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Recent Developments in the Joint Replenishment Problem

Speaker: Professor Ilkyeong Moon, Pusan National University, KOREA

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Time: 14:00 p.m. to 15:00 p.m.

Venue: EA-06-05, Faculty of Engineering, NUS

Abstract: In the first part of the presentation, IE department at PNU will be introduced. Faculty members of the department are involved in the Research Center for Logistics Information Technology (LIT). LIT is a government-supported research center and its annual budget is US\$2.87million. A RFID test center, 1st in Asia, will be established in the center late this year. In the second part of the presentation, some recent developments in the joint replenishment problem (JRP) are addressed. We extend the JRP to four different ways. Firstly, we solve the JRP with resource restrictions using genetic algorithms. Secondly, the JRP with quantity discounts is studied. A modified RAND algorithm, QD-RAND, is developed. Thirdly, the JRP in which a number of items are to be procured from a number of suppliers offering different schedules of quantity discounts is addressed. Finally, we deal with the joint replenishment problem of a one-warehouse multi-retailer system. We introduce the joint replenishment and delivery policies for a warehouse and develop mathematical models based on the proposed policies. Four efficient algorithms are presented for two policies and they are illustrated using numerical examples.

Biography: Ilkyeong Moon is a Professor at Pusan National University in Korea. He received his B.S. and M.S. in Industrial Engineering from Seoul National University, Korea, and Ph.D. in Operations Research from Columbia University in 1991. His research interests include production planning and control (especially, JIT applications), logistics (especially, supply chain management) and inventory management. He currently serves on the editorial boards of *International Journal of Industrial Engineering* and *International Journal of Operations and Quantitative Management*.

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