PROSPECTUS
Post Graduate Diploma in
Food Safety and Controls

Under
European Union’s Funded Trade Related Technical Assistance (TRTA II) Programme Implemented by United Nations Industrial Development Organization (UNIDO) in association with International Trade Centre (ITC) and World Intellectual Property Organization (WIPO)

at the
Department of Food Science & Technology
University of Karachi
2012
Chancellor/Governor Sindh
Dr. Ishrat Ul Ebad Khan
Access by developing countries to food export markets in general, and of the industrialized world in particular, will depend on their capacity to meet the regulatory requirements of importing countries. For most developing countries, like Pakistan, agriculture lies at the centre of their economies and food exports are a major source of foreign exchange and income generation for rural and urban workers in agriculture and agro-industrial sectors. The long-term solution for developing countries to sustain a demand for their products in world markets lies in building up the trust and confidence of importers in the quality and safety of their food supply systems. This requires improvement within national food control systems and within industry food quality and safety programmes. Such efforts will greatly help in increasing the relatively small share of developing countries in the international food trade.

Realizing the importance of food security and safety in Pakistan, the Department of Food Science & Technology has timely taken the initiative to launch one-year postgraduate Diploma Food Safety and Controls at University of Karachi with the support of EU funded TRTA II programme. The courses that have been designed and approved for the diploma will be taught by the experienced and highly qualified faculty of the department as well as the international experts. The technical training imparted to the candidates would help expanding the food industry both by value addition as well as improving quality protocols by developing credible traceability and certification models to deal with SPS issues, which at present is lacking due to the absence of a legal framework.

I admire the earnestness, sincerity and sheer hard work of the faculty of the Department of Food Science & Technology, blended with the support and guidance of international experts of the food science discipline that have brought cherished rewards in form of this internationally recognized postgraduate diploma.

I congratulate the Chairperson and faculty of the Department for their joint endeavors for a successful higher education programmes and express my sincere gratitude to the management of EU funded TRTA-II Programme and the implementing agency UNIDO as well as the international experts Dr. Ian Golding and Dr. Andrew Mathieson for their contributions, participations and efforts to make the programme a success. I assure the university’s support in their quest of making food safety professionals for the country.
The tremendous advances in trade and export in the west are partly due to the ability of the advanced countries to integrate scientific knowledge and research with the economic activities. One of the high priority areas which pursued seriously is food production in compliance with food safety standards and regulations. The consumer societies of the developed countries practice their legal rights to get the quality food and drugs. They usually also have concerns about the environmental impact or the trading ethics of the product, they consume. Consequently, there is an emergent need to adopt global standards for the maintenance of quality and safety of food.

Unfortunately, Pakistan though rich in agriculture produce, is still not in a position to claim compliance with the food safety standards. Current legislation and institutional framework for official controls of food safety, animal and plant health are inadequate and not sufficiently coherent to address the problems faced by Pakistan’s food sector. To overcome these problems and to develop a harmonized food safety control system in Pakistan, three renowned public sector universities of Pakistan have come forward to launch Food Safety Diploma Course at the national level. This project is financially supported by European Union’s Trade Related Technical Assistance (TRTA-II) Programme and implemented by the United Nations Industrial Development Organization (UNIDO).

It is a matter of immense pleasure for me that the faculty of the Department of Food Science and Technology has taken keen interest to launch this diploma course at the University of Karachi. The unified curriculum was designed by the participation of our three national universities i.e. University of Agriculture-Faisalabad, University of Veterinary and Animal Sciences-Lahore and University of Karachi. The curriculum for the diploma has been evaluated critically in steps by the Board of Faculty of Science, University of Karachi to uplift the standard of the course till formal approval by Academic council.

I, sincerely hope that with the support of University administration, EU and UNIDO the Department of Food Science & Technology would be able to groom skilled and qualified graduates with a Post Graduate Diploma (PGD) in Food Safety and Controls.
MESSAGE

Almost all countries have a food control system to protect their populations against unsafe, adulterated, or otherwise poor quality food. This also implies that food legislation exists indicating governmental policy towards consumer protection. But large sections of the populations in many developing countries still suffer from the ravages of unsafe, unhygienic or adulterated food, and severe losses in food export trade take place annually due to food not meeting the basic requirements of quality and safety. There are several causes for this unsatisfactory situation which need attention at the level of the food industry and the government. Some of these are: (1) Lack of resources and infrastructure for post-harvest handling, processing and storage leading to severe diminishing of quality and avoidable contamination and food losses, (2) lack of interaction between industry and government on food control matters, (3) National food control systems are not based on modern scientific and management concepts using compliance policies, risk assessment, HACCP, transparency, and broad-based involvement of industry, trade and consumers, (4) Insufficient involvement of scientific expertise from the academia, industry, consumers to strengthen the scientific basis for food control decision making processes, (5) lack of suitable facilities such as laboratories and (6) lack of resources such as trained food safety professionals, inspectors, laboratory staff and funding.

The launching of one-year postgraduate Diploma Course on Food Safety and Controls at national level in Pakistan to produce qualified and trained food safety officers with enhanced knowledge of good hygienic practices in handling and preparing, food safety and quality is one of the potential revolutionary initiative taken by the European Union through its Trade Related Technical Assistance (TRTA-II) Programme implemented by United Nations Industrial Development Organization (UNIDO) in association with International Trade Centre (ITC) and World Intellectual Property Organization (WIPO).

