**CMSE 491 Selected Topics in Software Engineering I -- Project Topic**

**Aim**: Students will search recent ontology and rule based expert system studies in literature. Find and select some interested and related research articles and keep them as main references for their study. In addition, the students will propose a similar Semantic Web based software project that requires to develop an Ontology Knowledgebase to develop an Ontology based Expert System. This project will involve the usage of Database, GUI/Web/Mobile approaches, developing an Ontology Knowledgebase. The student also use NetBeans 8.x Java Framework for Semantic Web Programming of the system. The students are able to create a SWRL rule-based Inference Engine by using Java programming as a parts of the planned Expert Knowledgebase System application. To do the SWRL rule-based Inference Engine, the students will use some well-known plug-in APIs: Ontology Parser APIs and Ontology Reasoner APIs. End of the programming stage, students will write an article about their effort in expected format.

**Semantic Web Programming Tools will be used (Find them in the CODING-TOOLS-PACK folder):**

* netbeans-8.2-windows
* owlapi-3.x / owlapi-4.x / owlapi-5.x
* Protege-5.2.0-win
* swrlapi-master
* pellet-owlapi.jar or pellet-master

**Term Assignment Phases**

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| **Assignment Stage 1**  **%10** | **Create Ontology on Protégé editor +Presentation will be -> 04 December 2018** |
| **Assignment Stage 2**  **%10** | **Create Rules by using SWRL/SQWRL +Presentation will be**  **-> 04 December 2018** |
| **Assignment Stage 3**  **%15** | **Coding "An Ontology Parser/Inferencing Engine" with Java by using OWL API & a Pellet Reasoner API & SWRLAPI + Presentation) will be -> 25 December 2018** |
| **Assignment Stage 4**  **%15** | **Final Report (article format) + Presentation will be**  **-> 27 December 2018**  *Students will prepare an article report and demonstrate/run their program. The article format will be*[*IEEE Word format*](http://ieeeauthorcenter.ieee.org/wp-content/uploads/Transactions-template-and-instructions-on-how-to-create-your-article.doc) |