

Supplemental Online Material S1

Digital capability	Capability Description	Level 4 Essential Digital Skills	Level 5 Further Digital Skills	Level 6 Advanced Digital Skills
Digital Identity	<p>The capacity to:</p> <ul style="list-style-type: none"> Develop and project a positive digital identity or identities and to manage digital reputation (personal or organisational) across a range of platforms Build and maintain digital profiles and other identity assets such as records of achievement Review the impact of online activity Collate and curate personal materials across digital networks Understand the reputational benefits and risks involved in digital participation 	<p>4.1 Describe own 'digital footprint' - the tools and sites that show own presence as an internet user.</p> <p>4.2 Identify examples of what may contribute to a negative digital footprint and, what can result a positive digital footprint.</p> <p>4.3 Reflect on own digital footprint and identify areas where there is opportunity to improve footprint.</p> <p>4.4 Be aware of what is meant by digital etiquette or netiquette.</p> <p>4.5 Set-up an online identity on a key social media platform for work purposes e.g. LinkedIn</p>	<p>5.1 Recognise that there may be a digital divide within students which could impact on collaborative learning and digital identity.</p> <p>5.2 Identify possible ways to reduce the impact of the digital divide on students.</p> <p>5.3 Further develop an online identity on a key social media platform for work purposes e.g. LinkedIn by incorporating key features such as digital badging to portray a positive digital footprint ideas.</p>	<p>6.1 Build connections and create collaborations online to support a positive digital identity using a range of digital tools.</p>
Digital wellbeing	<p>The capacity to:</p> <ul style="list-style-type: none"> Look after personal health, safety, relationships and work-life balance in digital settings Use digital tools in pursuit of personal goals (e.g. health and fitness) and to participate in social and community activities Act safely and responsibly in digital environments; to negotiate and resolve conflict Manage digital workload, overload and distraction Act with concern for the human and natural environment when using digital tools 	<p>4.6 Distinguish between the different areas of digital wellbeing (social, personal, learning and work).</p> <p>4.7 Identify own personal, social, learning and work uses of a range of tools that may impact on digital wellbeing.</p> <p>4.8 Identify possible risks and benefits associated with engaging with a range of digital tools in terms of wellbeing.</p> <p>4.9 Access key university guidance documents to support safe use of digital tools during your studies.</p>	<p>5.4 Articulate examples of positive and negative impacts of technology and digital activities on different types of wellbeing.</p> <p>5.6 Recognise the challenges in managing your digital activities and identify possible solutions to these challenges.</p> <p>5.7 Reflect on whether you have the digital skills required for your chosen career area and identify learning opportunities for these if required.</p>	<p>6.2 Make use of suitable scheduling tools to assist you in managing your workload.</p> <p>6.3 Identify and use digital tools to automate tasks or increase efficiency.</p>



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	<ul style="list-style-type: none"> Understand the benefits and risks of digital participation in relation to health and wellbeing outcomes 			
Digital Learning & development	<p>The capacity to:</p> <ul style="list-style-type: none"> participate in and benefit from digital learning opportunities identify and use digital learning resources participate in learning dialogues via digital media use learning apps and services (personal or organisational) use digital tools to organise, plan and reflect on learning record learning events/data and use them for self-analysis, reflection and showcasing of achievement participate in digital assessment and receive digital feedback manage own time and tasks, attention and motivation to learn in digital settings Understand the opportunities and challenges involved in learning online and your own needs and preferences as a digital learner <p>Note significant overlap with ICT productivity and digital participation so have attempted not to duplicated items.</p>	<p>4.1 Use the institutional VLE to support your learning including downloading resources, engaging in activities (e.g. forum or quiz) and interacting with others.</p> <p>4.2 Use the [Host University] provided apps to support your learning and organisation of learning e.g. timetabling app.</p> <p>4.3 Access your digital feedback on assessment, keeping a record of key feedback points e.g. strengths and weaknesses.</p> <p>4.4 Reflect on the time taken and value gained from accessing a range of University provided learning resources and use this information to prioritise the activities which are most effective for you.</p>	<p>5.1 Use a range of digital resources to support your learning appropriate for your subject area.</p> <p>5.2 Explore and adopt appropriate apps to best support your learning and organisation of learning across multiple devices or platforms.</p> <p>5.3 Collate and reflect on feedback according to assessment type and subject and use this information to organise your study approach and time.</p> <p>5.4 Digitally collate examples of good practice in your assessment and feedback.</p> <p>5.5 Curate (e.g. book marking) useful digital resources to support your learning of both subjective specific content and key digital and transferable skills.</p>	<p>6.1 Use a range of digital resources to support your learning and career development.</p> <p>6.2 Evaluate the effectiveness of digital resources for your learning and reflect on the preferences you have as a digital learner and the impact this has on the learning resources you access.</p> <p>6.3 Identify key areas for ongoing development in your learning journey and establish practices to support ongoing learning beyond your studies using digital resources.</p>



