\*Ctrl [Alt] F3-F6\*: virtuelle Terminal. Alt: von dem GUI.

\*Ctrl F1/F2\*: GUI, F1:neue Benutzer, F2: gleicher Benutzer.

**echo <$0 / $PATH>**: shows: $0 the name of the executing program / $PATH: paths of the directories of the programs able to be called.

**export** <variable(e. g. PATH without “$”)>=<new value(e. g. $PATH:.)>: sets a value for a variable.

{command} **&**: output not on screen, it shows Process-ID.

\*Ctrl Z\*: like & but belated.

**fg** <Process-ID>: (foreground)

**find** **.** -name a\* : all files in the current directory, that begin with ‘a’.

{first part of command} **\** \*Enter\* {second part of command}

**type** {command}: shows what a command it is (alias, shell builtin, program…)

**sudo su**: changes to admin

**su** <user name>: changes the user.

**man** [<category>] <command>: manual

**info** <command>: more detailed info than manual.

**whatis** <entry>: shows the category and what it is.

**Pipes and out- and inputs**

{command} **>** {output target: e. g. file}: writes the output of the command in the target

{command} **>>** {output target: e. g. file}: appends the output of the command in the target

{command} **<** {source input: e. g. file}: uses the source for the input of the command.

{command} **<<** {expression}: let write the input until the expression occurs

{command} **|** {command}: uses the output of the first command for the input of the second.

{command} **;** {command}: executes several commands one after another.

{command} **&&** {command}: executes several commands one after another, only if the previous command successes.

… `{command}` …: uses the output of a command in the currend shell command.

**Files and directories**

**Patterns** in the unix-shells: \* ? [0-9] [!abc] [a-z0-9] {info, hilfe} a\*|info\*

**cp** < source > <target> [**-R**]: copy: e. g. co briefe/\* dokumente (copies all documents in ‘briefe’ to ‘dokumente’) –R: recursive: copies all subdirectories and their documents.

**mv** < source > <target>: move. Also used to rename documents.

**rm** <file/pattern> [-r -f]: remove. –r: recursive. –f: remove the write-protected files.

**ls** [pattern] [-l –a –h]: list. –l: detailed information, -a: all, also hidden files, -h human readable

**pwd**: print working directory.

**cd** <path>: change directory.

**mkdir** <directory name>: make directory

**chmod** <user? [-+=] right?/octal numbers> <file / directory>: change mode. users: **u**: user, **g**: group, **o**: others, **a**: all. **-**: remove right, **+**: add right, **=**: substitude the other rights. rights: **r**: read, **w**: write, **x**: execute. e.g.: chmod 0755 test.txt / chmod a+r directory

**chown** <user>[:<group>] <file/pattern>: change owner.

**chgrp**: change group.

**ln** [-s –f] <source file> <target file>: creates a hardling (standard) or a symlink (-s)

**Text manipulation**

**cat** <input: <file1> <file2>…>: concatenate/catalog. e g.: cat > new.txt << ENDE (creates a new text-file)

**head** -<number> <text file>: shows the begin of the text file.

**tail** -<number> <text file>:

**less** <input>

**grep** [-r -i] <regular expression> <input>: general regular expression print. –**r**: recursive (for the subdirectories), -**i**: case insensitive. e.g.: ls |grep ^in

**diff**: shows the differences between two text files.

**wc**: word count. –**c**: characters, -**w**: words, -**l**: lines.

**System management**

**mount** [file system] <device file(/dev/…)> <directory>: mounts the data medium in the directory tree. The directory must exist and be empty.

umount

**du** [-h]: disk usage in kilobyte.

**mkfs**: make file system: format a data medium with a file system. –t: to indicate the fily system

**date** [+”output-expression” and <format>]: reads and changes the date and the time. To change: HHDDhhmm[YY]YY[.ss]

**useradd**: -d: indicates the path different than /home/user (that hat to be made before and then owned by the new user). –m: new home directory. –g: group. –s: indicates the standard shell. –u: User-ID.

userdel:

groupadd. –g: group-ID

**passwd**: as root can be made: passwd <user name> to change any password.

**ps**: table with all processes

pstree

**kill** [-s signal]: give a process a signal: TERM (standard, ends the process), KILL (forced end) and INT (interrupt). –**l**: list of all signals.

**shutdown** [now/hh:mm/+m]: -h: halt (shutdown, standard), -r: restart.

rpm –I <Packet name>: installs a packet under Red Hat and SUSE.

**apt-get** install <packet name>: install a packet under Debian.

alias <alias name>=’<command>’

**Network configuration**

**ifconfig**: overall view with the name of the network interface (eth0, lo…)

**ping** <host name>: porves if the host is reachable.

**traceroute** <host>: show the Router in the way to the router.

**netstat**: list all TCP and UDP connections.

**nslookup** / **dig** <host> <nameserver>: convert the IP into an address and reversely.

**Comprimierung**

**tar** -f [-c, -r, -v] <archivdatei.tar> <datei1> <datei2>: -c: speichern neue Datei, -r: anhängen an bestehen Datei, -f: um nicht die Datei auf einem Bandlaufwerk, -v: verbose

tar **-x** -f [-v] <archivdatei.tar>: Datei extrahieren.

tar -f [-c, -r, -v, **-z, -j**] <archivdatei.tar> <datei1> <datei2>: -z: comprimiert auch nach gzip, -j: nach bzip2.

gzip <archivdatei.tar>

gunzip <comprimierte Datei>

bzip2 <archivdatei.tar>

bunzip2 <comprimierte Datei>

zip <archivdatei.tar> <datei1> <datei2>: die Windows zip.

unzip <archivdatei.tar>

**Importans Paths**

/etc/re<number of the runlevel>.d: for the programs and symlinks to be started at the runlevels

programs for the run levels: ^[SK]{2, [0-9]} S: start-script, K: kill-script, number: the priority of the script. e. g.: /etc/re5.d/S15apache

/etc/cron.<hourly/daily/weekly/monthly>: directory for symlinks to scripts to automatic execute them.

/etc/crontab: file to automatic execution. Row format: min hour day month weekday command. E. g.:

0 18 \* \* 5 <command>: every Friday at 18

0 \* \* \* \* <command>: every hour.

0 8-18 \* \* 1-6 <command>: Monday til Saturday hourly between 8 and 18.

0 \*/2 \* \* \* <command>: every 2 hours.