WEBVTT

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00:00:01.920 --> 00:00:04.529
Kesina Baral: Hello everyone, I am Kesina Baral

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00:00:05.190 --> 00:00:06.509
Paul Ammann: And I'm Paul Ammann

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00:00:07.859 --> 00:00:14.309
Kesina Baral: And today we are giving a talk on stem teaching with active learning

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00:00:15.120 --> 00:00:23.910
Paul Ammann: This is a model that we extracted from a software engineering class or several software engineering classes and we think it could be applicable to other STEM fields.

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00:00:28.500 --> 00:00:33.510
Paul Ammann: So active learning Kesina, is that just one sort of big monolithic thing.

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00:00:34.920 --> 00:00:51.210
Kesina Baral: No, actually. So active learning has different parts to it. So let's look at what it's what it consists of. So in our model that we're using in our software engineering class. We have three different activities associated with it. The first one is preparation.

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00:00:52.290 --> 00:01:09.270
Kesina Baral: Where students prepare for the class, they're assigned reading materials and articles and they go through that to prepare for the class. The second activity is engagement with other students and create a collaborative learning environment and the final is assessment.

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00:01:10.560 --> 00:01:24.030
Paul Ammann: So that's right you can make active learning work you in any in any discipline you need to not just worry about the classroom, but you have to worry about all the other pieces as well. So could we dive into some of those pieces in detail.

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00:01:24.870 --> 00:01:40.320

Kesina Baral: Sure, let's do that. That's so good. What the patient has. So this activity also has three different parts to it in our structure and it consists of offline reading where students are assigned different articles.

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00:01:41.430 --> 00:01:48.840
Kesina Baral: Chapters from books and reading materials to prepare for the class, then it also has videos or show me videos.

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00:01:49.980 --> 00:01:56.850
Kesina Baral: That students can refer to, to learn more about the topic and find the there is reading quizzes.

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00:01:57.720 --> 00:02:08.520
Paul Ammann: Yeah, so the the artifact. We're going to show you, just as the first to the reading quizzes or something that we've brought in with the online environment, it's a standard part of adaptive learning that we've just started using

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00:02:09.720 --> 00:02:10.890
Paul Ammann: Okay, what happens in the classroom.

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00:02:12.240 --> 00:02:13.980
Kesina Baral: So this is

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00:02:15.420 --> 00:02:22.860
Kesina Baral: course schedule of SWE 437 and this is available in this URL you that you can see at the top of the slide.

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00:02:23.430 --> 00:02:30.810
Kesina Baral: So this is what the course schedule looks like. So there are meetings in this first column right here. The meeting dates the topic that

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00:02:31.170 --> 00:02:38.940
Kesina Baral: We want to cover on this particular meetings, then the reading materials, the assigned reading materials that are assigned that's available right here.

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00:02:39.390 --> 00:02:55.980
Kesina Baral: And along with that there are these so many videos on

the right most column that students can watch and learn. And there are also these in class exercises and quizzes, as well as assignment that will talk in the next activity of active learning

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00:02:57.120 --> 00:03:08.160
Kesina Baral: So this is what the course schedule looks like and all these blue links are clickable. So if anybody wants to look into these things in detail than this available and this URL right here.

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00:03:09.630 --> 00:03:13.470
Paul Ammann: That's great. So let's pop back to the high level view. Okay.

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00:03:15.630 --> 00:03:17.520
Paul Ammann: So in the classroom, what happens

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Kesina Baral: So our next activity is engagement and learning. So let's see what that has so again here to we have three activities associated with engagement learning

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00:03:28.350 --> 00:03:42.960
Kesina Baral: The first one is group in class exercise. So this creates a collaborative environment for the students to work in exercises in class and then there is many lectures and homework.

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Paul Ammann: Okay. And then finally we worry about assessment as well.

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00:03:49.170 --> 00:03:51.720
Kesina Baral: Yes, so the next activity is assessment.

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00:03:52.860 --> 00:03:56.220
Kesina Baral: And that has two parts to it quizzes and the final exam.

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00:03:56.910 --> 00:04:04.140
Paul Ammann: So again, this is we're doing this on a kind of a weekly structures. You can see from the syllabus, the quizzes or weekly the final exam is very traditional

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00:04:04.680 --> 00:04:16.830
Paul Ammann: And even though it's a weekly structure. The timeframe for a given topic stretches out typically over two weeks. By the time. Everything is has happened. So could we, uh, maybe say a few words about why this might work and other STEM disciplines.

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00:04:18.990 --> 00:04:36.690
Kesina Baral: Yes, sure. So this model is also applicable to other stem classes, then that's because software engineering the class that we extracted this model from. It's a cent stamp class. And that's because our exercises. They look and feel like math exercises.

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00:04:37.770 --> 00:04:43.320
Paul Ammann: Let me just go through an example there. So this is something that you could dig out of that URL if you wanted

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00:04:43.890 --> 00:04:51.240
Paul Ammann: So in in this field, there's a notion that this thing called hash code is consistent with this other thing called equals

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00:04:51.900 --> 00:04:57.630
Paul Ammann: And what would you want students to do you would want them to have the skill that they could extract that from some documentation.

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00:04:58.080 --> 00:05:04.260
Paul Ammann: That they can formalize that and here it's just the logic that effects and Y are equal, they must share a hash.

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00:05:04.680 --> 00:05:08.040
Paul Ammann: But not the converse and you know that's a logic exercise for students.

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00:05:08.460 --> 00:05:14.820
Paul Ammann: You want the students to be able to analyze artifacts for compliance with proofs or counter examples which are test cases in the

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00:05:15.180 --> 00:05:28.560
Paul Ammann: Context of this class and the thought we have is that, you know, this looks a lot like a math exercise and the model is working in our class would work in a math class or in other stem classes as well.

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00:05:30.480 --> 00:05:32.040
Paul Ammann: So Casey know should we wrap up.

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00:05:33.180 --> 00:05:37.350
Kesina Baral: Yeah, so this is an active learning

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00:05:38.370 --> 00:05:44.610
Kesina Baral: Model extracted from a software engineering class and we hope that this works for your class too.

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00:05:45.810 --> 00:05:47.790
Paul Ammann: So that's it. Thank you for joining.