hr	Fri 9/23/11	Fri 9/23/11		database administrator
95	send tutorials-english classes presence lists to the depts	1 hr	Fri 9/23/11	Fri 9/23/11		database administrator
96	Feedback on reports/corrections/improvements	4 days	Fri 9/23/11	Thu 9/29/11	90	central administrator
97	Prepare the material for announcement to the students	1 day	Thu 9/29/11	Fri 9/30/11	96	database administrator,central administrator
98	<b>Announcement of the information to the students</b>	<b>2 days</b>	<b>Fri 9/30/11</b>	<b>Tue 10/4/11</b>	<b>97</b>	
99	send with email the general schedule to the students	2 hrs	Fri 9/30/11	Fri 9/30/11		database administrator
100	announce the general schedule in the boards/in the intranet	2 hrs	Fri 9/30/11	Fri 9/30/11		support staff
101	print the personal schedules of students/available from the buildings	2 hrs	Fri 9/30/11	Fri 9/30/11		secretary1,secretary2,secretary3
102	get feedback from students	2 days	Fri 9/30/11	Tue 10/4/11		secretary1,secretary2,secretary3
103	<b>The phase of post-announcement operations</b>	<b>24.5 days</b>	<b>Tue 8/30/11</b>	<b>Mon 10/3/11</b>		
104	<b>Liberals - 2nd phase and the most important</b>	<b>24.5 days</b>	<b>Tue 8/30/11</b>	<b>Mon 10/3/11</b>	<b>33</b>	
105	liberals declaration	1 day	Tue 8/30/11	Tue 8/30/11		liberal department
106	lists from Liberal Department	3 hrs	Wed 8/31/11	Wed 8/31/11	105	liberal department
107	special care to the liberals of psychologists	1 hr	Wed 8/31/11	Wed 8/31/11	106	liberal department,central administrator
108	which liberals are obligatory for them	1 hr	Wed 8/31/11	Wed 8/31/11	107	liberal department
109	check their personal schedules (PSY) to ensure that the liberals are included	1 hr	Thu 9/22/11	Thu 9/22/11	108,78	central administrator
110	data entry to the system	2 hrs	Thu 9/22/11	Thu 9/22/11	109	secretary1

ID	Task Name	Duration	Start	Finish	Predecessor	Resource Names
111	presence lists extraction	1 hr	Thu 9/22/11	Thu 9/22/11	110	database administrator
112	check the presence lists of liberals for psychologists	2 hrs	Thu 9/22/11	Fri 9/23/11	111,108	central administrator
113	check/send them for approval to HSSD	2 hrs	Fri 9/23/11	Fri 9/23/11	112	database administrator
114	announcement to the boards/liberals presence lists	1 hr	Fri 9/23/11	Fri 9/23/11	113	secretary1,secretary2,secretary3
115	follow up with credits attendance till all students declare their liberals	2 days	Fri 9/23/11	Tue 9/27/11	114	liberal department
116	daily check during first week for liberals declarations/performance measurement	4 days	Tue 9/27/11	Mon 10/3/11	115	liberal department,central administrator
117	<b>The phase of start classes-operations (week01 plan)</b>	<b>1 day</b>	<b>Fri 9/23/11</b>	<b>Mon 9/26/11</b>	<b>67</b>	
118	Send the credits attendance list to all people involved	1 day	Fri 9/23/11	Mon 9/26/11		database administrator
119	<b>Absences - Presences attendance system</b>	<b>0.63 days</b>	<b>Fri 9/23/11</b>	<b>Mon 9/26/11</b>		
120	creation of queries in the system for the data entry of absences	5 hrs	Fri 9/23/11	Mon 9/26/11		database administrator
121	preparation of the reports for the depts and students / dbase and extracted files	3 hrs	Fri 9/23/11	Fri 9/23/11		database administrator
122	data entry of absences	2 hrs	Fri 9/23/11	Fri 9/23/11		secretary1,secretary2,secretary3
