Evaluation of Curriculum Quality of Postgraduate Studies of Actuarial Science Field at Public Universities of Iran

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Abstract—Evaluation and survey of curriculum quality as one of the most important components of universities system is necessary for different levels in higher education. The main purpose of this study was to survey of the curriculum quality of Actuarial science field. Case: University of SHahid Beheshti and Higher education institute of Eco insurance (according to viewpoint of students, alumni, employers and faculty members). Descriptive statistics (mean, tables, percentage, and frequency distribution) and inferential statistics (CHI SQUARE) were used to analyze the data. Six criteria considered for the Quality of curriculum: objectives, content, teaching and learning methods, space and facilities, Time, assessment of learning. Content, teaching and learning methods, space and facilities, assessment of learning criteria were relatively desirable level, objectives and time criterions were desirable level. The quality of curriculum of Actuarial Science field was relatively desirable level.

Keywords—Quality, curriculum, Actuarial science, higher education

I. INTRODUCTION

IN the recent decade concepts such as total quality, total quality management and strategic management and planning have gone far beyond the industry and trade has been considered as a continuum improvement of quality in the field of education in universities. The quality of education has never been desirable in the industrial societies and every society has experienced special problems such as lack of motivation among students, inflexibility of curriculum and ineffectiveness of the managers [1].The international conference of "Twenty-first century University" about quality control and assurance suggests that the member countries establish national institutions and organizations of validation to control and assure the quality of all the public and private higher education institutions. It also suggests that the quality assurance processes use both self-investigation (internal-assessment and external-assessment) [2]. Besides implying that quality assurance is a common responsibility among academic societies, states that maintaining and improving quality are two basic goals of quality assurance process in the higher education. So, maintaining, improving, promoting the

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quality, accountability, and increasing competitiveness in both national and international fields can be the major parts of the quality assurance process in the higher education [3]. Education in the 21 century has created challenges for the quality assurance that was inconceivable in the last quarter of century [4]. In a period that globalization, changing structures, increasing demands for education, and etc. are the major challenges of the higher education, it seems necessary for promoting quality parallel with its quantity development to be the center of attention of all the people in charge and curriculum designers of higher education system [5]. In the educational systems, attending to quality has never been along with attending to quantity [6].In summary, the basic purpose of quality education is to improve students' learning and their experiences in higher education. This is sought to be achieved through:

• changing the method of teaching and learning as well as assessment methods
• renewing the curriculum continually
• updating and upgrading professional knowledge and skills, and
• improving the broader educational, administrative, and resource environments in which teaching and learning take place [7].

II. THE CONCEPT OF CURRICULUM

Curriculum can be considered as a set of specific knowledge, skills and activities for students, or it may be defined as planned activities for foster teachers' teaching and student's learning. Or it may be further defined as teaching and learning across the nation which called the national curriculum, or it may be defined as school curriculum at school level or thematic curriculum at the subject level. Generally, curriculum defined as a set of planned activities and contents at the individual level, at a program levels, for teachers in schools, and students' teaching/learning process. Regarding curriculum development and change process, goals should have a maximum impact on teaching and learning through changes planned in content and activities for education process. Talking about curriculum changes should be related to other concepts of curriculum effects. This may be critical to know how curriculum can be effective for teaching and learning and how the main factors could have a role in curriculum effects [8].In the last decade increasing pace of technology development cause substantial changes in teachers,

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students and learning environments available in education system. Viewpoint of teachers imply that curriculum has been clearly developed, and explain about teaching approaches is clear and understandable [9]. Students through curriculum training design as an educational effort, their effort include paying attention to theories, processes, products and assessment strategies which affects the implementation of plan and makes Curriculum a mean to increase the knowledge and understanding of the learners, develop the skills and change the values [10]. Curriculum basically developed to change the teachers' views or make them aware; in this case it will not be effective. If the curriculum affects students it means that it can also affect teachers [11]. The efficiency of curriculum and training program increase when teachers reflect on education goals, nature and needs of students, content and its level of sequence [12].Since the curriculum starts with social, philosophical and political orientation, territory of curriculum is very complex and dispersed. Base on this orientation, there will be different curriculum design concepts. Plainly different opinions have been raised about elements and components of curriculum. In this paper six elements will be evaluated; these elements are objectives, content, teaching &learning methods, space and facilities, time and assessment of learning.

