Isfahan University of Technology (IUT) **Department of Civil Engineering**
RIVER ENGINEERING **1391-1392** **Term II**
Assignment #2 **Sediment Properties and Incipient Motion** **Due: 21/12/1391**

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1 Locate a sample of a soil from the field. Perform the sieve analysis of soil distribution. Fill out the form below and determine d_{90}, d_{65}, d_{50}, d_g, σ_g.

Class No.	Class Range (mm)	d_i (mm)	i_b

2 Given the following data, determine the armoring layer thickness using the Mavis and Laushey, USBR, and Shield diagram methods for incipient motion.

$Q = 22\ m^3/s$; $B = 12\ m$; $V = 1.2\ m/s$; $S = 0.002$; $n = 0.04$
$d_{50} = 30\ mm$; $d_{90} = 45\ mm$; $y = 1.5\ m$; $\nu = 1.12\times10^{-6}\ m^2/s$

3 Given the following data, design a trapezoidal channel with the vertical banks protected by wooden boards.

$Q = 40\ m^3/s$; $S_0 = 0.0012$; $n = 0.03$; $d_{50} = 6\ mm$; $Z = 1$