Mete Saka Lesson Plan

Course Title: Operations Research for Computer Scientists
Instructor: Mete Saka
Lesson Description: *Discrete Event Simulation*

In this class, I will teach the concept of Discrete event simulation using an example that everyone would know and understand (game of monopoly). I will start with basic definition and provide them a case where it's hard to estimate the probabilities of events. For example, I'll ask them to guess the probability of a coin toss (of course it will be trivial to say ½), then I'll ask them to guess the probability of: A coin toss, if its tails, then roll a die, if it's 1 then roll another die, if its 2 or 3 then toss another coin, (and some other events) , which will result of them winning 100 dollars. What is the expected value of their winning? In the second case, it will be much harder to guess/calculate, which is the key idea why we use simulation. Then I'll talk on some key concepts on it, when to use it, then move on to the case immediately. After explaining the case and its outcomes, I'll take questions while I give their first assignment. The assignment is to write a possible use case of the model in 1-2 sentence. In the last minute, I'll go over the sentences to give feedback on their idea.

Handouts, Links & Materials:

- One page summary of the lesson content with lots of visuals to illustrate the process in a flowchart.
- Slides to go over the topics quickly.

Lesson Outcome(s) *(**1 required**)*	*How does this lesson outcome relate to one of your **course** learning outcomes?*	*How will you check student progress / formatively assess this lesson outcome?*
• Exemplify a model of a real-life problem where running a discrete event simulation is useful	Exemplify possible integration of models and methods learned in class with a software engineering approach.	End of the class activity. I will ask every student to write a possible use case of discrete event simulation in 1-2 sentences
• Describe in which types of problems, discrete event simulation can be useful	Differentiate the nature of a problem such as, non-deterministic, deterministic, stochastic	End of the class activity. I will ask every student to write a sentence on what they understand from the first part of the lecture where I explain the concepts.

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Time	Task/Activities	Type of Activity[1]	Facilitator Notes
0:00-0:02 (2 min.)	• Defining and explaining Discrete event simulation	Acquire	Using handouts and slides
0:02-0:04 (2 min.)	• Explaining a case where Discrete event simulation is modeled and implemented	Acquire and connect	The case will be familiar to most of the class (game of monopoly) It's easy to describe the game in a few sentences too.
0:04-0:06 (2 min.)	• Showing the results and how to interpret those results	Acquire and connect	The results will make them understand the concept much better
0:06-0:09 (3 min.)	• Explain them the one-minute assignment, wait them to fill, while answering questions	Practice	It might be too short to bring up a good idea, but it will encourage them to think about the concept
0:09-0:10 (1 min.)	• Go over all the answers and provide feedback on their ideas	Feedback	

[1] Connect, Acquire, Practice, Feedback. Use this box to indicate any moments of formative assessment as well.

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Reflection *(save this section for after the Peer Review):*

First of all, I appreciate the CTC team and my peers for their thoughtful, clear and precise feedback.

The feedback I got from my peers and CTC team is a highly beneficial in the development and refinement of my teaching strategies. I reworded and clarified the lesson plan to better communicate my intentions and realistic expectations. This highlights the importance of precision and the value of setting achievable goals.

Looking ahead to the microteaching experience, despite not being able to teach the class, the anticipation of eventually leading the course in the future filled me with excitement. My enthusiasm for teaching and the opportunity to engage students in topics I enjoy the most is thriving me as a future educator. Imagining myself in the classroom, bringing the course to life with fun and interactive teaching methods, creating an enjoyable and stimulating learning experience gives me high ambitions for my future career.

However, I sometimes feel concerned, particularly because I feel too ambitious of the lesson plan and my ability to effectively communicate key concepts. These concerns are also connected with the balance required in lesson planning between inspiring and teaching, while also ensuring that the material is accessible and comprehensible to all students.

That's why I would be happy for feedback on my use of multiple teaching resources, such as whiteboards, examples, code, visuals, slides, and handouts. Hopefully, the feedback will make my teaching approach more thoughtful and student-centered.

In conclusion, I am looking forward to the teaching these topics in the future with both excitement and will always seek feedback on my teaching methods and approach.