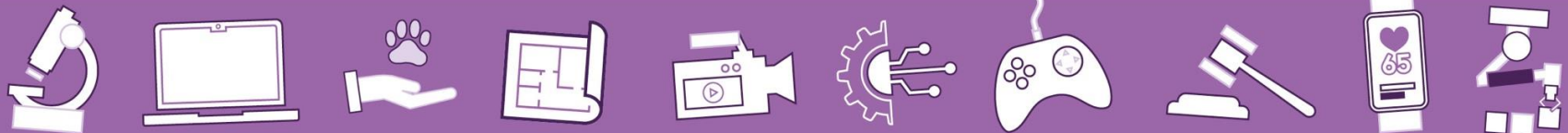




## 7 Mechanical principles

Criteria	Range	Resource identified
7.1 Principles of motion and mechanics in engineering and manufacturing systems	Newton's three laws of motion	<a href="https://www.bbc.co.uk/bitesize/guides/zqs47p3/revision/1">https://www.bbc.co.uk/bitesize/guides/zqs47p3/revision/1</a> <a href="https://en.wikipedia.org/wiki/Newton%27s_laws_of_motion">https://en.wikipedia.org/wiki/Newton%27s_laws_of_motion</a>
	types of forces (concurrent, non-concurrent, co-planar, non-contact)	<a href="https://knowledge4civil.wordpress.com/2016/12/14/forces-and-classification/">https://knowledge4civil.wordpress.com/2016/12/14/forces-and-classification/</a>
	simply supported beams (loading, load distribution (point, uniformly distributed, combination of point and uniformly distributed), reaction forces, loaded components, shear force, bending moments)	<a href="https://pressbooks.bccampus.ca/powr4406/chapter/beam-reactions-and-diagrams/">https://pressbooks.bccampus.ca/powr4406/chapter/beam-reactions-and-diagrams/</a> <a href="https://www.bbc.co.uk/bitesize/guides/ztjpb82/revision/1">https://www.bbc.co.uk/bitesize/guides/ztjpb82/revision/1</a> <a href="https://www.youtube.com/watch?v=sxkEgZ9lueQ">https://www.youtube.com/watch?v=sxkEgZ9lueQ</a> <a href="https://www.youtube.com/watch?v=pbyFNJTivrK">https://www.youtube.com/watch?v=pbyFNJTivrK</a> <a href="https://www.youtube.com/watch?v=Xvg38nlxkOU">https://www.youtube.com/watch?v=Xvg38nlxkOU</a> <a href="https://calresource.com/statics-simple-beam.html">https://calresource.com/statics-simple-beam.html</a>
7.2 Principles of forces and energy	Principle of conservation of momentum	<a href="https://www.bbc.co.uk/bitesize/guides/zc9bv9q/revision/2">https://www.bbc.co.uk/bitesize/guides/zc9bv9q/revision/2</a> <a href="https://s-cool.co.uk/a-level/physics/momentum-and-impulse/revise-it/principle-of-the-conservation-of-momentum">https://s-cool.co.uk/a-level/physics/momentum-and-impulse/revise-it/principle-of-the-conservation-of-momentum</a> <a href="https://www.khanacademy.org/science/physics/linear-momentum/momentum-tutorial/a/what-is-conservation-of-momentum">https://www.khanacademy.org/science/physics/linear-momentum/momentum-tutorial/a/what-is-conservation-of-momentum</a>
	principle of conservation of energy	<a href="https://www.bbc.co.uk/bitesize/guides/z4yj6sg/revision/1">https://www.bbc.co.uk/bitesize/guides/z4yj6sg/revision/1</a> <a href="https://www.khanacademy.org/science/physics/work-and-energy/work-and-energy-tutorial/a/what-is-conservation-of-energy">https://www.khanacademy.org/science/physics/work-and-energy/work-and-energy-tutorial/a/what-is-conservation-of-energy</a>
	D'Alembert's principle	<a href="https://en.wikipedia.org/wiki/D%27Alembert%27s_principle">https://en.wikipedia.org/wiki/D%27Alembert%27s_principle</a> <a href="https://www.vedantu.com/physics/dalemberts-principle">https://www.vedantu.com/physics/dalemberts-principle</a>





potential and kinetic energy	<a href="https://www.bbc.co.uk/bitesize/guides/zhvv2sg/revision/1">https://www.bbc.co.uk/bitesize/guides/zhvv2sg/revision/1</a> <a href="https://taraenergy.com/blog/potential-and-kinetic-energy-explained/">https://taraenergy.com/blog/potential-and-kinetic-energy-explained/</a>
gravitational force	<a href="https://www.bbc.co.uk/bitesize/guides/z8wx6sg/revision/3">https://www.bbc.co.uk/bitesize/guides/z8wx6sg/revision/3</a> <a href="https://en.wikipedia.org/wiki/Gravity">https://en.wikipedia.org/wiki/Gravity</a>
frictional resistance	<a href="https://www.bbc.co.uk/bitesize/guides/zttfyrd/revision/4">https://www.bbc.co.uk/bitesize/guides/zttfyrd/revision/4</a> <a href="https://www.theschoolrun.com/homework-help/friction-and-resistance">https://www.theschoolrun.com/homework-help/friction-and-resistance</a>
mechanical work	<a href="https://www.bbc.co.uk/bitesize/guides/z8pk3k7/revision/1">https://www.bbc.co.uk/bitesize/guides/z8pk3k7/revision/1</a> <a href="https://en.wikipedia.org/wiki/Work_(physics)">https://en.wikipedia.org/wiki/Work_(physics)</a>
power	<a href="https://www.bbc.co.uk/bitesize/guides/zp8jtv4/revision/2">https://www.bbc.co.uk/bitesize/guides/zp8jtv4/revision/2</a>
types of power sources (mechanical, electrical, renewable).	<a href="https://www.bbc.co.uk/bitesize/guides/z8k9v9g/revision/1">https://www.bbc.co.uk/bitesize/guides/z8k9v9g/revision/1</a> <a href="https://www.energy.gov/energy-sources">https://www.energy.gov/energy-sources</a>

