Leveraging your LMS to support large classes

Janet deGrazia
Why?
Variety of ways to use LMS

• Usual
  • Gradebook
  • Post content

• Beyond
  • Creating a flipped classroom
  • Forming groups
  • On-line homework and quizzes
  • DropBox for homework
  • On-line office hours
  • Reports
Creating a flipped classroom

Week 4

- Start Sep 9, 2016 10:00 AM

Class 9 - Monday, September 12th

- Introduction to fins
- Heat loss from a rectangular fin
- Heat loss from a cylindrical pin fin
- Quiz 8 - due Monday, September 12th at 10:00 AM 3.6.1-3.6.2
- Starts Sep 9, 2016 12:20 PM  Ends Sep 12, 2016 10:00 AM

- class 9 template
## Forming groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Score</th>
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<tbody>
<tr>
<td>Group 1</td>
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<td>Group 2</td>
<td>3/4</td>
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<tr>
<td>Group 3</td>
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<td>Group 4</td>
<td>4/4</td>
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<td>Group 7</td>
<td>4/4</td>
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<td>Group 8</td>
<td>4/4</td>
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<tr>
<td>Group 9</td>
<td>4/4</td>
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<tr>
<td>Group 10</td>
<td>4/4</td>
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<tr>
<td>Group 11</td>
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<td>Group 13</td>
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<td>Group 14</td>
<td>4/4</td>
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<tr>
<td>Group 15</td>
<td>4/4</td>
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Meeting with students

<table>
<thead>
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<tr>
<td>Tuesday, November 8th 10:00 am</td>
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<td>Tuesday, November 8th at 2:00</td>
<td>0/1</td>
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<td>Tuesday, November 8th at 2:15</td>
<td>0/1</td>
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<tr>
<td>Tuesday, November 8th at 2:30</td>
<td>0/1</td>
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<td>Tuesday, November 8th at 10:15</td>
<td>0/1</td>
</tr>
<tr>
<td>Tuesday, November 8th at 10:30</td>
<td>0/1</td>
</tr>
<tr>
<td>Tuesday, November 8th at 10:45</td>
<td>0/1</td>
</tr>
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<td>0/1</td>
</tr>
<tr>
<td>Tuesday, November 8th at 11:30</td>
<td>0/1</td>
</tr>
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Making on-line assignments easier
A blackbody can be described as

1. a diffuse emitter
2. a perfect absorber
3. a body that emits radiation that is a function of temperature
4. all of the above

Which of the following is not a characteristic of an isothermal black body according to Figure 12.12:

1) a diffuso emitter
2) a perfect absorber
3) a body that emits radiation that is a function of temperature
4) all of the above

According to Wien’s Law, the maximum spectral emissive power

Answer Values
0.0% 1)
0.0% 2)
0.0% 3)
100.0% 4)
<table>
<thead>
<tr>
<th>Quiz List</th>
</tr>
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<tbody>
<tr>
<td><strong>Current Quizzes</strong></td>
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<tr>
<td>Quiz 32 - due Friday, November 11th at 10:00 am, 12.4 →</td>
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<tr>
<td>Nov 4, 2016 10:00 AM - Nov 11, 2016 10:00 AM</td>
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<tr>
<td><strong>Future Quizzes</strong></td>
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<tr>
<td>Quiz 33: Due Monday, November 14th at 10:00 am: 12.5,8 →</td>
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<tr>
<td>Nov 11, 2016 10:00 AM - Nov 14, 2016 10:00 AM</td>
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<td>Quiz 34: Due Wednesday, Nov. 30 at 10:00 AM: 13.1-13.2 →</td>
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<td>Nov 25, 2016 10:00 AM - Nov 30, 2016 10:00 AM</td>
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<td>Quiz 55 →</td>
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<tr>
<td>Nov 18, 2016 10:00 AM - Nov 25, 2016 10:00 AM</td>
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</table>
Grading homework

Homework 10 – due Tuesday, November 15th at 10:00 am (65 pts)