123	check if the functions work / sum of absences-excludes shown on the presence lists	2 hrs	Fri 9/23/11	Fri 9/23/11		database administrator
124	print on weekly basis the presence lists (each Friday-Saturday)	1 hr	Fri 9/23/11	Fri 9/23/11		secretary1,secretary2,secretary3,secretary4
125	prepare the reports every Tuesday	4 hrs	Fri 9/23/11	Mon 9/26/11		database administrator
126	send the extracted files to departments	1 hr	Fri 9/23/11	Fri 9/23/11		database administrator
127	send the personal emails to students	2 hrs	Fri 9/23/11	Fri 9/23/11		database administrator
128	handle of changes requests	1 hr	Fri 9/23/11	Fri 9/23/11		central administrator
129	change of tutorial groups between students	2 hrs	Fri 9/23/11	Fri 9/23/11		central administrator,academic departrments
130	change of class	2 hrs	Fri 9/23/11	Fri 9/23/11		central administrator,academic departments
131	check the presence lists during the 1st week for handwritten names	2 hrs	Fri 9/23/11	Fri 9/23/11		secretary1,secretary2
132	Daily attendance of lectures run / lecturers absence-make ups-extras	1 hr	Fri 9/23/11	Fri 9/23/11		central administrator
133	index report/weekly/ of modules absences / extras and restored hours	1 hr	Fri 9/23/11	Fri 9/23/11		database administrator
134	Possible connection with the part time staff payroll	6 hrs	Fri 9/23/11	Mon 9/26/11		accounts office,central administrator
135	<b>Reservations on resources (google docs application)</b>	<b>1 day</b>	<b>Fri 9/23/11</b>	<b>Mon 9/26/11</b>		
136	Secretaries data entry the reservations from the daily run schedule / after the run of the first week	1 day	Fri 9/23/11	Mon 9/26/11		secretary1,secretary2
137	Secretaries may enter any time to add reservations	1 day	Fri 9/23/11	Mon 9/26/11		secretary1,secretary2
138	<b>STUDENTS BODY class analysis</b>	<b>0.63 days</b>	<b>Fri 9/23/11</b>	<b>Mon 9/26/11</b>		
139	print and check the STUDENTS BODY class analysis report	5 hrs	Fri 9/23/11	Mon 9/26/11		central administrator,top management
140	reporting to the principals	1 hr	Fri 9/23/11	Fri 9/23/11		top management,central administrator
141	<b>Update the rdbms with the results of the semester's Exam Boards</b>	<b>2 days</b>	<b>Tue 8/30/11</b>	<b>Wed 8/31/11</b>		
142	contact and request from the administrator the results / general lists not per module / proceed-not proceed	1 hr	Tue 8/30/11	Tue 8/30/11		central administrator
143	data entry the results on status to students / all available data	2 days	Tue 8/30/11	Wed 8/31/11		secretary1,database administrator
144	confirm with the administrators / Registrar that new data have been entried	1 day	Tue 8/30/11	Tue 8/30/11		central administrator
145						
146	<b>Consolidation week schedule</b>	<b>2 days</b>	<b>Tue 8/30/11</b>	<b>Wed 8/31/11</b>		
147	gather the proposed schedules from the administrators	2 days	Tue 8/30/11	Wed 8/31/11		central administrator,academic departments
148	Revision week schedule	4 days	Tue 8/30/11	Fri 9/2/11		central administrator,academic departments
149						
150	<b>Students' evaluation questionnaires</b>	<b>17.75 days</b>	<b>Mon 9/26/11</b>	<b>Thu 10/20/11</b>	<b>117,146</b>	
151	look for and find the original questionnaires so far	5 hrs	Mon 9/26/11	Tue 9/27/11		central administrator
152	check and confirm with Vice Principal about possible changes on the format	3 hrs	Mon 9/26/11	Mon 9/26/11		central administrator,top management
