

## PESHAWAR CITY

Peshawar (Pashto: پېښور *Pēṣ̌āwar*; Urdu: پشاور; Avestan: *Vaēkərəta*; Sanskrit: *Puruṣapura*, i.e. "city of men") is the capital of Khyber Pakhtunkhwa (formerly called the North-West Frontier Province), Peshawar is the largest city of Khyber Puklhtunkhwa and fifth largest city in Pakistan after Karachi, Lahore, Faisalabad and Rawalpindi. Peshawar is a metropolitan city and the administrative center and economic hub for the Federally Administered Tribal Areas of Pakistan. Peshawar is situated in a large valley near the eastern end of the Khyber Pass, close to the Pak-Afghanistan border. Known as "City on the Frontier", Peshawar's strategic location on the crossroads of Central Asia and South Asia has made it one of the most culturally vibrant and lively cities in the greater region. Peshawar is irrigated by various canals of the Kabul River and by its right tributary, the Bara River. Though predominantly Pashtun, Peshawar has evolved into one of Pakistan's most ethnically and linguistically diverse cities. In the last three decades, there has been a significant increase in urban population, in part due to internal migration of people in search of better employment opportunities, education, and services, and in part because of the influx of Afghan refugees and other people internally displaced due to military operations and civil unrest in neighboring regions. Peshawar is the major educational, political, and business center of Khyber Pakhtunkhwa. Peshawar's recorded history goes back as far as at least 539 BC, making it one of the oldest living cities in South Asia.





**Prof. Dr. Zahoor Ahmed Swati**  
**Vice Chancellor**  
**The University of Agriculture, Peshawar**

My dear students,

On behalf of faculty and staff and on my own behalf I welcome you to The University of Agriculture, Peshawar. This University is one of the best in Pakistan and has honor of getting 3rd position amongst all 55 Universities and 2nd position amongst the four agricultural Universities in Pakistan. This university, since its inception, has been providing the best available facilities to its students. Currently the University is one of the focal points of agricultural and management education and research in the country. With more than one hundred thousand books and journals, the spacious library is one of the best in this part of the world. The University has more than 12 computer laboratories; students have free access to internet to approach research material and journals. The science laboratories in each department and more than 400 acres of farm land is devoted to students and faculty research. The University has the highest qualified and experienced faculty in the country. With all these facilities, the University offers the best environment for enthusiastic students; for the students who are eager to excel in their studies, outclass in their career and outshine in their lives. Most of our graduates are currently serving the nation in the government, non-governmental and international organizations. Many have opted for further higher education in European and American Universities. They have excelled because they have worked hard. You can also follow the path of success if you work hard with full devotion and commitment. The University, on its part, will provide you all the facilities for your education and research.



# The University of Agriculture Peshawar



## 1. INTRODUCTION

Since its establishment in 1981, this University has been playing a vital role in imparting Agricultural Education and conducting basic and applied agricultural research throughout the Province, and disseminating the results of agricultural research among the farmers and general public through its outreach/public service activities.

Being one of the leading institutions in the country, the University has been enjoying the prestige of providing high quality agricultural education and research to its students. The graduates of this University are serving in public-private sectors organizations on key positions within Pakistan and abroad. They are ambassadors of this University and have been bringing in laurels to the name and prestige of this University.

During the present convocation 750 students are being awarded Bachelor, Master and Ph.D. degrees. Outstanding students will be decorated with Presidential Awards, Gold Medals, Silver Medals and Bronze Medals.

The university is a corporate body. It has powers, inter-alia, to provide instructions, trainings, research and outreach; in agriculture, animal husbandry and other such disciplines of learning. The mission of The University of Agriculture, Peshawar is:

- To produce quality graduates in agriculture and related disciplines;
- To conduct problem-solving farmer-oriented research to make the country self sufficient in food commodities
- To provide educational and research linkages to rural communities and the public in order to alleviate poverty in rural areas.

The University imparts its educational and research programme through 5 Faculties, 26 departments and 3 institutes. The University offers Bachelor, Master, M.Phil and Ph.D. degrees in all disciplines of Agriculture, Animal Husbandry and Veterinary Sciences, Rural Development, Rural Sociology and Bio-technology; and Bachelor and Master degrees in Management Sciences, Information Technology and Computer Sciences. Since the start of the Ph.D. programme in 1997 more than 50 Ph.D. scholars have graduated and about 250 are currently enrolled, pursuing their Ph.D. studies. All these academic

programmes are run under the supervision of 185 highly qualified faculty, out of which 104 hold Ph.D degrees from leading Universities of international repute.

