## 2017

|    |    |        |         | JAN     | NUA            | RY           |     |             |      |                 | F           | EBR      | RUA           | RY       |   |   |         |              |              | N                 | 1AF         | CH       |  |            |             |       |
|----|----|--------|---------|---------|----------------|--------------|-----|-------------|------|-----------------|-------------|----------|---------------|----------|---|---|---------|--------------|--------------|-------------------|-------------|----------|--|------------|-------------|-------|
| S  | M  | T      | W       | Т       | F              | S            | 5   | S N         | 1 1  | Γ١              | Ν           | Т        | F             | S        |   | S | M       | Т            | W            | T                 | F           | S        |  |            |             |       |
| 1  | 2  | 3      | 4       | 5       | 6              | 7            |     |             |      |                 | 1           | 2        | 3             | 4        |   |   |         |              | 1            | 2                 | 3           | 4        |  |            |             |       |
| 8  | 9  | 10     | 11      | 12      | 13             | 14           | į   | 5 6         | ,    | 7               | 8           | 9        | 10            | 11       |   | 5 | 6       | 7            | 8            | 9                 | 10          | 11       |  |            |             |       |
| 15 | 16 | 17     | 18      | 19      | 20             | 21           | 12  | 13          | 3 14 | 1 1             | 5           | 16       | 17            | 18       | 1 | 2 | 13      | 14           | 15           | 16                | 17          | 18       |  |            |             |       |
| 22 | 23 | 24     | 25      | 26      | 27             | 28           | 19  | 20          | 2    | 1 2             | 2           | 23       | 24            | 25       | 1 | 9 | 20      | 21           | 22           | 23                | 24          | 25       |  |            |             |       |
| 29 | 30 | 31     |         |         |                |              | 26  | 27          | 28   | 3               |             |          |               |          | 2 | 6 | 27      | 28           | 29           | 30                | 31          |          |  |            |             |       |
|    |    |        |         |         |                |              |     |             |      |                 |             |          |               |          |   |   |         |              |              |                   |             |          |  |            |             |       |
| S  | М  | Т      | W       | Т       | <b>AP</b><br>F | S            | _ 5 | S N         |      | _               | N           | Т        | F             | AY<br>S  |   | S | М       | Т            | W            | Т                 | F           |          |  | Lec        | tures       |       |
|    |    |        |         | Т       | F              | S<br>1       |     | 1           | 2    | 2               | 3           | T 4      | <b>F</b> 5    | <b>S</b> |   |   | M       | Т            | W            | T 1               | F<br>2      | <b>S</b> |  | Lab        | s           |       |
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|    | 3  |        |         | Т       | F<br>7         | S<br>1       | -   | 1           | 3    | 2 1             | 3 0         | 11       | 5<br>12       | <b>S</b> |   | 4 | 5       | T<br>6<br>13 | W<br>7<br>14 | T<br>1<br>8<br>15 | 2<br>9      | 3<br>10  |  | Lab        | s<br>minati | on We |
| 2  | 3  |        | 5<br>12 | 6<br>13 | F<br>7         | \$<br>1<br>8 | -   | 7 8<br>1 15 | 3    | 2<br>9 1<br>5 1 | 3<br>0<br>7 | 11<br>18 | 5<br>12<br>19 | 6<br>13  | 1 | 4 | 5<br>12 | 6            | 7            | 15                | F<br>2<br>9 | 3<br>10  |  | Lab<br>Exa | s<br>minati | on We |

## 15 Lectures + 14 Lab Sessions

| Theory Starts  | 2/10/2016 |
|--|-----------|
| Easter   | 10-17 Apr |
| LAB0: ROS intro (rosbags, rosrun, packages, rviz, rqt) | 16-Feb    |
| LAB0: ROS intro (rosbags, rosrun, packages, rviz, rqt) | 23-Feb    |
| LAB1: Turtlebot intro                                  | 9-Mar     |
| LAB2: Line extaction Python + RViz                     | 16-Mar    |
| LAB3: MCL localization turtlebot                       | 23-Mar    |
| LAB3: MCL localization turtlebot                       | 30-Mar    |
| LAB4: EKF localization turtlebot                       | 6-Apr     |
| LAB4: EKF localization turtlebot                       | 20-Apr    |
| LAB4: EKF localization turtlebot                       | 27-Apr    |
| LAB5: SLAM turtlebot                                   | 4-May     |
| LAB5: SLAM turtlebot                                   | 11-May    |
| LAB5: SLAM turtlebot                                   | 18-May    |
| DEMO   | 25-May    |

| 1  | Course-Presentation & Introduction (until Slide 16) 2h | 8-Feb  |
|----|--|--------|
| 2  | Introduction (30 slides ) (until Slide 30) - 2 h       | 15-Feb |
| 3  | Bayes Filter (24 slides) - 2h                          | 22-Feb |
| 4  | Grid Localization (30 slides) 2h                       | 1-Mar  |
| 5  | Montecarlo Localization (32 slides) 2h                 | 8-Mar  |
| 6  | EXERCICES  | 15-Mar |
| 7  | Gaussian Filters KF-EKF (48 slides) 2h                 | 22-Mar |
| 8  | Gaussian Filters KF-EKF (48 slides) 2h                 | 29-Mar |
| 9  | EKF Map Based Localization (23 slides) 2h              | 5-Apr  |
|    | EASTER   | 12-Apr |
| 10 | EKF Map Based Localization (23 slides) 2h              | 19-Apr |
| 11 | EKF SLAM (35 slides) 2h                                | 26-Apr |
| 12 | EKF SLAM (35 slides) 2h                                | 3-May  |
| 13 | EXERCICES  | 10-May |
| 14 | BACKUP CLASS / EXERCICES                               | 17-May |
| 15 | BACKUP CLASS / EXERCICES                               | 24-May |
|    |  |        |

| Lab  | Date  | Lab Assistant   | Deadline | Pre-lab                                |
|--|-------|-----------------|----------|--|
| LAB0: ROS intro (rosbags, rosrun, packages, rviz, rqt) | 16Feb | Josep + Guillem | -        | Install Ubuntu 16.04 + ROS hydro       |
| LAB0: ROS intro (rosbags, rosrun, packages, rviz, rqt) | 23Feb | Josep + Guillem | 27-Feb   | -                                      |
| LAB1: Turtlebot intro                                  | 9Mar  | Albert          | 13-Mar   | Install Turtlebot Packages             |
| LAB2: Line extaction Python + RViz                     | 16Mar | Josep           | 20-Mar   | line representation & distance to line |
| LAB3: MCL localization turtlebot                       | 23Mar | Josep           | -        | prediction equations                   |
| LAB3: MCL localization turtlebot                       | 30Mar | Josep           | 3-Apr    | -                                      |
| LAB4: EKF localization turtlebot                       | 6Apr  | Guillem         | -        | polarline world2robot                  |
| EASTER   |       |                 |          |  |
| LAB4: EKF localization turtlebot                       | 20Apr | Guillem         | -        |  |
| LAB4: EKF localization turtlebot                       | 27Apr | Guillem         | 1-May    | -                                      |
| LAB5: SLAM turtlebot                                   | 4May  | Albert          | -        | state augmentation equation            |
| LAB5: SLAM turtlebot                                   | 11May | Albert          | -        | -                                      |
| LAB5: SLAM turtlebot                                   | 18May | Albert          | 22-May   | -                                      |
| DEMO   | 25May | All             | 29-May   | -                                      |