153	make the changes if any / in the originals	2 hrs	Mon 9/26/11	Mon 9/26/11		central administrator
154	print the originals/per level and language / under-post / department	2 hrs	Mon 9/26/11	Mon 9/26/11		central administrator
155	send the originals for copies to CopySpeed	6 hrs	Mon 9/26/11	Tue 9/27/11		secretary1
156	distribute the copies to the administrators for further process	2 hrs	Mon 9/26/11	Mon 9/26/11		secretary1
157	prepare/maintain/improve the system to data entry the questionnaires	1 day	Mon 9/26/11	Tue 9/27/11		database administrator
158	review and sample checks on the system	3 hrs	Mon 9/26/11	Mon 9/26/11		database administrator,central administrator
159	gather the packs with the questionnaires	3 days	Mon 9/26/11	Thu 9/29/11		academic departments
160	forward them to Secretaries for data entry	6 days	Thu 9/29/11	Fri 10/7/11	159	academic departments
161	maintain-improve the databased system	1 day	Fri 10/7/11	Mon 10/10/11	160	secretary1,secretary2,database administrator
162	system of results by Database Administrator	2 days	Mon 10/10/11	Wed 10/12/11	161	database administrator
163	print the draft numerical results	1 day	Wed 10/12/11	Thu 10/13/11	162	database administrator
164	forward them to Vice Principal for review / get ok	1 day	Thu 10/13/11	Fri 10/14/11	163	database administrator,top management
165	send original to copyspd for reproduction / copies for all heads & directors	1 day	Fri 10/14/11	Mon 10/17/11	164	secretary1

ID	Task Name	Duration	Start	Finish	Predecessor	Resource Names
166	distribute to heads	3 hrs	Mon 10/17/11	Mon 10/17/11	165	secretary1,central administrator
167	send the relevant digital files to administrators for further distribution	3 hrs	Tue 10/18/11	Tue 10/18/11	166	database administrator
168	data entry of comments by Secretaries	2 days	Tue 10/18/11	Thu 10/20/11	167	secretary1,secretary2
169	keep all files in a special directory for future retrieve	0 hrs	Thu 10/20/11	Thu 10/20/11	168	database administrator
170	undergraduate and postgraduate semester & overall course evaluations	0 hrs	Thu 10/20/11	Thu 10/20/11	168	database administrator
171	<b>Semester's Exams system</b>	<b>9 days</b>	<b>Thu 10/20/11</b>	<b>Wed 11/2/11</b>	<b>150</b>	
172	<b>Scheduling</b>	<b>4 days</b>	<b>Thu 10/20/11</b>	<b>Wed 10/26/11</b>		
173	Check the dates req by each dept	4 days	Thu 10/20/11	Wed 10/26/11		central administrator
174	Check the capacity of each bldg	1 day	Thu 10/20/11	Fri 10/21/11		central administrator
175	Possible conflicts and proposed changes	1 day	Thu 10/20/11	Fri 10/21/11		central administrator
176	List of eligible students to sit in the exams	1 day	Thu 10/20/11	Fri 10/21/11		central administrator,academic departments
177	Exams schedule for announcing to students	1 day	Thu 10/20/11	Fri 10/21/11		central administrator,database administrator
178	<b>Distribution of students to rooms</b>	<b>1 day</b>	<b>Wed 10/26/11</b>	<b>Thu 10/27/11</b>	<b>172</b>	
179	announce on daily basis	1 day	Wed 10/26/11	Thu 10/27/11		database administrator,secretary1,secretary2
180	Issue of presence lists (students per room)	1 day	Thu 10/27/11	Fri 10/28/11	179	secretary1,secretary2
181	Ensure that all procedures are followed during the exams hours	1 day	Thu 10/27/11	Fri 10/28/11	179	central administrator
182	Gather all presence lists signed by students	1 day	Fri 10/28/11	Mon 10/31/11	181	secretary1,secretary2