The University of Agriculture, Peshawar being the prime institute for agricultural education and research has the obligation to provide trained manpower to all sectors of agriculture in Khyber Pakhtunkhwa. Being a high seat of learning it is also expected to engage in basic and applied research.

Other than degree programmes, the University has been playing a vital role in training scientists and students of the allied institutions through short term trainings in different areas of agriculture and relevant disciplines. Similarly, international trainings have been a regular feature of this University manpower production programme where hundreds of Afghan nationals have been trained so far.

On February 4, 2006 this University completed its 25 years of existence. During these years the University has gone through tremendous changes. The Faculty and Researchers of this University have been conducting basic and applied research of international standard. In this pursuit, the University is ahead of many institutions of the country. A number of national and international research projects have been completed and still 85 projects are being run by the faculty, won through national and international competition.

Besides earning projects at the national and international levels, the faculty and students have also shown excellence in other curricular and co-curricular activities. On the directive of the President of Pakistan, the Higher Education Commission holds National Students Convention to promote involvement of students in national issues. All public and private Universities of Pakistan take part in the Convention. In the Students Convocation 2005, one of our students, Umm-e-Aiman got first position at the provincial level and remained in the top ten students at the national. During this year, four of our girl students succeeded in reserving their seats at the national level Convention. On the FATA reserved seat, our girl student got first position at the Provincial Convention and will participate in the National Convention 2006 in the 3rd week of April.

The students of this University have got 3 top positions in the entry test for M.Phil admissions at the National Institute of Bio-Technology and Genetic Engineering. Under an agreement signed between the USAID and HEC, the University offers need based scholarships to the talented students who are incapable of meeting the cost of their education. Under this programme the University awards scholarships to 75 students at the B.Sc. and 55 scholarships at the Master level from 2005 to 2009.

One of our faculty, got first position throughout Pakistan in GRE test during 2003. In 2004 again two of our faculty got 2nd and 3rd position in the country in GRE exams. In the 2004 recruitment examinations of the Pakistan Agricultural Research Council, based on Pakistan level through open competition, the graduates of this University excelled in many areas, reflecting the institutional capacity and capability of the management and faculty of the University.

In these pursuits the University has been enjoying the patronage of the Governor/Chancellor, Khyber Pakhtunkhwa Universities and that of the Government of Pakistan, and Government of Khyber Pakhtunkhwa. The present Government through Higher Education Commission (HEC) has been providing unprecedented support and financial help to The University. The University appreciates the efforts of Prof. Dr. Ataur Rehman, Chairman HEC for his endeavours in this respect.

Since July, 2005 the University has managed to present Vision 2020 to the HEC for the next 15 years for about 13 billion rupees. Every year HEC will provide us about 800 to 1000 million rupees. This year the University has submitted a mega project for Rs. 500 million to the HEC for strengthening Khyber Pakhtunkhwa Agricultural University which include

1. Academic Blocks
2. Male Students Hostels of 400 rooms and 200 rooms
3. Female Students Hostel of 200 rooms
4. Central Lab and lab equipments
5. Foreign Faculty Rest House for about 30 million rupees has already been approved.

Another PC-I of Rs. 40 million rupees for Sports Complex, students services center and sports grounds has also been submitted and will be approved very soon. During this period the University has also developed collaborations with USAID, USDA, GEF, ICIMOD, SDC, JAICA, SRSP, PARC and NARC for joint projects. Their delegations have visited our University in this regard and have signed agreements with us. USAID is sponsoring our Center of International Linkages and Services and training programmes for Afghan professionals in agriculture and livestock sectors.

The USAID through the Higher Education Commission (HEC) has also awarded 130 scholarships for needy and deserving students. The amount of scholarship is Rs. 1,07,000/- per student per year, which is tenable for 04 years. During 2005, Rs. 55 lacs have been distributed amongst the needy and deserving students. This year the University has got even more scholarships. JAICA, through the HEC, will also provide such need based scholarships to our students from this year.