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ICT proficiency	<p>The capacity to:</p> <ul style="list-style-type: none"> • Use ICT-based devices, applications, software and services • Confidently adopt new devices, applications, software and services and the capacity to stay up to date with ICT as it evolves • Deal with problems and failures of ICT when they occur, and to design and implement ICT solutions. • Understand basic concepts in computing, coding, and information processing 	<p>4.1 Use standard word processing software (eg Microsoft Word, Google docs), spreadsheets (create data in tables - eg Excel) and presentation tools to support your learning.</p> <p>4.2 Demonstrate the ability to access tools and use sites that are required for study at [Host University] with appropriate instruction (e.g. the institutional VLE, Office365 and Library pages).</p> <p>4.3 Identify sources of IT support within the university and when these should be used.</p> <p>4.4 Download university-provided software and follow instructions for installation.</p> <p>4.5 Download podcasts or online lectures when you want to learn something.</p>	<p>5.1 Use a range of software to support studies including word processing, presentations, and spreadsheets.</p> <p>5.2 Demonstrate the ability to access tools and use sites to support independent learning.</p> <p>5.3 Locate and use online tutorials/sites to improve study skills including use of specific ICT e.g. tutorial to help use Endnote.</p> <p>5.4 Identify sources of IT support beyond the university e.g. online forums or videos.</p>	<p>6.1 Use a range of software to support studies including programmes for digital creation of images, video and sound.</p> <p>6.2 Use training or how-to videos to keep your digital skills up to date.</p> <p>6.3 Access IT support/guidance online to trouble-shoot and install software.</p> <p>6.4 Offer support to others in their use of ICT.</p>
ICT productivity	<p>The capacity to:</p> <ul style="list-style-type: none"> • Use of ICT-based tools to carry out tasks effectively, productively, and with attention to quality. • Choose devices, applications, software, and systems relevant to different tasks, having assessed their benefits and constraints; to adopt and where necessary adapt digital tools to personal requirements such as accessibility. • Work fluently across a range of tools, platforms, and applications to achieve complex tasks. • Understand how digital technology is changing practices at work, at home, in social and in public life. 	<p>4.6 Use digital tools to make notes and keep them organised for future reference (eg Microsoft OneNote, Evernote, Notes App).</p> <p>4.7 Save and organise useful links to support learning (eg using favourites in Chrome, Edge, Firefox).</p> <p>4.8 Use a suitable tool to help with time-management (e.g. online calendar).</p> <p>4.9 Organise digital documents and files (eg using folders, using cloud services like OneDrive).</p>	<p>5.5 Use a range of digital tools as required by the specified task and availability.</p> <p>5.6 Use a range of digital devices for learning e.g. mobile devices, personal computers, and university devices</p> <p>5.7 Plan learning using a range of online tools e.g. calendars, task lists and alerts.</p> <p>5.8 Use technology to track feedback on learning and identify areas for improvement.</p>	<p>6.5 Select and shift flexibly between a range of digital tools and devices according to availability and task requirements.</p> <p>6.6 Plan a range of tasks using online tools including managing projects with others.</p>
Information literacy	<p>The capacity to:</p> <ul style="list-style-type: none"> • Find, critically evaluate (provenance, relevance, value, and credibility), manage, 	<p>4.1 Identify key sources of information in the subject area.</p>	<p>5.1 Identify a range of key sources of information in the subject area.</p>	<p>6.1 Demonstrate the use of a wide range of sources appropriate to the discipline.</p>



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	<p>curate, organise and share digital information</p> <ul style="list-style-type: none"> • Interpret digital information for academic and professional/vocational purposes, and to review, analyse and re-present digital information in different settings • Understand the rules of copyright and open alternatives e.g. creative commons; the ability to reference digital works appropriately in different contexts 	<p>4.2 Articulate the key characteristics of different information types (e.g. print / electronic, primary / secondary, freely available / subscriber only) as relevant to the subject or context</p> <p>4.3 Articulate what is meant by plagiarism.</p> <p>4.4 Articulate the rationale for referencing, be able to create a reference, and be aware that references can be created in different styles.</p> <p>4.5 Demonstrate the ability to accurately record search results.</p> <p>4.6 Demonstrate the ability to select appropriate references to produce a reference list and in-text citations as required for assignments.</p> <p>4.7 Identify the 'knowledge gap' and the information needed to fill it, in relation to a particular subject-related search task.</p> <p>4.8 Demonstrate the ability to plan and adapt a search. e.g. by broadening or narrowing, adding or removing keywords, or using different ones.</p> <p>4.9 Successfully plan and carry out a search in a database on a pre-defined topic using pre-defined resources.</p> <p>4.10 Successfully find a journal article or book from a reference.</p> <p>4.11 Identify and apply appropriate quality criteria to evaluate pre-defined information, including personal contacts.