III. ACTUARIAL SCIENCE

Have you ever wondered how insurance companies and other organizations measure the risk associated with insuring individual and companies against the losses incurred as a result of unpredictable events, such as accidents, sickness, and lawsuits? Or how insurance companies manage their risk so as to have sufficient assets on reserve to pay out claims resulting from such disasters as hurricanes and floods? Professionals known as actuaries handle these kinds of problems. Because of the nature of the insurance business, an actuary has to be trained in the disciplines of mathematics, probability, statistics, economics, and finance as applied to the problems of evaluating and measuring risk. Actuaries have been called the architects of the insurance industry because they design the structure of a variety of benefits for society. Examples of problems that actuaries deal with are the determination of premiums for life, health, automobile, and homeowner policies, the design of pension plans, and the management of insurance assets to control the risk of the insurance company. Actuarial work is one of the most interesting and exciting professions, because of the variety of functions actuaries are asked to perform. An actuary serves as a statistician and mathematician in performing the mathematics involved in designing insurance and pension funds. He or she serves as an investment analyst in managing the assets of an insurance company or pension fund. He or she serves in a marketing role in the promotion of different kinds of insurance benefits. It is a wonderful profession for an individual who enjoys mathematics and the problems associated with applying mathematical methods to problems that exist in society. In a recent survey which included over 500 professions within the

United States, the actuarial profession was determined to be one of the most desirable. This conclusion was based on a number of characteristics that include compensation, working conditions, work variety, challenging problems, job security, mobility, and quality of life. Actuaries have a large number of employment choices both with respect to the kind of career to choose and the area of the country to live. Actuaries are employed by a large variety of organizations, such as insurance companies, actuarial consulting firms, and government agencies like the Social Security Administration [13].

IV. RESEARCH QUESTIONS

This study is intended to evaluate the curriculum quality of insurance management field from different perspectives in the form of six basic questions:

1-How are the objectives in postgraduate studies of Actuarial science field?

2-How is the content in postgraduate studies of Actuarial science field?

3-How are the methods of teaching &learning in postgraduate studies of Actuarial science field?

4- How the statues of space and facilities implementation of curriculum in postgraduate studies of Actuarial science field?

5-To what extent the time been taken for curriculum implementation in postgraduate studies of Actuarial science field is optimal?

6-To what extent the method of assessment of students learning in postgraduate studies of Actuarial science field is desirable?

V.RESEARCH METHOD

This research is descriptive-survey study. Criterion and markers were used to conduct this study. Descriptive statistics (mean, tables, percentages, frequency distribution) were used to analyze the data. Inferential statistics (CHI SQUARE) was used to analyze the data. The method of weighting (valuating) was used to analyze the collected data and transforming the qualitative data into quantitative data. Respondents specify their level of agreements to the questionnaire using the Likert scale.

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VI. FINDING AND RESULT

TABLE I
RIARESULT OF CHI SQUARE FOR OBJECTIVES CRITERION

	Markers of goals criterion	Result of statistical test			
		Rate of chi square	Rate of freedom	Level of significant	Level of desirability
1	Explicit and clear expression of educational objectives	90/32	4	0/001	good
2	availability of objectives of lesson outlines	47/53	4	0/001	poor
3	attending to upbringing the cognitive abilities in defining the objectives	29/24	4	0/001	good
4	attending to theoretical skills in defining the objectives	9/39	4	0/03	good
5	attending to practical skills in defining the objectives	34/14	3	0/001	Very good
6	proportionality of objectives with social and educational evaluation	16/31	3	0/001	good
7	the level of theoretical knowledge	81/53	4	0/001	good

For answering the first question we used 7 markers .the result of table I showing that the quality of curriculum's aims is desirable level.