The USDA team has committed financial support to this University and will provide 8 million dollars as endowment fund. The interest on this fund will be utilized for sponsoring research projects, especially the Federally Administered Tribal Areas (FATA). Southern FATA in Khyber Pakhtunkhwa is basically an agricultural land where only .063 million hectare is cultivated whereas 1.56 million hectare of cultivable land, consisting of marginal lands and mountains, is uncultivated.

The development of agriculture in this area is synonymous to the development of the people. The growers of the area give more importance to fruits culture because of high value. The soil and climatic condition of the area are quite congenial for cultivation of fruits and vegetables. To bring the uncultivated land under agriculture use, The University of Agriculture, Peshawar is thinking of establishing research stations in the FATA areas

The University and ICIMOD have jointly initiated three projects (i) Indigenous Honeybee Protection worth Rs. 6 million (ii) Global Programme on Pollination worth Rs. 6 million and (iii) Real B-III (i.e. Built-Back-Better) Project for rehabilitation of agriculture and livestock in the earthquake affected areas of Khyber Pakhtunkhwa and Azad Kashmir. The Real B-III project is being sponsored and financed by ICIMOD, MINFAL, DFID, WFP and Govt. of Pakistan.

SDC (Swiss Development Centre) and The University of Agriculture, Peshawar are jointly working on PLI Project in the Southern Areas in Khyber Pakhtunkhwa. SDC is also providing scholarships @ Rs. 3,000/- per month tenable for 5 years to our Female DVM Students since January 2005.

Besides curricular and co-curricular pursuits, the University has also been in the forefront in social work activities. During the recent earthquake massive disaster in part of Khyber Pakhtunkhwa and Azad Kashmir, The University of Agriculture, Peshawar provided financial, material, physical and moral help to the earthquake affectees. More than 60 faculty, officers and staff alongwith 400 students of the University worked in the field. The University established six camps in Abbottabad and Mansehra as focal points for relief activities. The transport of the University was engaged to provide food stuff and clothing and to shuttle patients. All our faculty and staff contributed 6 days salary in the Relief Fund.

The management, faculty, researchers and students of The University of Agriculture, Peshawar are committed to further excellence in agricultural education and research, which will ultimately help in the development of the province in particular and the country at large.



## **FACULTY OF NUTRITION SCIENCES**

Faculty of Nutrition Sciences is comprised of three departments:

**1. Food Science & Technology:** Major areas of research: post-harvest handling of fruits & vegetables, food preservation with different methods, development of new preserved food products.

**2. Agriculture Chemistry:** To study chemical composition and nutritional evaluation of agriculture produce, estimations of toxic factors in soil, water, crops and food commodities, response of fruit and vegetable to various fungicides, pesticides.

**3. Human Nutrition:** The scope of the Department includes promoting food security through nutrition education and preventing malnutrition. Most of the faculty are PhD qualified. Labs of the departments have latest instruments. Offer admission in B.Sc(H), M.Sc(H) and Ph.D degrees programs.

## **DEPARTMENT OF FOOD SCIENCE & TECHNOLOGY**

The Department of Food Science and Technology was established in 1972. Food Science and Technology courses are essential not only for preserving food but also to provide healthy and safe quality food to the people. It is also important profession for workers dealing with food processing in food industries. This sector is not only creates jobs for food science graduates but also develops national economy. Food Science & Technology department at the beginning introduced B.Sc (H) and M.Sc (H) degree program and then started PhD degree program in session 1999. Food Science & Technology is the applied knowledge of courses covering subjects such as composition of food, human nutrition, food chemistry, principles of food preservation, food preparation & processing, food engineering, food packaging & storage, food microbiology, food analysis, food quality attributes and food laws & regulations for food industries. This department has three major laboratories and one food processing hall for under-graduate and post graduate practicals and research, well equipped with the latest instruments. Major areas of research are: preservation and preparation of various products of fruits & vegetables, cereals, meat, poultry, fish, milk and egg products. To develop new food products and to study the influence of individual or combined preservation treatments on food shelf life improvement such as heating, refrigeration, fermentation, canning, drying, radiation and food additives. The department has a pilot processing plant where on small scale various fruits and beverages products like jam, jellies, marmalades, guava & pomegranate syrups, mango & orange squashes are manufactured for marketing on commercial scale.