The Department of Food Science & Technology, University of Karachi is privileged to be one of the institutes where this Diploma course will be offered from September 2012. I appreciate and congratulate the faculty members of the department who enthusiastically worked hard and made it possible to launch this valuable accredited and internationally recognized Food Safety Diploma Course.

I thankfully acknowledge the cooperation and participation of International Experts Dr. Andrew Mathieson and Dr. Ian Goulding as well as UNIDO’s officials Dr. Ali Abbas Qazilbash and Mr. Muhammad Aurangzaib in designing and developing this extensive course. I would also like to personally pay my sincere gratitude and thanks to Prof. Dr. Abid Hasnain-former Chairman of the Department, Dr. Rahmanullah Siddiqi-Assistant Professor and Dr. Shahina Naz-Assistant Professor and Coordinator of the PGD Project for their utmost and untiring efforts in making this programme a success.
University of Karachi

Introduction

University of Karachi, founded in 1951, is one of the oldest institutions of higher learning in Pakistan. It offers rigorous and vibrant Graduate and Post-graduate degree programs in the fields of Arts, Business Management, Education, Islamic Studies, Law, Medicine, Pharmacy and Science & Engineering. The research and teaching programs are supervised by approximately 1000 highly qualified and internationally recognized eminent faculty members. These programs are being offered in 54 Teaching Departments and 17 Research Institutes / Centers, of nine Faculties.

To date, University of Karachi has produced more than 1550 Ph. Ds and more than 2000 M.Phils. Presently, more than 3000 students are enrolled in M.S., M.Phil/Ph.D. and other research programs besides 24,000 students in graduate and undergraduate programs.

University of Karachi, in 2009, achieved the status of being in the list of world’s top Universities. According to the QS (Times Higher Education – Quacquarelli Symonds) World University Ranking, University of Karachi is ranked among the top universities of the world for the last three consecutive years. It leaves behind other Universities in the disciplines of Natural Science, Arts & Humanities, Life Science, and Social Science. In addition, according to QS-Asian Universities Ranking 2011, University of Karachi stands 138th among 425 top Universities of Asia. Since the entire nation accredits University of Karachi for its remarkable services rendered in higher education, the Higher Education Commission has ranked this University at number 02 among public and private sector universities/institutes, in its national university ranking criteria 2011.

University of Karachi is publishing extensively in the field of Science and Social Sciences in high impact factor journals. It is also worth-mentioning that University of Karachi published 1447 research papers in the years 2007-2010. These papers were published in peer reviewed journals indexed by Thomson Reuters ISI Web of Knowledge. Moreover, the University is accredited for having more than 60 patents in the field of scientific research at national as well as international levels. Large numbers of faculty members of University have been receiving Research Productivity Awards every year since 2002.

University of Karachi provides excellent opportunities to its postgraduate students and faculties for linkages & collaboration with the World’s top Universities under collaborative research and sandwich/split programs. In this context, various Memorandum of
Understanding (MOUs) were signed between University of Karachi and the counterpart foreign Universities including University of Idaho (UI), New York Blood Center, and New Jersey Medical School, Public Health Research Institute, Department of Molecular Microbiology and Immunology, Bloomberg School of Public Health, Johns Hopkins University USA, University of Isfahan and University of Hormozgan, Iran; University of Peace, Costa Rica; University of Apart ado, Mexico; University of Bedfordshire and University of Stafford Shire, UK, University for Foreigners of Perugia and University of Sassari, Italy. Likewise, University of Karachi is also smoothly running various collaborative research projects under supervision of its faculty members with the University of Hamburg, Max Planck Institute of Biochemistry, Munich, Germany, at UAE University, at Institute of Medicinal Plant Development, Beijing, China, University of New South Wales, Sydney, Australia, University of Salzburg, Austria. Some recent linkages include international consortium on Climate Change between the Institutes of Environmental Studies of the Universities of Pakistan-China- Netherland-France. University of Karachi has also been selected for a European Union Consortium of European & Asian Universities under the Erasmus Mundus Europe Asia Fully Funded Scholarship Program; 2010 to 2015. Consortium includes Lund University Sweden, University college Dublin-Ireland, University college London-Great Britain, University of Amsterdam-Netherland, University of Milan-Italy, University of Warsaw-Poland, University of Pierre & Marie Curi- France and Aristotle University of Thessaloniki-Greece. In addition, several collaborative research projects are in process with the University of Giessen; Germany, University of Hannover; Germany, Gene Research Centre – University of Tsukuba; Japan, Soil and Fertilizers Research Institute; Vietnam, University of Dundee; Scotland, Newcastle University; UK etc. University of Karachi is also accredited for having the world’s only UNESCO chair on Halophytes. The chair has been established in the Institute of Sustainable Halophyte Utilization, in recognition of remarkable research work of the institute.

University of Karachi offers the upcoming graduate and post-graduate students a multi-disciplinary environment, state-of-the-art laboratories, digital library, video conferencing facilities and is committed to its tradition of producing top-quality graduates in cutting-edge areas of Business and Management Sciences, Bio-Medical & Engineering Sciences, Social and Natural Sciences and Technology.
Department of Food Science & Technology

Introduction

The Department was established in 1994 to cater the need of the fast growing food industries in the country and also to meet the ever growing demand for food scientists & technologists in government, research and educational establishments. Prof. Dr. Rashda Ali was the founder Chairperson of the Department. The department over the years has developed linkages with universities in Germany, Britain and USA. It constantly arranges workshops, seminars, conferences and training courses. The department enjoys a very good rapport with both national and multinational food industries in Pakistan.

