

<b>DEREE COLLEGE SYLLABUS FOR:</b>	
<b>ITC 4441 WEB SCIENCE AND SOCIAL MEDIA PLATFORM ANALYTICS</b>	
(Previously ITC 4541 Web Science)	
(Updated Fall 2021)	
	<b>US CR: 3/0/3</b> <b>UK LEVEL: 6</b> <b>UK CREDITS: 15</b>
<b>PREREQUISITES:</b>	ITC 2088 Introduction to Programming ITC 2197 Object Oriented Programming Techniques <i>or</i> ITC 3234 Object Oriented Programming MA 2010 Statistics I <i>or</i> MA 2021 Applied Statistics for Business <i>or</i> MA 2025 Applied Statistics for Science ITC 3160 Fundamentals of RDBMS
<b>COREQUISITES:</b>	None.
<b>CATALOG DESCRIPTION:</b>	Social network characteristics. Network measures and models. Data mining in social networks.
<b>RATIONALE:</b>	The course aims to acquaint students with methods of analysis of online social networks that include modelling at the micro, meso and macro scale. Moreover, the course also aims to mine the information that is stored in social networks with the view of offering useful insights.
<b>LEARNING OUTCOMES:</b>	As a result of taking this course, the student should be able to: 1. Adapt or combine network measures to construct social or generalised information network models 2. Design methods to mine the structural and content information in social or generalised information network models 3. Formulate techniques that are based on structural or content information to build recommender systems or systems that extract higher level modalities
<b>METHOD OF TEACHING AND LEARNING:</b>	In congruence with the teaching and learning strategy of the college, the following tools are used: <ul style="list-style-type: none"> <li>• Classroom lectures, discussions, and review of real-world cases based on specific theoretical concepts.</li> <li>• Laboratory practical sessions.</li> <li>• Office hours: Students are encouraged to make full use of the office hours of their instructor, where they can ask questions and go over lecture material.</li> <li>• Use of the Blackboard Learning platform, where instructors post lecture notes, assignment instructions, timely announcements, as well as additional resources.</li> </ul>

<b>ASSESSMENT:</b>	<p><b>Summative:</b></p> <table border="1" data-bbox="586 138 1451 352"> <tr> <td data-bbox="586 138 1349 216">1<sup>st</sup> assessment: Midterm Examination Problem solving or short essay questions</td> <td data-bbox="1349 138 1451 216"><b>30%</b></td> </tr> <tr> <td data-bbox="586 216 1349 268">2<sup>nd</sup> assessment: Portfolio of student work and oral assessment</td> <td data-bbox="1349 216 1451 268"><b>10%</b></td> </tr> <tr> <td data-bbox="586 268 1349 352">Final assessment: Project Programming or use of tools to model or analyse a social network</td> <td data-bbox="1349 268 1451 352"><b>60%</b></td> </tr> </table>	1 <sup>st</sup> assessment: Midterm Examination Problem solving or short essay questions	<b>30%</b>	2 <sup>nd</sup> assessment: Portfolio of student work and oral assessment	<b>10%</b>	Final assessment: Project Programming or use of tools to model or analyse a social network	<b>60%</b>
	1 <sup>st</sup> assessment: Midterm Examination Problem solving or short essay questions	<b>30%</b>					
2 <sup>nd</sup> assessment: Portfolio of student work and oral assessment	<b>10%</b>						
Final assessment: Project Programming or use of tools to model or analyse a social network	<b>60%</b>						
<p><b>Formative:</b></p> <table border="1" data-bbox="586 415 1451 453"> <tr> <td data-bbox="586 415 1349 453">Laboratory exercises &amp; in class quizzes</td> <td data-bbox="1349 415 1451 453"><b>0%</b></td> </tr> </table> <p>The formative assessments aim to prepare students for the summative assessments and expose them to teamwork. The 1<sup>st</sup> summative assessment tests the LO 1. The 2<sup>nd</sup> summative assessment tests the LOs 1-3. The final summative assessment tests the LOs 1-3.</p> <p><i>The final grade for this module will be determined by averaging all summative assessment grades, based on predetermined weights for each assessment. If students pass the <b>final summative assessment</b>, which tests all Learning Outcomes for this module, and the average grade for the module is 40 or above, students are not required to resit any failed assessments.</i></p>	Laboratory exercises & in class quizzes	<b>0%</b>					
Laboratory exercises & in class quizzes	<b>0%</b>						
<b>INDICATIVE READING:</b>	<p><b>REQUIRED READING:</b></p> <ol style="list-style-type: none"> <li>Zafarani, R., Abbasi, M.A. &amp; Liu, H., (2014), <i>Social Media Mining, An Introduction</i>, Cambridge</li> </ol> <p><b>RECOMMENDED READING:</b></p> <ol style="list-style-type: none"> <li>Aggarwall Ch. C., (2015), <i>Data Mining</i>, Springer</li> <li>Easley, D., &amp; Kleinberg, J. (2010). <i>Networks, crowds, and markets reasoning about a highly connected world</i>. New York: Cambridge University Press.</li> <li>Jannach, D., Zanker, M., Felfernig, A., Friedrich, G., (2010) <i>Recommender Systems, an Introduction</i>, Cambridge</li> <li>Manning, C., &amp; Raghavan, P. (2008). <i>Introduction to information retrieval</i>. New York: Cambridge University Press.</li> <li>Newman, M. (2018). <i>Networks: An introduction</i>. Oxford: Oxford University Press, 2<sup>nd</sup> Edition</li> <li>Russell, M. A., (2013), <i>Mining the Social Web</i>, O'Reilly</li> <li>Social Networks Journal, Elsevier <a href="http://www.journals.elsevier.com/social-networks">http://www.journals.elsevier.com/social-networks</a></li> <li>T. Segaran (2009), <i>Programming the Semantic Web: Build Flexible Applications with Graph Data 1st Edition</i>, T. Segaran</li> </ol>						
<b>INDICATIVE MATERIAL:</b> (e.g. audiovisual, digital material, etc.)	<p><b>REQUIRED MATERIAL:</b> N/A</p> <p><b>RECOMMENDED MATERIAL:</b> N/A</p>						
<b>COMMUNICATION REQUIREMENTS:</b>	<p>Daily access to the course's site on the College's Blackboard CMS and the acg mail.</p> <p>Effective communication skills using proper written and oral English.</p>						
<b>SOFTWARE REQUIREMENTS:</b>	<p>Indicative list of software: Pajek <a href="http://mrvar.fdv.uni-lj.si/pajek/">http://mrvar.fdv.uni-lj.si/pajek/</a></p>						

