豊田工業高等専門学校	開講年度	平成29年度 (2017年度)	授業科目	知識工学

科目基礎情報

科目番号	93026	科目区分	専門 / 選択
授業形態	講義	単位の種別と単位数	学修単位: 2
開設学科	電子機械工学専攻E	対象学年	専2
開設期	後期	週時間数	2
教科書/教材	「BIG DATA」by Viktor Mayer-Scho:nberger & Kenneth Cukier (John Murray) ISBN978-1848547926		
担当教員	西澤 一		

到達目標

(ア)Students can explain the concept of big data
(イ)Students can describe three characteristic features of big data
(ウ)Students recognize the risks of data-driven decision makings
(エ)Students can distinguish correlational analysis from causational analysis
(オ)Students can explain a few effective examples of big data

ルーブリック

	最低限の到達レベルの目安(可)		
評価項目(ア)	Students can explain the concept of big data		
評価項目(イ)	Students can describe three characteristic features of big data		
評価項目(ウ)	Students recognize the risks of data-driven decision makings		

学科の到達目標項目との関係

教育方法等

概要	As engineers working in the century of knowledge, we should understand how some knowledge is created from daily dataflow from the society, and may be used in important decision makings. Big data is a recent and not well-defined concept but a naming of a series of processing ideas and methods handling such huge dataflow. It is different from well-established processing methods in the last century, depends on the huge processing power on recent computers, and has large benefits along with serious risks to our society. This lecture intends to summarize the basis of big data for young engineering students.
授業の進め方・方法	
注意点	The students are expected to have reseptive English skills of TOEIC 500 or higher, because all the lectures, discussions, asignments, and tests are to be done in English. The students are also required to read the assigned pages of the text before every lesson, write short summaries and present them to the class.

選択必修の種別・旧カリ科目名

授業計画

		週	授業内容	週ごとの到達目標
後期	3rdQ	1週	Two examples of showing social effect from big data (p 1-12)	
		2週	The outline of three shifts of information analysis caused by big data (p12-18)	
		3週	Processing ALL data instead of some samples (p19-31)	
		4週	Handling messy data (p32-49)	
		5週	Leaving causality to satisfying with correlations (p50-72)	
		6週	Leaving causality to satisfying with correlations (p50-72)	
		7週	Datafication: turning data into valuable information (p73-97)	
		8週	Datafication: turning data into valuable information (p73-97)	
	4thQ	9週	Value: non-rivalrous option value of data (p98-122)	
		10週	Value: non-rivalrous option value of data (p98-122)	
		11週	Implications: data, skills, and ideas for the value chain (p123-149)	
		12週	Implications: data, skills, and ideas for the value chain (p123-149)	
		13週	Risks : privacy, punishment based on the probability, dictatorship of data (p150-170)	
		14週	Control: from privacy to accountability, the algorithmist (p171-184)	
		15週	Next: when data speaks, the bigger data (p185-197)	
		16週		

モデルコアカリキュラムの学習内容と到達目標

分類	分野	学習内容	学習内容の到達目標	到達レベル	授業週

評価割合

	定期試験	課題	合計
総合評価割合	40	60	100
専門的能力	40	60	100