

EE 6315 Engineering Optics
Professor Duncan MacFarlane
Homework Set 3
Due Saturday, November 3, 2012

Problem 1: O'Shea p118 #3.11 and 3.12, Searchlight (5 points).

Problem 2: O'Shea p118 #3.15 Tungsten Lightbulb (5 points). In addition to the problem stated in the book, estimate the temperature of the filament and plot its spectral radiance N_ν (Watts/area-steradian-unit frequency) from the ultraviolet to the near infrared ($\sim 1\mu\text{m}$). *Hint: Assume the filament is a blackbody*

In addition to the homework problems above, I would also like you to submit a 1-page proposal for your final project:

- Describe the problem you want to study
- Describe the approach in detail
- What are your anticipated results (what graphs, what calculations do you plan to do?)

In addition to the feedback I will provide, this document will also form part of your final project grade.