

Assessment Plan of Intervention (training) about Network Technicians on the subject of Networks I (May 2013) for graduate student of the Computing Career

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Summary

The proposed Technical Networking Intervention Plan in the Networks subject I, is a response to the needs expressed in the results of the diagnosis applied to our students and teachers of the Regional Multidisciplinary Faculty of Carazo, to make changes in the subject content of the Computing Major that does not consider the current technologies being used in different companies.

The objectives in this plan of the subject of the Networks I subject; in the Networks Technical are to describe the process of teaching and learning and to identify the key characteristics that occur in the teaching-learning process also to identify strengths and weaknesses in the teaching-learning process and assess the knowledge and skills that students must master at the end of the course Networks I subject in the Networks Technical.

Introduction

The Regional Multidisciplinary Faculty of Carazo, as part of National Autonomous University of Nicaragua (UNAN-MANAGUA) offers a Computing Career which is part of the Department of Science, Technology and Health. It takes 5 years for students to graduate in Computer Science, with a profile, in which they are allowed to acquire scientific and technological knowledge and development of skills and abilities in the use of basic tools: computers that support and facilitate human labor.

To develop research, reference was made to the Pensum 1999. This research is quantitative type, so that the results presented at the end of this investigative process is as objective as possible and to assess the intervention plan. To that end, a questionnaire of Organizational Culture University Identification, provided by Dr. Diego Castro and adapted to Nicaragua (**Dimension #5 “University Professor’s Profile”, Dimension #7 “Student Body”, and Dimension #10 “Relations between the University and the context” is applied**).

These instruments were applied to: **nine professors, nine students and three coordinators**

of the Department of Science, Technology and Health. Respondents selected from Computer Science career, then they were classified (Professors, senior students, randomly chosen to be knowledgeable in almost 100% of the Pensum 99, coordinators and department).

Once the information, we proceeded to the analysis which resulted in a first diagnosis. In it needs expressed by the respondents arise and those used as a basis for the SWOT analysis. As a result of this analysis, a new instrument designed specifically to qualified informants who provide the elements necessary to conclude a formal proposal to adjust the **Pensum 1999**, Computer Science Career so that students are prepared to develop skills many companies demand today.

Today, in many companies, both governmental and private, programming languages such as last generation are used: C++, Visual.Net, Java, Visual Web.Net, etc. The latter is also used in telecommunications. It is for this reason that the academic preparation of students of the career of Computer Science of the FAREM-Carazo should be oriented and focused on the teaching and learning of these platforms; likewise, they must have the necessary knowledge of Telecommunications, and the basic operations of operating systems such as Ubuntu, Cent-OS, Linux, Windows, etc. It enables them to cope with higher skills, abilities and a job, and really to be according to the profile of a Bachelor of Computer Science is required.

Our proposal to update the Pensum 1999 of the Computer Science Career, is aimed at improving the weaknesses and respond to the needs expressed by our students and professors as to make changes in the content of courses that do not consider technologies current being used in companies. With this proposal the following aims:

- To provide our students with the skills and abilities that enable them to adapt quickly to the workplace so dominating at least at an intermediate level, current technologies.
- To have the ability to plan and manage IT projects.
- To provide solutions in a timely manner, to the problems presented in terms of the hardware (preventive and corrective maintenance) of equipment used today.

The career of Computer Science has first, a comprehensive approach both in the breadth of its profile, and its theoretical and practical approach. Moreno (2006) argues that the skills that are expected to develop a professional of this career are essentially similar to those of an engineer: creativity, convergent and divergent thinking, analytical skills, interdisciplinary, etc.

History of trainings in FAREM-Carazo in the area of computing:

During the twenty-two years of existence of FAREM-Carazo, postgraduate area has approximately thirteen years of offering professionals graduates in different areas all around the country: Masters Graduate, Diploma courses which update their knowledge.

The postgraduate area has had the vision of offering graduate students, refreshing courses that help raise their skills to face the labor market, therefore in that sense, they were given approximately four years, since 2006, two for repairing and another two for maintenance of computers and two networks. They have a total of 35 graduate students with skills and abilities developed for positions in these areas respectively.