Properties

11.42a (10 pts) \( c_{\text{water}} = 4181 \text{ J/kg-K} \)

11.44 (10 pts) \( c_{\text{water}} = 4179 \text{ J/kg-K} \), \( T_{\text{water}} = 355 \text{ K} \), \( h_{\text{water}} = 2304 \text{ kJ/kg} \)

11.49a (15 pts) \( c_{\text{water}} = 4182 \text{ J/kg-K} \), \( k_{\text{water}} = 0.643 \text{ W-m/K} \), \( \rho = 998.1 \text{ kg/m}^3 \)

\( \mu = 548 \times 10^{-6} \text{ N-s/m}^2 \), \( Pr = 3.56 \), \( k_i = 137 \text{ W/m-K} \)

12.16 (15 pts)

12.24 (5 pts)

12.29a (10 pts)
Create Rubric

<table>
<thead>
<tr>
<th>Homework 8 Problems</th>
<th>Points</th>
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<tr>
<td>9.25</td>
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<td>9.27</td>
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<td>9.44</td>
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<td>9.72</td>
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<table>
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<td></td>
<td>0 or more</td>
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</table>

Students submit to DropBox

- **Group 1**
  - [Heat Transfer HW7 Group 1.pdf](#) (11.96 MB)

- **Group 10**
  - [HTHW7.pdf](#) (4.71 MB)

- **Group 11**
  - [Heat Transfer HW #7-2.pdf](#) (5.37 MB)

- **Group 12**
  - [heat homework 7.pdf](#) (3.51 MB)

- **Group 13**
  - [CHEN 3210 Homework 7.pdf](#) (4.7 MB)
8.27
Problem:

\[ \text{T}_{\text{in}} = 15 \, \text{°C} \]
\[ \text{h}_{\text{a}} = 15 \, \text{cm} \text{H}_2\text{O} \]
\[ \text{Re} = \frac{\rho \text{v} \text{D}}{\mu} \]
\[ \text{Nu} = \frac{h \text{D}}{\text{Pr}} \]

Equations:

\[ \text{Nu} = \frac{1}{\text{Pr}} \left( \frac{1}{12} + \text{Pr} \right) \]
\[ \text{Nu} = \frac{1}{\text{Pr}} \left( \frac{1}{2} + \frac{1}{4} \text{Pr} \right) \]

Feedback:

- Points: 10
- Score: 10
- Level: 1

8.31
Problem:

\[ \text{Nu} = \frac{1}{\text{Pr}} \left( \frac{1}{2} + \frac{1}{4} \text{Pr} \right) \]

Feedback:

- Points: 15
- Score: 15
- Level: 1

8.33
Problem:

\[ \text{T}_{\text{in}} = 81 \, \text{°C} \]
\[ \text{L} = \text{??} \]
\[ \text{Re} = \frac{\rho \text{v} \text{D}}{\mu} \]
\[ \text{Nu} = \frac{h \text{D}}{\text{Pr}} \]

Feedback:

- Points: 15
- Score: 11
- Level: 1
- Feedback: Missing Reynolds number and Nusselt number calculations, h value, and correct length.

8.37
Problem:

\[ \text{T}_{\text{in}} = 85 \, \text{°C} \]
\[ \text{h} = \text{??} \]
\[ \text{Re} = \frac{\rho \text{v} \text{D}}{\mu} \]
\[ \text{Nu} = \frac{h \text{D}}{\text{Pr}} \]

Feedback:

- Points: 20
- Score: 20
- Level: 1

8.52
Problem:

\[ \text{T}_{\text{in}} = 85 \, \text{°C} \]
\[ \text{h} = \text{??} \]
\[ \text{Re} = \frac{\rho \text{v} \text{D}}{\mu} \]
\[ \text{Nu} = \frac{h \text{D}}{\text{Pr}} \]

Feedback:

- Points: 15
- Score: 15
- Level: 1

8.74
Problem:

\[ \text{T}_{\text{in}} = 85 \, \text{°C} \]
\[ \text{h} = \text{??} \]
\[ \text{Re} = \frac{\rho \text{v} \text{D}}{\mu} \]
\[ \text{Nu} = \frac{h \text{D}}{\text{Pr}} \]

Feedback:

- Points: 15
- Score: 15
- Level: 1

8.86
Problem:

\[ \text{T}_{\text{in}} = 85 \, \text{°C} \]
\[ \text{h} = \text{??} \]
\[ \text{Re} = \frac{\rho \text{v} \text{D}}{\mu} \]
\[ \text{Nu} = \frac{h \text{D}}{\text{Pr}} \]

Feedback:

- Points: 20
- Score: 20
- Level: 1

8.95
Problem:

\[ \text{T}_{\text{in}} = 85 \, \text{°C} \]
\[ \text{h} = \text{??} \]
\[ \text{Re} = \frac{\rho \text{v} \text{D}}{\mu} \]
\[ \text{Nu} = \frac{h \text{D}}{\text{Pr}} \]

Feedback:

- Points: 10
- Score: 10
- Level: 1

Overall Score

Level 1

Score and Feedback

- Points: 105
- Level: 1
- Feedback: 105 points

Save & Record
Save
Cancel
Homework 5.

5.85. \( T_i = 50^\circ C \) suddenly reduce to \( T_s = 20^\circ C \).

Find \( q'' \) for 30 min when \( T_s = 20^\circ C \).

Asphalt, \( \rho = 2115 \frac{kg}{m^3} \), \( k = 0.062 \frac{W}{m \cdot K} \), \( C = 920 \frac{J}{kg \cdot K} \).

Semi infinite solid problem.

Case 1: Constant surface temperature.
On-line office hours

Zoom Group Chat

thermal circuit?

From Raka to Everyone:
thermal circuit

From Joey to Me: (Privately)
Can I record?

From Sorsha to Everyone:
yep

From Brent to Everyone:
lol I really hope so

From Shandily to Everyone:
Are the BC different for the boron equation

From Raka to Everyone:
r0

From Brent to Everyone:
center

From Shandily to Everyone:
yes

From Sorsha to Everyone:
yep

To: Everyone

Type message here...
10.32 Consider a horizontal, $D = 1$-mm-diameter platinum wire suspended in saturated water at atmospheric pressure. The wire is heated by an electrical current. Determine the heat flux from the wire at the instant when the surface of the wire reaches its melting point. Determine the corresponding centerline temperature of the wire. Due to oxidation at very high temperature, the wire emissivity is $\varepsilon = 0.80$ when it burns out. The water vapor properties at the film temperature of 1209 K are $\rho_v = 0.189 \text{ kg/m}^3$, $c_{p,v} = 2404 \text{ J/kg} \cdot \text{K}$, $\nu_v = 231 \times 10^{-6} \text{ m}^2/\text{s}$, $k_v = 0.113 \text{ W/m} \cdot \text{K}$.

$$q''_s = h(T_s - T_{sat}) \Delta T_e$$

$\bar{h}$ combines $h_{\text{conv}}$ and $h_{\text{rad}}$

Table $c_2^j \rightarrow T(r) \rightarrow \text{ at } r = 0$
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<thead>
<tr>
<th>Topic</th>
<th>Lecture No.</th>
<th>Time</th>
<th>Date</th>
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<td>Introduction to fins</td>
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<td>Heat loss from a cylindrical pin fin</td>
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<td>03:59</td>
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<td>Class 10 - Wednesday, September 14th</td>
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<td>Rectangular fin array</td>
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<td>Introduction to lumped capacitance</td>
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Conclusions

• Large classes can be challenging to manage
• Using the resources of a learning management system can save time and stress
• Adding available technologies to your system can make it even more efficient
• This is only the part of how you can make larger classes easier to manage – talk to me about other techniques I’ve used
• And what does this have to do with John?