1. Course Code

2285

2. Course Title

S3e:ICT for Developments

3. Teacher

TAKEUCHI, Tomonari

4. Term

Fall 1

5. Course Requirements (Courses / Knowledge prerequisite for this course)

None

6. Course Overview and Objectives

The objective of this module is to understand the opportunities and challenges of utilization of Information and Communication Technology (ICT) for achieving sustainable development in the developing countries through recognizing and analyzing what ICT4D projects are like with using relevant conceptual frameworks and/or models.

7. Course Outline

1 Overview of ICT4D and ICT4D Frameworks
2 Success and Failure Factors of ICT4D Project
3 Analysis of Relation between Information Provision and Development Impact
4 Analysis of Relation between Information Provision and Digital Divide
5 Analysis of ICT4D Project Failure by Design-Reality Gap Model
6 Project Design for ICT4D Project
7 Approach for ICT4D Project
8 Success factors for ICT4D
9 【Assignment 1】Group Presentation
10 Evaluation of ICT4D Project
11 Development Agenda (SDGs) and ICT4D
12 Practice to Analyze ICT4D Projects and Approach for Research
13 Trend of ICT4D
14 ICT4D from Different Perspectives
15 ICT4D in the Next Generation with New Technologies
16

8. Textbooks (Required Books for this course)

None

9. Reference Books (optional books for further study)

Heeks, R. (2018) Information and Communication Technology for Development (ICT4D). London: Routledge.

Heeks, R. B. (2008) ‘The ICT4D 2.0 Manifesto’, Development Informatics Working Paper Series, Paper No. 30, IDPM, University of Manchester

Heeks, R. B. (2006) Implementing and Managing eGovernment: An International Text,Sage,London.

Heeks, R. B. (2003) ‘Most eGovernment-for-Development Projects Fail: How Can Risks
be Reduced?’,iGovernment Working Paper Series, Paper No. 14, IDPM, University of
Manchester.Heeks,

R. B. (2002) ‘Failure, Success and Improvisation of Information Systems
Projects in Developing Countries’, Development Informatics Working Paper Series, Paper No. 11, IDPM, University of Manchester

Takeuchi, T (2012) ‘FOSS as a driver: Perspectives from the ICT development agenda’in Free and Open Source Software Technology for Sustainable Development
edited by Sulayman K. Sowe, Govindan Parayil and Atsushi Sunami, United Nations University Press

Takeuchi.T (2017) ‘How Africa Can Gain Benefits from Next Generation Networks’in Handbook on ICT in Developing Countries: 5G Perspective edited by Kund Erik Skouby, Idongesit Williams and Albert Gyamfi, River Publishers.

Toyama, K. (2015) Geek Heresy: Rescuing Social Change from the Cult of Technology,
PublicAffairs

Unwin, T (2009) ICT4D: Information and Communication Technology for Development,
Cambridge University Press

10. Course Goals (Attainment Targets)

(1) To be able to explain the overview of ICT4D and the worldwide trend of ICT4D attempts
(2) To acquire skills and knowledge about conceptual frameworks and models to analyze success and failure factors of ICT4D projects from socio-technical point of view
(3) To understand relevant point of view to plan sustainable ICT4D projects
(4)
(5)
(6)

(7)
(8)

11. Correspondence relationship between Educational goals and Course goals

Educational goals of the school			Course Goals
High level ICT skills	Basic academic skills		
	Specialized knowledge and literacy		(1)
Human skill (Tankyu skill)	Ability to continually improve own strengths		
	Ability to discover and resolve the problem in society	Problem setting	(2), (3)
		Hypothesis planning	(2), (3)
		Hypothesis testing	(2), (3)
		Practice	
	Fundamental Competencies for Working Persons	Ability to step forward	
		Ability to think through	
		Ability to work in a team	
Professional ethics			