Aims and Objectives

The department has the following aims & objectives:

- To produce qualified food scientists, food technologists and food nutritionists for food industries, teaching and research organization.
- To establish links between teaching/research institutions, government, commercial organizations and consumers.
- To preserve, process and manipulate the agricultural crops to avoid post harvest losses.
- To protect our environmental condition from deterioration of food.
- To introduce novel, nutritious, value added and safe food products for local consumption and export.
- To incorporate the food industry waste for new products development.
- To provide consultancy and advisory services to food industries.
- To provide diagnostic analyses of food products.
- To establish international collaboration with Food Science departments and food processing industries by exchanging students and staff.
- To organize functions/programs for creating awareness about the importance of safe processed nutritious food.

Facilities

The new building of the Department of Food Science & Technology has eight major laboratories equipped with all basic facilities. The laboratories include Food Engineering Lab, Food Chemistry Lab, Food Microbiology Lab, Food Quality Control Lab, Food Analysis Lab, Food Biochemistry & Post harvest Lab, Food Analytical Lab and Computer/IT Lab.

Seminar Library

The Department has a seminar library with about 1000 books.
**Career Opportunities**
The Degree holders may work as Food Technologist, Food Engineer, Food Chemist, Food Analyst, Production Manager, Quality Control Manager, Quality Assurance Officer, Product Development Officer, Food Inspector and Food Researcher in Food and Allied Industries, Ministries of Health, Education, Food & Agriculture, Science & Technology as well as different Academic and Research Organizations.

**Academic Programs Available**
- BS & B.Sc. (Hons.) (Morning & Evening)
- M.S, M.Phil. and M.Phil. leading to Ph.D.
- PGD in Food Safety and Controls
POST GRADUATE DIPLOMA IN FOOD SAFETY AND CONTROLS

Introduction

Food safety is a very critical public health issue and food borne diseases have a major impact on health worldwide. According to World Health Organization millions of people die due to food poisoning every year. Even in industrialized countries, the percentage of people suffering from food borne diseases annually has been reported to be up to 30%. Food contamination thus creates an enormous social and economic burden on communities and their health systems.

In this context, governments worldwide are intensifying their efforts to improve the safety of the food supply and promoting the application of Food Safety Management Systems in food industries. The SPS (Sanitary and Phytosanitary controls) are essential both for the import and export of food products and is a mandatory requirement of World Trade Organization (WTO).

To meet the dire need of the food safety professionals and officers in federal, provincial and local Governments’ ministries and departments as well as food processing industries, a one year post graduate diploma course has been designed by an International Expert Dr. Andrew Mathieson, from Public Health Department, Bedford University, United Kingdom and a representative of European Union’s TRTA II Programme in consultation with the faculty members of the Department of Food Science & Technology.

The one year post graduate diploma course in Food Safety And Controls, Accredited by Royal Environmental Health Institute of Scotland (REHIS) will be conducted at the Department of Food Science & Technology, University of Karachi under European Union (EU) funded Trade Related Technical Assistance(TRTA-II)Programme implemented by United Nations Industrial Development Organization (UNIDO) in association with International Trade Centre (ITC) and World Intellectual Property Organization (WIPO) in three universities of Pakistan.

The diploma course is aimed to offer flexible opportunities for knowledge, skills and experience acquisition while progressing continuing professional development at post graduate level. Graduates from this one year program will have high level knowledge of the causes and solutions of the problems in food safety faced by the consumers in Pakistan. They will have the relevant scientific, technical and legal knowledge to detect fraudulent and dangerous foods and advise manufacturers and processors on how to improve food manufacturing and food safety standards in order to make food safe, increase productivity, and critically ensure compliance with legal SPS requirements for both domestic and in exports. This unique suite of courses is designed to meet the current needs of food safety professionals in Pakistan.
Prof. Dr. Jehan Ara (Chairperson) has more than 25 years of experience of teaching and research. She is associated with the Department of Food Science & Technology for the last 14 years. Prior to this she worked as Research Fellow at H.E.J Research Institute of Chemistry and at the Department of Biochemistry on Pakistan Science Foundation (PSF) and Office of Naval Research (ONR) research projects. Her main areas of research interests include Food Biochemistry, Post harvest technology of fruits and vegetables, Biotechnology, Marine Biochemistry, Food Enzymology, Molecular Biology, Food lipids and Dairy Technology.

She was awarded Fulbright Scholarship for the Post Doctoral research at the department of vegetable crops, Mann lab, University of California at Davis, USA. Dr. Jehan Ara has also been a Visiting Scientist at the department of plant science, Mann Lab, University of California, Davis, USA (2007-08). She was awarded Research Productivity allowance from Pakistan Council for Science & Technology in recognition of excellence of Research work (2003-04). She is HEC approved Ph.D. supervisor and has been engaged in supervising M.Sc., M.S, and M.Phil./Ph.D. students. She has been actively involved in research and published about 50 original scientific research papers in peer reviewed journals. She has secured substantial research grants from National and International funding agencies including Office of Naval Research, USA, Pakistan Agricultural Research Council, USDA and Higher Education Commission, Islamabad. In addition, she has undertaken many research projects funded by Faculty of Science, University of Karachi. She has always taken interests in updating knowledge and attending subject focused national and international workshops and courses including Management of Fruit Ripening; Postharvest Technology, Chemical and Laboratory Safety, Maintaining quality and safety, and Fruit Ripening and Ethylene Management, at University of California, USA.

