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| SUBJECT NAME: MACHINE MECHANICS | | |
| GRADE: Grado en Ingeniería de la Energía | COURSE: 2 | SEMESTER: 1 |

The subject has 29 sessions that are distributed during 14 weeks. The labs will also take place during these weeks.

| WEEKLY PLAN OF THE SESSION | | | | | | | | | |
|----------------------------|---------|--|----------------|-------|---|---|---|------------------|-------------------------------|
| WEEK | SESSION | DESCRIPTION OF THE SESSION | GROUP (mark X) | | Indicate if the session is not given in the class (informatic class, , audiovisual, etc.) | Indicate YES/NO if it is a sesión with 2 teachers | WEEKLY HOMEWORK OF THE STUDENT | | |
| | | | BIG | SMALL | | | DESCRIPTION | PRESENCIAL HOURS | WORK HOURS (Max. 7h per week) |
| 1 | 1 | LESSON 1: KINEMATICS OF THE RIGID BODY | X | | NO | NO | Previous Reading of the proposed LESSON. Study the concepts of orthonormal bases, traslation and rotation of the rigid body. Instantaneous center of rotation. Study the concepts of intrinsic components, absolute motion, relative and drag. | 1,66 | 4 |
| 1 | 2 | EXERCISES OF KINEMATICS OF THE RIGID BODY | | x | NO | NO | Solve the exercises proposed for class | 1,66 | |
| 2 | 3 | LESSON 2: DYNAMICS OF THE RIGID BODY I | X | | NO | NO | Previous Reading of the proposed LESSON. Study the concepts of dynamics of the particle, motion of the centre of mass, planar motion and rotation of the rigid body in this lesson. | 1,66 | 4 |
| 2 | 4 | EXERCICES OF DYNAMICS OF THE RIGID BODY | | X | NO | NO | Solve the exercises proposed for class | 1,66 | |
| 3 | 5 | LESSON 2: DYNAMICS OF THE RIGID BODY II | X | | NO | NO | Previous Reading of the proposed LESSON. Study the concepts of three dimensional dynamics of the rigid body. | 1,66 | 4 |

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| 3 | 6 | LAB 1: GYROSCOPE | | | YES | NO | Study the document of the lab and write down the memoire | 1,66 | |
| 4 | 7 | LESSON 2: DYNAMICS OF THE RIGID BODY III | X | | NO | NO | Previous Reading of the proposed LESSON. Study the concepts of three dimensional dynamics of the rigid body. | 1,66 | 4 |
| 4 | 8 | EXERCICES OF DYNAMICS OF THE RIGID BODY | | X | NO | NO | Solve the exercises proposed for class | 1,66 | |
| 5 | 9 | LAB 2: AXIS EQUILIBRIUM | | | YES | NO | Study the document of the lab and write down the memoire | 1,66 | |
| 5 | 10 | 1ST EXAM OF CONTINUOUS EVALUATION (*) | X | | NO | NO | Study the LESSONS and proposed exercises given in class | 1,66 | 4 |
| 6 | 11 | LESSON 3: PLANAR MECHANISMS | X | | NO | NO | Previous Reading of the proposed LESSON. Study the concepts of mechanism, machine and components. Determination of the DOF. Determination of the relative ICR.. | 1,66 | |
| 6 | 12 | EXERCICES OF PLANAR MECHANISMS | | X | NO | NO | Solve the exercises' proposed for class | 1,66 | 5 |
| 7 | 13 | LESSON 4: KINEMATICS OF PLANAR MECHANISMS I | X | | NO | NO | Previous Reading of the proposed LESSON. Determination of the velocity and acceleration in the elements of the planar mechanism. Polar diagrams of velocities and accelerations | 1,66 | |
| 7 | 14 | EXERCICES OF KINEMATICS OF PLANAR MECHANISMS | | X | NO | NO | Solve the exercises proposed for class | 1,66 | |
| 8 | 15 | LESSON 4: KINEMATICS OF PLANAR MECHANISMS II | X | | NO | NO | Previous Reading of the proposed LESSON. Determination of the velocity and acceleration in the elements of the planar mechanism. Polar diagrams of velocities and accelerations | 1,66 | 4 |
| 8 | 16 | EXERCICES OF KINEMATICS OF PLANAR MECHANISMS | | X | NO | NO | Solve the exercises proposed for class | 1,66 | |
| 9 | 17 | LESSON 4: KINEMATICS OF PLANAR MECHANISMS III | X | | NO | NO | Previous Reading of the proposed LESSON. Determination of the velocity and acceleration in the elements of the planar mechanism. Polar diagrams of velocities and accelerations | 1,66 | 4 |
| 9 | 18 | EXERCICES OF KINEMATICS OF PLANAR MECHANISMS | | X | NO | NO | Solve the exercises proposed for class | 1,66 | |
| 10 | 19 | LESSON 5: DYNAMICS OF PLANAR MECHANISMS I | X | | NO | NO | Previous Reading of the proposed LESSON. Kineto-Static analysis. Dynamic forces. Complete dynamic análisis. | 1,66 | 4 |
| 10 | 20 | EXERCICES OF KINEMATICS OF PLANAR MECHANISMS | | X | NO | NO | Solve the exercises proposed for class | 1,66 | |
| 11 | 21 | LESSON 5: DYNAMICS OF PLANAR MECHANISMS II | X | | NO | NO | Previous Reading of the proposed LESSON. Kineto-Static analysis. Dynamic forces. Complete dynamic análisis. | 1,66 | 4 |
| 11 | 22 | LAB 3: LEARNING OF THE SOFTWARE FOR THE DESIGN AND ANALYSIS OF PLANAR MECHANISMS | | | YES | NO | Study the document of the lab and write down the memoire | 1,66 | 5 |
| 12 | 23 | LESSON 5: DYNAMICS OF PLANAR MECHANISMS III | X | | NO | NO | Previous Reading of the proposed LESSON. Kineto-Static analysis. Dynamic forces. Complete dynamic análisis. | 1,66 | |

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| 12 | 24 | EXERCICES OF KINEMATICS OF PLANAR MECHANISMS | | X | NO | NO | Solve the exercises proposed for class | 1,66 | |
| 13 | 25 | LESSON 6: WORK AND ENERGY. FRICTION FORCES | X | | NO | NO | Previous Reading of the proposed LESSON. Study the concepts of work, power, kinetic and potential energy. Analyze the friction forces and the concept of mechanical efficiency. | 1,66 | 5 |
| 13 | 26 | EXERCICES OF WORK AND ENERGY | | X | NO | NO | Solve the exercises proposed for class | 1,66 | |
| 14 | 27 | LAB 4: MECHANISM DESIGN AND ANALYSIS WITH SOFTWARE | | | YES | NO | Study the document of the lab and write down the memoires | 1,66 | 4 |
| 14 | 28 | 2ND TEST OF CONTINUOUS EVALUATION (*) | X | | NO | NO | Study the LESSONS and proposed exercises given in class | 1,66 | |
| Subtotal 1 | | | | | | | | 48,33 | |
| Total 1 (Presential hours and work of the student between weeks 1-14) | | | | | | | | | |
| 15 | | Tutoring, replacement classes | | | | | | | |
| 16 | | Evaluation preparation and evaluation | | | | | | 3 | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| Subtotal 2 | | | | | | | | 3 | |
| Total 2 (Presential hours and work of the student between weeks 15-18) | | | | | | | | | |
| TOTAL (Total 1 + Total 2. MAXIMUM 180 hours) | | | | | | | | | |