12. Evaluation

Goals	Evaluation method & point allocation					
	examination	Quiz	Reports	Presentation	Deliverables	Other
(1)			○	○		
(2)			○	○		
(3)			○	○		
(4)						
(5)						
(6)						
(7)						
(8)						
Allocation			70	30		

13. Evaluation Criteria

Examination	
Quiz	
Reports	Success or failure factors of ICT4D projects should be analyzed by properly utilizing ICT4D related frameworks from socie-technical perspectives in consideration of broader aspects. Solutions and lessons learned should be mentioned based on your own analysis.
Presentation	Success or failure factors of ICT4D projects should be analyzed by properly utilizing ICT4D related frameworks from socie-technical perspectives in consideration of broader aspects.Solutions and lessons learned should be mentioned based on your own analysis.

Deliverables	
Other	

14. Active Learning

Hourly percentage of active learning within the whole class time		60%
1	Active learning such as problem solving assignment using the knowledge and skills acquired in class.	Sometimes
2	Active learning such as group works and discussions.	Sometimes
3	Outcome presentations and feedbacks.	Sometimes
4	Students actively make decisions on how the class should be conducted.	Sometimes

15. Notes

1. In this module, there is no textbook. Handouts relevant to each theme will be distributed.
2. The contents of this module are relatively abstract because what this module mainly introduces are frameworks and models. In other words, you are required to think by yourself to relate the conceptual frameworks and practical projects as well as your own experience.
3. About the assignment, please read the following;

■Assignment1：Presentation（30%）

Group presentation will be conducted in the middle of the course. In advance, several groups will be formed according to individual interest in the development field (theme) such as education, health, agriculture, poverty reduction, industrial development, etc. Each group will choose a specific ICT4D project such as Financial inclusion (like m-banking and blockchain utilization), e-health (m-health), e-learning (m-learning), e-government (m-government), Income generation (like Impact Sourcing), etc. Each group will research on the selected ICT4D project and prepare for the presentation and make a relevant handout. Then, each group will make 15-20 minutes presentation including Q&A with the relevant presentation materials.

■Assignment2 (Report)：2500-3500 words Essay（70%）

Write an essay (2500-3500 words) on the theme that you do not choose for the assinment1 (Group presentation). The essay should include all of followings.

1. Abstract
2. The overview of the specific ICT4D project(s) selected as a case study in the selected field in specific country or region.
3. The outcome of the project(s).
4. Your evaluation on whether the project(s) is success (partially success) or failure (partially failure) and the reasons for your evaluation.
5. The analysis on success or failure factors
6. The lessons learned from the project(s) and/or the suggestions to improve the success rate of the ICT4D project(s).

16. Course plan

(Notice) This plan is tentative and might be changed at the time of delivery

Lesson 1: Overview of ICT4D	Lecture 90 min.

1. In this module, there is no textbook. Handouts relevant to each theme will be distributed.
2. The contents of this module are relatively abstract because what this module mainly introduces are frameworks and models. In other words, you are required to think by yourself to relate the conceptual frameworks and practical projects as well as your own experience.
3. About the assignment, please read the following;

■Assignment1：Presentation（30%）

Group presentation will be conducted in the middle of the course. In advance, several groups will be formed according to individual interest in the development field (theme) such as education, health, agriculture, poverty reduction, industrial development, etc. Each group will choose a specific ICT4D project such as Financial inclusion (like m-banking and blockchain utilization), e-health (m-health), e-learning (m-learning), e-government (m-government), Income generation (like Impact Sourcing), etc. Each group will research on the selected ICT4D project and prepare for the presentation and make a relevant handout. Then, each group will

■Assignment2 (Report)：2500-3500 words Essay（70%）

Write an essay (2500-3500 words) on the theme that you do not choose for the assinment1 (Group presentation). The essay should include all of followings.

1. Abstract
2. The overview of the specific ICT4D project(s) selected as a case study in the selected field in specific country or region.
3. The outcome of the project(s).
4. Your evaluation on whether the project(s) is success (partially success) or failure (partially failure) and the reasons for your evaluation.
5. The analysis on success or failure factors
6. The lessons learned from the project(s) and/or the suggestions to improve the success rate of the ICT4D project(s).

