

UNIVERSIDAD TÉCNICA DEL NORTE



FACULTAD DE INGENIERÍA EN CIENCIAS APLICADAS

CARRERA DE INGENIERÍA INDUSTRIAL CINDU

**ARTÍCULO CIENTÍFICO PREVIO A LA OBTENCIÓN DEL TÍTULO DE INGENIERA
INDUSTRIAL**

TEMA:

**MANAGEMENT SYSTEM BASED ON THE STANDARD ISO 9001: 2008 IN
COMPLIANCE WITH THE INDICATORS OF EVALUATION OF THE MANAGEMENT
AND DIRECTION FUNCTION FOR THE FACULTY OF ENGINEERING IN APPLIED
SCIENCE (FICA) OF THE TÉCNICA DEL NORTE UNIVERSITY**

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**ÁREA DE INVESTIGACIÓN: CALIDAD, PRODUCTIVIDAD Y SEGURIDAD EN LA
INDUSTRIA**

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IBARRA-ECUADOR

2015

Management System based on the Standard ISO 9001:2008 in compliance with the indicators of evaluation of the Management and Direction function for the Faculty of Engineering in Applied Science (FICA) of the Técnica del Norte University

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Abstract. This research “Management System based on the Standard ISO 9001: 2008 in compliance with the indicators of evaluation of the Management and Direction function for the Faculty of Engineering in Applied Science (FICA) of the Técnica del Norte University”, has been developed for the purpose of preparing the Academic Unit for ISO certification and accreditation with the CEAACES. It focuses on the Management and direction of the Faculty and consists in to design a QMS that regulates and standardizes the development of the academic and administrative processes and guide them towards achieving the objectives of quality of FICA.

Keywords

Quality Management System, ISO 9001, CEAACES, Management and Direction.

Resumen. *La presente investigación “Sistema de Gestión basado en la norma ISO 9001:2008 en cumplimiento de los indicadores de evaluación de la función Gestión y Dirección para la Facultad de Ingeniería en Ciencias Aplicadas (FICA) de la Universidad Técnica del Norte”, se ha desarrollado con el propósito de preparar a la Unidad Académica para la certificación ISO y acreditación con el CEAACES. Se enfoca en la Gestión y Dirección de la Facultad y consiste en diseñar un SGC que norme y estandarice la ejecución de los procesos académicos y administrativos y los guíe hacia el cumplimiento de los objetivos de calidad de la FICA.*

Palabras Claves

Sistema de Gestión de Calidad, ISO 9001, CEAACES, Gestión y Dirección.

1. Introduction

Globalization has been one of the factors that has had great influence on the change of mentality about higher education, passing only to provide an educational service to the pursuit of accreditation as a quality assurance system. (Freire Teijeiro, 2010).

The Faculty of engineering and applied science is an academic unit of the UTN, located in the Avenue 17 of July 5-21, Barrio El Olivo, in the city of Ibarra, Imbabura province; you need to provide proof of their careers and programs through compliance with the indicators of the assessment model of the CEAACES, for which is proposed to have a system of quality management for the management function that guides her course towards the improvement of their academic and administrative processes and therefore the educational offer.

The FICA compliance of the evaluation indicators for the management function and address has certain deficiencies, i.e., lack of a proper documentation supporting the development of the activities of this function, in addition, lack of diffusion processes and procedures and lack of others, giving rise to some disorder in the development of management and leadership activities.

In order that contribute to the solution of this problem arises the design of a quality management system based on the ISO 9001: 2008 standard, as a mechanism that point to the Faculty in their activities and support to the fulfillment of the CEAACES evaluation indicators to increase the competitiveness of the academic unit with the improving of the educational offer.

2. Materials and Methods

Materials

The materials used in this research include items of office and stationery: paper, ink, CDs, flash memory, camera, computer and printer; lists the standard ISO 9001:2008 checklist and indicators of the CEAACES it has also has used to raise the information of the current status of the faculty.

Methods

On the theoretical foundation is used the inductive method - deductive because the collection of information on regulations, publications, books, thesis, among other documents relating to quality in higher education and the CEAACES indicators will require for then by analyzing synthesize it, adapt it to the reality and structuring the theoretical basis for the design of the management system.

