ENVE 301 (2010-2011)
TERM PROJECT- I

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In the scope of this project, each group (consisting of 5- 6 people) will prepare the detailed design of the following units for the given influent characteristics.

Influent Characteristics:

Average flowrate	80000 m^3/day
Turbidity	30 NTU
pH	*7.5*
Temperature	10 ^{0}C
Conductivity	490 (u.mhos)
Color	17 ^{0}H
Total hardness	168 mg/L $CaCO_3$
Temporary hardness	104 mg/L $CaCO_3$
Permanent hardness	64 mg/L $CaCO_3$
Total alkalinity	104 mg/L $CaCO_3$
Ca hardness	104 mg/L $CaCO_3$
Mg hardness	64 mg/L $CaCO_3$
Chloride	79 mg/L Cl^-
Tot. Fe	2.24 mg/L
Tot. organic matter	4.2 mg/L
Sulfate (SO_4)	61 mg/L

Effluent Criteria:

The treated water will satisfy requirements of **TSE 266 (1997).**

The design will include the detailed process calculations of the following units:

1. Cascade aeration **(Due date: 05/12/2011)**

For each process unit, the following scaled Autocad drawings will be prepared:

1. Plan view
2. Cross-section
3. Longitudinal section

Each drawing will include a legend. The legend will consist of at least the followings:

-Drawing name
-Group name
-Scale of drawing

On each drawing, the dimensions will be shown in mm.

In each report, the layout of the proposed plant will be submitted in the revised form.

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The spiral binded report will include the following sections:

- Cover Page
- Content page
- Executive summary
- Brief description of process
- Detailed process calculations
- Reference list (All references listed here will be referred in the report)
- Appendixes:

Source code of all computer programs to be used

Drawings (should be inserted in a clear file)

Layout of the proposed plant

Summary table given below

The below table should be filled by each group

Cover Page	
Content page	
Executive summary	
Brief description of process	
Reference list	
Appendixes: The source code of all computer programs to be used will be given as an appendix	
Drawings	
Plan View	
Cross Section	
Longitudinal Section	
Plant Layout	
Dimensions	
Number of tanks	
Length of each tank, m	
Width of each tank, m	
Depth of each tank, m	
Surface area of ecah cascade aerator, m^2	
Surface Loading (50-200 $m^2/m^3/sec$)	
Power dissipation inside the < 30 watt/m3	
Number of steps	
step height, m	
step height, m	
step height, m	
DO concentrations	
DO at ……step, mg/l	
DO at ……step, mg/l	
DO at ……step, mg/l	