



**Academic Programme 2016-2017**  
**Department Mechanical Engineering**

**Semester 5**

| Course                                    | Lec. | LwT | Tut. | Prac. | Project | Course Hours | Student Hours | ECTS Credits | Code   |
|---|------|-----|------|-------|---------|--------------|---------------|--------------|--------|
| <b>Unit5-1 Mathematics and Computing</b>  |      |     |      |       |         |              | <b>62</b>     | <b>5</b>     |        |
| Mathematics tools for engineers 1         | 12   |     | 24   |       |         | 36           | 36            | 3            | 511110 |
| Computing                                 | 6    |     |      | 20    |         | 26           | 26            | 2            | 511120 |
| <b>Unit 5-2 Mechanics I</b>               |      |     |      |       |         |              | <b>112</b>    | <b>9</b>     |        |
| Continuum Mechanics                       | 16   |     | 16   |       |         | 32           | 32            | 2,5          | 511210 |
| Strength of Materials                     | 14   |     | 14   | 12    |         | 40           | 40            | 3,25         | 511220 |
| Mechanics of rigid bodies                 | 4    |     | 24   | 12    |         | 40           | 40            | 3,25         | 511230 |
| <b>Unit5-3 Design and Manufacturing I</b> |      |     |      |       |         |              | <b>122</b>    | <b>9</b>     |        |
| Mechanical Systems Analysis               | 6    |     |      | 40    |         | 46           | 46            | 3,5          | 511310 |
| Manufacturing and Metrology               | 10   |     | 10   | 12    |         | 32           | 32            | 2,5          | 511320 |
| Materials                                 | 6    |     | 2    | 12    |         | 20           | 20            | 1,75         | 511330 |
| Technology                                |      |     | 4    | 20    |         | 24           | 24            | 1,25         | 511340 |
| <b>Unit5-5 Soft Skills I</b>              |      |     |      |       |         |              | <b>58</b>     | <b>4</b>     |        |
| Sport                                     |      |     |      |       | 22      | 22           | 22            | 0,75         | 511410 |
| Career Planning                           |      |     | 10   |       |         | 10           | 10            | 0,75         | 511420 |
| Corporate Communication                   |      |     | 10   |       |         | 10           | 10            | 0,75         | 511430 |
| Project Management (part 1)               | 3    |     |      |       | 13      | 16           | 16            | 1,75         | 511440 |
| <b>Unit5-6 Languages</b>                  |      |     |      |       |         |              | <b>44</b>     | <b>3</b>     |        |
| English                                   |      |     | 24   |       |         | 24           | 24            | 2            | 511510 |
| Remedial English                          |      |     | 14   |       |         | 14           |               |              | 511520 |
| -> German                                 |      |     | 20   |       |         | 20           |               | 1            | 511531 |
| -> Spanish                                |      |     | 20   |       |         | 20           |               | 1            | 511532 |
| -> French                                 |      |     | 20   |       |         | 20           |               | 1            | 511533 |
| <b>Total :</b>                            |      |     |      |       |         |              | <b>398</b>    | <b>30</b>    |        |

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According to the timetable,  
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**Department Mechanical Engineering**