183	Photocopy of the exams	2 days	Mon 10/31/11	Wed 11/2/11	182	academic departments
184						
185	<b>PREMISES MAINTENANCE AND IMPROVEMENTS</b>	<b>28 days</b>	<b>Mon 8/22/11</b>	<b>Wed 9/28/11</b>		
186	<b>start project</b>	<b>28 days</b>	<b>Mon 8/22/11</b>	<b>Wed 9/28/11</b>		
187	<b>Technical support to the departments/buildings/staff</b>	<b>28 days</b>	<b>Mon 8/22/11</b>	<b>Wed 9/28/11</b>		
188	videoprojectors - check/service	5 days	Mon 8/22/11	Fri 8/26/11		technical support
189	white screens/check the condition-replacement-improvements	5 days	Mon 8/22/11	Fri 8/26/11		technical support
190	desks-chairs/service	5 days	Mon 8/22/11	Fri 8/26/11		technical support,outsouce group
191	white boards/check their condition	1 day	Mon 8/29/11	Mon 8/29/11	190	technical support
192	overhead projectors/lamps replacement	1 day	Tue 8/30/11	Tue 8/30/11	191	technical support,outsouce group
193	hi-tech material/operate well and possible need for improvement	1 day	Wed 8/31/11	Wed 8/31/11	192	technical support
194	rooms PCs/operate well and possible need for improvement	1 day	Thu 9/1/11	Thu 9/1/11	193	support staff,technical support
195	heating-curtains-clocks/check in all rooms	1 day	Fri 9/2/11	Fri 9/2/11	194	technical support
196	buildings electrical network improvements	1 day	Mon 9/5/11	Mon 9/5/11	195	outsouce group
197	contact with the secretaries to raise any hidden technical problems	1 day	Tue 9/6/11	Tue 9/6/11	196	technical support
198	doors condition	1 day	Wed 9/7/11	Wed 9/7/11	197	technical support
199	fire alarm system	1 day	Thu 9/8/11	Thu 9/8/11	198	outsouce group
200	elevator / kleeman	1 day	Fri 9/9/11	Fri 9/9/11	199	outsouce group
201	check of keys of premises	1 day	Mon 9/12/11	Mon 9/12/11	200	technical support
202	signs in doors and relevant requests	1 day	Tue 9/13/11	Tue 9/13/11	201	technical support
203	fire-earthquake announcement	1 day	Wed 9/14/11	Wed 9/14/11	202	technical support
204						
205	follow up on the above	10 days	Thu 9/15/11	Wed 9/28/11	203	central administrator
206	visit regularly the buildings to ensure the improvements	1 day	Mon 8/22/11	Mon 8/22/11		central administrator,technical support
207	create a file with the rooms and their diagrams (all buildings and facilities)	1 day	Mon 8/22/11	Mon 8/22/11		central administrator
208						
209	<b>Cleaning services</b>	<b>2 days</b>	<b>Mon 8/22/11</b>	<b>Tue 8/23/11</b>		
210	clean regularly all premises	1 day	Mon 8/22/11	Mon 8/22/11		cleaning support
211	kitchen hygiene	1 day	Mon 8/22/11	Mon 8/22/11		cleaning support
212	<b>classrooms</b>	<b>2 days</b>	<b>Mon 8/22/11</b>	<b>Tue 8/23/11</b>		
213	cleaning of windows	2 days	Mon 8/22/11	Tue 8/23/11		cleaning support
214	curtains	2 days	Mon 8/22/11	Tue 8/23/11		cleaning support
215	hi-tech equipment	2 days	Mon 8/22/11	Tue 8/23/11		cleaning support
216	whiteboards cleaning service	2 days	Mon 8/22/11	Tue 8/23/11		cleaning support
217	<b>office cleaning</b>	<b>2 days</b>	<b>Mon 8/22/11</b>	<b>Tue 8/23/11</b>		
218	windows and shelves cleaning	2 days	Mon 8/22/11	Tue 8/23/11		cleaning support
219	<b>labs cleaning</b>	<b>2 days</b>	<b>Mon 8/22/11</b>	<b>Tue 8/23/11</b>		
220	once a month general cleaning	2 days	Mon 8/22/11	Tue 8/23/11		cleaning support

ID	Task Name	Duration	Start	Finish	Predecessors	Resource Names
221	cleaning of outside stairs	1 day	Mon 8/22/11	Mon 8/22/11		cleaning support