In the diagnosis of the current situation will be used the descriptive method will need to gather information related to compliance with the indicators of evaluation of the CEAACES and points of ISO 9001:2008, through observation and description of the facts; It will be also used qualitative method because it is required for the performance of audits to the staff involved and from that evaluate and analyse the results obtained through the use of the quantitative method (tabulations of percentages of compliance and non-compliance).

The development of this system will be used the inductive method because through the diagnosis with their respective analysis raises the integration of one proposal for improvement, finally in the comparison of the results the analytical method is used between the before and after the introduction of the design of QMS.

2.1 Diagnosis of the current situation of the FICA

The Faculty of Engineering in Applied Science is immersed within the premises of the UTN located in Avenue 17 of July 5-21, Barrio El Olivo, in the city of Ibarra, Imbabura province.

It currently has a total of 2000 students who are distributed in seven races offered:

- Industrial Engineering
- Textile engineering
- Engineering computer systems
- Engineering in electronics and communications networks
- Engineering in Mechatronics
- Engineering in electrical maintenance
- Engineering in automotive maintenance

In order to diagnose the situation of management function has been a SWOT analysis.

The internal and external factors that are detailed in the has are mainly obtained from the information provided by authorities, academic staff, administrative and student representatives who participated in the internal audits carried out on management and direction of the school, however, is worth mentioning that it has been taken as a starting point the analysis carried out in the annual policy, both the Faculty and the institution.

Table 2.1 SWOT management and direction

SWOT ANALYSIS			
		WEAKNESSES	STRENGTHS
INTERNAL ENVIRONMENT	1	Lack of dissemination of the processes and procedures for management and leadership activities.	1 Work equipment and total commitment of teachers, authorities and students directed to the achievement of academic quality.
	2	Lack of documented procedures for management and leadership activities.	2 Easy access to information relating to teachers and students through the University System.
	3	Lack of a system or process of monitoring of the implementation of the syllabus which integrates all the interested parties.	3 You are available and applied a system of evaluation of teaching at the institutional level.
	4	Lack of equipment appropriate for academic performance.	4 Ability to develop agreements and arrangements for the procurement of goods.
	5	Academic allocation not in keeping with the fitness and profile of the teacher.	5 Proper coordination and management of the basic academic units.
	6	Lack of evidence of the improvement of the academic offer based on the results.	6 He is carried out continuous assessments to the current and prospective State of racing and the relevance of the professional profiles of the careers offered by the FICA.
	7	Lack of dissemination of information relating to student welfare policies.	7 Existence and application of student welfare policies.
		THREATS	OPPORTUNITIES
EXTERNAL ENVIRONMENT	1	Lack of timely care and delay in proceedings by different sectors of higher education.	1 Existence of regulations and standards of higher education that guide the management administrative academic.
	2	Changes in regulations	2 Existence of adaptable to any type of company quality standards.
	3	Limited time to comply with the CEAACES indicators.	3 Timely dissemination of information concerning the accreditation processes.
	4	Economic instability in the country that tends to reduce investment in higher education.	4 Public financing and promotion of student grants.

To know the initial situation of the FICA also done internal audits based on the standard ISO 9001:2008 and the matrix of the generic model of evaluation of the learning

environment of face-to-face careers and Semi presenciales of universities and polytechnic schools of Ecuador issued by the CEAACES.

The objective of the audits has been picking up important aspects of conformities and non-conformities to verify the degree of compliance with the CEAACES indicators and standard points and on this basis to propose improvement actions.

For the execution of audits carried out planning, consisting of a programme and plan of audits.

Internal audit of ISO 9001:2008 made to management and leadership function both the CEAACES of the FICA threw the results that are presented below.

2.2 Analysis of the results of the audit based on the standard ISO 9001:2008 (providing service management and direction)

Table 2.2 Analysis of compliance with the requirements of the service and management

ITEMS	% current compliance	% expected compliance
7.1. Planning for the provision of the service	0,00%	8,16%
7.2. Processes related to the user	12,24%	18,37%
7.3. Development	20,41%	38,76%
7.4. Shopping	2,04%	6,12%
7.5. Production and provision of service	8,16%	28,57%
TOTAL	42,85%	100,00%

It is important to mention the determination of compliance is not in a total way, which means, it is considered as compliance when the number of affirmative responses of the check list made is growing.

