YEAR 10 | BTEC DIGITAL INFORMATION TECHNOLOGY

This curriculum and assessment plan has been carefully designed to promote deep learning of Information Technology and develop students into knowledgeable IT practitioners that hold sector specific knowledge and skills gained through a practical learning environment:
In year 10, students will begin their journey by developing their knowledge and understanding of user interfaces and how they can be used to provide access to information, and be effective and accessible to all users. They will learn how to manage a project using project management tools, design a solution and learn how to communicate with a client. Their technical skills will develop during the development phase, as will their understanding of technical vocabulary.
Component 1 will be assessed by a controlled coursework piece during the May window in year 10. They will demonstrate an excellent understanding of user interface types, design, development and review. Their interface development will incorporate their own cultural influence.
Following component 1, students will study component 2 and this is based around collecting, presenting and interpreting data. In this component, students will develop their skills in spreadsheet design, development and how to summarise and draw conclusions from the

This builds on knowledge gained on data models during KS3. Students will understand the characteristics of data and information, and how they can be used to help organisations make decisions. They will apply their knowledge to given data and evaluate the reliability and validity of the information. They will draw on their knowledge of data collection methods, how data can be represented and threats that can occur to individuals as a result of collecting information. Students will select an appropriate data set to develop, using their skills in data manipulation methods to produce a purposeful dashboard to summarise data. Through this component, students will gain and apply practical skills in developing and analysing data models. They will be able to apply a range of complex formulas and functions to their model and complex presentation techniques to summarise the data.
Component 2 will be assessed by a controlled coursework piece and submitted during the December window in year 11.
Both of the components that will be studied during this year will provide knowledge and understanding for the synoptic external exam that students will sit for component 3 in year 11.
The completion of this full course will provide students with the skills needed to continue studying at BTEC L3 or A level. The full course is especially useful for students considering careers in project management, technical support or cyber security

HALF TERM 1 USER INTERFACES (COMPONENT 1 LAA)

All students will know:
Component 1
» A1 How to identify a user interface (Definition, types, uses, factors affecting choice, hardware and software.
» A2 The different needs of an audience (Accessibility, skill level, and demographics).
» A3 A range of design principles (Colours, fonts, language, content, layout, user perception, retaining attention and intuitive design).
» A4 How to design, and what makes an efficient user interface. (Keyboard shortcuts etc.).

All students will be assessed:
» Formatively through 'Do It Now' tasks, questioning, live marking and sample scenarios.
» Summative assessment of theory and practical skills covered. Assessment focus is user interface designs including design principles.

Reading skills needed for this unit:
Students will be decoding technical information and summarising. They will be using subject vocabulary fluently and linking this with prior knowledge. They will be using inference to help shape conclusions.

Key vocabulary:
Interface, command, GUI, menu, text based, speech, factors, skill level, demographics, accessibility, design principles, intuitive, efficiency, demographics, skill, experience, accessibility.

ENRICHMENT OPPORTUNITIES

Students have the opportunity to attend revision sessions to prepare them for the exam and to assist in coursework preparation. There are extracurricular clubs that students can attend to improve their practical skills in using common software applications to support this course. There are also opportunities for students to participate in OAT competitions and department projects.

HALF TERM 2 USER INTERFACES (COMPONENT 1 LAB/LAC)

All students will know:
» B1 A range of planning techniques. (Tools such as Gantt charts, methodologies).
» B2 The purpose of project proposals and plans. (Purpose and audience, requirements, timescales, constraints, risks, accessibility).
» B3 How to create designs (Meeting requirements, design specifications, increasing the experience of the user.
» B4 Considerations when developing an interface (prototypes, implementation, testing).
» C1 How to review an interface (identify strengths and weaknesses in relation to user requirements, purpose, audience, ease of use, accessibility and design principles).
» C1 Key areas where improvements to an interface can be identified (purpose, audience, ease of use, accessibility, design principles.

All students will be assessed:
» Formatively through 'Do It Now' tasks, questioning and live marking.
» Summative assessment of theory and practical skills covered. Assessment to focus on the planning stages of a mock scenario. KS4 assessment point 1.

Reading skills needed for this unit:
Students will be decoding technical information and summarising. They will be using subject vocabulary fluently and linking this with prior knowledge. They will be using inference to help shape conclusions.

