



Colegio de San Juan de Letran
Dominican Avenue, Abucay, Bataan
Library and Media Services

RESEARCH GUIDE:

FUNDAMENTAL OF DEFORMABLE BODIES

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RESEARCH GUIDES

FUNDAMENTAL OF DEFORMABLE BODIES

I. SCOPE NOTE

In mechanics, any body that changes its shape and/or volume while being acted upon by any kind of external force (E. Weisstein). scienceworld.wolfram.com

II. SEARCH AIDS (BT: Broader Term, RT: Related Term, NT: Narrow Term)

BT:

- Mechanics

RT:

- Stress
- Strain
- Load classification
- Plane stress
- Material properties
- Working stresses
- Torsional stresses
- Flexural stresses
- Deformations
- Elastic torsion formula
- Torsional deformation
- Double integration method
- Uniform shear method
- Welded connections
- Riveted connections
- Axially loaded members
- Thin walled pressure vessel
- Area moment method
- Moment equation
- Static equilibrium equation

NT:

- Normal stress
- Shear stress
- Mohr's circle
- Normal strains
- Shear strains
- Centric loading
- Beam deflection
- Groove

- Fillet
- Plug
- Slot welds
- Lap joint
- Butt joint
- Trusses
- Connecting rods
- Columns
- Temperature effect
- Combined loadings
- Bending moment
- Statically indeterminate beam
- Force and moment equilibrium condition

III. INFORMATION RESOURCES

A. LIBRARY RESOURCES

Note: For the appropriate access credentials, please contact the Letran Bataan Library

➤ E-JOURNALS

- American Journal of Physics.
https://www.proquest.com/publication/publications_44916
- IOP Conference Series. Materials Science and Engineering.
https://www.proquest.com/publication/publications_4998670
- The Visual Computer. https://www.proquest.com/publication/publications_2043737
- Mechanics of Solids. https://www.proquest.com/publication/publications_2044200
- Journal of Machinery Manufacture and Reliability.
https://www.proquest.com/publication/publications_2044287
- Powder Metallurgy and Metal Ceramics.
https://www.proquest.com/publication/publications_326338
- Computers & Structures. https://www.proquest.com/publication/publications_2045492
- Archive for Rational Mechanics and Analysis.
https://www.proquest.com/publication/publications_326363
- IEEE Computer Graphics and Applications.
https://www.proquest.com/publication/publications_85490
- Journal of Fluid Mechanics. https://www.proquest.com/publication/publications_34769
- IEEE Transactions on Pattern Analysis and Machine Intelligence.
https://www.proquest.com/publication/publications_85458
- Computer Graphics Forum. https://www.proquest.com/publication/publications_30877
- Multidiscipline Modeling in Materials and Structures.
https://www.proquest.com/publication/publications_1386335
- The International Journal of Advanced Manufacturing Technology.
https://search.proquest.com/central/publication/publications_2044010

- Journal of Machinery Manufacture and Reliability.
https://search.proquest.com/central/publication/publications_2044287
- Continuum Mechanics and Thermodynamics.
https://search.proquest.com/central/publication/publications_31651
- ESAIM, Mathematical Modelling and Numerical Analysis.
https://search.proquest.com/central/publication/publications_626356
- Computer Animation and Virtual Works.
https://search.proquest.com/central/publication/publications_2034909

