Contents

Impulse response

So far circuits have been driven by a DC source, an AC source and an exponential source. If we can find the current of a circuit generated by a Dirac delta function or impulse voltage source δ, then the convolution integral can be used to find the current to any given voltage source!

Example Impulse Response

The current is found by taking the derivative of the current found due to a DC voltage source! Say the goal is to find the δ current of a series LR circuit ... so that in the future the convolution integral can be used to find the current given any arbitrary source.

Choose a DC source of 1 volt (the real Vs then can scale off this). The particular homogeneous solution (steady state) is 0. The homogeneous solution to the non-homogeneous equation has the form:

Assume the current initially in the inductor is zero. The initial voltage is going to be 1 and is going to be across the inductor (since no current is flowing):

$$v(t) = L\frac{di(t)}{dt} ; v(0) = 1 = L * (-\frac{AR}{L}):$$

If the current in the inductor is initially zero, then:

Which implies that:

So the response to a DC voltage source turning on at t=0 to one volt (called the unit response μ) is:

$$i_\mu(t) = \frac{1}{R}(1 - e^{-\frac{t}{\frac{L}{R}}})$$

Taking the derivative of this, get the impulse (δ) current is:

Now the current due to any arbitrary $V_S(t)$ can be found using the convolution integral:

Don't think i_δ as current. It is really $\frac{d}{dt}\frac{current}{1volt}$. $V_S(\tau)$ turns into a multiplier.

LRC Example

Find the time domain expression for i_o given that $I_S = \cos(t + \pi/2)\mu(t)$ amp.

Earlier the step response for this problem was found:

The impulse response is going to be the derivative of this:

:

$$i_o(t) = \int_0^t i_{o_\delta}(t-\tau)I_s(\tau)d\tau + C_1$$

The Mupad code to solve the integral (substituting x for τ) is:

```
f := exp(-(t-x)) *sin(t-x) *(1 + cos(x));<br>S := int(f,x = 0..t)
```

Finding the integration constant

This implies:

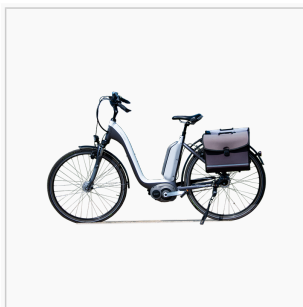# Category:Bike

Subcategories

This category has the following 2 subcategories, out of 2 total.
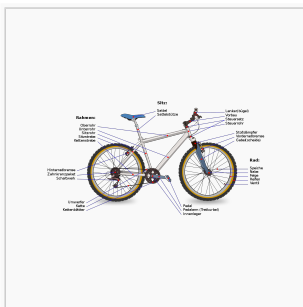
B

- [Bike accessories](#) (2 F)
- [Bike parts](#) (4 F)

Media in category "Bike"

The following 8 files are in this category, out of 8 total.

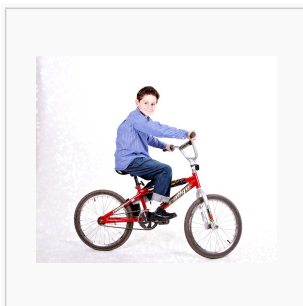[E-bike.png](#) 640 × 391; 264 KB

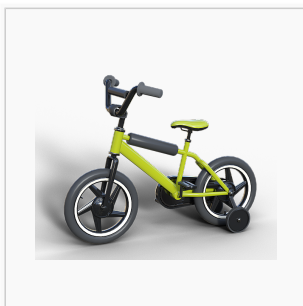
[Fahrrad Diagramm.png](#) 1,280 × 714; 254 KB

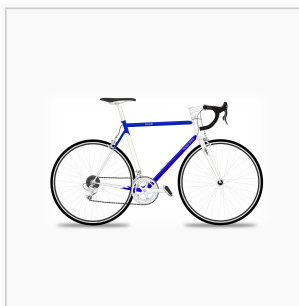[Fahrrad3.jpg](#) 640 × 427; 41 KB

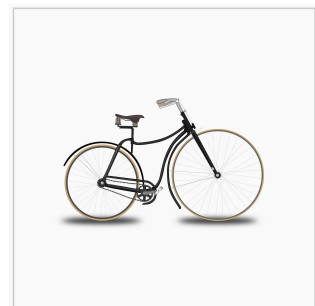[icon-bike-sprint.png](#) 640 × 407; 43 KB