Dr. Jehan Ara has been a very active member of various official bodies, societies and associations: namely, American Phytopathological Society, International Society of Plant Pathology, Chemical Society of Pakistan, Pakistan Society of Food Scientists and Technologists, Pakistan Food Professionals Association, American Chemical Society, International Society for Horticulture Science, Board of Studies, Board of Faculty of Science and Academic Council, University of Karachi.
Prof. Dr. M. Abid Hasnain is associated with the Department of Food Science & Technology, University of Karachi for the last 27 years. He was honoured with three distinct Research Fellowships namely: Chinot Beradri Research Fellowship, British Council Fellowship and English Biscuits Manufacturers Fellowship. He is engaged and focused to attend and conduct highly professional international trainings including Advanced Analytical Techniques (USA), Textural analyses (USA), Food Packaging & Extrusion Technology (UK), Extrusion Technology (Germany), Postharvest Technology of Fruits (F.A.O), ISO 22000 Food Safety Lead Auditor Course. Besides attending much technical and professional trainings, Dr. Hasnain has also been actively participating in promoting research by securing research grants from the university as well as Food industries. He always has close contacts with all leading food industries in the country. He has also rendered services as a technical and subject expert to Technical Education Project, Education Department, Govt. of Sindh; Project of Restructuring of Technical Education and Vocational Training Program, Quetta; PCSIR Laboratories; National Agricultural Education Accreditation Council and NED University of Engineering and Technology.

He has supervised more than 70 research project students at M.Sc. level. Several Ph.D. research scholars are about to complete their Ph.D. thesis under his supervision and many more have initiated their Ph.D. research under his supervision. He has published more than 40 publications in reputed and peer-reviewed research journals.

Dr. Hasnain is associated with various Academic and professional bodies and associations. He is a member of Board of Advanced Studies and Research, Board of Faculty of Science, Board of Studies, Department of Food Science & Technology; Board of Studies, Faculty of Engineering; Board of Studies, Department of Health and Physical Education, University of Karachi.
Prof. Dr. Syed Asad Sayeed (Ex-Chairperson) has more than 26 years of teaching and research experience. He holds B.Sc. (Hons.), M.Sc. in Applied Chemistry and earned his Ph.D in Food Science & Technology from the same department. He did two post docs from UK and Germany. He has been awarded numerous fellowships and scholarship including Commonwealth Fellowship for Post Doc Research in UK; DAAD Fellowship for Post Doc in Germany; British Council Scholarship for Research in UK; UNESCO Fellowship; Pakistan Science Foundation Fellowship; National Scientific Research Development Board Fellowship; EBM Fellowship etc.

He got a number of trainings from the reputable institutes and organizations such as University of Humberside-UK; University of Nottingham-UK; Centre for Nutrition Research-Germany; Nuclear Institute for Food and Agriculture-Peshawar; Nuclear Institute of Agriculture and Biology; HEJ Research Institute of Chemistry, University of Karachi etc.

Dr. Sayeed has diversified work experience at academia and industry. He has been working closely with the food safety professionals since long and has the expertise of food hygiene, sanitation and safety through the sound knowledge of ISO 22000:2005, HACCP and other international food safety standards.

He has supervised, so far, 35 M.Sc. students for their research projects, one M. Phil. and two Ph.Ds. He completed 13 funded research projects and published research papers in national and International scholarly and peer-reviewed journals. He has conducted numerous courses, seminars, workshops, conferences and symposia.

Dr. Sayeed has been a member of various official bodies: namely, Board of Studies of Department of Food Science & Technology; Board of Faculty of Science-University of Karachi; Academic Council of University of Karachi; Pakistan Food Professionals Association- adhering body of International Union of Food Science & Technology.
Dr. Rahmanullah Siddiqi is an Assistant Professor and founder faculty member of the Department of Food Science & Technology, University of Karachi. He acquired numerous comprehensive and extensive trainings and undertook, at postgraduate levels, research projects and academic studies at eminent institutions of the world. For instance Food Product Development & Analysis, Fish Waste Utilization and Food Safety from School of Food, Fisheries and Environmental Studies, University of Humberside-England; Flavour Science and Sensory Analysis at the Department of Food Science and Technology, Oregon State University – USA; Bio-availability of Bioactive Compounds at the School of Food Science and Nutrition, University of Leeds – UK; Food and Health Survey by International Food Information Council (IFIC-USA); Health and Safety Training from School of Food Science & Nutrition, University of Leeds-UK, Fundamentals of HPLC and Atomic Absorption Spectrometer, PerkinElmer Centre, Italy; Food safety: An Introduction to Prerequisite Programmes and HACCP organized by UoK in collaboration with USDA; IRCA Registered FSSC (ISO 22000:2005 & PAS 220) for Lead Auditors from SGS Pakistan; TES 1110@FST, GMP & FDA 483s Food Regulations, InGrope Information Services, Karachi; FAO National Training Course in Post Harvest Technology of fruits, Quetta; Nuclear and other Advanced Techniques in Food and Agricultural Research, (NIFA); The Safety Measures in the Use of Radiation in Agriculture and Biology; (NIAB); HACCP in Seafood Processing, Marine Fisheries Department, Karachi.

