

COURSE CODE: GENPY2L

COURSE TITLE: General Physics 2 Laboratory

DEPARTMENT: Physics

TEXTBOOK:

- Manual of each experiment can be found in the AnimoSpace in Canvas course.

READING LIST/ ONLINE RESOURCES:

- Physlets at University of Colorado, Boulder.  
<https://phet.colorado.edu/en/simulations/category/physics>
- Phyphox (remote measurement):
  - <https://phyphox.org/remote-control/>
  - [https://www.youtube.com/watch?v=mPUHCW\\_ypn9M](https://www.youtube.com/watch?v=mPUHCW_ypn9M)
- Arduino Science Journal: <https://support.arduino.cc/hc/en-us/sections/360004584459-Science-Journal-App>
- Sonar: <https://www.youtube.com/watch?v=Ebj3v701HE0&feature=youtu.be>
- MATLAB Academy (campus-wide license): <https://matlabacademy.mathworks.com/>
  - Matlab Onramp: <https://matlabacademy.mathworks.com/details/matlab-onramp/gettingstarted>
  - Matlab Fundamentals: <https://matlabacademy.mathworks.com/details/matlab-fundamentals/mlbe>

READING LIST/ TEXTBOOK REFERENCES:

- Halliday, D., Resnick, R. and Walker J. (Latest Edition). Fundamentals of physics. New York: John Wiley and Sons.
- Jones, E., Childers, R. (Latest Edition), Contemporary college physics. Boston: Mc-Graw Hill Companies, Inc.
- Serway, R.A., and Beichner, R. J. (Latest Edition). Physics for Scientists and Engineers with Modern Physics. Orlando, Florida: Saunders College Publishing.
- Young, H. and Freedman, R. (Latest edition). University Physics with Modern Physics + Mastering Physics with eText access card. Pearson.

REQUISITE EQUIPMENT/MATERIALS FOR THE COURSE:

- MatLab<sup>®</sup> [Online]. Available: <https://www.mathworks.com/products/matlab-online.html>
- Multisim<sup>®</sup> [Online]. Available: <https://www.multisim.com/>
- Simulink<sup>®</sup> [Online]. Available: <https://www.mathworks.com/products/simulink.html>
- e-Gizmo Physics Electrical Package 2 with DMM or e-Gizmo Physics Electrical Package 1 (can be purchased from e-Gizmo online shop: :  
<https://shopee.ph/search?keyword=physics%20electrical&shop=237034143>

- Smartphone that can install the Physics Apps listed below.
- Physics Experiment Mobile Apps (freeware)/Software (online):
  - PHYPHOX <https://phyphox.org/download/>
  - Arduino Science Journal <https://www.arduino.cc/education/science-journal>
  - KSTools
    - Android: <https://play.google.com/store/apps/details?id=de.appzer.kstools&hl=en>
    - OS: <https://apps.apple.com/us/app/kstools-com-tools-and-more/id909742373>
  - Physics Toolbox Sensor Suite (supplementary) <https://www.vieyrasoftware.net>
  - Matlab Mobile (Android): [https://www.mathworks.com/help/matlabmobile\\_android/ug/install-matlab-mobile-on-your-device.html](https://www.mathworks.com/help/matlabmobile_android/ug/install-matlab-mobile-on-your-device.html)
  - Matlab Online: <https://www.mathworks.com/products/matlab-online.html>
- PC with internet access (remote monitoring, data acquisition, and plotting)
- Tape measure or meterstick
- Ruler
- Adhesive tape

#### For Sonar Experiment

- Box / echo shield for the mobile phone (e.g., foam, box container that can fit your mobile phone, which shields all directions from phone except the speaker and microphone location).
- Sound reflector material (i.e., hard, and flat material, e.g., tray)
- Support for the reflector that will hold it in a vertical position (optional)

#### For Light Intensity Experiment

- Light source (e.g., a light bulb. Do **not** use laser)
- Phone holder (optional; for a stable measurement)
- Nonreflective cover (optional; to cover reflective surfaces along the measurement path)