

Course Syllabus

020ROUGS4 – Road and Pavement Engineering

1. **Course number and name:**020ROUGS4 – Road and Pavement Engineering
2. **Credits and contact hours:**4 credits, 2x1:15 course hours
3. **Instructor's or course coordinator's name:** Toufic ARIS
4. **Textbook and other supplemental material:**
 - a. Instruction sur les conditions d'aménagement des routes et autoroutes ICTAAL (France)
 - b. Ministry of Public Works – Republic of Lebanon – Design Standards-Geometric Design of Roads
 - c. Instructor's Class Notes
5. **Specific course information**
 - a. **Catalog description:** Provide the necessary elements to undertake geometrics design of a road and highway, Give all design criteria's. Give all necessary equipment to be installed in order to have a safe circulation. Provide all necessary element for the pavement design, and the thickness of different layers.
 - b. **Prerequisites:** None.
 - c. **Required/Elective/Selected Elective:** Required major course for Public Works Specialty students

6. Specific goals for the course:

a. Specific outcomes of instruction:

- Introduce the students to the concepts of the roads geometrical design and its criteria
- Develop all the theoretical background needed for analyzing movement of vehicles
- Present to the students the three components of a road
- Expose the students to the methods of establishing the plan view and the longitudinal section of a road
- Expose the students to the different transversal sections
- Familiarize students with necessary soil tests needed for the design, their interpretation and the use of results
- Give to the students to methods of calculation of the thickness of the pavements
- Expose the students to the material used in road construction
- Enhance the students' writing and presentation skills

b. KPIs addressed by the course:

KPI	a1	a2	c1	c2	e3	g1	h1	k2	k3
Covered	x	x	x	x	x	x	x	x	x
Assessed	x	x	x	x					
Give Feedback	x	x	x	x					

7. Brief list of topics to be covered and approximate number of lectures:

1. Introduction to vehicles movement(2 hours)
2. Plan view Design (5 hours)
3. Longitudinal section (4 hours)

4. Transversal sections (2 hours)
5. All safety equipment of roads (Safety barriers, signalization, drainage system, lighting) (4 hours)
6. The pavement : (2 hours)
7. Geotechnical for roads (4 hours)
8. Different type of road pavement (2 hours)
9. Calculation methods and pavement design(4 hours)
10. Construction of pavement: different material used for different coarse (foundation, basement, surface) (4hours)
11. Construction of roads (2 hours)