Dr. Siddiqi has about 20 years of substantial hands on experience of teaching and research in Pakistan and abroad. He has supervised 30 M.Sc. students for their research projects, undertaken 10 KU funded research projects and published 15 research papers in national and international scholarly journals. He also served foreign universities as Visiting Research Fellow at School of Food Science and Nutrition, University of Leeds – UK and as an Affiliate Faculty at the Department of Food Science & Technology, Oregon State University (OSU) – USA. He has conducted numerous courses, seminars, workshops, conferences and symposia.

Dr. Siddiqi has been a very active member of various official bodies and professional societies: viz., Board of Studies, Department of Food Science & Technology; Board of Faculty of Science, University of Karachi; Chemical Society of Pakistan, Pakistan Society of Food Scientists & Technologists; Technical Committees of Agriculture and Food Division; FAO; Pakistan Standard and Quality Control Authority; Halal Awareness & Research Council; Association-adhering body of International Union of Food Science & Technology.
Dr. Shahina Naz is an Assistant Professor at the Department of Food Science & Technology, University of Karachi and Programme Coordinator–PGD in Food Safety and Controls. She completed her Ph.D. in Food Science and two post doctoral research studies from the Department of Food Science & Technology, Oregon State University–USA and School of Food Science and Nutrition, University of Leeds–UK. She has attended numerous extensive trainings from leading institutions of the world including Food safety: An introduction to Prerequisite Programmes and HACCP organized by UoK in collaboration with USDA; IRCA Registered FSSC (ISO 22000:2005 & PAS 220) for Lead Auditors from SGS; IHI Halal Certification Course for Lead Auditors, RINA; TES 1110@FST, GMP & FDA 483s Food Regulations, InGrope Information Services; Health and Safety Training from School of Food Science & Nutrition, University of Leeds, UK; Nuclear and other Advanced Techniques in Food & Agriculture Research, (NIFA); Applications of HPLC & (AAS), Perkin-Elmer, Italy; The Safety Measures in the Use of Radiation in Agriculture and Biology; (NIAB); HACCP in Seafood Processing, Marine Fisheries Department, Karachi.

She was awarded Commonwealth Academic Staff Fellowship for Post Doctoral Research in UK (2009); HEC Fellowship for Post Doctoral research in USA (2006); Karachi University Scholarship for indigenous Ph.D (2005); M. Phil. Fellowship by University of Karachi.

Dr. Naz has over 16 years experience of teaching and research in Pakistan and abroad. She is HEC Approved Ph.D Supervisor and has supervised 35 M.Sc. Students and one M.Phil. Currently eight M.S/M.Phil. and two Ph.D research students doing research under her supervision. She has undertaken 10 KU funded research projects and published 18 research papers in highly impacted scholarly journals and written two books-“Notes on Immunology” and “Food and Enzymes”. She is member Editorial Board of Pakistan Journal of Pharmaceutical and Nutrition Sciences and has also been serving as a reviewer for international journals. She also worked at School of Food Science and Technology, University of Leeds – UK and the Department of Food Science & Technology, Oregon State University – USA as Visiting Faculty. She has participated, as invited speaker, in several training courses, workshops, and conferences. Dr. Naz has been a very active member of Chemical Society of Pakistan, Pakistan Society of Food Scientists and Technologists, Pakistan Food Professionals Association and American Chemical Society; Institute of Food Technologists; Technical Committees of Agriculture and Food Division-Pakistan Standard and Quality Control Authority.
Ms. Faiza Abdur Rab has been working as Lecturer in the department since 1998. She got Post graduate training on Food Industry and Agribusiness from the University of Wageningen, Netherlands. She was awarded Karachi University Scholarship to carry out her M.Phil. research on resistance between the individual cells in isogenic populations of Saccharomyces cerevisiae in the University of Nottingham UK. Her selected research publications include enhancement of rare cell survival in stress sensitive yeast populations and Solving biological Problems.

Mr. Mahmood Azam has a dynamic work experience due to successful career history gained in research organization, food industries and academia. He started his career as a Food Technologist at HEJ Research Institute of Chemistry, University of Karachi where he was responsible for a Food Chemistry laboratory providing services in terms of analysis, preservation and new product development. He also supervised the quality assurance department of top notch world class airline catering providers such as Swissair and Gate Gourmet. He belongs to the second batch of the Department (1998) and the very first graduate who joined as a faculty member. He has also received various trainings in different countries and organized workshops and certificate courses. His areas of expertise are food engineering, HACCP auditing, certification and regulatory compliance. He is also the first patent holder of the Department in the field of edible films and coatings.

Mr. Feroz Alam has been associated with the Department of Food Science since 2004. He holds M.Sc. in Analytical Chemistry, M. Phil. in Food Science & Technology and recently submitted his Ph.D thesis. His main area of interest includes Starch and Hydrocolloid complex system. He has been actively involved in university committees and activities, and supervision of undergraduate research projects. He has published 4 International and 6 National Research Papers in HEC recognized Scientific Journals and also has been participating in symposia, workshops and International and National Conferences. He has also served in a Chemical Company, for four years.
Mr. Abdul Haq is associated with Department of Food Science & Technology from the last 6 years. He completed his masters from the same department in 2004 with distinction. He has been worked in National Foods Limited as research officer. He also has a postgraduate diploma in Statistics. He has been actively involved in research and has published 10 scientific research papers in peer reviewed journals. His research interest includes edible food packaging and mathematical modeling of food processes.

