S. No.	Thesis Information	
01	**Name of Scholar**	Madiha Idrees
	Registration #	13-IED-MSc-EM/FT-02
	Supervisor	Dr. Mirza Jahanzaib (Associate Professor)
	Title	Quality Function Deployment (QFD) for Utility Services: A Case Study of Electricity Distribution Company IESCO
	Abstract	Quality function deployment (QFD) is an efficient approach for establishing a strong relationship between a product and the customer. It is a technique, which aimed specifically at maximizing the satisfaction level of customers. In this competitive era, survival of an organization has become impossible without fulfilling the needs of the customers. Therefore, this research emphasis on the application of quality function deployment (QFD) on a utility service company i.e. IESCO for enhancing the satisfaction of customers by developing correlation matrix. In order to fulfil this purpose, an approach consisting of few steps has been proposed. In the first step, the voice of the customers (WHATs) is being collected by developing the questionnaire. The questionnaire has been developed by identifying the factors from the literature. An average method has been applied on the questionnaire to check the average response of customers and then weights of the customers' requirements are being collected by linear regression. Second step involves, finding of the technical solutions (HOWs) for each customer requirements. These technical solutions (HOWs) have been found by conducting a survey. In the third step, the relationships between the WHATs and HOWs and the relationships between HOWs and HOWs have been developed through experts' opinions. Fourth step involves the calculation of the absolute weights of the technical requirements. In this way, house of quality (HOQ) has been developed which can be helpful for the organization to improve its performance. A framework has also been proposed which is realistic and can be applied to similar nature of situations. The results showed that few parameters are more important but wholly all the parameters affect the system in general.
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02	**Name of Scholar**	Engr. Iram Mushtaq
	Registration #	12-IE&MS-MS/PT-EM-08
	Supervisor	Dr. Ali Rizwan (Assistant Professor)
	Title	ANALYSIS OF FACTORS AFFECTING INTER KNOWLEDGE SHARING IN AN ENGINEERING ORGANIZATION: A CASE STUDY OF KSB PUMPS
	Abstract	The purpose of this research is to identify the factors creating hindrance in the process of knowledge sharing in organizations. The population consisted of employees from a manufacturing organization consisting of 350 employees. A survey method was employed for the study and data was collected through a questionnaire using Likert scale. The suitable returned questionnaire accounted for 120 out of 145. The data included employees of different education level like graduate engineers, DAEs, technical workers. Spearman's and Pearson's correlation were used to find the strength and direction of association of identified knowledge sharing factors and knowledge sharing. Multiple regression analysis was used to explore the impact of knowledge sharing factors on knowledge sharing. Independent T-Test, Oneway ANOVA, Mann-Whitney U Test, Kruskal-Wallis H Test were used to test whether knowledge sharing factors differed based on the demographic of population. The results demonstrate that six factors, Communication between staff, trust, task interdependence, organizational structure, recognition, and helpful attitude, have significant impact on knowledge sharing. The most dominant factor was communication between staff followed by trust, task interdependence, organizational structure, recognition, and then helpful attitude. It was also found that there was significant difference in the impact of knowledge sharing factors on knowledge sharing due to gender and job level of employees which depicts the presence of vertical organization structure and gender biasness. Based on the findings, the study suggested some improvement strategies for the critical factors affecting knowledge sharing, that the organization should put into practice in order to improve the level of knowledge sharing in the organization. The study includes expert opinion of some key officials from middle and higher management on identified significant factors. Furthermore, it also gives recommendations for future research. This study is useful for better understanding of factors influencing the knowledge sharing at organizational ii level. Furthermore, the suggested guidelines can

		be useful for any organization facing knowledge sharing related issues as the suggested guidelines are practical and useable in real-world situation.
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03	**Name of Scholar**	Mian Wasif Safeen
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	Supervisor	Dr. Salman Hussain (Assistant Professor)
	Title	Influence of Process Parameters on Friction Stir Welding
	Abstract	Friction stir welding (FSW) is a solid state welding process that joins two metals. FSW is an environmental friendly green process which does not require filler material unlike conventional welding methods. In this process, a rotating non-consumable tool moves between the joining line of two metals. Due to friction between rotating tool and metal, heat is generated which softens and fuses the metals to form a good quality weld. The quality of friction stir weld can be evaluated by mechanical properties. The mechanical properties of the weld greatly depends upon the FSW parameters. This research presents a systematic approach to quantify the influence of process parameters on mechanical properties and to develop an empirical relationships to predict the mechanical properties. Aluminium Alloy 6061-T6 has been welded due to its wide application in the field of aerospace, transportation, railway, shipbuilding, and construction industries. The FSW parameters focused were, rotational speed, welding speed, tool tilt angle, and tool pin profile.

