

# Datorsystemteknik

## *för D2, ICT2, E3 och Mek3*

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# Outline

- Föregående fl.
- Programflöde, Exempel 1
- Programflöde, Exempel 2

# Exempel 1 (main)

```
main() {  
    init_kernel(); /* 1 */  
    mb=create_mailbox(1,15); /* 2 */  
    create_task(task1, 100); /* 3 */  
    run(); /* 4 */  
}
```

# Exempel 1 (task1)

```
void task1(void) {  
    create_task(task2, 200); /* 5 */  
    send_wait(mb, msg); /* 6 */  
    send_wait(mb, msg); /* 7 */  
    terminate();  
}
```

# Exempel 1 (task2)

```
void task2(void) {  
    receive_no_wait(mb,msg); /* 8 */  
    wait(100); /* 9 */  
    terminate();  
}
```

# Exempel 2 (main)

```
main() {  
    init_kernel(); /* 1 */  
    create_task(task1, 200); /* 2 */  
    create_task(task2, 150); /* 3 */  
    mb=create_mailbox(1,15); /* 4 */  
    run(); /* 5 */  
}
```

## Exempel 2 (idle)

```
idle() {  
    while(1); /* 6 */  
}
```

## Exempel 2 (task1)

```
void task1(void) {
    int data2; /* 7 */
    if(receive_wait(mb, &data2) == DL_REA
        terminate(); /* 9 */
    wait(20); /* 10 */
    receive_no_wait(mb, &data2); /* 11 */
    receive_no_wait(mb, &data2); /* 12 */
    terminate(); /* 13 */
}
```



## Exempel 2 (task2)

```
void task2() {
    int data=1; /* 14 */
    if(send_wait(mb, &data) == DL_REACHED
        terminate(); /* 16 */
    send_no_wait(mb, &data); /* 17 */
    wait(100); /* 18 */
    set_deadline(ticks()+10); /* 19 */
    create_task(task1, ticks()+30); /* 20
    terminate(); /* 21 */
}
```

# Task Administration

```
/* Task administration */  
exception init_kernel( void );  
exception create_task( void (* body)(), uint d );  
void terminate( void );  
void run( void );
```

# Communication

```
/* Communication */  
mailbox* create_mailbox( uint nMessages, uint nDataSize );  
exception remove_mailbox( mailbox* mbox );  
int no_messages( mailbox* mbox );  
exception send_wait( mailbox* mbox, void* pData );  
exception receive_wait( mailbox* mbox, void* pData );  
exception send_no_wait( mailbox* mbox, void* pData );  
exception receive_no_wait( mailbox* mbox, void* pData );
```

# Timing

```
/* Timing */  
exception wait( uint nTicks );  
void set_ticks( uint no_of_ticks );  
uint ticks( void );  
uint deadline( void );  
void set_deadline( uint nNew );
```

# Sammanfattning OS

**admin:** `init_kernel`, `create_task`, `terminate`, `run`

**Komm :** `create_mailbox`, `remove_mailbox`,  
`no_messages`

**synk :** `send_wait`, `receive_wait`

**asynk:** `send_no_wait`, `receive_no_wait`

**tid :** `set_ticks`, `ticks`, `deadline`, `set_deadline`