Key vocabulary:
Planning tools, proposal, gantt chart, milestones, task dependency, methodology, SMART, constraints, risks, design, evaluate, storyboard, prototype, testing, objectives, design principles, features, refining, reviewing, strengths and weaknesses.

HALF TERM 3 USER INTERFACES (COMPONENT 1 LAA/LAB/LAC)

All students will know:
» An overview of theory content covered including LAA, LAB and LAC.
» How to read, analyse and identify requirements and tasks from a Pearson controlled assignment.
» How to complete the LAA section of an assignment. This includes identifying needs, the completion of a project proposal and the creation of a project plan using a Gantt chart.
» How to complete the LAB design stage of an assignment. This includes the design of an interface using appropriate tools.
» How to complete the LAB implementation of an interface. This includes the selection and use of appropriate applications and testing.
» How to complete the LAC review of a created interface.
» How marks will be awarded for each task in the assignment and the difference between mark banks.

All students will be assessed:
» Formatively through 'Do It Now' tasks, questioning and live marking.
» Summative assessment of mock component 1 assessment. KS4 assessment point 2.

Reading skills needed for this unit:
Students need to be able to decode and deduce key information from a given scenario. They need to apply the subject vocabulary with fluency and summarise the information given. They will use their prior knowledge to assist and make inferences to reach a solution.

Key vocabulary:
Planning tools, proposal, gantt chart, milestones, task dependency, methodology, SMART, constraints, risks, design, evaluate, storyboard, prototype, testing, objectives, design principles, features, refining, reviewing, strengths and weaknesses.

HALF TERM 4&5 USER INTERFACES (COMPONENT 1)

All students will know:
All students will be completing the Component 1 assessment and will need to know:
Component 1
» How to break down a problem, selecting key information and designing success criteria.
» How to select and use project management techniques to manage a project.
» How to produce and refine a storyboard for an interface.
» How to implement, test and refine an interface.
» How to evaluate an interface against objectives and requirements.
Component 2
» How data is collected by organisations and the impact on individuals.
» A1 Characteristics of data and information (meaning, structure, context, processed).

All students will be assessed:
» Formatively through 'Do It Now' tasks, questioning and live marking.
» Summative assessment of component 1 in the May window. This will be marked internally and submitted to the exam board for moderation. Students are entitled to a resubmission after the first submission. The exam board deadline is 16th May for final mark submission. KS4 assessment point 3.

Reading skills needed for this unit:
Students need to be able to decode and deduce key information from a given scenario. They need to apply the subject vocabulary with fluency and summarise the information given. They will use their prior knowledge to assist and make inferences to reach a solution.

Key vocabulary:
Scenario, proposal, objectives, constraints, project management, gantt chart, interface, storyboard, implementation, testing, evaluation, data, information, characteristics.

YEAR 10 | BTEC DIGITAL INFORMATION TECHNOLOGY

HALF TERM 6 DATA MODELLING (COMPONENT 2 LAA/LAB)

All students will know:
Component 2
» How data is collected by organisations and the impact on individuals.
» A1 Characteristics of data and information (meaning, structure, context, processed).
»A2 Representing information (Text, numbers, tables, graphs, infographics).
»A3 Ensuring data is fit for processing (Validation methods and verification methods).
»A4 Data collection (Methods of collection such as primary and secondary, data collection features such as sample size).
»A5 The characteristics that improve the quality of information (Source methods, accuracy, age, completeness, detail, format, volume).
»A6 Sectors that use data modelling (transport, education, retail etc.).
»A7 Threats to individuals (invasion of privacy, fraud, targeting of vulnerable people and inaccurate data).
» How to create a dashboard using data manipulation tools (LAB).
» B1 How to use the following data processing methods:
    » Data manipulation methods (import data, create basic formulae, use simple functions, sort data)
    » advanced manipulation methods (functions for decision, lookups, count, operators, totals and filtering)
    » other processing methods (cell referencing, macros, multiple worksheets, comments, alternative views and
    conditional formatting.
» B2 How to produce a dashboard from a data set selecting.
  » appropriate data to summaries (totals, counts, percentages, averages etc.)
  » appropriate presentation methods (tables, pivot tables, graphs, form controls)
  »appropriate presentation features (font size, font type, merge cells, wrap, borders, shading, graphics, labels, conditional formatting.