The percentage of expected compliance refers to the full compliance of the items in each point of the standard ISO 9001:2008; requiring compliance with all the requirements expressed by the reference standard.

The following is the analysis of the results of the audit to point 7 of the ISO 9001: 2008 standard.

2.2.1 Planning the provision of the service

The audit results show that the Faculty of engineering in applied sciences does not meet this requirement of the standard, since it lacks planning of the necessary processes for the provision of the service, including quality objectives, service requirements, the need to establish processes, documents, and resources for service verification activities validation, monitoring, acceptance criteria and records to reveal them.

The figure presented shows the percentages of compliance, breach and waited for this reference standard item, it can be seen that the breach is total.

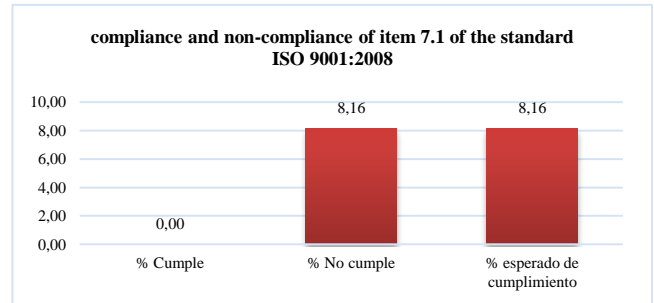


Figure 2.1 compliance and non-compliance of item 7.1 of the standard ISO 9001:2008

Corrective actions

In order to comply with this standard point proposes the following:

- Identify, define, and document the processes and procedures required for the provision of the service of management and leadership.
- Perform schedules of the provision of the service including the requirements of the reference standard.
- Define responsible for the execution of the process and the way to do it.
- Define quality standards that address to the Faculty in the provision of the service.
- Propose formats for planning the activities of management and leadership.
- Establish mechanisms for measuring and process control to monitor their ability to comply with the requirements of the user.
- To register all the actions performed.

2.2.2 Processes related to the user

The audit results show that the FICA determines the requirements specified by the user, knows and applies the current regulations for management and the requirements deemed necessary by the faculty, however, does not determine the requirements not set by the user but necessary for the intended use of the service.

The audit has also allowed evidence that the FICA review requirements of the user to determine that it is in the capacity to fulfill them and maintains records, however, documentation issues have not received the required importance, so there is no relevant documentation to the modification of the requirements of the service.

In terms of communication with the user (academic staff, administrative, student, etc.) concerning information from the service, queries, complaints, response to requests, the Faculty not determines and implements effective arrangements.

The figure presented below shows percentages related to compliance and non-compliance with this point, noting that school puts emphasis on improving processes related to users.

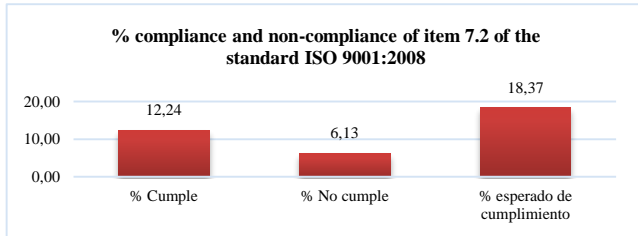


Figure 2.2 compliance and non-compliance of item 7.2 of the standard ISO 9001:2008

Corrective actions

The following proposal has been raised to comply with this requirement of the standard:

- Define and document the processes and procedures required for the development of the activities of the management function in the FICA.
- Identify suppliers, inputs, outputs, customers, resources and responsible for the processes of management and leadership.
- To create a culture of internal organizational communication to improve the working relationship and the flow of information.
- Establish and document a procedure of internal communication for the FICA.
- Make a communication plan and run it.

2.2.3 Design and development

The audit found that the faculty does not perform a proper planning of the design and development of new services offering to its users, is known entries, but not checked to determine whether they are suitable to the purpose.

The results of design and development do not allow verification with respect to inputs; It performs checks, checks, but there is no documentation that evidence it; the faculty does not perform validation of the design and development.

In terms of the exchange controls, it should be mentioned that don't hold the necessary records.

