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National Agriculture Education Accreditation Council

Report of the Accreditation Inspection Committee (AIC)

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National Agriculture Education Accreditation Council (NAEAC)

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ACKNOWLEDGEMENTS

The Accreditation Inspection Committee acknowledges the support and cooperation of the Prof. Dr. Muhammad Akram (Vice Chancellor), Dr. Muhammad Afzal (Dean Faculty of Agriculture), Dr. Sarfraz Hussain (Director, Institute of Food Science and Nutrition) and his team. The Committee appreciates the immense help and support and guidance provided by NAEAC Team particularly Mr. Naseer Alam Khan, Secretary NAEAC and Mr. Raja Mehtab Yasin (Admn. and Finance Officer).

Executive Summary

The Director, Institute of Food Science and Nutrition, Dr. Sarfraz Hussain received the members of accreditation committee from Islamabad alongside the Prof. Dr. Faqir Muhammad Anjum and Dr. Saeed Akhtar as external evaluators to technically assess and weigh the Institute of Food Science and Nutrition (IFSN) at University of Sargodha. The Director gave a detailed presentation to the AIC team covering many important areas like history, faculty, degree programs, curriculum, research projects and student's perception, budget and future plans. Briefly, the Institute of Food Science and Technology was established in 2002 as one of the main institutes of the newly established University of Sargodha and started its proper functioning in 2005 with the mission **"To provide purposeful education and training, to excel in research reliant to the regional, national and global needs incorporating all the resources available through innovation"**. In 2011 the Institute of Food Science and Technology was upgraded to Institute of Food Science and Nutrition and was also transferred from the Faculty of Sciences to Faculty of Agriculture.

Production of citrus constitutes an important sector of agriculture in Pakistan and a lot of emphasis is being laid down to promote its export to earn foreign exchange. Sargodha region is known for massive production of citrus. Unfortunately, IFSN has not been able to technically contribute to local citrus growers and stakeholders to the desired level for engendering the production and to trigger novel technologies of processing and packaging of the fruit. Undoubtedly, there exists a great potential of developing linkages with many national and local farmer organizations, Government Institutes in addition to training and consultancy providers.

The faculty of the Institute is well qualified and experienced as it currently comprises 10 regular and 2 contractual faculty members and out of these 12 faculty members, 9 are Assistant Professors with 1 Associate Professor, all holding PhD degrees. The regular faculty has 185 national and international publications with a total of around 130 impact factor in their credit. The Institute is also running one HEC funded research project.

The graduating students have been seen to perform well in national and international organizations and a sense of satisfaction regarding their jobs has been observed in terms of their constant feedback to IFSN. Nonetheless, several areas have been identified where there exists sizeable room for improvement examples being, lack of research work, number of PhD students produced each year and existence of certain lacunae in management and administration of IFSN. The MS program in Food Science and Nutrition being offered, needs a critical appraisal as the foundation/core courses in Nutrition at BS levels are not sufficient enough to provide justification to introduce such a massive degree program. Moreover, the Institute needs to attract the local farmers for trainings on value addition to promote agro-based industry as a tool to curtail poverty, hunger and malnutrition and to ensure food security in the region.

MAJOR CRITERIA

1. Strength and Quality of Faculty

The strength of the Institute may be well gauged through the availability and the professional capabilities of the faculty. The faculty of the Institute of Food Science and Nutrition (IFSN), University of Sargodha (UOS) comprises 12 members, most of which hold PhDs. This is a clear manifestation that the IFSN is rich in human resource.. Currently, one HEC funded project (4.3 millions) is being executed in laboratory of food microbiology, where Dr. Umar Farooq renders an excellent job as a principal investigator. These faculty members have been able to be on the panels of reviewers of internationally renowned peer reviewed journals of high Impact Factors. Faculty members have presented papers in France, Germany, Canada, America and Middle Eastern countries. On top of that, they have 12 PhD scholars registered with them so far however none of the scholars has yet been able to complete PhD

The availability of purpose-built building, precisely designed laboratory, infrastructure and provision of sufficient space to expand the building for future to initiate new programs are few features that distinguish the IFSN from many of its counterpart in the region. This Institute may be able to develop the ability to cater the needs of a larger part of the population by addressing issues of Food Safety, malnutrition, poverty alleviation and local food and allied industry .

2. Curriculum Design and Development

Since, there has been an established system of curriculum revision after every four years for each discipline including Food Science and Technology at B.Sc. and M.Sc. level managed by Higher Education Commission of Pakistan. Therefore, the same is generally followed by all institutions of the country, however the Institute has made need based minor changes in the curriculum. The details of the curriculum being followed currently, is available at HEC website:

<http://www.hec.gov.pk/InsideHEC/Divisions/AECA/CurriculumRevision/Documents/Food-Technology-2010.pdf>.

