# Introduction :

The system will perform a fair division of elective courses for the students, according to their preferences over the courses and according to the maximum capacity of each course.

The software product be to produced will contain the following:

1. Information about the courses such that capacity, schedule, syllabus, lecturer, etc. The benefit of this is that through this information students can make a more intelligent decision.
2. The system will perform a fair division of elective courses among students.

The benefit of it’ll ensure a fairer division upon the previous division (=FCFS).

**About the system:**

## Our product will integrate with the current system of the university, we gonna add to the registration procedure another level-“Ranking level”, such that the level would be between the enrollment period and change period.

At the enrollment period student would enroll only in the mandatory courses.

At the ranking level, the students will rank the elective courses that are not overlapping with mandatory courses.

And for the change period, the procedure will stay the same.

**User Stories:**

The intended audienceis University departments and their students.

## Students Coordinator:

As a student coordinator, I can provide information about the courses such that capacity, schedule, syllabus, lecturer, etc.

So that it’ll create an independent system such that it could be reducing future student's inquiries for enrollment to elective courses.

Student:

As a student, I can rank the elective courses such that I will enroll in a certain semester so that the division of elective courses between him/her and the other students to be done by an algorithm based upon fair division.

**Users Cases:**

There will be two types of users with our software:

Student:

First, the student will log in by entering the ID and the password that has been given by the University. Second, the student considers the course information (=such that capacity, schedule, syllabus, lecturer, etc. ) given by the student coordinator and rates the elective courses as he/she sees fit, and this rate will be editable until the deadline the students coordinator will provide. Third, after the algorithm will enroll the student in courses, he/she will see the enrollment outcome.

Students Coordinator:

First, the coordinator will define registration opening dates and deadlines.Second, the student coordinator will provide the course information as noted above. Third, after the algorithm will enroll the student in courses, the coordinator will approve the enrollment outcome.

\*The diagram that represents the Users case has been shown in the PowerPoint file.

**Internal action:**

1. Making sure that the student ranked every course or he/she distributed all the virtual money.
2. If the student has been press on the redefine the rank, the system will provide his/her latest rank and will let redefine the rank itself.
3. To deﬁne forbade course overlap, the system will define binary parameter Ojj’ equal one if and only if the course section j and j’ are overlapping course sections in time or they are different sections of the same course.
4. The system will provide the time remaining for the student to rank.
5. The option to rank will open for the students from the date of registration until the deadline, that has been defined by the coordinator.
6. After the deadline, the system will process the input by the algorithm and return the output for each student according to his rank.
7. The system will send the results only after the approval of the coordinator.