TABLE II
RESULT OF CHI SQUARE TEST FOR CONTENT CRITERION

	Markers for content criterion	Result of statistical test			
		Rate of chi square	Rate of freedom	Level of significant	Level of desirability
1	The logical relationship between contents of the lessons	52/63	4	0/001	poor
2	providing the required fundamental and specialized concepts	51/67	4	0/001	poor
3	complementarily of prior knowledge	38/11	3	0/001	Very good
4	succession with undergraduate lessons	81/37	4	0/001	poor
5	conformity with the last developments of the discipline	41/19	4	0/001	poor
6	upbringing the search-oriented spirit among students	95/32	4	0/001	good
7	preparing them for specialized activities	32/151	4	0/001	poor
8	preparing them for doing independent research	44/27	4	0/001	poor
9	upbringing the ability to investigate and develop research skills	37/81	4	0/001	poor
10	The connection between the content and practical needs of the learners	35/23	4	0/001	poor
11	providing optional courses	51/76	4	0/001	good
12	The connection between volume of the content and the number of course units	39/484	4	0/001	good
13	providing the content functionally and practically	31/62	4	0/001	poor
14	The conformity between the course units and the marketplace needs	63/09	4	0/001	good
15	applicability of theoretical courses	22/71	4	0/001	poor
16	applicability of practical lessons	39/13	4	0/001	poor
17	proportionality of practical skills with professional services	23/47	4	0/001	good
18	The amount of Innovativeness and creativity	51/33	4	0/001	Barely acceptable

We used 18 markers for answering question number 2 .the result of table II showing that the quality of content is relatively desirable level.

TABLE III
RESULT OF CHI SQUARE TEST FOR TEACHING &LEARNING METHODS

	Markers for teaching &learning methods criterion	Result of statistical test			
		Rate of chi square	Rate of freedom	Level of significant	Level of desirability
1	Teaching the lessons by an expert teacher	30/32	4	0/001	poor
2	using various teaching methods	41/67	4	0/001	good
3	encouraging the students to take part in teaching process	39/55	4	0/001	good
4	using group works while teaching	11/38	4	0/001	poor
5	using communication and information technology in teaching	24/83	4	0/001	good
6	conformity of teaching methods with the educational objectives	43/08	4	0/001	good
7	conformity of teaching methods with the content	34/72	4	0/001	good

For answering question number 3 we used 7 markers for survey of desirability level of learning &teaching methods, the result of table III showing that the quality of learning &teaching methods is relatively desirable level.

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TABLE IV
RESULT OF CHI SQUARE TEST FOR EDUCATIONAL SPACE AND FACILITIES CRITERION

markers for educational environment &equipment criterion		Result of statistical test			
		Rate of chi square	Rate of freedom	Level of significant	Level of desirability
1	The proportionality of the environment and the equipments with the number of students	24/46	4	0/001	good
2	availability of educational materials and educational support materials	27/54	4	0/001	Very poor
3	availability of research and study equipments	39/12	4	0/001	poor
4	availability of the appropriate informational resources	25/77	4	0/001	good
5	Proportionality of quantity and quality of educational environment.	33/19	4	0/001	Very good

According to 5 markers in table IV we can get result that the quality of educational environment &equipment criterion is relatively desirable level.

TABLE V
RESULT OF CHI SQUARE TEST FOR TIME CRITERION

markers for time criterion		Result of statistical test			
		Rate of chi square	Rate of freedom	Level of significant	Level of desirability
1	Timing the classes during the week	34/55	4	0/001	good
2	the time considered for the enrollment and examinations	57/73	4	0/001	good
3	conformity of the time and theoretical, specialized, and research courses	40/62	4	0/001	good
4	the time allocated for acquiring the theoretical lessons	46/14	4	0/001	Very good
5	providing the prerequisite and compensatory courses in the most appropriate time	55/78	4	0/001	Barely acceptable

For answering question number V we considered 5 markers for survey time criterion. The result of table V showing that the quality of time been taken for implementation of curriculum is desirable level.

