



University of San Carlos  
Josef Baumgartner Learning Resource Center

*Pathfinder*

*for*

***KINEMATICS***

*(Graduate Program)*

[www.library.usc.edu.ph](http://www.library.usc.edu.ph)

March 2022

## Introduction

A pathfinder is a guide to the resources in a particular subject area in the library. It is an instruction/research tool designed to encourage researchers to do a self-directed use of the library.

The Science and Technology Library provide pathfinders basically to support students and faculty in their search for recorded literature and resources available at the USC Library System and accessible on the Net.

Should you have comments, questions and suggestions on this pathfinder, please contact Science and Technology Library at 2300100 local 193 or email to [stsumalinog@usc.edu.ph](mailto:stsumalinog@usc.edu.ph)

Key Term : Kinematics

Scope : It is a branch of physics and a subdivision of classical mechanics concerned with the geometrically possible motion of a body or system of bodies without consideration of the forces involved (i.e., causes and effects of the motions).

Kinematics aims to provide a description of the spatial position of bodies or systems of material particles, the rate at which the particles are moving (velocity), and the rate at which their velocity is changing (acceleration). When the causative forces are disregarded, motion descriptions are possible only for particles having constrained motion—i.e., moving on determinate paths. In unconstrained, or free, motion, the forces determine the shape of the path.

Source: Britannica, T. Editors of Encyclopaedia (2017, June 21). *kinematics*. *Encyclopedia Britannica*. <https://www.britannica.com/science/kinematics>

BT Mathematics

Mechanics

RT Motion

NT Hodograph  
Mechanical movements  
Relativistic kinematics  
Screws, Theory of

Kinematics of machinery

USE Machinery, Kinematics of

Kinematics of robots

USE Robots—Kinematics

## **BOOKS AVAILABLE AT THE SCIENCE & TECHNOLOGY LIBRARY**

- Duffy, J. (2006). *Statics and kinematics with applications to robotics*. Cambridge University Press.  
([ST 670.4272 D87](#))
- Giambattista, A. (2013). *College physics: with an integrated approach to forces and kinematics*.  
4<sup>th</sup> ed. McGraw-Hill. ([ST 530 G34](#))
- Giambattista, A. (2010). *College physics: with an integrated approach to forces and kinematics*.  
3<sup>rd</sup> ed. McGraw-Hill. ([ST 530 G34](#))
- Giambattista, A. (2020). *College physics: with an integrated approach to forces and kinematics*.  
5<sup>th</sup> ed. McGraw-Hill. ([ST 530 G34 2020](#))
- Low, K. H.(2008). *Mechanics of mechanisms: basic and systematic approaches*. 3<sup>rd</sup> ed. Pearson  
Education. ([ST 621.8 L95](#))
- Manseur, R. (2006). *Robot modeling and kinematics*. Da Vinci Engineering Press. ([ST 629.892 M31](#))
- Myszka, D. H.(2012). *Machines and mechanisms: applied kinematic analysis*.4<sup>th</sup> ed.  
Prentice Hall. ([ST 621.811 M99 2012](#))
- Myszka, D. H.(2002). *Machines and mechanisms: applied kinematic analysis*. Prentice Hall.  
([ST 621.811 M99 Volume 1](#))
- Norton, R. L. (2013). *Kinematics and dynamics of machinery*. 2<sup>nd</sup> ed. McGraw-Hill.  
([ST 621.811 N82 2013](#))
- Norton, R. L. (2009). *Kinematics and dynamics of machinery*. McGraw-Hill. ([ST 621.811 N82](#))
- Phillips, J. (2007). *Freedom in machinery: volume 1 (1984) and volume 2 (1990) combined*.  
Cambridge University Press. ([ST 621.811 P54](#))
- Shabana, A. A. (2005). *Dynamics of multibody systems*. 3<sup>rd</sup> ed. Cambridge University Press  
Place. ([ST 531.113 Sh11](#))
- Wilson, C. E. (2006). *Kinematics and dynamics of machinery*. 3<sup>rd</sup> ed. Pearson Education.  
([ST 621.811 W69](#))
- Waldron, K. J. (2004). *Kinematics, dynamics, and design of machinery*. 2<sup>nd</sup> ed. Wiley.  
([ST 621.81 W14](#))
- Vinogradov, O. (2006). *Fundamentals of kinematics and dynamics of machines and mechanisms*.  
CRC Press. ([ST 621.811 V77](#))

## **THESIS**

Cagande, J.L.L. (2015). *The effect of using flipped classroom model on college of physics students' motivation and understanding of kinematics graphs*. University of San Carlos. ([FIL T C117j](#))

