CEE 146A/246A - Engineering Economy – Winter 2015

Homework # 3

Session 6 - INTERNAL RATE OF RETURN

Due Friday 1/30/2015 at 4:30 pm – no late homework will be accepted

Homework must be submitted via email to homeworkcee@gmail.com **and ALSO a printed copy** at Y2E2 Room 242 attention to Anthony Hizon
No late homework will be accepted and there is no makeup homework .
Homework is to be submitted in groups of 2 students
The TA will assign the groups and post them at coursework.

In the Subject Line of the email – please included Homework# and students Last Names – also in the attachment, include Homework # and student Last Names

Remember to follow the Stanford Honor Code while working on your homework

Solve the following problems:

1- You have 4 mutually exclusive alternatives. Which one is the best? (i=12%) All have a life of 5 years and zero salvage value. Use the Incremental Internal Rate of Return Method. (Use the EUAC to check your answer)

	Initial Investment	Positive Annual Cash Flow
A	$97	$35.5
B	$85	$23.0
C	$103	$36.8
D	$101	$35.9

For problem # 1 compute the IRR of each alternative using the Excel function of IRR

2- Compute the internal rate of return for an investment of $100,000 now to receive $70,000 in two years and $80,000 in five years from now

For problem #2 compute the IRR by trial and error, calculating the NPV for different interest rates and interpolating for the final answer

3 - A US governmental bond matures in 10 years. The bond pays 2.5% interest every 6 months. You can buy these bonds in the secondary market at 98.5 per 100. That means that the buyer will pay $98.5 for each $100 of face value. The interest is paid based on the face value. What would be the IRR for somebody who buys $100,000 of this bond (as face value) for $98,500 and holds it for 10 years? You will receive the face value of $100,000 when the bond expires.

4 - Chapter 7 from the Book – Problem 7.21 (Balloon Payment is a payment that you make before the original term of the loan (which in this case was 20 years), a Ballon Payment includes outstanding principal plus interest owed until the date the Ballon Payment is made. In this example the Ballon Payment is made at the end of the 5th year)

5- Chapter 9 from the Book – Problem 9.43