The school, in its social function, has a duty to serve the educational needs of all students and hosts. In this way, the school is one that has to get adapted to the needs of their students and

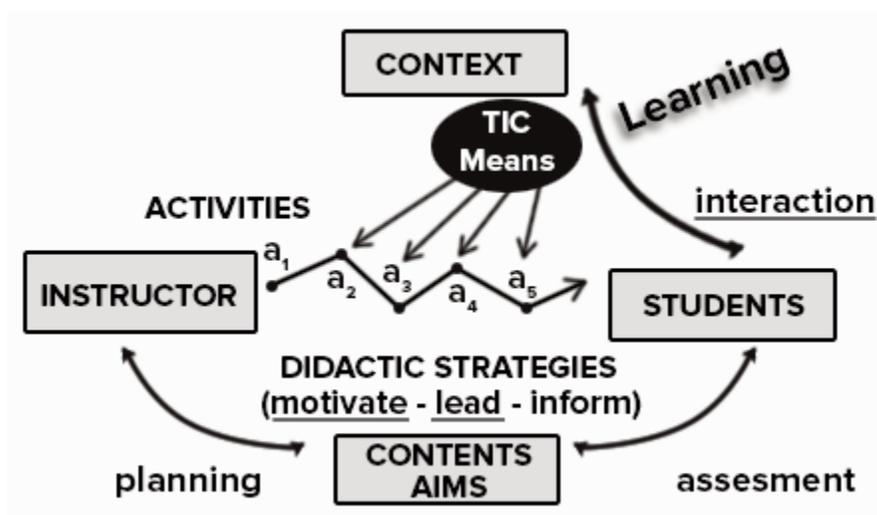
not vice versa. The basic tool and key to this is the Pensum and the ability of it to be flexible and adaptable to different situations.

Currently, it is a unique Pensum that advocates for all students of the faculty. It is a core Pensum for all but open enough to allow for different levels of detail.

The Didactic Act as a facilitator of learning

Marques (2001) defines the didactic act as teachers acting to facilitate the learning of students. He adds that, this is an action whose nature is essentially communicative. The same author confined to teaching activities of the learning process and the achievement of certain objectives and specifies as necessary conditions:

- **Internal student activity.** Students are able and willing to perform cognitive operations suitable for them, interacting with educational resources at your fingertips
- **The multiple functions of the teacher.** The teacher performs multiple tasks: coordinating with school administrative team, finding resources, carrying out the activities with students, evaluating their learning and performing, and mentoring tasks.



The didactic act itself is about educational interventions made by the teacher. It proposes activities of teaching students, the monitoring and development to facilitate learning.

The Methodology as a Teaching Competence

The university model that is committed by our institution, aims to develop a set of skills, of which, some are of a pedagogical nature; others have to do with the contribution of each of the teachers to the institutional education policy; others, meanwhile, are admitted to the territory of the competences of socio-professional nature and, finally, we cannot forget the attitudinal component of those competences.

The set of skills related to the profession, makes all those tasks related to quality education and a reference for training and professional development. Below are listed all of them, though, we will focus on the competition related to the design of the working methods and organization of activities and learning tasks. However, we must not forget the systemic relationship among all of them and also understands that in itself, this competition is also a system in which the decision has implications for the way we work with students.



In short, it is a system within a system. The competences of university professors would be the following:

1. Planning the teaching-learning process
2. Selecting and prepare disciplinary content
3. Providing understandable and well organized information and explanations (communicative competence)
4. Using new technologies such as storage media and search and processing and exchange of information
5. Designing the methodology and organize activities and learning tasks
6. Interacting with students
7. Tutoring
8. Evaluating
9. Reflecting and research on teaching
10. Identifying with the institution and teamwork

Guidelines Questions

How the intervention plan is valued Networks I, in the Networks I Course?

What was the process that took place in teaching and learning in the subject of Networking I?

What are the key features observed in the teaching-learning process in the subject of Networking I?

What strengths and weaknesses were identified in the course of networks I during the time it was given?

