

# Contents

|                                                                 |    |
|-----------------------------------------------------------------|----|
| 1. Introduction .....                                           | 6  |
| Models for system simulation .....                              | 8  |
| CTU contribution .....                                          | 12 |
| 2. Development of a multicylinder engine model .....            | 13 |
| Usable speed range given by a single stage turbocharging.....   | 16 |
| 3. Vehicle simulation model .....                               | 18 |
| Multicylinder engine 1-D simulation model modifications .....   | 18 |
| Driving cycle fuel consumption prediction .....                 | 25 |
| Final vehicle model modifications using experimental data ..... | 26 |
| Driving cycle simulation results .....                          | 27 |
| 4. Summary and conclusions .....                                | 27 |
| 5. References .....                                             | 28 |
| Acknowledgments .....                                           | 31 |
| Curriculum Vitae .....                                          | 32 |