

***OLLSCOIL NA hÉIREANN, GAILLIMH***  
***NATIONAL UNIVERSITY OF IRELAND, GALWAY***

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Semester II Examinations 2002-2003

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4BI121: B.E. Degree Industrial Engineering & Information Systems

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***IE430: Human and Organisational Aspects of Operations***

Examiners:

Dr. E.J. Wright

Prof. J. Sheil

Mr. E.F. Fallon

Answer **three** questions.

Time allowed: **Two** hours

Show all your work **clearly**

No. Pages: Cover + 1

Department: Industrial Eng

- Q.1.** Write short notes on four of the following: **8.33\*x4**
- Mechanistic approach to job design
  - Biological approach to job design
  - Minimum critical specification
  - Lean production practices
  - Definition of Advanced Manufacturing Technology (AMT)
  - The HITOP approach
- Q.2** What are the practices that distinguish Lean manufacturing from traditional manufacturing? How do these impact on work organization? Use examples where appropriate to illustrate your answer. **33.33\***
- Q.3.** (a) Distinguish between the Two-Factor Theory of Job Design, the Job Characteristics Model approach to job design and the Sociotechnical Systems approach to job design. **18**
- (b) What are the main practical suggestions that have arisen as a result of the three approaches? **15.33\***
- Q.4.** (a) Discuss the definition of participatory ergonomics. **15.33\***
- (b) What according to Wilson & Haines (1997) are the main dimensions of participatory ergonomics? Use examples from your course to illustrate their meaning. **18.00**
- Q.5.** (a) What are the advantages and disadvantages of team design relative to individual job design? **15.33**
- (b) Distinguish between the concept of a team in Sociotechnical Systems and Lean Manufacturing. Use good examples where appropriate to illustrate your answer. **18.00**
- Q.6.** Write a short essay on the topic of, “*Job design in modern manufacturing systems*”. **33.33\***