



UNIVERSITI TEKNOLOGI MARA

DSC652: BIG DATA APPLICATIONS AND ISSUES

Course Name (English)	BIG DATA APPLICATIONS AND ISSUES APPROVED
Course Code	DSC652
MQF Credit	3
Course Description	This course will cover the essentials of Big Data Applications. The course is to educate the students on the value of big data in various fields. Students will be introduced to state-of-the-art tools and techniques in big data that are being adopted to increase productivity and scientific breakthrough in these fields. This course is offered to prepare the students not only the issues pertaining to big data but also how to combat the issues.
Transferable Skills	Analytic skill, strong interpersonal, oral and written communication and presentation skills, ability to communicate complex findings.
Teaching Methodologies	Lectures, Lab Work
CLO	CLO1 Demonstrate an understanding on various big data tools, applications and implementation techniques. CLO2 Display social responsibilities in carrying out tasks related to big data application and issues. CLO3 Demonstrate practical skills in completing task related to big data application.
Pre-Requisite Courses	No course recommendations
Topics	
1. Introduction to Big Data Systems 1.1) Big Data Systems 1.2) Big Data Systems Designing Principles	
2. Big Data Applications 2.1) Local and International Development 2.2) Engineering / Manufacturing 2.3) Medical and Sports 2.4) Education 2.5) Media and Information Technology 2.6) Natural Science	
3. Big Data Tools 3.1) Batch Processing Tools 3.2) Stream Processing Tools 3.3) Interactive Analysis Tools	
4. Big Data Techniques 4.1) Statistical Techniques 4.2) Data Mining 4.3) Machine Learning 4.4) Optimization Methods 4.5) Visualization Approaches	
5. Key Issues in Big Data 5.1) Opportunities 5.2) Privacy and Security Issues 5.3) Challenges	

6. Underlying Technologies and Future of Big Data

- 6.1) Granular Computing
- 6.2) Cloud Computing
- 6.3) Bio-Inspired Computing
- 6.4) Quantum Computing

7. Privacy and Security Issues in Big Data

- 7.1) Awareness of the Risk of Big Data Environment
- 7.2) Issues in Data Sharing
- 7.3) Challenges Persist in Big Data
- 7.4) Impacts in Big Data

8. Line of Defense in Big Data

- 8.1) Existing Guidelines
- 8.2) Council of Big Data, Ethics and Society
- 8.3) Aligning Values and Actions
- 8.4) Ethics Law and Policy

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Assignment 1	10%	CLO1
	Assignment	Assignment 2	10%	CLO2
	Group Project	Group project (presentation, analysis, design, development)	25%	CLO3
	Test	Test	15%	CLO1

Reading List	Recommended Text	<ul style="list-style-type: none"> • Thomas Erl,Wajid Khattak,Paul Buhler 2016, <i>Big Data Fundamentals: Concepts, Drivers & Techniques</i>, 1 Ed., 8, Prentice Hall [ISBN: 9780134291079] • Ramesh Sharda,Dursun Delen,Efraim Turban,David King 2017, <i>Business Intelligence: A Managerial Approach, Global Edition</i>, Pearson Higher Ed [ISBN: 978013463328]
	Reference Book Resources	<ul style="list-style-type: none"> • Ofer Mendelevitch,Casey Stella,Douglas Eadline 2016, <i>Practical Data Science with Hadoop and Spark</i>, Addison-Wesley Professional [ISBN: 0134029720] • Thomas W. Miller 2015, <i>Modeling Techniques in Predictive Analytics with Python and R</i>, Pearson Education [ISBN: 0133892069] • Jeffrey Aven 2018, <i>Data Analytics with Spark Using Python</i>, Addison-Wesley Professional [ISBN: 9780134846019] • Gil Raviv 2018, <i>Collect, Transform and Combine Data Using Power Bi and Power Query in Excel</i>, Pearson Professional [ISBN: 9781509307951] • Pang-Ning Tan,Michael Steinbach,Anuj Karpatne,Vipin Kumar 2019, <i>Introduction to Data Mining</i>, 2 Ed., 10, Pearson [ISBN: 9780133128901]
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	