

Curriculum Area: Design and Technology Electronic Systems (CNE)

Exam board: EDEXCEL

Course title: Edexcel 9-1 Design and Technology

Specification link: <https://qualifications.pearson.com/en/qualifications/edexcel-gcses/design-and-technology-2017.html>

Part 1: Content covered so far in the course

Units or topics covered up until March 08 2021: NB: * indicates content covered during period of school closure	Approximate dates of coverage (mm/yyyy)	How was learning assessed for this unit or topic? Include duration of assessment.	Was the assessment carried out in controlled conditions?
Speaker/Amplifier project; existing products, client needs, material properties, specifications, tools and equipment, 2D and 3D drawing	09/2019 to 10/2019	Teacher assessed	No
Speaker/Amplifier project; developing and testing ideas, modelling prototypes, circuit board development, manufacturing processes	11/2019 to 12/2019	Teacher assessed	No
Speaker/Amplifier project; properties of materials, manufacture of working model, testing against specification	01/2020 to 02/2020	Teacher assessed	No
Core content; composite, modern and smart materials, scales of production, environmental factors	03/2020	Teacher assessed	No
*CAD/CAM: TinkerCAD, 2D design	04/2020	Teacher assessed	No
NEA coursework - investigation *NEA coursework - development	05/2020 to 03/2021	NEA	Yes – when completing NEA in school

Part 2: Mock Exam evidence

Units or topics covered in the November mock exam(s)

Section A: Core Content

- Properties of Materials: Woods, Metals, Plastics, Fabrics, SMART materials
- Sources of Materials, esp. Wood, Metals, Plastics, Fabrics
- Environmental impact and Sustainability of materials; renewables, Carbon footprint
- Strategies used to reduce waste
- Selecting materials suited for outdoor setting eg: resisting wet, corrosion, rot
- Knowledge of suitable finishes used on materials, paint, varnish, types of metal plating used to protect against corrosion
- Design and Planning of products, marking out, templates, nets, advantages of CAD
- Knowledge of electronic components, function, symbols
- Knowledge of Programmable Electronic Components eg; Microcontroller
- Understand basic coding of Microcontroller eg: programming symbols used in flowchart programming
- Design Strategies used to create ideas
- Best strategies to avoid Design Fixation: Reference existing products, Team approach, Client involvement
- Job roles in design and engineering settings, apprenticeships, training and employment

Section B: Systems specialist theory questions

- Factors relating to Scales of Production: One-off production, Batch production, Mass Production
- Investment and set-up costs, labour costs, training, speed, efficiency, output, profit, sustainability.
- Advantages/disadvantages of small-scale production
- Advantages/disadvantages of large scale or mass production
- Manufacturing Processes and equipment, inc. CAD, CAM, laser cutting, injection moulding,
- Assembly equipment, inc. Pick and place robotics, automation, production line
- Correct Stages and sequencing used in Circuit Board Manufacture (one-off method)
- Product Lifecycle and environmental impact at each stage:
- Material Extraction, Material processing, Manufacture, Product usage, Product disposal
- Legal Directives (laws) relating to design, manufacture and product disposal
- COSHH, RoHS, CE, BSI, EN, WEEE
- Drawing Task: Make improvements to an existing product, using sketches and notes
- Design Requirements / Specification Points
- Graphical Skills and Annotations

Part 3: Content that will be assessed by 01 April 2021

NB: all subjects should complete at least one assessment by this date. If NEAs are currently being completed in subjects that contain coursework components, then work on these should cease by 01 April 2021 in line with existing long-term plans.

Units or topics that will be assessed	Number of lessons that will be allocated to preparation for this assessment	Duration of assessment
NEA Understanding how to create a detailed specification	1	No timed assessments. Students will use one lesson to complete one NEA page/topic.
NEA Understanding and analysis of the client's needs	1	
NEA Analysis of existing products	1	
NEA Create a variety of idea using a range of technical communication skills	1	
NEA Create a range of developed designs in response to the specification	1	
NEA Review Design Ideas and create a final concept	1	