222	<b>water machines</b>	<b>1 day</b>	<b>Mon 8/22/11</b>	<b>Mon 8/22/11</b>		
223	clean and well-operation	1 day	Mon 8/22/11	Mon 8/22/11		cleaning support
224	<b>heating-air conditioning</b>	<b>1 day</b>	<b>Mon 8/22/11</b>	<b>Mon 8/22/11</b>		
225	open the heating-cooling every morning	1 day	Mon 8/22/11	Mon 8/22/11		cleaning support,secretary2,secretary3
226	check if operate everything	1 day	Mon 8/22/11	Mon 8/22/11		secretary2,secretary3
227						
228	<b>Redecorations and Improvements</b>	<b>20 days</b>	<b>Mon 8/22/11</b>	<b>Fri 9/16/11</b>		
229	Tsimiski bldg	20 days	Mon 8/22/11	Fri 9/16/11		outsource group
230	L.Sofou building	20 days	Mon 8/22/11	Fri 9/16/11		outsource group
231	Koromila bldg	20 days	Mon 8/22/11	Fri 9/16/11		outsource group
232						
233	Basement-warehouse and Filling of materials	20 days	Mon 8/22/11	Fri 9/16/11		techinal support
234						
235	<b>TRACK OF FINANCIALS</b>	<b>4 days</b>	<b>Fri 9/23/11</b>	<b>Thu 9/29/11</b>	<b>67</b>	
236	<b>Financials of students</b>	<b>4 days</b>	<b>Fri 9/23/11</b>	<b>Thu 9/29/11</b>		
237	link with the schedules database	3 days	Fri 9/23/11	Wed 9/28/11		database administrator
238	active students of the semester	1 day	Fri 9/23/11	Mon 9/26/11		database administrator
239	include any type of student that have attended smth / withdraws-pendings-inactives	1 day	Wed 9/28/11	Thu 9/29/11	237,238	database administrator
240	link with the semester credits	1 day	Fri 9/23/11	Mon 9/26/11		database administrator
241	create the database of financials	1 day	Fri 9/23/11	Mon 9/26/11		database administrator
242	form to update the database	1 day	Fri 9/23/11	Mon 9/26/11		database administrator
243	reports per class to attend the amounts / include also the withdraws	1 day	Fri 9/23/11	Mon 9/26/11		database administrator,central administrator,acc
244						
245	index of return on fee per class / paid-no paid	1 day	Fri 9/23/11	Mon 9/26/11		accounts office
246	index on budgeted incomes per class and dept	1 day	Fri 9/23/11	Mon 9/26/11		accounts office
247	index on fees payments per installments / date request / cashflow / expected amounts / percentage of success	1 day	Fri 9/23/11	Mon 9/26/11		accounts office
248						
249	<b>KPIs - Key performance indicators</b>	<b>1 day</b>	<b>Fri 9/23/11</b>	<b>Mon 9/26/11</b>	<b>67</b>	
250	<b>Academic indicators</b>	<b>1 day</b>	<b>Fri 9/23/11</b>	<b>Mon 9/26/11</b>		
251	FT-PT Academic staff hours/indicators' sheet	1 day	Fri 9/23/11	Mon 9/26/11		central administrator
252	alpha list with hours/ascending/comparison/dept	1 day	Fri 9/23/11	Mon 9/26/11		central administrator
253	alpha list of the previous semester	1 day	Fri 9/23/11	Mon 9/26/11		central administrator
254	<b>Administrative indicators</b>	<b>1 day</b>	<b>Fri 9/23/11</b>	<b>Mon 9/26/11</b>		
255	number of students/with room-where they are placed to attend	1 day	Fri 9/23/11	Mon 9/26/11		central administrator
256	check of rooms capacity/semester schedule-level of advantage of the rooms/usage per day and building	1 day	Fri 9/23/11	Mon 9/26/11		central administrator
257	index of free/occupied rooms per building	1 day	Fri 9/23/11	Mon 9/26/11		central administrator
258	students evaluation questionnaires/fall06/ index for administration	1 day	Fri 9/23/11	Mon 9/26/11		central administrator
259						
260	feedback on each class per day and per hour / which classes postponed - make ups - extras etc	1 day	Fri 9/23/11	Mon 9/26/11		central administrator
