Specific Energy Introduction

SPEAKER Bob Holmes: Okay, in this lesson, we're going to introduce the concept of specific energy. Now I want to give you kind of an overview or road map of where we're going here. Specific energy, we abbreviate that with the capital letter E and that's simply part of the total energy head that we have introduced in previous lectures especially Lecture 4 but we're going to pull away any kind of reference from a base datum. Our reference for specific energy is simply going to be the bottom of the channel. So we have an equation for specific energy which is the depth of flow plus the velocity head.

Now we're also going to talk about in this particular lecture we're going to get to the concept of critical depth and what that means. We're also going to see in this lecture that the Froude number when you have critical depth which we call a critical flow state, that Froude number is equal to 1. And when we have this critical state, that's when the specific energy's at a minimum for a particular flow. And then we'll have various relationships between the depth and the minimum critical energy.

That's kind of an overview of Lesson 11, so I would encourage you now to proceed to the first lecture where we're going to go in to specific energy concepts and derive the various equations.