PHTN1432 Optical Calibration / MDM Filters (2018W)

_____ / 50 Total

__ /-10 Prelab (if not submitted 15 minutes prior to lab)
   __ Basic design OK (physical thickness, film order)  __ Glass substrate shown
   __ Correct \( \lambda \) design
   __ Correct peak matches (full wavelength)

__ /6 Procedure
   __ Basic procedure for filter deposition
   __ Details (chamber pressure, layer thickness, dep monitor values)
   __ Complete details needed to reproduce the calibration process
   __ Complete description including mathematical equations of how analysis was accomplished for ONE substrate

__ /42 Analysis – All filters

<table>
<thead>
<tr>
<th># (identify central)</th>
<th>C (Y/N)</th>
<th>Spectrum (Y/N)</th>
<th>FilmStar (Y/N)</th>
<th>Full ( \lambda ) (Vis/UV)</th>
<th>Half ( \lambda ) (IR/Vis)</th>
<th>All peaks modelled (Logically)</th>
<th>Dielectric thickness</th>
<th>Tf from spectrum</th>
<th>Tf from ( R^2 ) model</th>
<th>Notes</th>
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Diagram Lambda3B Complete model matching all observed peaks From FilmStar Model

Total Marks (4 central substrates * 7 marks each)

| 1                  | /16    |                  | /4          | /4          | /4                  | /28                 |

Total Marks (4 secondary substrates * 2 marks each, includes those not analyzed [3])

| 1                  | /8     |                  | /2          | /2          | /2                  | /14                |

Notes: [1] Your FilmStar peaks must match all observed peaks by \( \lambda \) including those in the IR
   If FilmStar model shows peaks not on the observed spectrum, likely the model is too thick
   This results in illogical tooling factors \( \rightarrow \) given that films further from the monitor will logically show thinner films
   Scale thickness logically (use R-squared as basis) … furthest is NOT half as thick (!) but rather scaled – expect 75% of design

 [2] /1 attempt, /1 match one peak only, /2 match all peaks including 1, ½ … conspicuous in the IR

 [3] For unanalyzed, transmission spectrum must be reported & reasons outlined (Half-wave peak _is_ viable though for analysis)
 Any peak in range indicates analysis is possible

Notes (on the basic method employed):

__ /2 Summary
   __ Summarize tooling factors (chart – distance to filament, peak wavelength, thickness from FilmStar, Tf)
   __ Diagram of the substrate holder (showing North) with all corresponding tooling factors

__ Penalties
   __ No Title Page
   __ No Folder
   __ Plagiarized FilmStar reports (ZERO)