The figure presented below shows the percentages of the audit in relation to this point of ISO 9001: 2008; It is important to be aware that although greater compliance breach, yet there is much in what should be working to improve.

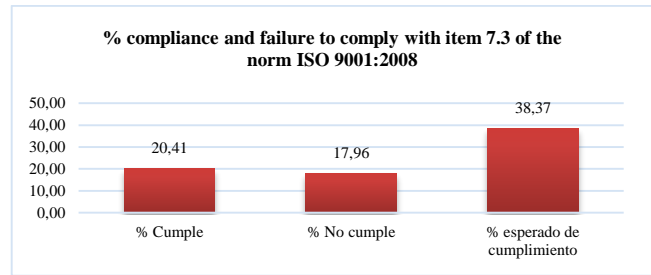


Figure 2.3 compliance and failure to comply with item 7.3 of the norm ISO 9001:2008

Corrective actions

In an effort to ensure compliance with this standard point proposes the following:

- To create a culture of planning activities that performs the function and management.
- Documenting the planning making use of established formats.
- Establish policies for procedures that make design and development.
- Establish procedures for design and development that includes the stages of review, verification and validation.
- Identify the elements of input to the process, in order to determine his fitness for the purpose.
- Define formats for the presentation of the results of design and development.
- Know all the regulations up to date and applicable to higher education to provide an efficient service.
- Create and maintain records of the actions.

2.2.4 Shopping

The process of purchases of goods and services is handled at the institutional level through public procurement portal, so section 7.4.1 has been considered as an exclusion.

The carried out audit has allowed to reveal that the FICA does not carry out these steps properly, thus it is considered that the shopping information should cover more than the characteristics of the good or service to acquire, including approval requirements of the good or service, procedure, processes, qualification of the person, etc.

A proper verification of the purchased goods must be in addition.

The figure presented below shows the percentages related to compliance and non-compliance with this point.

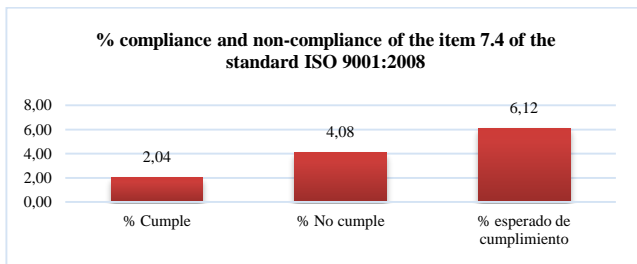


Figure 2.4 compliance and non-compliance of the item 7.4 of the standard ISO 9001:2008

Corrective actions

To give effect to this point of the standard ISO 9001:2008 proposes the following:

- Identify the needs of purchase within the faculty, specifying clearly the requirements and documenting it.
- Detail all necessary purchase information for guarantees the property acquired to meet specified purchase requirements.
- Propose formats to specify them requirements of the goods or services to purchase.

2.2.5 Provision of service

In terms of the provision of the service of management and direction you can see that this is done arbitrarily, there are no controls, work instructions, parameters to demonstrate compliance with the activities, methods of tracking, etc. This indicates that the faculty does not give compliance to this point.

In addition to the above, it should be noted that it is not valid processes when the results can not occur by monitoring or measurement; traceability of the service is performed and there is no record that show the communication to the user in case there is damage on their property.

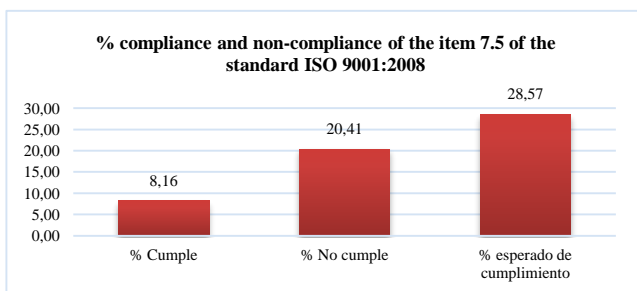


Figure 2.5 compliance and non-compliance of the item 7.5 of the standard ISO 9001:2008

Acciones Correctivas

Con el fin de cumplir este punto de la norma se propone lo siguiente:

- Disponer de procedimientos e instructivos de trabajo que guíen la ejecución de las actividades de Gestión y Dirección.