**Semester 6**

| Course                                       | Lec. | LwT | Tut. | Prac. | Project | Course Hours | Student Hours | ECTS Credits | Code   |
|--|------|-----|------|-------|---------|--------------|---------------|--------------|--------|
| <b>Unit 6-1 Mathematics and Computing II</b> |      |     |      |       |         |              | <b>50</b>     | <b>4</b>     |        |
| Mathematical Tools for engineers 2           | 8    |     | 10   |       |         | 18           | 18            | 1,75         | 512110 |
| Numerical Methods for engineers              |      | 16  |      | 16    |         | 32           | 32            | 2,25         | 512120 |
| <b>Unit 6-2 Mechanics II</b>                 |      |     |      |       |         |              | <b>106</b>    | <b>8</b>     |        |
| Vibration of Discret Systems                 | 10   |     | 12   |       |         | 22           | 22            | 1,5          | 512210 |
| Mechanics of Deformable Solids               | 12   |     | 24   | 6     |         | 42           | 42            | 3,25         | 512220 |
| Fluid Mechanics                              | 16   |     | 20   | 6     |         | 42           | 42            | 3,25         | 512230 |
| <b>Unit 6-3 Design and Manufacturing II</b>  |      |     |      |       |         |              | <b>112</b>    | <b>8</b>     |        |
| Guidance Systems Design                      | 6    |     | 4    | 32    |         | 42           | 42            | 3,25         | 512310 |
| Production Engineering                       | 4    | 4   | 6    | 8     |         | 22           | 22            | 1,5          | 512320 |
| Power Transmission                           | 18   |     | 18   | 12    |         | 48           | 48            | 3,25         | 512330 |
| <b>Unit 6-5 Project and Soft Skills II</b>   |      |     |      |       |         |              | <b>92</b>     | <b>7</b>     |        |
| Sport  |      |     |      |       | 22      | 22           | 22            | 0,75         | 512410 |
| Project (part 2)                             |      |     |      |       | 42      | 42           | 42            | 4            | 512420 |
| Corporate Communication                      |      |     | 10   |       |         | 10           | 10            | 0,75         | 512450 |
| Economy                                      | 12   |     | 6    |       |         | 18           | 18            | 1,5          | 512460 |
| <b>Unit 6-6 Languages</b>                    |      |     |      |       |         |              | <b>44</b>     | <b>3</b>     |        |
| English                                      |      |     | 24   |       |         | 24           | 24            | 2            | 512510 |
| Remedial English                             |      |     | 18   |       |         | 18           |               |              | 512520 |
| -> German                                    |      |     | 20   |       |         | 20           |               | 1            | 512531 |
| -> Spanish                                   |      |     | 20   |       |         | 20           |               | 1            | 512532 |
| -> French                                    |      |     | 20   |       |         | 20           |               | 1            | 512533 |
| <b>Total :</b>                               |      |     |      |       |         |              | <b>404</b>    | <b>30</b>    |        |

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**Academic Programme 2016-2017**  
**Department Mechanical Engineering**

**Semester 7**

| Course                                       | Lec. | LwT | Tut. | Prac. | Project | Course Hours | Student Hours | ECTS Credits | Code   |
|--|------|-----|------|-------|---------|--------------|---------------|--------------|--------|
| <b>Unit 7-1 Vibration - Transfer</b>         |      |     |      |       |         |              | <b>116</b>    | <b>9</b>     |        |
| Dynamics of structures                       | 20   |     | 20   | 12    |         | 52           | 52            | 4            | 513110 |
| Thermodynamics and heat Transfer             | 24   |     | 28   | 12    |         | 64           | 64            | 5            | 513120 |
| -> Heat Transfer                             | 12   |     | 12   | 4     |         | 28           | 28            | 2,25         | 513121 |
| -> Thermodynamics                            | 12   |     | 16   | 8     |         | 36           | 36            | 2,75         | 513122 |
| <b>Unit 7-2 Numerical Methods</b>            |      |     |      |       |         |              | <b>100</b>    | <b>8</b>     |        |
| Numerical Methods for Analysis of Structures | 14   |     | 14   | 24    |         | 52           | 52            | 4            | 513210 |
| Numerical Sizing Tools                       | 4    |     |      | 20    |         | 24           | 24            | 2            | 513220 |
| Numerical Fluid Mechanics                    | 6    |     | 6    | 12    |         | 24           | 24            | 2            | 513230 |
| <b>Unit 7-3 Design I</b>                     |      |     |      |       |         |              | <b>84</b>     | <b>6</b>     |        |
| Mechanical Systems Design 1                  |      |     | 20   |       | 28      | 48           | 48            | 3,5          | 513310 |
| Power Transmissions                          | 8    |     | 10   | 6     |         | 24           | 24            | 1,5          | 513320 |
| Lifecycle management                         | 2    |     | 10   |       |         | 12           | 12            | 1            | 513330 |
| <b>Unit 7-4 Softs Skills I</b>               |      |     |      |       |         |              | <b>56</b>     | <b>4</b>     |        |
| Introduction to Research                     | 4    |     |      |       |         | 4            | 4             | 0,25         | 513410 |
| Work placement debriefing                    |      |     | 10   |       |         | 10           | 10            | 0,75         | 513420 |
| Marketing                                    | 12   |     |      |       |         | 12           | 12            | 1            | 513430 |
| Management Simulation                        | 14   |     | 16   |       |         | 30           | 30            | 2            | 513440 |
| <b>Unit-7-5 Languages</b>                    |      |     |      |       |         |              |               | <b>3</b>     |        |
| English                                      |      |     | 22   |       |         | 22           | 22            | 2            | 513510 |
| Remedial English                             |      |     | 18   |       |         | 18           |               |              | 513520 |
| -> German                                    |      |     | 20   |       |         | 20           |               | 1            | 513531 |
| -> Spanish                                   |      |     | 20   |       |         | 20           |               | 1            | 513532 |
| -> French                                    |      |     | 20   |       |         | 20           |               | 1            | 513533 |
| <b>Total :</b>                               |      |     |      |       |         |              | <b>398</b>    | <b>30</b>    |        |