</p>	<p>5.2 Successfully carry out instructions for using a range of formats of information (e.g. bibliographic records, full text, abstracts).</p> <p>5.3 Produce an accurate list of references for common sources using the appropriate style.</p> <p>5.4 Distinguish between different systems available for managing references, e.g. card index, diary, Endnote.</p> <p>5.3 Demonstrate the ability to independently select appropriate resources for a task.</p> <p>5.4 Apply the principles of effective searching and accurately record the search results.</p> <p>5.5 Distinguish instances of search features that are common to different databases and the web.</p> <p>5.6 Demonstrate the ability to use a range of database functionality (e.g. truncation, phrase searching, date limits, combining search terms, sorting, saving, exporting) within a single database and to interpret results (e.g. bibliographic or full text).</p> <p>5.7 Independently and successfully carry out a simple subject search within a single database.</p> <p>5.8 Apply appropriate quality criteria to evaluate a range of resources (e.g. books, articles, websites, personal contacts) effectively.</p>	<p>6.2 Demonstrate independent selection of appropriate resources for the task.</p> <p>6.3 Give evidence of the use of sources of current information (including people) for keeping up-to-date.</p> <p>6.4 Distinguish between different tools and techniques for managing and exporting references; select and use as appropriate for a specific task.</p> <p>6.5 Identify and frame problems or research questions and select appropriate information to address these.</p> <p>6.6 Articulate and independently carry out strategy for finding information needed, whether from a person or an online resource.</p> <p>6.7 Use appropriate quality criteria to critically evaluate information from any source to determine authority, bias, etc.</p> <p>6.8 Use appropriate quality criteria to filter results from a given search output, and to focus on the most relevant information within documents.</p>
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		4.12 Identify and apply appropriate quality criteria in a broad sense to carry out initial filtering of material from searches.		
Data literacy	<p>The capacity to:</p> <ul style="list-style-type: none"> Collate, manage, access and use digital data in spreadsheets, databases and other formats, and to interpret data by running queries, data analyses and reports Adopt practices of personal data security. Understand how data is used in professional and public life; of legal, ethical and security guidelines in data collection and use; of the nature of algorithms; and of how personal data may be collected and used 	<p>4.13 Identify key sources of data in the subject area or context.</p> <p>4.14 Articulate the key characteristics of different data sources as relevant to the subject or context</p> <p>4.15 Identify the 'knowledge gap' and the data needed to fill it, in relation to a particular subject-related search task.</p> <p>4.16 Demonstrate the ability to plan and run data queries and analysis.</p> <p>4.17 Identify and apply appropriate quality criteria to evaluate data sources.</p> <p>4.18 Identify and apply appropriate quality criteria in a broad sense to carry out initial filtering of material from data sources.</p> <p>4.19 Identify key guidance from the university on data security.</p>	<p>5.9 Identify a range of key sources of data in the subject area.</p> <p>5.10 Successfully carry out instructions for using a range of formats of data</p> <p>5.11 Demonstrate the ability to independently select appropriate data sources for a task.</p> <p>5.12 Apply appropriate quality criteria to evaluate a range of data resources.</p> <p>5.13 Identify and access key legal and ethical frameworks for managing personal data within the UK.</p>	<p>6.9 Demonstrate the use of a wide range of data sources appropriate to the discipline.</p> <p>6.10 Identify and frame problems or research questions and select appropriate data sources to address these.</p> <p>6.11 Articulate and independently carry out strategy for finding data needed, whether from a person or an online resource.</p> <p>6.12 Use appropriate quality criteria to critically evaluate data from any source to determine authority, bias, etc.</p> <p>6.13 Use appropriate quality criteria to filter results from a given search output, and to focus on the most relevant data within documents.</p> <p>6.14 identify suitable file types of sharing data and be able to convert typical data files for the context into a shareable format.</p>
Media literacy	<p>The capacity to:</p> <ul style="list-style-type: none"> Critically receive and respond to messages in a range of digital media – text, graphical, video, animation, audio - and to curate, re-edit and repurpose media, giving due recognition to originators Critically evaluating media messages in terms of their provenance and purpose. 	<p>4.20 Articulate the key characteristics of different media sources typical to the subject area.</p> <p>4.21 Identify and apply appropriate quality criteria to evaluate media sources typical to subject areas.</p>	<p>5.14 Characterise a range of key media sources relevant to the subject area.</p> <p>5.15 Apply appropriate quality criteria to evaluate a range of media sources.</p> <p>5.16 Under typical copyright features of media and attribute sources accordingly.</p>	<p>6.15 Demonstrate the ability to respond and characterise a wide range of media appropriate to the discipline.</p> <p>6.16 Use appropriate quality criteria to critically evaluate media from any source to determine authority, bias, etc and select between media.</p>



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	<ul style="list-style-type: none"> Understand digital media as a social, political and educational tool, and digital media production as a technical practice 	4.22 Demonstrate the ability to accredit ownerships to media sources as you would a text source.		
