1. **Staff Availability:**

- The algorithm should consider the availability of each staff member based on their existing commitments, such as other classes, meetings, or personal constraints.

2. **Subjects Specialisation:**

- Ensure that teachers are assigned to classes and subjects in which they are specialized to maintain the quality of education.

3. **Health Constraints:**

- Staff members with health issues may require additional breaks or specific time slots for classes. The algorithm should accommodate these health constraints.

4. **Academic Calendar:**

- Adherence to the academic calendar is crucial. The algorithm should consider holidays, exam periods, and any other events specified in the academic calendar.

5. **Room and Facility Availability:**

- Timetables should account for the availability of classrooms and labs, ensuring that classes requiring specific facilities are scheduled appropriately.

6. **Recommended Sessions per Week:**

- The algorithm should meet the university's recommendations for the number of sessions each staff member should conduct per week.

7. **Consecutive Classes:**

- Avoid scheduling consecutive classes for the same staff member to prevent fatigue and ensure effective teaching.

8. **Lab and Project Hours:**

- Allocate slots for lab and project hours in a consecutive manner, ensuring accessibility for students and efficient use of resources.

9. **Batch Division:**

- Divide students into batches and schedule sessions per week that satisfy batch-specific needs, especially for lab and project sessions.

10. **Leave Management:**

- The algorithm should handle situations where a teacher reports leave, ensuring timely substitution or swapping of classes and notifying affected students.

11. **Duty Leave Management:**

- If a student has duty leave, the algorithm should facilitate the timely communication of duty leave details to the responsible teacher, with verification or rejection communicated to the student.

12. **Constraints Evolution:**

- The algorithm should be flexible to accommodate changes in constraints over time. Constraints may evolve as academic requirements, staff preferences, or university policies change.

15. **Optimization Criteria:**

- Define optimization criteria, such as minimizing gaps in teacher schedules, minimizing room changes, or optimizing for overall resource utilization.