

**MEng (Structured) (Chemical Engineering): Data Analytics**  
**Prescribed textbooks 2025**

<b>Module</b>	<b>Textbook</b>	<b>Essential or optional?</b>
<b>Numerical Methods 876</b>	<i>Scientific Computing: An Introductory Survey</i> , by MT Heath (Second Edition), SIAM, ISBN: 978-1-61197-557-4, 2018	<i>Relevant material made available to registered students via online learning platform – no purchase necessary</i>
<b>Advanced Topic in Eng. Management 873</b>	None, published literature only	<i>Relevant material made available to registered students via Stellenbosch Library</i>
<b>Data Science (Eng) 774 &amp; 874</b>	<i>The Data Science Design Manual</i> by Steven S Skiena	<b>Essential</b>
<b>Applied Machine Learning 774 &amp; 874</b>	<i>Fundamentals of Machine Learning for Predictive Data Analytics, Algorithms, Worked Examples, and Case Studies</i> by John D Kelleher, Brian Mac Namee, Aoife D’Arcy (Second Edition), MIT Press, 2021;	<b>Essential</b>
	<i>Computational Intelligence: An Introduction</i> by AP Engelbrecht (Second Edition), Wiley & Sons, 2007 (supplementary book)	<i>Optional</i>
<b>Optimisation (Eng) 774 &amp; 874</b>	<i>Metaheuristics – From design to implementation</i> by El-Ghazali Talbi, Wiley & Sons, 2009;	<i>Made available to registered students via online learning platform – no purchase necessary</i>
	<i>Operations Research: Applications and Algorithms</i> by WL Winston (Fourth Edition), Brooks/Cole, ISBN: 978-0-534-42362-9, 2003	
<b>Plantwide dynamics and control 872</b>	<i>Introduction to Process Control</i> , by JA Romagnoli & A Palazoglu, Taylor and Francis, ISBN: 978-0-367-36778-7, 2020	<i>Made available to registered students via online learning platform – no purchase necessary</i>

<b>Data Analysis for Dynamic Processes 872</b>	<i>Elements of Statistical Learning</i> , by T Hastie, R Tibshirani, J Friedman, (Second edition) Springer, <a href="https://hastie.su.domains/ElemStatLearn/">https://hastie.su.domains/ElemStatLearn/</a> , 2009	<i>Freely available online</i>
	<i>Regularized System Identification</i> , by G Pillonetto, T Chen, A Chiuso, G de Nicolao, L Ljung, Springer, <a href="https://doi.org/10.1007/978-3-030-95860-2">https://doi.org/10.1007/978-3-030-95860-2</a> , 2022	
	<i>Data Reconciliation and Gross Error Detection</i> , S Narasimhan, C Jordache, Elsevier, ISBN: 978-0-88415-255-2, 1999.	<i>Optional</i>
<b>Integrated Data Analysis</b>	Provided case studies	N/A