Digital creation	<p>The capacity to:</p> <ul style="list-style-type: none"> Design and/or create new digital artefacts and materials such as digital writing; digital imaging; digital audio and video, digital code, apps and interfaces, web pages. Understand the digital production process, and basics of editing and coding 	<p>4.1 Use standard presentation software to create a digital presentation in response to a teacher-led task (e.g. powerpoint).</p> <p>4.2 Use photo or video software to edit images and insert these into other file formats for sharing within your learning environment.</p> <p>4.3 Use a stylus to note-take or sketch in support of your learning.</p>	<p>5.1 Demonstrate the ability to create and publish digital content in multimedia formats to communicate subject-related opinions and ideas in response to specific task requirements (e.g. videos, infographics, and screencasts).</p> <p>5.2 Contribute digital content acquired through engagement in external subject-related and social media environments to the institutional VLE or other formal learning spaces.</p>	<p>6.1 Identify the most appropriate form of digital content for a specified task and create resources using this to communicate a range of information.</p> <p>6.2 Contribute a re-purposed, shared or collaboratively produced artefact for the benefit of a wider online audience.</p> <p>6.3 Understand and use suitable creative commons licensing for original and re-purposed media.</p>
Digital problem solving	<p>The capacity to:</p> <ul style="list-style-type: none"> Use digital evidence to solve problems and answer questions, to collect and collate new evidence, to evaluate the quality and value of evidence, and to share evidence and findings using digital methods Understand digital research methods including an understanding of different data analysis tools and techniques 	<p>4.4 Use a digital mind map or visual tool to define and break down a problem.</p> <p>4.5 Use simple digital data to address specific questions or problems.</p> <p>4.6 Carry out simple online research e.g. through polling.</p> <p>4.7. Use digital tools to collate and share evidence e.g. wikis.</p>	<p>5.3 Use digital tools to map the stages and progress of a research project or specific problem-solving exercise.</p> <p>5.4 Use complex digital data to address specific questions or problems.</p> <p>5.5 Use a simulation tool (this might be a game or learning tool or that models a real-world situation).</p> <p>5.6 Use a range of digital tool to collate and share data and understand the advantages and disadvantages of them.</p>	<p>6.4 Use digital tools to manage multiple concurrent projects and problem-solving exercises.</p> <p>6.5 Contribute original data to research through engagement in digital data e.g. through citizen science initiatives.</p> <p>6.6 Identify and adopt the most appropriate methods for collate evidence online.</p> <p>6.7 Evaluate or review a digital tool, app or service (eg a web site, game or mobile app, shopping review)</p>



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Digital Innovation	<p>The capacity to:</p> <ul style="list-style-type: none"> Adopt and develop new practices with digital technology in different settings (personal and organisational; social and work-based) Use digital technologies in developing new ideas, projects and opportunities Understand innovation, enterprise, and project management in digital settings 	<p>4.8 Use digital tools to support brainstorming and planning activities.</p> <p>4.9 Reflect on current practices to identify new digital practices which could innovate your learning.</p> <p>4.10 Apply appropriate evaluation criteria to establish the impact of adopting new digital practice on learning.</p>	<p>5.7 Use a range of digital tools to support brainstorming and planning in individual and collaborative activities.</p> <p>5.8 Use of a range of tools to support better practice in more than one area of life (e.g. study, home, family) and select the most appropriate tool for the specific area.</p> <p>5.9 Apply appropriate evaluation criteria to establish the impact of adopting new digital practice.</p>	<p>6.8 Identify and adopt digital practices to support complex activities such as project management and enterprise.</p> <p>6.9 Apply suitable methods for keeping up to date with digital practices and horizon-scanning.</p>