All students will be assessed:
» Formatively through 'Do It Now' tasks, questioning and live marking.
» Summative assessment of the key content taught in relation to component 2 LAA and LAB.

Reading skills needed for this unit:
Students will compare, contrast and evaluate the role and impacts of using data on individuals and organisations, they will also be drawing conclusions. Students will apply prior knowledge of the subject content combined with their understanding of technical vocabulary. They will be summarising technical information and presenting it with fluency.

Key vocabulary:
Data collection, infographics, tables, processing range, type, lookup, data check, presence, length check, threats, primary data, secondary data, manipulation, charts / graphs, import, formula, functions, decision making, lookup, string, count, logical operators, sorting, outline filtering, macros, validation, verification, comments, operators.

HOW STUDENTS CAN BE SUPPORTED AT HOME

Students will usually be provided with a revision guide which covers the examined content. Tasks set on Classcharts should be completed and submitted by the deadlines set. Students can access the Pearson website to view past exam papers and sample assessments. There are many spreadsheet and interface tutorials that can be accessed on YouTube to support understanding. Students may benefit from access to addition workbooks for the exam which contain practice questions and assessments. Some can be found here
https://qualifications.pearson.com/en/qualifications/btec-tech-awards.html

HOW THIS LEARNING WILL BE EMBEDDED ELSEWHERE IN THE CURRICULUM

Component 1 has links to the graphics and art courses as students have to design and develop a technical solution that graphically meets the needs of the user. Component 3 has links to other subjects such as business where items such as online shopping, business stakeholders and collecting information is taught. The spreadsheet component links to mathematics due to the operators, cell referencing, formulas and use of graphs and charts. Students will have to analyse numerical values and interpret and summarise the data that they analyse.

YEAR 11 | BTEC DIGITAL INFORMATION TECHNOLOGY

The curriculum and assessment of students at this stage of education has been carefully designed to promote deep learning of information technology and develop students into knowledgeable IT practitioners with skills gained through a practical learning environment: This is the second year of a two-year course. Students will spend the first part of year 11, revising and extending their understanding of the component 2 content to ensure they have the relevant knowledge, understanding and technical vocabulary required to sit the external coursework component in the December window. This builds on the knowledge that students gained on data models and spreadsheets at KS3. It also revises and builds on the content taught in year 10. Component 2 develops student skills in spreadsheet design, development and how to summarise and draw conclusions from the data. Students will combine their understanding of complex spreadsheet formulas and functions with their understanding of presentation techniques to produce a well-designed and purposeful dashboard to present and draw conclusions from. Students will understand the characteristics of data and information, and how they can be used to help organisations make decisions.

Students will apply their knowledge to given data and evaluate the reliability and validity of the information. They will draw on their knowledge of data collection methods, how data can be represented and threats that can occur to individuals as a result of collecting information. Following the completion of component 2, students will revise and learn the content in preparation for the May sitting of the component 3 exam. The content for this is based around effective use of IT systems and is split into four key learning aims; A – modern technologies, B – cyber security, C – wider implications of IT, D – Planning and communication in systems. This external examined unit is synoptic and includes links to content covered in both component 1 and 2.

Completion of all three components will provide students with the knowledge, skills and technical understanding necessary for them to continue their studies at post 16 courses included BTEC L3 and A level. The full course is especially useful for students considering careers in project management, technical support or cyber security.

HALF TERM 1 Component 2: Collecting, Presenting and Interpreting Data

Component 2 (LAA/LAB)

» Revision of LAA and LAB
  » LAA Data collection, use and impact.
  » LAB Dashboard creation.

» LAC Draw conclusions and review data presentation methods
  » Draw conclusions based on findings in data.
    » Consideration of trends, patterns and errors.
  » Investigate how presentation affects understanding.
    » Misinterpretation of data.
    » Biased data.
    » Inaccurate conclusions.

All students will be assessed:

» Formatively through 'do it now' tasks, questioning, live marking and low stakes quizzes. Sample coursework questions to be completed for understanding data and application of spreadsheet skills.
» Summative assessment – completion of mock tasks to simulate controlled coursework experience.

