

Unit project – Differential equations

(information page to the student)

* Each group will be responsible to prepare and present a unit-project.

* Each group will be given a differential equation, with possibly some additional details about it, and will need to prepare presentation covering some (or all) of the following aspects:

1. **Equation origin** – Either as a physical model, or word explanation.
 - a. **Derivation** – if possible.
2. **Applications.**
3. **History** – Some interesting historical fact(s) related to the equation.
4. **Analytic solution** – Please include solution verification.
5. **Solution curves.**
6. **Slope field.** (can be on the same plot as solution curves).
7. **Special cases** for the solution, and their physical/real-world interpretation.
 - a. Initial conditions.
 - b. Parameters.
 - c. Behavior after a long time.
8. **Possible extensions** of this work.
9. **Last but not the least:** Prepare two questions based on the presentation: One easy and one hard.

* We will start with fact-gathering stage, and toward the end will copy the information on transparencies for presentation.

* In the final presentation, each member presents at least one slide. The presentation should be between 5 to 10 minutes.

* The audience will be given a form, on which they will need to:

- a. Answer one question related to the presentation.
- b. Supply a constructive feedback.

* If you are running out of ideas on some aspect, come and talk to me: Do not wait to the last minute!!

Have fun, and enjoy the learning experience!

