**Requirements Analysis for University System**

**FUNCTIONAL REQUIREMENTS**

**MUST HAVE (M):**

FR-001 [M]: Store student personal information (name, student ID, date of birth, contact details, address)

Justification: Essential for student identification and university record

FR-002 [M]: Manage course catalog with course codes, names, credits, descriptions, and prerequisites

Justification: Foundation for academic planning and registration

FR-003 [M]: Handle student course registration, enrollment, and waitlisting

Justification: Core academic operation for every semester

FR-004 [M]: Record, calculate, and maintain student grades, GPA, and academic standing

Justification: Critical for academic evaluation and transcripts

FR-005 [M]: Manage faculty/staff information including departments, positions, and contact details

Justification: Essential for university staffing and organization

FR-006 [M]: Assign faculty to courses and manage teaching schedules

Justification: Necessary for academic scheduling and resource allocation

FR-007 [M]: Generate official student transcripts and academic reports

Justification: Required for transfers, employment, and further education

FR-008 [M]: Track student attendance for courses and university events

Justification: Important for academic compliance and participation

FR-009 [M]: Manage classroom and facility scheduling and assignments

Justification: Essential for space utilization and conflict avoidance

FR-010 [M]: Process student tuition fees, payments, and financial records

Justification: Critical for university financial operations

**SHOULD HAVE (S):**

FR-011 [S]: Handle scholarship, financial aid, and grant applications and awards

Justification: Important for student support and retention

FR-012 [S]: Manage library resources including books, journals, and digital materials

Justification: Supports academic research and learning

FR-013 [S]: Track student extracurricular activities and achievements

Justification: Important for holistic student development records

FR-014 [S]: Generate various administrative reports (enrollment, graduation rates, etc.)

Justification: Needed for institutional planning and accreditation

FR-015 [S]: Manage international student records including visas and immigration status

Justification: Critical for compliance with government regulations

FR-016 [S]: Handle student housing assignments and dormitory management

Justification: Important for residential campus operations

**COULD HAVE (C):**

FR-017 [C]: Provide online learning platform integration with course materials

Justification: Enhances modern educational delivery

FR-018 [C]: Track alumni information and manage alumni relations

Justification: Supports university development and networking

FR-019 [C]: Manage research projects, grants, and publication records

Justification: Supports academic research mission

FR-020 [C]: Handle campus event scheduling and room bookings

Justification: Improves campus resource management

**NON-FUNCTIONAL REQUIREMENTS**

NFR-001 [M]: System must support 5,000+ concurrent users during peak registration periods

Justification: High traffic volume during course registration requires robust performance

NFR-002 [M]: Data must be backed up daily with 99.9% system availability

Justification: Academic records are critical and cannot be lost or inaccessible

NFR-003 [M]: Implement role-based access control with strict data privacy protections

Justification: Student and faculty data requires confidentiality and securit

NFR-004 [S]: System response time under 3 seconds for all major transactions

Justification: User experience and efficiency during high-demand periods

NFR-005 [S]: Database should scale to handle 50,000+ student records with 10 years of historical data

Justification: University needs long-term data retention for alumni and reporting.