

Class 14

**Skills-Based Routing;
Queueing Networks: Jackson and Non-Parametric (Class “15”);
Course Wrap-up, and What’s Next;**

Skills-Based Routing and its Operational Complexities.

- Design, Staffing, Control;
- A Multidisciplinary Challenge;
- Operational Complexities;
- Progress via small problems: V-, Reversed-V, and N-Designs.

Final Exam: $\leq 50\%$ of the Final Grade. Its structure, is as follows:

Question 1: From previous exams (see our WebSite), or from Recitations, or from Lectures, of very similar to one of these.

Question 2: From Homeworks. [Those who know well the material from Lectures, Recitations, Homeworks, are very likely to get a final grade of at least 75-80.]

Question 3: A ”Practical Question” with some theoretical insight. [With Question 3 answered well, one can get to a final grade of at least 85-90.]

Question 4: A ”Theoretical Question” that requires deeper understanding. [Answering well Question 4 is required in order to get to the levels of 95-100 final grade.]

Topics that were left out, or just touched on:

- New-Service Development (or Service-Engineering in Germany)
- Internet-based services (or Contact Centers)
- Appointments - managing demand (Hall, Chapter 8)
- Service Quality
- Forecasting/smoothing (F&F, Chapter 14)
- Location and (functional) design of service facilities (F&F, Chapters 6, 7)
- Marketing (Lovelock, who also has a book dedicated to the subject)
- Human resource management (Lovelock)
- Technology; Automation
- Convergence of Service and Manufacturing:
Field service, preventive maintenance, supply chain, life-time value
- Significant Service Sectors:
 - Health, Hospitality (Tourism), Financial, Transportation,
 - Telecommunication, Education, Professional Services,...

What's next?

- The “New-Age Industrial Engineer”:
 - Industrial Engineers in Services: Banks, Hospitals, Government, etc.
 - Industrial Engineers in the the interface ”Manufacturing – Services”:
 - Consulting
 - Startups
- Research: Graduate Programs (Technion, Abroad); M.SC., Ph.D., TA'ing.
- Teaching:
 - Projects (Practical but Theoretically-Based)
 - Further Courses: Deeper (Q-Theory, Stochastic Processes); Broader (CRM, HRM, IE)

**PLEASE STAY IN TOUCH, ESPECIALLY IF YOU WORK IN “SERVICES”
OR ITS RELATIVES (MY GUESS - WITH PROBABILITY 0.75.)**