		There were five levels of each parameter as response surface methodology with central composite design has been used. Five tools with different pin profiles has been manufactured from molybdenum based tool steel. The pin profiles were, simple cylindrical, cylindrical threaded, simple tapered, tapered threaded, and simple square. The tools have been heat treated and hardened to 61 HRC. The mechanical properties were ultimate tensile strength, impact toughness, and hardness. Results revealed that tool pin profile has the most significant effect on ultimate tensile strength, impact toughness, and hardness. Highest tensile strength of 92%, impact toughness of 87%, and hardness of 95% has been reported as compared to parent material at rotational speed of 1150 rpm, welding speed of 70 mm/min, tilt angle of 3_{o}, and with simple cylindrical tool. Mathematical model for each response has been developed. Three confirmation tests has been carried out and it was shown that there is a high correlation between experimental and predicted values.
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04	**Name of Scholar**	Muhammad Zubair Iqbal
	Registration #	2013-IED-MSc-EM/FT-03
	Supervisor	Dr. Salman Hussain
	Title	EVALUATING SUPPLIER'S EFFICIENCY USING CONJOINT ANALYSIS APPROACH
	Abstract	Supplier selection and evaluation has significant role in creating effective supply chain system. Evaluating the suppliers is very important deeds of supply chain. These importance is amplified even more by new strategies in procurement department. Supplier evaluation is a MCDM (multi criteria decision making) problem, in the evaluation problems, criteria has altered relative importance. In this competitive environment, number of prospective suppliers and the number of factors to consider when evaluating suppliers rises. Few studies have been completed with conjoint analysis approach to evaluate the supplier. Therefore, conjoint analysis is used in this research because this technique has great worth for demonstration of relative importance. Main tasks of conjoint analysis is to recognize consumer preferences or utilities about potential products or services. Accordingly, different estimation methods have been proposed to determine the corresponding relevant attributes. Most of these approaches rely on the post-processing of the estimated preferences to establish the importance of such variables. Finally, the Pakistan's defense organizations is used to demonstrate the application and viability of the conjoint analysis approach. Data were collected from purchasing managers of defense industry. This approach can support producers in selecting the best suppliers or in supplier's evaluation. Six attributes were selected by literature review and expert opinion for the evaluation process of supplier. SPSS 21 software was used to analyze the data to find utilities of different levels and relative importance of attributes. The results revealed that conjoint analysis approach identify calculated consumer preference for supplier evaluation, containing the contributions of each factor and levels of factors to the whole preference and the relative importance of evaluation factors. The study results also propose the following utility arrangements in selecting and evaluation of suppliers: importance of

		performance is 21%, the most important element in supplier evaluation, followed by cost (19%), quality (16), financial stability (15) and delivery time (13.7). The least important factor is technology, with significance value of 13.2%. According to current results, it is decided that conjoint analysis approach is an suitable tool to find the important factors of supplier evaluation. Finally, development of guidelines, conclusions of the study is discussed.
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05	**Name of Scholar**	Abdus Salam
	Registration #	11-MS-EM-22
	Supervisor	Prof. Dr. Mukthar Hussain Sahir
	Title	Analysis of Reverse Logistics Network Design through Simulation For Modular Products
	Abstract	For decades supply chains have managed the forward bulk of supplies from unfinished goods in plants into finished product for customers therefore, production units gives more attention to forward supply process and have repeatedly neglected the reverse direction of goods , from customer, back to production units. Now Large Number of finished products are going in the reverse flow from the place of usage to the place of Production, this is what is called reverse logistics. Reverse Logistics is the taking care of returned products and gives great space for enhancement. Successful and efficient Reverse Logistics processes are important to achieve customer satisfaction, competitiveness and significant cost savings. For the analysis of Reverse Logistics, a frame work in terms of network design has been proposed. Proposed frame work integrates of different elements of Reverse Logistics network, including the collection point, storage point, repairing/remanufacturing, recycling and disposal facilities for returned products. Proposed Framework has been represented in form of model network. Case study has been conducted for the modeled network using the deterministic approach. Then simulation model of network is prepared by creating the sub-models of each segment of network. Simulation model is run using the current available software and Optimum values of different factor of Reverse Logistics, like, total cost and other different types of cost segments including, shipping, salvage, remanufacturing and fixed cost. Optimum demand and supplied quantities are compared to see the effect of various factors.
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06	**Name of Scholar**	Shaukat Saleem
	Registration #	2011-MS-EM-03
	Supervisor	Dr. Wasim Ahmad (Assistant Professor)
	Title	**An A-3 Thinking Approach For Process Industry**
	Abstract	Process industry sector plays a vital role in the progress and prosperity of our country. Problem solving in any organization is of the utmost importance without which continuous improvement is not possible. An A3 thinking approach has been taken from the Toyota Production System (TPS) which has been previously successfully applied in diverse industries and organizations. In this study it is being introduced for problem solving in process industry. The elements of the novel A3 thinking approach have been studied in detail from literature and their compatibility with process industry has been analyzed from data collected from process industry. To practically check the A3 thinking approach in process industry case studies have been done. The implementation recommendations have been gathered as a result of these case studies. The survey shows that there are scarce or no proper thinking tools being applied in process of problem solving in process industry especially in small process industry. The small process industry is the ideal case for application of A3 thinking approach; however when applied to larger industry it is equally good for it and can help in solution of complex problems. The thought process used in solution of problem can be preserved for future reference. The different causes for emerged problem can be addressed for a permanent solution rather than make shift solutions of the problem. The proper solution of the problem after clarification of the cause solves the problem permanently. The study concludes that absence of proper problem solving technique which causes the recurrence of the problems can be overcome with the A3 thinking approach. This new approach of the problem solving will help in creation and preservation of new knowledge. The application will also groom new problem solver in process industry. The authority of problem solver will ensure the smooth implementation of counter measures.
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07	**Name of Scholar**	**Zain Ul Abidin**
	Registration #	**2013-IED-MSc- EM/FT-04**
	Supervisor	**Dr. Salman Hussain (Assistant Professor)**
	Title	**EVALUATION AND SELECTION OF SUPPLIER RELIABILITY: IN SHORT PRODUCT LIFE INDUSTRY**
	Abstract	The first step towards production operations in short product life industry, it involves the purchasing of the raw material which is profoundly associated with suitable supplier selection. The ultimate success of SPL industry is contingent to the optimization of raw material supply and for achieving above goal supplier selection should be done in effective and efficient manner. This supplier selection involves evaluation of qualitative and quantitative critical criteria, so it is considered to be multi criteria decision making problem. This research aimed to evaluate the best electronic components supplier in Electronic Industry of Pakistan based on criteria and alternatives, also the critical factors which are

