**Syllabus**

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| Course Code | X160512 | Teaching Hours | | 48 | | | Credits | | | 3 | |
| Course Name | Theories and Technology of Water Pollution Control | | | | | | | | | | |
| Prerequisite | n/a | | | | | | | | | | |
| Instructors | Name | | Title | | Department | | | | E-mail | | |
| Yiliang He | | Professor | | School of Environmental Science and Engineering | | | | ylhe@sjtu.edu.cn | | |
| Jung Chen Huang | | Professor | | School of Environmental Science and Engineering | | | | ecojch@sjtu.edu.cn | | |
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| Course Description | This course provides a comprehensive presentation of theories, principles of ecological engineering and the advanced biological, chemical, and physical technologies that have lower carbon footprints for wastewater treatment. Emphasis will be on 1) stream and wetland ecosystem restoration and 2) natural treatment systems and living technologies for groundwater, stormwater, and wastewater. | | | | | | | | | | |
| Schedules | Content | | | | | Hours | | Format | | | Instructor |
| Overview of wastewater treatment | | | | | 3 | | PowerPoint presentation and discussion | | | Yiliang He |
| Transforming wastewater treatment to reduce carbon emissions | | | | | 3 | | PowerPoint presentation and discussion | | | Jung Chen Huang |
| Introduction to ecological engineering for wastewater treatment | | | | | 6 | | PowerPoint presentation and discussion | | | Jung Chen Huang |
| Bioremediation | | | | | 6 | | PowerPoint presentation and discussion | | | Jung Chen Huang |
| Natural and constructed wetlands for wastewater treatment | | | | | 6 | | PowerPoint presentation and discussion | | | Jung Chen Huang |
| Stormwater Management and Sustainability | | | | | 6 | | PowerPoint presentation and discussion | | | Jung Chen Huang |
| Water Sustainability in Buildings | | | | | 3 | | PowerPoint presentation and discussion | | | Jung Chen Huang |
| Reclamation of urban waters | | | | | 6 | | PowerPoint presentation and discussion | | | Jung Chen Huang |
| Industrial Waste Treatment and Sustainability | | | | | 3 | | PowerPoint presentation and discussion | | | Jung Chen Huang |
| Individual Summary Report | | | | | 3 | | PowerPoint presentation and discussion | | | Jung Chen Huang |
| Group project presentation | | | | | 3 | | PowerPoint presentation and discussion | | | Jung Chen Huang |
| Grading Policy | Personal report 30  Team project 40  Homework 15  Class Participation/Attendance 15  \_\_\_  TOTAL POINTS 100 | | | | | | | | | | |
| Textbooks & References | Reference texts:  1.Applications in Ecological Engineering, 2009, S. E. Jørgensen, Ed., Elsevier.  2.Ecological Engineering and Ecosystem Restoration, 2004, W. J. Mitsch and S. E. Jørgensen, John Wiley & Sons, Inc.  3.Ecological Engineering: Principles and Practice, 2004, P. C. Kangas, CRC Press, ISBN 1- 56670-599-1.  4.Ecological Engineering for Wastewater Treatment, 2nd Edition, 1997, C. Etnier and B. Guterstam, Eds., CRC Press.  ….and other materials will be provided by e-mail. | | | | | | | | | | |
| Notes |  | | | | | | | | | | |