

### NIRMA UNIVERSITY

<b>Institute:</b>	Institute of Technology, School of Technology
<b>Name of Programme:</b>	MTech CSE, MTech CSE (Data Science)
<b>Course Code:</b>	6CS281VA22
<b>Course Title:</b>	Ethics for Data Science
<b>Course Type:</b>	Supplementary Course
<b>Year of Introduction:</b>	2022-23

L	T	Practical Component				C
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#### Course Learning Outcomes (CLO):

At the end of the course, the students will be able to:

1. outline the principles of fairness, accountability, and transparency in data science (BL2)
2. identify the ethical considerations regarding research, privacy, and control of information and big data (BL3)
3. compare the contemporary practices in data handling (BL4)
4. analyse the importance of ethical practices in data science. (BL4)

Unit	Contents	Teaching Hours (Total 15)
Unit-I	<b>Ethics:</b> Simple utilitarian ethics, concept of informed consent, data ownership, privacy, anonymity, data validity, data forging and fabrication, algorithmic fairness, societal consequences, code of ethics, Attributions, philosophical frameworks for assessing fairness, contemporary theories of fairness, research ethics for data science, legal aspects	06
Unit-II	<b>Big Data and Impact:</b> Overview of ethical issues in data-driven organizations, Significance of big data, neutral data, important concepts and terms, Mosaic data, found data, and designed data <b>Values and Actions:</b> Articulating values, turning values into action, ethical decision points, Aligning values and actions, Methods and tools, Alignment Methodology Framework	04
Unit-III	<b>Current Practices:</b> Findings summary, Opt-in Versus Opt-out, Correlation through aggregation, Data Ownership, Manifestation of values, Ethical Incoherence, Cultural Values, data ethics for researchers, ethics of data scraping and storage, privacy and surveillance	05

#### Self-Study:

The self-study contents will be declared at the commencement of the semester. Around 10% of the questions will be asked from self-study content.



**Suggested Readings/ References:**

1. Davis, Kord, Ethics of Big Data: Balancing risk and innovation, O'Reilly
2. Craig, Terence, and Mary E. Ludloff, Privacy and big data: The players, regulators, and stakeholders, O'Reilly
3. Richards, Neil M., Jonathan H. King, Big data ethics, Wake Forest L. Rev. O'Neil, Cathy, and Rachel Schutt, Doing data science: Straight talk from the frontline, O'Reilly
4. Minelli, Michael, Michele Chambers, and AmbigaDhiraj, Big data, big analytics: emerging business intelligence and analytic trends for today's businesses, John Wiley & Sons.