Ms. Tahira Mohsin Ali working as lecturer since 2011 has outstanding academic career. She has secured 1st class first position and Gold medals both in B.Sc. (Hons.) and M.Sc. Currently she is working on physicochemical properties and Amylose-lipid complex formation in native and chemically modified Pakistani White Sorghum (Sorghum bicolor) starches. She has published five research articles in internationally reputed journals and she also acquired one patent. Eight of her articles are published in Annual News Wheat Letter, Kansas Manhattan, USA. She is also a reviewer of International Journal of Food Properties, Taylor and Francis, USA.
Dr. Andrew Mathieson is the Principal Lecturer in Public Health at the Institute for Health Research which is part of the Postgraduate medical school at the University of Bedfordshire. Andrew is an expert on the EFSA technical list and holds fellowships from the Institute of Food Science and Technology, Royal Society of Health and Royal Society of Medicine. He qualified in Environmental Health (1988) and worked in local government for some 14 years before crossing into academia. He has developed, managed and led a number of environmental & public health programmes. His Professional Doctorate is in post conflict reconstruction. He also has qualifications in food safety, HACCP and public health.

Dr Mathieson is widely published and regularly presents at national and international conferences. His international work has led him to Pakistan, Kenya, Malawi, Australia and a number of European Countries.

Dr. Ian Goulding has been Managing Director of food and fisheries consultants Megapesca Lda in Portugal since its formation in 1993. He has interdisciplinary qualifications in environmental health, and food science, and a PhD in the marketing of aquaculture products. Since 1986 Dr. Goulding has been working in international aspects of trade in food and fishery products in less developed countries, with a strong focus on Sanitary and Phytosanitary (SPS) control systems. He has in-depth knowledge of the legal basis and implementation of the EU food safety regime. He has a substantial international work experience in 60+ countries, with diverse geographic and cultural environments. He has supported many countries to develop export food safety control systems for international trade, and has been instrumental in setting up the legal and institutional basis for food safety in Croatia, Latvia, and Gambia. He has worked with national SPS institutions in Pakistan since 2008. He has proven experience of project identification, design and implementation applying the logical framework approach to project life cycle management. He is creator and editor of popular monthly e-newsletter, FishFiles Lite, covering EU developments in fisheries and fish trade; current readership 15,000+. He is a member of the European Food Law Association the International Association of Fish Inspectors and is a Fellow of the Institute of Food Science and Technology (UK).
Dr. Barbara Rasco, BSE, PhD, JD is a Professor at the Department of Food Science and Human Nutrition - Washington State University, USA. She also worked as Assistant and Associate Professor at Institute for Food Science and Technology, College of Ocean and Fisheries Sciences, University of Washington; Graduate Faculty-Nutritional Sciences; Law Clerk-Weyerhauser Corp. Head Research Chemist and Quality Control Manager-argill Inc.; Biochemical Engineer-Cargill Research Dept. Biotechnology Section, Minneapolis; International Educational and Economic Development Programs; Program manager for education initiatives in Afghanistan; Manager, International Partnership Agreement, WSU/University of Agriculture, Faisalabad; Collaborative research and educational exchange programs with colleagues in China, Iran, Korea and Pakistan. Participated in economic development programs in: Canada, Mexico, England, Scotland, Russia, Croatia, Hungary, Turkey, Georgia, Afghanistan, Azerbaijan, Bangladesh, Jordan, Pakistan, Thailand, China, Vietnam, Hong Kong, Tunisia and the US. Dr. Rasco developed legislative initiatives and regulatory reforms in Afghanistan, Azerbaijan, Mali, Bangladesh, Cambodia, Pakistan; drafted food safety standards modifying the Soviet GOST derived standards to comply with WTO, EU, or US requirements (Azerbaijan, Georgia, Primorskii Krai (Vladivostok/ Khabarovsk region of Eastern Russia). Provided state-side technical assistance to economic development, food safety, food defense and food security programs in: Columbia, Haiti, Jamaica, Chile, Georgia, Afghanistan, Armenia, Azerbaijan, Pakistan, Russia, Iran, Mali, Tajikistan, Kazakhstan, Uzbekistan, Hungary, Bulgaria, Romania, Turkey, Jordan, Tunisia, Egypt, and Eritrea. US Program Director: Food Law and Regulation Development Center, Taijin University of Science and Technology, Taijin, China. Visiting Faculty Member: Shanghai Ocean University, Shanghai China, Taijin university of Science and Technology, Taijin China, University of Karachi, Karachi, University of Agriculture, Faisalabad, Pakistan. Affiliate Faculty: University of Idaho, Montana State University. External Examiner: University of Karachi (Karachi – Agriculture, Law, Fisheries), University of Agriculture (Faisalabad – Food Science), University of Animal and Veterinary Sciences (Lahore – Fisheries, Dairy Science), Government College University (Faisalabad – Food Science), Las Belas University (Las Belas – Fisheries), KPK Agricultural University (Kyber-Pashtunwana, Peshawar – Animal Science) She has been decorated with so many Awards and Honors such as Scholar of 1000ren honor by Tianjin, China; Fellow, Institute of Food Technologists; Elizabeth Fleming Stier Award, Institute of Food Technologists for humanitarian service; Distinguished Lecturer, Institute of Food Technologists on food law and food defense. Undergraduate Teaching Award, College of Ocean and Fisheries Sciences; Summer Institute for Women in Higher Education Administration, Bryn Mawr College, Philadelphia. Dr. Rasco has published over 160 research papers and chapters in peer reviewed scholarly journals. She has been issued patents and 3 invention disclosures (WSU). She has been very active member of : Institute of Food Technologists; Global Food Policy and Regulation Expert Panel; Executive Committee, Food Laws and Regulations Division, IFT Chair 1998-1999; American Chemical Society; American Bar Association; Washington State (Recognition for pro bono service,2004-2011), King County, and Whitman County Bar Associations, World Aquaculture re Association, Pacific Aquaculture Caucus, Pacific Fisheries Technologists – Officer including President (1997), Society of Sigma Xi; Who's Who in Technology Today; Who's Who Worldwide; Nutrition Information Network; Northwest Consumer Food Safety Council. Certified civil mediator (University of Idaho, 2006).
Dr. Gleyn E. Bledsoe is a professor at University of Idaho, USA. He did his B.S, M.S and Ph.D from University of Washington. His area of Ph.D research was related to Aquaculture Engineering. Mr. Gleyn also holds an MBA degree from University of Idaho and is a recipient of international awards from Institute for Food Science’s Bor S. Luh (2011) and Columbia River Inter-Tribal Fish Commission (2004). His area of expertise include Food Safety/Protection; Aquaculture/ Aquaculture Engineering, Fisheries, and Seafood Processing (35 years in Fisheries including President of a Seafood Harvest and Processing Company, design and construction of 7 at-sea processing and 12 shore-processing plants), Feed Formulation and Manufacture Agriculture including Pre and Post-Harvest Handling/ Processing; Agriculture Policy and Regulation, Planning, Production, Good Agriculture Practices (GAP) and GAP related programs Alternate Energy, Food Processing including Cold Chain, Fisheries/Seafood Harvest & Processing, Aquaculture; Agribusiness and Natural Resource, Land Management including Purchasing, Leasing, Allocation, Extraction and Regulatory Activities and Agriculture Extension/Extension Instructor Training:Precision Agriculture, Equipment and Implements, Hydroponics, Irrigation, Cut-Flowers, Energy and Alternative Energy Programs, Waste Utilization/Nutrient Management, Pest Management, Pre/Post-Harvest Handling, Inputs, Forestry, Soil Conservation, Organics, and Mushrooms; Forest Management, Harvest, Utilization, and Restoration. Primary emphasis has been on Capacity Building and practical Training Programs for individuals in developing countries.

