Assignment 1

1. Functional Requirements (FR)

Must Have (Essential for the system to function)

1. **FR001 - Student Records Management:**

   o The system **must** store and manage personal details of students.

   o **Justification:** Fundamental for student identification and management.

2. **FR002 - Course Information Management:**

   o The system **must** manage course details such as course ID, name, and credits.

   o **Justification:** Courses are the basic units of academic structure.

3. **FR003 - Enrollment and Registration:**

   o The system **must** handle student enrollment, including validation of prerequisites and seat availability.

   o **Justification:** Core functionality for academic operations.

4. **FR004 - Grade Management:**

   o The system **must** allow faculty to enter, modify, and view student grades.

   o **Justification:** Managing academic performance is critical.

5. **FR005 - Transcript Generation:**

   o The system **must** generate official student transcripts.

   o **Justification:** Needed for certification of academic progress.

6. **FR006 - Tuition and Fees Management:**

   o The system **must** handle billing, payments, and outstanding balances for students.

   o **Justification:** Financial management is necessary for smooth university operations.

7. **FR007 - Faculty Information Management:**

   o The system **must** manage faculty records, including contact details and courses taught.

   o **Justification:** Necessary for course assignment and academic planning.

8. **FR008 - Class Scheduling:**

   o The system **must** handle course scheduling and room allocation.

   o **Justification:** Efficient scheduling is critical to academic planning.

9. **FR009 - Attendance Tracking:**

   o The system **must** allow tracking of student attendance.

   o **Justification:** Attendance is often a key requirement for course completion.

10. **FR010 - Degree Progress Tracking:**

    o The system **must** track student progress toward degree completion.

    o **Justification:** Helps students and advisors monitor academic milestones.

Should Have (Important but not critical)

11. **FR011 - Exam Scheduling:**

- o The system **should** schedule exams and manage exam room allocations.

- o **Justification:** Important to ensure conflict-free exam schedules.

12. **FR012 - Library Management:**

- o The system **should** manage library resources, loans, and fines.

- o **Justification:** Ensures efficient use of academic resources.

13. **FR013 - Scholarship and Financial Aid Management:**

- o The system **should** manage scholarships and track financial aid disbursement.

- o **Justification:** Essential for financial support to students but not critical to core academics.

14. **FR014 - Academic Advising Records:**

- o The system **should** track student advising sessions and course recommendations.

- o **Justification:** Advising is important for academic planning and support.

15. **FR015 - Student Communication:**

- o The system **should** enable mass communication to students for announcements and alerts.

- o **Justification:** Helps keep students informed but can be managed by other tools.

Could Have (Desirable but not essential)

16. **FR016 - Alumni Management:**

- o The system **could** track alumni details and contributions.

- o **Justification:** Useful for long-term relations and fundraising.

17. **FR017 - Extracurricular Activities Tracking:**

   o The system **could** track student participation in clubs and activities.

   o **Justification:** Useful for creating well-rounded student profiles but not critical for academics.

18. **FR018 - Room and Facility Management:**

   o The system **could** manage room bookings for events and administrative activities.

   o **Justification:** Helpful for managing physical spaces efficiently but not critical.

Won't Have (Not a priority for now)

19. **FR019 - Staff and Employee Records:**

   o The system **won't** store details about non-teaching staff, as this can be handled by other HR systems.

   o **Justification:** Focus is on academic management, not general administration.

20. **FR020 - Event Management:**

   o The system **won't** handle event management like graduation ceremonies.

   o **Justification:** Secondary to core academic functionality and can be managed separately.

2. Non-Functional Requirements (NFR)

Must Have (Essential for system performance)

1. **NFR001 - Scalability:**

- o The database **must** scale to handle increasing student populations and growing data.

- o **Justification:** As the university grows, the database should accommodate more users and transactions.

2. **NFR002 - Data Security:**

- o The system **must** ensure encryption of sensitive data and role-based access control.

- o **Justification:** Protects personal information and complies with legal standards.

3. **NFR003 - Availability:**

- o The system **must** be available 24/7 with minimal downtime, especially during peak periods.

- o **Justification:** Continuous availability is critical for students and staff.

Should Have (Important but not critical)

4. **NFR004 - Performance:**

- o The system **should** respond to user actions (e.g., registrations, grade retrievals) quickly, even during high demand.

- o **Justification:** Slow systems can frustrate users but do not halt operations.

Could Have (Desirable but not essential)

5. **NFR005 - Compliance with Standards:**

- o The system **could** comply with best practices and guidelines like ISO standards, beyond the legal requirements.

- o **Justification:** While important, not adhering to these won't immediately affect daily operations.

Summary of IDs

Functional Requirements (FR):

- FR001 - FR010: Must have

- FR011 - FR015: Should have

- FR016 - FR018: Could have

- FR019 - FR020: Won't have

Non-Functional Requirements (NFR):

- NFR001 - NFR003: Must have

- NFR004: Should have

- NFR005: Could have