Reading skills needed for this unit:

Students will need to demonstrate a good level of reading comprehension. They will be reading case studies and scenarios that are sometimes lengthy. They will need to analyse this text, summarise the contents and outline tasks to be completed. They will require a good understanding of technical vocabulary to aid understanding of the tasks and therefore be able to select and apply relevant problem-solving skills. They will need to apply decomposition to the coursework questions and apply abstraction to remove unnecessary information.

Key vocabulary:

Dataset, conclusions, review, presentation methods, trends, patterns, errors, biased, inaccurate, data summaries, totals, counts, averages, percentages, sales breakdown, tables, pivot tables, spark lines, graphs, form controls, merge, wrap, axis labels, conditional formatting.

HALF TERM 2 COMPONENT 2: COLLECTING, PRESENTING AND INTERPRETING DATA

Component 2 (LAA/LAB)

» Revision of LAA, LAB and LAC through exploration of a task.

   » LAA Data collection, use and impact.

   » LAB Dashboard creation.

   » LAC Draw conclusions and review presentation methods.

» Completion of the component 2 controlled coursework for the December submission.

All students will be assessed:

» Formatively through 'do it now' tasks, questioning, live marking and low stakes quizzes. Sample coursework questions to be completed for revision.

» Summative assessment – students will complete the controlled coursework tasks in lesson. These will be assessed and then submitted to the exam board in December for moderation.

Reading skills needed for this unit:

Students will need to demonstrate a good level of reading comprehension. They will be reading case studies and scenarios that are sometimes lengthy. They will need to analyse this text, summarise the contents and outline tasks to be completed. They will require a good understanding of technical vocabulary to aid understanding of the tasks and therefore be able to select and apply relevant problem-solving skills. They will need to apply decomposition to the coursework questions and apply abstraction to remove unnecessary information.

Key vocabulary:

Data collection methods, report, strengths, weaknesses, data collection features, data collection factors, threats to data, import, functions, totals, summaries, formatting, presentation, dashboard, tables, pivot tables, sparklines, graphs, axis, headings, trends, patterns, errors, biased, conclusion, misinterpretation, annotated.

HALF TERM 3 DIGITAL WORKING PRACTICES (COMPONENT 3)

Component 3 (LAA/LAB)

» LAA (1) Modern technologies.
   » Communication.
   » Cloud storage and cloud computing.
» LAA (2) Impacts of modern technologies.
   » Changes to teams.
   » Teams and technologies.
   » Stakeholder communication.
   » Inclusivity / accessibility.
   » Impacts of technology on individuals.
   » Impacts of technology on organisations.
» LAB (1) Cyber security (Threats to data).
   » Reasons for attacks
   » Impacts of technology on individuals.
   » Internal and external threats.
   » Impact of breaches.
» LAB (2) Cyber security (Prevention and management)
   » User restrictions
   » Data level protections
   » Finding weaknesses
   » Policies including disaster recoveries.

All students will be assessed:

» Formatively through 'do it now' tasks, questioning, le marking and low stakes quizzes. Sample exam questions to be completed for both learning aims which are selected from past papers.

» Summative assessment – mock assessment containing questions from the topics of modern teams and cyber security.

Reading skills needed for this unit:

Students will need to demonstrate a good level of reading comprehension. They will be reading questions and scenarios that are sometimes lengthy. They will need to analyse this text and summarise the contents. They will require a good understanding of technical vocabulary to aid question understanding and subsequently apply relevant problem-solving skills. They will also need to have a strong understanding of the vocabulary used by the exam board and have the ability to apply decomposition to questions.

Key vocabulary:

Exam board command words including; state, describe, analyse, explain and evaluate. Other vocabulary including; cloud storage, cloud computing, collaboration tools, synchronization, disaster recovery, modern teams, flexibility, scheduling tools, interface, accessibility, black hat, white hat, virus, trojan, worm, social engineering, malware, shoulder surfing, phishing, AUP, data protection, unintentional disclosure, denial of service, access restriction, unauthorized access, internal threats, data level protection, firewall, antivirus, device hardening, backup, encryption, ethical, penetration testing.

HALF TERM 4 DIGITAL WORKING PRACTICES(COMPONENT 3)

All students will know:

Component 3 (LAC/LAD)

» LAC Responsible use.
   » Shared data.
   » Environmental.
» LAC Legal and ethical.
   » Equal access.
   » Net neutrality.
   » Acceptable use policies (AUP).
   » Net neutrality.
   » Boundaries.
   » Legislation including; data protection, intellectual property and the criminal use of systems,
» LAD Forms of notation.
   » Data flow diagrams.
   » Flowcharts.
   » System Diagrams.
   » Tables/written information.

