General description and Required knowledge: The aim of this exercise is to familiarize yourselves with the ADONIS Business Process Management and Knowledge tooling, in order to model and evaluate business processes. You can download from the course website the following tutorials that provide useful information about the functionality of the tool:

- **ADONIS – User Manual:** Describes details for using this tool and explains its components.
- **ADONIS – Method Manual:** Provides description for the objects, you will need to model the business process (model types, classes, relations etc)
- **The powerpoint presentation** that will be presented at the tutorial lecture. It contains a synopsis of the basic concepts and operations of the platform, as well as examples. You can also find examples in the ADONIS – Method Manual

**Important Note:** Regarding the modeling aspect of this exercise the students are supposed to use BPMN 2.0 Business Process Diagrams

**Scenario:** The aim of this phase is to analyze the process of issuing driving license. The objective is the improvement of the process through the minimization of the total time and cost required for the completion of the scenario.

The following description summarizes the license issuing procedure:

A candidate driver, goes to a driving school and attends theoretic courses lasting 20 hours in total (4 hours per day, for 5 days). After finishing the courses, the secretariat of the driving school submits a request to the Ministry of Transport for the candidate to be accepted in taking a theoretic examination. Within 2 weeks the reply arrives at the driving school, so the secretariat informs the candidate driver. After 1 week the candidate arrives at the test center, where via a computer he has to answer thirty (30) random questions in thirty (30) minutes. If he answers at least twenty-nine (29) questions correctly, the next day the Ministry of Transport sends the theoretic exams certificate at the secretariat of the driving school, where from the candidate receives it within three (3) days. In case he fails to pass the test he retakes it within two (2) weeks. This process is repeated until the successful completion of the test.

Apart from the theoretical examination the candidate driver has to complete at least twenty-five (25) hours of driving practice. Driving practice lessons are to be completed within four (4) weeks, during which the candidate joins a driving instructor. After completing the driving lessons the secretariat of the driving school submits a request to the Ministry of Transport and awaits for an answer about the examination date. As soon as the date confirmation arrives, within one (1) week of the date of request, the driving school's secretariat informs the candidate driver by phone.

On the specified date, the candidate driver arrives at the test point, accompanied by the driving instructor and two examiners, and takes a 30-minute driving skill test. If he avoids any
significant driving mistake, the examiners give the successful completion certificate to the instructor. Otherwise, the candidate attends five (5) additional hours of lessons with the drive instructor and repeat the driving test within two (2) weeks. This process is repeated until the successful completion of the test.

Once both theoretical and practical exams are successfully completed, the candidate driver supplies the driving school's secretariat with a copy of his identity card, two (2) identity-photos (after visiting a photographer), two (2) medical certificates (after visiting the corresponding doctor) from an eye doctor and a pathologist and one fee of 120 euros from the Taxation office (after visiting the Taxation office). All these documents are forwarded by the secretariat to the Ministry of Transport and in two weeks the diploma is sent via post to the driving school, where from the new drive receives it.

Obviously, there isn't a unique, correct model for this particular business process. The aim of the exercise is to understand the difficulties of the modelling and its evaluation. The description that is provided does not take into consideration all possible parameters, therefore you will need to make your own assumptions (e.g. what is the probability the candidate driver successfully passes the theoretical and practical exams, how much time is required for the execution of each action, what is each employee cost, etc.).

Clarification: Actions regarding theoretic and practical examination should be designed as separate subprocesses of the main process.

First Part (“as-is” business process model) (40/100)

Design in ADONIS the complete business process that is described above. In your process all the appropriate model types must be included: (i) Company map, (ii) Business Processes and Subprocesses, (iii) Working Environment, (iv) Document model, correctly connected and customized (times, costs etc). It is not necessary to use all the available classes; only those that are necessary. Regarding your report, you are asked to describe the choices you have made. You will find useful some of the relation tables that are created by the Analysis component.

Second Part (evaluation) (40/100)

A) Consistency Check: At the analysis component, execute Consistency checks on Business Process Models, for each model of business process you have created. Make all required changes in order for all checks, except probably the last one, to be completed successfully.

B) Simulation: Execute Path Analysis in your model and comment on the time of each branch. Then, execute Capacity Analysis for your model, select “Person related” simulation results and interpret each performer's capacity value in comparison to the personnel cost. (Which are the system requirements, which performers mostly overload the system and why etc.).

Third part (“to-be” business process model) (20/100)

Locate the points at which your model malfunctions/points for improvement and justify them with the corresponding query results and the measurements you have until now. Propose an
alternative model, where the operations are executed in parallel or automated or with different order. Present how these changes can influence the model's execution time and the performers' workloads (capacity) and include in your report the improvement you achieved on a practical level. You will find useful, apart from the other methods that you can use, the predefined queries that the Analysis component supports for business processes and working environment models.

**Submission:** You are expected to submit two adl files of your model (the initial and the optimized one) along with your report via e-mail sent to the course e-mail address (hy565@csd.uoc.gr) by Wednesday, April 19. The file attachment must have the following format: “login.zip”. Adl files should include Company Map, BPMN 2.0 diagram(s), Working Environment Model and Document Model. You should also write a report, explaining your model's workflows, the choices you have taken, the involved roles, the parameters values, as well as the tables with the results of the queries and checks you have made. You may also include screenshots of your models. Last but not least, you should explain the way your initial model is improved following the changes you made at the third part of this exercise.