MASUDEM
MASTER STUDIES IN SUSTAINABLE DEVELOPMENT AND MANAGEMENT

COURSE OTLINE

Name of course	INFORMATION AND COMMUNICATION TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT (ICT4SD)		
Lector		e-mail:	
Seminar Instructor		e-mail:	

Week 1	**Topic 1: INTRODUCTION TO INFORMATION AND COMMUNICATION TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT**	Lecture, hours	Seminar, hours
	1.1 The Role of ICT in Sustainable Development 1.2 Emerging Technologies in ICT4SD 1.3 Challenges	3	0
Week 2	**TOPIC 2: THEORETICAL FRAMEWORK: ACTOR-NETWORK THEORY**	Lecture, hours	Seminar, hours
	2.1 Key Concepts of ANT 2.2 Application	3	3
Week 3	**TOPIC 3: THEORETICAL FRAMEWORK**	Lecture, hours	Seminar, hours
	3.1 Key Concepts of Innovation Theory 3.2 Stages of Adoption 3.3 Application	4	8
Week 4	**TOPIC 4: ICT FOR HUMAN AND WELFARE DEVELOPMENT**	Lecture, hours	Seminar, hours
	4.1 Theoretical Backgrounds 4.2 Poverty Reduction: Empowering Individuals and Communities 4.3 Enhanced Agricultural Productivity and Nutrition 4.4 Improving Healthcare Delivery and Disease Prevention 4.5 Promoting Lifelong Learning and Educational Equity	3	0
Week 5-6	**TOPIC 5: ICT FOR ECONOMIC DEVELOPMENT**	Lecture, hours	Seminar, hours
	5.1 Definition of ICT 5.2 The impact of ICT on economic development 5.3 The impact of ICT on productivity and growth 5.4 ICT and innovation 5.5 E-commerce and the digital economy 5.6 ICT and access to markets 5.7 ICT and financial inclusion 5.8 Case Study: FarmDrive	4	8
Week 7-8	**TOPIC 6: ICT FOR SOCIETY DEVELOPMENT**	Lecture, hours	Seminar, hours
	6.1 Education Revolution 6.2 Healthcare Transformation 6.3 Strengthening Communities and Local Development 6.4 Citizen Engagement and Public Participation 6.5 Ethical Considerations and Responsible Development 6.6 Case Study: Zipline's Autonomous Drones in Rwanda	4	8
Week 9-10	**TOPIC 7: ICT FOR ENVIRONMENT DEVELOPMENT**	Lecture, hours	Seminar, hours
	7.1. The Impact of ICT on Environmental Efficiency and Optimization 7.2 ICT and Green Innovation 7.3 E-commerce and the Circular Economy 7.4 ICT and Access to Environmental Knowledge and Data 7.5 ICT and Environmental Governance	4	8

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		Lecture, hours	Seminar, hours
	7.6. Case Study: AI-powered Marine Debris Tracking		
Week 11-12	**TOPIC 8: CHALLENGES FOR HARNESSING ICT FOR SUSTAINABILITY DEVELOPMENT**	Lecture, hours	Seminar, hours
	8.1 Addressing the Digital Divide and Ensuring Inclusive Access 8.2 Mitigating the Environmental Impact of ICTs 8.3 Fostering Responsible Innovation and Ethical Practices 8.4 Building Collaborative Partnerships and Multi-stakeholder	4	8
Week 13-14	**TOPIC 9: CONDUCTING RESEARCH IN ICT FOR SUSTAINABLE DEVELOPMENT**	Lecture, hours	Seminar, hours
	9.1 Quantitative Research 9.2 Qualitative Research 9.3 Mixed-Method Research	4	8

RECOMMENDED SOURCES

Compulsory literature:

1. Sen, A. (1999). *Development as freedom*. New York: Oxford University Press.
2. Marolla, C. (2018). *Information and Communication Technology for Sustainable Development*. CRC Press.
3. Ragnedda, M. and Muschert, G.W. (eds) (2013). *The Digital Divide: The Internet and Social Inequality in International Perspective*. Routledge.

Suggested reading:

1. Choudrie, J. et al. (eds) (2017). *Information and Communication Technologies for Development*. Proceedings of the 14th IFIP WG 9.4 International Conference on Social Implications of Computers in Developing Countries. Springer.
2. Tuba, M., Akashe, S., and Joshi, A. (eds) (2023). *ICT Systems and Sustainability*. Proceedings of ICT4SD 2023. Springer.

Selected internet sources:

1. Information and Communication Technology for Sustainable Development: Defining a Global Research Agenda. https://www.cs.cmu.edu/~rtongia/ICT4SD_Full_Book.pdf
2. ICTs for a Sustainable World. https://www.un.org/sustainabledevelopment/blog/2015/10/icts-for-a-sustainable-world/

ASSESSMENT CRITERIA

Learning activities (case study analysis, mini research project)	Maximum 40 points
Midterm exam	Maximum 30 points
Final exam	Maximum 30 points