Lesson 2: Success and Failure Factors of ICT4D Project

Lecture 40 min. Exercise 50 min.

In this session, the reason of success and failure of ICT4D projects are discussed through analyzing actual ICT4D projects. There are several factors affecting success and failure. To understand such factors, frameworks and methods are established by some scholars. Before introducing such frameworks in this module, it is important to think about a way to analyze by yourselves.

1. What is success and failure of ICT4D projects?
2. What are factors to affect success and failure of ICT4D project?
3. Exercise using case study to analyze success and failure factors
4. Introduction of Onion Ring model

Lesson 3: Information Provision and Development Impact 1

Lecture 40 min. Exercise 50 min.

There are many ICT4D projects aiming to provide information for people who have few opportunities to receive valuable information. The projects, such as projects to distribute market information for rural farmers and projects for distance education, contribute to reducing the gap called digital divide. In this session, discussion will be conducted about what kinds of information are really valuable for beneficiaries. This session also includes discussion on what is required to achieve expected impacts of the ICT4D projects in order for beneficiaries to utilize provided information.

1. Definition and difference of Data, Information and Knowledge
2. Condition for information receivers for useful application of information
3. Introduction of conceptual frameworks and models (CIPSODA model, Information Chain model)
4. Exercise using case study to apply conceptual frameworks and models to analyze ICT4D projects

Lesson 4: Information Provision and Development Impact 2

Lecture 40 min. Exercise 50 min.

Can ICT4D projects aiming to reduce digital divide necessarily contribute to minimizing the information gap between city and rural areas? Or such projects reinforce the digital divide and even create a new gap? It depends on many factors such as educational level, economic power, social status, etc. This session focuses on this point of view through reviewing relevant theories and practices.

1. How does ICT affect the have and the have-not?
2. What is required to achieve development impact by ICT4D project?
3. Introduction of conceptual frameworks and models (ICT4D Value Chain model)
4. Exercise using case study to apply conceptual frameworks and models to analyze ICT4D projects

Lesson 5: ICT4D Project and Design-Reality Gap

Lecture 40 min. Exercise 50 min.

In many cases, ICT4D project failure is caused by a gap between project design and reality which is named “Design – Reality Gap” by Heeks (Director of ICT4D master course in University of Manchester). In this session, factors which cause Design Reality Gap will be understood through case study.

1. What is Design-Reality Gap
2. Important factors for ICT4D projects
3. Exercise using case study to apply conceptual frameworks and models to analyze ICT4D projects

Lesson 6: Project Design for ICT4D Project

Lecture 40 min. Exercise 50 min

In this session, a check list is introduced to minimize the Design-Reality Gap to design ICT4D projects. Exercise using case studies to use the check list will be conducted and how to minimize the Design- Reality Gap is also discussed.

1. Introduction check lists to minimize the Design-Reality Gap (ITPOSMO and OPTIMIZM check lists)
2. What are drawbacks of factor approaches?
3. Introduction of the other frameworks and models.
4. Exercise using case study to apply conceptual frameworks and models to analyze ICT4D projects

Lesson 7: Approach for ICT4D Project

Lecture 50 min. Exercise 40 min

There is a problem of project planning approach behind the Design-Reality Gap in ICT4D projects. In this session, such a problem will be explained. To analyze ICT4D project success and failure from the difference of approaches, characteristics of several approaches in both information system development and national development are introduced.

1. What is an appropriate approach to design ICT4D project?
2. Different between Supply-Driven and Demand-Driven approaches.
3. Different between Hard and Soft approaches.
4. User-Oriented approach in information system development and participatory approaches in national development.
5. Exercise using case study to apply conceptual frameworks and models to analyze ICT4D projects

Lesson 8: Success factors for ICT4D

Lecture 40 min. Exercise/Discussion 50 min.