➤ E-THESES

- Saunders, F. J. (2009). Simulating soft bodied robots: Methods, benefits, and potential applications (Order No. 1463932). Available from ProQuest Central. (305003837). Retrieved from <https://www.proquest.com/dissertations-theses/simulating-soft-bodied-robots-methods-benefits/docview/305003837/se-2?accountid=190548>
- Leotta, M. J. (2010). Generic, deformable models for 3-d vehicle surveillance (Order No. 3430195). Available from ProQuest Central. (763161326). Retrieved from <https://www.proquest.com/dissertations-theses/generic-deformable-models-3-d-vehicle/docview/763161326/se-2?accountid=190548>
- Ribaric, A. (2012). Orientation invariant characteristics of deformable bodies in multibody dynamics (Order No. 3522714). Available from ProQuest Central. (1151811187). Retrieved from <https://search.proquest.com/docview/1151811187?accountid=190548>
- Transue, S. M. (2014). Interactive control of deformable-object animations with intuitive motion pattern adherence (Order No. 1556899). Available from ProQuest Central. (1545870717). Retrieved from <https://search.proquest.com/docview/1545870717?accountid=190548>
- White, E. L. (2017). Towards an integrated approach to soft robot design (Order No. 10268749). Available from ProQuest Central. (1933347212). Retrieved from <https://search.proquest.com/docview/1933347212?accountid=190548>
- Zhang, M. (2015). Three dimensional deformable image registration and registration verification (Order No. 10178644). Available from ProQuest Central. (1836095358). Retrieved from <https://search.proquest.com/docview/1836095358?accountid=190548>
- Zhang, M. (2015). Three dimensional deformable image registration and registration verification (Order No. 10178644). Available from ProQuest Central. (1836095358). Retrieved from <https://search.proquest.com/docview/1836095358?accountid=190548>

B. OPEN ACCESS

➤ FREE E-BOOKS

- Lindner, Albrecht and Strauch, Dieter. (2018). A Complete Course on Theoretical Physics From Classical Mechanics to Advanced Quantum Statistics. Switzerland: Springer.
<https://www.pdfdrive.com/a-complete-course-on-theoretical-physics-from-classicalmechanics-to-advanced-quantum-statistics-d187708886.html>

- Sommerfeld, Arnold. Mechanics of Deformable Bodies. New York: Academic Press, Inc., Publishers. <https://www.pdfdrive.com/mechanics-of-deformable-bodies-lectures-ontheoretical-physics-d158493896.html>
- Landau, L.D. Course of Theoretical Physics Volume 3: Quantum Mechanics, 2nd edition. Oxford: Pergamon Press. <https://www.pdfdrive.com/course-of-theoretical-physics-3quantum-mechanics-d158289615.html>

➤ FREE E-JOURNALS

- Mechanics of Solids. <https://www.springer.com/journal/11964>
- European Journal of Engineering and Technology Research. <https://www.ejers.org/index.php/ejers/article/view/860>
- Journal of the Mechanics and Physics of Solids. <https://www.journals.elsevier.com/journal-of-the-mechanics-and-physics-of-solids/open-access-articles>
- Open Access Library Journal. <https://www.scirp.org/journal/papercitationdetails.aspx?paperid=83404&JournalID=2463>.
- Materials Testing. <https://www.degruyter.com/journal/key/mt/html>
- Journal of Physics. <https://iopscience.iop.org/article/10.1088/1742-6596/1358/1/012082/meta>
- Mechanics of Solids. <https://www.springer.com/journal/11964>
- The Quarterly Journal of Mechanics & Applied Mathematics. <https://academic.oup.com/qjmam/article-abstract/47/4/635/1868083>
- American Journal of Mechanics and Applications. <http://www.sciencepublishinggroup.com/journal/index>
- Materials. <https://www.mdpi.com/journal/materials>

➤ FREE E-THESES

- Agvik, S. (2015). A deformable terrain model in multi-domain dynamics using elastoplastic constraints: An adaptive approach. (Thesis). Umeå University. Retrieved from <http://urn.kb.se/resolve?urn=urn:nbn:se:umu:diva-108328>
- Haapaoja, R. (2016). A collision framework for rigid and deformable body simulation. (Thesis). Linköping University Linköping University. Retrieved from <http://urn.kb.se/resolve?urn=urn:nbn:se:liu:diva-133216>
- Chatzis, E. (2012). The Dynamics of Rigid Bodies on Moving Deformable Support Media. (Doctoral Dissertation). Columbia University. Retrieved from <https://doi.org/10.7916/D80P1634>
- Greenbaum, R. (2014). Experimental Study of Rocking Motion of Rigid Bodies on Deformable Medium via Monocular Videogrammetry. (Doctoral Dissertation). Columbia University. Retrieved from <https://doi.org/10.7916/D83N2220>
- Lu, W. (2017). Two-way Coupling of Fluids to Reduced Deformable Bodies. (Doctoral Dissertation). Stanford University. Retrieved from <http://purl.stanford.edu/qz280bc5733>