In this rapidly changing technologically advanced world, technology seems to be changing on day to day basis therefore several courses turn to be obsolete after two years or more thereby demanding a constant update on certain topics not more than two years time. In order to overpower this issue, internet facility is exploited in terms of class notes, assignments, reports etc. to keep the students at par with the recent developments in Food Science and Technology.

3. Infrastructure and Learning Resources

A thorough examination of the IFSN revealed that there a precise infrastructure for successful execution of the instituteal activities severely lacks inspite of the fact that the Director of the Institute enjoys all powers necessary to furnish basic research and teaching facilities to the faculty and the students. Moreover , labs have been seen to badly lack basic equipments required for carrying out undergraduate practicals and to conduct research at post graduate level. It seems as if the Institute has not been progressing over the years in strengthening its infrastructure. The Institute however, is able to make full use of several advanced learning resources including texts, videos, software, and other materials. Use of multimedia at post graduate level is prevalent in the institute, however little has been done to improve the overall learning atmosphere in the Institute. There is a dire need to make HEC digital Library functional so that the students and the faculty may make full use of the recent publications and other relavent materials for their MSc (Hons.) and PhD research. The faculty may also benefit from such a facility for designing research proposals and to prepare lectures covering recent development in the field of Food and Nutrition

MINOR CRITERIA

4. Students Support and progression

The students constitute an important component of any educational institution. To scale up institutional growth, it sounds imperative to polish the students to prepare them for the local and international market. IFSN turns up to be a potential institution of the region that has been able to quench the thirst for knowledge of the local students and to cater the need of the region for trained and skilled manpower. IFSN has provided relatively better opportunities to its students for their professional grooming. They have free access to the internet, library and to the offices of the teachers for counseling and to discuss research problems and career building which reflected by the good grades and the jobs secured by the students. Teachers have also been seen to show tendency to help the students in seeking financial support and subsequently getting jobs in the fields relevant to their specialization. The students' attitude and performance have been a good indicative that student support and development is considerably significant for IFSN.

5. Research and Consultancy Activities

The contribution of any professional educational institution may be well gauged by the services imparted and the potential outcome of these services in the shape of economic stability at individual and national level. Unfortunately, IFSN is yet to go a long way introduce courses on food safety and food preservation trainings and novel degree programs in the realm of Food Science and Technology. The faculty need to

getengaged with several local NGOs, farmers' organizations and citrus growers and exporters for imparting trainings, consultancy and extension service on value addition of foods, post-harvest management, food processing and preservation. However, the amount of funds received by the faculty in the last few years in lieu of research and development grants does not coordinate with the number of qualified staff and their level of expertise. What we could observe in IFSN is the only research project worth Rs. million 04.3 won by only one faculty member of IFSN. This area needs serious attention by the University authorities as the growth of the educational institutions is now primarily dependent upon the generation of funds to become self-reliant. Furthermore, no research endeavors have been initiated in the recent past to provoke local production of the citrus and to resolve technical issues relevant to citrus export and value addition. This is a particularly important that as a newly borne University, IFSN should have been potentially contributed to enhance the university standing amongst institutions of the regions. There have been quite a number of areas where consultancy services may be provided to the stakeholders like food safety, undernutrition/ maternal and child health, value addition of local fruits and vegetables, commercialization and food business, agro-based small industry and food testing services.

6. Governance and Leadership

There has been a well-defined and precisely managed hierarchal system of governance pervasive in the University of Sargodha. IFSN is basically run by the Director of the Institute who is instrumental to all the activities and plans of the Institutes and is reporting to the Dean Faculty of Agriculture. The Dean in question subsequently reports such matters to the worthy Vice Chancellor. The Director of the Institute is regarded as the most functional entity to control and monitor all research, educational and administrative affairs of the Institute.

7. Recent Innovations and Best practices

We had not been able to find out any such activity that could lead to the generation of any novelty or innovation. Nonetheless several positive points and practices that were witnessed encompass the regularity in taking the classes by the teachers, the student's compliance to the teachers in terms of research and publication plans. The IFSN is associated with Pak Army personnel for short term trainings of food safety. A few trainings on preservation of food for general public have also been completed aiming at improvement in public health by the provision of safe and healthy food.