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**Semester 8**

| Course   | Lec. | LwT | Tut. | Prac. | Project | Course Hours | Student Hours | ECTS Credits | Code   |
|--|------|-----|------|-------|---------|--------------|---------------|--------------|--------|
| <b>Unit 8-1 Technology</b>   |      |     |      |       |         |              | <b>64</b>     | <b>5</b>     |        |
| Modelling and Control of Mechanical Process                                  | 14   |     | 14   | 12    |         | 40           | 40            | 3            | 514110 |
| Composite Materials  | 10   |     | 10   | 4     |         | 24           | 24            | 2            | 514120 |
| <b>Unit 8-2 Design II</b>  |      |     |      |       |         |              | <b>144</b>    | <b>11</b>    |        |
| Mechanical Systems Design 2  |      |     | 20   |       | 76      | 96           | 96            | 8            | 514210 |
| Hydraulic Machines   | 18   |     | 18   | 12    |         | 48           | 48            | 3            | 514220 |
| <b>Unit 8-5 Assistant Engineer Placement : starting in May (10-13 weeks)</b> |      |     |      |       |         |              | <b>120</b>    | <b>9</b>     |        |
|  |      |     |      |       |         |              |               | 9            |        |
| <b>Unit 8-4 Soft Skills II</b>   |      |     |      |       |         |              | <b>20</b>     | <b>2</b>     |        |
| Fundamentals of Management   | 10   |     |      |       |         | 10           | 10            | 1            | 514410 |
| Quality, hygiene and safety  |      |     | 10   |       |         | 10           | 10            | 1            | 514420 |
| <b>Unit8-3 Languages</b>   |      |     |      |       |         |              | <b>42</b>     | <b>3</b>     |        |
| English  |      |     | 22   |       |         | 22           | 22            | 2            | 514510 |
| Remedial English   |      |     | 18   |       |         | 18           |               |              | 514520 |
| -> German  |      |     | 20   |       |         | 20           |               | 1            | 514531 |
| -> Spanish   |      |     | 20   |       |         | 20           |               | 1            | 514532 |
| -> French  |      |     | 20   |       |         | 20           |               | 1            | 514533 |
| <b>Total :</b>   |      |     |      |       |         |              | <b>390</b>    | <b>30</b>    |        |

