

# GUJARAT TECHNOLOGICAL UNIVERSITY

## Civil (CASAD)

### M.E. Semester: IV

Subject Code: 741501

Subject Name: **Structural Optimization**

Sr. No.	Course Content
1.	Introduction to optimization, optimization techniques for unconstrained and constrained optimization problems
2.	Classical Optimization, Lagrange Multiplier technique and Kuhn – Tucker conditions
3.	Solution of NLP by direct methods and by series of unconstrained optimization problems, formulation of different types of structural optimization problems.
4.	Computation of derivatives of response quantities with respect to design variables.
5.	Minimum weight design of trusses, frame, etc.

#### Reference Books:

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|--|-------------|
| 1. Optimization theory & application     | S. S. Rao   |
| 2. Structural optimization               | Majid       |
| 3. Advanced mathematics                  | Kresysig    |
| 4. Numerical analysis                    | Scarborough |
| 5. Foundation of structural optimization | Marris      |
| 6. Optimum Structural Design             | Spunt       |
| 7. Optimum Structural Design             | Uri Krisch  |