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EHELD Fast Start 2013

Student Manual

Excellence In Higher Education for Liberian Development

Developed by:

The University of Michigan

PLAYLIST

Irrigation Systems - List of Open Educational Resources

Creator: Open.Michigan, University of Michigan (Updated 30 Mar 2013)

Description:

Open Educational Resources are learning materials that are free, public, and shared under licenses that allow people to copy, translate, adapt, and share with others. The materials below are complementary resources for the EHELD Summer Start program.

Tags: Systems, irrigation

1. University of California, Santa Cruz, **Manual: Teaching Organic Farming & Gardening: Resources for Instructors**
   [http://casfs.ucsc.edu/education/instructional-resources/downloadable-pdf-files]
   Notes: Source: http://www.oercommons.org/search?f.search=irrigation+system

   Description: Published by the UC Santa Cruz Center for Agroecology and Sustainable Food Systems, the 600-page manual covers practical aspects of organic farming and gardening, applied soil science, and social and environmental issues in agriculture. Units contain lecture outlines for instructors and detailed lecture outlines for students, field and laboratory demonstrations, assessment questions, and annotated resource lists. Although much of the material has been developed for field or garden demonstrations and skill building, most of the units can also be tailored to a classroom setting. The training manual is designed for a wide audience of those involved in teaching farming and gardening, including colleges and universities with programs in sustainable agriculture, student farms or gardens, and on-farm education programs; urban agriculture, community garden, and farm training programs; farms with internships or apprenticeships; agriculture extension stations; school gardening programs; organizations such as the Peace Corps, US AID, and other groups that provide international training in food growing and ecological growing methods; and master gardener programs.

   Custom License: Individual units or the entire text can be downloaded from the web site at no cost. It is our intention that the instructional materials be updated and added to on the web site in the future, and we encourage educators to visit the site to offer evaluations and to send us instructional materials that may be of use in future revisions. We hope that this resource will be used as widely as possible for education and training.

2. Utah State University, **Course: Irrigation Conveyance & Control Systems**
   [http://ocw.usu.edu/Biological_and_Irrigation_Engineering/Irrigation___Conveyance_Control_Systems/]
   Notes: Source: http://www.oercommons.org/search?f.search=irrigation+system

   Description: Abstract: This is a course regarding measurement of flow rates and water levels. Calibration, design, and selection of open-channel flow measurement structures. Design of irrigation conveyance and distribution system infrastructure.

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3. Utah State University, **Course: Surface Irrigation Design**
   [http://ocw.usu.edu/Biological_and_Irrigation_Engineering/Surface_Irrigation_Design/]
   Notes: Source: http://www.oercommons.org/search?f.search=irrigation+system

   Description: Abstract: This course was originally developed for the United States Department of Agriculture. It contains nearly 20 video lecture presentations with accompanying slides in English, Arabic, and French, an online textbook, homework assignments, and downloadable surface irrigation simulation software also developed by Dr. Walker. This course highlights design and evaluation of surface irrigation systems, field measurements for evaluating and improving uniformity and efficiency, simulation of surface systems, and land leveling computation and equipment.

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4. Utah State University, **Course: Sprinkle & Trickle Irrigation**
   [http://ocw.usu.edu/Biological_and_Irrigation_Engineering/Sprinkle___Trickle_Irrigation/]
   Notes: Source: http://www.oercommons.org/search?f.search=irrigation+system

   Description: Abstract: This is a course regarding technical design and evaluation of pressurized agricultural irrigation systems, including system layout, pipe sizing, water applicator selection, pumping system hydraulics, water filtration requirements, and water application uniformity and efficiency.

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5. Massachusetts Institute of Technology, **Course: Water Resource Systems, Fall 2006**
   [http://ocw.mit.edu/courses/civil-and-environmental-engineering/1-731-water-resource-systems-fall-2006/]
   Notes: Source: http://www.oercommons.org/search?f.search=irrigation+system

   Description: Abstract: Survey of optimization methods for management of water resources. Linear, integer, nonlinear, and dynamic programming illustrated with case studies. Applications include reservoir and irrigation

development, conjunctive use of surface and groundwater, capacity expansion, and sustainable resource development. This subject is concerned with quantitative methods for analyzing large-scale water resource problems. Topics covered include the design and management of facilities for river basin development, flood control, water supply, groundwater remediation, and other activities related to water resources. Simulation models and optimization methods are often used to support analyses of water resource problems. In this subject we will be constructing simulation models with the MATLAB® programming language and solving numerical optimization problems with the GAMS optimization package.