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**Semester 9**

| Course   | Lec. | LwT | Tut. | Prac. | Project | Course Hours | Student Hours | ECTS Credits | Code   |
|--|------|-----|------|-------|---------|--------------|---------------|--------------|--------|
| <b>Unit 9-1 Specialty Modules : (A or B) and (C or D) and (E or F)</b>               |      |     |      |       |         |              | <b>144</b>    | <b>13</b>    |        |
| A - Mechanics of real fluids   |      | 24  | 24   |       |         | 48           | 48            | 5            | 515110 |
| B - Solids and structures Mechanics  | 4    |     | 24   | 8     | 12      | 48           | 48            | 5            | 515111 |
| C : Prototyping : how to choose and implement  | 8    |     |      | 16    | 24      | 48           | 48            | 4            | 515112 |
| D - Braking systems : Technology and Mechanical Design                               | 16   |     | 24   | 8     |         | 48           | 48            | 4            | 515113 |
| E : Materials and Design   | 12   |     | 16   |       | 20      | 48           | 48            | 4            | 515114 |
| F – Aeronautics and Mechanical Design  | 10   | 8   |      |       | 30      | 48           | 48            | 4            | 515115 |
| <b>Unit 9-2 Methods and resources for the engineer</b>                               |      |     |      |       |         |              | <b>48</b>     | <b>3</b>     |        |
| <i>Cross-Disciplinary modules - 2 courses to be chosen from the following list :</i> |      |     | 48   |       |         | 48           | 48            | 3            | 925500 |
| -> Life Cycle Assessment (LCA) and eco-design  |      |     | 24   |       |         | 24           |               | 1,5          | 925510 |
| -> Intercultural management  | 24   |     |      |       |         | 24           |               | 1,5          | 925511 |
| -> Co-design in Polytech Lille's fablab  |      |     | 24   |       |         | 24           |               | 1,5          | 925517 |
| -> Marketing B to B  | 12   |     | 12   |       |         | 24           |               | 1,5          | 925518 |
| -> High tech innovation management and business intelligence                         | 24   |     |      |       |         | 24           |               | 1,5          | 925523 |
| -> Discover the internet of things   | 12   |     |      | 12    |         | 24           |               | 1,5          | 925530 |
| -> Industrial waste management in France   | 24   |     |      |       |         | 24           |               | 1,5          | 925540 |
| -> Renewable energy  | 16   |     |      | 8     |         | 24           |               | 1,5          | 925571 |
| -> Mobilizing the collective intelligence:<br>A key resource in the team work        | 24   |     |      |       |         | 24           |               | 1,5          | 925580 |
| -> Introduction to digital art technologies  | 24   |     |      |       |         | 24           |               | 1,5          | 925592 |
| -> Economy, geopolitics and international geostrategy                                | 24   |     |      |       |         | 24           |               | 1,5          | 925595 |
| -> Fundamentals of project engineering and<br>Commercial negotiation                 | 24   |     |      |       |         | 24           |               | 1,5          | 925598 |
| -> Production management   | 16   |     |      | 8     |         | 24           |               | 1,5          | 925599 |
| -> Symbolic computation and introduction to<br>Scientific documents typesetting      |      |     | 24   |       |         | 24           |               | 1,5          | 925619 |
| <b>Unit 9-3 Soft Skills</b>  |      |     |      |       |         |              | <b>54</b>     | <b>3</b>     |        |
| Labour Law and Employment Legislation  | 12   |     |      |       |         | 12           | 12            | 0,75         | 515310 |
| Environmental and social responsibility  |      |     | 4    |       |         | 4            | 4             |              | 515320 |
| Team management and management of change   | 24   |     |      |       |         | 24           | 24            | 1,5          | 515330 |
| How to succeed in a job interview  |      |     | 14   |       |         | 14           | 14            | 0,75         | 515340 |
| <b>Unit 9-4 Final Year Project</b>   |      |     |      |       |         |              | <b>102</b>    | <b>8</b>     |        |
| Final Year Project (first part)  |      |     |      |       | 102     | 102          | 102           | 8            | 515410 |
| <b>Unit 9-5 Languages</b>  |      |     |      |       |         |              | <b>52</b>     | <b>3</b>     |        |
| English  |      |     | 20   |       |         | 20           | 20            | 1,75         | 515510 |
| Project Language   |      |     | 12   |       |         | 12           | 12            | 0,5          | 515520 |
| -> German  |      |     | 20   |       |         | 20           |               | 0,75         | 515531 |
| -> Spanish   |      |     | 20   |       |         | 20           |               | 0,75         | 515532 |
| -> French  |      |     | 20   |       |         | 20           |               | 0,75         | 515533 |
| <b>Total :</b>   |      |     |      |       |         |              | <b>400</b>    | <b>30</b>    |        |

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**Semester 10**

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|---|------|-----|------|-------|---------|--------------|---------------|--------------|--------|
| <b>Unit 10-1 Engineer Placement : 5-6 months starting in February</b> |      |     |      |       |         |              | <b>300</b>    | <b>24</b>    |        |
| Engineer Placement : 5-6 months starting in february                  |      |     |      |       |         |              | 300           | 24           | 516110 |
| <b>Unit 10-2 Final Year Project (part 2)</b>                          |      |     |      |       |         |              | <b>100</b>    | <b>6</b>     |        |
| Final Year Projet (Part 2)  |      |     |      |       |         |              | 100           | 6            | 516210 |
| <b>Total :</b>  |      |     |      |       |         |              | <b>400</b>    | <b>30</b>    |        |

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