He emphasize on “TraintheTrainers programme” to enable developing countries to build the capacity to provide continuing training for their citizens. He is affiliated with a number of reputable institutions around the world like Institute of Food Technology, American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Institute of Thermal Process Specialists, American Society of Quality Control, Pacific Aquaculture Caucus, Pacific Fisheries Technologists (Pres. 1997-1998; Exec. Committee 1996-1999), American Society of Aquaculture Engineers, World Aquaculture Society, US Aquaculture Association, Renewable and Alternative Energy Association of Pakistan, Pakistan Aquaculture and Fisheries Society.

# COURSES OFFERED

## FIRST SEMESTER

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Title of Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSD-01</td>
<td>Food of Animal Origin</td>
<td>2+1</td>
</tr>
<tr>
<td>FSD-03</td>
<td>Food of Plant Origin</td>
<td>2+1</td>
</tr>
<tr>
<td>FSD-05</td>
<td>Food Microbiology</td>
<td>2+1</td>
</tr>
<tr>
<td>FSD-07</td>
<td>Food Safety Science</td>
<td>2+1</td>
</tr>
<tr>
<td>FSD-09</td>
<td>Food Sampling Techniques and Analysis</td>
<td>1+2</td>
</tr>
<tr>
<td>FSD-11</td>
<td>Food Plant Sanitation and Hygiene</td>
<td>2+1</td>
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**Total Credit Hours in 1st Semester** = 18 (11+7)

## SECOND SEMESTER

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Title of Course</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>FSD-02</td>
<td>Food Quality Management Systems</td>
<td>3+0</td>
</tr>
<tr>
<td>FSD-04</td>
<td>Food Related Legal System</td>
<td>2+0</td>
</tr>
<tr>
<td>FSD-06</td>
<td>Food Inspection, Investigation and Judgment</td>
<td>3+0</td>
</tr>
<tr>
<td>FSD-08</td>
<td>Food Safety Standards and Trade</td>
<td>2+0</td>
</tr>
<tr>
<td>FSD-10</td>
<td>Compliance Strategies and Effective Enforcement</td>
<td>2+0</td>
</tr>
<tr>
<td>FSD-12</td>
<td>Food Toxicology &amp; Adulteration</td>
<td>2+1</td>
</tr>
<tr>
<td>FSD-14</td>
<td>Special Visit, report writing &amp; professional skills</td>
<td>0+3</td>
</tr>
</tbody>
</table>

**Total Credit Hours in 2nd Semester** = 18 (14+4)

**Total Credit Hours** = (18+18) = **36**
ADMISSION POLICY AND GUIDELINES

• Admissions will be given purely on merit basis

• Final selection of the candidates will be based on their performance in entry test, academic record, experience and performance in interview.