All students will be assessed:

» Formatively through 'do it now' tasks, questioning, le marking and low stakes quizzes. Sample exam questions to be completed for both learning aims which are selected from past papers.

» Summative assessment – mock assessment containing questions from the topics of responsible use and forms of notation.

Reading skills needed for this unit:

Students will need to demonstrate a good level of reading comprehension. They will be reading questions and scenarios that are sometimes lengthy. They will need to analyse this text and summarise the contents. They will require a good understanding of technical vocabulary to aid question understanding and subsequently apply relevant problem-solving skills. They will also need to have a strong understanding of the vocabulary used by the exam board and have the ability to apply decomposition to questions.

Key vocabulary:

Exam board command words including; state, describe, analyse, explain and evaluate. Other vocabulary including; location-based data, transactional data, cookies, equal access, computer misuse act, copyright, data protection act, net neutrality, environmental, power saving, intellectual property, flowchart, data flow diagram, system diagrams.

CURRICULUM AND ASSESSMENT PLAN
YEAR 11 | BTEC DIGITAL INFORMATION TECHNOLOGY

HALF TERM 5

DATA MODELLING (COMPONENT 2)
HALF TERM 5 (Course Completion)
DIGITAL WORKING PRACTICES (COMPONENT 3)

All students will know:

Component 3 (LAA/LAB/LAC/LAD)
» Revision of component 3 topics ready for the exam on Thursday 2nd May.
» LAA Modern technologies including types and their impacts.
» LAB Cyber security including threats, preventions and policy.
» LAC Wider implications including responsible use, legal and ethical aspects.
» LAD Forms of notation including data flow diagrams, flowcharts, system diagrams, tables and written reports.

All students will be assessed:

» Formatively through 'do it now' tasks, questioning, remarking and low stakes quizzes. Sample exam questions to
be completed for all learning aims which are selected from past papers.
» Summative assessment including mock exam and then completion of the final exam on Thursday 2nd May.

Reading skills needed for this unit:
Students will need to demonstrate a good level of reading comprehension. They will be reading questions and
 scenarios that are sometimes lengthy. They will need to analyse this text and summarise the contents.
They will require a good understanding of technical vocabulary to aid question understanding and subsequently
 apply relevant problem-solving skills. They will also need to have a strong understanding

Key vocabulary:

Data, Information, Characteristics, Infographics, Tables,
Processing range, Type, Lookup, Data check, Presence,
Length check, Threats.

ENRICHMENT OPPORTUNITIES
Students have the opportunity to attend revision sessions to prepare them for the exam and the re-sit. Time is limited in year 11 so visits are not scheduled, however, there is an opportunity for a speaker to discuss threats, prevention and policies within a business which relates to component 3. There is also an extracurricular club that students can attend to gain basic practical experience in learning about the components in a computer and the chance to disassemble and rebuild a computer. This will give them the opportunity to develop an understanding of internal hardware.

HOW STUDENTS CAN BE SUPPORTED AT HOME
Students should use the revision guides that they have been given which covers the specification content. Tasks set on ClassCharts should be completed and submitted by the deadlines set.
YouTube contains supportive materials and tutorials that can be used to develop understanding further.
Students can access the Pearson website to view past papers and assessments. There are many spreadsheet tutorials that can also be accessed on YouTube to support understanding.
Students may benefit from access to the revision guide - Pearson REVISE BTEC Tech Award Digital Information Technology Revision Guide ISBN# 1292272740.
In addition, the department would recommend the purchase of this workbook which contains many sample assessments for the exam – Pearson REVISE BTEC Tech Award Digital Information Technology Workbook ISBN# 1292307005.

HOW THIS LEARNING WILL BE EMBEDDED ELSEWHERE IN THE CURRICULUM
Component 3 has links to other subjects including business where items such as online shopping, business stakeholders and collecting information is taught. The spreadsheet component links to mathematics due to the operators, cell referencing, formulas and use of graphs and charts. Students will have to analyse numerical values and interpret the data they analyse. There are also links with PSHE and internet safety as students learn about net neutrality and cybercrime including preventative measures that can be taken.