SWOT ANALYSES:

Major strengths:

- A well-defined infrastructure with sufficient number of teachers and support staff to meet all the requirements of any established and highly productive Institute is in place

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- The qualification and training of the teaching staff is sufficient enough to generate a considerable number of PhD students each year. The faculty is dynamic with respect to their research areas including fruit and vegetable processing, food microbiology, cereal technology, dairy technology and nutrition compounded with foreign trainings . In addition, two faculty members have expertise in the application of radiation technology.
- There exists a coordination among the teaching faculty to promote instituteal growth and reputation .
- Tendency for substantial level of support from the higher up (competent authority) to boost up professional and research activities in the Institute.
- Faculty have a good number of publications in HEC approved National and International Journals.

Major Weaknesses:

- There are extremely insufficient numbers of laboratory equipments that are basic in nature to perform practical at undergraduate level.
- There is a least bit of research especially in nutrition side at M. Phil level
- There is no food processing /pilot plant available, that is seemingly a pre-requisite for any Food Science Institute.
- There is literally no collaboration of the institute with national and international research and teaching organizations leading to no exchange of students and faculty and sharing of knowledge in the realm of Food Science and Nutrition.
- The Institute does not run any precise training and short courses programs for the local industry and farming community.
- Technical staff was untrained and less experienced.
- Insufficient operational budget hinders the research and academic activities.
- Inadequate library budget.
- No subscription to local and foreign journals.
- Lack of insufficient of Supporting/Lab. staff .

Major Opportunities:

- Sargodha is regarded a medium sized city of the Punjab province however it is well known for the production of citrus all over the world. There is tremendous potential and lot of job opportunities for the graduates in food industries and food regulatory authorities. Therefore, the Institute needs to be further strengthened to cater the needs of skilled manpower for addressing food processing and safety related issues. Moreover, the Institute must have initiated programs to increase awareness on the significance of agro-based cottage industry including production of value added foods at small scale to promote national economy and to alleviate poverty in the region. Bumper citrus crop production and processing is a beauty of the region and should be in prime focus of IFSN. The Institute can improve the relationship with citrus grower, processors and exporters. Particularly, development of citrus based value added products and provision of research to local industry can boost the importance of IFSN in the region.

Major Threats:

- The University is facing acute shortage of funds due to which the IFSN is not getting enough funds for maintenance of laboratories, building and to carry out experimental work. In addition, proper management and utilization of available budget require special attention.
- IFSN should concentrate on its ability to generate its own financial resources to meet future challenges.
- The faculty is serving below their research abilities in terms of research projects and may be encouraged to hunt for grants from National and International funding/donor agencies.
- Enrolment of a large number of students in degree program deteriorating quality education.

ACTIONABLE RECOMMENDATIONS FOR IMPROVEMENT OF THE DEGREE PROGRAMS OF FOOD SCIENCE.

Based on the information derived through physical inspection of the IFSN, discussions with the teaching faculty, staff and the students and deliberation with each other, we have come to the conclusion that there have been several shortcomings of varied nature. AIC wishes to make following recommendations on the basis of SWOT for the improvement of degree program in Food Science and Nutrition at University of Sargodha

- The institute could not grow in the last several years due to non-availability of senior faculty members. Appointment of Professor /Associate Professor are needed to excel in the realm of Food Science and Technology.
- A mega project to structure a pilot processing plant facilities needs to be essentially designed and implemented to impart practical knowledge simulating food particularly citrus industry training in the institute.
- Tremendous amount of exercise is required to establish laboratories such as Food Analysis lab, sensory analysis lab and Food Chemistry Lab etc.
- The institute needs to focus on hiring staff relevant to Human Nutrition rather than people specialized in Food Science and Technology to improve degree program in Food and Nutrition.
- The institute budget needs to be enhanced to meet basic requirement of the staff and the students for research, study tours, excursions etc.
- Sufficient supporting/Lab. Staff should be recruited in the institute. Lecture rooms needs to be equipped with proper infrastructure.

- Available data and prevailing conditions suggest that nutrition program should be revisited and dis-contribute until the professionals and laboratories facilities are made available in the Institute.

Evaluation Criteria Weightage for Agriculture Degree Programs

Sr. No.	Program Evaluation Criteria	Points Assigned	Points Awarded
			M.Sc (H) & B.Sc (H)
Major Criteria			
1	Strength and Quality of Faculty	250	189
2	Curriculum Design and Development	150	125
3	Infrastructure and Learning Resources	200	121
4	Students Support and progression	100	74
Sub - Total (a)		700	509
Minor Criteria			
5	Research and Consultancy Activities	150	48
6	Governance and Leadership	100	69
7	Recent Innovations and Best practices	50	40
Sub - Total (b)		300	157
Grand Total (a+b)		1000	666

Name and Designation

Signature of Program Evaluator

