Birla Institute of Technology & Science, Pilani
Hyderabad Campus

SECOND SEMESTER 2022-2023
Course Handout Part II

Date: 16-01-2023

In addition to part-I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

Course No.   : **CS F315**
Course Title   : **Information and Communication Technologies and Development**
Instructor   : Dipanjan Chakraborty

Scope and Objective of the Course:

This course will introduce students to understanding the societal challenges of the world and if and how Information and Communication Technologies can tackle them. After the successfully completing the course, the students will:

1. learn about the different application areas (SDGs. MDGs, etc.) where Information and Communication Technologies can play a catalytic role
2. learn to appreciate that technology is not a silver bullet, there are several other factors that need to be in place to create an environment in which technology can succeed
3. learn that an impactful technology does not need to be complex, the simplest of technologies can have big impact
4. learn to appreciate diversity among technology users, learn to put users at the centre of any technology, learn to conduct effective user-studies
5. learn about tech-determinism and its pitfalls
6. learn about the Human Factors in Computing

Reference books:

1. **Aaditeshwar Seth. Technology and (Dis)Empowerment: A Call to Technologists.** 2022. Emerald Publishing
2. **Payal Arora. The Next Billion Users.** First Edition, 2019. Harvard University Press.
3. **Amartya Sen and Jean Dreze. An Uncertain Glory: India and Its Contradictions.** 2020. Penguin Books
4. **Amartya Sen. Development as Freedom.** 2000. Anchor Books.
5. **Jean Dreze. Sense And Solidarity - Jholawala Economics for Everyone.** 2017. Permanent Black

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6. **Ian Smillie. Mastering the Machine Revisited.** 2006. First Edition Reprint.
7. **Richard Heeks. Information and Communication Technology for Development (ICT4D).** 2018. Routledge.
8. **Cathy O'Neil. Weapons of Math Destruction.** 2017. Penguin Random House
9. **Safiya Umoja Noble. Algorithms of Oppression.** 2018. New York University Press.
10. **Kentaro Toyama. Geek Heresy.** 2015. Public Affairs
11. **Shoshana Zuboff. The Age of Surveillance Capitalism.** 2019. Profile Books
12. **Tim Wu. The Attention Merchants.** 2017. The Atlantic Books
13. **Arun Mohan Sukumar. Midnight's Machines.** 2019. Penguin Random House India
14. **John Zerilli et al. A Citizen's Guide to Artificial Intelligence.** 2021. The MIT Press
15. **Ruha Benjamin. Race After Technology.** 2019. Polity Press
16. **Sheera Frenkel and Cecilia Kang. An Ugly Truth.** 2021. The Bridge Street Press.
17. Additional Reading Materials to be circulated

Course Plan:

Lecture No .	Learning Outcomes	Topic(s)	Chapters/Reading Materials
1	To motivate the students for the course	What is development, can ICTs lead to development, and the need for this course	R4: Introduction R3: Ch 2 R1: Ch 1
2		Models of social developments and their pros and cons	Extra reading material
3 – 4	To acquaint students with some case studies in ICTD which did not lead to favourable outcome	Case studies with unfavourable outcome (Tech Determinism)	R2: Ch 6
5 – 6			R10: Ch 1
7 – 8			R5: Ch 8
9 – 10			R10: Ch 3
11 – 12	To acquaints students with the inequalities in society and their ramifications	Inequalities: gender divide, digital divide	R6: Ch XIII
13 – 14			R2: Ch 1
15			Reading material: Smartphone Ownership Is Growing Rapidly Around the World, but Not Always Equally

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16 – 17			R1: Ch 6
18 – 22	To acquaint students with the ethical underpinnings of technology	Ethics in applied computing	R8: Ch 4, 5, 6, 8, 9, 10
23			Reading Material: Gig Economy
24			Reading Material: The limits of "design ethics" under capitalism
25			R1: Ch 4, 5
26-27			R15: Ch 1, 2, 3
28			R14: selected chapters
29			R12: selected chapters
30			R11: selected chapters
31			R9: selected chapters
32 – 33	To acquaint students with the ramifications of big technology companies influencing public policy	Big Tech and its problems	Reading Material: Defund Big Tech, Refund Community · Tech Otherwise
			R16: selected chapters
34 – 37	To acquaint students with different theories and frameworks in the ICTD domain	ICTD theories and frameworks	R10: Ch 2, 6, 7, 9
38			R7: Ch 1.3
39 – 40	To motivate the students to think of a way forward to work in this domain	The way forward	R1: Ch 7, 8 R15: Ch 4, 5

Evaluation Scheme:

Component	Duration	Weightage (%)	Date & Time	Nature of Component
Comprehensive examination	3 hours	30%	18th May, AN	Partially Open Book
Mid-term examination	1.5 hours	20%	17th March, 16:00-17:30	Partially Open Book
Course Project	-	20% (proposal: 5 %	continuous	Open (In class)

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		Mid-term: 5% End-term: 10%)		
Course Debates	-	10%	continuous	Open (In class)
Reading Assignments	-	15%	continuous	Open (Take home)
Class Participation	-	5%	continuous	open

Mid Term grading: Mid-term examination (20%) + Project Proposal (5%) + Project Mid-term (5%) + Reading Assignments (10%) = 40%

Consultation Hour: TBA

Notices: To be circulated through CMS and/or Piazza

Make-up Policy:
- Mid-term and Comprehensive examinations: prior permission from the I/C is necessary. Make-up might be granted only in very serious health related cases
- Other components: no make-up allowed, rescheduling may be allowed at the discretion of the I/C in urgent and genuine cases.

Academic Honesty and Integrity Policy:
Academic honesty and integrity are to be maintained by all the students throughout the semester and no type of academic dishonesty is acceptable.

INSTRUCTOR-IN-CHARGE

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