Message from The Department Head

I would like to personally welcome all new and returning IELM students to this Fall 2016 semester which we hope will provide both rewarding and constructive experiences for you all.

I am excited that two new young and extremely bright scholars joined our department as Assistant Professors in July 2016. Both Professor Ningyuan Chen and Professor Xin Wang received their doctoral degrees from prestigious universities in the US - Columbia University and Carnegie Mellon University respectively. I am sure they will bring fresh and innovative ideas to their teaching which will impact directly on your learning; given their focus and direction, I have every confidence that they will make significant and lasting contributions to their fields.

Students are back to school after a long summer break, and we are delighted to hear that the majority of them made full use of this time either by taking up an internship or experiencing another culture through joining the international exchange program or study tours. Indeed, learning is a life-long process, and should not be limited to lecture hours or classrooms activities. Achieving good grades in class is important, but it is equally vital to develop a deep interest in the field of Industrial Engineering. So, while you are still a student, apart from taking your studies seriously, seize the many and varied opportunities we have provided for you to expand your network with our professors, alumni and industry leaders - taking part in the Mentorship Program, joining visits to various international firms, attending weekly guest lectures, etc. As for our alumni, we hope that you can join with us to further nurture our students through providing job openings or sharing your valuable industry specific experience with them. I am sure you will gain new insights through interacting with our students!

Currently our graduates have made full use of networking possibilities and enhanced their career prospects upon graduation, and this can be reflected in the 2015 Graduate Employment Survey conducted by Career Center, HKUST. Apart from the “traditional” industries that our graduates are working in, which includes logistics, engineering and manufacturing, there is an increasing trend that our graduates are employed in some of the wider service sectors, including travel, finance and banking. Also, the average starting monthly salary of our graduates in 2015 has increased significantly to HK$19,676. This is exciting news and reassures us that our new Financial Engineering Option is a direction that is responding to our students’ interests and to industry needs.

Looking forward, we will continue our effort in establishing connection with service sectors, and providing more co-curriculum programs for our students. Wish you all an effective and productive start to the Fall semester!

Sincerely,

Professor Guillermo Gallego

Crown Worldwide Professor of Engineering
Head of Industrial Engineering and Logistics Management
2 NEW PROFESSORS JOIN IELM DEPARTMENT

Professor Ningyuan Chen and Professor Xin Wang have been appointed as Assistant Professors of IELM Department from Fall Term 2016.

Professor Ningyuan Chen received his PhD in Operations Research from Columbia University in 2015. Prior to this position, he was a Postdoctoral Associate at Yale School of Management. His broad range of research includes revenue management and dynamic pricing, market microstructure (limit order books) and financial engineering, as well as applied probability and networks. Professor Chen will teach IELM 5270 on Engineering Statistics in Fall Term 2016.

Professor Xin Wang obtained a PhD degree in Operations Management at Carnegie Mellon University in 2016. Upon receiving his master's degree, he worked for NVIDIA Corporation and Cisco Systems, Inc. as a Hardware Engineer before pursuing a PhD in the US. His research interests lie in supply chain management, sustainable operations and operations/accounting interface. Professor Wang will instruct IELM 2010 on Industrial Engineering and Modern Logistics in Fall Term 2016.

2015 HIGHER EDUCATION OUTSTANDING SCIENTIFIC RESEARCH OUTPUT AWARDS (NATURAL SCIENCE)

Professor Xiangtong Qi received the Second Class Award in the Natural Science category at the 2015 Higher Education Outstanding Scientific Research Output Awards (Science and Technology) from the Ministry of Education. This award is to recognize a collection of joint work between Professor Qi and his collaborators in Nanjing University and the Hong Kong Polytechnic University, which focuses on theory, method, and application of game theory under uncertain environments. Professor Qi's particular contribution is to use game theoretic analysis to study how to handle unexpected disruptive events in supply chain management, where several of his papers are highly cited.

Set up by the Ministry of Education, the Higher Education Outstanding Scientific Research Output Awards (Science and Technology) are presented to individuals or units at all tertiary institutions in China that have made remarkable contributions in the areas of scientific discovery, technological innovation, science and technology advancement, and the implementation of patented technologies.

