# Functional Requirements

## Use case/Services contracts

### Pre-conditions:

A few conditions must be met before any of the users can access and use the system.

* The user must have a functioning device capable of running the system. Devices may be a personal computer, a tablet or a mobile phone.
* The user must work on a software platform capable of running the system. That would be all the web browsers or Android operating system to run the application.
* The user must have network or internet access.
* Students may only view their own marks and information.
* If the user of the system is a student, the student must be registered for the course and have his/ her own user name and password to view their marks.
* If the user is a tutor, they have to be granted special permission to access and modify the information on the system.
* Tutors may only change and add marks for the practical session they are booked to mark.
* Tutors need to receive permission from the lecturers or Head of Department to change marks.
* The lecturers also need a username and password granting special permission to modify and view all of the information.
* The Head of Department will also need a username and password that has permission to alter the information all across the system.

### Post-conditions:

Post-conditions are the conditions that need to hold after access has been granted to the system to keep on using the system.

* The user needs to have fixed access to the network or internet to keep on using the system.
* The user needs to have permission for that specific user type to use user-specific functions in the system.
* The user needs to be automatically signed out after a set period of time when the user is inactive.

### Request and Results Data Structures

The data structures that are being used in the system are closely linked and interleaved to form the structure of the system and give it the most core of functionality. The system will need to receive some form of input from the users to process and generate the expected output.

The requests of the system will be the basic input that will need to be provided by the users, whether it is the students, tutors or lecturers. A few basic and fundamental inputs will be:

* Students will have to provide their username and password to LDAP to gain access to the system.
* Also students will have to choose which mark to view and in what format it should be viewed.
* Tutors will also have to provide their specially assigned username and password to LDAP to access the system.
* The tutors will need to provide the current student’s student number that is being marked, along with the allocated mark for the determined practical.
* The tutors need to provide a reason for changing the mark of a student along with the changed mark.
* The lecturers will once again need to provide their username and password to LDAP to gain access to the system.
* The lecturers will have to provide marks when adding and editing them along with the student’s student number and what individual mark needs to be altered.
* The lecturer will also need a newly added student’s information to add new students as well as removing them from the system.
* The head of department will once again need to provide their username and password to LDAP to gain access to the system.
* The head of department will have to provide marks when adding and editing them along with the student’s student number and what individual mark needs to be altered.
* The head of department will also need a newly added student’s information to add new students as well as removing them from the system.
* The head of department needs to provide a time and location to create a practical and add it to the system.
* The head of department will have to provide details when he/she wants to add a new feature to the system.
* The head of department will have to provide the tutor details that needs to be added or removed from the system.

The result of the system are much simpler as it produces more or less what the user wants to achieve from the system. The results of the system will be:

* The student will be able to view his/her marks individually as well as calculated together.
* The tutor will be able to view the marks of the student, and also know if the alteration and adding of marks was successful.
* The lecturer will be able to view all of the database information of the students and an audit trail of any alteration of marks on the system.
* The head of department will be able to view all information regarding the marks and students as well as an audit trail for alteration of marks.
* The head of department will also receive reports regarding the system in a timely manner.