- Procurar la disponibilidad y flujo apropiado de información.
- Monitorear el desempeño de los procesos a través de indicadores.
- Definir métodos y criterios para la validación de los procesos de Gestión y Dirección.
- Codificar los trámites de Gestión y Dirección para poder mantener la trazabilidad del proceso.
- Identificar y proteger los bienes de propiedad del cliente, por ejemplo carpeta estudiantil, contratos de personal, etc.

Corrective actions

In order to meet this standard point proposes the following:

- Have procedures and instructions which guide the implementation of the activities of management and leadership.
- To ensure the availability and proper flow of information.
- To monitor the performance of the processes using indicators.
- Define methods and criteria for the validation of the processes of management and leadership.
- To codify the procedures of management and leadership in order to maintain the traceability of the process.
- Identify and protect property of the client, for example student folder, contracts of personnel, etc.

2.3 Analysis of the results of the audit based on the matrix of the CEAACES

The analysis of the compliance of the management and direction of the FICA covered 18 indicators with 53 evidences that will evaluate the CEAACES, throwing as a result that 43 of them.

2.3.1 Status current and prospective (A.1.1)

Faculty complies partially with this indicator since all of their careers they have worked hard in the collection of information for the elaboration of the Strategic Development Plan, prospective analysis of relevance and employability of graduates, however, races require the construction of operational plans that reflect proper management thereof.

Corrective action

- Is considered necessary to work on the creation of an improvement plan in each of the flaws found in the FICA and thus comply with the totality of evidence for this indicator.

2.3.2 Professional profile (A.2.1)

There is evidence that the FICA meets professional profile indicator because each of the basic academic units have curricula that allow to define the student's professional profile. Also available the required evidence of the construction of the professional profile with the participation of interested parties.

Corrective action

- Despite complying with the evidence requested by the indicator is recommended to maintain records, acts or documents of all meetings made.

2.3.3 Affinity training graduate (C.1.1)

The FICA complies with the required evidence in the indicator affinity postgraduate training, is the distributive academic, in which is reflected the hours and subjects of teaching, there is also evidence of the title of teachers registered in the SENESCYT and the contract.

Corrective action

- Despite complying with the evidence requested by the indicator is recommended to keep this accessible information, it may be through the use of instructions to access this information.

2.3.4 Ownership (C1.3)

The school complies partially with the evidence requested by this indicator because there is the appointment of the designation of Professor as holder of the race, but there is a permanent contract for the same.

Corrective action

- With the purpose of accomplishing this indicator is suggested to provide job security to teachers, this way to avoid staff turnover and ensure learning of students.

2.3.5 Teachers of CT, MT, TP (C.2.1)

The faculty gives compliance to evidence of this indicator because information can be easily related to the labor dedication of teachers through the integrated system of the University; It also has copies of contracts or appointments to teachers.

Corrective action

- It is recommended to keep the information organized in such a way as to identify and timely access to it when required. An instruction can be used to access system information.

2.3.6 Students per Professor (C.2.2)

The school complies with the evidence required for this indicator because the information requested was handled through the integrated system of the University.

Corrective action

- It is recommended to design instructional allowing know how to access this type of information in the event that the Manager is absent.

2.3.7 Distribution time (C.2.3)

Races of the faculty have a planning and time distribution of each teacher related to their time of dedication, also have a curriculum so it gives fulfillment to this indicator.

Corrective action

- Intends to design a procedure for the realization of the time distribution of each teacher whereas his time of dedication to teaching, management and direction, research or bonding.

2.3.8 Address coordination of the race (D.1.1)

The FICA complies with most of the evidences of this indicator because it performs planning and reporting management based on the regulations of higher education.

Corrective action

- Proposes the creation of mechanisms that show the monitoring and execution of the plan and the improvement of the academic offer based on the results.

2.3.9 Evaluation of teacher performance (D.1.2)

The University has a system of teaching evaluation in accordance with the regulations in force, therefore faculties, including the FICA performs each academic period the assessment of its academic staff, however, the collection of documents that show the operation of the system is required.

Corrective action

- It is suggested to carry out improvement plans based on the results of the evaluations, in order to contribute to decisions regarding the improvement of the performance of the teacher and the quality of teaching.

