

## Draft Document

Feature Request: Automated Open Elective Allotment Module for Academic Portal

We are writing to propose the development of a new, configurable feature within the SAMARTH Academic Module to automate the entire process of Open Elective subject selection and allotment.

Currently, NIT Hamirpur manages this process using a separate, in-house software module. However, as we are now fully transitioning phase to the SAMARTH platform, an integrated solution is essential. Continuing to use a standalone system would create a redundant workflow and add significant additional work for our administrative staff.

### Proposed Workflow and Feature Requirements:

The process is typically required in two semesters (5<sup>th</sup> & 6<sup>th</sup>): after the 4th-semester results (for 5th-semester open elective subject) and after the 5th-semester results (for 6th-semester open elective subject). The proposed feature should accommodate the following workflow and configurable rules:

#### 1. Pre-Allotment Phase (Admin/Department Side):

- Academic Admin will Configure the Start Dates and End Dates of Different Floating as well as filling up of choices by the students
- A dedicated section for departments to "float" or offer Open Elective subjects for the upcoming semester.
- The department must be able to set a maximum student capacity (e.g., 100) and a minimum student threshold (e.g., 20) for each floated subject. These numeric values should be configurable by the system administrator.

#### 2. Student Choice Filling Phase:

- Dynamic Subject List: When a student logs in to the SAMARTH portal, he will get a link and message to make/fill up their choices, the system must automatically display only the subjects floated by other departments. Subjects from the student's own department must be excluded.
- Historical Check (for 6th Sem): For the 6th-semester choice filling, the system must check the student's academic history and prevent them from seeing or selecting any Open Elective subject they have already taken in their 5th semester, regardless of the offering department.
- Stipulated Time Window: The choice-filling form must only be active within a defined date and time range set by the academic office.

#### 3. Allotment Engine:

- Merit-Based Algorithm: The allotment must be based purely on academic merit i.e CGPI. If there is any tie in the CGPI. It must be resolved based on the SGPI of passing semester.
  - For 5th-semester allotment: Use the CGPI secured in the 4th semester.
  - For 6th-semester allotment: Use the CGPI secured in the 5th semester.
- Choice Priority: The allotment logic should grant subjects to the highest CGPI students first, based on their choice order (1st, 2nd, 3rd, etc.).

- **Capacity Management:** The engine must respect the maximum capacity set for each subject. Once a subject reaches its limit, it should be removed from the pool for subsequent allotment.

#### **4. Post-Allotment Phase:**

- **Results Publication:** The allotment results should be published to students through their portals and to departments through the admin panel.
- **Course Registration:** The allotted subject should be automatically (or seamlessly) integrated into the student's course registration for the forthcoming semester.

#### **Summary of Key Configurable Parameters:**

- Minimum and Maximum student limits per subject.
- The specific academic merit criteria (e.g., which semester's CGPI to use for which allotment cycle).
- The start and end dates for choice filling by students.
- The date for triggering the automatic allotment process.