## **MISSION AND SCOPE**

The main mandate of the department is to produce well trained graduates of the subject. The department is providing theoretical knowledge and practical training at graduate and post graduate degree programs. These graduates serve the nation in various agriculture and related sectors home in

abroad. The department is implementing the revised food science curriculum of HEC so to communicate the latest education at B.Sc (H), M.Sc (H) and PhD degree programs with the ultimate aims to preserve the surplus food produce in the KPK to prevent the food shortage in the country and to export abroad as well for trade development.

## **TEACHING AND RESEARCH ACTIVITIES**

### **i) Achievements**

The department of Food Science and Technology has produced numerous number of graduates qualified at B.Sc (H), M.Sc (H) and PhD degree level since its establishment. Most of our senior faculties are PhD qualified. Our students and faculty are frequently publishing research articles in national and international journals for solving problems of food industries. The department has developed several new food products and has minimized the post harvest losses of our agriculture products. Most of our faculties are HEC recognized supervisors. Faculty members are actively involved as resource persons providing trainings to farmers, growers, fruits exporters and food industries.

### **ii) Collaboration with Other Organizations**

The department has linkages with national and international universities and research organizations. The department has developed linkages with various institutions of the country to develop our curriculum and research activities such as Arid Agriculture University Rawalpindi, University of Agriculture Faisalabad, University of Agriculture Tandojam, USAID, ASF, NARC Islamabad, NIAB & NIBGE Faisalabad, ARI and NIFA Peshawar. We are also helping other universities in their students examinations in food science both theory and research.

### **iii) Outreach Activities**

Activities of the department include advisory services to the food producers, food processors, extension workers, scientists and other visitors interested to preserve food on home scale. Our faculty and students are the active members of the Pakistan Society of Food Scientists and Technologists. Members of the society regularly disseminate information and technical know-how to food industries of the country.

### **iv) Funding Opportunities**

Our graduates are getting various merit scholarships from HEC and other institutions for higher studies both home and abroad. Maximum our HEC indigenous scholarship holders are enrolled for PhD study in this department.

### **v) Job Opportunities**

Our graduates are working in various departments and NGOs, Agriculture colleges, Polytechnic Institutes, Universities, Provincial and Federal Food departments. Agriculture Research System, Extension Department, FAO, WHO, WFO, Food Industries and other private & public sectors



organizations of the country and abroad.

### TEACHING STAFF



- i. **Prof. Dr. Alam Zeb** is working as chairman in the Department of Food Science and Technology. The University of Agriculture Peshawar. He carried out his PhD and Post Doc from Leeds University Uk. He has 30 years of teaching, research and administrative experience. Dr. Zeb has supervised 60 M.Sc (Hons) and 6 PhD students and has published more than 70 research papers in national and international peer reviewed journals. He taught approximately all the courses related to Food Science and Technology. His areas of research interest are food additives, food safety, post-harvest and beverage technology.



- ii. **Prof. Said Wahab** is working as professor in Department of Food Science and Technology The, University of Agriculture Peshawar Pakistan. He got his PhD from University of Agriculture Faisalabad and Post Doc from College of Biosystem Engineering and Food Science Zhejiang University of Science and Technology Hongzhou PR China Zhejiang University P. R. China. He has 27 years of teaching, research and administrative experience. Dr. Wahab has published more than 50 research papers in national and international peer reviewed journals and has supervised 55 M.Sc (Hons) students. Currently 4 PhD students are working under his supervision further he taught versatile courses of food science and technology discipline. His

area of research interest includes, cereal technology, baking sciences, cereal based food safety and quality.



- iii. **Prof. Dr. Mohammad Ayub** is working as professor in Department of Food Science and Technology The, University of Agriculture Peshawar Pakistan. He got his M.Sc (Hons) in Food Science and Technology with distinction. His PhD work is on the development of Intermediate moisture foods using caloric and non-caloric sweeteners and got related training at University of Henan Zhanghou P. R. China. He has published more than 50 research papers in national and international peer reviewed journals. Dr. Ayub has supervised 55 M.Sc (Hons) students and currently 3 PhD students are working under his supervision further he taught versatile courses of food science and technology discipline. His area of research interest includes IMF technology, Post-harvest, food product development and food safety and sanitation.



iv. **Dr. Yasser Durrani**

Dr. Yasser Durrani is working as Associate Professor in the Department of Food Science and Technology The, University of Agriculture Peshawar Pakistan. He got his M.Sc (Hons) in Food Science and Technology, MBA (Marketing) and PhD in the field of food products development and carried out his research in the college of Biosystem Engineering and Food Science Zhejiang University of Science and Technology Hongzhou PR China. His PhD dissertation title was “Storage studies of value added mango blends with seabuckthorn fruit pulp”. Dr. Durrani has published more than 20 research papers in HEC Pakistan approved journals and have supervised 30 M.Sc (Hons) research students. He taught versatile courses related to food science and technology, food safety and food quality management to undergraduate and post graduate students. He is HEC approved PhD Supervisor and presently supervising 3 PhD students. He is focal person for PGDC in Food safety and control. His areas of interest are Food

product development, Food safety and quality, Fruit/vegetable Post harvest, Beverage technology and Food waste utilization.