	<p>Cfinder <a href="http://www.cfinder.org/">http://www.cfinder.org/</a>  NodeXL <a href="http://nodexl.codeplex.com/">http://nodexl.codeplex.com/</a> /  Gephi <a href="https://gephi.github.io/">https://gephi.github.io/</a> /  Weka <a href="http://www.cs.waikato.ac.nz/ml/weka/">http://www.cs.waikato.ac.nz/ml/weka/</a> /  Python Programming Language  NetworkX library for Python <a href="https://networkx.github.io/">https://networkx.github.io/</a> /  Java Programming Language  Mongo Database: <a href="https://www.mongodb.org">https://www.mongodb.org</a>  Neo4j Database: <a href="https://neo4j.com/">https://neo4j.com/</a></p>
<b>WWW RESOURCES:</b>	<ul style="list-style-type: none"> <li>• Social Network Analysis: <a href="http://www.barabasilab.com/pubs-socialnets.php">http://www.barabasilab.com/pubs-socialnets.php</a></li> <li>• Social Network Analysis Project, Stanford <a href="http://snap.stanford.edu">http://snap.stanford.edu</a></li> <li>• Network Science book, <a href="http://barabasi.com/networksciencebook">http://barabasi.com/networksciencebook</a></li> <li>• Social Media Lab <a href="http://socialmedialab.ca">http://socialmedialab.ca</a></li> <li>• Java Library <a href="http://jgrapht.org/">http://jgrapht.org/</a></li> <li>• Data set collection: <a href="http://grouplens.org/datasets/movielens/">http://grouplens.org/datasets/movielens/</a></li> <li>• Data set collections <a href="http://www-personal.umich.edu/~mejn/netdata/">http://www-personal.umich.edu/~mejn/netdata/</a></li> </ul>
<b>INDICATIVE CONTENT:</b>	<ol style="list-style-type: none"> <li>1. Introduction to social media mining</li> <li>2. Introduction to Networks of information, user and others</li> <li>3. Network Measures</li> <li>4. Network Models</li> <li>5. Community detection</li> <li>6. Data Mining</li> <li>7. Text Analysis</li> <li>8. Recommender Systems</li> </ol>