261	level of admitted students at first level-admissions requirements/high school grades and english level	1 day	Fri 9/23/11	Mon 9/26/11		central administrator
262	origin of high schools and universities/ from the new students	1 day	Fri 9/23/11	Mon 9/26/11		central administrator
263						
264	<b>MAINTENANCE OF DATABASES - technical support</b>	<b>9 days</b>	<b>Tue 8/23/11</b>	<b>Fri 9/2/11</b>		
265	<b>CITY RDBMS TABLES</b>	<b>5 days</b>	<b>Tue 8/23/11</b>	<b>Mon 8/29/11</b>		
266	<b>STUDENTS PROFILES</b>	<b>5 days</b>	<b>Tue 8/23/11</b>	<b>Mon 8/29/11</b>		
267	PERSONAL PROFILE OF STUDENTS	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
268	FAMILY-ADDRESS PROFILE OF STUDENTS	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
269	QUALIFICATIONS PROFILE OF STUDENTS	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
270	DOCUMENTATION PROFILE OF STUDENTS	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
271	FINANCIAL PROFILE OF STUDENTS	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
272	ADVISING PROFILE OF STUDENTS	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
273	STUDENTS E-MAIL ACCOUNTS	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
274	<b>ACADEMIC STAFF</b>	<b>5 days</b>	<b>Tue 8/23/11</b>	<b>Mon 8/29/11</b>		
275	ACADEMIC STAFF PROFILE	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator

ID	Task Name	Duration	Start	Finish	Predecessor	Resource Names
276	<b>PROGRAMMES</b>	<b>5 days</b>	<b>Tue 8/23/11</b>	<b>Mon 8/29/11</b>		
277	MODULES CATALOGUE	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
278	STUDENTS CLASSES	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
279	COLLEGE CLASSROOMS & RESOURCES	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
280	CURRENT STATUS DESCRIPTION	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
281	MODE OF STUDY PROFILE	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
282	<b>STATISTICAL INDEXES</b>	<b>5 days</b>	<b>Tue 8/23/11</b>	<b>Mon 8/29/11</b>		
283	NEW REGISTRATION CLASSES	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
284	WEEK DAYS FOR ATTENDANCE OF ENROLLMENTS	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
285	STATISTICAL DATA FOR PROSPECTS	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
286	<b>CITY RDBMS</b>	<b>2 days</b>	<b>Tue 8/23/11</b>	<b>Wed 8/24/11</b>		
287	MODULES OFFERED	2 days	Tue 8/23/11	Wed 8/24/11	2	database administrator
288	MAIN STUDENTS ATTENDANCE FILE	2 days	Tue 8/23/11	Wed 8/24/11	2	database administrator
289	CITY RDBMS ADMISSIONS	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
290	CITY STATISTICS	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
291	CITY FINANCIAL ATTENDANCE	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
292	CITY EXECUTIVES	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
293	CITY RDBMS CERTIFICATES	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
294	CITY RDBMS REGISTRAR	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
295	CITY CAREER PLANNING	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
296	CITY ALUMNI	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator
297	CITY RDBMS ACADEMICS	5 days	Tue 8/23/11	Fri 9/2/11	2	database administrator
298	EVALUATION FORMS	5 days	Tue 8/23/11	Mon 8/29/11	2	database administrator