UNIVERSITY of DEBRECEN

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Name of the course:	**Parallel Data Processing**
Course type:	compulsory selectable
Responsible lecturer:	Dr. Zoltán Gál
Content:	Usage of the status data captured with sensors in scientific analysis of arbitrary technological processes is advisable after pre-processing and interpretation tasks. Intelligent processing of the high-volume raw data requires deep knowledge of high-capacity computation system usable by the academic researchers. Cognition and acquirement of such systems in practice is the goal of this course, making possible to get familiar with the structure of high performance computation systems (parallel data storing, processing clusters, shared parallel memory, parallel processes, job manipulation, Unix based systems, quantification of data processing, cost and duration of processing, efficiency, data volume based scaling of resources, etc.). High level programming languages (i.e. Matlab, Python) will be used to test in HPC environment the parallel processing algorithms of the big data provided by different data sources.
Literature:	• Introduction to High-Performance and Parallel Computing, HPC User Guide, HPC Sysadmins, 2021. • Computers, Waves, Simulations: A Practical Introduction to Numerical Methods using Python, 2020. • Fundamentals of Parallelism on Intel Architecture, 2020. • Parallel, Concurrent, and Distributed Programming, 2020.