

## KFE Combined Prospective Engineering Instruction Requirements 2022/23

The following table sets out the 'Engineering Instruction Requirements' for each Kent and Medway FE College.

| Host College                | Main Qualification   | Unit  | Specifics   | Commitment Required | Campus                | Notes  |
|-----------------------------|--|---|---|---------------------|-----------------------|--|
| EKC Group / MidKent College | <a href="#">BTEC Level 3 Extended Diploma in Engineering</a> | Microelectronics  | C+/C++ Programming<br>Arduinio's or similar (Raspberry PI)  | 1.5hrs x 36 weeks   | Medway and Canterbury | Unit 6<br>Microcontroller systems for Engineers            |
| EKC Group / MidKent College |  | Metallurgy (Metals)   | Atomic theory   | 1.5 hrs x 36 weeks  | Medway and Canterbury | Unit 25<br>Mechanical behaviours of metallic materials     |
| EKC Group / MidKent College |  | Metallurgy (Other materials)                                | Atomic theory   | 1.5 hrs x 36 weeks  | Medway and Canterbury | Unit 26<br>Mechanical behaviours of non-metallic materials |
| EKC Group                   |  | CAD   | All Aspects   | 1.5hrs X 36 weeks   | Canterbury            | Unit 41  |
| EKC Group                   |  | Science and Maths   | Integrated Calculous to solve engineering problems<br>Mechanical Principals and Theory<br>Further Engineering Maths | 1.5hrs X 36 weeks   | Canterbury            | Unit 7<br>Unit 8   |
| EKC Group                   |  | Computer animated design<br>Electronic devices and Circuits |   | 1.5hrs X 36 weeks   | Canterbury            | Unit 10<br>Unit 19   |

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| MidKent College   |  | Mechanical Systems                       | Bearings, lubricants, maintenance   | 1.5hrs X 36 weeks                                       | Medway  | Unit 24<br>Maintenance of Mechanical Systems                   |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| MidKent College   |  | Project Management                       |   | 1.5hrs X 36 weeks                                       | Medway  | Unit 5 A Specialist Engineering Project                        |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| MidKent College   |  | Business Management                      |   | 3hrs X 36 weeks or 6hrs x 18 weeks (preferred)          | Medway  | Unit 4 Applied Commercial & Quality Principles for Engineering |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| EKC Group   | BTEC Applied Science Extended Diploma                                    | Principles and Applications of Science 1 | Waves/Communication   | 1 hrs x 38 weeks  | Canterbury  | Unit 1   |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| EKC Group   |  | Science Investigation Skills             | Electrical circuits; data analysis  | 1 hrs x 38 weeks  | Canterbury  | Unit 3   |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| North Kent College                                      | T-Level Design and Development for Engineering and Manufacturing Level 3 | Various subject specific specialisms     | <p>(Subject Content List)</p> <table border="1"> <tr><td>Working within the engineering and manufacturing sector</td></tr> <tr><td>Engineering and manufacturing past, present, and future</td></tr> <tr><td>Engineering representations</td></tr> <tr><td>Essential mathematics for engineering and manufacturing</td></tr> <tr><td>Essential science for engineering and manufacturing</td></tr> <tr><td>Materials and their properties</td></tr> <tr><td>Mechanical principles</td></tr> <tr><td>Electrical and electronic principles</td></tr> <tr><td>Mechatronics</td></tr> <tr><td>Engineering and manufacturing control systems</td></tr> <tr><td>Quality management</td></tr> <tr><td>Health and safety principles and coverage</td></tr> </table> | Working within the engineering and manufacturing sector | Engineering and manufacturing past, present, and future | Engineering representations                                    | Essential mathematics for engineering and manufacturing | Essential science for engineering and manufacturing | Materials and their properties | Mechanical principles | Electrical and electronic principles | Mechatronics | Engineering and manufacturing control systems | Quality management | Health and safety principles and coverage | 1.5hrs x 34 weeks | Gravesend | T Level – Various Level 3 subjects |
| Working within the engineering and manufacturing sector |  |  |   |   |   |  |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| Engineering and manufacturing past, present, and future |  |  |   |   |   |  |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| Engineering representations                             |  |  |   |   |   |  |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| Essential mathematics for engineering and manufacturing |  |  |   |   |   |  |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| Essential science for engineering and manufacturing     |  |  |   |   |   |  |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| Materials and their properties                          |  |  |   |   |   |  |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| Mechanical principles                                   |  |  |   |   |   |  |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| Electrical and electronic principles                    |  |  |   |   |   |  |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| Mechatronics  |  |  |   |   |   |  |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| Engineering and manufacturing control systems           |  |  |   |   |   |  |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| Quality management                                      |  |  |   |   |   |  |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |
| Health and safety principles and coverage               |  |  |   |   |   |  |   |   |                                |                       |                                      |              |   |                    |   |                   |           |                                    |

|                    |  |  |  |                   |           |                            |
|--------------------|--|--|--|-------------------|-----------|----------------------------|
|                    |  |  | Business, commercial and financial awareness<br>Professional responsibilities, attitudes, and behaviours<br>Stock and asset management<br>Continuous improvement<br>Project and programme management   |                   |           |                            |
| North Kent College | T- Level Design and Surveying for Construction and Built Environment Level 3 | AutoDesk for Construction Design - (Revit, BIM 360)    |  | 3-hrs x 34 weeks  | Tonbridge | Level 3                    |
| North Kent College | T- Level Design and Surveying for Construction and Built Environment Level 3 | Mathematics and Scientific Principles for Construction |  | 4hrs x 34 weeks   | Tonbridge | Level 3                    |
| North Kent College | BTEC National - Engineering (Mechanical and Electrical/Electronic)           | Various subject specific specialisms                   | Engineering Product Design and Manufacture (Unit 3)<br>Electronic Devices and Circuits (Unit 19)<br>Delivery of Engineering Processes Safely as a Team (Unit 2)<br>Engineering Principles (Mechanical) (Unit 1)<br>Engineering Principles (Electrical and Electronic) (Unit 1)<br>Fabrication Manufacturing Processes (Unit 44)<br>Further Engineering Mathematics (Unit 8)<br>Computer Aided Design in Engineering (Unit 10)<br>Applied Commercial and Quality Principles in Engineering (Unit 4)<br>Additive Manufacturing Processes (Unit 45) | 1.5hrs x 34 weeks | Gravesend | See list for Level 3 units |
| North Kent College | HNC – Higher National General Engineering                                    |  | Instrumentation and Control<br>Engineering Design<br>Engineering Project<br>Digital Principles   | 2hrs x 34 weeks   | Gravesend | Level 4                    |



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|  |  |  | Engineering Science                  |  |  |  |
|  |  |  | Mechatronics                         |  |  |  |
|  |  |  | Electrical and Electronic Principles |  |  |  |
|  |  |  |                                      |  |  |  |