How do you assess the knowledge and skills that students must master in the Networks I subject?

Methodological Design

This research had a quantitative approach, for the collection and analysis of data was used. Quantitatively, there was a sequential, deductive, evidential process because statistics was used to analyze objective reality.

A population of 17 students (15 men and 2 women) who are leading the Network Technical Course and have already received the subject of Networks I.

“Survey” tool for collecting information, which appears in the accompanying consolidated basis (Matrix results of the 17 surveys conducted) was applied; it also made an observation for each class the teacher who taught the subject of Networking I.

The implementation of the survey was closed questions, in which the surveyed students only marked with an “X” according to the question. In the case of the instrument of classroom observation, ethical and professional manner they were quantitatively assessed six dimensions with indicators. Both instruments were processed using statistical programs such as Excel 2007 and SPSS version 18.0 for such processing.

The research presents a logical sequence of the processed data, this is to validate the proposed intervention Plan Technical Network on the subject of networks I.

Analysis of Results

The analysis focuses on the basis of the presentation of the results of the instruments applied.

The survey, of **thirty-four** questions was applied to the seventeen students; it is our population and is the ones who received Networks I subject. This subject was conducted two weeks after completion.

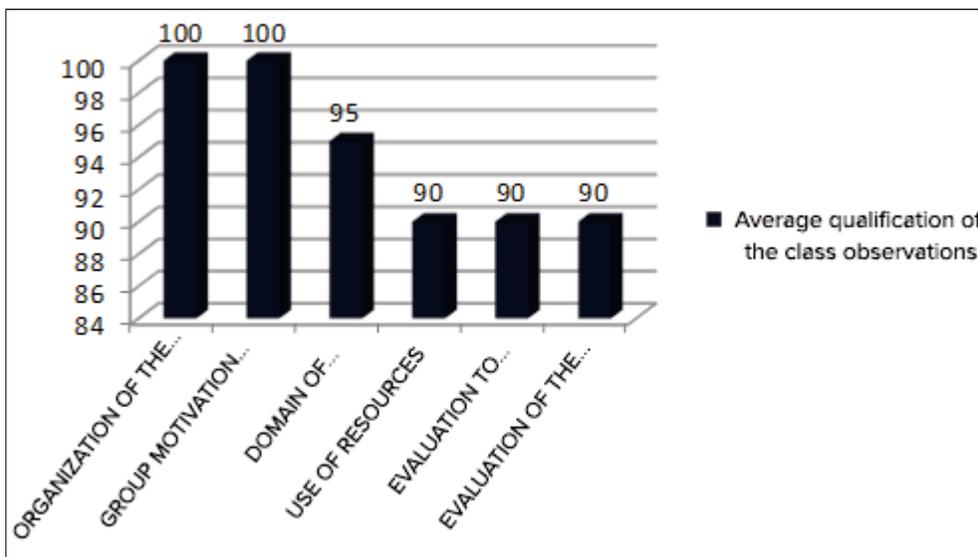
The results have been invaluable and have served to assess the intervention plan from the educational point of view, the performance of teachers and knowledge acquired by students.

The **evaluation of teaching and learning strategies** (Power Point presentations, illustrative videos, etc.) used by the teacher, has three indicators on each of the comments. The teacher got an average rating of **90%**, this was because twice he did not ascend (or up load?) the Moodle documentation in a timely manner so that students could be documented before the class meeting. The overall observation was **94.16%**. In the Graph No. 1 (see next page) the average of the marks obtained in the classroom observations is presented.