## **ELECTRONIC RESOURCES**

### **Dynamics of multibody systems**

- <http://www.loc.gov/catdir/toc/fy0604/2005283594.html>
- <http://www.loc.gov/catdir/enhancements/fy0632/2005283594-d.html>
- <http://www.loc.gov/catdir/enhancements/fy0733/2005283594-b.html>

### **Kinematics, dynamics, and design of machinery**

- <http://www.loc.gov/catdir/bios/wiley041/98025607.html>
- <http://www.loc.gov/catdir/description/wiley032/98025607.html>
- <http://www.loc.gov/catdir/toc/onix03/98025607.html>

### **Kinematics, dynamics, and design of machinery**

- <http://www.loc.gov/catdir/description/wiley039/2003050053.html>
- <http://www.loc.gov/catdir/toc/wiley032/2003050053.html>

### **Robot modeling and kinematics**

- <http://www.loc.gov/catdir/toc/ecip067/2006002975.html>

### **Statics and kinematics with applications to robotics**

- <http://www.loc.gov/catdir/description/cam026/95004913.html>
- <http://www.loc.gov/catdir/toc/cam024/95004913.html>

### **College physics: with an integrated approach to forces and kinematics**

- <http://www.loc.gov/catdir/toc/ecip0825/2008034666.html>

### **Kinematic analysis of robot manipulators**

- <http://www.loc.gov/catdir/description/cam028/97013161.html>
- <http://www.loc.gov/catdir/toc/cam025/97013161.html>

## **ONLINE DATABASES**

Log in to our Ezproxy (<https://www.ezproxy.usc.edu.ph>) to access our Online Databases or via your ISMIS account to find articles on your subject:

**SCIENCE DIRECT-** is a website which provides subscription-based access to a large database of scientific and medical research. It hosts over 12 million pieces of content from 3,500 academic journals and 34,000 e-books.

**EBSCO HOST-** the leading provider of research databases, e-journals, magazine subscriptions, e-ebooks and discovery service to libraries of all kinds. For more than 70 years, we've partnered with libraries to improve research with quality content and technology.

**Cengage Powerpack/GVRL e-Books-** Knowledge is power, and the act of learning is empowering. Access to knowledge offers learners an opportunity to discover the motivation and inspiration vital to making a positive contribution in not only their own lives, but the rest of the world. That's why Gale provides libraries with original and curated content, as well as the modern research tools that are crucial in connecting libraries to learning, and learners to libraries.

**Digital Resources for the Consortium of Engineering Libraries – Philippines (CELPh)** Contain the current list of accessible titles to the library users of the Consortium of Engineering Libraries – Philippines (CELPh) member institutions classified into subject categories & content types. Access these digital resources by clicking on the links.

**Philippine e-Journals- (PEJ)** is an online collection of academic publications of different higher education institutions and professional organizations. Its sophisticated database allows users to easily locate abstracts, full journal articles, and links to related research materials.

**WILEY ONLINE LIBRARY-** One of the largest and most authoritative collections of online journals, books, and research resources, covering life, health, social, and physical sciences.

**PROQUEST ONE ACADEMIC-** access to the world's largest curated collection of journals, ebooks, dissertations, news, video and primary sources, all in one place. With ProQuest One Academic, four core multi-disciplinary products – ProQuest Central, Academic Complete, Academic Video Online and ProQuest Dissertations & Theses Global – are now available and cross-searchable on the same user-friendly, responsive, mobile-enabled ProQuest platform.

## **OPEN EDUCATIONAL RESOURCES (OERS)**

**University of Wisconsin- Green Bay- Physics**

<https://www.uwgb.edu/fenclh/problems/kinematics/>

**[OER] Exercise Science 335: Kinesiology & Biomechanics**

[https://courses.fortlewis.edu/courses/17334/pages/kinematicvariables?module\\_item\\_id=491715](https://courses.fortlewis.edu/courses/17334/pages/kinematicvariables?module_item_id=491715)

**Lumen Learning – Physics**

<https://courses.lumenlearning.com/boundless-physics/>

**OER Commons-Physics**

<https://www.oercommons.org/browse?f.search=Physics>

**MERLOT**

<https://www.merlot.org/merlot/materials.htm?keywords=kinematics&sort.property=relevance>

**DigitalCommons@University of Nebraska - Lincoln**

<https://digitalcommons.unl.edu/oerphysicalsci/>

**LibreTexts Physics Library**

<https://phys.libretexts.org/>

**Open Source Physics**

<https://www.compadre.org/osp/index.cfm>

**Open Textbook Library**

<https://open.umn.edu/opentextbooks/subjects/physics>

**PhET Interactive Simulations (University of Colorado Boulder)**

<https://phet.colorado.edu/>

**Physics -OpenStax**

<https://openstax.org/details/books/college-physics>

**Physclips**

<https://www.animations.physics.unsw.edu.au/>

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