2ND RUNNER-UP AT THE CILTHK YMC CASE COMPETITION

CHAN Lit Cheung Simon, a Year 3 IELM student, won the 2nd Runner-up at the CILTHK YMC Case Competition 2016. Organized by The Chartered Institute of Logistics & Transport in Hong Kong Young Members Committee (CILTHK YMC), this competition aims to arouse students' interest and enhance their career development in the logistics industry. With the theme of “Innovation Ideas for Logistics and Transport Industry in Hong Kong”, Simon gave a 20-minute presentation on "New Transportation System - When Uber meets self-driving cars", showcasing a new transportation system for the future of Hong Kong. The judging panel consisted of Council Members and Charter Fellows of CILTHK who were very impressed by his innovative idea in better organizing the traffic flow and enhancing passengers' travel experience with the proposed integrated intelligent system.

The Award Presentation Ceremony will be held at the CILTHK Annual General Meeting in September 2016.
PROF RAYMOND CHEUNG MEMORIAL SCHOLARSHIP - FIRSTLY PRESENTED TO IELM STUDENTS

The Prof Raymond Cheung Memorial Scholarship was set up in memory of the late Professor Raymond Cheung, a passionate and dedicated educator in our IELM Department. It was established by the family, colleagues and friends of Professor Cheung, with the objective of recognizing local undergraduate students majoring in Logistics Management and Engineering (LME) with outstanding academic achievement.

(From left to right) SZE Ho Kwun, FU Chak Ho, Ng Ming Hin

The scholarship was firstly presented to the top local student majoring in LME and the best final year project (FYP) team in 2016. HO Cheuk Yi, the top local student in the class of 2016, was the awardee of the scholarship. FU Chak Ho, NG Ming Hin and SZE Ho Kwun also received the scholarship, with their FYP titled “The Quay Crane Double Cycling Scheduling Problem” being the best project in the Academic Year 2015 - 16.

IELM STUDENT AWARDED THE CILTHK SCHOLARSHIP

We are excited to announce that CAI Yu Rebecca, a recent IELM graduate, was awarded the CILTHK Scholarship 2015/16.

The Chartered Institute of Logistics and Transport in Hong Kong (CILTHK) Scholarship 2015/16 is established to honor students with exceptional academic performance, outstanding achievement in extra-curricular activities, as well as with a keen interest in transport and logistics industry.

Being one of the top students in our department, Rebecca obtained her Bachelor of Engineering in IELM with First Class Honors in 2016. During her study at HKUST, she actively participated in numerous competitions and activities organized by various professional bodies in Hong Kong. She also took initiative in promoting our Undergraduate Programs to prospective parents and students in the outreach events during her appointment as an IELM Student Ambassador. Apart from that, with her keen interest in research, she spent her leisure time in taking part in the Undergraduate Research Opportunities Program, a signature program at HKUST which allow undergraduate students to participate in tailor-made research projects and work with world-class researchers. With her exceptional performance and remarkable contribution, Rebecca is the only recipient of this scholarship in the Bachelor Degree Student category.

Rebecca is now pursuing her PhD degree in Technology and Operations at the Ross School of Business at University of Michigan.
Experiential learning is an active form of learning process. Rather than absorbing the knowledge passively in lectures, students are supported to apply the theoretical knowledge to real-life situations. Through actively posing questions, investigating for solutions and reflecting on their experience with peers and mentors, they are then able to develop new ideas for further testing. Eventually, students will work out a number of feasible solutions for real-life problems.

IELM2100E Computing in Industrial Applications is the first experiential learning course offered by IELM Department, with the sponsorship from CEI Teaching Development Grant. Instead of attending lectures or lab sessions, students learn course materials through working on an actual project - designing and developing a prototype system to automatically put a RFID tag on transited baggage, in collaboration with the Hong Kong International Airport Authority.

Eagerness to learn and self-motivation are the keys of success for students participating in this course. Working in a team of 5, students had to work out the project proposal and schedule their own regular meetings. They also had to initiate the meeting with Professor Richard So, the course instructor of this course, during which suggestions to their proposed plan were given.