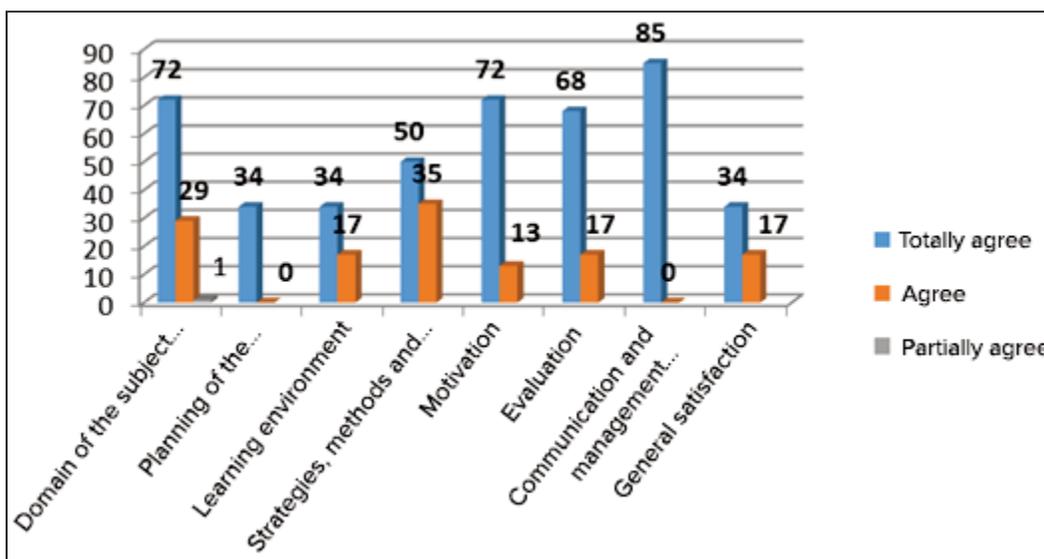
The next chart (see Graph No. 2 on the next page) shows generally (the general) the size of the survey of students.

This indicates the majority opinion among: Totally Agree (TA,) Agree (A,) and Partially Agree (PA) equivalent to Excellent and Very Good of the 34 questions posed to 17 students.

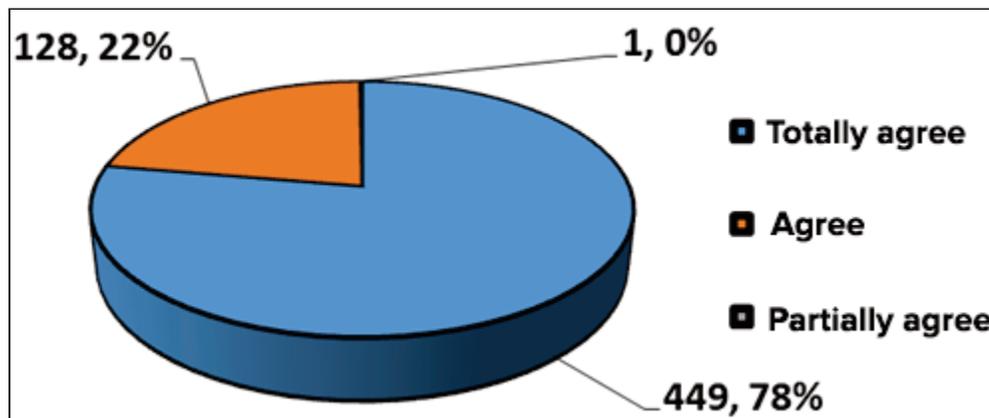
The Chart No. 3 (see next page) shows clearly that students are in full agreement, equivalent to **78%**; according to **22%**; and partially agree to less than **1%**. Which is within **excellent and very good**. This consolidated is 578 questions of the 17 surveys.