TABLE VI
RESULT OF CHI SQUARE FOR ASSESMENT OF LEARNING CRITERION

markers for assessment of learning criterion		Result of statistical test			
		Rate of chi square	Rate of freedom	Level of significant	Level of desirability
1	Assessment of manipulation and analysis capability	75/90	4	0/001	poor
2	assessment of the learned knowledge of the students	39/75	4	0/001	poor
3	assessment of research skills of the students	27/46	3	0/001	poor
4	creating new learning opportunities for the students	84/55	4	0/001	poor
5	students satisfaction of the way they are assessed	27/15	4	0/001	poor
6	conformity of the examinations and the content being taught	62/51	4	0/001	Barely acceptable
7	conformity of testing methods and the predetermined objectives	60/71	4	0/001	good
8	conformity of testing methods and the content of the lessons	54/18	4	0/001	good
9	using various testing methods	62/07	4	0/001	good
10	attending to researches in the process of assessment	39/24	4	0/001	good
11	the amount of the skills and abilities in their professional field	44/92	4	0/001	good
12	creating behavioral capabilities	18/90	2	0/001	Barely acceptable
13	creating communication skills	18/56	4	0/001	Barely acceptable
14	creating emotional skills	11/42	4	0/003	Barely acceptable
15	observing the professional regulations	15/08	4	0/005	good
16	the amount of interest in work	34/20	3	0/001	Barely acceptable
17	the adjustment capability with the environment	12/95	2	0/001	good
18	sense of responsibility and job conscience	17/15	2	0/001	good
19	assessment of the learned practical aspects	16/55	2	0/001	good

Result of table VI showing that the quality of assessment of learning criterion is relatively desirable level.

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V. CONCLUSION

Iran is the most populous country with the second largest economy in the Middle East. It has a population of 68 million, a growth of 1.08 per cent per year and a gross domestic product (GDP) of $115 billion. The official language of Iran is Persian. Official documents, correspondence and text, as well as textbooks, must be in this language and script. However, the use of regional and tribal languages in the press and mass media, as well as for their literature in schools, is allowed in addition to Persian. The literacy rate is more than 79 per cent and education is compulsory through high school (up to the age of 16). Currently, there are approximately 18 million students in education and about 2.3 million staff working in government organizations dedicated to teaching [14]. According to a United Nations Report, Iran has placed great emphasis on human development and social protection with good progress to date [15]. The quality of academic units varies greatly across universities and colleges. There is currently a move toward standards in higher education; this move emphasizes a requirement for accountability and a corresponding quality assurance effort. In the last decade, increase in the technological developments caused radical changes in teacher, student and learning environment variables of education system. Each country re-organized their curriculum including recent methods and techniques in education to bring up their ındıvıduals beter and to raise them above the average of international arena in terms of knowledge, skills and aptitudes. In this research the important aim was the survey of curriculum quality of Actuarial science field and for reaching this goal we had 6 question .for answering these question we use 61 markers for evaluating different components of curriculum. According to result of research totally from 61 markers 20 of them were poor. These markers were: availability of goals of lesson outlines ,The logical relationship between contents of the lessons, providing the required fundamental and specialized concepts, succession with undergraduate lessons, conformity with the last developments of the discipline, preparing them for specialized activities, preparing them for doing independent research, upbringing the ability to investigate and develop research skills, the connection between the content and practical needs of the learners, providing the content functionally and practically, applicability of practical lessons, Teaching the lessons by an expert teacher, using group works while teaching, Teaching the lessons by an expert teacher, using group works while teaching, availability of educational materials and educational support materials, availability of research and study equipments, Assessment of manipulation and analysis capability, assessment of the learned knowledge of the students, assessment of research skills of the students, creating new learning opportunities for the students, students satisfaction of the way they are assessed . Other markers were in desirable level. In general the curriculum quality of Actuarial science field at public university of Iran (SHahid Beheshti University and Higher Education institute of Eco insurance) were in relatively desirable level.

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