**v. Dr. Ihsan Mabood Qazi**

Dr. Ihsan Mabood Qazi working as Assistant Professor in the Department of Food science and Technology, The University of Agricultural Peshawar, Pakistan. He completed his doctoral degree from Asian Institute of Technology, Thailand. His area of specialization is starch technology, Product development, food safety and security, food quality assurance and halal foods, and cereal technology. He worked in couple of project, as a research fellow in combined project of AIT-CIRAD-HUST with the title of, “Improvement of under-utilized plants in South-East Asia” funded by –PSCI, AUF, 2009. Work in combined project of AIT and Thai better food PVT (Ltd) as a research fellow with title of “Rice noodle modification” 2008, (PhD Research), One article has been published each in Journal of Starch and Sarhad Journal of Agriculture. He also organized and attended international conference, “Food Safety and Security Meeting” of European EU and SEA experts, March, 2008 at AIT, Thailand. Organized and attended, “International Conference on Sustainable Development in the context of Climate Change”, from 24-25 September, 2009, UN Bangkok, Thailand. Furthermore, attended and organized international conference of Food Engineering in the department of Food Engineering and bioprocess Technology, 2009, AIT, Thailand. He attended training on “Integrated Food Security Phase Classification” (IPC) training and analysis workshop, February 26 to March 03, 2013, at Pearl Continental Hotel, Bhurban, Pakistan, organized by FAO-UN in collaboration with WFP and Government of Pakistan. Also attended “National Curriculum Revision Committee Meeting (NCRC), January 29-31, 2013”, as an expert member held at HEC regional office Lahore, Punjab, to develop a curriculum of new Food Engineering Bachelor degree, introduce for the first time in Pakistan. He is assistant to focal person for PGDC in Food safety and control. His area of specialization is Product development, food safety and security, food quality assurance and halal foods, starch technology and cereal technology.



**vi. Dr. Majid Suhail Hashmi**

Dr. Majid Suhail Hashmi is working as Assistant Professor in the Department of Food Science & Technology. He completed his PhD from Massey University New Zealand under faculty development program of The University of Agriculture Peshawar, funded by Higher Education Commission of Pakistan. He did Bachelor and Master (H) degrees from the University of Agriculture Peshawar. Dr. Hashmi studied his PhD majoring in Food Technology (Postharvest Technology), during the course of PhD he developed laboratory, data analysis and presentation techniques. He developed excellent scientific writing skill, which resulted in publication of 2 research articles in the Thomson Reuters impact factor journal. In addition, he published 8 research articles in HEC approved journals. He also presented his research work in two international conferences held in Malaysia and Turkey. Before joining the university, Dr. Hashmi served for 4 years as Research Officer in Agricultural Research Institute Tarnab - Peshawar, where he trained farm families in fruits & vegetables preservation and value addition. Currently Dr. Majid is teaching subjects of Food Laws and Regulations, Food Process Engineering, Introduction to Food Science & Technology and Poultry and Egg Processing.



## **POST GRADUATE DIPLOMA IN FOOD SAFETY & CONTROLS**

IN THE DEPARTMENT OF FOOD SCIENCE & TECHNOLOGY,  
THE UNIVERSITY OF AGRICULTURE PESAWAR KPK PAKISTAN







## Introduction

Pakistan is blessed with versatile climatic condition suitable for the growth of major varieties of crops, fruits and vegetables. Majority of population in Pakistan is associated with Agricultural sector and playing major role in improving the economic conditions of our home land with its 25% share in GDP of Pakistan. This share can be improved by minimizing the f/v losses by providing proper education related to food processing and preservation under the food safety rules and regulation to farmers, food inspectors and food dealing personals. But with improvement in economy provision of safe food to every human is mandatory. The control the hazards potentially associated with foods typically involves the application of control measures in the food chain, from primary production, processing till consumption. Food processing commercial and cottage industries in Pakistan are responsible for validation of control measures, while the competent authority (personals responsible for imposing food safety system) ensures that industry has effective food safety systems and its related control measures are appropriately validated. With the spread of education, change in habits of populace, growth in working women force and increase in per capita income & urbanization, the demand for safely processed food products is increasing progressively. In order to cope with this challenge training and up to date knowledge related food safety and control measures, its monitoring, validation and verification system is required for food inspectors.