In this session, main success factors for ICT4D projects are explained through analyzing successful ICT4D projects such as M-PESA and Ushahidi in Kenya, Digital Green in India, and so on.

1. What is the success factors for M-PESA ?
2. What is the success factors for Ushahidi ?
3. What is the success factors for Digital Green ?
4. ICT4D Champion

Lesson 9 : 【Assignment 1】 Group Presentation Presentation 90 min.

In this session, as the assignment 1, Group Presentation is conducted. Each group makes a 15-20 minutes presentation and shares the research output with other groups.

Lesson 10 : Evaluation of ICT4D Project

Lecture 40 min. Exercise 50 min.

In this session, methods of evaluation for ICT4D projects are introduced. How to evaluate ICT4D projects is somewhat emerging field and not firmly established. Issues on the evaluation methods are discussed from not information system development but national development.

1. Evaluation methods for ICT4D project
2. Issues on evaluation of ICT4D project
3. Introduction of several evaluation index and methods for national development
4. Exercise using case study to apply evaluation methods to analyze ICT4D projects

Lesson 11 : Development Agenda (SDGs) and ICT4D

Lecture 40 min. Exercise 50 min.

In this session, relation between Sustainable Development Goals and ICT is discussed. In each development themes, what kinds of attempts are implemented and how such attempts contribute to achieving SDGs are explained. The class will be divided into two teams (like ICT4D optimist and ICT4D pessimist) and the debate on “Whether or not national budget should allocate for ICT4D? ” is conducted. .

1. What is SDGs?
2. Relation between SDGs and ICT4D
3. Debate on “Whether or not national budget should allocate for ICT4D? ”

Lesson 12 : Practice to Analyze ICT4D Projects and Approach for Research (Essay Writing)

Lecture 40 min. Exercise 50 min.

1. Introduction of ICT4D Project (some case studies will be announced in advance, please collect information about each project before this session)
2. Practice to analyze the ICT4D Project and make a group presentation

The other part is “Approach for Research (Essay Writing)”. To support students to write an essay (Assignment2) with sufficient contents, important viewpoints and pitfalls for ICT4D research are introduced.

Lesson 13 : Trend of ICT4D Lecture 90min.

In this session, there are two topics. The one is “Trend of ICT4D”. In international society, ICT4D became a very important agenda along with technology evolution especially at the Kyushu-Okinawa Summit in 2000. Then, this agenda was discussed at the World Summit on the Information Society in 2003 and 2005. In this session, such a trend of ICT4D agenda in international society is explained. To grasp the big picture of the ICT4D trend enables you to plan appropriate ICT4D projects. The other one is more practical trend of ICT4D in the context of recent progress of technology and innovation.

1. International society and ICT4D
2. Trend of ICT4D (from ICT4D 1.0 to ICT4D 2.0)
3. Reverse Innovation
4. Future trend of ICT4D (Internet➡Social Media➡Social Lab)

Lesson 14 : ICT4D from Different Perspectives

Lecture 60 min. Discussion 30 min.

In this session, some guest speakers are invited from different organizations such as Japan International Cooperation Agency (JICA), private ICT companies, and NGOs. They will make presentation to explain their activities on ICT4D. It will provide you with different perspectives on ICT4D. In addition, knowledge on Japanese ODA and JICA's ICT4D projects will helps you work for ICT4D field in future.

1. Presentations by some guest speakers from different organizations
2. Discussion with the guest speakers

Lesson 15 : ICT4D in the Next Generation

Lecture 45 min. Discussion 45 min.

In this session, both positive and negative impact of recent technology such as IoT, AI, 3D printing, etc. will be explained in the context of globalization. Then, discussion will be made to consider how to avoid the negative impact and what ICT policy is required in the future.

1. Positive and negative impact of recent technology such as IoT, AI, 3D printing, etc.
2. Risks of enclosure by huge companies
3. Required ICT policy to avoid the risks for developing countries in the future
4. Summary of this module