The candidates seeking admission should have B.S.(4-year) /M.Sc. or higher degree (equivalent to at least 16 years of education or higher) in pure and applied sciences. The application form may be obtained from the office of the Department of Food Science & Technology, University of Karachi on the payment of Rs. 500/- OR downloaded free from the University website and submitted along with all other required documents along with a Pay Order of Rs. 1,500/- in favour of PGD - Food Safety and Controls before the deadline. Incomplete and late applications will not be entertained.

The candidates will be required to pass entry test, consisting of two major portions; 50% general and 50% subject. They will have to score minimum of 50% marks in each portion to qualify for interview. In exceptional circumstances the University may accept an aggregate score of 50% so long as the candidate scores 50% in subject portion. The candidates who have already passed NTS based GAT test can be exempted from general part of entry test.

The candidates who will qualify in the entry test will be required to appear for an interview before selection committee, constituted by the Chairperson, Department of Food Science & Technology. List of successful applicants will be displayed on the website www.uok.edu.pk and on Notice Boards of the Department.

If any candidate fails to deposit the University dues within the stipulated period after the display of admission list, his/her admission shall automatically stand cancelled without any prior notice and the admission on that seat will be offered to next waiting candidate on merit basis.

**Medium of instruction**
Medium of instruction, examination and evaluation will be English.

**Examination & Evaluation System**
Examinations and evaluations will be conducted according to the rules and regulations of University of Karachi. However, due to International recognition, the role of external examiners will also be considered.

**Duration of the course**
This diploma certificate will be awarded after successful completion of one academic year consisting of two regular semesters. If a student fails to successfully complete course in specific time, the maximum duration for the award of Diploma will be two years consisting of four regular semesters. If any student fails to complete his diploma programme in two years, he will be dropped from the programme. There shall be two semester in each academic year (semester I & semester II) of 18 weeks each. Out of 18 weeks 16 weeks shall be the actual teaching time, the rest may be utilized for admission, conduct of examinations, preparation and declaration of results and one week semester break.
Class Timings
All the theory classes and practical sessions will be conducted at the Department in the afternoon session (from 6:00 pm to 9:00 pm)

Attendance requirements
A candidate with less than 75% of the attendance both in theory and practical separately in each course shall not be allowed to take the final examination of the course in a semester provided that the period of absence in case of participation in extracurricular/sports activities, with the permission of Senior Tutor/Director Sports shall be condoned

Fee Structure

<p>| | |</p>
<table>
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<tr>
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<tbody>
<tr>
<td>Semester - I</td>
<td>Rs. 40,000</td>
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<tr>
<td>Semester - II</td>
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</tr>
<tr>
<td>Contribution by EU-TRTA-II/UNIDO</td>
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<tr>
<td>Total</td>
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ADMISSION SCHEDULE

- Collection and Submission of application forms along with processing fee
  Thursday, 4 October, 2012
- List of eligible candidates for entry test on KU website and Department notice board
  Thursday, 4 October, 2012
- Issuance of admit cards for the entry test from the office of the Department
  Friday 5 October, 2012
- Entry test of the candidates will be held on
  Sunday 7 October, 2012
- List of successful candidates on KU Website and Department Notice Board
  Tuesday 9 October, 2012
- Interview of the short listed candidates at the Department
  Thursday 11 October, 2012
- Final list of successful candidates on KU Website and Department Notice Board
  Friday 12 October, 2012
ENTRY TEST FORM
Post Graduate Diploma in Food Safety and Control
Department of Food Science & Technology, University of Karachi

Name (Block Letters):

Father’s Name (Block Letters):

Sex: Date of Birth: Birth Place:

Nationality C.N.I.C #:

Address (Res):

Tel # (Res): (Off): Cell #:

Email:

Current Employer (if any) Designation:

Academic Record:

<table>
<thead>
<tr>
<th>Degree/Certificate</th>
<th>Year</th>
<th>University/Board/Institute</th>
<th>Percentage/Division</th>
<th>Subjects</th>
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<tbody>
<tr>
<td>Matric (SSC)</td>
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<tr>
<td>Intermediate (HSC)</td>
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<tr>
<td>B.Sc. (Hons)</td>
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</tr>
<tr>
<td>B.S./M.Sc.</td>
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<tr>
<td>Any Other Qualification</td>
<td></td>
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</table>

Signature ___________ Date________________

Photograph
ADMIT CARD
Entry Test Post Graduate Diploma in Food Safety and Control
Department of Food Science & Technology, University of Karachi

Form #:____________________

Received with thanks a Pay Order of Rs. 1,500/- (Rupees One Thousand Five Hundred Only) No. ____________ drawn on (Bank) ____________in favour of PGD-Food Safety and Controls as nonrefundable processing fee from:

Name: ___________________________________________________________________

Father’s Name: ___________________________________________________________________

CNIC No. ___________________________________________________________________

Signature ________________

Official Seal and Signature

N.B. Copy of last degree and CNIC are required. Please bring this admit card along with original CNIC on the day of entry test. Report the office of the Department 30 minutes before the time of exam.