“What makes this course unique is that we focus on the learning process, instead of the final deliverables,” comments by Professor So, who plays a vital role as a facilitator throughout the course. Rather than providing a clear direction to students, they are encouraged to do the information search online and explore the possible solutions to work out the prototype. “One may not be able to produce a well functional prototype, but as long as they have gained knowledge and experience through working on this hands-on project, they have achieved the learning outcomes of this course,” Professor So adds. Students were required to submit their learning portfolio at the end of the course. Failed designs were also included in the portfolio, as this is part of the learning process.

The final presentation was held on May 13 2016, in attendance of Mr. Andy Ho, Project Manager from Advanced Integration Systems Limited (AIS), Mr. James Liu, Control Engineer from Hong Kong International Airport, both helped out in mentoring the students as industry advisors throughout the course; and Professor Roger Cheng, Associate Provost (Teaching & Learning). Students commented on the enjoyment aspect of this challenging yet rewarding course, and they all agreed that this had been an exceptional learning experience for them.
The life expectancy of Hong Kong people is among the longest in the world. By 2034, it is expected that 30% of our population will be aged 65 or above. To care more about the elderly community, Professor Ravindra Goonetilleke, course instructor and coordinator of IELM 4320 Design Thinking, invited students to design innovative products that can provide training on both mobility and cognitive ability of the elderly.

Continuing our mutual collaboration with The China Academy of Art (CAA), one of the most prestigious design institutes located in Hangzhou, the fourth Design Thinking course took place at HKUST and CAA in June - July 2016, with the overall theme of “Technology Meets Art”. The teaching team consisted of professors from IELM Department (Professor Ravindra Goonetilleke and Professor Emily Au) and Computer Science and Engineering Department (Professor Huamin Qu and Professor Xiaojuan Ma) at HKUST and lecturers from CAA. The month long course aimed primarily to encourage creativity, create fusion for art and technology as well as foster cross-disciplinary expertise.

The course commenced with visits to two centers in Hong Kong for senior citizens. 40 enthusiastic students with diverse academic backgrounds from both HKUST and CAA came together and spent 2 afternoons with the residents. Through the interviews, students had a better understanding on their daily life and learnt more about their needs. They then started to develop various original project ideas at HKUST, and translated their creative concepts into an innovative original product or media feature at CAA.

After 4 weeks of hard work, the final projects were presented and exhibited at the Sanshang Contemporary Art Gallery in Hangzhou. Three of the ten projects, AU.TOO, Magic Mirror and The Moonlight Box will be on display at the InnoCarnival in Hong Kong. AU.TOO is an intelligence walking stick which can move to the user automatically upon receiving an infra-red signal emitted from the special bracelet. It can aid the mobility of elderly people, especially when they wake up at night. Magic Mirror is a multi-functional information board with face recognition function and the aim is to connect elderly people with modern society by providing personalized information to them. The Moonlight Box is an interactive game that can train cognitive ability as well as physical mobility of the elderly. A ranking list is included in this game, so that users can look back at their performance, as well as compete with one another. It is hoped that regular use would promote communication between residents and encourage interaction and friendship.

Organized by the Innovation and Technology Commission, InnoCarnival 2016 will be held at the Hong Kong Science Park during October 29 - November 6 2016. Drop by and try them out at the InnoCarnival!
RESEARCH PROJECTS IN IELM

What do IELM researchers actually do? We take this opportunity to glimpse into the complex area of recent research projects conducted by IELM professors:

RESEARCH GRANTS COUNCIL’S THEME-BASED RESEARCH PROJECT - TRANSFORMING HONG KONG’S OCEAN CONTAINER TRANSPORT LOGISTICS NETWORK

Hong Kong ocean container industry is currently facing a high degree of fierce competition from nearby cities. With the continuing trend of globalization affecting all economies around the world, the ocean container industry has to refocus its goals which include maintaining strong growth as well as an important role in global supply chain.

To regain its leading regional position, a thorough investigation of the ocean container industry has been carried out. Led by Professor Chung-Yee Lee, Cheong Ying Chan Professor of Engineering and Chair Professor of IELM, this 5-year project bring together a team of world-class researchers from Asia and Europe who are with extensive knowledge on the logistics and ocean container industry. Through this project, it is hoped to establish Hong Kong as the research hub for maritime logistics and supply chain management; as well as to develop an in-depth understanding of Hong Kong’s role as a port city and identify its future direction.

