Student Handbook: Design and Development for Engineering and Manufacturing T Level – Liverpool Lifesciences UTC

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Table of Contents

Contents

1. Introduction

Welcome Message

Welcome to the T Level in Design and Development for Engineering and Manufacturing at Liverpool Lifesciences UTC. This program is designed to equip you with the knowledge, skills, and experience necessary to excel in the dynamic field of engineering and manufacturing. Over the next two years, you will engage in a mix of classroom learning, practical projects, and an industry placement that will prepare you for a successful career in this sector.

About the T Level in Design and Development for Engineering and Manufacturing

This T Level is a Level 3 qualification that focuses on the design and development processes within engineering and manufacturing industries. You will study core engineering principles, product design, and development processes, and gain hands-on experience through industry placements. The course is designed in collaboration with employers to ensure that the skills and knowledge you acquire are relevant and in demand.

Overview of the Course Structure

The course is structured over two years, with the first year focusing on core theoretical knowledge and the second year emphasizing practical application and specialization. An essential component of the T Level is the industry placement, where you will spend time collaborating with a real employer in the engineering and manufacturing sector.

Who is who (pictures still to be added)

Rupert Evans Lead for T-level provision

Teaching core Maths units

Dan Howard Lead of T-level Engineering

Teaching Physical engineering units

Andy Plevin Teaching CAD & CAM engineering units

Gary B Teaching Theory engineering units

2. Program Objectives

Core Aims and Learning Outcomes

By the end of this program, you should be able to:

- Understand and apply fundamental engineering principles.
- Develop and design engineering solutions to meet specific needs.
- Utilise industry-standard tools and technology in the design and manufacturing process.
- Demonstrate professional conduct and communication skills within an engineering context.
- Analyse and evaluate engineering designs for efficiency, feasibility, and safety.

Key Skills and Competencies

Throughout this T Level, you will develop the following skills:

- Technical drawing and CAD (Computer-Aided Design)
- Problem-solving and critical thinking
- Project management and teamwork
- Effective communication and presentation
- Understanding of industry standards and regulatory requirements

3. Course Structure

Year 1 Overview

In the first year, you will focus on building a solid foundation in engineering principles, including:

- Engineering Mathematics and Science: Understanding the mathematical and scientific principles underpinning engineering.
- Materials and Manufacturing Processes: Learning about different materials and how they are used in manufacturing.
- Technical Drawing and CAD: Developing skills in technical drawing and using CAD software to create designs.

PROGRamme of study to be added

Year 2 Overview

The second year focuses on applying your knowledge in practical settings and specializing in design and development:

- Advanced Design and Prototyping**: Engaging in more complex design projects and prototyping solutions.
- Product Lifecycle Management**: Understanding the entire lifecycle of a product from concept to production.
- Specialization Modules**: Choosing from elective modules that align with your career interests, such as automation, robotics, or sustainable manufacturing.

Industry Placement Overview

The industry placement is a crucial component of the T Level, where you will apply your classroom learning in a real-world environment. You will spend a minimum of 315 hours (approximately 45 days) in a placement, working on projects that contribute to your development as an engineering professional.

4. Assessment and Grading

Assessment Methods

Your progress will be assessed through a combination of:

- Examinations: Testing your understanding of core engineering principles and concepts.
- Project Work: Assessing your ability to apply knowledge in practical tasks and projects.
- Workplace Assessments: Evaluating your performance during your industry placement.

Grading Criteria

Each assessment will be graded, and your overall T Level grade will be a combination of:

- Core Component Grade**: Based on exams and core project work.
- Occupational Specialism Grade**: Based on assessments specific to your chosen specialism.

- Industry Placement Performance**: Evaluated based on feedback from your placement mentor and the quality of your work.

Progression and Feedback

Regular feedback will be provided on your assessments, allowing you to track your progress and identify areas for improvement. You will have opportunities to discuss your progress with your tutors and make adjustments to your study plan as needed.

5. Industry Placement

All placements are managed through the Unifrog platform.

Placement Requirements and Objectives

Your industry placement is designed to give you hands-on experience in the engineering and manufacturing sector. During your placement, you will:

- Work on real projects that apply your classroom learning.
- Develop workplace skills such as teamwork, problem-solving, and time management.
- Gain insight into the day-to-day operations of an engineering and manufacturing company.

Preparing for Your Placement

Before your placement begins, you will:

- Attend preparation sessions covering workplace expectations, health and safety, and professional conduct.
- Meet with your placement mentor to discuss your goals and the projects you will be working on.

During Your Placement

While on placement, you are expected to:

- Adhere to the company's policies and procedures.

- Complete assigned tasks and projects to the best of your ability.
- Maintain regular communication with your placement mentor and educational supervisor.

Post-Placement Review

After completing your placement, you will:

- Reflect on your experience and how it has contributed to your learning.
- Receive feedback from your placement mentor.
- Submit a placement report detailing your activities and what you have learned.

Health and Safety –Risk assessment process

Before any placements a full risk assessment is conducted

You will be asked to read and sign the health and safety guidelines for your placement.

Failure to adhere to H&S guidelines would result in your placement being terminated.

6. Student Support and Resources

Academic Support

You will have access to a range of academic support services, including:

- Tutoring and Mentoring: Regular meetings with your tutor to discuss your progress and address any challenges.
- Workshops and Study Groups: Additional sessions to support your learning in key areas such as mathematics, CAD, and project management.

Pastoral Support

Your well-being is important to us. You can access pastoral support services, including:

- Counseling Services: Confidential support for any personal or emotional issues you may face.
- Career Guidance: Assistance with career planning, CV writing, and job applications.

Access to Facilities and Resources

As a T Level student, you will have access to:

- Engineering Workshops: Fully equipped workshops for hands-on learning.
- Library Resources: Access to books, journals, and online databases related to engineering and manufacturing.
- IT Facilities: Use of computers and software essential for your studies.

7. Health, Safety, and Well-being

Health and Safety Guidelines

Your safety is our priority. Ensure you:

- Follow all health and safety instructions in workshops and during your placement.
- Use Personal Protective Equipment (PPE) when required.
- Report any hazards or safety concerns immediately.

Safeguarding and Well-being

We are committed to creating a safe and supportive environment. If you have any concerns about your safety or well-being, please:

- Speak to your tutor or the designated safeguarding officer.
- Use the support services available to you.

Reporting Concerns

If you experience or witness any inappropriate behavior, bullying, or discrimination, report it to a staff member immediately. Your concerns will be taken seriously, and appropriate action will be taken.

8. Professional Development

Career Planning and Guidance

Throughout your T Level, you will receive support in planning your career, including:

- Workshops on Career Planning: Sessions focused on identifying career goals and creating a career action plan.
- CV and Interview Preparation: Guidance on how to create a professional CV and prepare for job interviews.

Continuing Professional Development (CPD)

Even after you complete your T Level, it's important to continue learning and developing your skills. We encourage you to:

- Attend CPD courses and workshops.
- Stay informed about the latest developments in engineering and manufacturing.

Networking Opportunities

Take advantage of opportunities to network with industry professionals, including:

- Guest Lectures and Industry Events: Attend events where you can meet and learn from professionals in the field.
- Professional Associations: Consider joining relevant professional bodies that offer networking and development opportunities.

9. Policies and Procedures

Attendance and Punctuality

Regular attendance and punctuality are crucial for your success. You are expected to:

- Attend all classes, workshops, and placement days.
- Arrive on time and be prepared to participate fully.

Code of Conduct

As a student in this program, you are expected to:

- Act with integrity and professionalism at all times.
- Treat staff, peers, and industry partners with respect.
- Follow all rules