- Goenetxea Imaz, J. (2020). Computationally efficient deformable 3D object tracking with a monocular RGB camera . (Doctoral Dissertation). Euskal Herriko Unibertsitatea / Universidad del País Vasco. Retrieved from <http://hdl.handle.net/10810/50468>
- An, S. (2013). Sound Synthesis For Nonlinearly Deformable Bodies. (Doctoral Dissertation). Cornell University. Retrieved from <http://hdl.handle.net/1813/33945>
- Ribaric, A. (2012). Orientation invariant characteristics of deformable bodies in multibody dynamics. (Thesis). The University of Arizona. Retrieved from <https://www.proquest.com/dissertations-theses/orientation-invariant-characteristics-deformable/docview/1151811187/se-2?accountid=190548>
- Lewin, C. (2016). Constraint based simulation of soft and rigid bodies. (Doctoral Dissertation). University of Bath. Retrieved from <https://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.687373>
- Nila, A. (2014). Experimental investigation of the water entry of rigid and deformable bodies using time-resolved particle image velocimetry. (Thesis). Ghent University. Retrieved from <http://hdl.handle.net/1854/LU-8068211>
- Lin, H. (2015). Robot dexterity: from deformable grasping to impulsive manipulation. (Thesis). Iowa State University. Retrieved from <https://lib.dr.iastate.edu/etd/14929>

C. PROFESSIONAL ORGANIZATIONS

- National Society for Professional Engineers. <https://www.nspe.org/>
- The Institution of Engineering & Technology. <https://www.theiet.org/>
- Electronic Power Research Institute. <https://www.epri.com/>
- American Society for Engineering Education. <http://www.asee.org/>
- IEEE Communication Society. <https://www.comsoc.org/>

D. OTHER RELATED WEB PORTALS

- Science Direct. <https://www.sciencedirect.com/book/9780126546507/mechanics-of-deformable-bodies>
- Stemez. https://stemez.com/subjects/technology_engineering/1CStrengthofMaterials/1CStrengthofMaterials.php
- Class Central. <https://www.classcentral.com/course/mechanics-1-5031>
- Engineer 4 Free. <https://www.engineer4free.com/mechanics-of-materials.html>
- Engineers Edge. https://www.engineersedge.com/mechanics_material_menu.shtml

E. RELATED RESEARCH GUIDES

- Purdue University. <https://guides.lib.purdue.edu/c.php?g=352847&p=2378004>
- University of Melbourne. https://unimelb.libguides.com/elec_eng
- Bloomsburg Library. <https://guides.library.bloomu.edu/c.php?g=318635&p=2127019>
- Northwestern Library. <https://libguides.northwestern.edu/eecs>

IV. TUTORIALS

- Mechanics of Deformable Bodies Lesson 1: Introduction to Stress | Tutorial | Lecture Video. [https://www.youtube.com/watch?v= Bh9DEquDVs](https://www.youtube.com/watch?v=Bh9DEquDVs)
- Mechanics of Deformable Bodies Lesson 3: Shear Stress | Tutorial | Lecture Video. <https://www.youtube.com/watch?v=D4cHSf0WZYg>
- Mechanics of Deformable Bodies Lesson 3: Shear Stress Sample Problem | Tutorial | Lecture Video. <https://www.youtube.com/watch?v=kUroBKjqJjc>
- Mechanics of Deformable Bodies Review Tutorial. <https://www.facebook.com/watch/?v=3862687223828280>
- Course Hero. <https://www.coursehero.com/file/32397380/Tutorial-1pdf/>
- Tutorials Point. https://www.tutorialspoint.com/strength_of_materials/index.asp
- Penn State University. https://sites.esm.psu.edu/courses/emch213d/tutorials/design_notes/
- Engineers Edge. https://www.engineersedge.com/strength_of_materials.htm
- Chegg Study. <https://www.chegg.com/homework-help/questions-and-answers/85-218mechanics-deformable-bodies-tutorial-assignment-8-section-52-tuesday-march-13-2018-q27453093>
- Docsity. <https://www.docsity.com/en/applied-mechanics-tutorial-1/4301372/>

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