2.3.10 Follow up of the syllabus (D1.3)

Monitoring of the syllabus is done through the portfolio of the coordinators of the races, in which you can see the percentages of completion of the subjects to issue a report to the subdecanato, however, requires that you planned improvement of the academic offer based on the results of the monitoring. It therefore meets all of the evidence of the indicator.

Corrective action

- To give full compliance to the evidence requested by the indicator is proposed to expand the mechanism for follow-up on the syllabus, taking Alternatively the students involved in this procedure, issuing reports and contributing to the improvement of the academic offer based on the results.

2.3.11 Follow-up to the process of qualification (D.1.4)

The FICA does not comply with evidence of this indicator. There is legislation governing the titling process, however, there is a planning and execution of the monitoring of the process.

Corrective action

- Proposes the creation of a procedure that address activities that must be performed to graduating, which register and keep track of students who undergo this process.
- To create and maintain a database updated with information for graduating students.

2.3.12 Information quality (D.1.7)

All races of the FICA provide quality information to the CEAACES for the assessment and accreditation processes, i.e., timely, relevant, consistent, complete and formal.

Corrective action

- Intends that the information provided to the CEAACES through a validation process in order to facilitate the analysis of the documentation by the technical team of the CEACCES and Evaluation Committee.

2.3.13 Functionality (D3.1)

Faculty plan the maintenance of the physical conditions of the laboratories, also has responsibility for laboratory and register the use of them, however, to comply fully with the indicator the existence of a law or regulation is required for users.

Corrective action

- It is suggested the elaboration of rules for the proper use of laboratories
- Comply with the schedule of planning concerning maintenance of the physical conditions of simulation centers and laboratories.

2.3.14 Equipment (D3.2)

The evidence of this indicator are met, each of racing them faculty has an up-to-date inventory of equipment of laboratories and their respective maintenance plan.

Corrective action

- It is recommended to comply with the timetable for planning relating to maintenance of equipment of laboratories or simulation centers.

2.3.15 Availability (D3.3)

The audit showed that it complies with the evidence requested by the CEAACES flag.

Corrective action

- Intends that the inventory is made along with a report that allows to know the location of the equipment and the availability for laboratory practices, in order to undertake maintenance or equipment procurement actions.

2.3.16 Student welfare (E1.4)

Students of the FICA benefit from a comprehensive student welfare policy, you meet applicable regulations and list of beneficiary students scholarships are available.

Corrective action

- Races should promote the implementation of policies of student welfare through talks or any means of communication allowing students to information and access to the benefits offered by the University.

2.3.17 Rate of retention (E2.1)

Meets this indicator because it manages an integrated system at the level of the University which allows access to the required information.

Corrective action

- Is necessary having instructions showing how to get this information quickly.

2.3.18 Rate titration (E2.2)

Meets this indicator because it manages an integrated system at the level of the University which allows to obtain this type of information in a timely manner.

Corrective action

- Is necessary having instructions showing how to get this information quickly.

3. Results

3.1 Design of the QMS

The investigation has resulted in the design of a quality management system for the FICA in the function that includes the definition of the processes that form part of the system, as well as the characterization of these processes and the development of documentary support (manuals, procedures, instructions, formats, among others) required for optimal operation of the Faculty of engineering, applied science and management.

The quality Manual for the faculty includes the integration of the 4 functions: direction and management, academic, bonding and research. It contains the procedures required by the standard ISO 9001:2008, instructions for the preparation of manuals of procedures and for the layout of the processes; Furthermore are the master lists of external, internal documents and records.

The process map proposed for the FICA is structured by processes strategic, operational or aggregators of value and support.

Management function is responsible for tasks relating to matters academic and administrative; directs and supports the operation of the FICA, therefore these processes fall into two basic categories: process strategic and support processes.

In order to facilitate the identification of processes and procedures of the management function has been developed a coded inventory which is summarized in the following.