[Kinderfahrrad.jpg](#) 640 × 547; 72 KB

[Kinderfahrrad2.png](#) 640 × 533; 327 KB
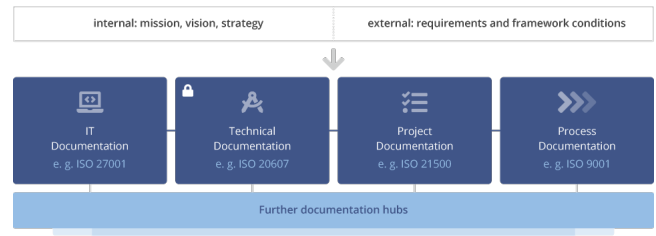

[racing-bicycle.png](#) 1,280 × 785; 423 KB

[Vintage Fahrrad.png](#) 1,280 × 901; 380 KB

Documentation System

A **documentation system** supports the company in archiving documents. These systems are of outstanding importance for the company to be able to reproduce processes, decisions and agreements.

Documentation systems are used in project documentation, technical documentation or IT documentation. In order for them to fulfill their purpose, it is necessary to be able to use them to quickly collect, categorize and retrieve information.

Documentation in a wiki

Wikis were developed to centrally collect and organize the knowledge of different experts. They are therefore ideal documentation systems and have long since become the standard documentation system, not least in IT.

- *Collaboration without prior knowledge:* With the visual editor, images can be quickly integrated into an article using "drag & drop".
- *Office documents:* Documents in other formats (Office, PDF etc.) can be attached to an article just as quickly.
- *Creation of structured data:* The documentation can be enriched with structured data (attributes) that can be processed inside and outside the system. (Semantic MediaWiki)
- *Page versioning:* The traceability and reproducibility of all changes in the documentation enable the management of legally required information and, if necessary, safeguard against liability.

Example pages

Customer documentation

	Contact since	2017	Status
er	Account Manager	Doe, John	Technical Contact

Company/Development System (Contract Type: Subscription)
Company/Documentation (Contract Type: Subscription)
Company/Production System (Contract Type: Subscription)

Step-by-step instructions

coffee

er without immediately brewing coffee. Flooding can occur if the tank is filled again afterwards!
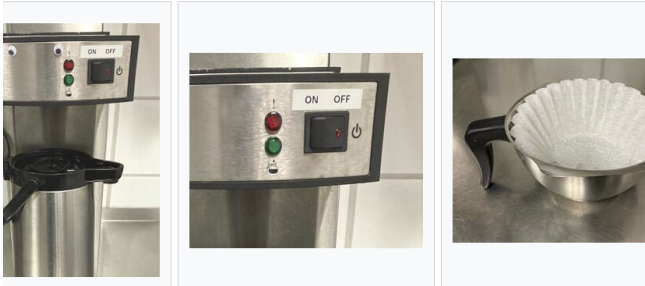
IT documentation

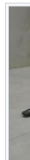rowser's JavaScript console, enter `person` into it, and press `Enter` / `Return` . You should get a r
lines:

```
t]
```

you've just created your first object. Job done! But this is an empty object, so we can't really do
JavaScript object in our file to look like this:

```
{
', 'Smith'],
le',
['music', 'skiing'],
on() {
s.name[0] + ' ' + this.name[1] +
this.age + ' years old. He likes ' +
```

Operating instructions

metal tines (fork) that can be pushed under the pallet. In front of the tines there are small, downwardly extendable
er side there are one or two steerable rollers. With the load and castors, the lifting tines can be adjusted parallel to
ith a hydraulic lifting cylinder and a linkage. This way, the pallet can be raised for shipping. The handle is used for
nd in non-powered devices as a lever for a hydraulic pump, which feeds the lifting cylinder. On the handle or near the
erating option for the hydraulic valve (lifting / driving / lowering). Electric pallet trucks follow the operator by means of
les.

