



ECE 614: Advanced Optical Communications Systems

Prof. Hossam Shalaby, Email: shalaby@ieee.org

I Outline

- Introduction to Optical Communication Systems.
- Intensity Modulation of Light-Emitting Diodes.
- Intensity Modulation of Laser Diodes.
- Advanced Modulation Techniques.
- Coherent Detection.
- Receiver Noise and Direct Detection.
- Coherent Detection with Receiver Noise.
- Spectral and Power Efficiencies.
- Optical OFDM Systems

II Text Books and References

- [1] G. P. Agrawal, *Fiber-Optic Communication Systems*, 4th ed. New York: Wiley, 2010.
- [2] L. N. Binh, *Advanced Digital Optical Communications*, 2nd ed. Boca Raton, FL: CRC Press, 2015.

III Handouts and Assignments

- Handouts and assignments can be downloaded from
☞ <http://www.eng.alexu.edu.eg/~hshalaby/>

IV Teaching and Assessments

- Teaching hours per week:
 1. Sunday, 10:30–11:45 AM, venue B14-F8, every week.
 2. Tuesday, 10:30–11:45 AM, venue B14-F8, every week.
- Exams and their durations:
 1. Midterm exam: 1.5 hrs.
 2. Research paper presentation: 30 mins.
 3. Final exam: 3 hrs.
- Distribution of a total mark of 100:
 1. Midterm exam: 20 marks.

2. Lab assessments: 40 marks.
 - a.* Assignments and quizzes: 10 marks.
 - b.* Term project: 15 marks.
 - c.* Research paper and presentation: 15 marks.
3. Final exam: 40 marks.