Table 3.1 inventory processes and procedures of the management function

MACRO		PROCESS		PROCEDURE	
COD	NAME	COD	NAME	COD	NAME
G	Gestión y Dirección	G.1	Strategic planning	G.1.1	Analysis of the environment
				G.1.2	Addressing strategic update
				G.1.3	Development of the professional profile
				G.1.4	Information management for accreditation
		G.2	Internal organizational communication	G.2.1	Organizational communication
		G.3	The teacher human talent management	G.3.1	Time distribution of teachers
				G.3.2	Recruitment of academic staff
				G.3.3	The teacher induction
				G.3.4	Academic staff permissions control
		G.4	Admission and registration	G.4.1	Registration
				G.4.2	Withdrawal from courses
				G.4.3	Cancellation of registration
				G.4.4	Egresamiento
				G.4.5	Titration
				G.4.6	Refrendacion of titles
		G.5	Management of the student welfare	G.5.1	Grants management
		G.6	Curricular academic supervision	G.6.1	Monitoring of the syllabus
				G.6.2	Evaluation of the teaching performance

		G.7	Management of laboratories	G.7.1	Purchases of equipment and services for laboratory
				G.7.2	Management of maintenance of laboratories
		G.8	Safety and health	G.8.1	Induction in SSO
		G.9	Legal management	G.9.1	Legal advice

Done characterizations to 9 processes mentioned in the inventory and manuals for the 22 procedures, with which it can guide the actions of human talent of the FICA.

3.2 Comparative analysis and improvement Plan management function

Despite the fact that the FICA still does not maintain the implemented system of quality management can be a comparison between the baseline and the proposal, as it has created all the documentation mentioned above, which constitutes the basis for QMS.

Table 3.2 comparative analysis of compliance with the requirements of the provision of the service of management and leadership

ITEMS	% current compliance	% compliance with the QMS design	% expected compliance
7.1. Planning for the provision of the service	0,00%	8,16%	8,16%
7.2. Processes related to the user	12,24%	14,29%	18,37%
7.3. Development	20,41%	38,76%	38,76%
7.4. Shopping	2,04%	4,08%	6,12%
7.5. Production and provision of service	8,16%	18,37%	28,57%
TOTAL	42,85%	83,68%	100,00%

The plan has been made to paragraphs 7.2, 7.4 and 7.5 of ISO 9001:2008 comprising mainly among the actions to be developed as follows:

- Identify processes and responsible
- To train staff
- Establish formats for records that are required by the regulations.
- Improve internal communication through the implementation of effective means or channels.

4. Conclusions

Bibliography and consulted law has managed to direct the development of this degree work, reinforcing and expanding the knowledge acquired in the course of the academic training, resulting in solid bases stop the support of research.

The internal audits or self-assessments with ISO 9001:2008 and CEAACES made at the Faculty of

engineering in applied sciences approach allowed to identify non-conformities and opportunities for change; This being a starting shaft to improve continuously.

In the audit developed with respect to the standard of reference we have analyzed 18 items that correspond to the provision of the service of management and leadership, which it has been observed that 12 are ignored, while the other 7 are met partially; analyzing this situation is deduced that the FICA to improve the standards of quality of the offered service should place greater emphasis on compliance with point 7 of the ISO 9001:2008 standard; While that analysis of the compliance of management and direction indicators which evaluate the CEAACES determined that it complies with 43 evidence of total verified 53 for this function; allowing to conclude that the faculty can guarantee quality academic and administrative.

The quality management system proposed for the FICA is a competitive strategy to cope with the changes that are taking place in Ecuador's Superior education; for the function and management are considered 9 processes and 22 procedures which constitute a guide to the actions performed by this function, allowing the identification of tasks and responsibilities, also the availability of the documentation required for development and control of processes.

The design of the quality management system for the FICA has allowed to increase the percentage of compliance with the standard points; in the service of management and direction has increased from 42, 85 to a 83,68 since we have worked mainly in relation to the documentation which forms the basis of the system.

The plan proposed for non-conformities detected after comparison of the preliminary design of the QMS situation has allowed to suggest actions to counteract such non-conformities.

Acknowledgments

This research work was conducted under the supervision of the ING. Karla Paola Negrete, who would like to express my deep appreciation for their support.

The authorities of the Faculty of engineering and applied science of the UTN for allowing me to apply my knowledge and develop this research at the faculty.

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About the Author

Stefany Maricruz SALAZAR TIXILIMA, was born in the canton of Antonio Ante, Imbabura province.

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