6. **Course: Exploring Sustainability in Agriculture: An Online Sustainable Agriculture Instructional Resource**
[http://casfs.ucsc.edu/education/instructional-resources/exploring-sustainability-in-agriculture]
Notes: Source: http://www.oercommons.org/search?f.search=irrigation+system

   Description: Growing interest in sustainable agriculture has generated a wealth of educational materials on the many social, environmental, and agronomic topics related to this expanding field. In creating this online resource, we?ve reviewed hundreds of resources?textbooks, popular books, web sites, videos, PowerPoint presentations, and more?to identify the highest-quality and most relevant materials on sustainable agriculture available. Whether you? re teaching a 2-hour community gardening workshop on irrigation or a semester-long college course on the social and environmental impacts of agriculture, this resource will help you locate the best materials to meet your instructional needs.We?ve also developed a catalogue description and outline for a comprehensive course on sustainable agriculture, appropriate for the community college, state college, or university level). The Course Outline includes topics in social and environmental sciences; plant, soil, crop, and animal sciences; pest management; natural resource management; the adoption of sustainable agriculture; and the growth and development of sustainable agriculture and the organic food industry.

7. Tufts University, **Course: Agricultural Science and Policy I** [http://ocw.tufts.edu/Course/32]
Notes: Source: http://www.oercommons.org/search?f.search=irrigation+system

   Description: Abstract: Highlights of this course include: Major biological, chemical and physical components of the agricultural systems The scientific basis for understanding these systems and their management How has science influenced policies related to agriculture, food safety and environment in the United States? How have the policies evolved over time in the US? What has worked and what has not; what are the reasons and what are the consequences? Beyond science, what other factors influence policies? How do we link what we learn to ecological agriculture? How do we use what we learn for policy analysis?

8. Delft University of Technology, **Course: Irrigation and Drainage**
[http://ocw.tudelft.nl/courses/watermanagement/irrigation-and-drainage/course-home/]
Notes: Source: http://ocwconsortium.org/en/courses

   Description: The course will discuss the objectives and functions of water management systems for irrigation and drainage purposes. Analysing system requirements in terms of technical engineering constraints, management possibilities and water users (wishes and options) is central. This includes the design and operation of regulation structures, dams, reservoirs, weirs and conveyance systems; balancing water supply and water requirements in time and space is a main focus of analysis too. The study goals of this course are: 1. Analyse a (preliminary) design for an irrigation/drainage system, taking into account the proper procedures and data; 2. Discuss management implications in relation to hydraulic design and behaviour of the system; 3. Explain the importance of a number of issues in relation to irrigation, including salinisation, multiple use and sanitation.

9. University of California - Irvine, **Course: Policy, Planning and Design 139: Water Resource Policy**
[http://ocw.uci.edu/courses/course.aspx?id=118]

   Notes: Source: http://ocwconsortium.org/en/courses

   Description: The purpose of this course is to illuminate how water is a political, social, economic, and environmental challenge and to suggest ways we might manage it better and more equitably. You will be provided basic knowledge about physical aspects of water supply and quality; the evolution of water policy throughout history ? and in different societies; the importance of water to human and ecological health; the role of law, politics, and markets in its allocation, regulation, and protection; and, the importance of ethics to its equitable provision. The focus of this course is competition for water, and the impacts of this competition on available supply and quality ? from a global perspective. Disputes over water are not limited to less developed countries. Such conflicts are growing across the U.S., especially in the West, and in California ? where water management has long been a focal point of contention.

10. U.S. Department of Agriculture, **Irrigation Informational Materials**
[http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/water/manage/irrigation]
Notes: Source: http://www.google.com/advanced_search

Description: Topics include: Water Management Models; Irrigation Components; Irrigation Discussion Groups; NRCS Engineering Division; Irrigation Facts, Figures and Trends; Handbooks and Manuals; Irrigation Training; Irrigation Science and Research; National Water Management Center; links to irrigation information at other sites; NRCS Water Management Contacts; Estimating Soil Moisture by Feel and Appearance

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11. Institution: Send a Cow, **Video: recycling & re-use in Uganda "plastic bottles" for irrigation**
[http://www.youtube.com/watch?v=SczHphqn4Ao]
Notes: Source: http://www.youtube.com/results?search_query=irrigation%2C+creativecommons

Description: Lorna from Uganda shows how they re-use plastic drinks bottles on their small rural farm in Kumi. From solar lights to drip irrigation, the bottles make themselves very useful in all aspects of life.

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