Digital communication	<p>The capacity to:</p> <ul style="list-style-type: none"> Communicate effectively in digital media and spaces such as text-based forums, online video and audio, and social media Design digital communications for different purposes and audiences Respect others in public communications Maintain privacy in private communications Identify and deal with false or damaging digital communications Understand the features of different digital media for communication, and of the varieties of communication norms and needs 	<p>4.1 Be able to initiate and respond to online discussions within key tools e.g. the institutional VLE forums.</p> <p>4.2. Identify and apply stylistic aspects of writing in different online and offline contexts suitable for subject area.</p> <p>4.3 Identify and adhere to standard netiquette guidelines for communicating digitally.</p> <p>4.4 Be able to identify inappropriate digital communications and possible ways to avoid these developing.</p> <p>4.5 Understand the privacy settings of key digital communication tools e.g. distinct between cc and B'cc.</p> <p>4.6 Engage in appropriate and effective digital communication to support study and key employment opportunities e.g. completely only applications and cover letters/emails</p>	<p>5.1 Make useful contributions to online discussion using a range of tools e.g. the institutional VLE forums, blogs.</p> <p>5.2. Demonstrate the ability to write online for different audiences, e.g. blog entry for private use, for reading by other students, for reading by university staff, or for reading by anyone in the world.</p> <p>5.3 Develop team practices for effective digital communication by advancing standard netiquette guidance to consider a specific activity or team.</p> <p>5.4 Respond to a range of views appropriately and sensitively via digital communication.</p>	<p>6.1 Engage in critical appraisal of others' contributions in an online interaction.</p> <p>6.2 Engage in appropriate and effective communication online, in a variety of contexts (study, informal, transactional etc.) and using a variety of tools (e.g. research networks, social bookmarking, blogging).</p> <p>6.3 Determine which form of digital communication is most appropriate for a specific activity, considering task demands, privacy and team members and develop appropriate best practice for specific groups or tasks.</p>
Digital collaboration	<p>The capacity to:</p> <ul style="list-style-type: none"> Participate in digital teams and working groups 	<p>4.7 Utilise university supported digital tools to work with others, including sharing and receiving contributions and</p>	<p>5.5 Identify and use suitable digital tools to support productivity when working collaboratively online, taking into consideration the task and team.</p>	<p>6.4 Select between competing digital tools and media to support productivity and collaboration</p>



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	<ul style="list-style-type: none"> Collaborate effectively using shared digital tools and media to produce shared materials and use shared productivity tools Work effectively across cultural, social and linguistic boundaries Understand the features of different digital tools for collaboration, and of the varieties of cultural and other norms for working together 	<p>ensuring optimal productivity e.g. the institutional VLE and Office 365.</p> <p>4.8 Distinguish between the different roles and contributions that may be required to produce a piece of work collaboratively online.</p> <p>4.9 Recognise the cultural, social or linguistic barriers than may impact on the collaborative process and identify ways to reduce or remove these.</p>	<p>5.6 Identify and use suitable digital tools and media to produce shared materials, taking into consideration the task and team.</p> <p>5.7. Successfully negotiate roles and carry out own role within a task as part of an online activity.</p>	<p>considering the specific requirements of the task and team.</p> <p>6.5 Reflect on a collaborative process and its effect on all members of the group, including oneself, e.g. show awareness of online group dynamic.</p>
Digital participation	<p>The capacity to</p> <ul style="list-style-type: none"> Participate in, facilitate, and build digital networks Participate in social and cultural life using digital media and services; to create positive connections and build contacts Share and amplify messages across networks Behave safely and ethically in networked environments Understand how digital media and networks influence social behaviour 	<p>4.10 Contribute to an online dialogue with other students as part of a teacher-led task.</p> <p>4.11 Actively engage with others through existing digital networks for shared social and cultural activities.</p> <p>4.12 Be able to identify netiquette guidance for safe and ethical use of a range of platforms and abide by these to create positive connections.</p> <p>4.13 Reflect on the impact of own digital networks on behaviour.</p>	<p>5.8 Contribute to an online dialogue with other students as part of a student-led task.</p> <p>5.9 Take a leading role in existing networks to actively grow connections and build contacts.</p> <p>5.10 Where appropriate netiquette guidance does not exist be able to identify similar platforms and adopt suitable practices for safe and ethical participation.</p> <p>5.11 Be aware of how digital media and networks can impact on behaviour of others.</p>	<p>6.6 Contribute benefits from personal engagement with external social and subject-related networks to the work of a study group.</p> <p>6.7 Initiate new networks using digital tools, including establishing appropriate netiquette to actively grow connections.</p>