ions

nual UVV test (according to the guidelines of the employers' liability insurance association) is mandatory for an
k.
npetence (driving license) for driving electric pallet trucks is not required if the pallet truck is controlled by a traveling
pedestrian. In this case, according to the German Employers' Liability Insurance Ordinance § 7 (2) BGV D27,
lriver in the handling of the lift truck is sufficient. The assignment of the driver does not have to be in writing in this

Mathematical formula

response is going to be the derivative of this:

$$\frac{di_{o_\mu}}{dt} = 0 + \frac{1}{2}e^{-t}(\cos t + \sin t) - \frac{1}{2}e^{-t}(-\sin t + \cos t)$$

$$e^{-t}(\cos t + \sin t + \sin t - \cos t) = e^{-t}\sin t : I_s = 1 + \cos t$$

$$\int_0^t i_{o_\delta}(t-\tau)I_s(\tau)d\tau + C_1$$

$$\int_0^t e^{-(t-\tau)}\sin(t-\tau)(1+\cos\tau)d\tau + C_1$$

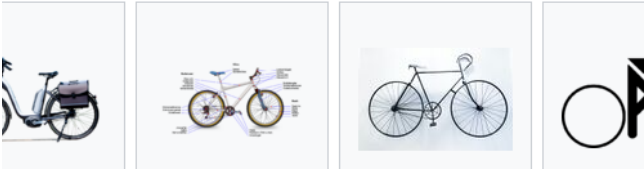$$\frac{\cos t}{5} + \frac{2\sin t}{5} - \frac{7e^{-t}\cos t}{10} - \frac{11e^{-t}\sin t}{10} + \frac{1}{2} + C_1$$

Categorized product images

ssories (2 F)

s (4 F)

n category "Bike"

g 8 files are in this category, out of 8 total.

Documentation System   next: Customer documentation

Electric Pallet Truck Alligator

A **pallet truck** is an industrial truck with or without electric drive. It can be used to transport transport pallets, lattice boxes and corresponding conveying aids on level surfaces. Another colloquially used name is> **ant**.

Contents

Description

A pallet truck has two metal tines (fork) that can be pushed under the pallet. In front of the tines there are small, downwardly extendable load rollers, on the other side there are one or two steerable rollers. With the load and castors, the lifting tines can be adjusted parallel to the ground in height with a hydraulic lifting cylinder and a linkage. This way, the pallet can be raised for shipping. The handle is used for moving and steering, and in non-powered devices as a lever for a hydraulic pump, which feeds the lifting cylinder. On the handle or near the steering axle is the operating option for the hydraulic valve (lifting / driving / lowering). Electric pallet trucks follow the operator by means of further switching handles.

Electirc pallet truck "Ant"

Safety regulations

* In Germany, an annual UVV test (according to the guidelines of the employers' liability insurance association) is mandatory for an electric pallet truck.
* A certificate of competence (driving license) for driving electric pallet trucks is not required if the pallet truck is controlled by a traveling driver, also called a pedestrian. In this case, according to the German Employers' Liability Insurance Ordinance § 7 (2) BGV D27, instruction of the driver in the handling of the lift truck is sufficient. The assignment of the driver does not have to be in writing in this case.[1]

ISO7010 W014 Symbol

File:Betriebsanweisung Batteriewechsel.pdf

Instruction

* Instructions must always be given when a **new employee comes to a work area** and they are, therefore, also mandatory for apprentices, trainees, temporary staff or leasing staff. The instruction should alert the employee to possible hazards, communicate the correct handling of the equipment and the loads to be transported and teach him necessary precautions for his own safety and the safety of others. The instructions may be delegated by the employer, usually to the company supervisor. The supervisor can observe the emplopyee after instructions have been given and intervene if necessary. Traffic routes, signage, charging stations or other relevant business units must be taught as part of the operational training. Each instruction must be documented in writing and signed by the instructed person.

Operating instructions

* In German only: BA Wechseln und Anschließen von Batterien von Staplern

References

1. ↑ Unfallverhütungsvorschrift Flurförderzeuge in der Fassung vom 1. Januar 1997