Graph No. 1. Average qualification of the class observations

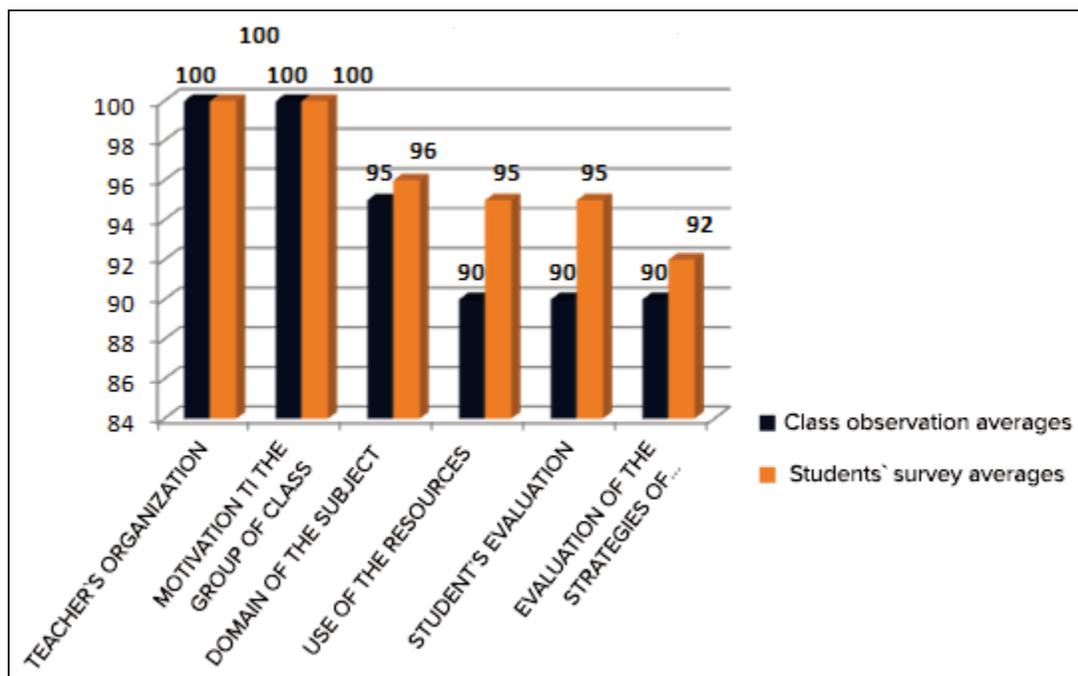


Graph No. 2. Final Assessment of the students in the Dimensions



Graph No. 3. The most answered scales by the students

This chart (Graph No. 4) shows the average classroom observations and survey generally applied to students. It was quite similar, which indicates the convergence of views on the development of the subject under these instruments.



Graph No. 4. Comparison between averages of the class observations and the surveys applied to the students

The texts used for teaching manuals were downloaded from the Internet in PDF both Cisco Systems as well as websites, which were used to explain each of the contents that correspond to the (Pensum) of the course format.

The strengths observed in the process of teaching and learning used by the teacher in the course of Networks I, were qualified with an average of very good to review training plan, laboratories of practical classes and assessments. Everything is very well defined, ie, based on the objectives, basic information provided in each of the steps in the practical classes. Punctuality, use of appropriate strategies, mastery of the subject, ICT, motivation and systematic organization from the part of the teacher was also observed, demonstrating the results and grades obtained by students.

The weaknesses, that were observed in the use of network devices for digital information practices and the platform were minimal and did not have any impact on the teaching-learning process.

Conclusions

Based on the analysis of the results of both, the classroom observation and teacher survey of students of the Technical Intervention Plan in the Networking subject of Networking I, in the month of May 2013, he came to the following conclusion:

- The teaching-learning process is adequately described on the subject of the Technical Network Network I subject. In this regard, the teacher accordingly fulfilled by delivering the plan (Pensum) of the course achieves the objectives of content, using well-defined

strategies for student learning, and properly used ICT basis to assess the subject according to the educational plan (Pensum).

- In the process of teaching and learning, the main key features that were presented in the course of Networks I. The network technical were: punctuality, organization and mastery of the subject, strategies used, respect for students and social property that is maintained for each class (subject) of the course of Networking I.
- The strengths and weaknesses in the teaching-learning process in the subject of the Network Technical of Networking I, were very satisfactory. Among the strengths they are: lectures, practical classes, laboratories, process feedback and assessments to students. This is supported by the results of the analysis of results; as for weaknesses, they were minimal and did not influence the TL process.
- The knowledge and skills that students should master in the course of the Technical Networks I were evaluated. The strategies used by the teacher allowed that in each of the contents students gain knowledge and skills described in the objectives of the training plan of the class. This is reflected in the grades of students who were 85 to 94 (very good to excellent).

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