## The Food Processing Sector

Food processing involves any type of value addition to the agricultural produce starting at the post-harvest level. Food and its allied products industry is considered Pakistan's largest industry which accounts for 27 percent of its value-added production and 16 percent of the total employment by the manufacturing sector. Trade sources estimate the sector's total value of production over Rs. 46 billion. It includes even primary processing like washing, grading, sorting, cutting, shelling, packaging, etc. The sector comprises of the following major areas, such as: Fruits and Vegetables: beverages, juices,

jams, jellies, pickles, sauces, concentrates, pulps, frozen and dehydrated products, frozen vegetables and canned products, Fisheries: Chilled frozen and canned fish products. Meat and Poultry: Fresh and processed beef, mutton and poultry meat, ready to cook poultry products. Milk and Dairy: Fluid liquid milk, condensed milk, ice cream, yoghurt, butter, cheese, desi ghee. Grains and Cereals: Flour, biscuits, starch, glucose, corn flakes, malted cereals/foods, pasta foods, Confectionary: Chocolate and sugar confectionary. Beverages: Concentrated fresh juices, nectars, cordials, pure juices, soft drinks, aerated beverages, syrup and squashes.

## **Constraints, Concerns & Challenges**

Value added level being extremely low, the wastage level ranges between 20-50% which is very alarming and results in huge loss of national wealth. Despite vast domestic market size, the present level of processed foods marketability is very low. However, by massive awareness and educational campaigns this market could grow higher enough to consume substantial part of the any quantum of our processed foods. The differential between the farmer's realization and the final consumer price is very high in the country even in the fresh produce. In processed food products the high price on account of cumulative effect of low productivity, high cost of raw material, spoilage due to poor infrastructure, inefficient and costly transportation, high cost of finance and high incidence of taxes and duties, leads to the vicious cycle of: low demand → low capacity utilization → high per unit cost → low demand. Weak database and lack of market intelligence are existing features of this sector. Multiplicity of laws and regulatory authorities throttle the industry in its further growth calling for harmonization of laws, development and administration of standards in consonance with international standards like Codex Alimentarius through a single authority. The linkages between public and private organizations and with the users like farmers and industry are not well established resulting in lack of technology flow, and involvement of industry in applied and commercial research work. The backward linkage between the farmer and the processor is yet to take proper shape to tide over the impediments which exists on account of fragmented and small land holdings, erratic production, non-uniformity and inconsistent supply of raw material and longer chain of intermediaries.

Cooperative institutions and other organizations are weak. Besides these, low margins, seasonality and high perishability are distinct features of this industry. Prevailing packaging system lacks requisite quality and present ability parameters creating handicap as compared to imported products. Pakistani brands are yet to establish in the international markets calling for a concerted effort to capture world market share in tune with our standing in the production front. With the coming in of WTO regime the country has to the requisite quality standards in order to compete with foreign goods in the domestic market itself. This calls for adoption of high tech machines and technologies as also development of entire chain of infrastructure.

Raw material quality is a serious concern that can be alleviated through improved post harvesting methods and better supply chain coordination from the farm, post-harvest handling, processing, storage and exporting. The cool chain is important facility that is required to be developed. In the meat sector disease prevention, treatment and surveillance should be improved through better research, technology adoption and veterinary services. The establishment of national grades and standards including packaging and labeling is badly needed. Establish accredited local laboratories to cater for testing needs of exporters and producers engaged in agro-food processing. Lack of certification remains a barrier to export performance despite the fact that the average cost of certification has fallen over time due to competition in the provision of certification services. The overall picture regarding SPS management and the ability to comply with food safety and agricultural health requirements in export market is of a generally low level of capacity development within both the public and private sectors. The stakeholders need to adopt a more proactive approach to SPS management issues. There is a much talk and in certain instances a lot of effort has been put into SPS issues but all a very adhoc and certain

nly not coordinated. The proposed post graduate diploma in food safety will be a milestone in producing capable manpower to fulfill the need of both food processing industry and agriculture.