		considered to be the most important while making decisions regarding selection of supplier. Factors like quality, flexibility, cost, time to deliver, responsiveness, relationships etc. have been compared with each other and AHP (Analytical Hierarchy Process) has been one by one employed for critical analysis of these factors based on expert opinion from the Industry. The comparative analysis is achieved by using Expert Choice® software. Through this comparative analysis it has been found that "Quality" is important among all criteria followed by "cost". In order to find more precise solution Bayesian Network Analysis has also been employed. Netica® software has been used to incorporate Bayesian Network Analysis. It has been found more precise, certain and flexible in comparison with AHP. Both techniques have resulted supplier 3 as best alternative.
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		# Facility Location for a Biorefinery in Pakistan
	Abstract	The demands for alternative energy resources have been increased exponentially in the developing countries like Pakistan due to high cost on imports of fuel oils. To meet the energy demands of future and being an agriculture based economy one of the important renewable energy resource for Pakistan is the production of biofuels using biomass. For the production of biofuels on such extent large biorefinery setups are required to be installed. For the installation of an optimized large scale biorefinery, suitable facility location is very important. Multi criteria decision making techniques has been used to find out most suitable facility for biorefinery installation in Pakistan. Analytical hierarchical process an MCDM technique has been used for which criteria, sub criteria and alternatives have been defined. On the basis of geography of Pakistan four alternatives have been defined. These are Punjab, Baluchistan, Sindh and KPK. From literature review criteria and sub criteria have been defined. In AHP technique pairwise comparison of criteria with respect to each other has been performed on the basis of expert opinion. After applying AHP technique results have been concluded. Sensitivity analysis have been performed to conclude the effects of variation in criteria/ objectives on alternatives. Results conclude that Punjab is most suitable alternative for the installation of large biorefinery in Pakistan.
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09	**Name of Scholar**	Humayun Arif
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	Supervisor	Dr. Wasim Ahmad (Assistant Professor)

	Title	Assessment of Product Development for Short Product Life
	Abstract	In this era of mythical innovations, technology is growing at the fastest pace which is providing new and mind opening products. The growing competition has opened the gates for new innovations like Laptops, notebooks, ebooks, ipads and tablets which are the examples of these revolutions. Companies strive to provide good products having greater value and at low cost and therefore employ best product development strategies. The aim of the research work is to study different tools and techniques involved in the making of a new product and then analyze the development of an IT product made by a defense organization of Pakistan. First of all detailed literature review has been carried out about new product development techniques by different authors and subsequently the best tools implemented were sorted out. After that the new product development techniques were applied on the IT Product and analyzed for their efficacy. The thesis also includes the different development phases of the IT product with its technical parameters, followed by comparison of the IT Product with other tablets in marketplace. The thesis is finalized by conclusion and future research aspects.
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10	**Name of Scholar**	

	Registration #	
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