The research findings are regularly shared among the industry, with a recent sharing for the Chartered Institute of Logistics & Transport in Hong Kong (CILTHK) members on April 25 2016.

RESEARCH GRANTS COUNCIL’S GENERAL RESEARCH FUND PROJECT - OPERATIONS MANAGEMENT OF SHARED NETWORKS IN WIRELESS COMMUNICATIONS

Wireless communications technology allows data or information to be transmitted in a faster way. Due to its wide application, the existing radio spectrum for data transmission via wireless communications is reaching its capacity. In view of this, Professor Rachel Zhang and Professor Jiheng Zhang, Professor and Associate Professor of IELM are carrying out a project to study the operational issues of implementation of a shared network equipped by cognitive radio, including performance analysis, optimal control, and pricing strategies.

This is one of the first comprehensive studies of the operational issues in a shared network in wireless communication in operations research / operations management (OR/OM) literature. The proposed work will not only open the door for new applications of existing OR/OM knowledge, but also stimulate potential development of new methodologies.

INNOVATION AND TECHNOLOGY FUND PROJECT - INTEGRATED CAD/CAM PLATFORM FOR LEVEL 400 BIM SUPPORT IN FAÇADE DESIGN AND FABRICATION

Many modern architectural designs involve complex shaped buildings. Take Kai Tai Cruise Terminal as an example. The building has a curved surface, which is constructed out of a series of ostensibly uniform pattern of aluminum panels. In reality, many of these panels differ from each other significantly in size and shape. With the recent developments in computational geometry and computer-aided design, the architect’s intent can be converted into a variation that is aesthetically identical, but minimizes such variability, thereby reducing the time and cost risks associated with the realization of such buildings. This ITF project aims to develop practical techniques for assisting architects to achieve this goal.

Professor Ajay Joneja, Director of Advanced Manufacturing Institute (AMI), is now leading a team of researchers to develop a comprehensive suite of software tools to achieve in enhancing Building Information Modeling (BIM) capability in architectural façade Design for Manufacturing and Assembly (DFMA). The developed tools will be complementary to state-of-the-art commercial software systems currently in use in Architecture Engineering and Construction (AEC). These include automation and protocols for rationalized sizing for surface panels, optimized surface approximation, and integration of Computer-Aided Design with Computer-Aided Manufacturing for façade units.
IEMT MENTORSHIP PROGRAM - A BRIDGE BETWEEN STUDENTS AND ALUMNI

Over 90 mentees had a rewarding experience in the IELM Mentorship Program 2015/16. Jointly organized by the IELM Department and IELM Students’ Society, this program provides a significant platform for our students to gain insight into actual business and industrial practices, as well as to expand their social network outside university.

This year, we are delighted to have invited 27 mentors, including young alumni and senior industry leaders, to play a vital role in the program. Industry leaders, who are at the top management level of their companies, can offer a really comprehensive overview of the industry to our mentees. They can also provide useful advice on career planning and development. On the other hand, young alumni can provide more guidance to mentees on their study plan and job seeking skills through sharing of their university life and working experience. Firm visits are also arranged by some mentors so as to deepen students’ understanding of current practice and ongoing challenges facing various industries.

Students’ feedback on this program has been to date very positive. We are extremely grateful to all of our mentors who have devoted time and effort in offering every learning opportunity for our students. This is truly a mutual beneficial program for both mentors and mentees as mentors are able to gain insight into the thoughts and views of young engineers who may inspire them with new ideas and offer a different perspective on current industry practices.

EXCURSIONS FOR IELM STUDENTS

To broaden students’ understanding on the manufacturing and services industries, 2 site visits were organized in Spring 2016.

