1. **Basic Information**

**Course Title**: Special Studies in Water Resources Engineering **Code**: CVE 713

**Lecture**: 3 Hour **Tutorial**: ---- **Practical**: ----  **Total:** 3 Hour

**Program on which the course is given:** Ph D. in Water Resources and Hydraulics Engineering

**Major or minor element of program:** minor

**Department offering the program:** Civil Engineering

**Department offering the course:** Civil Engineering

**Academic year / level:** Ph. D. / 2015-2016

**Date of specifications approval:** 2012

1. **Professional Information**
2. **Overall aims of course**
3. Select and use simulation models to solve problems related to flood management, water detention, water
4. resources and environment, calculation of economics of flood;
5. Use the current software tools, and know their advantages and limitations;
6. Understand and practice collaborative work and use the Internet-based platforms
7. **Intended Learning outcomes of Course (ILOs)**

By the end of the course the students will be able to:

1. **Knowledge and understanding**

a1. Give a rundown of the ethical principles associated with professional practice in water resources engineering.(A.3)

a2. Be able to work towards minimizing and overcoming the effects of professional practice on the environment.(A.5)

1. **Intellectual skills**

b1. -be able to perform full research study.(B.3)

b2. Learn how make professional decisions within different professional framework.(B.7)

b3. Learn innovation and creativity.(B.8)

1. **Professional and practical skills**

c1- Learn the professional skills required in water resources engineering .(C.1)

c2-Enhance technical writing skills.(C.2)

c3- Utilize technology in serving professional practice.(C.4)

1. **General and transferable skills**

d1. Boost student’s communication skills.(D.1)

d2. -Master the usage of various sources to obtain the required information.(D.5)

**3. Contents**

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| --- | --- | --- | --- | --- | --- |
| **No** | **Topic** | **Credit hours** | **ILOs** | **Teaching / learning methods and strategies** | **Assessment method** |
| 1 | Introduction to water management and governance | 3 | a1 | Lectures |  |
| 2 | Basic Elements of Water Resources Management | 3 | a1, b1 | Lectures |  |
| 3 | concepts of Water Allocation for different sectors | 3 | a1, b1 | Lectures | Assignments. |
| 4 | matching water supply and demand in Egypt | 3 | a1, a2, b3 | Lectures |  |
| 5 | concepts of participation in water management | 3 | a2, b3, c1 | Lectures |  |
| 6 | Case studies from different Arab countries | 3 | a1, b2, c2, d1 | Lectures |  |
| 7 | National Water Resources Plan of Egypt | 3 | b1, c1, d1 | Lectures | Assignments. |
| 8 | Mid-Term Exam | 3 | a1, a2, b1 |  | Mid-term Exam |
| 9 | Case studies from different countries | 3 | b2, c2, d1 | Lectures |  |
| 10 | Case studies from different countries | 3 | b2, c2, d1 | Lectures | Assignments. |
| 11 | Economics of water management | 3 | b1, b2, c3, d1 | Lectures |  |
| 12 | concepts of water governance | 3 | a1, a2, b1, c2 | Lectures, case study | Assignments. |
| 13 | Integrated water resources management/river basin management | 3 | a2, b1, c1 | Lectures, case study |  |
| 14 | Integrated water resources management/river basin management | 3 | a2, b1, c1, d2 | Lectures, case study | Report |
| 15 | Final Exam | 3 | a1, a2, b1, b2, b3 |  | Final Exam |

1. **Teaching and Learning Methods**

\_\_\_√\_\_ Lectures

\_\_\_\_\_ Practical training / laboratory

\_\_\_\_\_ Seminar / workshop

\_\_\_\_\_ Class activity

\_\_\_√\_\_ Case study

\_\_\_√\_\_ Assignments / homework

1. **Student Assessment Methods**

\_\_\_√\_\_\_\_\_ 4 Assignments to assess knowledge and intellectual skills

\_\_\_\_\_\_\_\_ Quiz to assess \_\_\_\_\_\_\_\_\_

\_\_\_\_√\_\_\_\_ Mid-term exam to assess knowledge and intellectual skills

\_\_\_\_√\_\_\_ Report to assess Professional and general skills

\_\_\_\_√\_\_\_\_ Final exam to assess knowledge and intellectual skills

1. **Assessment schedule**

Assessment 1 4 Assignments on weeks 3, 7, 10, 12

Assessment 2 Quizzes on weeks ---------------

Assessment 3 Mid-term exam on week 8

Assessment 4 Report on week 14

Assessment 5 Final exam on week 15

Other:------------------

1. **Weighting of Assessments**

Mid- Term Examination 15%

Final- Term Examination 67%

Report 10%

Practical Examination 00%

Semester Work 08%

Other 00%

Total 100%

1. **List of References**
   1. **Course Notes**

* Course notes prepared by instructor.
  1. **Recommended Books**
* Water Resource Economics: Theory, Institutions, and Applications , by: Ronald c Griffen
* Economics of Water Resources: The Contributions of Dan Yaron by: Ariel Dinar and David Zilberman
  1. **Periodicals Web sites, etc**
* Water resources management journal
* <http://water.epa.gov/scitech/datait/models/index.cfm>

1. **Facilities Required for Teaching and learning**

Lecture room equipped with presentation board, computer and data show.

1. **Matrix of course aims and ILO’s**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Ilo's*  *Course aim* | **a.1** | **a.2** | **b.1** | **b.2** | **b.3** | **c.1** | **c.2** | **c.3** | **d.1** | **d.2** |
| 1. Select and use simulation models to solve problems related to flood management, water detention, water. | √ |  |  | √ |  |  |  | √ |  | √ |
| 1. resources and environment, calculation of economics of flood. |  | √ | √ |  |  | √ | √ |  |  | √ |
| 1. Use the current software tools, and know their advantages and limitations. | √ |  | √ |  | √ |  |  |  | √ |  |
| 1. Understand and practice collaborative work and use the Internet-based platforms. |  | √ |  | √ |  | √ |  |  | √ |  |

**Course coordinator:** Prof. Dr. Gamal El Saeed

**Course instructor:** Dr. Alaa El-Hazek

**Head of department:** Prof. Dr.Ahmed Abd El Fatah

**Date:** 1 / 9 / 2015