## **POST-GRADUATE DIPLOMA IN FOOD SAFETY AND CONTROLS**

Food safety is not just an issue of law enforcement, but it is the combination of control measures that, when taken as whole, ensures that food is safe for its intended use. For this purpose knowledge based actions and activities are required that can be used to prevent, eliminate or reduce food safety hazards to an acceptable level. The implementation of this knowledge not only provides healthy and safe food to the people but develops trade as well as bilateral relation with other countries due to safety image regarding the supply products. High profile incidents have highlighted the need of implementation of effective food safety management systems, its regulatory frameworks at the local, national and international levels.

The objectives of Postgraduate Diploma course (PGDC) program in Food Safety and Controls are:

1. The core objective of this program is to provide adequate training/ knowledge to professionals for development, implementation and auditing of Food Safety and Quality in the province of KPK Pakistan.
2. To provide trainees an in-depth working and practical knowledge of food safety and quality management systems.
3. It seeks to develop Pakistan's capability to meet the global food safety and quality requirements and enhance competitiveness of food products.
4. In long term perspective, it would contribute to ensure the provision of safe food to consumer domestically and abroad.

Current PGDC is aimed to implement the food safety aspects in post-harvest practices, meat and milk products etc. Graduates of biological science interested in this training will learnt techniques how to detect food hazards and control. In response to these challenges regarding food safety, this PGDC has been designed to train the manpower in the field of food safety to meet the demand of ministry of commerce and industry and other food inspection enforcement agencies.

## **MISSION**

“Transformation of human health status and enhancement of international trade in foods through better food safety practices”

### **Importance of this training Program for KPK:**

1. To train our graduates both theoretically and practically in the field of food safety implement internationally in food safety management systems (FSMS).
2. To identify the health hazards occur in food items that are intended to be controlled in the commodity receive due to environment concerned and how to make the food safe from these contaminations such as chemically and biologically.
3. To identify the required food safety outcomes.
4. To provide trained manpower in discipline of food safety so to facilitate the government, food industries and food traders in supplying safe food for marketing domestically and other countries.
5. With this training the youth will get employment in food safety inspection agencies and the export trade of food products produce in KPK will also enhance and ultimately the province will economically develop.



## CURRICULUM

<b>1 Year</b>			
<b>First Semester</b>			
<b>Course No</b>	<b>Title of Course</b>	<b>Credit Hours</b>	<b>Instructor's Name</b>
FSAC-1001	Food of Animal Origin	3(2-1)	Prof. Dr. Said Wahab
FSAC-1002	Food of Plant Origin	3(2-1)	Prof. Dr. Alam Zeb
FSAC-1003	Food Microbiology	3(2-1)	Dr. Majid Sohail
FSAC-1004	Food Safety Science	3(2-1)	Dr. Yasser Durrani
FSAC-1005	Food Sampling Techniques and Analysis	3(1-2)	Prof. Dr. M. Ayub
FSAC-1006	Food plant Sanitation and Hygiene	3(2-1)	Dr. Ihsan Mabood Qazi
	<b>Total Credit Hours in 1<sup>st</sup> Semester</b>	<b>18(11-7)</b>	
<b>Second Semester</b>			
FSAC-1007	Food Quality Management Systems	3(3-0)	Dr. Yasser Durrani
FSAC-1008	Food Related Legal System	2(2-0)	Prof. Dr. Said Wahab
FSAC-1009	Food Inspection, Investigation and Judgment	4(3-1)	Dr. Majid Sohail
FSAC-1010	Food Safety, Standards and Trade	2(2-0)	Prof. Dr. Alam Zeb
FSAC-1011	Compliance Strategies and Effective Enforcement	2(2-0)	Dr. Ihsan Mabood Qazi
FSAC-1012	Food Toxicology & Adulteration	3(2-1)	Prof. Dr. M. Ayub
FSAC-1013	Specialist visit, report writing & professional skills	3(0-3)	Equal number of students among each instructor
	<b>Total Credit Hours in 2<sup>nd</sup> Semester</b>	<b>19 (14-5)</b>	
<b>Total Credit Hours</b>		<b>(18+19)=37</b>	