FACTORY VISIT TO JETTA

Students from both IELM Department and Department of Mechanical and Aerospace Engineering visited the Production Plant of Jetta Company Limited at Nan Sha District, Guangzhou, China on March 29 2016. Apart from visiting the Showroom, students were allowed to have a closer look at the manufacturing process of the toys and electronics products by touring around the whole factory. Through the visit, students could have a wider appreciation of the complexity of the whole production line: from molding to coloring, assembling to packaging. They even had chance to visit the Testing Lab, which is a core part of the factory for quality control. It was very beneficial for students to learn more about the OEM in the toy industry, and the important role that Industrial Engineers play in the manufacturing industry.

CATHAY PACIFIC CITY VISIT

Led by Professor Guillermo Gallego, Crown Worldwide Professor of Engineering and Department Head of IELM, over 20 IELM students spent a day at the Cathay Pacific City on May 13 2016. Apart from the guided tour at the Cathay Pacific City and the general corporate presentation, two talks were arranged especially for our students so that they could gain a much better perception of this multi-faceted aviation company. Ms. Patricia Hwang and Ms. Corinna Lam, General Manager and Manager from Revenue Management Department respectively gave an introductory talk on the Revenue Management System in Cathay Pacific; while Mr. Andy Wong, General Manager of Cathay Pacific Catering Services (HK) Limited (CPSC) provided an overview on CPSC as well as the logistics at their catering facility. The visit was concluded with the trip to the Cathay Pacific Cargo Terminal, one of the biggest and most sophisticated terminals in the world. Students were thrilled to get a unique insight on the aviation industry as well as gain a new understanding on how revenue management is related to Industry Engineering.
INTERNSHIP EXPERIENCE OF IELM STUDENTS

Study break is a good timing to students to gain practical working experience and plan ahead on their career path by taking up internships. We are pleased to have invited two of our outstanding students, Sarang and Charmaine to share with us their internship experience, and how this has affected their choice of career.

FROM STUDENT TO ANALYST

Graduating from the IELM Dual Degree Program in 2016, Sarang GUPTA is currently working as an Analyst at the Investing and Lending Operations Division at Goldman Sachs. What made him consider banking and becoming an i-banker was a very meaningful summer internship experience in 2015.

During his penultimate year of studies, Sarang worked as a Summer Analyst at the Operations Team of the Credit Derivative Middle Office at Goldman Sachs. “Operations Division is essentially termed as the ‘backbone’ of a company,” commented Sarang. “At Goldman Sachs, the Operations Division is primarily responsible for ensuring the business flows efficiently and effectively, as well as support the design of the technology, information flows and the processes for carrying out business.”

During the 10-week internship, Sarang was assigned with several projects which provided him with a fairly comprehensive insight into the corporate operations of the bank. He had to design VBA macros to automate some of the routine manual process carried out by his team, as well as work closely with other interns to reduce the costs incurred during trade cancellations. Apart from that, Sarang had chance to work with interns from New York, London and Tokyo in a global tools linkage project, where they had to develop strategies for business continuity planning.

“It was a great learning experience as I could interact with teams globally and understand the global footprint of the company. I can also apply the knowledge learnt from classroom to a real world setting.” Sarang adds. With his exceptional performance during his internship, he was given a returning offer at the end of the program.

FAST MOVING CONSUMER GOODS INDUSTRY - DYNAMIC & CHALLENGING

To know more about the Fast Moving Consumer Goods (FMCG) industry, and to gain solid work experience, LO Ching Man Charmaine, a Year 3 IELM student took a gap year for an internship at L’Oreal Travel Retail Asia Pacific in 2016.

Being the Supply Chain Intern, Charmaine was lucky enough to work in both Customer Service Team and Purchasing and Operation Team. Apart from the On-Shelf Availability Project, Charmaine also assisted in analyzing palletization tools and optimizing currently workflow between Purchasing and Marketing Teams.

When asked to comment about her internship experience, Charmaine said this job has certainly trained her communication skills as she had to work with both internal parties and external clients and suppliers. Her duties in different teams have also deepened her understanding on the supply chain management of FMCG, for instance, the delivery process from suppliers to warehouse and finally to client, as well as the stock status on shelf. The knowledge she acquired in class definitely provided her with a solid foundation to handle the many varied tasks in her internship.

Charmaine will complete her 1-year internship at the end of December 2016, and she hope that she will pursue her career in this challenging yet exciting FMCG industry after graduation.